HITACHI
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CONTROLLERS FOR PACKAGED

Technical Catalogue

PC-ARF	PC-ALHZF	PSC-A1T
PC-ART	PSC-A64GT	PSC-6RAD
PC-ARH	PSC-A32MN	PC-A1IO
PC-LH3	PSC-A64S	PSC-A5HR
PC-LH3B	PSC-A16RS	PC-AMTB
PC-ALH	CSNET WEB	THM-R2AE
PC-ALHN	CSNET MANAGER	WALL SUPPORT
PC-ALHC	HC-A64NET	STAND SUPPORT
PC-ALHD	HC-A(8/64)MB	PCC-1A
PC-ALH3	HC-A16KNX	PRC-(10-30)E1
PC-ALHP1	KNX001	NET CONFIG.KIT
PC-ALHZ	HARC-BX E (A/B)	

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1.1 General information

No part of this publication may be reproduced, copied, filed or transmitted in any shape or form without the permission of HITACHI Air Conditioning Products Europe, S.A.U.

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As a result, some of the images or data used to illustrate this document may not refer to specific models. No claims will be accepted based on the data, illustrations and descriptions included in this manual.

No type of modification must be made to the equipment without prior, written authorization from the manufacturer.

NOTE

This equipment has been designed for standard air conditioning for human beings. For use in other applications, please contact your HITACHI dealer or service contractor.

1.2 Applied symbols

During normal air conditioning system design work or unit installation, greater attention must be paid in certain situations requiring particular care in order to avoid damage to the unit, the installation or the building or property.

Situations that jeopardise the safety of those in the surrounding area or that put the unit itself at risk will be clearly indicated in this manual.

To indicate these situations, a series of special symbols will be used to clearly identify these situations.

Pay close attention to these symbols and to the messages following them, as your safety and that of others depends on it.

DANGER

- ***The text following this symbol contains information and instructions relating directly to your safety and physical wellbeing.***
- ***Not taking these instructions into account could lead to serious, very serious or even fatal injuries to you and others.***

In the texts following the danger symbol you can also find information on safe procedures during unit installation.

CAUTION

- *The text following this symbol contains information and instructions relating directly to your safety and physical wellbeing.*
- *Not taking these instructions into account could lead to minor injuries to you and others.*
- *Not taking these instructions into account could lead to unit damage.*

In the texts following the caution symbol you can also find information on safe procedures during unit installation.

NOTE

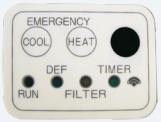
- *The text following this symbol contains information or instructions that may be of use or that require a more thorough explanation.*
- *Instructions regarding inspections to be made on unit parts or systems may also be included.*

1.3 Product guide

1.3.1 Individual remote controls

Name	Description	Code	Figure
PC-ARF	Remote control with timer	70510001	
PC-ART	Remote control with timer	70510000	
PC-ARH	Simplified remote control	60291486	
PC-LH3A	Wireless remote control	60291056	
PC-LH3B		60291770	

Receiver kit for combination with wireless remote control switch

Name	Description	Code	Figure
PC-ALH	Receiver kit (For RCI-FSN3Ei -on the panel) (Compatible with PC-LH3A)	60291464	
PC-ALHN		60291627	
PC-ALHC	Receiver kit (For RCIM-FSN3 -on the panel-) (Compatible with PC-LH3A)	60291476	
PC-ALHD	Receiver kit (For RCD-FSN2 -on the panel) (Compatible with PC-LH3A)	60291467	
PC-ALH3	Receiver kit (For RCI-FSN3 and RCI-FSN3Ek -on the panel-) (Compatible with PC-LH3B)	60291767	
PC-ALHP1	Receiver kit (For RPC-FSN3 -on the panel-) (Compatible with PC-LH3B)	60291823	
PC-ALHZ	Receiver kit (For RCI-FSN3Ei, RCIM-FSN3E, RCD-FSN2, RPC-FSN2, RPI-FSN(3/4)(P)E, RPIM-FSN4E(-DU), RPK-FSN(H)2M, RPF(I)-FSN2E -on the wall-) (Compatible with PC-LH3A)	60291473	
PC-ALHZF	Receiver kit (For RCI-FSN3, RCI-FSN3Ek, RPK-FSN(H)3M and RPC-FSN3 -on the wall-) (Compatible with PC-LH3B)	60291789	

1.3.2 Centralised remote controls

Name	Description	Code	Figure
PSC-A64GT	Touch screen central station	60291730	
PSC-A32MN (*)	Touch screen central station mini	60291966	
PSC-A64S	Centralised remote control	60291479	
PSC-A16RS	Centralised ON/OFF control	60291484	

(*): All the data regarding PSC-A32MN are preliminary data, and therefore, they are subject to changes.

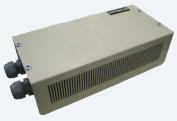
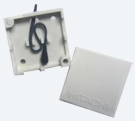
1.3.3 Building air conditioning controls

Name	Description	Code	Figure
CSNET WEB (PSC-A160WEB1)	Centralised control system which runs CSNET WEB software to control the indoor units	7E512000	
CSNET Manager LT	Centralised control with a touch interface of 12 inches which runs CSNET MANAGER software to control the indoor units.	7E512201	
CSNET Manager XT	Centralised control with a touch interface of 17 inches which runs CSNET MANAGER software to control the indoor units.	7E512202	
HC-A64NET	H-LINK gateway used by CSNET MANAGER Screens to communicate with indoor units (Max. 64 indoor units)	7E512200	

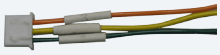
1.3.4 Gateways for building management systems (BMS)

Name	Description	Code	Figure
HC-A8MB	Integration with installation with intelligent control (Building Management System) Gateway Interface to MODBUS systems (Max. 8 indoor units).	7E513204	
HC-A64MB	Integration with installation with intelligent control (Building Management System) Gateway Interface to MODBUS systems (Max. 64 indoor units).	7E513205	
HC-A16KNX	Integration with installations with intelligent control (BMS). Gateway Interface to KNX systems.	7E513300	
KNX001	Integration with installations with intelligent control (BMS) through CSNET WEB. Gateway Interface to KNX systems.	7E5121000	
HARC-BX E (A)	Integration with installation with intelligent control (Building Management System) Gateway Interface to LONWORKS systems. (H-LINK I communication) (Max. 64 units with 8 parameters)	60290874	
HARC-BX E (B)	Integration with installation with intelligent control (Building Management System) Gateway Interface to LONWORKS systems. (H-LINK I communication) (Max. 32 units with 16 parameters)	60290875	

1.3.5 Control support devices

Name	Description	Code	Figure
PSC-A1T	Programmable timer	60291482	
PSC-6RAD	H-LINK RAC Adapter	60063017	
PC-A1IO	Integration of external equipment into H-LINK	7E519000	
PSC-5HR	H-LINK Relay	60291105	
PC-AMTB	Connection board for multitenant buildings	7E519200	
THM-R2AE	Remote temperature sensor (THM4)	7E299907	

1.3.6 Control accessories

Name	Description	Code	Figure
Wall support (*)	Wall mounted support (for both CSNET MANAGER LT/XT)	7E512300	To be informed later.
Stand support	Stand mounted support (for both CSNET MANAGER LT/XT)	7E512301	
PCC-1A	Optional function connector	70590901	
PRC-10E1	2P-Extension cord (10 metres)	7E790211	
PRC-15E1	2P-Extension cord (15 metres)	7E790212	
PRC-20E1	2P-Extension cord (20 metres)	7E790213	
PRC-30E1	2P-Extension cord (30 metres)	7E790214	
Net Config. Kit	Net configuration kit for HC-A(8/64)MB and HC-A64NET	7E512306	

(*): All the data regarding Wall support are preliminary data, and therefore, they are subject to changes.

1.3.7 Other devices compatible with HITACHI Air Conditioning systems

In addition to all the aforementioned HITACHI controls, there are some non-HITACHI devices for combination with HITACHI Air Conditioning systems. These are the following:

- HITACHI-AIRZONE gateway (HTI11001): Applicable to HITACHI RPI(M) units providing compatibility with the AIR-ZONE systems, zone-based climate-control systems.
- Power meter: Siemens power meter for CSNET WEB and CSNET Manager.
- MODBUS-BACNET gateway: Solution offered by Intesis Software company which transfers MODBUS data into BACNET data.
- MODBUS-FIDELIO gateway: Solution offered by Intesis Software company which transfers MODBUS data into FIDELIO data.

2. Control solutions

Index

2.1 Introduction

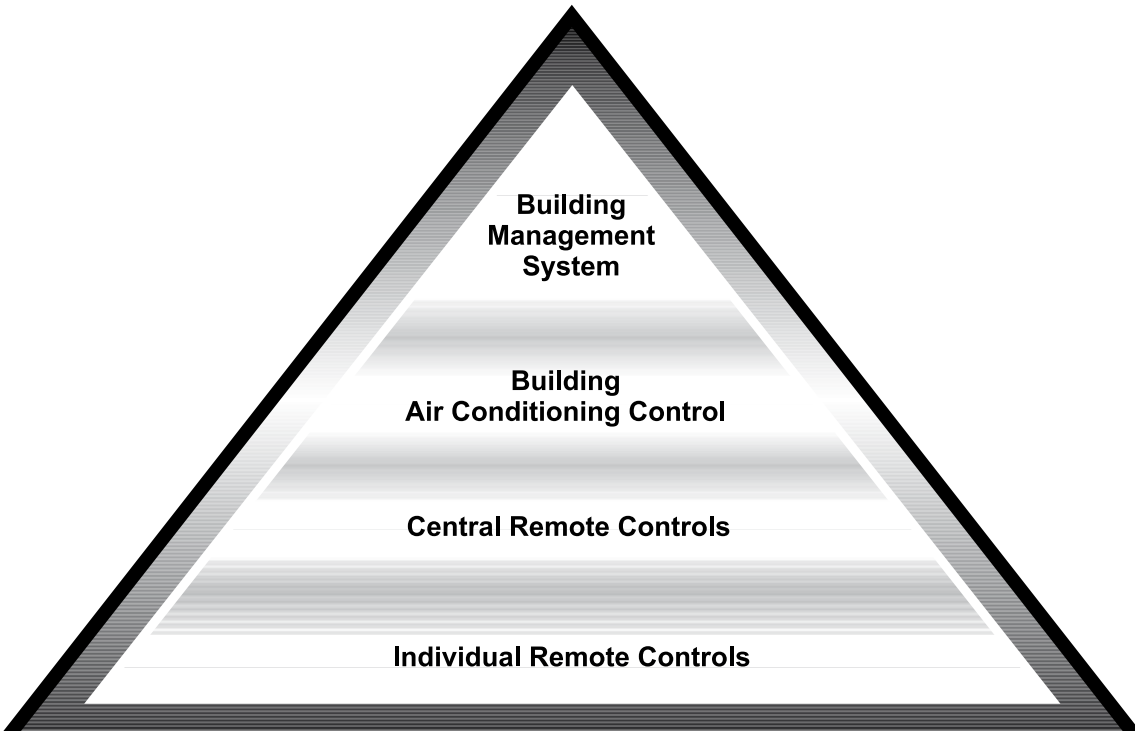
The air conditioning controls are divided into four types depending on the different methods of controlling units:

Control devices used for air conditioning control are classified in four types depending on their type of control.

- Individual remote controls: which control each unit separately.
- Centralised remote controls: which centralise the control of several units at one device in the office.
- Building air conditioning control (CSNET WEB and CSNET Manager): which centralises the control of indoor units of all the building.
- Intelligent building (BMS - Building Management System): which allow that intelligent building controller interact with HITACHI air conditioning systems.

NOTE

The Building Management Systems (ELB) mentioned on this manual are also commonly known as Building Automatization Systems (BAS).



Control hierarchy

Different types of remote controls can be used depending on the number of units to be controlled.

Individual remote controls

- Recommended to be always installed for the local control of each unit.
- The indoor units should be grouped in remote control groups with a maximum of 16 indoor units for each group.

Centralised remote controls

- Centralised remote controls are suitable for controlling a high number of indoor units distributed throughout a whole floor of a building. Anyway, several floors can also be controlled by these type of controls.
- The indoor units are grouped in different remote control groups, and the maximum number of groups is different depending on the device.

Building AC controls (CSNET WEB and CSNET Manager)

- These controls are recommended for installations with a high number of indoor units distributed through several floors which need to be separately controlled.
- The devices PSC-A60WEB1 and HC-A64NET can be installed at any point of the building. They can be connected to the CSNET Manager screen for centralised control of the building.
- PSC-A160WEB1 is accessible from any computer inside the building which has the CSNET WEB software installed. Connection from outside the building can also be performed by configuring properly the network settings.
- CSNET WEB and CSNET Manager are both accessible from inside/outside the building through a web browser if the network configuration is properly set-up.

Building management system (BMS)

- Recommended for use in intelligent buildings with integral control systems (building automation, security, access, etc.).
- Building Management systems (BMS) are based on information transmission protocols like LONWORKS, MODBUS KNX, BACNET or FIDELIO.
- There are two different methods for controlling the units:
  - Via Building AC controls (CSNET WEB or CSNET MANAGER) with the protocols MODBUS, FIDELIO or KNX (through CSNET WEB only for the latter).

    NOTE

    BMS is connected to CSNET WEB and CSNET Manager, thus all their advantages can also be used in this system control.

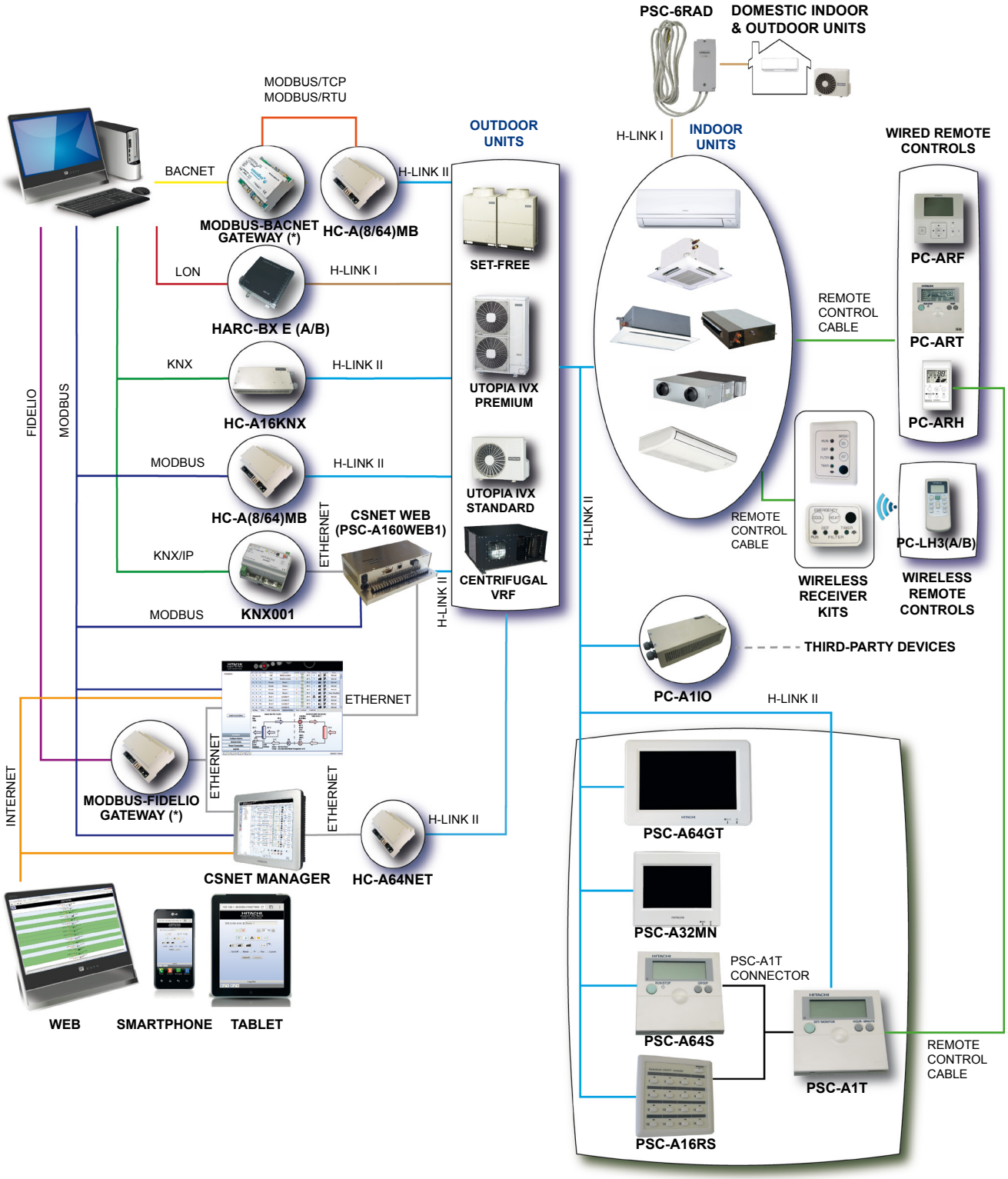
  - Via direct connection with the protocols BACNET, LONWORKS, KNX or MODBUS.

    NOTE

    BMS control is limited to the building control room.

2.2 Great control possibilities

HITACHI offers a wide range of control systems, from the most simple to the most sophisticated, providing smart management of the products and systems, at local or at distance.



NOTE

- *(*): Field-supplied components. For those applications, HITACHI recommends the use of Intesis Software Company gateways.*
- *There are more control support devices that can be used with HITACHI systems. They are not included in the above diagram to make it more comprehensive. Refer to the following pages for its specific information.*

2.2.1 Individual control systems

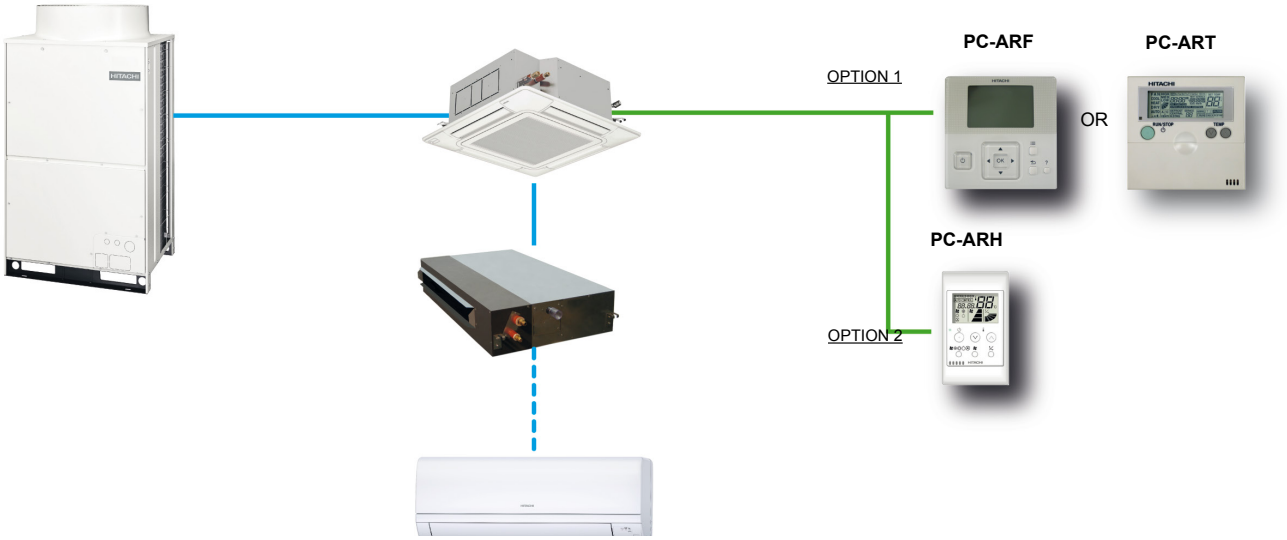
HITACHI air conditioning systems are supported by different individual remote controls covering the main customer needs.

The individual remote controls are recommended to be always installed for the local control of each unit. Up to a maximum of 160 indoor units can be controlled in simultaneous operation by grouping them in one remote control group.

They can be divided in two main groups: wired and wireless remote controls.

2.2.1.1 Wired remote controls

These remote controls require the electrical connection between the remote control and the indoor unit. The remote control is intended for install on the wall.



Option 1: PC-ARF / PC-ART

If specific functionality is required, HITACHI recommends the use of these wired remote controls. A high number of optional functions can be set by means of the wired remote controls.

PC-ART is the standard individual remote control of HITACHI.

PC-ARF is the newest individual remote control of HITACHI, with an attractive design, excellent display thanks to its large sized LCD screen and with new additional optional functions.

Option 2: PC-ARH

Simplified and easy to use wired remote control with functions restricted to basic customer needs. The best solution for installations such as hotel applications which are frequented by many different people.

Optional functions cannot be set by PC-ARH.

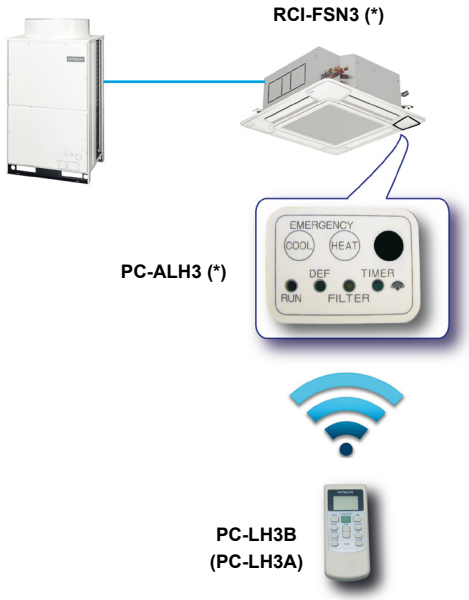
2.2.1.2 Wireless remote controls

Wireless remote controls are the most suitable option for those users who are only interested in basic functions (ON/OFF, setting temperature, fan speed and louvre direction). Optional functions cannot be set by wireless remote controls.

These remote controls do not require electrical connection between the remote control and the indoor unit, since they are wireless. Anyway, they require the installation of the wireless receiver kit which receives the signal from the wireless remote control and sends it to the indoor unit.

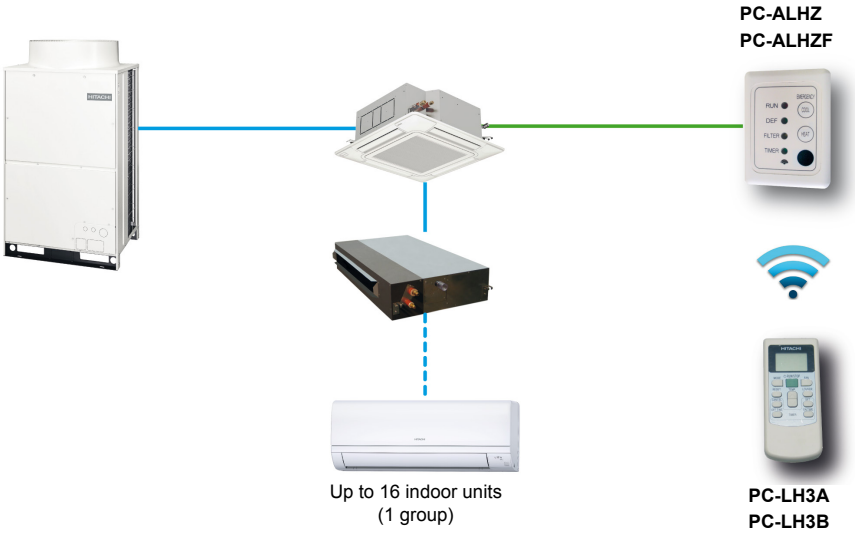
There are two types of wireless receiver kits depending on its installation place: Panel receivers and Wall receivers.

◆ **Panel receivers**



(*): This example shows the case of the wireless receiver kit PC-ALH3 which corresponds to the indoor unit RCI-FSN3. For the rest of wireless receiver kits and their corresponding indoor unit, refer to the previous chapter.

◆ **Wall receivers**



- PC-LH3A is intended for use in combination with receiver kits PC-ALH, PC-ALHN, PC-ALHC, PC-ALHD or PC ALHZ and indoor units with no support for HIGH2 fan speed mode. PC-LH3A can also be used with receiver kits PC-ALH3, PC-ALHP1 or PC-ALHZF, but HIGH2 fan speed cannot be selected through PC-LH3A in this case.
- PC-LH3B is intended for use in combination with receiver kits PC-ALH3, PC-ALHP1 or PC-ALHZF and indoor units with support for HIGH2 fan speed mode. It can also be used in combination with receiver kits PC-ALH, PC-ALHN, PC-ALHC, PC-ALHD or PC ALHZ, but the selection of HIGH2 fan speed through PC-LH3B has no effect in this case.

2.2.2 Centralised control systems

Centralised remote controls are ideal for use in installations subject to random occupation, enabling indoor units to be classified in groups by each considered zone.

HITACHI recommends the use of centralised remote controls for controlling a high number of indoor units distributed throughout one floor of a building.

2.2.2.1 Touch screen central stations (PSC-A64GT / PSC-A32MN)

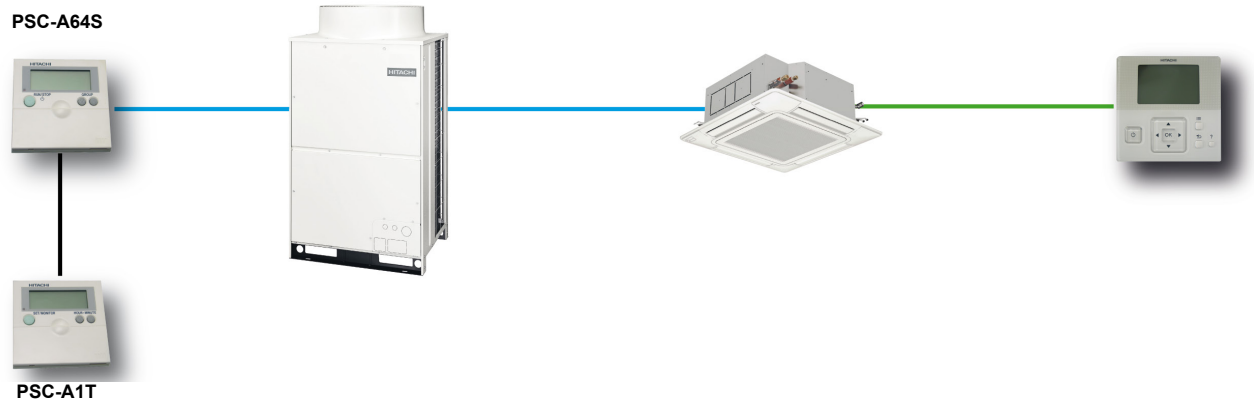
These central stations offer high resolution touch screen display with easy control of up to 160 indoor units in the same H-LINK line. Both touch screens comes with incorporated timer option.

- PSC-A64GT: Easy to use large 8.5” touch screen with great functionality. Up to 64 groups can be created.
- PSC-A32MN: Low cost version of the PSC-A64GT touch screen central station. The PSC-A32MN offers the main functionality of PSC-A64GT, with a smaller touch screen (5.0”). Up to 32 groups can be created.

2.2.2.2 Standard centralised remote control (PSC-A64S)

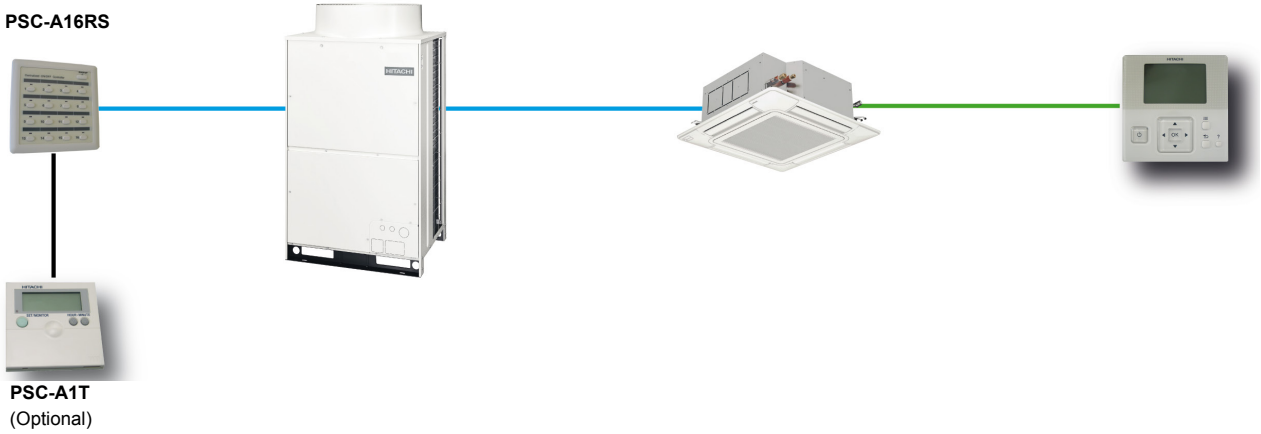
PSC-A64S provides individual control of up to 4 zones with a maximum number of 16 groups per zone. Therefore, up to 64 groups can be created. Several optional functions can also be used by setting input/output signals.

Connecting a PC-A1T Timer, schedule operation can be programmed for all the groups (zones).



2.2.2.3 Centralised ON/OFF control (PSC-A16RS)

PSC-A16RS is an user-friendly product that provides individual or simultaneous ON/OFF control of up to 16 groups of units. Connecting a PC-A1T Timer, schedule operation can be programmed for all the groups.



2.2.3 Building AC control systems

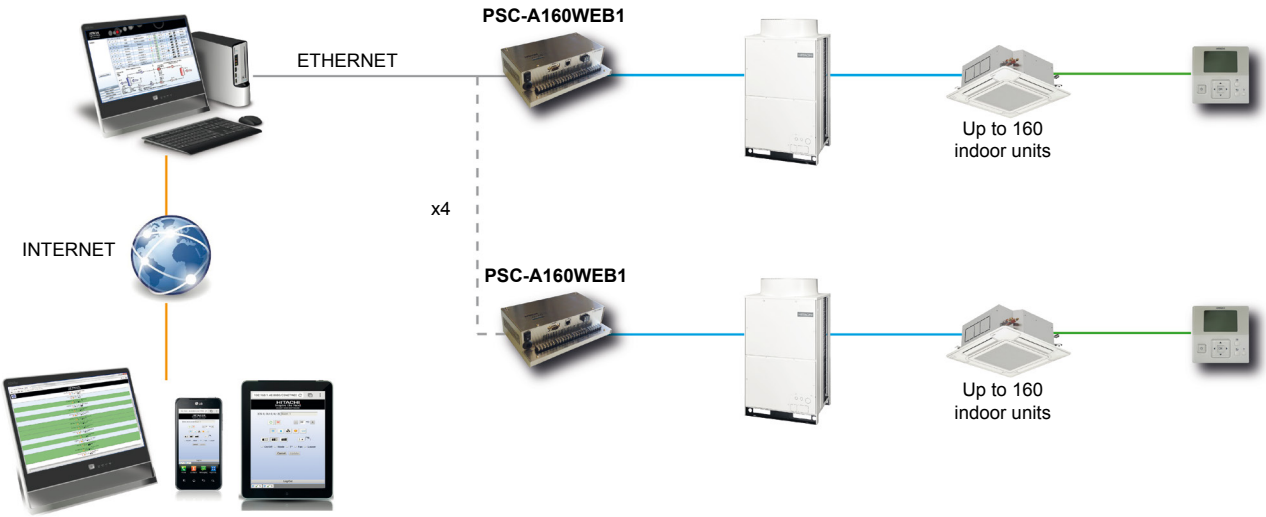
Building air conditioning control systems are recommended for installations with a high number of indoor units distributed through several floors which need to be separately controlled.

Furthermore, these control systems add many specific functions that are not available with other remote controls, as “Cold Draft”, “Power meter option”, “Modbus connection”, “Building layout”, etc.

2.2.3.1 CSNET WEB (PSC-A160WEB1)

CSNET WEB is a good option when there is a computer in the installation with centralised control. In this case, connecting the PSC-A160WEB1 hardware only, it is possible to have access to all the installation parameters from the computer.

The maximum number of controllable indoor units per PSC-A160WEB1 device is 160 indoor units. Moreover, connecting up to 4 PSC-A160WEB1 devices in different H-LINK lines the number of maximum controllable indoor units can be increased up to 640 indoor units.



2.2.3.2 CSNET Manager

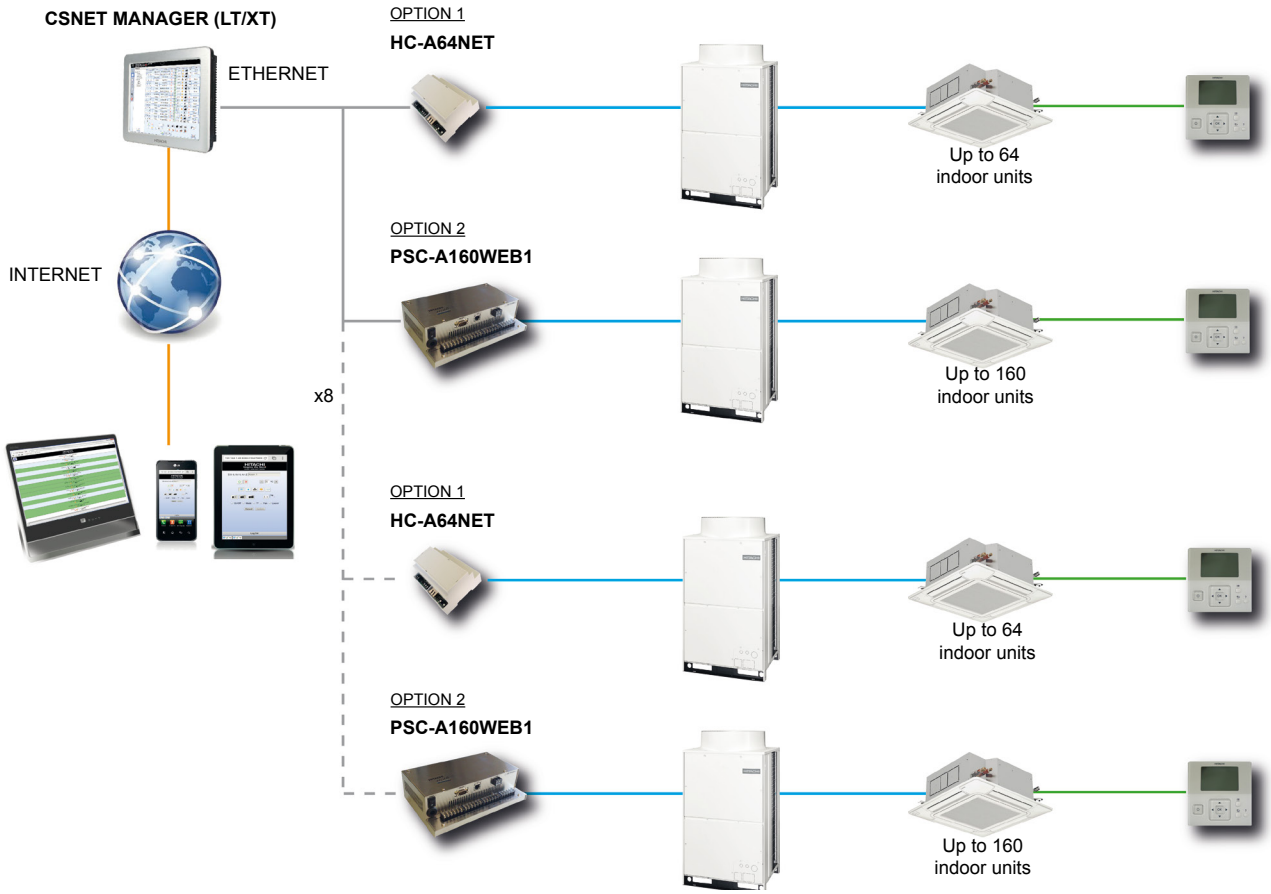
CSNET Manager is a good solution when there is no a computer in the installation with centralised control. In this case, with the use of its H-LINK gateway (HC-A64NET), all the installation parameters can be easily accessible through the touch screen.

One CSNET Manager can control up to 8 CSNET Managers in different H-LINK lines, and the total quantity of controlled indoor units can be up to 1280 indoor units.

In addition to the large quantity of functions shared with CSNET WEB, CSNET Manager brings the following special functions:

- Heating Fan stop during thermo off (Heat draft).
- Outdoor unit night mode.
- Outdoor unit power control.

◆ Single CSNET Manager system



Option 1: CSNET Manager and its H-LINK gateway (HC-A64NET)

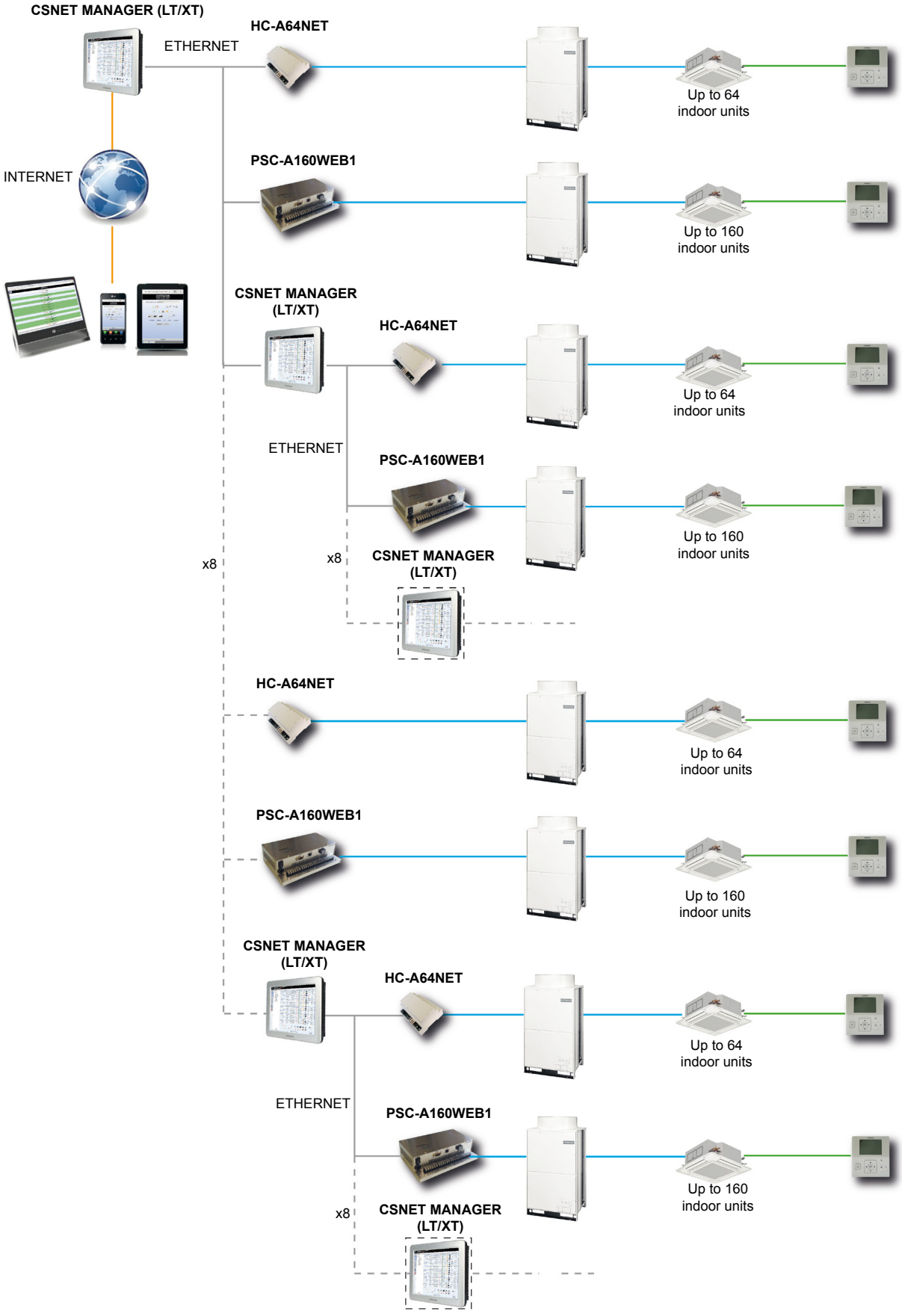
This option allows the control of up to 64 indoor units per each H-LINK line.

Option 2: CSNET WEB hardware interface (PSC-A160WEB1)

Combining the CSNET Manager with the CSNET WEB hardware (PSC-A160WEB1) the control of up to 160 indoor units per each H-LINK line is allowed.

◆ Multiple CSNET Manager system

This type of installation can be useful in order to have different access points in the entire installation. Recommended for very large facilities.

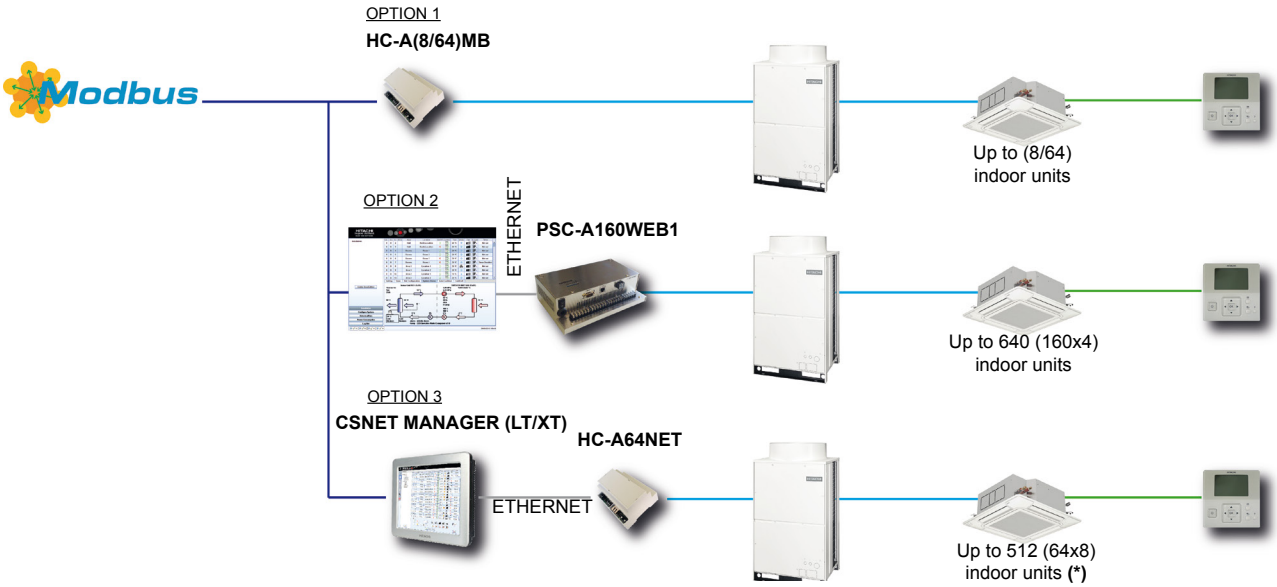


2.2.4 Standard protocol interfaces for building management systems (BMS)

HITACHI yields to customers a wide range of control interfaces for the integration of the air conditioning equipment and controls into the BMS systems.

2.2.4.1 MODBUS interface

Integrated control system for connection between HITACHI air conditioning systems and BMS systems.



Option 1: Gateway interfaces to MODBUS systems (HC-A(8/64)MB)

Easy integration of HITACHI Air Conditioning installations to a MODBUS BMS by providing full management control of Air Conditioning installation to the BMS controllers.

- HC-A8MB: max. 8 indoor units.
- HC-A64MB: max. 64 indoor units.

Option 2: CSNET WEB hardware interface (PSC-A160WEB1)

This option allows to take advantage of the CSNET WEB functionality.

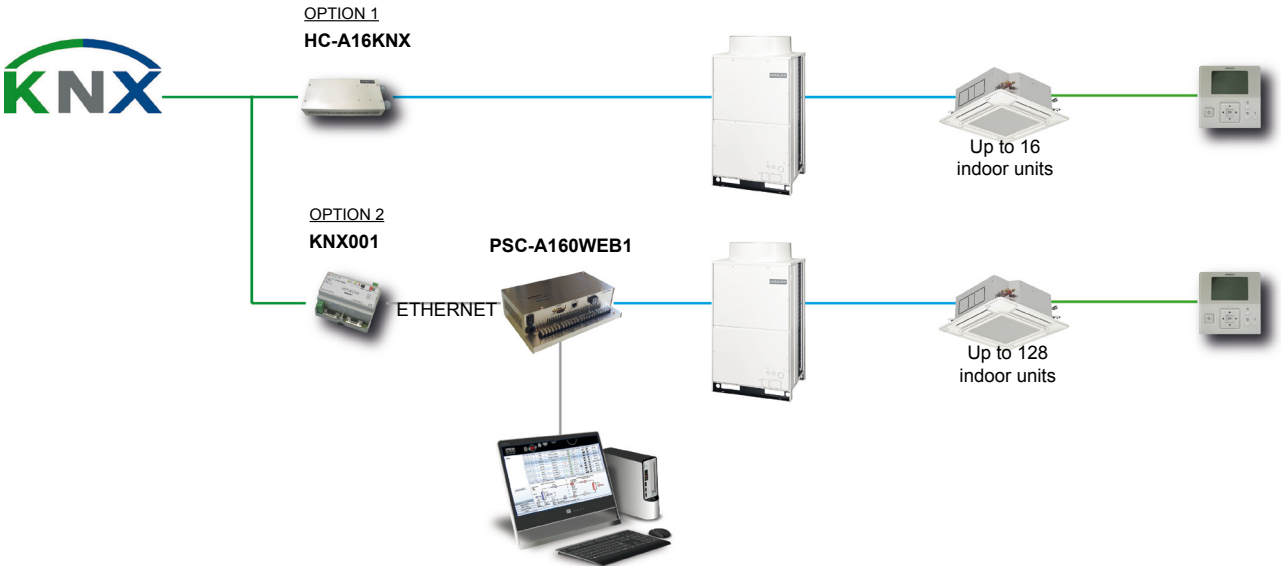
Option 3: CSNET Manager and its H-LINK gateway (HC-A64NET)

This option allows to take profit of the great CSNET Manager functionality, connecting it to its HC-A64NET gateway.

*(*): Using CSNET Manager with other CSNET Managers or with CSNET WEB hardware (PSC-A160WEB1) the maximum number of controllable indoor units is increased up to **1280** indoor units.*

2.2.4.2 KNX interface

KNX is an European Standard Protocol used for household and industrial Building Management System (BMS). Complete integration between HITACHI air conditioning systems and KNX systems can be done through HITACHI KNX gateways.



Option 1: Integration to KNX systems through HC-A16KNX

The integration between HITACHI air conditioning H-LINK systems and KNX system is directly performed by the HC-A16KNX interface.

Option 2: Integration to KNX systems through CSNET WEB (PSC-A160WEB1 + KNX001)

This option allows to take advantage of the CSNET WEB functionality, connecting the CSNET WEB hardware (PSC-A160WEB1) to the KNX001 gateway.

2.2.4.3 LONWORKS interface

Monitoring and control functions from LONworks networks can be easily integrated to the HITACHI air conditioning systems with the installation of the gateway interface HARC-BX E (A/B).

- HARC-BX E (A) allows the control of 64 indoor units and 8 outdoor units. It can also control 7 points per indoor unit.
- HARC-BX E (B) allows the control of 32 indoor units and 8 outdoor units. It can also control 14 points per indoor unit.

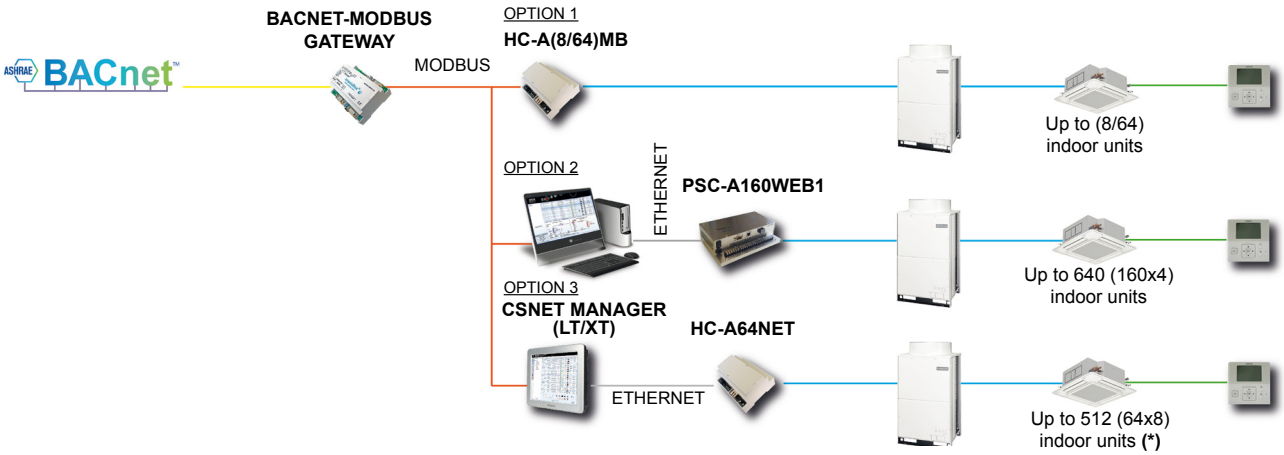
2.2.4.4 BACNET interface

The integration of HITACHI systems into a BACNET installation can be carried out by using a double gateway system:

- HITACHI MODBUS gateway: HC-A(8/64)MB, PSC-A160WEB1 or CSNET Manager with HC-A64NET which provide HLINK data into a MODBUS protocol.
- Standard MODBUS-BACNET gateway available in the market which transfers MODBUS data into BACNET data.

There are wide several solutions available in the market which should allow the transfer of MODBUS collected data by HITACHI gateways into BACNET data. Anyway, HITACHI recommends the solution offered by Intesis Software company that offers 6 possible devices available for such applications, which are different in terms of:

- No. of points (parameters) available: 100, 500, 1000.
- Type of MODBUS channel: RTU (only with HC-A(8/64)MB) or TCP (for all the options).



Option 1: Gateway interfaces to MODBUS systems (HC-A(8/64)MB)

Easy integration of HITACHI Air Conditioning installations to MODBUS BMS protocol.

- HC-A8MB: max. 8 indoor units.
- HC-A64MB: max. 64 indoor units.

Option 2: CSNET WEB hardware interface (PSC-A160WEB1)

This option allows to take advantage of the CSNET WEB functionality.

Option 3: CSNET Manager and its H-LINK gateway (HC-A64NET)

This option allows to take profit of the great CSNET Manager functionality, connecting it to its HC-A64NET gateway.

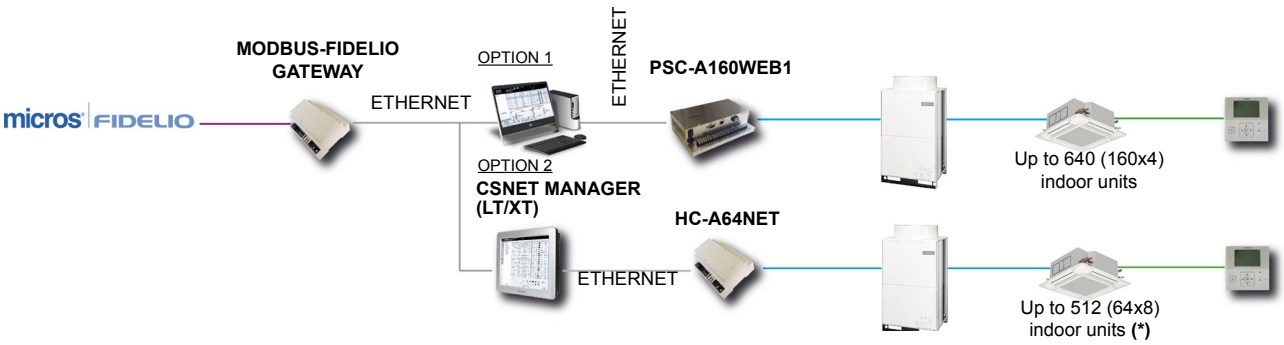
*(*): Using CSNET Manager with other CSNET Managers or with CSNET WEB hardware (PSC-A160WEB1) the maximum number of controllable indoor units is increased up to **1280** indoor units.*

2.2.4.5 FIDELIO interface

The integration of HITACHI systems into a FIDELIO installation can be carried out by using a double gateway system:

- HITACHI MODBUS gateway: HC-A(8/64)MB, PSC-A160WEB1 or CSNET Manager with HC-A64NET which provide HLINK data into a Modbus protocol.
- Standard MODBUS-FIDELIO gateway available in the market which transfers MODBUS data into FIDELIO data.

There are wide several solutions available in the market which should allow the transfer of MODBUS collected data by HITACHI gateways into FIDELIO data. Anyway, HITACHI recommends the solution offered by Intesis Software company.



Option 1: CSNET WEB hardware interface (PSC-A160WEB1)

This option allows to take advantage of the CSNET WEB functionality.

Option 2: CSNET Manager and its H-LINK gateway (HC-A64NET)

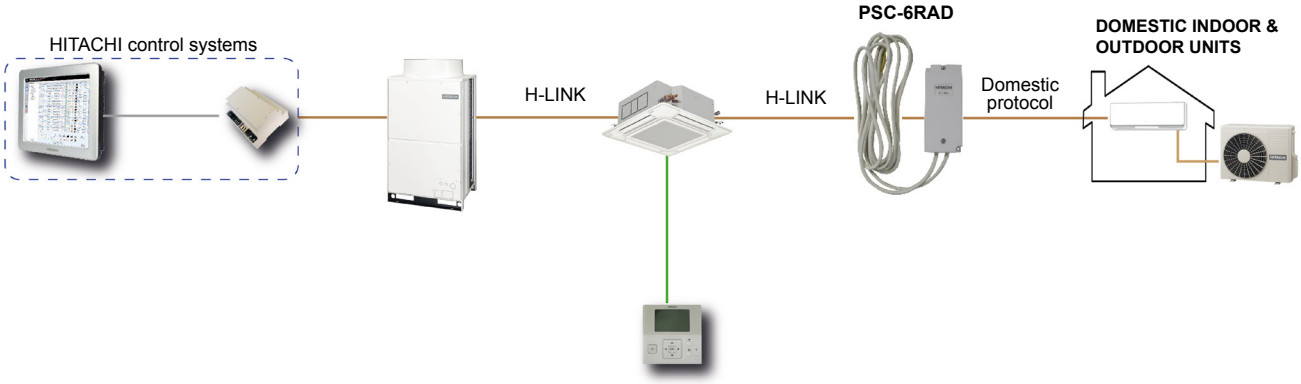
This option allows to take profit of the great CSNET Manager functionality, connecting it to its HC-A64NET gateway.

***(*):** Using CSNET Manager with other CSNET Managers or with CSNET WEB hardware (PSC-A160WEB1) the maximum number of controllable indoor units is increased up to **1280** indoor units.*

2.2.5 Other control possibilities

◆ Compatibility with HITACHI domestic units

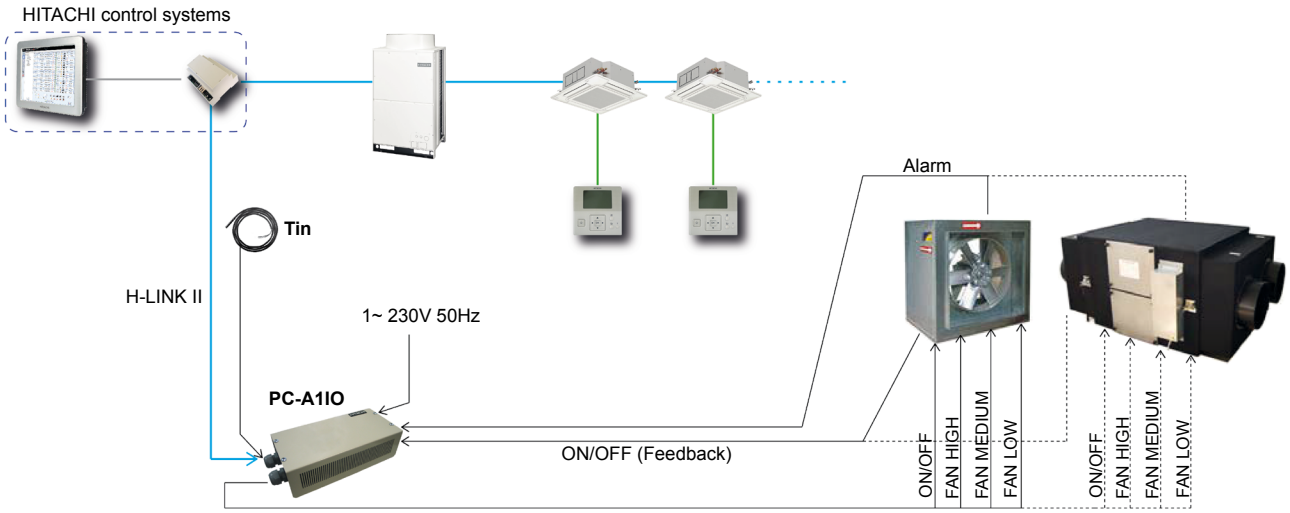
HITACHI domestic units (RAC models) can be integrated into H-LINK systems by means of the PSC-6RAD adapter.



◆ Interaction with third-party devices

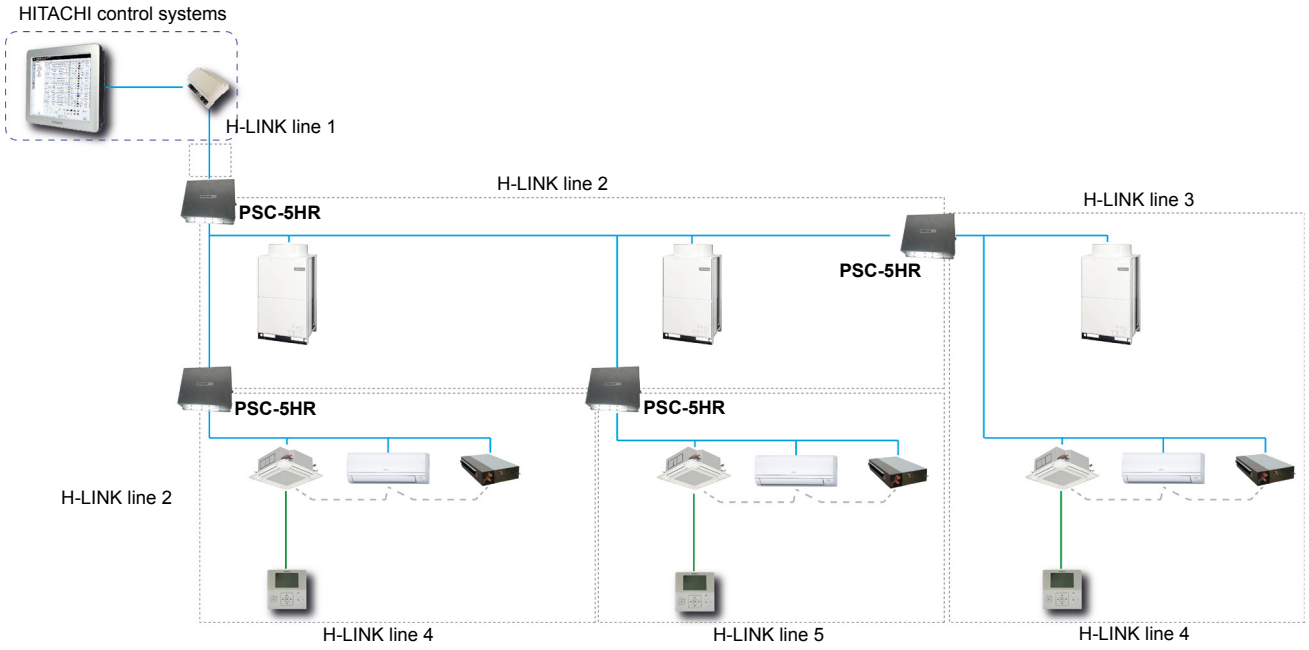
The integration of certain equipment to H-LINK bus can be performed by using the PC-A1IO device, giving the chance to monitor and control certain parameters of non-HITACHI equipment by HITACHI Building AC controls. For example: ventilation units, air handling units, etc.

Up to 16 PC-A1IO devices can be connected in an H-LINK line. At least one of this PC-A1IO devices must be set as master.



◆ Extension of the H-LINK line length

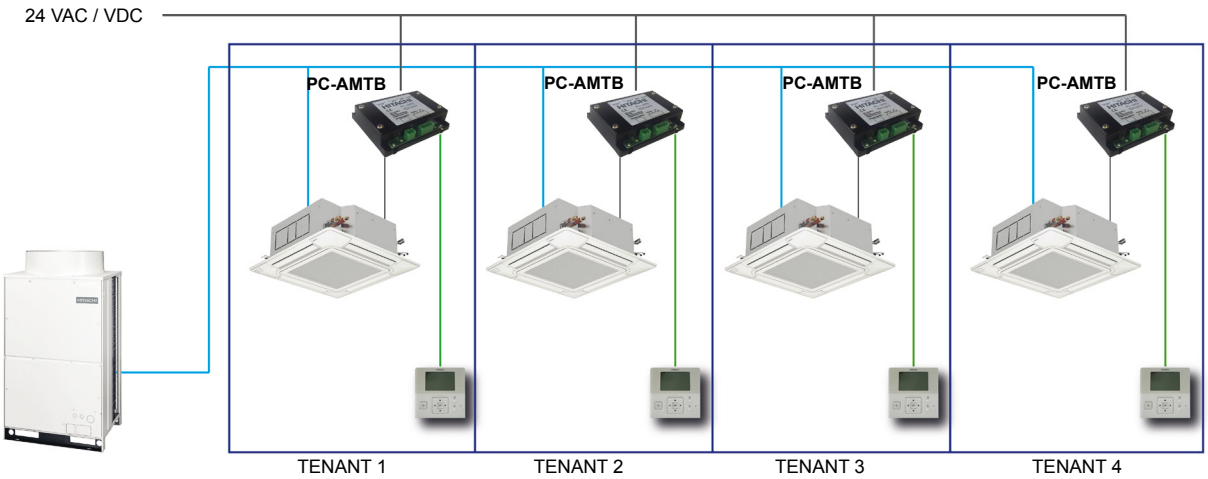
The maximum H-LINK electrical wiring length can be extended from 1,000 meters up to 5,000 meters by using four PSC-5HR devices as a maximum. Each PSC-5HR device allows an extra H-LINK wiring length of 1,000 meters.



◆ Multitenant installations

HITACHI offers the PC-AMTB control support for multitenant buildings (office buildings, multi dwelling, small hotels) with several indoor units of different tenants with a common shared outdoor unit.

Thanks to the PC-AMTB, the power supply of some indoor units can be shut-down without causing refrigerant problems, since the expansion valve of such indoor unit is controlled to adjust the refrigerant flow accordingly.



PC-AMTB is power supplied at 24 VDC or VAC from a power net independent from the tenant installation.

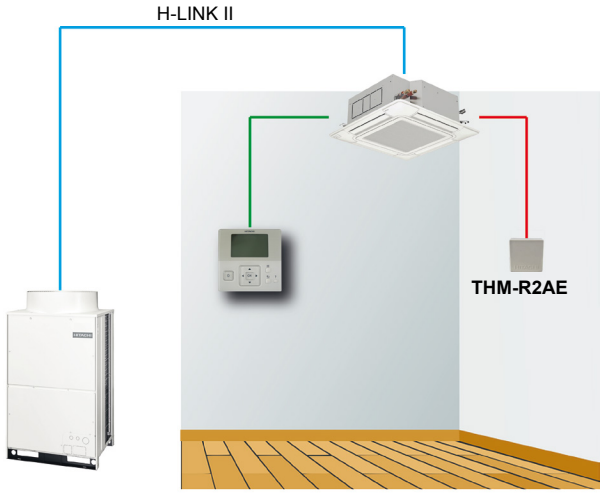
◆ Options for detecting the room temperature

The room temperature value can be obtained from different ways:

1 By the air inlet temperature value at the indoor unit.
2 By the temperature value at the thermistor of the remote control (If available).
3 By the average between both previous values.

Moreover, HITACHI offers the remote temperature sensor THM-R2AE in order to provide more options for the room temperature measurement. In this case, the room temperature value is obtained as follows:

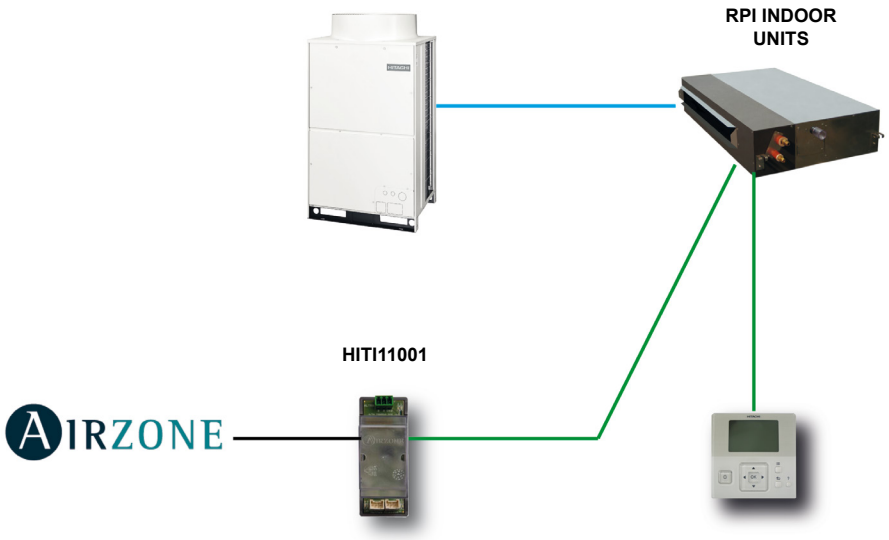
1 By the average between the air inlet temperature value at the indoor unit and the temperature detected at the remote sensor.
2 By the temperature value at the thermistor of the remote control (If available).
3 By the average between all the previous values.



◆ Zoning systems compatibility

Zoning systems, in a ducted air-conditioning installation, allows having an individual control of the temperature in each room. HITACHI ducted indoor units, RPI(M) units since FSN2E series, can be fully compatible with AIRZONE systems, zone-based climate-control systems, thanks to the HITACHI-AIRZONE communication gateway (HITI11001).

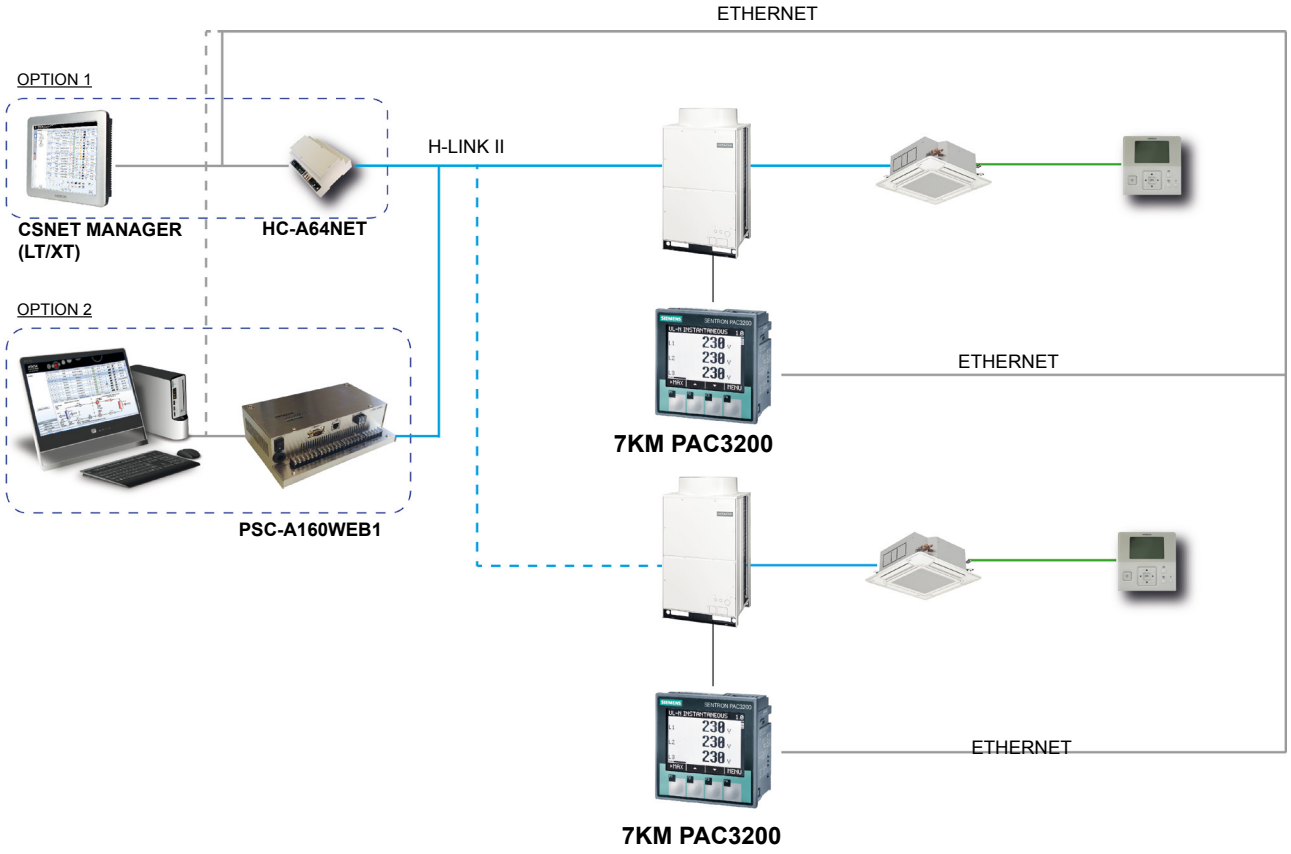
The HTI11001 is commercialised directly by AIRZONE.



◆ Power meter installations

Power Meter option by Building AC controls lets the user to configure a TCP-MODBUS power meter for each outdoor unit in order to read the power consumption in (kW).

Suggested device tested by Hitachi is **7KM PAC3200** by Siemens.



2.3 H-LINK II Specifications

2.3.1 Hardware characteristics

Elements	Specifications
Communication cable	Twin wire, without polarity
Communication system	Half-duplex
Communication method	Asynchronous
Transmission speed	9600 Bauds
Cable length Maximum	1000 m (5000 m if applied four PSC-5HR devices)

Either package units or water chillers only can be connected in an H-LINK communication line. Mixed connection of package units and water chillers is not permitted.

2.3.2 H-LINK II System

H-LINK II improves the characteristics of H-LINK I. The following table compares both systems and is valid for only 1000 meters of H-LINK line:

	H-LINK I	H-LINK II
Connectable outdoor units	16	64
Connectable indoor units	128	160
Units (outdoor and indoor)	-	176
Maximum connectable devices	145	200

H-LINK II has a limit of 200 connected devices and a maximum number of 160 indoor units. The following limitation must always be respected:

Outdoor units + Indoor units + other H-LINK devices ≤ 200

Therefore, in a case of 64 outdoor units connected to the same H-LINK, only 136 other elements may be connected (including indoor units and control systems).

Number of outdoor units	Maximum number of indoor units and control systems
1	64
20	160
40	160
50	150
60	140
64	136

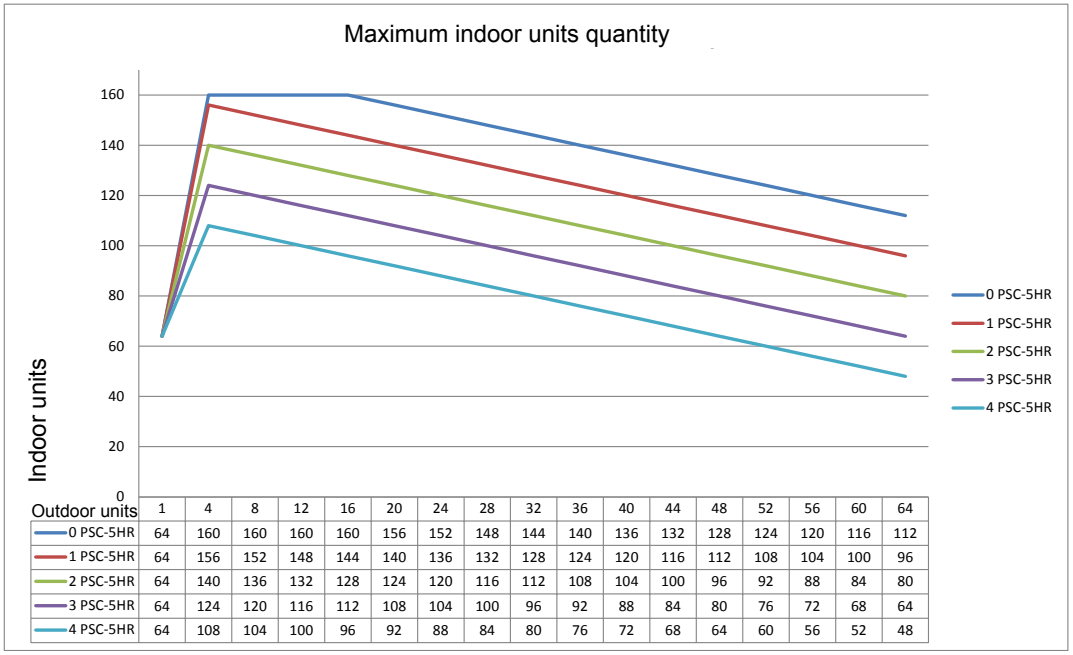
◆ Restrictions when using PSC-5HR accessory

H-LINK line length could be up to 1000 meters. It can be increased up to 5000 meters using up to 4 PSC-5HR devices. Each of them adds 1000 meters to the line, affecting the quantity of indoor units that can be connected to the same H-LINK.

Each H-LINK line repeater (PSC-5HR) counts as 16 indoor units. The following table summarizes the relation between the quantity of PSC-5HR devices and the maximum number of indoor and outdoor units allowed in each case.

Number of PSC-5HR	Maximum length of H-LINK	Maximum number of indoor and outdoor units
0	1000 meters	176
1	2000 meters	160
2	3000 meters	144
3	4000 meters	128
4	5000 meters	112

Therefore, considering the previous maximums and the number of PSC-5HR devices, the maximum number of indoor units with one central control is shown on the following table and graphic.



Outdoor units	1	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64
0 PSC-5HR	64	160	160	160	160	156	152	148	144	140	136	132	128	124	120	116	112
1 PSC-5HR	64	156	152	148	144	140	136	132	128	124	120	116	112	108	104	100	96
2 PSC-5HR	64	140	136	132	128	124	120	116	112	108	104	100	96	92	88	84	80
3 PSC-5HR	64	124	120	116	112	108	104	100	96	92	88	84	80	76	72	68	64
4 PSC-5HR	64	108	104	100	96	92	88	84	80	76	72	68	64	60	56	52	48

2.3.3 H-LINK I & H-LINK II Compatibility

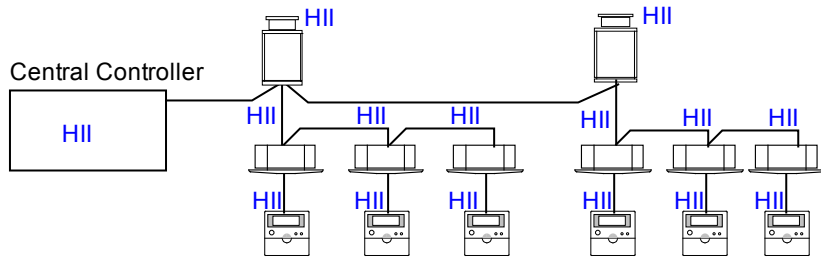
All the controls shown in this document work with H-LINK II except HARC-BX E (A/B) and PSC-6RAD. However, all the H-LINK II controls can also work with H-KINK I units.

H-LINK I unit and H-LINK II unit can be mixed in the same bus without any adapter. Anyway, refer to the following system samples to realise the existing limitations in each case.

Legend:

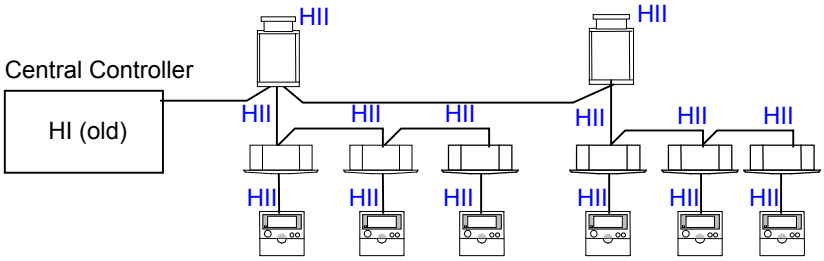
- HII: H-LINK II
- HI (old): H-LINK I

1 In case of Units and Central Controller are H-LINK II type



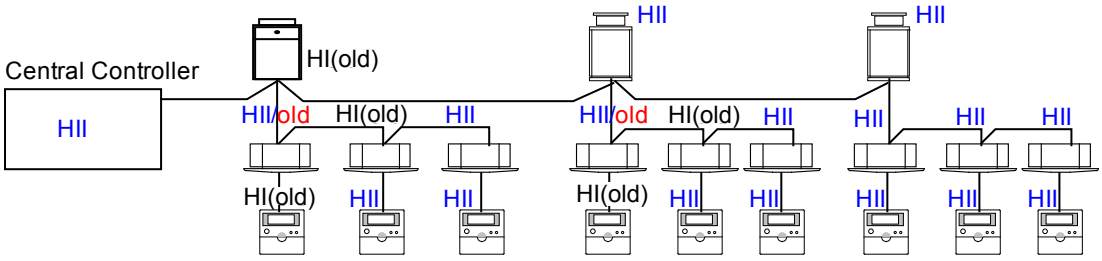
Refrigerant Cycle Range	0-63
Indoor Address Range	0-63
Connectable Indoor Units	160 Units
Maximum Connected Devices	200 Units

2 In case of Central Controller is H-LINK I type



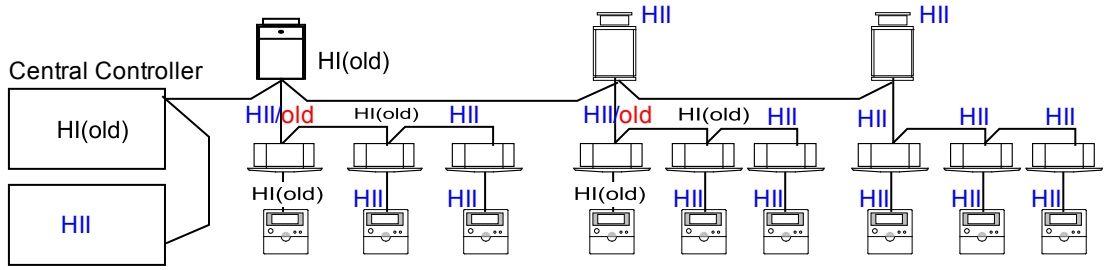
Refrigerant Cycle Range	0-15
Indoor Address Range	0-15
Connectable Indoor Units	128 Units
Maximum Connected Devices	145 Units

3 In case of Central Controller is controlling both H-LINK I and H-LINK II type



Refrigerant Cycle Range	0-15	0-15			0-63
Indoor Address Range	0-15	0-15	0-15	0-63	0-63
Connectable Indoor Units	128 Units				
Maximum Connected Devices	145 Units				

4 In case of Central Controllers are mixed (H-LINK I and H-LINK II type)



Refrigerant Cycle Range	0-63 If HI(old) Central controller controls Address lower than 16.
Indoor Address Range	0-63 If HI(old) Central controller controls Address lower than 16.
Connectable Indoor Units	128 Units
Maximum Connected Devices	145 Units

2.4 Controls compatibility

2.4.1 Compatibility between controls and H-LINK system

Next table shows what sort of H-LINK and what gateway protocol has each device of this technical catalogue.

		H-LINK Type		Gateway protocol
		H-LINK I	H-LINK II	
Individual remote controls	PC-ARF	O	O	-
	PC-ART	O	O	-
	PC-ARH	O	O	-
	PC-LH3A	O	O	-
	PC-LH3B	O	O	-
Centralised remote controls	PSC-A64GT	O	O	-
	PSC-A32MN	O	O	-
	PSC-A64S	O	O	-
	PSC-A16RS	O	O	-
Building AC controls	CSNET WEB	O	O	Modbus / Fidelio / KNX
	CSNET MANAGER	O	O	Modbus / Fidelio
	HC-A64NET	O	O	-
Gateways for building management systems (BMS)	HC-A8MB	O	O	Modbus
	HC-A64MB	O	O	Modbus
	HC-A16KNX	O	O	KNX
	KNX001	O	O	KNX
	HARC-BX E (A)	O	X	LonWorks®
	HARC-BX E (B)	O	X	LonWorks®
Control support devices	PSC-A1T	O	O	-
	PSC-6RAD	O	X	-
	PC-A1IO	O	O	I/O
	PSC-5HR	O	O	-

- *O: 100% Compatible*
- *X: Not compatible*

Remember that:

- *Chiller system is not compatible with package system, this means that chiller and package controls can not be used in same systems.*
- *H-LINK II has a limitation of 200 devices.*

2.4.2 Compatibility between control groups

The different groups of controls, have a special compatibility between them, as shown in the following table:

	Individual remote controls	Central Remote Controls	Building AC Central Controls	Computerised Central Remote controls (BMS)	Accessories
Individual remote controls	O	O	O	O	O
Centralised remote controls	O	O	X	X	O
Building AC controls	O	X	X	X	O
Gateways for building management systems (BMS)	O	X	X	X	-
Accessories	O	O	O	-	-

O: 100% Compatible.

X: not compatible with different sort of device.

-: Compatibility depends on the kind of device.

2.4.3 Compatibility between each control

		PC-ARF	PC-ART	PC-ARH	PC-LH3A	PC-LH3B	PSC-A64GT	PSC-A32MN	PSC-A64S	PSC-A16RS	CSNET WEB	CSNET MANAGER	HC-A64NET	HC-A8MB	HC-A64MB	HC-A16KNX	KNX001	HARC-BX E (A)	HARC-BX E (B)	PSC-A1T	PSC-6RAD	PC-A1IO	PSC-5HR
Individual remote controls	PC-ARF	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	(2)	X	O	O
	PC-ART	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	(2)	X	O	O
	PC-ARH	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	(2)	X	O	O
	PC-LH3A	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	(2)	X	O	O
	PC-LH3B	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	(2)	X	O	O
Centralised remote controls	PSC-A64GT	O	O	O	O	O	O	O	O	O	(1)	X	X	X	X	X	X	X	X	(2)	O	O	O
	PSC-A32MN	O	O	O	O	O	O	O	O	O	(1)	X	X	X	X	X	X	X	X	(2)	O	O	O
	PSC-A64S	O	O	O	O	O	O	O	O	O	(1)	X	X	X	X	X	X	X	X	O	O	O	O
	PSC-A16RS	O	O	O	O	O	O	O	O	O	(1)	X	X	X	X	X	X	X	X	O	O	O	O
Building AC controls	CSNET WEB	O	O	O	O	O	(1)	(1)	(1)	(1)	X	O	X	X	X	X	O	X	X	(2)	O	O	O
	CSNET MANAGER	O	O	O	O	O	X	X	X	X	O	O	O	X	X	X	X	X	X	(2)	O	O	O
	HC-A64NET	O	O	O	O	O	X	X	X	X	X	O	X	X	X	X	X	X	X	-	O	O	O
Gateways for building management systems (BMS)	HC-A8MB	O	O	O	O	O	X	X	X	X	X	X	X	X	X	X	X	X	X	-	O	O	O
	HC-A64MB	O	O	O	O	O	X	X	X	X	X	X	X	X	X	X	X	X	X	-	O	O	O
	HC-A16KNX	O	O	O	O	O	X	X	X	X	X	X	X	X	X	O	X	X	X	-	O	O	O
	KNX001	O	O	O	O	O	X	X	X	X	O	X	X	X	X	X	X	X	X	-	O	O	O
	HARC-BX E (A)	O	O	O	O	O	X	X	X	X	X	X	X	X	X	X	X	O	O	-	X	X	O
	HARC-BX E (B)	O	O	O	O	O	X	X	X	X	X	X	X	X	X	X	X	O	O	-	X	X	O
Control support devices	PSC-A1T	(2)	(2)	(2)	(2)	(2)	(2)	(2)	O	O	(2)	(2)	-	-	-	-	-	-	-	X	O	O	O
	PSC-6RAD	X	X	X	X	X	O	O	O	O	O	O	O	O	O	O	O	X	X	O	O	O	O
	PC-A1IO	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	X	X	O	O	O	O
	PSC-5HR	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O

O: 100% Compatible

X: Not compatible

(1): Compatible with limitations.

(2): PSC-A1T is connected directly to central controls. If there are other controls in the same H-LINK II system with timer settings, ensure that contradictory timer orders are not set.

2.4.4 Compatibility between multiple units of the same control

Next table shows the maximum number of same devices that can be connected on an H-LINK system.

	PC-ART	PC-ARF	PC-ARH	PC-LH3A	PC-LH3B	PSC-A64S	PSC-A64GT	PSC-A32MN	PSC-A16RS	CSNET WEB	CSNET MANAGER	HC-A64NET	HC-A8MB	HC-A64MB	HC-A16KNX	KNX001	HARC-BX E (A)	HARC-BX E (B)	PSC-A1T	PSC-6RAD	PC-A1IO	PSC-5HR
Maximum number of same devices	nl-1	nl-1	nl-1	nl-1	nl-1	8	8	8	8	1	8	1	1	1	8	1	4	4	1	nl-2	16	4

- nl-1: not limited because it is connected to an indoor unit.
- nl-2: not limited, maximum number defined by H-LINK (145 elements, H-LINK I device).

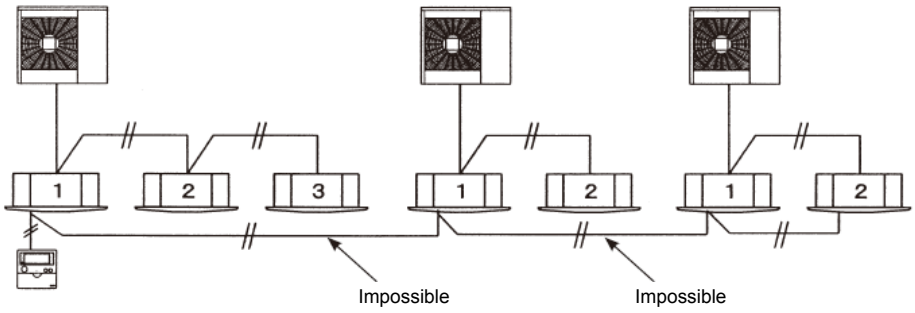
2.4.5 Considerations depending on the outdoor and indoor units

◆ Simultaneous operation for UTOPIA series

In case of using PC-ARF, PC-ART, PC-ARH or PC-LH3(A/B) with H-LINK II units UTOPIA simultaneous operation (Twin, Triple, Quad), remote control cable between indoor units can be removed.

However, the following limitations exist.

1 PC-ARF, PC-ART, PC-ARH or PC-LH3(A/B) cannot be installed as a second remote control in the same unit as sub controller. (But they can be installed as main controller.)
2 Optional Function setting for “remote ON/OFF”, “power supply ON/OFF” and “controller not available mode” can be set only at the Master unit.
3 It is not permitted to group indoor units from different outdoor units in the same remote control. If grouping indoor units from different outdoor units, an interconnection cable must be installed between indoor units from different outdoor units.
4 In case of central control, only the Indoor unit with remote control connected can be the Master unit. Indoor Unit address cannot be set from remote control when no cable option is used.



◆ Combination with indoor units

- When using the controllers PC-ARF, PC-ART, PC-ARH, HARC-BX E (A/B) or the receiver kits PC-ALHZ(F) with RPK models, the RPK indoor unit must be set as “Wired” by means of the SW2 of the PCB2. Otherwise, the operation is not available.

Factory setting	Wired remote control
Wired / Wireless 	Wired / Wireless 

- When using two remote controls in one indoor unit, ensure that one of them is set as “Master” and the other one is set as “Slave”.

2.5 Controls specification

2.5.1 Number of controllable units

Next table shows the maximum quantity of each type of units which can be controlled depending on the controller.

		Number of controllable units		
		Outdoor units	Groups of units	Indoor units
Individual remote controls	PC-ARF	1	1	16 (*)
	PC-ART	1	1	16 (*)
	PC-ARH	1	1	16 (*)
	PC-LH3A	1	1	16 (*)
	PC-LH3B	1	1	16 (*)
Centralised remote controls	PSC-A64GT	64	64	160
	PSC-A32MN	32	32	160
	PSC-A64S	64	64	160
	PSC-A16RS	16	16	160
Building AC controls	CSNET WEB (PSC-A160WEB1)	256 (**) (64)	-	640 (**) (160)
	CSNET MANAGER	512	-	1280
	HC-A64NET	64	-	64
Gateways for building management systems (BMS)	HC-A8MB	8	-	8
	HC-A64MB	64	-	64
	HC-A16KNX	16	-	16
	KNX001	64	-	128
	HARC-BX E (A)	8	64	128
	HARC-BX E (B)	8	32	128
Control support devices	PSC-A1T	-	-	-
	PSC-6RAD	1	-	1
	PC-A1IO	-	1	1
	PSC-5HR	-	-	-

(*): It is possible to group up to 16 units under each controllable unit address. All of the grouped units are managed as one.

(**): Up to 4 PSC-A160WEB1 devices by software can be connected, increasing the maximum number of controllable units.

2.5.2 List of main functions for each control

Next table shows the main available data on each control:

		ON/OFF	MODE	TEMPERATURE	FAN SPEED	LOUVER	INDIVIDUAL LOUVER	CENTRAL	TIMER	AUTO COOL/HEAT	ALARM	EXTRA DATA (1)
Individual remote controls	PC-ARF	C	C	C	C	C	C	C	C	C	R	R
	PC-ART	C	C	C	C	C	-	C	C	C	R	R
	PC-ARH	C	C	C	C	C	-	R	-	-	R	-
	PC-LH3A	C	C	C	C	C	-	-	C	-	-	-
	PC-LH3B	C	C	C	C	C	-	-	C	-	-	-
Centralised remote controls	PSC-A64GT	C	C	C	C	C	-	C	C	C	R	R
	PSC-A32MN	C	C	C	C	C	-	C	C	C	R	R
	PSC-A64S	C	C	C	C	C	-	C	C	C	R	-
	PSC-A16RS	C	-	-	-	-	-	-	-	-	-	-
Building AC controls	CSNET WEB	C	C	C	C	C	-	C	C	C	R	R
	CSNET MANAGER	C	C	C	C	C	-	C	C	C	R	R
	HC-A64NET	C	C	C	C	C	-	C	-	-	R	R
Gateways for building management systems (BMS)	HC-A8MB	C	C	C	C	C	-	C	C	-	R	R
	HC-A64MB	C	C	C	C	C	-	C	C	-	R	R
	HC-A16KNX	C	C	C	C	C	-	C	-	-	R	-
	KNX001	C	C	C	C	C	-	C	-	-	R	R
	HARC-BX E (A)	C	C	C	C	-	-	C	-	-	-	R
	HARC-BX E (B)	C	C	C	C	C	-	C	-	-	R	R
Control support devices	PSC-A1T	-	-	-	-	-	-	-	C	-	-	-
	PSC-6RAD	W	W	W	W	-	-	W	-	-	-	-
	PC-A1IO	C	C	-	C	C	-	C	-	-	R	-
	PSC-5HR	-	-	-	-	-	-	-	-	-	-	-

◆ Special functions for CSNET WEB and CSNET Manager

	COL DRAFT	HEAT DRAFT	OU NIGHT MODE	OU POWER CONTROL	POWER METER OPTION	MODBUS CONNECTION	FIDELIO	ALARM EMAIL NOTIFICATION	WEB ACCESS	ALARM LOG	POWER CONSUMPTION	BUILDING LAYOUT
CSNET WEB	C	-	-	-	R	C	C	O	C	R	R	O
CSNET MANAGER	C	C	C	C	R	C	C	O	C	R	R	O

R : Read.
C: Read and Write.
W: Write.
O: Available.
(1) The specific extra data available in each control is explained on its chapter.

3. Features and benefits

Index

3.1 Individual remote controls

3.1.1 PC-ARF

PC-ARF: Remote control with timer

Advanced Legibility and Attractive design

- The newly adopted LED-backlit LCD provides enhanced legibility.
- Large, clear character display is realized by Full Dot Matrix LCD.

Operation Improvement

- The newly adopted directional key provides optimised operation. The manual operation is facilitated by reducing number of switch buttons from 13 to 9.
- 4 types of menus are offered for flexible use as follows:
  - Menu: Contains “Schedule Timer”, “Elevating Grille”, etc. for users.
  - Help Menu: Contains information provided by this remote control switch for users such as “About Operation”, “Contact Information”, etc.
  - Test Run Menu: This menu provides the functions for installation of this remote control switch.
  - Check Menu: This menu provides the functions for service and maintenance.

Schedule Timer

- “Schedule Timer” provides the timer operations for “Run/Stop” and “Temperature Setting”. The weekly management is available by using this function. Additionally, “Holiday Setting” and “Schedule ON/OFF” setting are available.

Simple Timer

- In addition to the scheduled timer operation above, “Simple Timer” (timer operation for one day) is offered.

Adjusting Brightness of Run Indicator

- Going to “Menu” “Screen Display Setting”, brightness of run indicator is adjustable by the dimmer function for the night time.

Improvement Provides

- The air conditioner can always be controlled under the same specified temperature condition. When the unit is restarted by remote control switch, the temperature automatically changes to the specified value by “Eco-operation (Item: J8)” of “Function Selection”. The temperature is specified by “Automatic Reset Temperature for Cooling (Item: F5)” and “Automatic Reset Temperature for Heating (Item: F6) of “Function Selection”.

Operation Mode:

- “COOL” for cooling, “HEAT” for heating, “DRY” for dehumidification, “FAN” for ventilation and “AUTO” for automatic cooling/heating changeover.

Other functions

- Allows all indoor unit functions to be selected and changed.
- Malfunction or problem warnings with alarm code indications.
- Just one remote control can control up to 16 indoor units.
- Built-in temperature sensor.

3.1.2 PC-ART

PC-ART: Remote control with timer

- Excellent display thanks to a large sized LCD screen, facilitating both programmable variable and possible alarm indication readings.
- Allows all indoor unit functions to be selected and changed.
- Optimum air conditioning control with its weekly timer.
- Malfunction or problem warnings with alarm code indications. There are 45 alarm codes for identifying and easily locating any fault or problem in the unit. The alarms are classified into groups to facilitate maintenance procedures.
- Just one remote control can control up to 16 indoor units.
- Operation lock procedure to avoid incorrect use of the buttons.
- Remote control data storage: The remote control stores all information on the status of the units at the time when the last system alarm was triggered, allowing the user to easily ascertain the cause of the alarm and resolve the problem. The remote control memory stores all of the pre-configured information of both the remote control and the connected units.
- Built-in temperature sensor.

Operation Mode:

- “COOL” for cooling, “HEAT” for heating, “DRY” for dehumidification, “FAN” for ventilation and “AUTO” for automatic cooling/heating changeover.

“VENTI” Option:

- VENTI: only activates the Total heat exchanger units.
- A/C: only activates the Air Conditioning unit.
- A/C+VENTI: activates both at the same time, also allowing a forced delay of 30 minutes or 1 hour when you want to increase the equipment’s energy savings.

Additional functions:

- Weekly timer.
- Defrosting, frost protection.
- Clogged filter alarm.

3.1.3 PC-ARH

PC-ARH: Simplified remote control

- Specially designed for hotels applications.
- Just one remote control can control up to 16 indoor units.
- Operation mode selection.
- Smaller remote control than conventional models.
- Easy to use and therefore perfect for installations used by various different people.
- Malfunction or problem warnings with alarm code indications.
- Operation mode lock option.
- Louver can be selected.
- Fan speed can be selected.
- Adjustable temperature limit.
- Remote sensor.

Optional functions:

- Auto COOL/HEAT.
- Increasing of Fan Hi Speed.
- Cooling and heating limitations for setting temperature.

3.1.4 PC-LH3(A/B)

PC-LH3(A/B): Wireless remote control

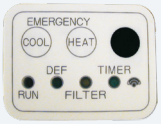
- Wireless remote control that requires no wiring and provides simple one-touch operation.
- Same remote control for all the indoor units.
- Each indoor unit has its own receiver.
- Up to 16 indoor units can be controlled simultaneously by one wireless remote control in case that all units are installed in the same room. To do this, the indoor units must be interconnected by means of control cables.
- Specific function “Identifying of indoor units installed side by side” for those indoor units which are installed very close and each one needs to be independent. This function enables to operate individually each unit without interfering other unit’s operation.

NOTE

- *PC-LH3A is available for combination with the receiver kits (PC-ALH, PC-ALHN, PC-ALHC, PC-ALHD and PC-ALHZ).*
- *PC-LH3B is available for combination with the receiver kits (PC-ALH3, PC-ALHZF and PC-ALHP1) and the indoor units which are supported HIGH2 fan speed mode.*
- *The fan speed setting “HIGH2” is not indicated on PC-LH3A.*

Wireless receiver kit

PC-LH3(A/B) requires the installation of a wireless receiver kit in order to let the indoor unit receive the signal from the wireless remote controller. The list of all the available wireless receiver kits for each indoor unit is shown below:

Receiver kit	Indoor unit	Wireless remote control	Installation type	Image
PC-ALH	RCI-FSN3Ei	PC-LH3A	On the panel	
PC-ALHN				
PC-ALHC	RCIM-FSN3	PC-LH3A		
PC-ALHD	RCD-FSN2	PC-LH3A		
PC-ALH3	RCI-FSN3 RCI-FSN3Ek	PC-LH3B		
PC-ALHP1	RPC-FSN3	PC-LH3B		
PC-ALHZ	RCI-FSN3Ei RCIM-FSN3E RCD-FSN2 RPC-FSN2 RPI-FSN(3/4)(P)E RPIM-FSN4E(-DU) RPK-FSN(H)2M RPF(I)-FSN2E	PC-LH3A	On the wall	
PC-ALHZF	RCI-FSN3 RCI-FSN3Ek RPK-FSN(H)3M RPC-FSN3	PC-LH3B		

NOTE

RPK-FSN(H)3M indoor unit comes with a built-in wireless receiver kit in the panel. Use PC-LH3B wireless remote controller in combination with this indoor unit.

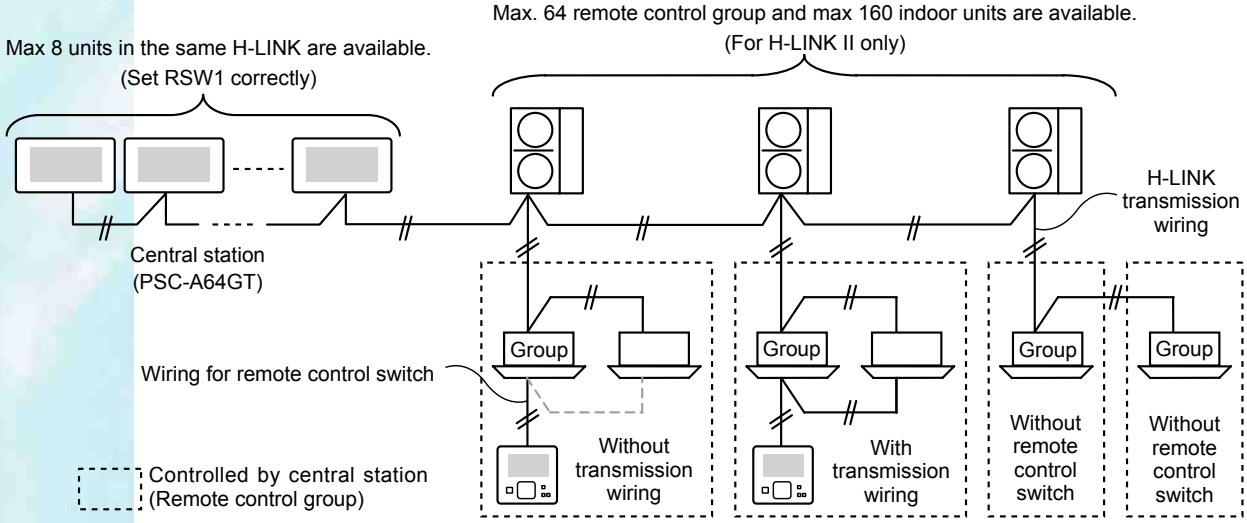
3.2 Centralised remote controls

3.2.1 PSC-A64GT

The central station (PSC-A64GT) is connected to H-LINK system and used for the central control and monitoring of the air conditioners.

PSC-A64GT: Touch Screen Central Station

- Touch Screen Central Station with attractive design.
- Monitoring of Operating Conditions for Block/Groups.
- Up to 4 blocks with a maximum number of 16 groups per block. Therefore, up to 64 groups can be created.
- A maximum number of 16 indoor units by group is allowed, with a maximum of 160 indoor units per H-LINK II system.
- Up to 8 central stations EZ (PSC-A64GT) can be connected to a H-LINK.
- Compatible with all RCS and Timers
- The main control functions are: Run/Stop Operation Mode Change, Fan Speed Control, Swing Louver Direction Control, Temperature Setting, Permitting/Prohibiting Operation by Remote Control Switch.
- Optional Functions:
  - Schedule Operation (Run/Stop and Temperature Setting) for Block/Group
  - Run/Stop, Emergency Stop and Demand Function by External Input
  - Run an Alarm Output by External Output
  - Control Exception Function of All Run/Stop Command for Selected Groups
  - Control Exception Function of All Run/Stop Command for Selected Groups by External Input
  - Indication and Calculation of Unit Accumulated Operation Time of Each Group
  - Indication of Alarm History Record
  - Registering Name of Blocks and Groups
  - Registration and Indication of Service Contact Information
- Operation modes can be selected as Normal Operation or Run/Stop Only.
- A system configuration example is shown below:

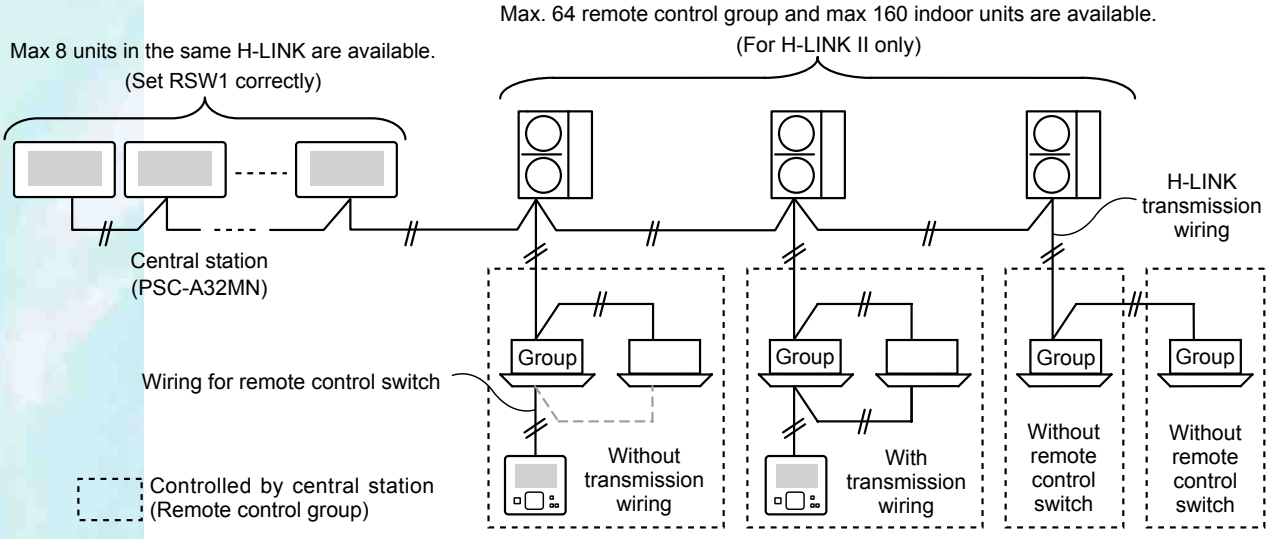


3.2.2 PSC-A32MN

The central station mini (PSC-A32MN) is connected to H-LINK system and used for the central control and monitoring of the air conditioners.

PSC-A32MN Touch Screen Central Station mini

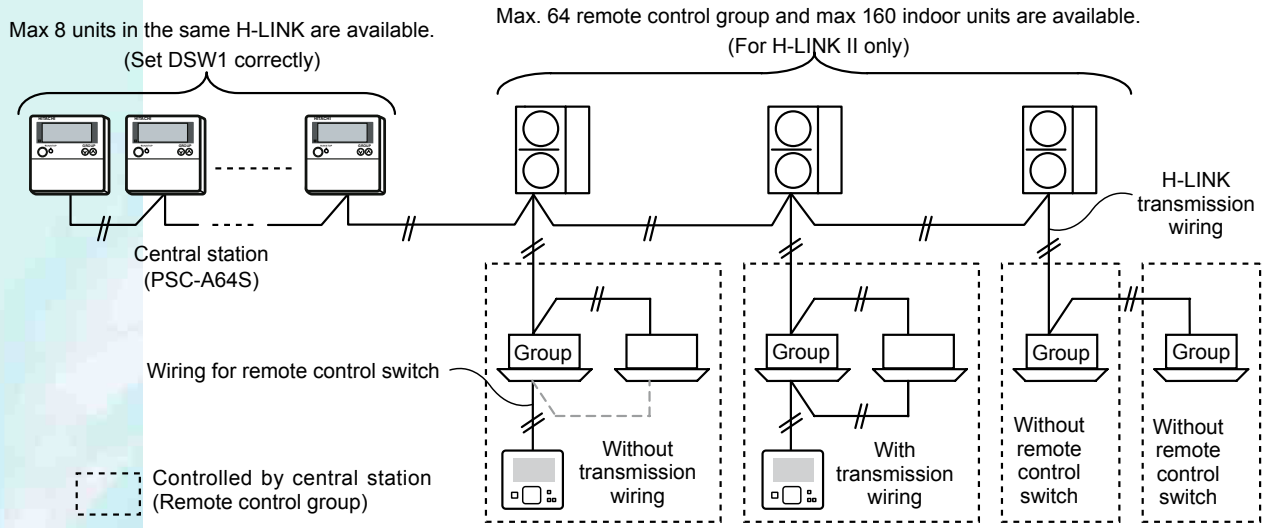
- Touch Screen Central Station with attractive design and reduced dimensions.
- Monitoring of Operating Conditions for Block/Groups.
- Flexible selection of the Blocks/Groups. Up to 32 groups can be created and controlled by one PSC-A32MN. It allows the following combinations (4 blocks x 8 groups, 8 blocks x 4 groups, 2 blocks x 16 groups, 16 blocks x 2 groups).
- A maximum number of 16 indoor units by group is allowed, with a maximum of 160 indoor units per H-LINK II system.
- Up to 8 central stations mini (PSC-A32MN) can be connected to a H-LINK.
- The main control functions are: Run/Stop Operation Mode Change, Fan Speed Control, Swing Louver Direction Control, Temperature Setting, Permitting/Prohibiting Operation by Remote Control Switch.
- Optional Functions:
  - New function “Setting temperature range of the remote control” for limiting the minimum temperature value in cooling operation, or the maximum temperature value in heating operation.
  - Schedule Operation (Run/Stop and Temperature Setting) for Block/Group
  - Run/Stop, Emergency Stop and Demand Function by External Input
  - Run an Alarm Output by External Output
  - Control Exception Function of All Run/Stop Command for Selected Groups
  - Control Exception Function of All Run/Stop Command for Selected Groups by External Input
  - Indication and Calculation of Unit Accumulated Operation Time of Each Group
  - Indication of Alarm History Record
  - Registering Name of Blocks and Groups
  - Registration and Indication of Service Contact Information
- Operation modes can be selected as Normal Operation or Run/Stop Only.
- Brief explanation of the different icons by pressing the “Icon Guide” button.
- A system configuration example is shown below:



3.2.3 PSC-A64S

PSC-A64S: Centralised remote control

- Up to 4 zones with a maximum number of 16 groups per zone. Therefore, up to 64 groups can be created.
- A maximum number of 16 indoor units by group is allowed, with a maximum of 160 indoor units per H-LINK II system.
- Up to 8 central remote controls (PSC-A64S) can be connected to a H-LINK.
- Compatible with all the RCS and Timers.
- In addition to the basic functions, operation mode and temperature setting, the air flow and automatic louver can also be adjusted.
- When a problem occurs, an alarm code will immediately be displayed with detailed information about the error. The alarms are classified into groups to facilitate maintenance procedures.
- Also includes the option of receiving and sending external signals, along with the option to connect with the PSC-A1T timer.
- The external signals control the following functions:
  - Simultaneous operation/stop of all the units.
  - Simultaneous emergency stop of all the units.
  - Operation signal for some of the controlled units.
  - Alarm signal for some of the controlled units.
- The central station can be used together with each unit's individual remote control.
- A system configuration example is shown below:



3.2.4 PSC-A16RS

PSC-A16RS is an ON/OFF controller which allows to manage the running/stop state of 16 groups.

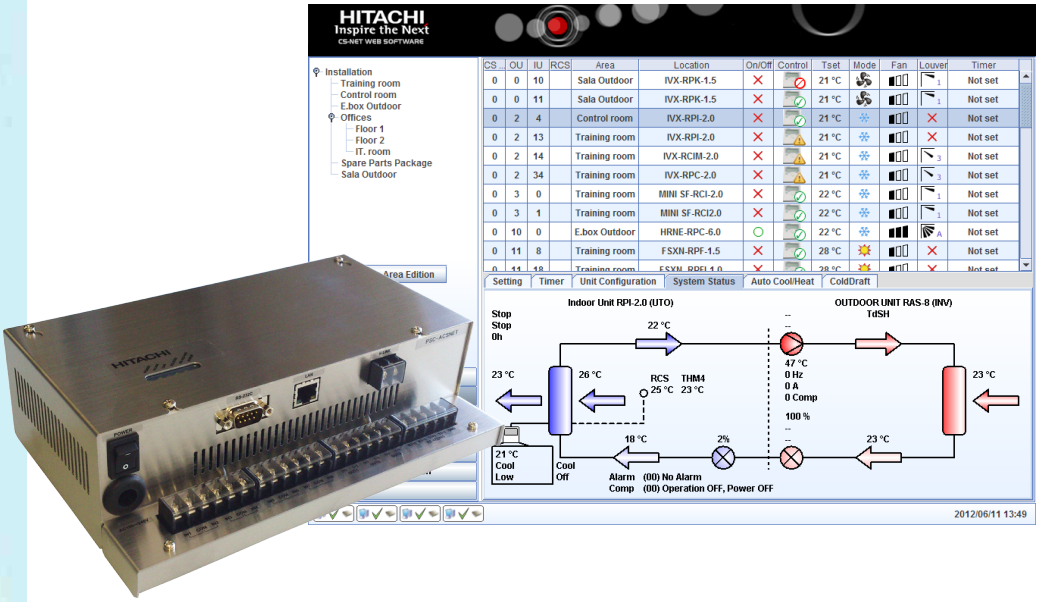
PSC-A16RS Centralised ON/OFF remote control

- User-friendly product with a simply function works.
- Two available switches for the ON/OFF function:
  - Individual RUN/STOP switch: To order the operation/stoppage of one group.
  - Simultaneous RUN/STOP switch: To order the simultaneous operation/stoppage of all the groups. Up to 16 unit groups at the same time.
- Up to 8 centralised ON/OFF controllers (PSC-A16RS) can be connected to a H-LINK.
- A maximum number of 16 indoor units by group is allowed, with a maximum of 160 indoor units per H-LINK II system.

3.3 Building AC controls

3.3.1 CSNET WEB (PSC-A160WEB1)

The Building AC Control device named CSNET WEB is an independent centralised control system which can control an H-LINK communication line by using the PSC-160WEB1 hardware. It can control up to 160 indoor units and 64 outdoor units.



CSNET WEB (PSC-A160WEB1): Centralised Building AC Control

- CSNET WEB can manage up to 4 PSC-A160WEB1 controlling a maximum of 160x4 indoor units (640 indoor units).
- It is recommended in those installations with more than two floors which need to be separately controlled.
- CSNET WEB connects to a Local Area Network or Internet (using a DSL Router) by means of its Ethernet port, so that the parameters can be adjusted and monitored at a distance.
- The internal memory for adjustments to the timer and the units allows CSNET WEB to perform independently after initial adjustment through a personal computer or similar device.
- The physical device (hardware) of CSNET WEB is called PSC-A160WEB1.
- CSNET WEB can be installed at any point of the building and can be accessible from any computer in the building that is connected to the same network and configured to use it.
- Extra-functions:
  - Cold draft
  - Auto Cool/Heat
  - Timer
  - Power meter option
  - MODBUS connection
  - Fidelio for hotels
  - Alarm email notification
  - Web access
  - Alarm log
  - Power consumption
  - Building layout

3.3.2 CSNET MANAGER (LT/XT)

The CSNET Manager is an independent centralised control system with touch screen connected to a HC-A64NET gateway that can control up to 1280 indoor units in an H-LINK communication line.

CSNET MANAGER (LT/XT): Centralised Building AC Control with touch screen

Overview

- CSNET Manager keeps the functionality of CSNET WEB regarding internet connection and let users to control their units through the web browser of a computer, tablet or smartphone.
- CSNET Manager is available into screen sizes (LT: 12” screen, XT: 17” screen), being the computer functions and hardware capacity the same for both sizes.

Connectability

CSNET Manager Screen can connect up to 8 different devices. The following devices are suitable for connection:

- HC-A64NET: CSNET Manager is connected to an H-Link installation through an HC-A64NET gateway controlling up to 64 indoor units. CSNET Manager is used to transmit orders, to store historical data and for time and power consumption management.
- CSNET WEB (PSC-A160WEB1): CSNET Manager is connected to an H-Link installation through CSNET WEB hardware (PSC-A160WEB1) that can control up to 160 indoor units. Its control functions are those in CSNET WEB, and CSNET manager just operates as a graphical interface for the user, like the current TS002.
- CSNET Manager: CSNET Manager is connected to another CSNET Manager that it is connected to the H-Link installation through a HC-A64NET or PSC-A160WEB1. The maximum number of indoor units controlled by CSNET Manager is 1280 in case of having 8 connected PSC-A160WEB1 devices. Furthermore, two CSNET Managers can be interconnected, allowing each of them to monitor and control the H-Link installation connected to the other one.

One CSNET Manager can control up to 8 CSNET Managers, but the total quantity of controlled indoor units can never exceed the maximum quantity of 1280 indoor units.

Accessories

- Mounting accessories: CSNET Manager has standard VESA mounting dimensions commonly available in the market. However, HITACHI offers 2 accessories for the CSNET Manager (LT/XT) assembly:
  - Stand mounted support
  - Wall mounted support
- Net configuration tool: This kit includes a USB cable and an Ethernet crossed cable for the configuration and commissioning of the HC-A64NET and CSNET Managers. The pen drive includes a ‘net configuration tool’ which allows an easy and smart configuration of the HC-A64NET.

Special software functions

- In addition to a large quantity of functions shared with CSNET WEB, CSNET Manager brings the following functions:
  - New Timer with unlimited calendar configuration.
  - Heating Fan stop during thermo off (Heat draft).
  - Outdoor unit night mode
  - Outdoor unit power control
  - Virtual PC-ARF.
  - Control orders sent by multiple selections.

3.3.3 HC-A64NET (CSNET MANAGER gateway)

HC-A64NET is the H-LINK gateway used by CSNET Manager to communicate with the units through the H-LINK protocol.

HC-A64NET: H-LINK gateway used by CSNET MANAGER screens

- HC-A64NET is connectable up to 64 indoor units and connectable only to one CSNET Manager. However, up to 8 HC-A64NET can be connected to the same CSNET Manager.
- Reduced dimensions: Smaller size than PSC-A160WEB1 device.
- Easy installation: HC-A64NET is provided with a DIN rail 35 mm structure for a faster assembly.

3.4 Gateways for building management systems (BMS)

3.4.1 HC-A(8/64)MB

HC-A8MB and HC-A64MB are the new interfaces which allow an easy integration of HITACHI Air Conditioning installations to a MODBUS BMS by providing full management control of Air Conditioning installation to the BMS controllers.

HC-A(8/64)MB: Gateway Interface to MODBUS systems

- HC-A8MB and HC-A64MB include new parameters compared with current HC-A32MB:
  - Gas pipe temperature reading
  - Liquid pipe temperature reading
  - Compressor stop cause
  - Indoor unit expansion valve opening
  - Ambient temperature
  - Remote control switch temperature
  - Remote sensor temperature
- Two different available gateways for small and medium installations (nº. of indoor units):
  - HC-A8MB: max. 8 indoor units
  - HC-A64MB: max 64 indoor units (max. indoor units quantity increased from 32 units in previous version)
- Only 1 HC-A(8/64)MB can be connected to an H-LINK system.
- Many BMS Systems have gateways to MODBUS system. Therefore, HC-A(8/64)MB can be used to connect to different BMS.
- Easy installation: HC-A(8/64)MB is provided with a DIN rail 35 mm structure for a faster assembly.
- Connectable ports:
  - RS485 Modbus
  - Modbus/TCP (Ethernet)
- Device setup by a smart computer application for a better system configuration.

3.4.2 HC-A16KNX

KNX is a European Standard Protocol used for household and industrial Building Management System (BMS). HC-A16KNX accessory allows a complete integration between HITACHI Air Conditioning installation and a KNX system.

HC-A16KNX: Gateway Interface to KNX systems

- HC-A16KNX is a gateway that allows connection between KNX BMS communication network and HITACHI proprietary H-Link line.
- HC-A16KNX is configured directly from KNX ETS software like most devices in KNX network which is supplied and managed by KNX company.
- HC-A16KNX is compatible with H-LINK 2 while maintaining full compatibility with H-LINK 1 units.
- Up to 8 HC-A16KNX can be connected in an H-LINK line. Only one of this HC-A16KNX devices must be set as master.

3.4.3 KNX001 (CSNET WEB accessory)

A HITACHI Air-Conditioning system is integrated with a KNX system using CSNET WEB and the KNX001 device.

KNX001: Gateway Interface to KNX system

- KNX001 is connected to CSNET WEB (Building Air Conditioning Control) using Modbus TCP connection.
- Connecting one KNX-001 to CSNET WEB allows to use:
  - Up to 64 refrigerant cycles
  - Up to 128 indoor units
- Reduced dimensions: Easy to place it in any location thanks to its compact size.
- Easy installation: KNX001 is provided with a DIN rail 35 mm structure for a faster assembly. It is recommended to install inside electrical box.

3.4.4 HARC-BX E (A/B)

HARC-BX E is a LonWorks® interface that allows connection between LON BMS communication and HITACHI proprietary H-LINK line.

HARC-BX E (A/B): Gateway Interface to LONWORKS systems

- There are two types of HARC-BX E, (A) and (B), depending of which product is working, you can control more fields of the units, or more units in the network.
  - HARC-BX E (A) allow the control of 64 indoor units and 8 outdoor units. HARC-BX(A) can control 7 points per indoor unit.
  - HARC-BX E (B) allow the control of 32 indoor units and 8 outdoor units. HARC-BX(B) can control 14 points per indoor unit.
- HARC-BX E (A/B) allows the control of up to 5 setting points and the remote supervision of a maximum of 9 values.
- Up to 8 HARC-BX E (A/B) can be connected on a H-LINK line.
- The HARC-BX E (A/B) can be connected to any point of the H-Link system.
- The HARC-BX E (A/B) offers the option of self-checking their own status. It provides the necessary information for the BMS control to easily check the system's operation in addition to the alarms when they occur.

3.5 Control support devices

3.5.1 PSC-A1T

The PSC-A1T is a programmable weekly timer intended for use with other remote controls which do not have a built-in weekly timer option, in order to provide them a full complete timer control.

PSC-A1T: Programmable Timer

- The 7 days of the week and the start/stop times can be scheduled up to 3 times a day with the PSC-A1T timer.
- The remote control can be deactivated during the stoppage time (if it is used with the PSC-A64S).
- It has two types of weekly schedules (A and B), which can easily be changed for winter and summer periods.
- All the settings are digitally displayed allowing the operation and settings to be checked easily.
- The power failure safety function prevents the timer from stopping during a power cut (even if it lasts for weeks).

3.5.2 PSC-6RAD

The PSC-6RAD is an adapter which allows to connect the RAC models to a H-LINK system.

PSC-6RAD: RAC adapter

- Up to 128 units can be connected in case that H-LINK is made up only by RAC adapter.
- In case of combination use with H-LINK devices like package air-conditioner, 16 refrigerant systems and up to 128 indoor units can be used.
- RAC adapter and room air-conditioner shall be connected one by one. Only one RAC adapter cannot control various room air-conditioners.
- PSC-6RAD makes possible the following points:
  - Enable Room Air Conditioner Central Control from the Central Controller: The room air conditioners in the facilities such as special elderly nursing homes, hotels or hospitals are available to be centrally controlled from the central controller.
  - Enable Central Control both Packaged Air Conditioners and Room Air Conditioners: In case of room air conditioners installed together with packaged air conditioners, both air conditioners are available to be controlled by the same central controller.
- The following control/monitor functions are available from the central controller:
  - Run/Stop
  - Setting Operation Mode
  - Setting Temperature
  - Setting Air Flow Volume

3.5.3 PC-A1IO

This product allows the integration of certain equipment to H-LINK bus, giving the chance to monitor and control certain parameters of non-HITACHI equipment by HITACHI CSNET WEB.

PC-A1IO: H-LINK system integration device

- This application is open to control this equipment and other devices/accessories that are compatible with the control specification of PC-A1IO.
- All the devices connected to PC-A1IO are managed as normal HITACHI Indoor Unit in current HITACHI Central Controls.
- PC-A1IO is compatible with H-LINK 2 while maintaining full compatibility with H-LINK 1 units.
- Up to 16 PC-A1IO can be connected in an H-LINK line. At least one of this PC-A1IO must be set as master.
- A PC-A1IO set as master uses two addresses, one as an Outdoor Unit and one as a Indoor Unit. In this case, PC-A1IO is counted as two H-LINK devices.

3.5.4 PSC-5HR

The maximum H-LINK electrical wiring length is 1,000 m. However, there are cases where a longer H-LINK electrical wiring length is required. For this cases there is available the PSC-5HR accessory. The PSC-5HR is an H-LINK relay that re-sends the H-LINK messages that receives.

PSC-5HR: H-LINK relay

- Adding one PSC-5HR, a length of 1000 extra meters of H-LINK wiring is available.
- Up to 4 PSC-5HR can be connected, allowing 5000 meters in total.

3.5.5 PC-AMTB

PC-AMTB is a connection board for multitenant buildings (office buildings, multi dwelling, small hotels). It provides a solution in such installations with a refrigerant system compounded by several indoor units of different tenants with a common shared outdoor unit (typically Set Free systems), when the power supply of some indoor units is shut-down together with the tenant installation without causing refrigerant systems problems.

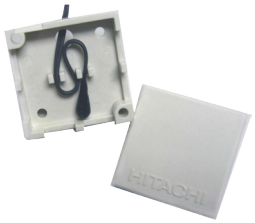
PC-AMTB: Connection board for multitenant buildings

This device keeps the presence of the indoor unit in the refrigerant system control, even if the relevant indoor unit is disconnected, and it manages the expansion valve control in order to adjust the refrigerant flow accordingly.

PC-AMTB is power supplied at 24 VDC or VAC from a power net independent from the tenant installation.

3.5.6 THM-R2AE

The THM-R2AE is a remote sensor for the indoor units used to control the indoor temperature by an average air temperature between the indoor inlet and the remote sensor point. The cord of the remote sensor must be connected to THM4 connector in the indoor unit. This cord has a length of 8 m, but using an extension cord (field-supplied, with wire size over 0.3 mm^2) it can be extended up to 15 m (including the extension cord length).



THM-R2AE: Remote sensor

3.6 Control accessories

3.6.1 Wall / Stand mounted support for CSNET Manager LT/XT

CSNET Manager has standard VESA mounting dimensions commonly available in the market. However, HITACHI offers 2 accessories for the CSNET Manager (LT/XT) assembly:

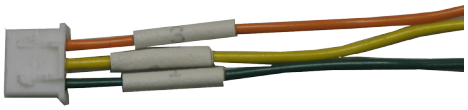
- **Wall mounted support**

(Image to be informed later)

- **Stand mounted support**

3.6.2 PCC-1A

The PCC-1A is a 3P connector cable used when the remote ON/OFF device is connected or signals are taken out on the printed circuit board. One set contains five 3P connector cables.



PCC-1A Optional function 3P connector cable

- Dedicated connector for the optional functions. To be connected to the printed circuit board of the units.
- This last updated PCC-1A connector cable does not contain any Substance of Very High Concern (SVHC) according to Article 59 of REACH Regulation 1997/2006 of European Union.

3.6.3 PRC-(10/15/20/30)E1

The PRC-(10/15/20/30)E1 is a 2P extension cable intended for individual remote controllers or central extensions whose cables need to be extended up to more than 30 m. When the total cable length is not higher than 30 m, other type cable (more than 0.3 mm^2) can be used.

PRC-(10/15/20/30)E1: 2P extension cable

- The 2P extension cable is available in four different lengths:
  - PRC-10E1: 10 m
  - PRC-15E1: 15 m
  - PRC-20E1: 20 m
  - PRC-30E1: 30 m
- The remote control cable can be extended to a maximum of 500 m.

3.6.4 Net Config. Kit

This accessory provides all the necessary devices for HITACHI installers when commissioning a Modbus installation.

Net Config. Kit: Net configuration kit for HC-A(8/64)MB and HC-A64NET

- The USB memory stick includes a software tool for Modbus communication check when commissioning.
- The USB cable is only required when configuring the device (network parameters)
- The Ethernet cable is provided for a quick connection with a laptop for the Modbus communication check.

3.7 Other devices compatible with HITACHI Air Conditioning systems

3.7.1 HITACHI-AIRZONE gateway (HITI11001)

- HTI11001 is a HITACHI-AIRZONE gateway applicable to HITACHI RPI(M) units, since FSN2E series, providing compatibility with the AIRZONE systems, zone-based climate-control systems. The HTI11001, HITACHI-AIRZONE Communication Gateway is commercialised directly by AIRZONE.
- Zoning Systems, in a ducted air-conditioning installation, allows having an individual control of the temperature in each room.
- AIRZONE has several zoning systems. This HTI11001 is providing compatibility with the following AIRZONE systems:
  - Universal AIRZONE system
  - AIRZONE Antree system
  - Innobus system
- RPI operation through AIRZONE protocol: AIRZONE protocol is acting in the following RPI setting points:
  - Unit ON/OFF
  - Unit operation mode: Only available COOL/HEAT/FAN
  - Unit fan speed
  - Unit setting temperature

3.7.2 Power meter for CSNET WEB and CSNET Manager

- Power Meter option lets the user to configure a TCP-MODBUS power meter for each outdoor unit.
- After configure the power meter per outdoor unit, it is needed to set the address where power meter reads the input in (kW). With that, the same calculations than current power consumption are carried out, but taking data of the power consumption.
- Suggested device tested by Hitachi is **7KM PAC3200** by Siemens.

3.7.3 MODBUS-BACNET gateway

- The integration of HITACHI systems into a BACNET installation can be carried out by using a double gateway system:
  - HITACHI MODBUS gateway: HC-A(8/64)MB, PSC-A160WEB1 or CSNET Manager with HC-A64NET which provide HLINK data into a Modbus protocol.
  - Standard MODBUS-BACNET gateway available in the market which transfers MODBUS data into BACNET data.
- There are wide several solutions available in the market which should allow the transfer of MODBUS collected data by Hitachi gateways into BACNET data. Anyway, HITACHI recommends the solution offered by Intesis Software company that offers 6 possible devices available for such application which are different in terms of:
  - No. of points (parameters) available: 100, 500, 1000.
  - Type of desired MODBUS channel: RTU (only with HC-A(8/64)MB) or TCP.

3.7.4 MODBUS-FIDELIO gateway

- The integration of HITACHI systems into a FIDELIO installation can be carried out by using a double gateway system:
  - HITACHI MODBUS gateway: HC-A(8/64)MB, PSC-A160WEB1 or CSNET Manager with HC-A64NET which provide HLINK data into a Modbus protocol.
  - Standard MODBUS-FIDELIO gateway available in the market which transfers MODBUS data into FIDELIO data.
- There are wide several solutions available in the market which should allow the transfer of MODBUS collected data by Hitachi gateways into FIDELIO data. Anyway, HITACHI recommends the solution offered by Intesis Software company.

4. Individual remote controls

Index

4.1 PC-ARF

4.1.1 Safety summary

HITACHI can not anticipate every possible circumstance that might involve a potential hazard.

⚠ DANGER

- ***DO NOT handle the remote control with wet hands.***
- ***DO NOT spill water on the remote control. This may cause an electric shock.***
- ***If the safety devices are activated too frequently or the buttons do not work properly, turn off the unit at the mains and contact your HITACHI service provider.***
- ***In the event of other incidents of an electrical nature, turn off the system, switch it off at the mains and contact your HITACHI service provider.***

⚠ CAUTION

DO NOT install the indoor unit, outdoor unit, remote control or any wiring in the following locations:

- *Where there are oil vapours and the oil is dispersed.*
- *In the proximity of hot water or heat sources or in sulphuric environments.*
- *In locations prone to the generation, accumulation, leakage or flow of flammable gas.*
- *Close to the sea (saline atmospheres).*
- *In acidic or alkaline environments.*
- *Within the reach of children.*
- *Directly in front of the air-conditioning system outlet.*
- *To avoid electromagnetic compatibility problems, DO NOT install the indoor unit, outdoor unit, remote control or any wiring within 3m from strong sources of electromagnetic radiation (e.g. waves generated by medical equipment). If the system should be installed in a location where electromagnetic waves are produced, protect the remote control and wiring by covering them with the steel casing and passing the cable through the metal duct.*
- *If electrical noise should be generated at the indoor unit power source, install a noise filter.*

⚠ CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle this appliance properly and safely.*
- *Children should be supervised to ensure that they do not play with the appliance.*

4.1.2 Installation

4.1.2.1 Installation site selection

Take note of the maximum admissible cable length between units and the control as well as between the units themselves, as shown in the following table:

Cable section	0.3 mm^2	≥ 0.75 mm^2
Cable length	30 m	500 m

4.1.2.2 Components list

Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quant.	Comments
Remote control		1	For controlling system operation
M4x16L screws		2	For fixing the bracket to the wall
Installation and operation manual		1	Installation and operation unit instructions.

4.1.2.3 Description of the parts

❶ Fan speed indicator (*):
Indicates the fan speed selected: H-HI, HIGH, MED or LOW

❷ Operation mode Indicator:
The indications of “HEAT” and “AUTO” are indicated only for the heat pump type models.

❸ Operation Guide indicator
“Central Control” is indicated while the remote control operation is prohibited.

❹ Run Indicator
It lights while the unit is operated, and it flashes in an abnormal conditions.

❺ RUN/STOP button

❻ ARROW Key

❼ ENTER Key

❽ RETURN button
To return to the previous screen.

❾ HELP button
To display Help Menu.

❿ MENU button
To display Menu.

⓫ MOTION SENSOR Indicator
It is indicated only for the air panel with motion sensor.

⓬ Setting Temperature Indicator

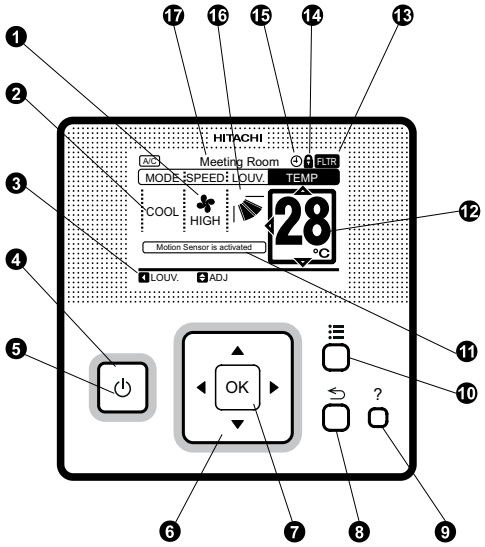
⓭ Filter Sign Indicator
It is indicated at the set period for filter cleaning.

⓮ Operation Lock Indicator
It is indicated when the operation lock function is set.

⓯ Schedule Timer Indicator
It is indicated when the schedule timer function is set.

⓰ Swing louver indicator

⓱ Room Name Indicator



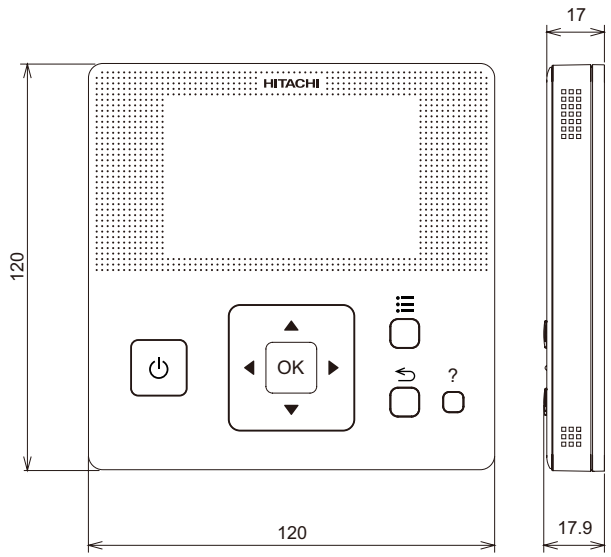
Model: PC-ARF

NOTE

(*): The fan speed settings “HI-H” and (or) “AUTO” may not be available depending on the indoor unit type.

4.1.2.4 Dimensional data

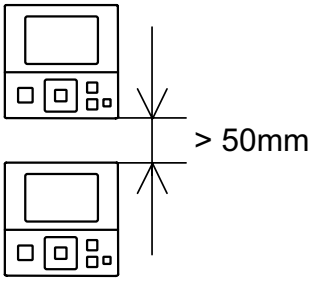
(mm)



4.1.2.5 Installation space

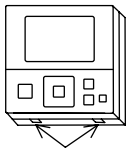
In case of installing the controllers in vertical line, keep a distance more than 50mm between the controllers vertically.

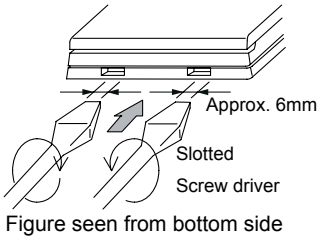
If the distance is insufficient, the controller can not be taken out.

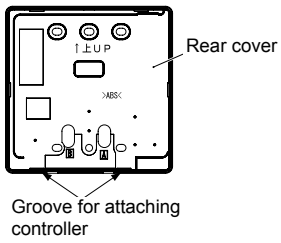


4.1.2.6 Installation procedure

1 Insert the edge of the slotted screwdriver into the groove at the bottom of the holding bracket, push and turn the slotted screwdriver and then remove the remote control switch from the holding bracket.



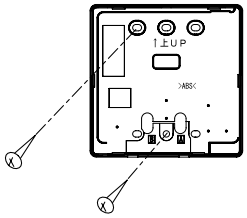




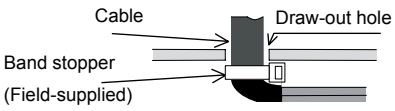
2 Attach the remote control switch to the holding bracket and connect the cable as follows:

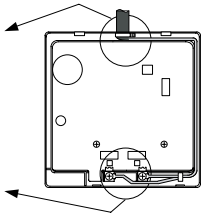
◆ In Case of Exposing Remote Control Cable

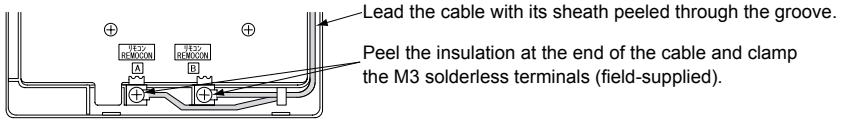
a. Fix the holding bracket onto the wall with screws (accessory).



b. Attach the stopper (plastic band) to the cable at the inside of the draw-out hole.







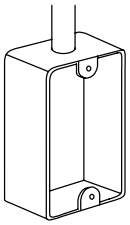
◆ When Using Switch Box

a. Prepare field-supplied Implanted Switch Box

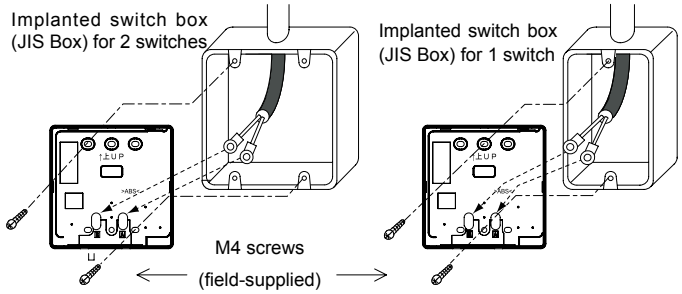
(JIS Box). (JIS C 8336-1988)

There are different types of electrical boxes available on the market that can be used for this installation, for example:

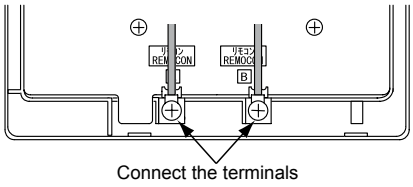
- Electrical box for one control unit (with or without cover.)
- Electrical box for 2 control units (with or without cover.)
- Other types of box



b. Lead the cable through the conduit tube in the wall.

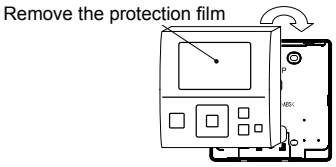


c. Peel the insulation at the end of the cable and clamp the M3 solderless terminals (field-supplied).



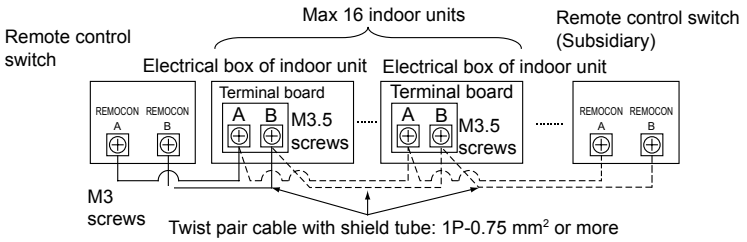
3 Attach the remote control switch to the holding bracket. Be careful not to pinch the cable when attaching it.

4 Remove the protection film from the liquid crystal display.



4.1.3 Electrical wiring

◆ Wiring example (Using a twist pair cable with shield tube)



⚠ CAUTION

Always make sure to turn off the power of the indoor unit when performing electrical wiring work. Performing electrical wiring work with the power on can damage the circuit boards of the indoor unit and the remote control switch.

NOTE

- *Use a 0.3 to 0.75 mm² cable for connecting. The maximum total cable length is 30 m. If the total cable length exceeds 30 m, use a twist pair cable with shield tube (1P - 0.75 mm²). In that case, the maximum total cable length is 500 m. If using in combination with the control timer, the allowable total cable length is up to 100 m. The use of a cable other than that specified above can cause of malfunction due to effects of noise.*
- *Keep a distance more than 30 cm between the transmission line (remote control switch cable and transmission wires) and power source of the indoor units. If not, the air-conditioner may not operate properly or malfunction may occur due to effect of power source noise.*
- *In case of simultaneously controlling multiple indoor units, set the refrigerant cycle numbers and addresses of the indoor units without overlapping.*
- *Refer to the Technical Catalogue provided with each indoor unit when performing electrical wiring work between the remote control switch and indoor units for setting the refrigerant cycle number and the indoor unit address.*
- *No gap shall exist between the remote control switch cable and hole of the remote control switch case. If there is a gap, cover the gap with vinyl tape. If not, malfunction may occur due to entrance of water droplets or insects.*
- *In case of operating with two remote control switches (Main and Sub), set the main and sub remote control switches by selecting the appropriate function with the remote control switches according to the chapter Function selection and setting. After setting it, turn off the power supply of all the indoor unit connected to the remote control switches.*
- ***The control timer cannot be used together with this remote control switch.***

4.1.4 Operation

◆ Before operation

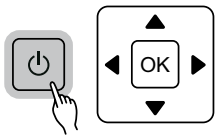
⚠ CAUTION

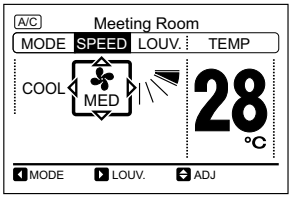
- *Turn on the electrical power supply to the system approximately 12 hours before start-up after a long shutdown. Do not start the system immediately after connecting the power supply, because the compressor may be damaged if it is not sufficiently heated.*
- *Make sure the outdoor unit is not covered with ice or snow. If it is, remove the ice or snow with warm water (no hotter than 50°C). If the water temperature is over 50°C, the plastic parts may be damaged.*
- *When the system is started after being out of use for more than 3 months, we recommend that the system is checked by the service provider.*
- *If the system is not going to be used for a long period of time, turn it off at the mains. Otherwise it will continue to consume electricity, since the oil heater remains on even when the compressor is off.*

4.1.4.1 Basic Operation

Operation start

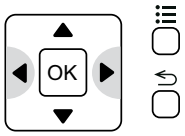
Press "⏻" (run/stop). The run indicator will be turned on and the operation will be started.

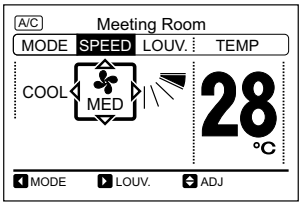




Item selection

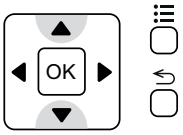
By pressing "◁"or "▷", the icon "⬚" will move to the next item in order of the indications "MODE", "SPEED", "LOUV." and "TEMP".

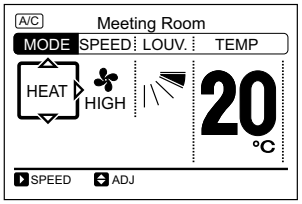




Change of settings

With the item ("MODE", "SPEED", "LOUV" or "TEMP") selected, press "△" or "▽". The setting will be changed.



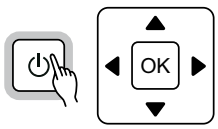


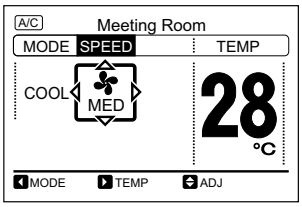
Operation stop

Press "⏻" (run/stop) again. The run indicator will be turned off and the operation will be stopped.

NOTE

After the heating operation is stopped, the air flow operation may be activated for approximately 2 minutes.

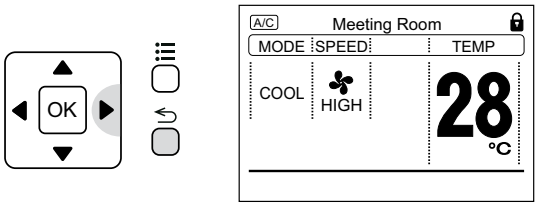




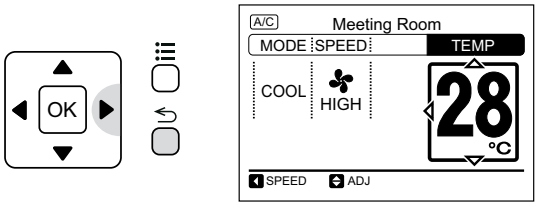
Operation lock

- This function is used to lock the setting from the remote control switch.
- The following functions are applicable.
  - **a.** Operation Mode (MODE)
  - **b.** Temperature Setting (TEMP)
  - **c.** Fan Speed (SPEED)
  - **d.** Swing Louver Direction (LOUV)

1 Setting of the operation lock, press "▷" and "⮌" (return) simultaneously for 3 seconds. The icon of "🔒" will be turned ON. Even when "◁" or "▷" is pressed, locked setting items will be skipped.



2 Cancellation of the operation lock, press "▷" and "⮌" (return) simultaneously for 3 seconds. "🔒" will be turned OFF, and operation lock will be canceled.



NOTE

- *Every time pressing "▷" and "⮌" (return) simultaneously for 3 seconds, the operation lock state will be switched alternately to locked/ unlocked.*
- *Select the functions to lock at the function selection setting. Contact your distributor or dealer of HITACHI for detailed information.*

4

4.1.4.2 Test run menu

◆ Test run

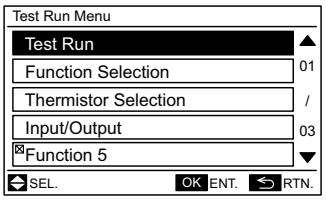
1 Turn ON the power supply for all the indoor units.

2 For the models with the auto-address function, wait for 3 minutes approximately. The addressing is automatically performed. (There is a case that 5 minutes are required according to the setting condition.) After that, select using language from "Menu".

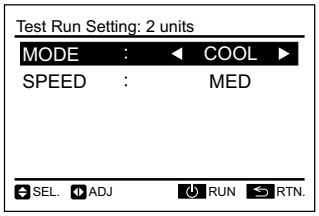
3 Press and hold "☰" (menu) and "⮌" (return) simultaneously for at least 3 seconds.

Test run screen

a. The test run menu is displayed.

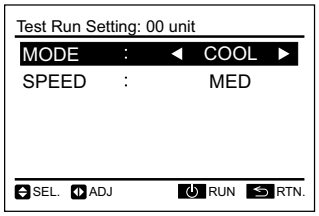


b. Select "Test Run" and press "OK". The test run settings are displayed then.

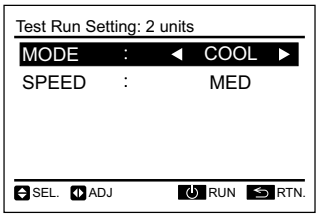


NOTE

When "00" is indicated, the auto-address function may be performing. Cancel "Test Run" mode and set it again.



4 The total number of the indoor units connected is indicated on the LCD (liquid crystal display). The case of the twin combination (one set with two indoor units) is indicated “2 units”, and the triple combination (one set with three indoor units) is indicated “3 units”.



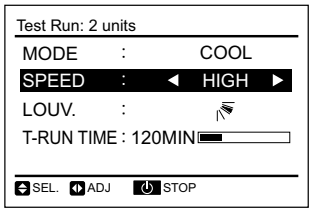
a. If the indicated number is not equal to the actual connected number of indoor unit, the auto-address function is not correctly performed due to incorrect wiring, the electric noise or etc. Turn OFF the power supply and correct the wiring after checking the following points; (Do not repeat turning ON and OFF within 10 seconds.)

- Power supply for indoor unit is not turned ON or incorrect wiring.
- Incorrect connection of connecting cable between indoor units or incorrect connection of controller cable.
- Incorrect setting of rotary switch and dip switch (the setting is overlapped) on the indoor units PCB.

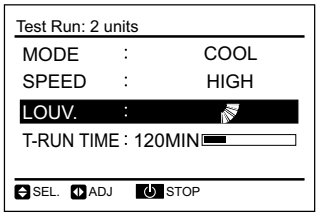
b. Press “⏻” (run/stop) to start the test run.

c. Press “△ ▽ ◁ ▷” and set each item.

5 Press “⏻” (run/stop). Start the test run when indicating the air flow volume “HIGH” (default setting) and light the operation lamp. At this time, 2-hour OFF timer will be set automatically.



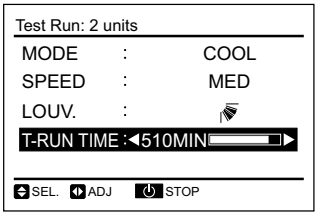
6 Press “△” or “▽”, select “LOUV.” and select “” (auto swing) by pressing “◁” or “▷”. The auto swing operation will be started. Check the operating sound at the louvers. If abnormal sound is not generated, press “◁” or “▷” again to stop the auto swing operation.



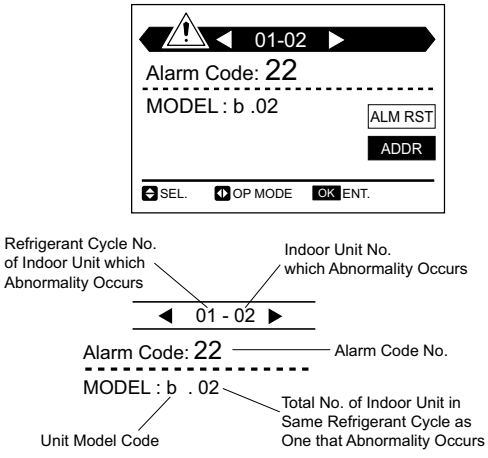
7 The temperature detections by the thermistors are invalid though the protection devices are valid during the test run.

8 For SET-FREE Series: According to the label “Checking of Outdoor Unit by 7-Segment Display on PCB1” attached to the rear side of the front cover of the outdoor unit, check temperature, pressure and the operation frequency, and connected indoor unit numbers by 7-Segment displays.

9 To finish the test run, press “⏻” (run/stop) again or pass over the set test run time. When changing the test run time, press “△” or “▽” to select “T-RUN TIME”. Then, set the test run time (30 to 600 minutes) by pressing “◁” or “▷”



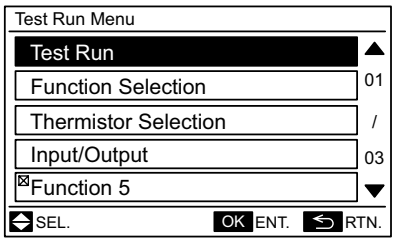
The RUN indicator on the remote control switch flashes when some abnormalities such as protection devices activated occur during the test run as well as the RUN indicator (orange) on the indoor unit flashes (0.5 second ON/ 0.5 second OFF). Additionally, the alarm code, the unit model code and connected number of indoor units will be displayed on the LCD as shown in the figure below. If the RUN indicator on PC-ARF flashes (2 seconds ON/ 2 seconds OFF), it may be a failure in the transmission between the indoor unit and the remote control switch (loosening of connector, disconnecting wiring or breaking wire, etc.). In this case, check the item “Alarm Code” and perform for troubleshooting. Consult to authorized service engineers if abnormality can not be recovered.



◆ Function Selection and Input/Output setting from remote control

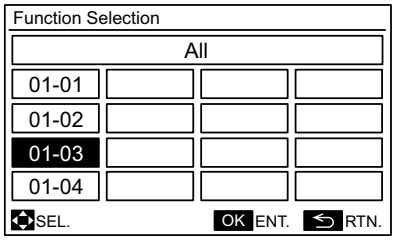
1 Press and hold "☰" (menu) and "⮌" (return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated). The test run menu is displayed then.

2 Select "Function Selection" or "Input/Output" from the test run menu and press "OK".

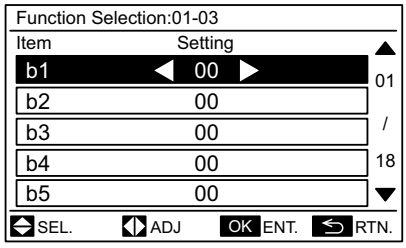


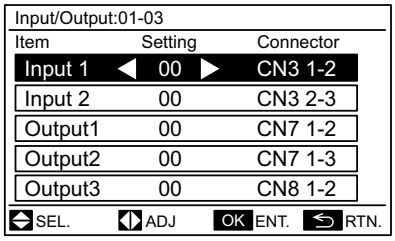
3 Select the indoor unit by pressing "△ ▽ ◁▷" and press "OK".

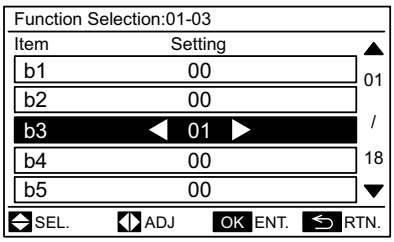
(This screen is NOT displayed when the number of indoor units connected with the remote control switch is 1. In this case, go directly to the step 4).

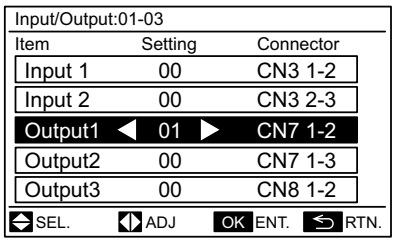


Function Selection	Input/Output Setting
4 Press "△ ▽" and select the item.	Press "△ ▽" and select the item.
5 Press "◁▷" and change the setting.	Press "◁▷" and change the setting.





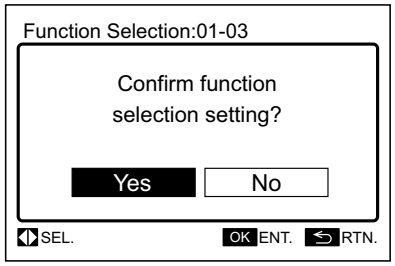




6 Press "OK", then the confirmation screen is displayed.

7 Select "Yes" and press "OK". The test run menu is displayed after the setting is confirmed. If "No" is pressed, the screen returns to (4).

8 Press "⮌" (return) on the test run menu to return to the normal mode.



(Figure for Function Selection)

To set other units, press "⮌" (return) at steps 4 and 5 so that the screen returns to step 3 (If the number of indoor units connected with the remote control switch is 1, the screen returns to step 1).

Optional functions list

Items	Optional Function	Indi-vidual setting	Setting condition	Contents
b1	Cancellation of heating temperature compensation due to uneven heat load	○	00	Standard +4 ºC
			01	Removal (offset elimination)
			02	Set temperature +2ºC (*1)
b2	Circulator function at heating Thermo-OFF	○	00 01	Not available Available
b3	Enforced 3 Minutes minimum operation time of compressor	○	00 01	Not available Available
b4	Change of filter cleaning time	○	00 01 02 03 04	Standard 100 hrs 1,200 hrs 2,500 hrs No indication
b5	Fixing of operation mode	×	00 01	Standard Fixed
b6	Fixing of setting temperature	×	00 01	Standard Fixed
b7	Fixing of operation as exclusive cooling unit	×	00 01	Standard Fixed
b8	Automatic COOL/ HEAT operation	×	00 01	Not available Available
b9	Fixing of fan speed	×	00 01	Standard Fixed
bA	Not prepared	×	-	Not used
bb	Cooling temperature compensation due to uneven heat load	×	00	Standard (No Compensation)
			01	Set Temp. –1ºC
			02	Set Temp. 2ºC
bC	Not prepared	-	00 01	Not used (Use as 00 conditions)
bd	Not prepared	-	00 01	Not used (Use as 00 conditions)
bE	Not prepared	-	00 01	Not used (Use as 00 conditions)
C1	Not prepared	-	00 01	Not used (Use as 00 conditions)
C2	Not prepared	-	-	Not used
C3	HA function (only for Japanese market)	○	00 01	Not available (Use as 00 conditions)
C4	Drain Pump Operation at Heating	○	00 01	Not available Available

Items	Optional Function	Indi-vidual setting	Setting condition	Contents
C5	Hi speed (Except for Hi Speed at Heating Thermo-OFF)	○	00 01 02	Not available Hi Speed 1 (*2) Hi Speed 2
C6	Hi speed at heating Thermo-OFF	○	00 01	Not available Available
C7	Canceling of enforced 3 minutes minimum operation time of compressor	○	00 01	Standard Cancellation
C8	Thermistor of remote control switch	○	00	Not available
			01	Control by thermistor of remote control switch
			02	Control by average value of indoor suction thermistor and thermistor of remote control switch
C9	Not prepared	-	-	Not used
CA	Not prepared	-	-	Not used
Cb	Selection of forced stoppage logic	×	00	Forced stoppage input: A Contact
			01	Forced stoppage input: B Contact
CC	Not prepared	×	00 01	Not used (Use as 00 conditions)
Cd	Not prepared	-	00 01	Not used (Use as 00 conditions)
CE	Not prepared	-	00 01	Not used (Use as 00 conditions)
CF	Change of louver swing angle	○	00	Standard (7-Step Operation)
			01	Cold draft prevention (5 Steps: lower 2 steps cut off)
			02	High ceiling (5 Steps: upper 2 steps cut off)
d1	Power supply ON/ OFF 1	○	00 01	Not available Available
d2	Not prepared	-	-	Not used
d3	Power supply ON/ OFF 2	○	00 01	Not available Available
d4	Prevention for cooling discharge air temperature decrease	○	00 01	Not available Available
d5	Prevention for heating discharge air temperature decrease	○	00 01	Not available Available

Items	Optional Function	Indi-vidual setting	Setting condition	Contents
d6	Room temperature control for energy saving	○	00 01	Not available Available
d7	Fall distance of elevating panel (Indoor units with the elevating grille function only)	○	00~07	Not used (Use as 00 conditions)
E1	KPI: Ventilation mode (*3)	○	00	Automatic ventilation
			01	Ventilation by total heat exchanger
			02	Ventilation with bypass (no total heat exchanger)
	Econofresh: cooling mode (*3)		00	Not available
			01/02	Outdoor cooling mode (all-fresh)
E2	KPI: Increased air supply volume (*3)	○	00	Not available
			01	Available
	Econofresh: enthalpy sensor (*3)		00	Not available
			01	Available
E3	Not used	○	00	Not Used
			01	Used as setting for conditions 00
E4	Pre-cooling / Pre-heating period (*3)	○	KPI:	
			00	Standard
			01	30 minutes
			02	60 minutes
			Econofresh kit:	
			00	Standard
			01/02	CO_2 sensor
E5	Not prepared	×	00 01	Not used (Use as 00 conditions)
E6	Indoor fan operation time after cooling operation stoppage	○	00 01 02	Not available 60 min. 120 min.
E7	Not prepared	○	00 01	Not used (Use as 00 conditions)
E8	Fan operation control at heating Thermo-OFF	○	00 01	Not available SLOW
E9	Not prepared	-	00 01	Not used (Use as 00 conditions)
EA	Not prepared	-	00 01	Not used (Use as 00 conditions)
Eb	Fan operation control at cooling Thermo-OFF	○	00 01 02	Not available LOW SLOW
EC	Forced Thermo-ON stoppage at cooling	○	00 01	Not available Available

Items	Optional Function	Indi-vidual setting	Setting condition	Contents
Ed	Not prepared	-	00 01	Not used (Use as 00 conditions)
EE	Automatic fan speed control	○	00 01	Not available Available
F0	Not prepared	-	-	Not used
F1	Automatic OFF timer setting * Do not set the functions “0C”~“0F” when 2 (two) remote control switches are used in the same remote control group.	×	00	No function
			01	OFF Timer by 1 hr
			02	OFF Timer by 2 hrs
			...	...
			23	OFF Timer by 23 hrs
			24	OFF Timer by 24 hrs
			0A	OFF Timer by 30 min
			0B	OFF Timer by 90 min
			0C	OFF Timer by 40 min
			0D	OFF Timer by 45 min
			0E	OFF Timer by 50 min
			0F	OFF Timer by 55 min
F2	Remote control main-sub setting (*10)	×	00 01	Main Sub
F3	Automatic reset of setting temperature (*4)	×	00 01	Not available Available
F4	Automatic reset time	×	00 01 02 03	30 min. (Factory setting) 15 min. 60 min. 90 min.
F5	Automatic reset temperature for cooling (*5)	×	19	19°C
			20	20°C
			...	...
			25	25°C (Factory setting)
			...	...
			29	29°C
			30	30°C
F6	Automatic reset temperature for heating (*6)	×	17	17°C
			18	18°C
			...	...
			21	21°C (Factory setting)
			...	...
			29	29°C
			30	30°C
F7	Operation stoppage prevention by remote control switch operational error (*7)	×	00 01	Not available Available

Items	Optional Function	Indi-vidual setting	Setting condition	Contents
F8	Lock function for operation mode selection	×	00	Not available
			01	Available (Factory setting)
F9	Lock function for temperature setting	×	00	Not available
			01	Available (Factory setting)
FA	Lock function for fan speed selection	×	00	Not available
			01	Available (Factory setting)
Fb	Lock function for swing louver operation	×	00	Not available
			01	Available (Factory setting)
FC	Cooling lower limit for setting temperature (*5)	×	00	Standard
			01	Lower limit +1 ºC
			02	Lower limit +2 ºC
			...	...
			09	Lower Limit +9 ºC
			10	Lower Limit +10 ºC
Fd	Heating upper limit for setting temperature (*6)	×	00	Standard
			01	Upper limit –1ºC
			02	Upper limit –2ºC
			...	...
			11	Upper limit –11ºC
			12	Upper limit –12ºC
FE	Not prepared	-	00	Not used
			01	(Use as 00 conditions)
FF	Not prepared	-	00	Not used
			01	(Use as 00 conditions)
H1	Not prepared	-	00	Not used
			01	(Use as 00 conditions)
H2	Indication of hot start	×	00	Indication
			01	No indication
H3	Not prepared	-	00	Not used
			01	(Use as 00 conditions)
H4	Not prepared	-	00	Not used
			01	(Use as 00 conditions)
J1	Temperature indication (*8)	×	00	Not available
			01	Available
J2	Not prepared	-	-	Not Used
J3	Run indicator color	×	00	Green
			01	Red
J4	Not prepared	-	00	Not used
			01/02	(Use as 00 conditions)
J5	Not prepared	×	00	Not used
			01	(Use as 00 conditions)
J6	Error sound	×	00	Once
			01	Sequence
J7	Not prepared	-	00	Not used
			01	(Use as 00 conditions)
J8	Eco-operation (*9)	×	00	Not available
			01	Available
J9	Not prepared	-	00	Not used
			01	(Use as 00 conditions)
JA	Not prepared	-	00	Not used
			01	(Use as 00 conditions)
Jb	Not prepared	-	00	Not used
			01	(Use as 00 conditions)
K1	Not prepared	×	-	Not used
K2	Not prepared	×	-	Not used
K3	Not prepared	×	-	Not used
K4	Not prepared	-	00~03	Not used
K5	Human sensor detection level (*11)	-	00	Standard
			01	High
			02	Low

*(*1): The "02" setting may not be available according to the type of indoor unit.*

*(*2):In case of RPI models, 00: standard, 01: high static pressure, 02: low static pressure*

*(*3): E1 to E4: Setting for the total heat exchanger and Econofresh.*

*(*4): In case that the set temperature is changed and kept within the set time at "F4", the temperature is automatically changed to "F5" and "F6". (In case that the set temperature is out of range at "F5" and "F6", it is applied within upper and lower limit for the set temperature.)*

*(*5): Applicable to fan, cooling and dry operation modes.*

*(*6): Applicable to heating operation mode.*

*(*7): Operation is stopped by pressing the "⏻" (run/stop) switch for 3 seconds.*

*(*8): The sensor value at "C8" will be indicated. When the thermistor for remote control switch is used, the average value of the thermistor for remote control switch and the thermistor for indoor inlet will be indicated.*

*(*9): When the unit is restarted by the remote control switch, the temperature automatically changes to the setting temperature of "F5" or "F6".*

*(*10): If function F2 is set up 01 (Sub) is displayed "--".*

*(*11): This function is for air panel with motion sensor. If the air panel don't have available the motion sensor, setting condition is displayed as "--".*

NOTE

- *After at least 3 minutes from the power ON, change the optional setting.*
- *When changing "CF" setting (change of louver swing range), restore the power supply or allow the louver to make one complete swing fully in the auto swing mode to apply the optional setting.*
- *The optional settings are different according to the indoor and outdoor unit models. Check to ensure that the unit has the optional setting or not.*
- *Record the setting conditions for each optional setting in the "Setting" column of the table.*

Table B Input and Output Number Display and Connectors

Input number display	Port	Factory setting	
Input/Output indication		Setting item	Indication
Input 1	CN3 1-2	Remote ON/OFF 1 (Level)	03
Input 2	CN3 2-3	Prohibiting Remote Control after Manual Stoppage	06
Output 1	CN7 1-2	Operation	01
Output 2	CN7 1-3	Alarm	02
Output 3	CN8 1-2	Thermo-ON for Heating	06

Table C Input and Output Settings and Display Codes

Indication	Input	Output
00	Not set	Not set
01	Room Thermostat (for Cooling)	Operation
02	Room Thermostat (for Heating)	Alarm
03	Remote ON/OFF 1 (Level)	Cooling
04	Remote ON/OFF 2 (Operation)	Thermo-ON for Cooling
05	Remote ON/OFF 2 (Stoppage)	Heating
06	Forbidding Remote Control after Manual Stoppage	Thermo-ON for Heating
07	Remote Cooling / Heating Change	Total Heat Exchanger
08	Elevating Grille Input	Elevating Grille Output

NOTE

- *After at least 3 minutes from the power ON, change the optional setting.*
- *The elevating grille input can be set to “Input 2” only.*
- *The elevating grille cannot be set to “Input 1”.*
- *The elevating grille output can be set to “Output 1” or “Output 2” only.*
- *The elevating grille output cannot be set to “Output 3”.*
- *Do not set the elevating grille for the total heat exchanger.*
- *Record the setting conditions for each input and output in the “Setting” column of the table.*

Detailed optional functions

b1 - Cancellation of Heating Temperature Compensation (due to Uneven Heat Load)

This function is utilized when the setting temperature of the remote control switch and the inlet air temperature of the indoor unit are required to be equal.
This is useful when the inlet air thermistor is removed to the outside of the indoor unit.

Setting Temperature for Room Temperature Control during Heating

Setting Condition	Actual Control Temperature
00 (Standard)	Remote Control Switch Setting Temperature (Indicated Value) +4°C
01	Remote Control Switch Setting Temperature (Indicated Value)
02	Remote Control Switch Setting Temperature (Indicated Value) +2°C

NOTE

The maximum setting temperature after correction is as follows: Inverter Multi Unit: 34°C

b2 - Circulator Function during Heating Thermo-OFF

In the standard setting before shipment, the air flow volume changes to “LOW” automatically to prevent a cold draft during heating Thermo-OFF.
Therefore, the air flow might not be distributed uniformly in the room depending on the installation place of the air conditioner or room structure. In such case, it is recommended to utilize this function.
The function keeps the air flow volume during Thermo-OFF at the same level as during Thermo-ON. The air flow in the room is kept at the same level as during Thermo-ON and so the room temperature will be uniformly-distributed. If using the air conditioner with auto swing function, the auto swing function will be activated even during heating Thermo-OFF.

NOTE

The temperature sensibility and demands for air flow distribution differ depending on the person. It is therefore recommended to discuss these matters with customers thoroughly and then to install the unit accordingly.

b3 - Enforced 3 Minutes Minimum Operation Time of Compressor

This function is utilized to protect the compressor. When the function is valid, the compressor does not stop operating for at least 3 minutes after it starts operating. In addition, this unit has “3 Minutes Guard for Compressor Protection” as a standard function not to operate the unit for at least 3 minutes after it stops operating. These functions prevent the compressor from repeating stop-start cycles frequently and so protect it. Refer to Item (C7) to cancel this function. Even if this function is set as invalid, “3 Minutes Guard for Compressor Protection” function is still available.
By factory setting, The functions of enforced 3 minutes minimum operation and minimum 3 minutes stoppage are valid.

NOTE

When the protection device is activated or the “RUN/STOP” switch is pressed, the compressor stops immediately.

b4 - Change of Filter Cleaning Time

The period before filter sign indication is set according to indoor unit model before shipment.
The filter sign (“FLTR” on remote control switch) is indicated according to the filter cleaning time (Factory Setting). However, this filter cleaning time can be changed depending on the condition of the filter as shown in the table below.

Period for Filter Sign Indication	Approx. 1,200 hrs.	Approx. 100 hrs.	Approx. 1,200 hrs.	Approx. 2,500 hrs.	No Indication
Liquid Crystal Display on Remote Control Switch	00 (Factory Setting)	01	02	03	04

While “Control by External Input” is valid, the filter sign will be “No Indication” if the external input is disconnected.

b5 - Fixing of Operation Mode

This function is utilized when the operation mode is not required to be changed.
When this function is valid, the set operation mode cannot be changed by the remote control switch.

b6 - Fixing of Setting Temperature

This function is utilized when setting temperature is not required to be changed.
When this function is valid, the setting temperature cannot be changed by the remote control switch.

b7 - Fixing of Operation as Exclusive Cooling Unit

This function is utilized when exclusive cooling operation is required.
This function invalidates the heating operation and the automatic COOL/HEAT operation setting from the remote control switch, as in the operation of exclusive cooling unit.

b8 - Automatic COOL/HEAT Operation

This function is utilized to change the cooling and heating operation automatically (the same operation mode for indoor units in the same refrigerant cycle).
This function is invalid when the outdoor unit is cooling-only model or the function of “Fixing of Operation as Exclusive Cooling Unit” is valid.

b9 - Fixing of Fan Speed

This function is utilized to fix the fan speed.
When this function is valid, the fan speed cannot be changed by the remote control switch.

bA - Not Prepared

bb - Cooling Temperature Compensation (due to Uneven Heat Load)

This function is utilized to provide the longer cooling operation time than the standard.
When this function is valid, Thermo-ON/OFF is controlled under the lower temperature conditions than the setting temperature (the indicated value) by the remote control switch.

Setting Temperature for Room Temperature Control during Cooling

Setting Condition	Actual Control Temperature
00 (Standard)	Remote Control Switch Setting Temperature (Indicated Value)
01	Remote Control Switch Setting Temperature (Indicated Value) -1°C
02	Remote Control Switch Setting Temperature (Indicated Value) -2°C

NOTE

The minimum setting temperature after correction is 19 °C.

bC - Not Prepared

bd - Not Prepared

bE - Not Prepared

C1 - Not Prepared

C2 - Not Prepared

C3 - Not Prepared

C4 - Not Prepared

C5 - Hi Speed (Except for Hi Speed during Heating Thermo-OFF)

This function is utilized to increase the fan speed for the sufficient air flow volume. It is recommended to use this function when the air flow volume is decreased by using the optional deodorant air filter, or installing the unit on the high ceiling etc.

C6 - Hi Speed during Heating Thermo-OFF

Not Used (Use as 00 conditions)

C7 - Cancelling of Enforced 3 Minutes Minimum Operation Time of Compressor

The function (3) “Enforced 3 Minutes Minimum Operation Time of Compressor” is the standard function. This function is utilized to cancel the function (3) “Enforced 3 Minutes Minimum Operation Time of Compressor” (Enforced 3 Minutes Compressor Guard).

C8 - Thermistor of Remote Control Switch

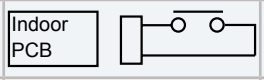
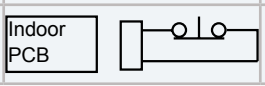
This function is utilized to control the unit by the built-in thermistor of the remote control switch (remote control thermistor) instead of the inlet air thermistor.
Set this function at “01” or “02” when utilizing this function.
However, the control is changed to the inlet air thermistor of the indoor unit automatically if the detected temperature is abnormal due to the failure of the remote control thermistor, etc..

C9 - Not Prepared

CA - Not Prepared

Cb - Selection of Forced Stoppage Logic

This function is utilized to select the logic of the contact for forced stoppage signal input.
The setting conditions and the logic of the contact are as shown below.

Setting condition	Logic of contact	Sequence	Activation	
			Contact "open"	Contact "close"
00	A Contact		Normal	Forced Stoppage
01	B Contac		Forced Stoppage	Normal

CC - Not Prepared

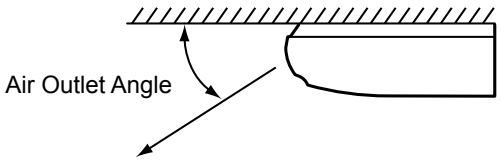
Cd - Not Prepared

CE - Not Prepared

CF - Change of Louver Swing Angle

This function is utilized to change louver swing angle.

Setting Condition	Louver Swing Angle (Air Discharge Angle)	Purpose
00	Approx. 0° to 45°	Standard Operation
01	Approx. 0° to 25°	Draft Prevention
02	Approx. 10° to 45°	For High Ceiling



NOTE

When changing the setting, turn OFF the power supply or make the louver swing a couple of times in the auto swing mode to validate the setting

d1 - Power Supply ON/OFF 1 (Automatic Operation when Power Supply Is ON)

This function is utilized to run/stop the unit by turning ON/OFF the power supply.
When this function is utilized in the condition that there is no person to operate the unit, monitor the system for disaster prevention.

NOTE

- *When changing the setting, turn OFF the power supply or make the louver swing a couple of times in the auto swing mode to validate the setting.*
- *The unit will be stopped even when the power supply is turned ON/OFF due to power failure. If power failure occurs during the stoppage of the unit, the operation is restarted after the power supply is restored.*

d2 - Not Prepared

d3 - Power Supply ON/OFF 2 (Restarting Function After Power Failure)

This function is utilized to restart the unit operation automatically when the power supply is restored after the power failure over 2 seconds. In case of the power failure for 2 seconds or less, the standard unit memorize all the operation modes and restarts the operation automatically. (The compressor restarts operation after 3 minutes guard in addition to power failure time for up to 2 seconds.)
When this function is utilized in the condition that there is no person to operate the unit, monitor the system for disaster prevention.

NOTE

- *If power failure occurs during the stoppage of the unit, the unit remains stopped after the power supply is restored.*
- *When the compressor does not reach the fixed temperature, the system may not restart automatically after turning on the power supply by hot-start control.*
  **Hot-start Control: The control program that does not operate the compressor even after the power is turned ON if the compressor does not reach the fixed temperature.*

d4 - Prevention for Cooling Discharge Air Temperature Decrease

This function is utilized to change Thermo-ON/OFF conditions during the cooling operation and prevent the discharge air temperature decrease. As a result, the perception of cold draft is prevented.

- Thermo-OFF Conditions
  - **a.** Cooling Operation (including Dry Operation) and
  - **b.** Indoor discharge air temp. ≤ 11 °C for 3 minutes

(Thermo-OFF is activated when discharge air temperature is low.)

- Thermo-ON Conditions
  - **a.** Indoor discharge air temp. > 13 °C and
  - **b.** Thermo-ON depending on indoor inlet air temperature

(Thermo-ON is Not activated when discharge air temperature is low.)

d5 - Prevention for Heating Discharge Air Temperature Decrease

This function is utilized to prevent discharge air temperature decrease during the heating operation by making the actual fan speed lower than the speed indicated on the remote control switch.

	Large ← Fan Speed → Small		
Indications on Remote Control Switch	HIGH	MED	LOW
Actual Fan Speed	MED	LOW	LOW

d6 - Room Temperature Control for Energy Saving

This function is utilized to automatically save energy. If the outdoor temperature air thermistor detects from the outdoor temperature that the air-conditioning load is low, the setting temperature automatically shifts into the energy-saving mode.

d7 - Not Prepared

E1 - Ventilation Mode (for Total Heat Exchange Model)

Not Used (Use as 00 conditions)

E2 - Increasing Supply Air Volume (for Total Heat Exchange Model)

Not Used (Use as 00 conditions)

E3 - Not Prepared

E4 - Precooling/Preheating Period (for Total Heat Exchange Model)

Not Used (Use as 00 conditions)

E5 - Not Prepared

E6 - Indoor Fan Operation Time After Cooling Operation Stoppage

This function is utilized to prevent moulds and an unusual odour. When this function is utilized, The unit continues “SLOW” indoor fan operation (for 60 or 120 minutes depending on the setting) even during cooling operation stoppage and thereby prevents dew condensation, drying the unit.

E7 - Not Prepared

E8 - Fan Operation Control during Heating Thermo-OFF

This function is utilized to prevent the perception of cold draft by reducing the indoor fan speed during heating Thermo-OFF.

Setting Condition	Fan Operation during Thermo-OFF
00	LOW
01	SLOW

E9 - Not Prepared

EA - Not Prepared

Eb - Fan Operation Control during Cooling Thermo-OFF

This function is utilized to prevent diffusion of odour and high humidity by reducing the indoor fan speed during cooling Thermo-OFF.

Setting Condition	Fan Operation during Thermo-OFF
00	Operation at Set Fan Speed
01	LOW
02	SLOW

EC - Forced Thermo-ON Stoppage during Cooling

This function is utilized to stop the operation by forced Thermo-ON when cooling operation is stopped.
This is effective to prevent unusual odour because the heat exchanger is kept in the clean condition, rinsed with drain water.

Ed -Not Prepared

EE - Automatic Fan Speed Control

This function is utilized to economize the operation. The air flow volume is automatically adjusted when the room temperature is near the setting temperature.

F1 - Automatic OFF Timer Setting

This function is utilized to set the OFF timer function automatically when the unit is operated by the remote control switch.
During the operation with the automatic OFF timer setting function, the cancellation of the OFF timer and the changing of the setting period for OFF timer cannot be performed.
However, the OFF timer function is cancelled when the unit is stopped. When the unit is operated again after stoppage, the setting period for OFF timer is set by the optional setting.
The setting condition and the setting period for OFF timer are shown below.

- Example for PC-ARF

Setting Condition	Setting Period for OFF Timer
00	Invalid
01	1 hour
02	2 hours
M	M
23	23 hours
24	24 hours
0A	30 minutes
0B	90 minutes
0C	40 minutes
0D	45 minutes
0E	50 minutes
0F	55 minutes

NOTE

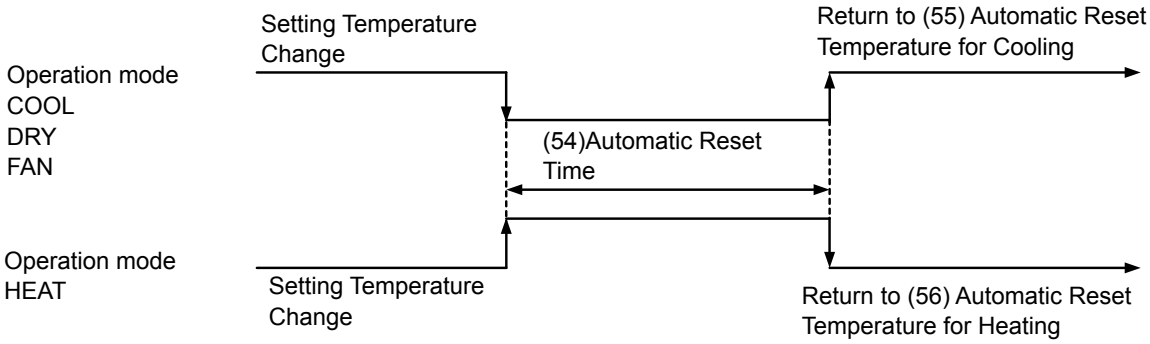
- *This function is not available when the unit is controlled by the centralized controller, the remote control connected with CS-NET or 7-day Timer.*
- *The range of setting period for OFF timer differs depending on the remote control switch model.*

F2 - Remote Control Main-Sub Setting

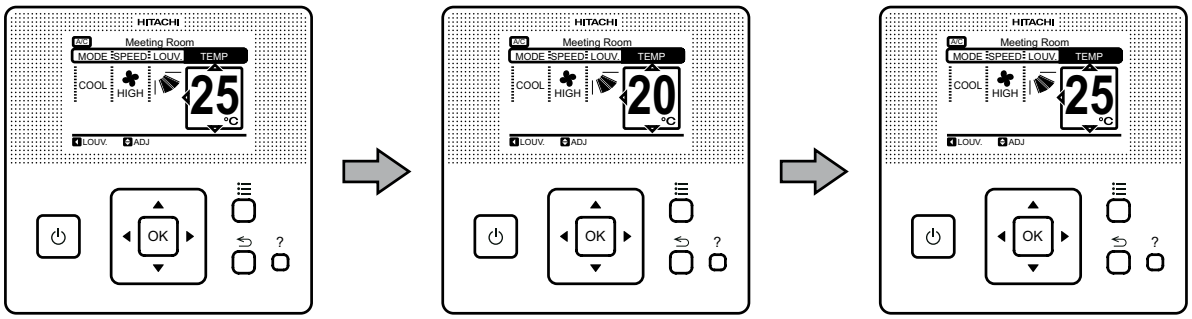
This function is utilized when two remote control switches are installed in one system.
Set one remote control switch to main “00”, the other remote control switch to sub “01”.

F3 - Automatic Reset of Setting Temperature

This function is utilized to economize the operation. When this function is valid, in the case that the setting temperature is not changed for a given period of time by the function (54) “Automatic Reset Time (F4)”, the setting temperature automatically returns to (55/56) “Automatic Reset Temperature for Cooling/Heating (F5/F6)” as following conditions. However, the setting temperature is not automatically reset in the case that “Automatic COOL/HEAT Operation” mode is set, or “Prohibiting Operation by Remote Control Switch” is set by the centralized controller.



- Example: Automatic Reset Temperature for Cooling is 25 °C



Setting temperature is changed from 25 to 20 ºC by the remote control switch.

Cooling operation at 20 ºC is permormed temporarily.

If there is no operation for a defined period, the setting temperature returns to 25 ºC automatically.

F4 - Automatic Reset Time

This function is utilized to set the automatic reset time of the setting temperature.
The setting conditions and automatic reset time are as follows:

Setting Condition	Automatic Reset Time of Setting Temperature
00	30 minutes (Factory-Setting)
01	15 minutes
02	60 minutes
03	90 minutes

F5 - Automatic Reset Temperature for Cooling

This function is utilized to set the automatic reset temperature for FAN/COOL/DRY operation.
The setting conditions and the automatic reset temperature for cooling are as follows:

Setting Condition	Setting Temperature for Automatic Reset
19	19 °C
20	20 °C
M	M
25	25 °C (Factory-Setting)
M	M
29	29 °C
30	30 °C

F6 - Automatic Reset Temperature for Heating

This function is utilized to set the automatic reset temperature for HEAT operation.
The setting conditions and the automatic reset temperature for heating are as follows:

Setting Condition	Setting Temperature for Automatic Reset
17	17°C
18	18°C
M	M
21	21°C (Factory-Setting)
M	M
29	29°C
30	30°C

F7 - Operation Stoppage Prevention by Remote Control Switch Operational Error

This function is utilized to prevent the careless operational stoppage caused by remote control switch operational error. When this function is valid, the operation is stopped by pressing "⏻" (run/stop) switch on the remote control switch for more than 3 seconds. However, the operation method is not changed.

F8 - F9 - FA - Fb - Operation Lock

Four operation lock functions are available as shown below.

These functions are utilized to restrict each switch operation from the remote control switch.

When these functions are valid, the operation is prevented from operational error or tampering.

All operation lock functions are valid ("01" setting) before shipment.

Each switch operation becomes unavailable by pressing "▷" and "⮌" (return) switches simultaneously for more than 3 seconds while these functions are set as "01". The indication "🔒" (operation lock indicator) is indicated on the remote control switch. If "▷" and "⮌" (return) switches are pressed simultaneously for more than 3 seconds while the indication "🔒" (operation lock indicator) is indicated, "🔒" indication disappears and each switch operation is available. These functions are to restrict the operations of the remote control switch only. If operation is preformed from the centralized controller, the command from the centralized controller is adopted.

F8 - Lock Function for Operation Mode Selection

F9 - Lock Function for Temperature Setting

FA - Lock Function for Fan Speed Selection

Fb - Lock Function for Swing Louver Operation

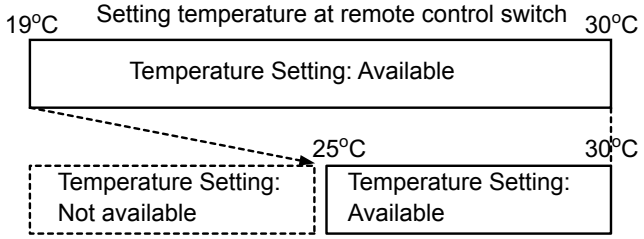
FC - Cooling Lower Limit for Setting Temperature

This function is utilized to limit the lowest setting temperature for FAN/COOL/DRY operations.
When this function is valid, it provides the appropriate cooling operation and energy saving.
The setting conditions and the minimum setting temperature for cooling are as follows:

- Example:

Factory-Setting: "00"
(Lower limit 19+0=19 ºC)

Setting condition: "06"
(Lower limit 19+6=29 ºC)



Setting Condition	Details	Minimum Setting Temperature (FAN/COOL/DRY) *
00	Standard Value	19°C
01	Lower Limit +1°C	20°C
02	Lower Limit +2°C	21°C

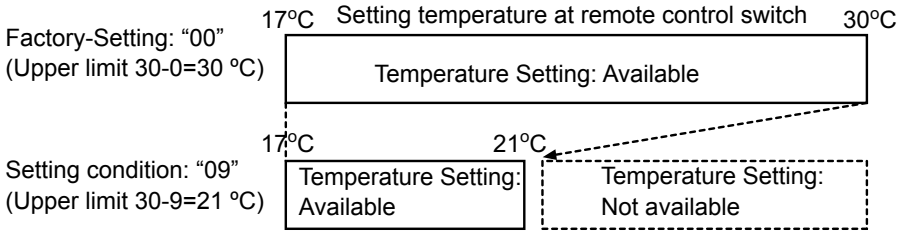
Setting Condition	Details	Minimum Setting Temperature (FAN/COOL/DRY) *
M	M	M
09	Lower Limit +9°C	28°C
10	Lower Limit +10°C	29°C

* In case of Standard Unit

Fd - Heating Upper Limit for Setting Temperature

This function is utilized to limit the highest setting temperature for HEAT operation.
When this function is valid, it provides the appropriate heating operation and energy saving.
The setting conditions and the maximum setting temperature for heating are as follows:

Example:



Setting Condition	Details	Setting Temperature Upper Limit (HEAT) *
00	Standard Value	30ºC
01	Upper Limit -1ºC	29ºC
02	Upper Limit -2ºC	28ºC
M	M	M
11	Upper Limit -11ºC	19ºC
12	Upper Limit -12ºC	18ºC

4

FE - Not Prepared

FF - Not Prepared

H1 - Not Prepared

H2 - Indication of Hot Start

When this function is set as “No Indication” (01), “HOT-ST” is not indicated on the remote control switch.

H3 - Not Prepared

H4 - Not Prepared

H5 - Not Prepared

J1 - Temperature Indication

This function is utilized to indicate the sensor temperature temporarily with easy step. When this function is valid, the sensor temperature is indicated for 5 seconds by pressing “▷“ switch on the remote control switch.
The sensor temperature is indicated as follows:

- With the remote sensor, the average value of the remote sensor and the inlet air temperature is indicated as the sensor temperature.
- Without the remote sensor, the sensor temperature is indicated as follows according to the setting condition of the function (22) “Thermistor of Remote Control Switch (C8)”.

1 When “00” is set, the inlet air temperature is indicated.

2 When “01” is set, the temperature at thermistor of remote control switch is indicated.

3 When “02” is set, the average value of 1 and 2 is indicated.

NOTE

When the sensor temperature is below -9Cº, -9Cº will be indicated.

J2 - Not Prepared

J3 - Run Indicator Colour

This function is utilized to set the run indicator colour.

Setting Conditions	Color
00	Green
01	Red

NOTE

The red run indicator flashes during the alarm.

J4 - Not Prepared

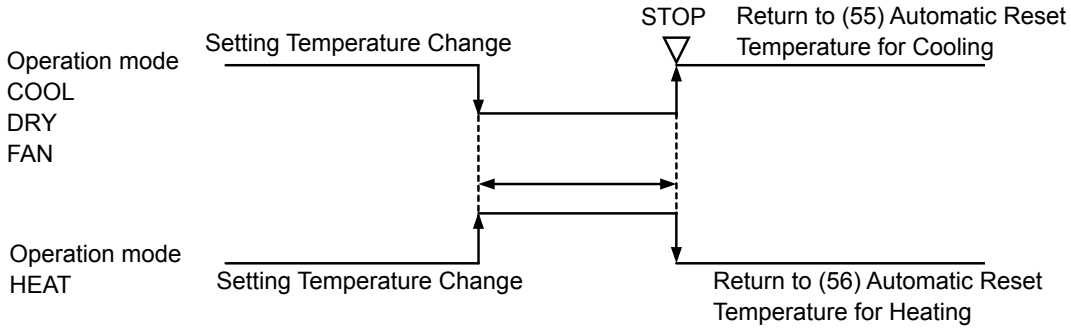
J5 - Not Prepared

J6 - Not Prepared

J7 - Not Prepared

J8 - Eco-operation

This function is utilized to optimize the setting temperature and provide energy saving.
Even after the setting temperature is changed during the air conditioning operation, the setting temperature automatically returns to (55/56) “Automatic Reset Temperature for Cooling/Heating (F5/F6)” by restarting the operation by RUN/STOP switch on the remote control switch, as in the following figure. However, the setting temperature is not automatically re-set in the case that “Automatic COOL/HEAT Operation” mode is set, or “Prohibiting Operation by Remote Control Switch” is set by the centralized controller.



J9 - Not Prepared

K1 - Not Prepared

K2 - Not Prepared

K3 - Not Prepared

K4 - Not Prepared

K5 - Motion Sensor Detection Level

This function is utilized to determine the amount of human activity depending on the reaction rate as in the following table.
When “HIGH” (01) is set, the threshold of the amount of human activity is smaller than “STANDARD” (00). As a result, the detection level of human sensor becomes higher.
When “LOW” (02) is set, the threshold of the amount of human activity is larger than “STANDARD” (00).
As a result, the detection level of human sensor becomes lower.

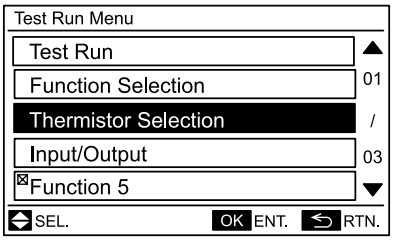
Setting Conditions / Amount of Human Activity	00 (Factory Setting)	01	02
	Standard	High Sensitive	Low Sensitive
Extra Large	80% ≤ Reaction Rate	60% ≤ Reaction Rate	80% ≤ Reaction Rate
Large	30% ≤ Reaction Rate < 80%	20% ≤ Reaction Rate < 60%	40% ≤ Reaction Rate < 80%
Small	3% < Reaction Rate < 30%	3% < Reaction Rate < 20%	20% < Reaction Rate < 40%
No Available	Reaction Rate ≤ 3%	Reaction Rate ≤ 3%	Reaction Rate ≤ 20%

◆ Thermistor Selection

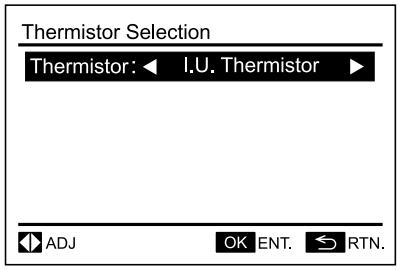
This function changes the temperature thermistor from indoor unit thermistor to thermistor of remote control switch or an average between both temperatures.

1 Press and hold "☰" (menu) and "⮌" (return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated). The test run menu is displayed then.

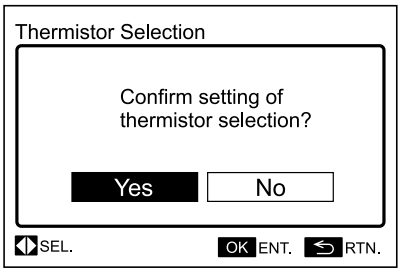
2 Select "Thermistor Selection" from the test run menu and press "OK".



3 Change the temperature thermistor item by pressing "◁▷" and press "OK".



4 Select "Yes" and press "OK". The test run menu is displayed after the setting is confirmed. If "No" is pressed, the screen returns to step 3.



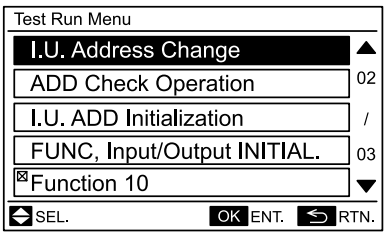
5 Press "⮌" (return) on the test run menu to return to the normal mode.

◆ Indoor Unit Address Change

This function changes the address (refrigerant cycle number and indoor unit number) of indoor units. If this setting is done, it takes priority over DIP Switch setting.

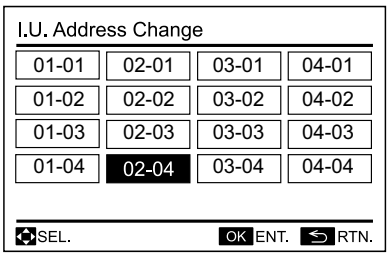
1 Press and hold "☰" (menu) and "⮌" (return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated). The test run menu is displayed then.

2 Select "I.U. Address Change" from the test run menu pressing "△ ▽" and "OK".



3 Select the indoor unit by pressing "△ ▽ ◁▷" and press "OK".

* Indoor units which are not supporting "I.U. Address Change" function can not be selected.



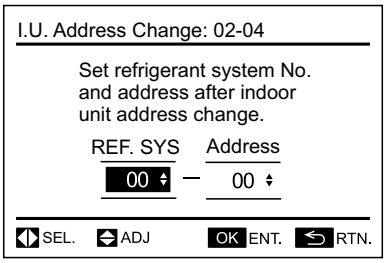
4 Determine the new indoor unit address.

Press "△ ▽ ◁ ▷" to switch the refrigerant cycle number and address in range of 00-63.

To display confirmation screen press "OK".

* "Cycle No.99" is used as a temporary address only when all the cycle numbers and unit numbers are in use (occupied).

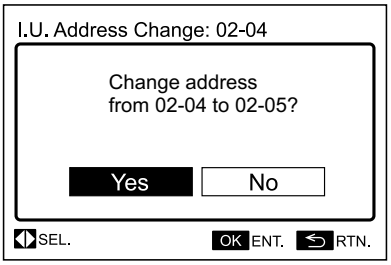
If "Cycle No.99" is used temporarily, the address must be changed within the standard range of 00-63.



5 Select "Yes" in the confirmation screen and press "OK" to start address change process. Then, the result is displayed in seconds. If "No" is pressed, the screen goes directly to step 6.

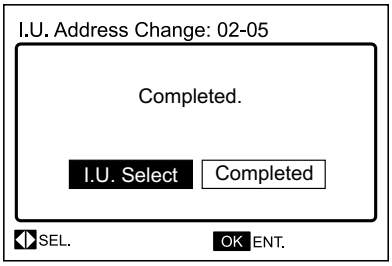
*When the process successfully completes, "Completed" is displayed.

Otherwise the process has been failed. Check the setting and contents again.



6 To change the address for another indoor unit, select "I.U. Select" and press "OK". Then, the screen returns to step 3. To finish this function, select "Completed" and press "OK".

*If "I.U. Address Change" is successfully completed, connection check is automatically started.



7 Turn OFF the power supply of the indoor units for 3-5 minutes. Wait until the remote control switch display turn off, and turn ON the power supply of indoor units again.

NOTE

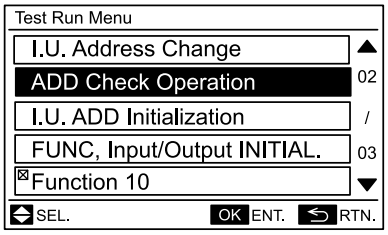
- *"I.U. Address Change" is not available when the control of 2 remote control switches (main and sub) are used.*
- *Do not operate from the central controlling devices while "I.U. Address Change" is performed by the remote control switch.*
- *This function should not be used if there is a Central Control (like CSNET WEB) in the H-LINK line.*

◆ Address Check Operation

This function is used to check the relation between the indoor unit and I.U. address. This operation is effective when multiple indoor units are connected to the remote control switch and address of the certain unit is unknown.

1 Press and hold "☰" (menu) and "⮌" (return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated). The test run menu is displayed then.

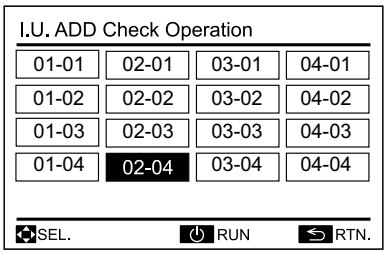
2 Select "ADD Check Operation" from the test run menu pressing "△ ▽" and "OK".



3 Select the indoor unit by pressing "△ ▽ ◁ ▷".

4 To start operation of the indoor unit selected in step 3, press "⏻" (run/stop). To return to the step 3 screen press "⏻" (run/stop) while indoor units is operated.

*Repeat the steps 3 and 4 until desired indoor unit addresses are confirmed.



5 To return to the test run menu press "⮌" (return) while indoor unit is not operated.

Confirm the selected indoor unit address and go to "I.U. Address Change".

NOTE

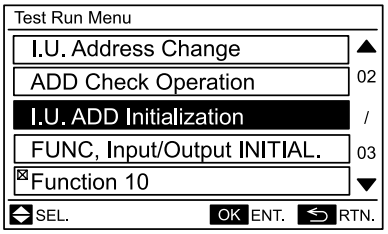
- *"ADD Check Operation" is not available when the control of 2 remote control switches (main and sub) are used.*
- *The switch operation other than "Run/Stop" is not available while "ADD Check Operation" is performed.*
- *Do not operate from the central controlling devices while "ADD Check Operation" is performed by the remote control switch.*
- *This function should not be used if there is a Central Control (like CSNET WEB) in the H-LINK line.*

◆ Indoor Unit Address Initialization

This function initializes the indoor unit address that has been changed by "I.U. Address Change" function or set by the automatic address allocation. Initializing the address by this function, indoor unit address is changed to the dip switch setting.

1 Press and hold "☰" (menu) and "⮌" (return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated). The test run menu is displayed then.

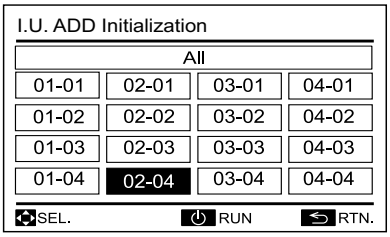
2 Select "I.U. ADD Initialization" from the test run menu pressing "△ ▽" and "OK".



3 Select the indoor unit by pressing "△ ▽ ◁ ▷" and press "OK", then the confirmation screen is displayed.

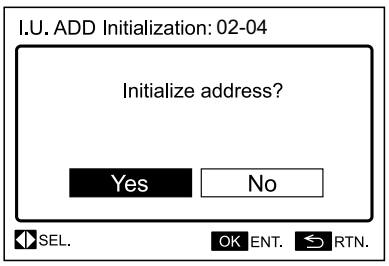
*Indoor units which are not supporting "I.U. ADD Initialization" function can not be selected.

The address of indoor unit that does not support "I.U. ADD Initialization" function is not initialized even when "All" is specificated.



4 Select "Yes" and press "OK" to start the address initialization process.

*If the address initialization is successfully completed, connection check is automatically started.

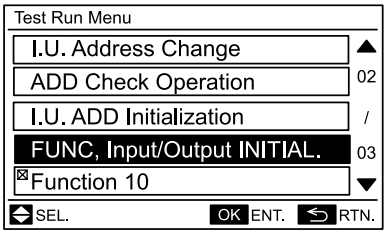


◆ Function Selection and Input/Output Initialization

This function re-establishes the function selection and Input/Output values to factory setting values.

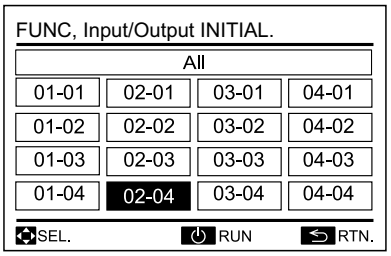
1 Press and hold "☰" (menu) and "⮌" (return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated). The test run menu is displayed then.

2 Select "FUNC, Input/Output INITIAL" from the test run menu pressing "△ ▽" and "OK".



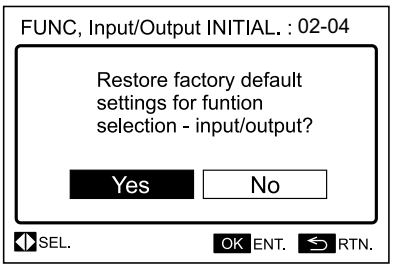
3 Select the indoor unit by pressing "△ ▽ ◁ ▷" and press "OK".

*This screen is not displayed when the number of indoor units connected with the remote control switch is 1 (one). In this case, go directly to the step 4..



4 To start initialization, select "Yes" and press "OK" on the confirmation screen. It takes approx. 30 seconds to complete the process.

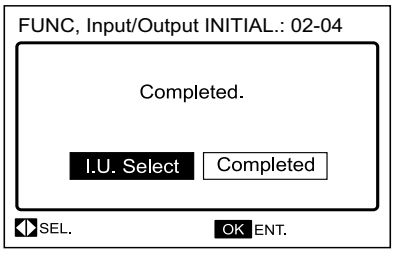
*Check that initialization does not cause any problems, and then start the initialization work.



5 Select "Completed" and press "OK". The test run menu is displayed then.

Press "⮌" (return) on the test run menu to return to the normal mode.

To initialize setting for the other indoor units, select "I.U. Select" and press "OK". The screen returns to step 3.



NOTE

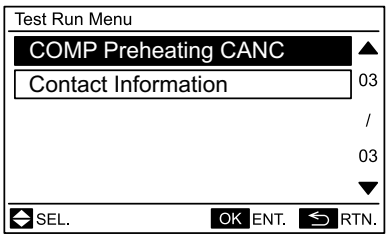
- *"No Function" is indicated when the indoor unit that does not support the initialization function for "Function Selection" and "Input/Output Setting".*
- *The setting for indoor units that does not support the initialization function for "Function Selection" and "Input/Output Setting" is not initialized even when "All" is specified at step 3.*

◆ Compressor Preheating Cancellation

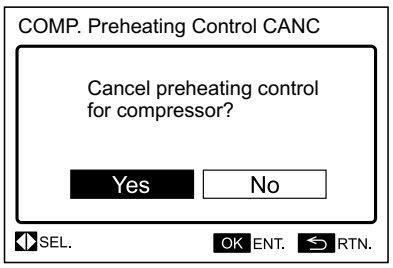
This function cancels the compressor preheating control.

1 Press and hold "☰" (menu) and "⮌" (return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated). The test run menu is displayed then.

2 Select "COMP Preheating CANC" from the test run menu pressing "△ ▽" and "OK", then the confirmation screen is displayed.



3 Select "Yes" and press "OK". The test run menu is displayed after the setting is confirmed. If "No" is pressed, the screen returns to test run menu.



4 Press "⮌" (return) on the test run menu to return to the normal mode.

◆ Contact Information Registration

Contact information can be registered from “Contact Information”.

1 Press and hold “☰” (menu) and “⮌” (return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated). The test run menu is displayed then.

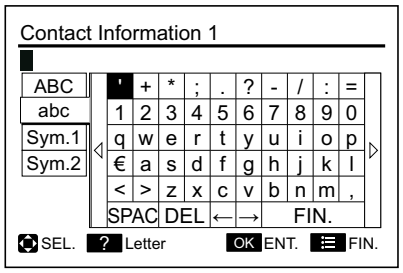
2 Select “Contact Information” from the test run menu and press “OK”. The contact information 1 is displayed then.

3 Press “?” (help) to change font type.

4 Press “△ ▽ ◁ ▷” to select letter.

5 Press “OK” to confirm the letter. (Max.: 28 letters)

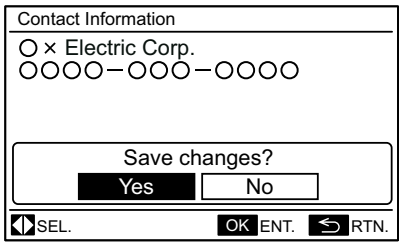
6 Select “FIN.”, press “OK” (or simply press “☰” (menu)) and the step 7 is displayed.



7 Repeat steps 3~5 to register contact information 2.

Select “FIN.” and press “OK”, then the confirmation screen is displayed. (or simply press “☰” (menu)).

8 Select “Yes” and press “OK”. The test run menu is displayed after the setting is confirmed. If “No” is pressed, the screen returns to step 3.



4

4.1.4.3 Operation mode selection procedure

◆ Procedure for operation in cooling, heating, dry, cooling/heating automatic and air flow operation modes

Function

- Cooling Operation (COOL): To decrease the room temperature.
- Heating Operation (HEAT): To increase the room temperature.
- Dry Operation (DRY): To decrease the humidity in the room.
- Cooling/Heating Automatic Operation (AUTO): To cooling and heating automatic changeover.
- Air Flow Operation (FAN): To circulate the air in the room.

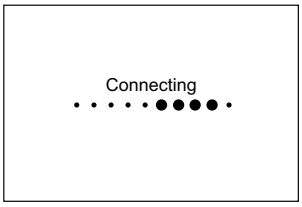
NOTE

The available set temperature is as follows:

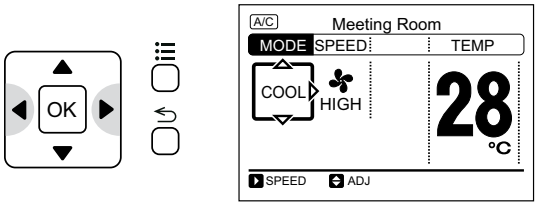
- *Cooling Operation: 19 to 30 ºC*
- *Heating Operation: 17 to 30 ºC*
- *Dry Operation: 19 to 30 ºC*

Mode selection

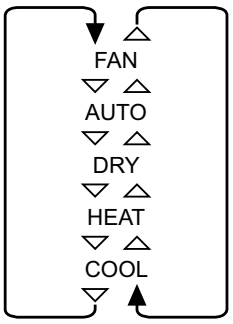
1 Turn ON the power supply.



2 Press "◁" or "▷" and select "MODE".

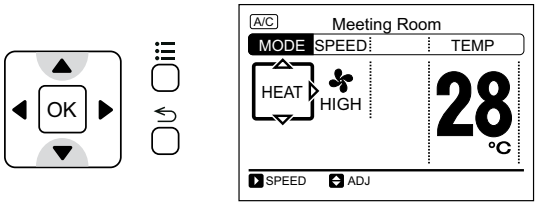


3 By pressing "△" or "▽", the operation mode will be changed as follows.



NOTE

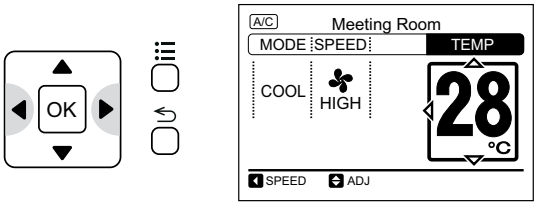
The advanced setting is required for the "AUTO" operation. Contact your distributor or dealer of HITACHI for detailed information.



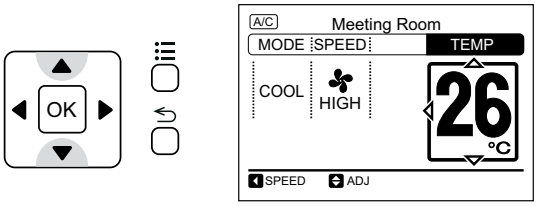
◆ Procedure for setting the temperature, fan speed and louver direction.

Setting the temperature

1 Press "◁" or "▷" and select "TEMP".



2 By pressing "△", the temperature is increased by 1oC. (Max. 30oC). By pressing "▽", the temperature is decreased by 1 ºC. (Cooling, Dry, Air Flow operation: Min. 19oC) (Heating operation: Min. 17 ºC).

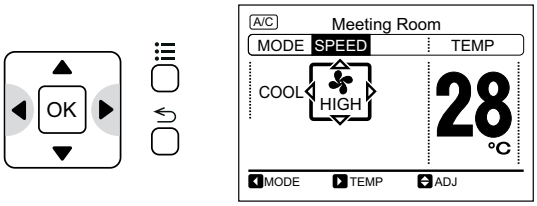


NOTE

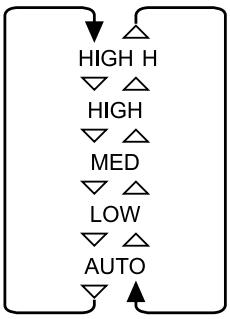
The max/min temperature is available to change by setting the cooling lower limit for setting temperature (or heating upper limit for setting temperature) from the function selection.

Setting the fan speed

1 Press "◁" or "▷" and select "SPEED".

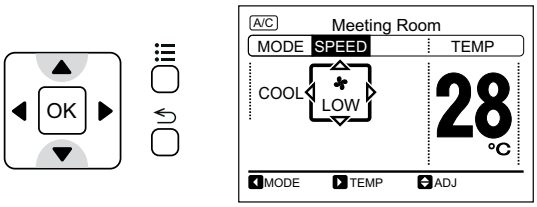


2 By pressing "△" or "▽", the fan speed will be changed as follows.



NOTE

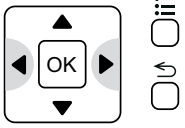
- *During the dry operation, the fan speed is automatically changed to "LOW" and cannot be changed to other fan speed. ("LOW" will NOT be displayed on LCD (liquid crystal display) at this time. The present setting condition will be displayed on LCD).*
- *The fan speed settings "HIGH H" and (or) "AUTO" may not be available depending on the indoor unit type.*

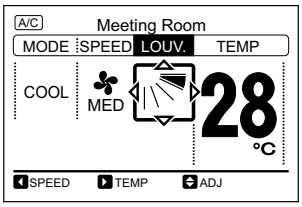


4

Setting the louver direction

1 Press "⏻" (run/stop). Make sure that the operation is started. Press "◁" or "▷" and select "LOUV".

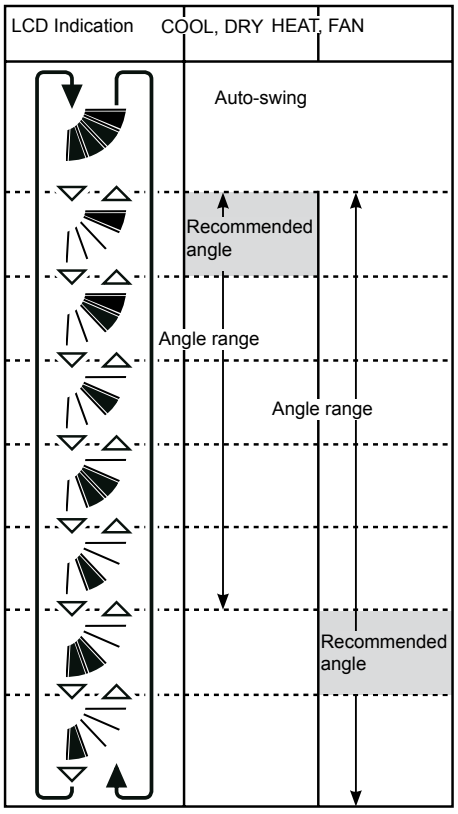




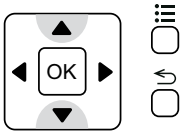
NOTE

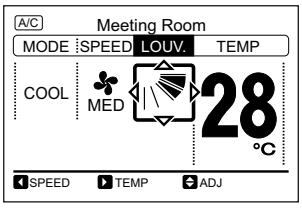
For the indoor unit without the auto louver mechanism, the indication of "LOUV." will NOT be displayed on LCD.

2 By pressing "△" or "▽", the louver direction will be changed as follows.



: Auto swing operation will be started. At this time, the louver will swing repeatedly on LCD.





NOTE

- *The air flow angle is different for each indoor unit type. Check Installation & Operation Manual for Indoor Unit to be used for the detailed information.*
- *Louver position on LCD and the actual louver position may not match during the auto swing operation. To fix the louver positions, set the angle after checking the position on LCD.*
- *The louver may NOT stop immediately right after the switch is pressed.*

4.1.4.4 Operation menu

◆ Menu navigation

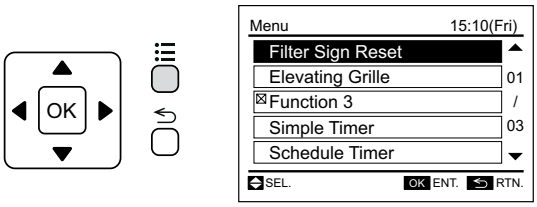
Every setting function is displayed in the menu. Refer to the following sections for each function.

NOTE

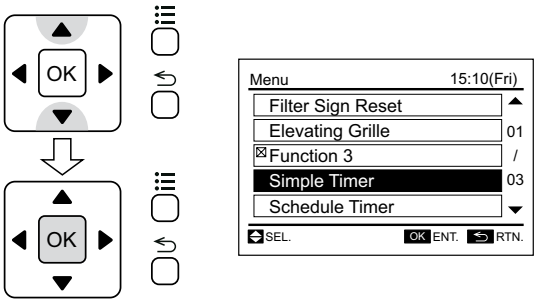
☒: *Unable to set .*

If the function with "☒" is selected from the menu, "No Function" or "Setting Disabled" will be displayed on the lower screen.

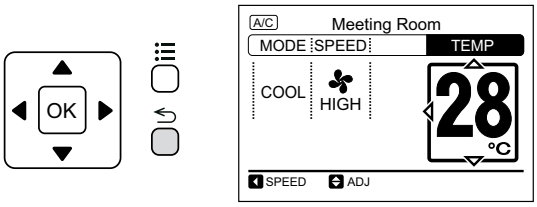
1 Press "☰" (menu). The menu will be displayed.



2 Select the function by pressing "△" or "▽" and press "OK". ("☒" will be displayed if the function is not available).



3 Press "⮌" (return) to return to the normal mode (Operation Mode Indication).



NOTE

If the menu screen remains unchanged for approximately 10 minutes, the screen will automatically return to the normal mode.

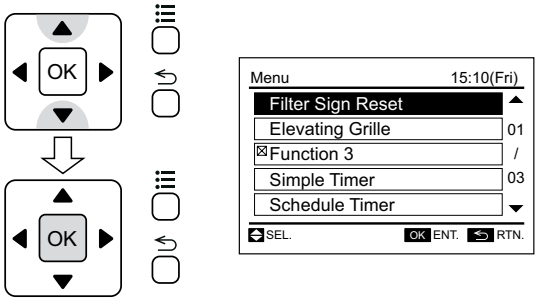
◆ Filter Sign Reset

This function is used to turn off the filter sign indication.

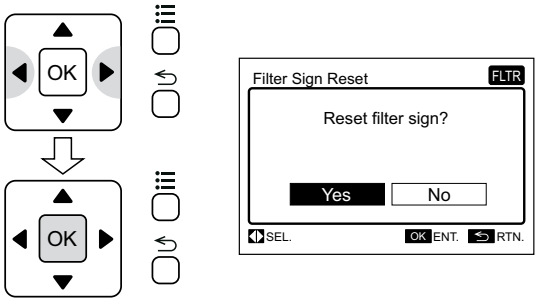
NOTE

If the function with the indication of "☒" is selected from the menu, "Setting Disabled" will be displayed because the setting accumulated time by function b4 is insufficient.

1 Select "Filter Sign Reset" from the menu and press "OK". The confirmation screen will be displayed.



2 Select “Yes” by pressing “◁” or “▷” and press “OK”. The indication of “FLTR” will be turned OFF and the screen will return to the normal mode.



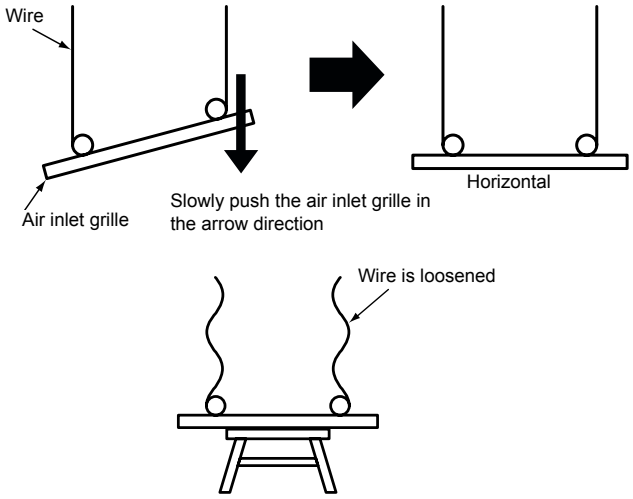
◆ Elevating Grille

This function is used to move the air inlet grille automatically upward or downward from the air panel when cleaning the air filter and air inlet grille.

⚠ CAUTION

Caution of Setting Elevating Grille into Air Panel After Cleaning:

When the air inlet grille is set inside the air panel, ensure that the air inlet grille is horizontal and the wire is suspended tightly without loosening. After the above is ensured, set the air inlet grille. If the air inlet grille is inclined and the wire is loosened, they may be caught in the pulley. It may lead to a failure of the pulley or pulley block. If the worst happens, it may cause personal injury due to falling the air panel.



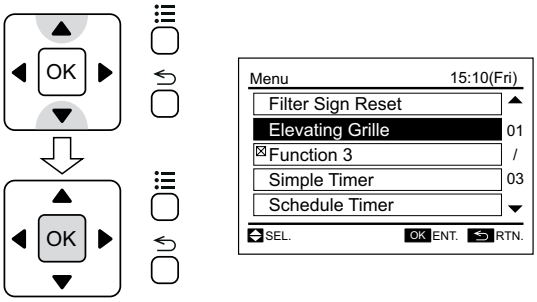
NOTE

- *This function is available only when the elevating grille is equipped with the indoor unit.*
- *Make sure that the unit operation is stopped before using the elevating grille.*
- *The elevating grille function is not available when the unit is operated.*

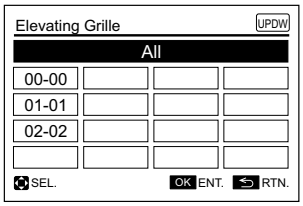
1 Press “☰” (menu) and select “Elevating Grille” from the menu. Press “OK”.

NOTE

If the number of indoor units connected with the remote control is 1, the screen passes directly to display the step 3 after this step.

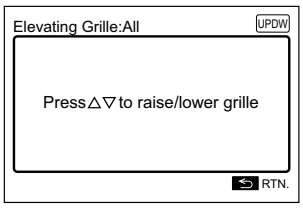


2 Select the indoor unit by pressing "△", "▽", "◁" or "▷". Press "OK".

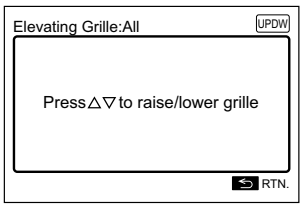


3 Press "▽". The elevating grille starts lowering.

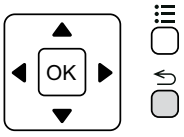
- Once "▽" is pressed, the elevating grille lowers to the specified height.
- If "▽" is pressed once again, the elevating grille lowers by 50 cm from the present height. (When "▽" is pressed each time, the elevating grille lowers respectively by 50 cm.)
- To stop the elevating grille, press "△".

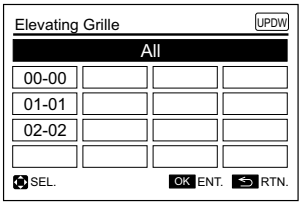


4 Press "△" after the cleaning is finished. The elevating grille keeps rising until 3 seconds have passed after fitting inside the panel. (In case that the air inlet grille is not totally aligned after this process, press "△" again in order to correct the inclination).



5 Press "⮌" (return). The screen will return to step 2. (If necessary, set the elevating grille for other indoor units). To finish the setting, press "⮌" (return) again. The screen will return to the menu. If "⮌" (return) is pressed once again, the screen will return to the normal mode.





NOTE

If the number of indoor unit connected with the remote control switch is 1 (one), the screen will return to the normal mode after "⮌" (return) is pressed.

◆ Simple Timer Operation

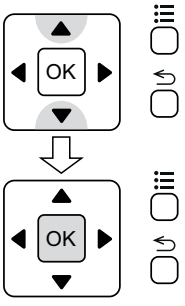
This function is used to start or stop the unit operation at the setting time.

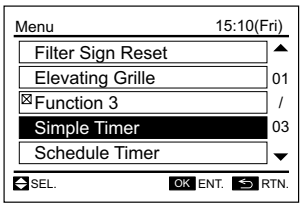
The timer operation contents can be set from "Once" or "Everyday".

1 Select "Simple Timer" from the menu and press "OK". The simple timer setting will be displayed.

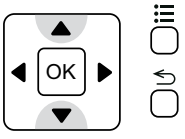
NOTE

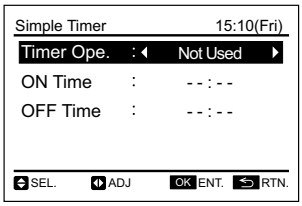
If the present time has not been set yet, automatically "Set Date/Time" will be displayed. Refer to Adjusting Date/Time section.



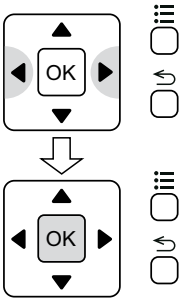


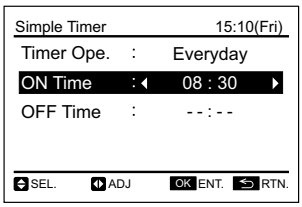
2 Press "△" or "▽" to select the setting items. The setting items are displayed "Timer Ope.", "ON Time" and "OFF Time".





3 Press "◁" or "▷" to set each setting content for the selected item. When "Timer Ope." is selected, the setting contents are switched in order of "Not Used" ⟷ "Once" ⟷ "Everyday" by repeatedly pressing "◁" or "▷". When "ON Time" or "OFF Time" is selected, the setting time can be set every 30 minutes by pressing "◁" or "▷". Press and hold "◁" or "▷", the setting time can be continuously indicated.

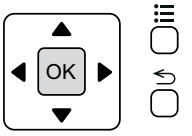


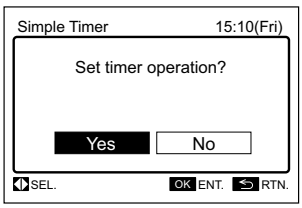


NOTE

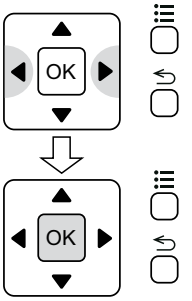
If "Once" of the timer operation setting is selected, the setting content will be automatically changed to "Not Used" after "Once" timer operation.

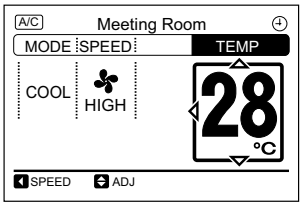
4 Press "OK" to finish the simple timer setting. The confirmation screen is displayed then.





5 Select "Yes" by pressing "◁" or "▷" and press "OK". The setting is confirmed and the screen returns to the normal mode.





"⊕" will be indicated when the timer operation is activated.

NOTE

In the case of the following condition, the simple timer operation is NOT available:

- *When the prohibiting operation by remote control switch is set from the central controller.*
- *When "⊗" is indicated on LCD, the timer operation cannot perform. Set the date and time according to Adjusting Date/Time section.*

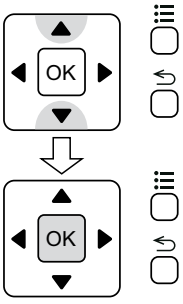
◆ Scheduled operation

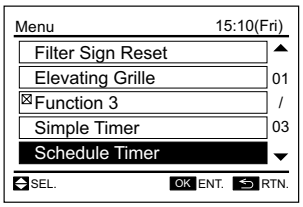
Schedule setting

This function is used to start or stop the unit operation at the setting time. In this schedule operation, the temperature can also be set when the unit is operated.

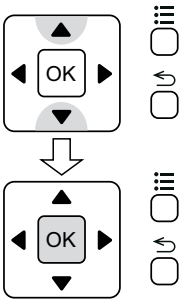
Five different schedule timers (max.) can be set for each day of the week.

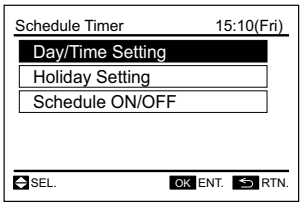
1 Select "Schedule Timer" from the menu and press "OK".





2 Select "Day/Time Setting" by pressing "△" or "▽" and press "OK".





NOTE

If the present time has not been set yet, "Set Date/Time" is automatically displayed. Refer to Adjusting Date/Time.

3 Select the day of the week (from Monday to Sunday) by pressing "△" or "▽". Press "OK".

- "■" (run) and "□" (stop) are displayed on LCD.
- To copy the setting contents of the previous day, press "◁" and "OK" simultaneously.

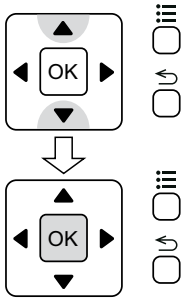
Example:

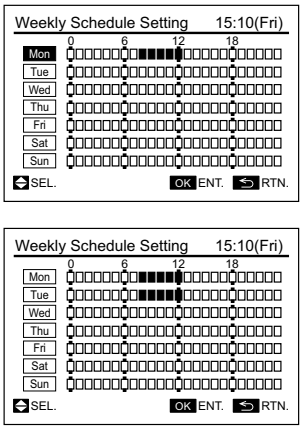
The setting contents of Monday is copied in Tuesday.

a. Select "Tue".

b. Press "◁" and "OK" simultaneously.

c. The setting contents of Monday are copied in Tuesday.





4 Select the schedule No (from 1 to 5) by pressing "△" or "▽". Select "ON Time", "OFF Time" or "Setting Temperature" by pressing "◁" or "▷". Set the ON/OFF timer and temperature by pressing "△" or "▽".

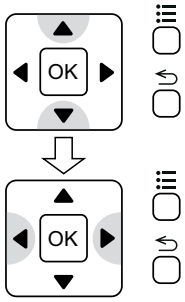
- Press or keep pressing "△" or "▽" to adjust numbers.
- Five different schedule timers (max) can be set for each day of the week.

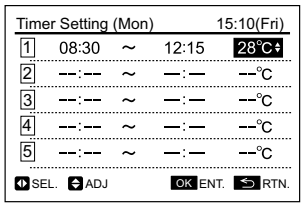
The figure shows that following timers are set for Monday;

ON Timer: 8:30

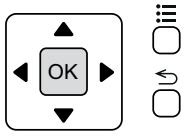
OFF Timer: 12:15

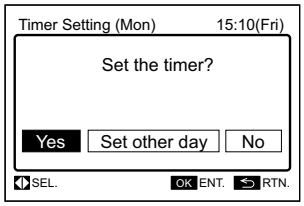
Setting Temperature: 28 ºC



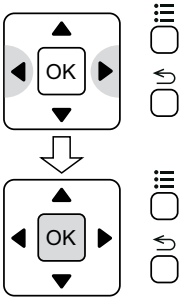


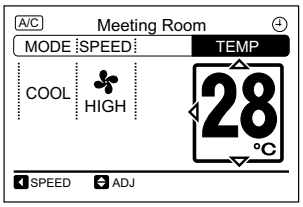
5 Press "OK". The confirmation screen is displayed then.





6 Select "Yes" by pressing "◁" or "▷" and press "OK". The setting is confirmed and the screen returns to the normal mode. To set other days of the week, select "Set other day" and press "OK".





"⏲" will be indicated when the schedule operation is activated.

NOTE

In the case of the following condition, the schedule operation is NOT available;

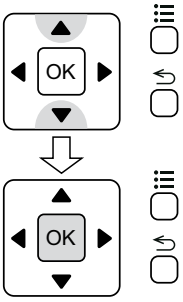
- *When the prohibiting operation by remote control switch is set from the central controller.*
- *When "⊗" is indicated on LCD, the schedule operation cannot perform. Set the date and time according to Adjusting Date/Time section.*

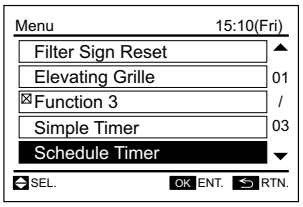
Holiday setting

This function is used to deactivate the schedule operation temporarily for one entire day. After this day, the schedule operation is automatically recovered.

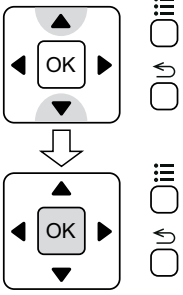
This function is used to set irregular schedules such as national holidays.

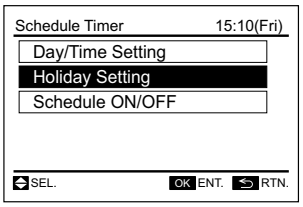
1 Select “Schedule Timer” from the menu and press “OK”. The schedule timer setting is displayed then.





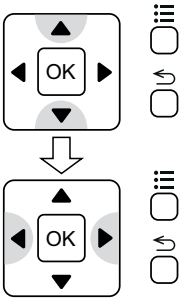
2 Select “Holiday Setting” by pressing “△” or “▽” and press “OK”.

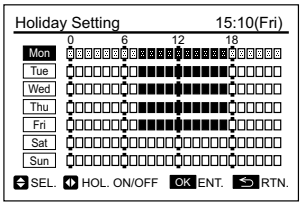




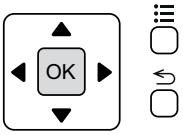
3 Select the day of the week to stop the operation by pressing “△” or “▽”. Select “HOL. ON/OFF” by pressing “◁” or “▷”.

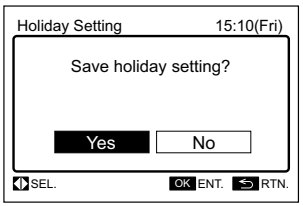
- “■” and “□” will be changed to “⊡” and “⊡” on LCD.





4 Press “OK” after the setting is completed. The confirmation screen is displayed then.

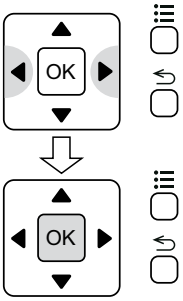


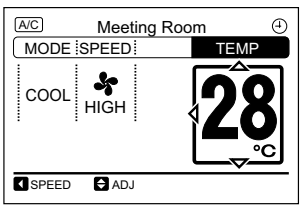


5 Select “Yes” by pressing “◁” or “▷” and press “OK”. The holiday setting is confirmed and the screen returns to the normal mode.

NOTE

“⊕” is turned off when the holiday setting is activated.



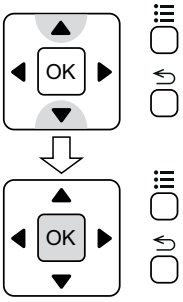


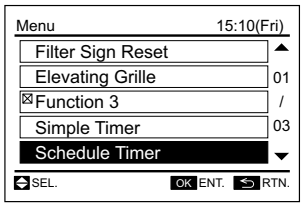
Schedule ON/OFF setting

This function is used to deactivate the schedule operation temporarily. The schedule operation will not be carried out when “OFF” is set in this function.

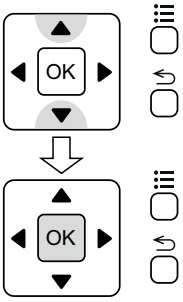
This function is valid for a long period of holidays.

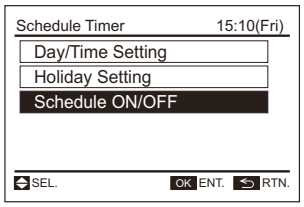
1 Select “Schedule Timer” from the menu and press “OK”.





2 Select “Schedule ON/OFF” by pressing “△” or “▽” and press “OK”. The confirmation screen is displayed then.





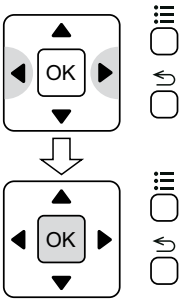
3 Select “Yes” by pressing “◁” or “▷” and press “OK”. The schedule ON/OFF setting is confirmed and the screen returns to the normal mode.

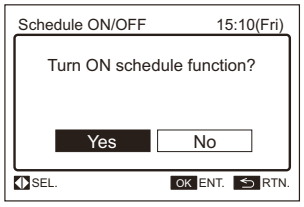
“⏲” is turned on when the setting of schedule operation is valid.

“⏲” is turned off when the setting of schedule operation is invalid.

NOTE

When the setting of schedule operation is invalid, the schedule operation is not activated.





◆ Individual Louver Setting

Setting

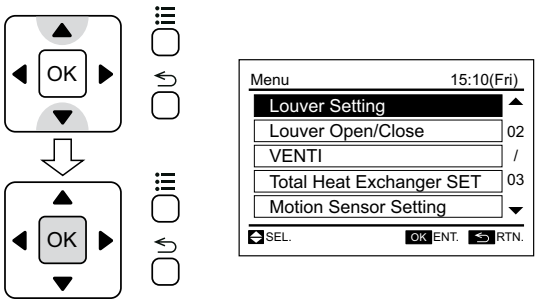
This setting is available only for the indoor unit adopting the individual louver. Each louver angle can be set individually.

NOTE

- *This function is available only when the indoor unit corresponds to the individual louver.*
- *This function cannot be set when the unit is stopped.*
- *The fan speed changes to "LOW" while this function is being set. (After the setting is completed, the unit operation returns to normal).*
- *As for "Start-up of Heating Operation", "During Defrost Operation" and "Activation of Thermo-Controller", all the louver angles are fixed at horizontal position automatically even when this function is activated.*
- *This function is not available if 2 remote control switches (including multifunctional remote control switch + wireless remote control switch) are used.*
- *With one multifunctional remote control switch, a maximum number of 4 indoor units can be set for this function.*

1 Select "Louver Setting" from the menu and press "OK".

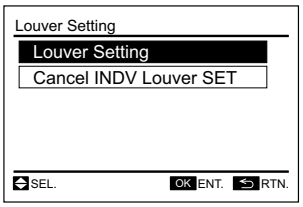
The individual louver setting menu is displayed then.



2 Select "Louver Setting" from the individual louver setting menu and press "OK".

NOTE

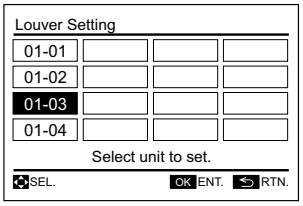
If the number of indoor units connected with the remote control is 1, the screen passes directly to display the step 4 after this step.



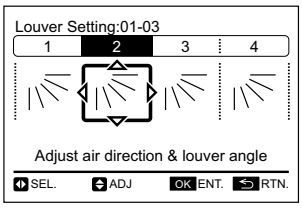
3 Select the indoor unit to change the louver direction by pressing "△", "▽", "◁" or "▷". Press "OK".

NOTE

The indoor unit displayed on the screen flashes if the individual louver is set.

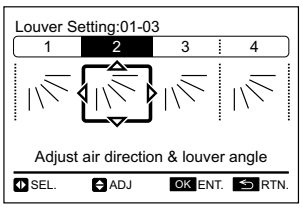


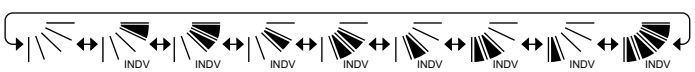
4 Press "◁" or "▷" and select the louver from 1 to 4. The selected louver is opened and the other louvers are closed.



5 Select the louver angle by pressing "△" or "▽" and press "OK". The confirmation screen will be displayed.

The louver angle will be changed as follows.

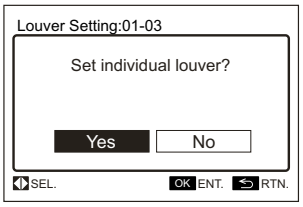




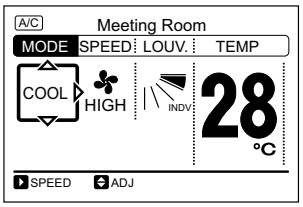
NOTE

The louver direction without "INDV" complies with the setting of the normal mode.

6 Select “Yes” by pressing “◁” or “▷” and press “OK”. The setting is confirmed and the screen returns to the normal mode.



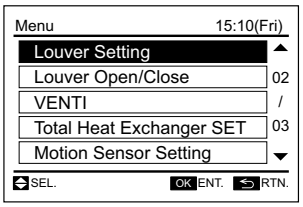
7 Ensure that “INDV” is turned on at the air flow section on the normal mode.



4

Cancellation of louver setting

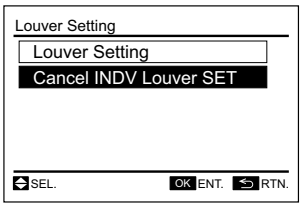
1 Select “Louver Setting” from the menu and press “OK”.



2 Select “Cancel INDV Louver SET” from the individual louver set and press “OK”.

NOTE

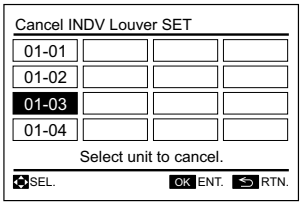
If the number of indoor units connected with the remote control is 1, the screen passes directly to display the step 4 after this step.



3 Select the indoor unit to cancel by pressing “△”, “▽”, “◁” or “▷”. Press “OK”. The confirmation screen will be displayed.

NOTE

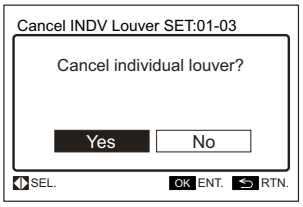
The indoor unit displayed on the screen flashes if the individual louver is set.



4 Select “Yes” by pressing “◁” or “▷” and press “OK”. The individual louver setting is cancelled and the screen returns to the normal mode.

NOTE

All the individual louver setting is cancelled.

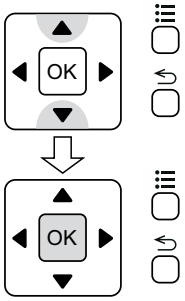


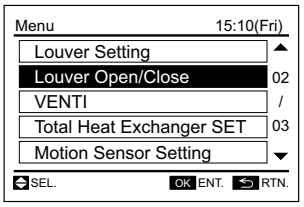
◆ Louver Open/Close

This function is used to fully open louver for adjusting the vertical deflector for air flow direction (manually).

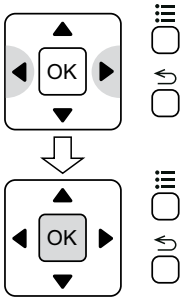
This function cannot be set when the unit is operating.

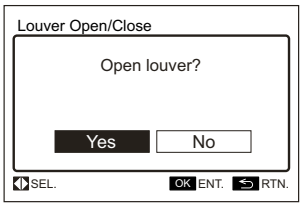
1 Select “Louver Open/Close” from the menu and press “OK”.





2 Select “Yes” by pressing “◁” or “▷” and press “OK”. The louver will be open (closed) and the screen will return to the normal mode.





NOTE

Refer to Installation & Operation Manual for Indoor Units regarding the adjustment of air flow direction.

◆ Ventilation

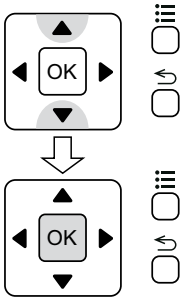
Function

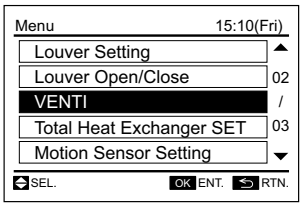
- A/C (Air Conditioning): To operate the air conditioner individually.
- VENTI (Ventilation): To operate the total heat exchanger individually.
- A/C+VENTI: To operate the air conditioner and the total heat exchanger together.

NOTE

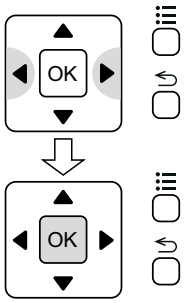
This function is available only when the total heat exchanger is connected.

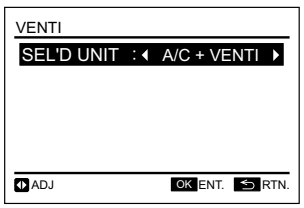
1 Select “VENTI” from the menu and press “OK”.



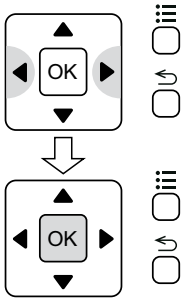


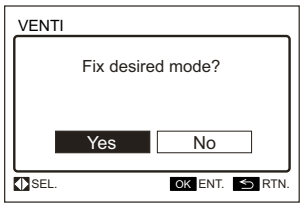
By repeatedly pressing “◁” or “▷”, the indication is changed in order of “A/C”, “VENTI” and “A/C + VENTI”. Select the operation target and press “OK”, then the confirmation screen is displayed





2 Select “Yes” by pressing “◁” or “▷” and press “OK”. The setting will be confirmed and the screen will return to the normal mode.





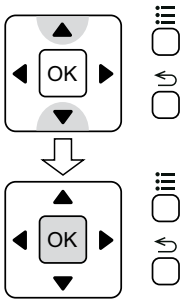
◆ Setting of Total Heat Exchanger

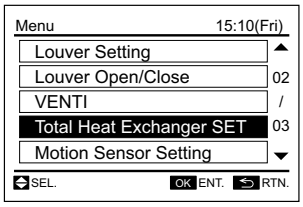
This function is used to change the ventilation mode of the total heat exchanger.

NOTE

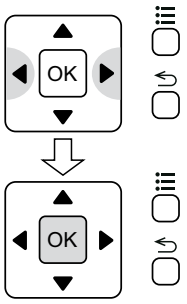
This function is available only when the total heat exchanger is connected. This function cannot be set when the unit is operating.

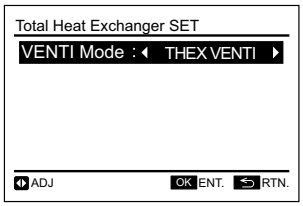
1 Select “Total Heat Exchanger SET” from the menu and press “OK”. The total heat exchanger set is displayed then.



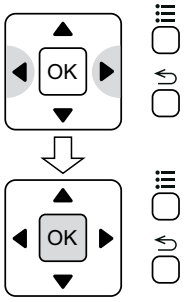


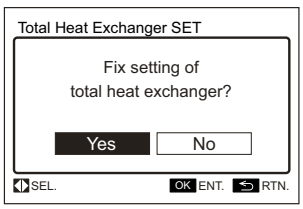
2 By repeatedly pressing “◁” or “▷”, the indication is changed in order of AUTO VENTI ⟷ THEX VENTI ⟷ Normal VENTI. Select the operation target and press “OK”, then the confirmation screen is displayed.





3 Select “Yes” by pressing “◁” or “▷” and press “OK”. The setting is confirmed and the screen returns to the normal mode.





◆ Motion Sensor

This function is available only when the motions sensor is equipped with the air panel.

The motion sensor detects a human activity by the change of the infrared light.

This function saves the air conditioning capacity (adjusting the set temperature, the air flow volume and the air flow direction) automatically depending on a situation.

The operation after the motion sensor detects as absence can be selected from “Running”, “Stand-by” or “Stop” on the remote control switch with the capacity saving.

NOTE

This setting is available only for the air panel with motion sensor.

CAUTION

- *Do not use the motion sensor function when a baby or a handicapped person stays by oneself. The motion sensor may detect as absence and the operation may be stopped in the case of staying for long time with a bit motion.*
- *The motion sensor detects the human activity. However, if someone is in a room with a bit motion, the motion sensor may detect as absence.*
- *The motion sensor may detect as human activity if the indoor unit with the motion sensor is installed near a moving object (ex. swing operation of a heating appliance) which is difference in temperature against atmosphere.*
- *In the case that the indoor units are operated by 2 remote control switches, the motion sensor setting is available only from the main remote control switch.*
- *The indoor unit operation can be stopped by the motion sensor control (Not shown through the display).*
- *While the air conditioning capacity is saved or the operation is stopped by the motion sensor control, “Motion sensor is activated” is displayed on LCD.*
- *If the function “Prohibiting operation by remote control switch” is used from the centralized controller, select the command “Running” or “Stand-by” in “If absent” at the motion sensor control setting.*
- *If “Stop” is selected, the motion sensor control can not be correctly performed as follows:*
  - *In the case that “Stop” is selected in the motion sensor control setting and “Prohibiting operation by remote control switch” (for all items) is set by the centralized controller, the operation does not stop even if the motion sensor control function changes to the stoppage condition.*
  - *In the case that “Stop” is selected in the motion sensor control setting and “Prohibiting operation by remote control switch” (for part of items) is set by the centralized controller, the indoor unit operation can not be restarted from the centralized controller although the operation can be stopped under the stoppage condition by the motion sensor control function.*

Details for motion sensor control

The motion sensor control adjusts automatically the following items depending on a situation.

- Setting Temperature: The temperature is adjusted 1 ºC or 2 ºC for saving capacity.
- Air Flow Volume: The air flow volume is adjusted to lower one volume or to “Slo” (except during the dry operation).
- Air Flow Direction: The air flow direction is adjusted to horizontal.

Descriptions for setting items

- **Motion sensor setting:**
  - ON: The operating control function by the motion sensor is activated.
  - OFF: The operating control function by the motion sensor is not activated.

  (The default setting is “ON”.)
- **If absent**

“If absent” is set for the indoor unit operation after the motion sensor detects as absence for set time in “Check interval”. The operation can be selected from “Running”, “Stand-by” or “Stop” on the remote control switch.

- Running: The operation is continued with saving the capacity after detected as an absence. If the human activity is detected for a period of time, the normal operation is performed again.
- Stand-by: The operation mode is the fan operation at “Slo” speed. If the human activity is detected for a period of time, the normal operation is performed again.
- Stop: The operation is stopped by the remote control switch when all the indoor units with motion sensor detect absence which are connected with same remote control switch. If the human activity is detected for a period of time by the stoppage, the normal operation is performed again.

(The default setting is “Running”.)

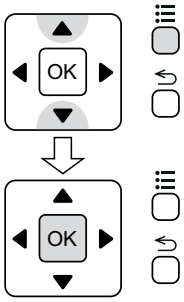
- **Check Interval**

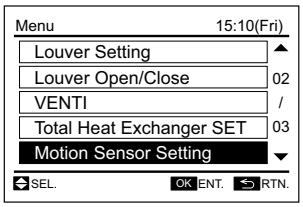
When the motion sensor detects an absence at selected check interval time, the function “If absent” will be executed. The interval can be selected from 30, 60, 90 120 or 180 minutes.

(The default setting is 30 minutes.)

Setting of motion sensor

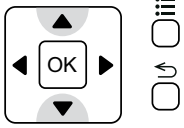
1 Press “☰” (menu). Select “Motion Sensor Setting” from the menu by pressing “△” or “▽” and press “OK”.

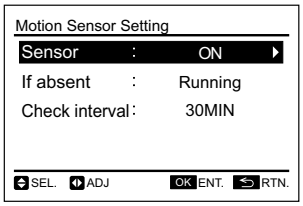




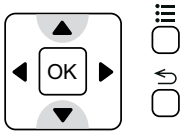
2 “Motion Sensor Setting” is displayed. The highlighted item is shifted to “Sensor”, “If absent” and “Check interval” by pressing “△” or “▽”.

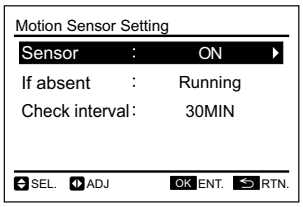
To set “Sensor”, go to step 3. To set “If absent”, go directly to step 5. To set “Check interval”, go directly to step 7.





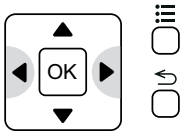
3 Press “△” or “▽” and select “Sensor”.

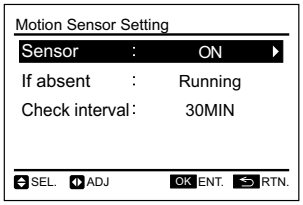




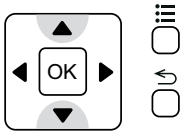
4 The display is switched “ON” and “OFF” in order by pressing “◁” or “▷” and change the setting.

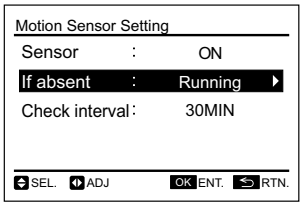
If other settings are not required, go directly to step 9.





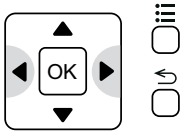
5 Press “△” or “▽” and select “If absent”.

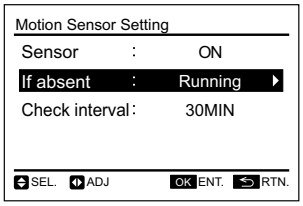




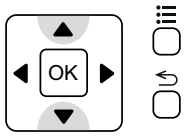
6 The display is switched “Running”, “Stand-by” and “Stop” in order by pressing “◁” or “▷” and change the setting.

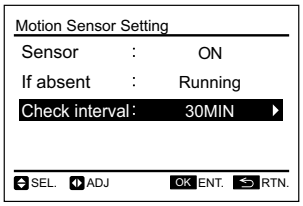
If other settings are not required, go directly to step 9.



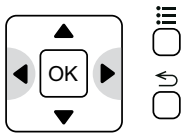


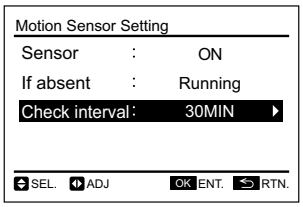
7 Press “△” or “▽” and select “Check interval”.



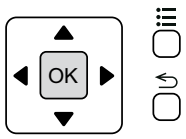


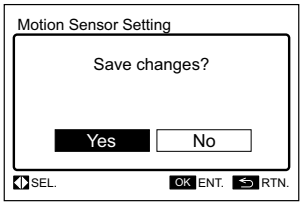
8 The display is switched “30MIN”, “60MIN”, “90MIN”, “120MIN” and “180MIN” in order by pressing “◁” or “▷” and change the setting.

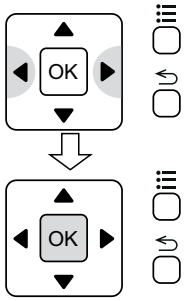


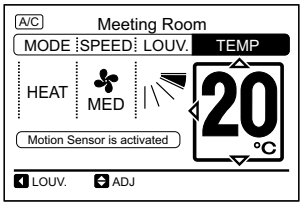


9 Press “OK” after the setting is completed. The confirmation screen is displayed then. Select “Yes” by pressing “◁” or “▷” and press “OK”. The motion sensor setting is confirmed and the screen returns to the normal mode (operation mode indication).









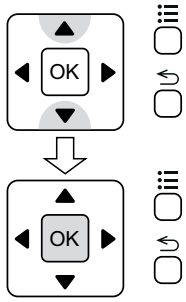
◆ Adjusting date/time

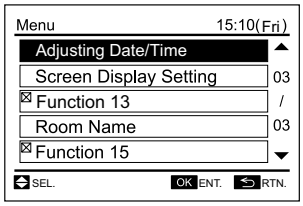
This function is used to adjust the date and time.

Periodic time setting is recommended. (Clock accuracy: difference within +/-70 seconds by month).

As for this remote control switch, the clock can work up to 72 hours when power failure occurs. Reset the date and time if the remote control switch remains without power supply for longer than 72 hours or main power supply is OFF for long time.

1 Select “Adjusting Date/Time” from the menu and press “OK”.

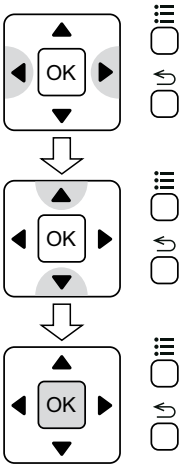


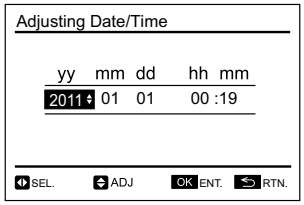


2 Press “◁” or “▷” and select “yy/mm/dd/hh/mm”.

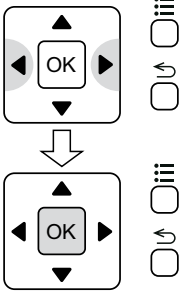
3 Press “△” or “▽” to change the setting. Press or keep pressing “△” or “▽” to adjust numbers.

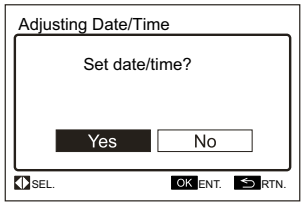
4 After the setting is completed, press “OK” and the confirmation screen is displayed.





5 Select “Yes” by pressing “◁” or “▷” and press “OK”. The setting is confirmed and the screen returns to the normal mode.





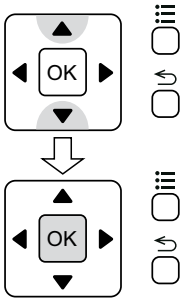
◆ Screen Display Setting

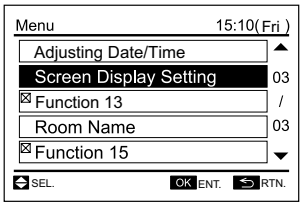
Display Adjustment

Function

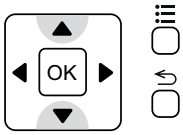
- Time Format: To change the time form to 12 hour or 24 hour.
- Brightness: To adjust the brightness of backlight.
- Back light: To change the time (5, 15 or 30 seconds) between ON and OFF of backlight.
- Contrast: To adjust the degree of difference between light and dark parts of LCD.
- On/Off lamp (Run Indicator Lamp Brightness): To adjust the brightness of run indicator.

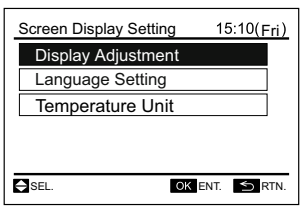
1 Select “Screen Display Setting” from the menu and press “OK”.



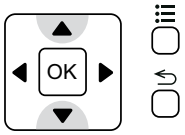


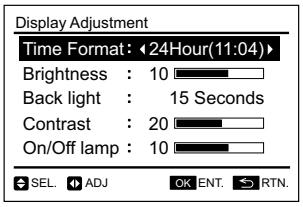
2 Select “Display Adjustment” by pressing “△” or “▽”.





3 Select the setting item by pressing "△" or "▽". The indication is changed in order of "Time Format", "Brightness", "Back light", "Contrast" and "On/Off lamp"





4 Press "◁" or "▷" and set the display.

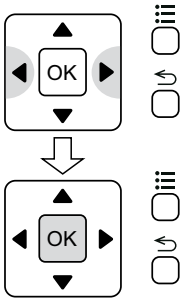
- Time Format: The time form is changed as follows;

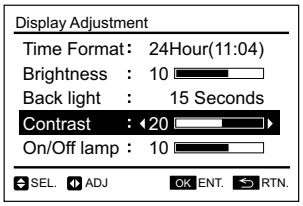
  12 Hour ⟷ 24 Hour

- Brightness: Press "◁" or "▷" and the brightness of backlight is changed.
- Back light: The display backlight is OFF after the specified time interval of inactivity (no input from touch screen). The backlight off time interval can be selected as follows;

  5 Seconds ⟷ 15 Seconds ⟷ 30 Seconds

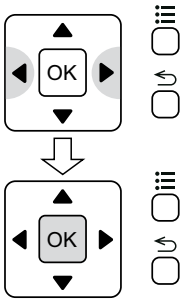
- Contrast: Press "◁" or "▷" and the degree of difference between light and dark parts of LCD is changed.
- On/Off lamp: Press "◁" or "▷" and the brightness of run indicator is changed.

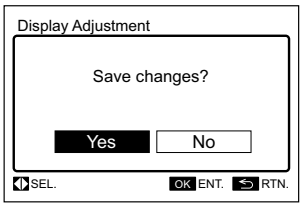




After the setting is completed, press "OK". The confirmation screen is displayed then.

5 Select "Yes" by pressing "◁" or "▷" and press "OK". The setting is confirmed and the screen returns to the normal mode.

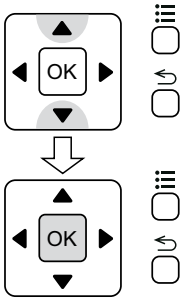


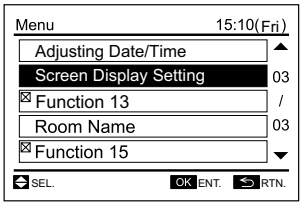


Language Setting

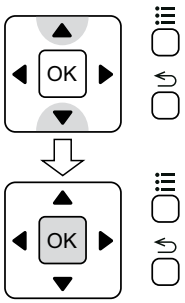
This function is used to change the displayed language.

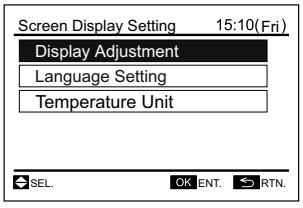
1 Select "Screen Display Setting" from the menu and press "OK".



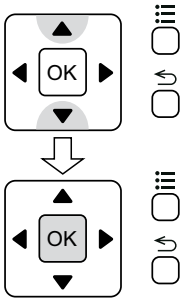


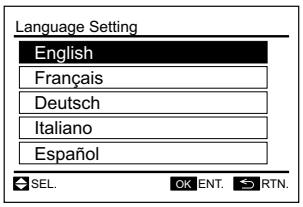
2 Select "Language Setting" by pressing "△" or "▽" and press "OK".





3 Press "△" or "▽" to select the language and press "OK". The confirmation screen is displayed then.

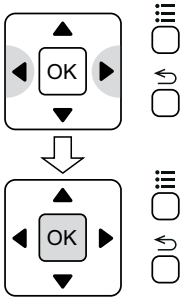


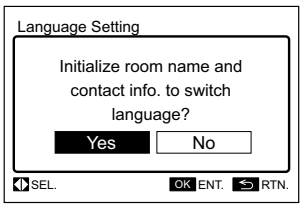


4 Select "Yes" by pressing "◁" or "▷" and press "OK". The setting is confirmed and the screen returns to the normal mode.

NOTE

The registered room name and contact information are deleted when the displayed language is changed.



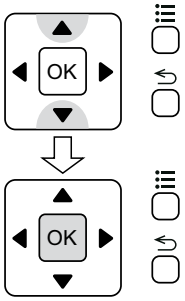


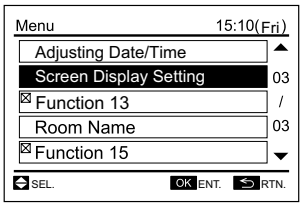
4

Temperature unit

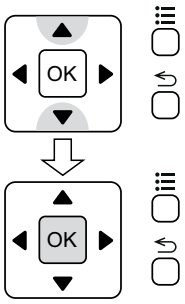
This function is used to change the temperature unit.

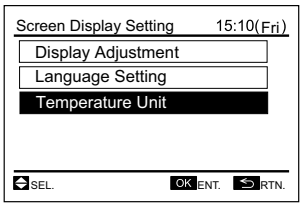
1 Select "Screen Display Setting" from the menu and press "OK".



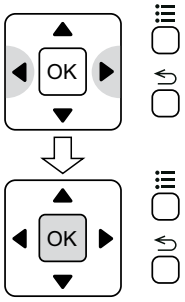


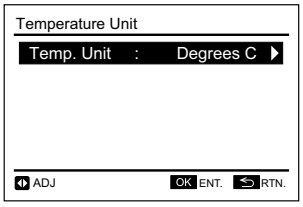
2 Select "Temperature Unit" by pressing "△" or "▽" and press "OK".



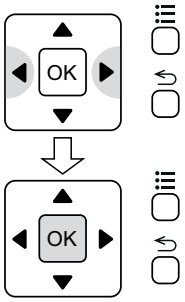


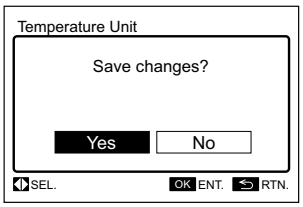
3 By repeatedly pressing "◁" or "▷", the indication is changed in order of "Degrees C" and "Degrees F". Select the operation target and press "OK". The confirmation screen is displayed then.





4 Select “Yes” by pressing “◁” or “▷” and press “OK”. The setting is confirmed and the screen returns to the normal mode.

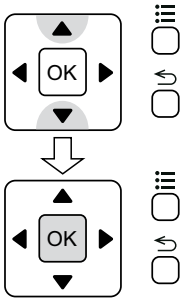


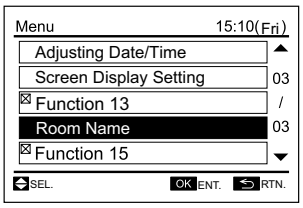


◆ Room Name Registration

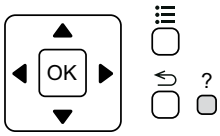
This function is used to register the name of the room (installation location of remote control switch)

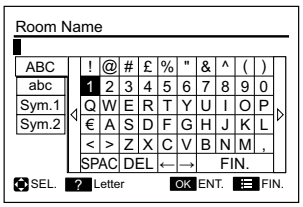
1 Select “Room Name” from the menu and press “OK”. The room name is displayed then.



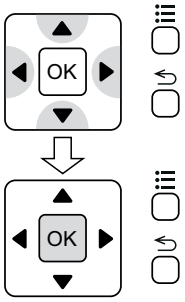


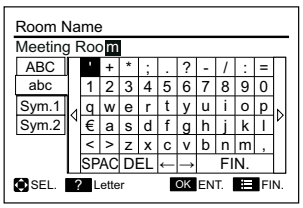
2 By pressing “?” (help), the letter type is changed.



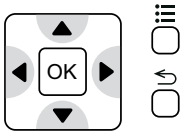


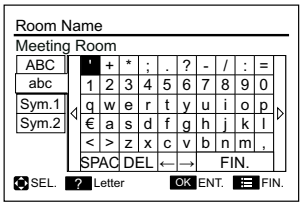
3 Press “△”, “▽”, “◁” or “▷” and select the letter. Press “OK” to confirm the selected letter. (Max. 12 letters)



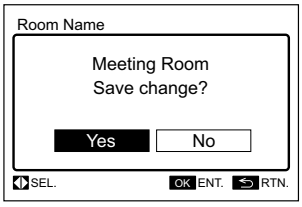


4 Select “FIN.” by pressing “△”, “▽”, “◁” or “▷” and press “OK”. (or simply press “☰” (menu)), then the confirmation screen is displayed.





5 Select “Yes” by pressing “◁” or “▷” and press “OK”. The setting is confirmed and the screen returns to the normal mode.



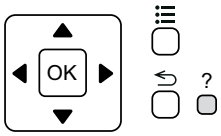
4.1.4.5 Help menu

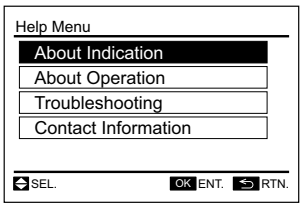
◆ Menu navigation

The explanation of indicators on LCD and operations can be found in the help menu. The purpose of this function is to support manual operation.

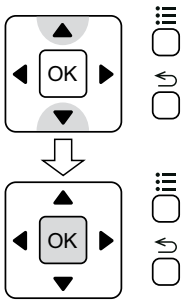
Refer to the following sections for more details.

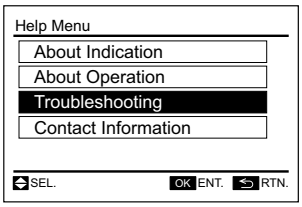
1 Press "?" (help). The help menu is displayed then.





2 Select the item from the help menu by pressing "△" or "▽" and press "OK".

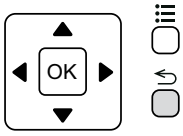


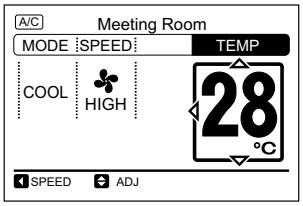


3 To return to the normal mode, press "⮌" (return).

NOTE

If the menu screen remains unchanged for approximately 10 minutes, the screen will automatically return to the normal mode.

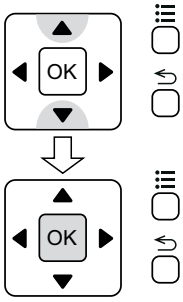


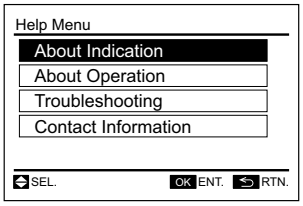


◆ Indicators on LCD

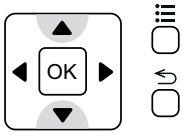
This function is used when an explanation of each icon on LCD is required.

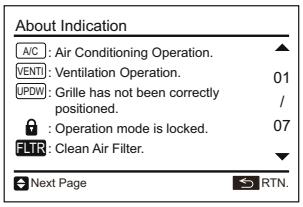
1 Select "About Indication" from the help menu and press "OK". The explanation of indicators on LCD is displayed.





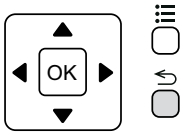
2 Press "△" or "▽" to scroll the text up and down.

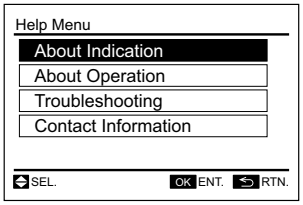




3 Press "⮌" (return). The screen returns to the help menu.

To return to the normal mode, press "⮌" (return) again.

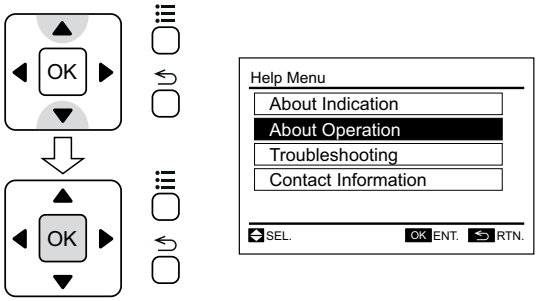




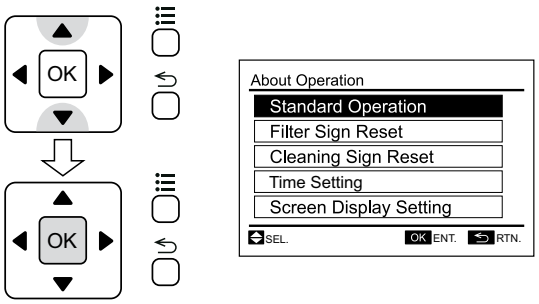
◆ About Operation

This function is used when an explanation of operations and operation methods is required.

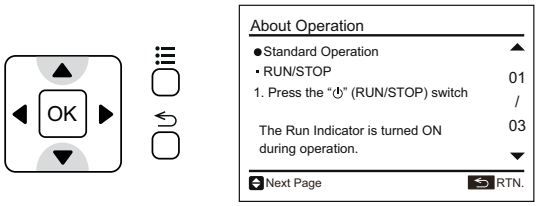
1 Select “About Operation” from the help menu and press “OK”.



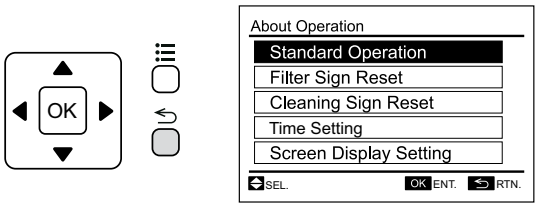
2 Select the operation from the list by pressing “Δ” or “∇” and press “OK”. Then, the explanation of operation list is displayed.



3 Press “Δ” or “∇” to scroll the text up and down.

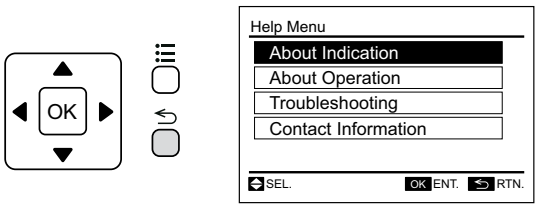


4 Press “⮌” (return). The screen returns to the operation item.



5 Press “⮌” (return). The screen returns to the help menu.

To return to the normal mode, press “⮌” (return) again.

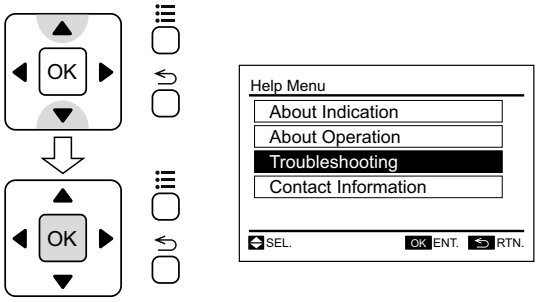


◆ Troubleshooting

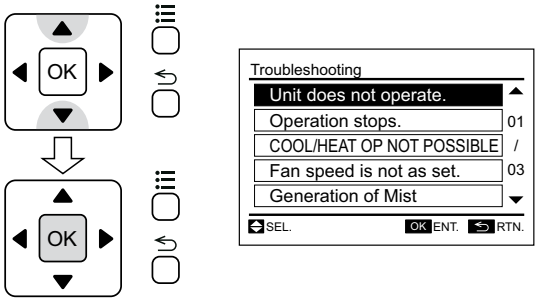
This function is used to troubleshoot.

Make sure that the troubleshooting is read carefully before requesting for repairs.

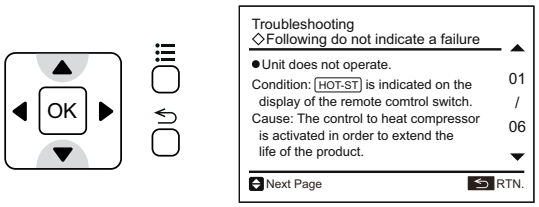
1 Select “Troubleshooting” from the help menu and press “OK”. The list of troubleshooting is displayed then.



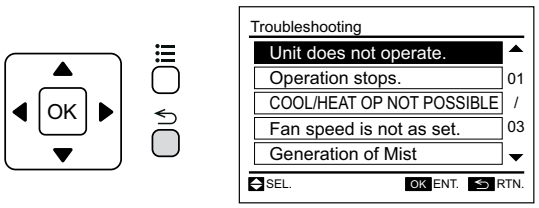
2 Select a problem from the list by pressing “△” or “▽”, press “OK” and the details of the selected problem are displayed.



3 Press “△” or “▽” to scroll the text up and down.

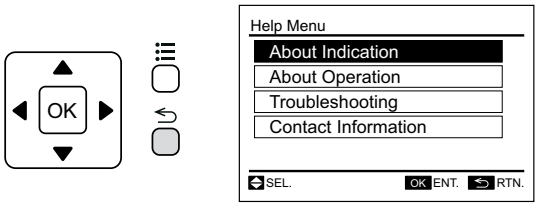


4 Press “⮌” (return). The screen returns to the list of troubleshooting.



5 Press “⮌” (return). The screen returns to the help menu.

To return to the normal mode, press “⮌” (return) again.

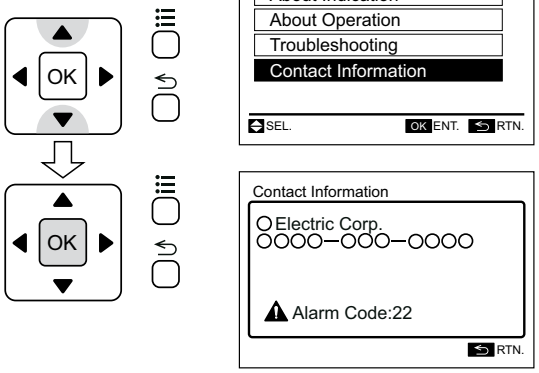


4

◆ Contact Information

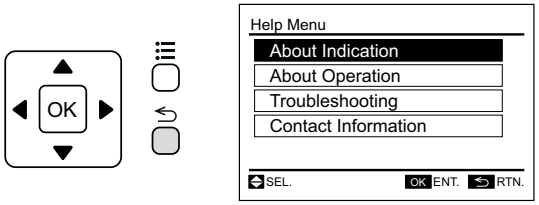
The contact information and the latest alarm code are displayed using this option.

1 Select “Contact Information” from the help menu and press “OK”. The contact information and the latest alarm code are displayed then.



2 Press “⮌” (return). The screen returns to the help menu.

To return to the normal mode, press “⮌” (return) again.



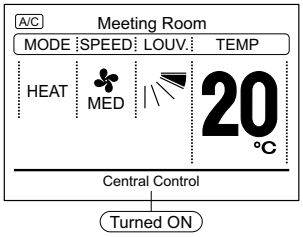
4.1.4.6 Other indications

◆ In Normal Condition

Central control

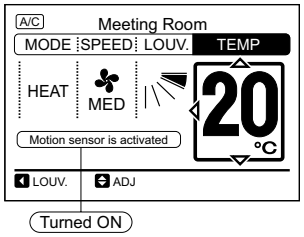
“Central Control” is turned ON.

In case that the prohibiting operation by remote control switch is set from the central controller, operation, temperature setting, fan speed and direction setting are not available from the remote control switch.



Motion sensor control

“Motion sensor is activated” is turned ON during the motion sensor control. In this case, the operation is performed with saving the capacity or stopped by the motion sensor control.



Thermo-controller

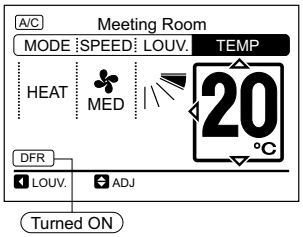
The fan speed is changed to “LOW” at the thermo-controller actuation. However, the indication is not changed. (Only in the heating operation mode).

Defrost

- Defrost Operation

“DFR” is turned ON during the defrosting.

The indoor fan is stopped though the indication is not changed. The louver is fixed at the horizontal position. However, the louver indication of LCD continues to activate.



- Operation Stoppage during Defrosting Operation

The RUN indicator (Green) is turned OFF when the operation is stopped during the defrosting.

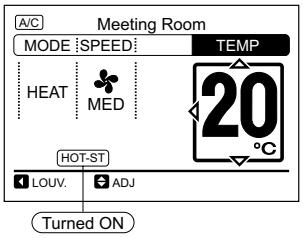
However, the operation continues with “DFR” indication, and the unit is stopped after the defrost operation is finished.

Operation control

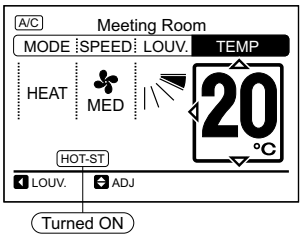
- Supplying Electrical Power

“HOT-ST” is turned ON when the electrical power is turned ON.

In this case, the compressor is under preheating. The operation may not be available for max 4 hours. Do not turn off the outdoor unit electrical power during the high season for Cooling/Heating operation.



- During Hot Start (Heating Operation Only) “HOT-ST” is turned ON.

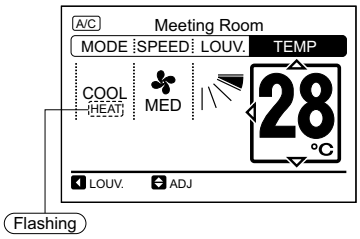


- Different Operation Mode

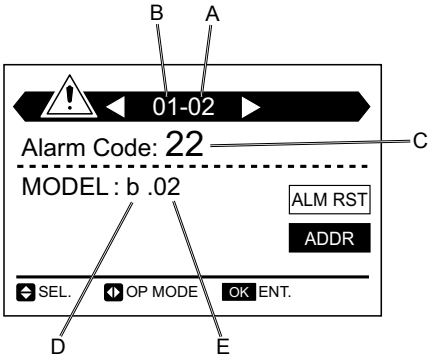
The operation mode set by the remote control switch is different with the outdoor unit operation mode. (Except for the heat recovery system models.)

The indication of the actual operation mode flashes.

Indication when “COOL” operation is set by the remote control switch at the outdoor unit “HEAT” operation.



◆ In Abnormal Condition



Abnormality

The RUN (red) indicator flashes and the ALARM indicator appears on the liquid crystal display.

The screen also displays the following items:

- A: indoor unit address.
- B: Refrigerant cycle number.
- C: Alarm code.
- D: Model code.

Model code	
Indication	**Model**
H	Heat pump
P	Inverter
F	Multi (SET-FREE)
C	Cooling only
E	Other
b	IVX, individual operation
L	KPI

- E: If there are various indoor units connected, the above mentioned information is shown for each one of them.

Power failure

All displays disappear.

If the unit stops due to a power shortage, it will not start again, even though the power comes back on. Carry out the start-up operations again.

If the power failure lasts less than 2 seconds, the unit will start again automatically.

Electrical noise

The displays can disappear from the screen and the unit can stop. This is because the microcomputer has been activated to protect the unit from electrical noise.

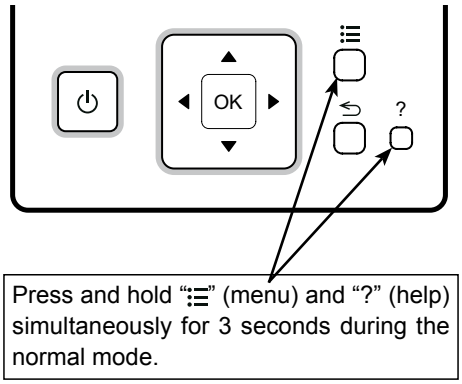
4.1.4.7 Alarm codes

The Alarm code corresponds to the alarm that is happening on the unit.

Refer to the Service Manual of the unit to know the meaning of the alarm code.

4.1.4.8 Check Menu

Indication of Check Menu



Each "Check Menu" item and its function are explained in the following table.

Check menu item	Function
Check 1	Sensor condition of air conditioner is monitored and indicated.
Check 2	Sensor data of air conditioner prior to alarm occurrence is indicated.
Alarm history display (*)	Previous alarm record (date, time, alarm code) is indicated.
Model display	Model name and manufacturing number is indicated.
IU/OU PCB check	The result of PCB check is indicated.
Self checking	Checking of remote control switch is carried out.

(*): To Erase Alarm History.

Press "OK" when the abnormality record is indicated. After that, the confirmation screen is displayed.

Select "Yes" and press "OK" so that the alarm record being deleted.

4.2 PC-ART

4.2.1 Safety summary

⚠DANGER

- ***DO NOT handle the remote control with wet hands.***
- ***DO NOT spill water on the remote control. This may cause an electric shock.***
- ***If the safety devices are activated too frequently or the buttons do not work properly, turn off the unit at the mains and contact your HITACHI service provider.***
- ***In the event of other incidents of an electrical nature, turn off the system, switch it off at the mains and contact your HITACHI service provider.***

⚠CAUTION

DO NOT install the indoor unit, outdoor unit, remote control or any wiring in the following locations:

- *Where there are oil vapours and the oil is dispersed.*
- *In the proximity of hot water or heat sources or in sulphuric environments.*
- *In locations prone to the generation, accumulation, leakage or flow of flammable gas.*
- *Close to the sea (saline atmospheres).*
- *In acidic or alkaline environments.*
- *Within the reach of children.*
- *Directly in front of the air-conditioning system outlet.*
- *To avoid electromagnetic compatibility problems, DO NOT install the indoor unit, outdoor unit, remote control or any wiring within 3m of strong sources of electromagnetic radiation (e.g. waves generated by medical equipment). If the system should be installed in a location where electromagnetic waves are produced, protect the remote control and wiring by covering them with the steel casing and passing the cable through the metal duct.*
- *If electrical noise should be generated at the indoor unit power source, install a noise filter.*

⚠CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle this appliance properly and safely.*
- *Children should be supervised to ensure that they do not play with the appliance.*

4.2.2 Installation

4.2.2.1 Installation site selection

Take note of the maximum admissible cable length between units and the control as well as between the units themselves, as shown in the following table:

Cable section	0.3 mm^2	≥ 0.75 mm^2
Cable length	30 m	500 m

4.2.2.2 Components list

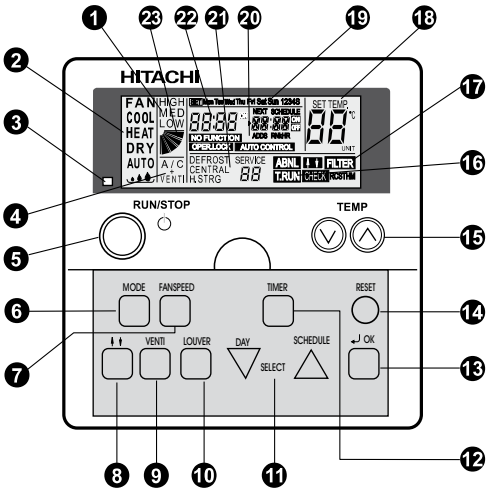
Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

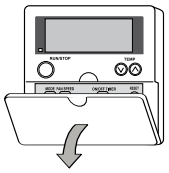
Otherwise, contact the manufacturer.

Name		Quant.	Comments
Remote control		1	For controlling system operation
M4x16L screws		2	For fixing the bracket to the wall
Cable tie		1	For attaching the cable to the ring core
Ring core		1	For securing the cables
Installation and operation manual		1	Installation and operation unit instructions.

4.2.2.3 Description of the parts



Model: PC-ART



To open the cover, pull in the direction of the arrow.

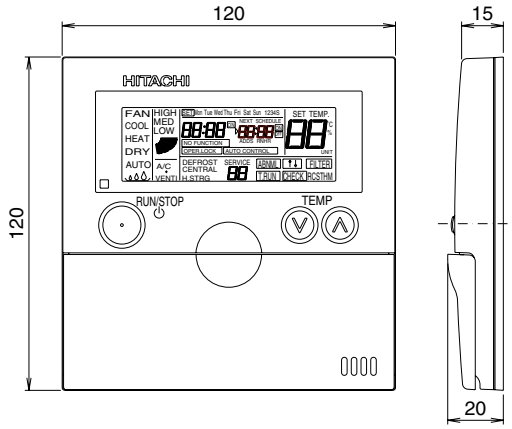
1. Fan speed indicator:
   Indicates the fan speed selected: HIGH, MED or LOW
2. Operation mode indicator:
   Indicates the operation mode selected: FAN, COOL, HEAT, DRY or AUTO
3. Run indicator (green LED)
4. Ventilation indicator:
   Indicates whether the total heat exchanger has been selected*.
   (*see: Ventilation mode procedure)
   A/C air conditioning only
   VENTI total heat exchanger only
   A/C + VENTI if both are selected
5. RUN/STOP button
6. MODE button
7. FAN SPEED button
8. Panel up and down operation button
9. VENTI button (ventilator operation)
10. LOUVER button (oscillating louver operation)
11. SELECT (DAY/SCHEDULE) buttons
12. ON/OFF TIMER button (starts/stops timer).
    (Used to activate or deactivate the timer function)
13. OK button
14. RESET button (resets filter)
    After cleaning the air filter, press the RESET button
    The FILTER message will disappear and the next filter cleaning time will be set
    It can also be used to exit the check mode and the optional function configuration mode
15. TEMP buttons (temperature setting)
16. T.RUN indicator (test run indicator)
    OK indicator
    These indications are displayed during TEST RUN and OK operations
17. ABNML indicator (alarm)
    FILTER indicator
    Panel up/down indicator
18. SET TEMP indicator (temperature setting)
19. 1234S indicator (schedule number setting)
    Mon, Tue... Sun indicator (indicates the weekday)
20. Indicates the start/stop time for each of the units

    Time indicator (indicates the scheduled time)
    NO FUNCTION indicator (indicates when a key has no function)
    OPER LOCK indicator (keys locked)
    ADDS indicator (indoor units)
    RN HR: RN indicator (refrigerant cycle number) and HR (hours of service)
21. SERVICE indicator (service mode: indicates a switch to special functions)

    CENTRAL indicator
    DEFROST indicator
22. Time indicator
23. Louver indicator

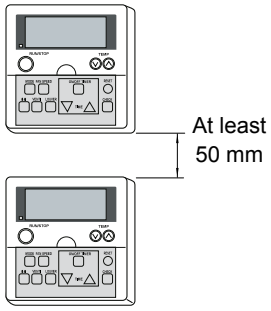
4.2.2.4 Dimensional data

(mm)



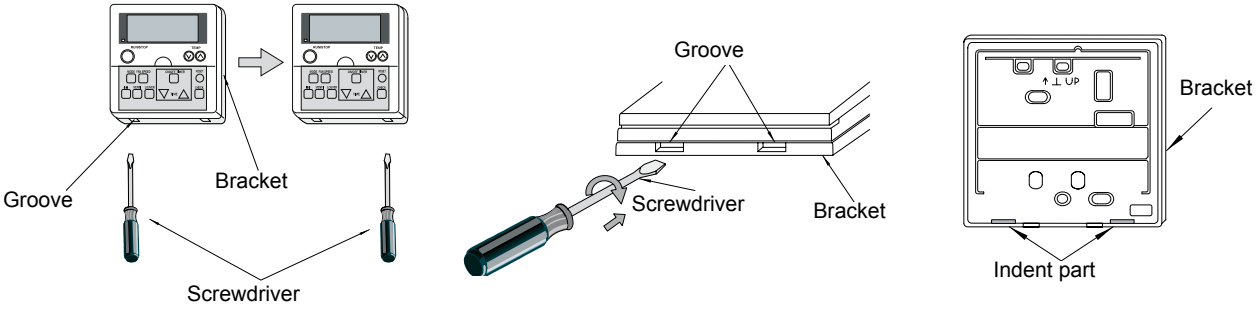
4.2.2.5 Installation space

If several control units are to be installed in a vertical position, leave a distance of at least 50 mm between them to allow the front cover to be opened and to insert the tool for removing the control from its housing.



4.2.2.6 Installation procedure

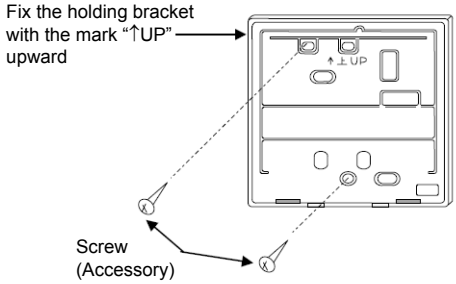
1 Using a flat-head screwdriver, separate the control unit bracket from the front section as indicated.



2 Place the control unit in the housing, as indicated below (2 examples):

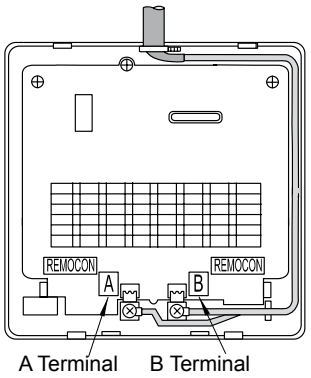
◆ **In cases where the remote control cable is exposed.**

a. Secure the bracket to the wall using the 2 screws provided.



b. Insert the cable through the hole in the control unit. A hole can be made in the top centre and top left hand side..

c. Strip the cable insulation and connect to terminals A and B.



◆ If using an electric control box.

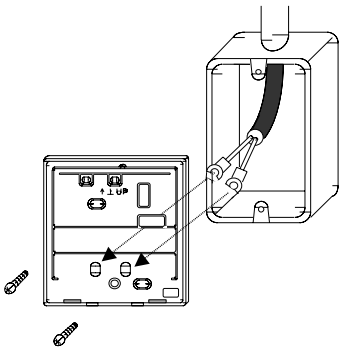
There are different types of electrical boxes available on the market that can be used for this installation, for example:

- Electrical box for one control unit (with or without cover.)
- Electrical box for 2 control units (with or without cover.)
- Other types of box

1 Pass the cable through the wall duct.

2 Pass the cable through the electrical box.

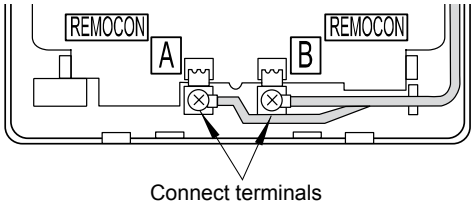
3 To secure the bracket to the box, make sure you leave the necessary length of cable, taking into account the height of terminals A and B.



⚠CAUTION

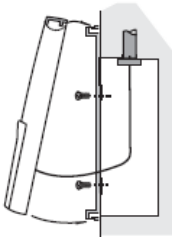
Make sure the cable is not loose and that the length is correct. If it is left loose, it may become pinched when the control unit is fitted to the bracket, possibly causing an operational fault.

4 Strip the cable insulation and connect to terminals A and B.



5 Control unit assembly procedure

- Insert the hooks on the control unit into the holes on top of the bracket.
- Push the bottom part of the unit towards the bracket.
- A click sound indicates that the control unit is secured to the bracket and the assembly procedure is complete.



4.2.3 Electrical wiring

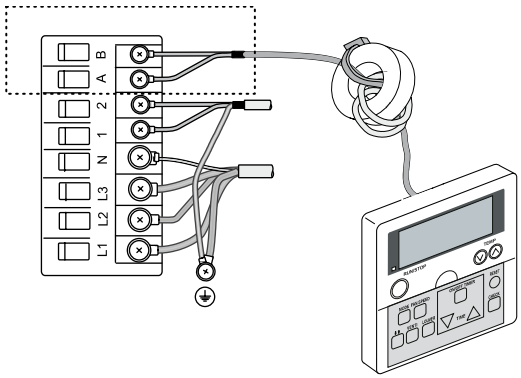
4.2.3.1 Standard electrical connection

CAUTION

For operational and safety purposes, fit the ring core "attachment" when installing the unit.

- Wind the remote control cable around the ring core twice, as shown beside, before connecting it to the indoor unit terminal board.
- If the cable measures 0.75 mm2 or more, the outer insulation must be stripped (only on the part to be wound), otherwise you will not be able to wind the cable around the ring core.
- Secure the cable using the cable tie (accessory).

This diagram shows an example of a standard connection, with the cable connected to terminals A and B.

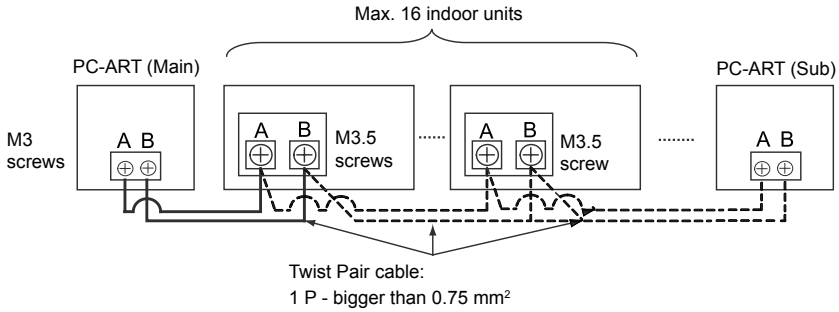


4

4.2.3.2 Electrical connection for multiple units

◆ Wiring example (Using a twist pair cable with shield tube)

This remote control switch can control sixteen units, as the maximum.



CAUTION

Always make sure to turn off the power of the indoor unit when performing electrical wiring work. Performing electrical wiring work with the power on can damage the circuit boards of the indoor unit and the remote control switch.

NOTE

- *Use a 0.3 to 0.75 mm² cable for connecting. The maximum total cable length is 30 m. If the total cable length exceeds 30m, use a twist pair cable with shield tube (1P - 0.75 mm²). In that case, the maximum total cable length is 500 m. If using in combination with the control timer, the allowable total cable length is up to 100 m. The use of a cable other than that specified above can cause of malfunction due to effects of noise.*
- *Keep a distance more than 30 cm between the transmission line (remote control switch cable and transmission wires) and power source of the indoor units. If not, the air-conditioner may not operate properly or malfunction may occur due to effect of power source noise.*
- *In case of simultaneously controlling multiple indoor units, set the refrigerant cycle numbers and addresses of the indoor units without overlapping.*
- *Refer to the Technical Catalogue provided with each indoor unit when performing electrical wiring work between the remote control switch and indoor units for setting the refrigerant cycle number and the indoor unit address.*
- *No gap shall exist between the remote control switch cable and hole of the remote control switch case. If there is a gap, cover the gap with vinyl tape. If not, malfunction may occur due to entrance of water droplets or insects.*
- *In case of operating with two remote control switches (Main and Sub), set the main and sub remote control switches by selecting the appropriate function with the remote control switches according to the chapter Function selection and setting. After setting it, turn off the power supply of all the indoor unit connected to the remote control switches.*

4.2.4 Checking procedure

1 Turn ON the power supply for all the indoor units.

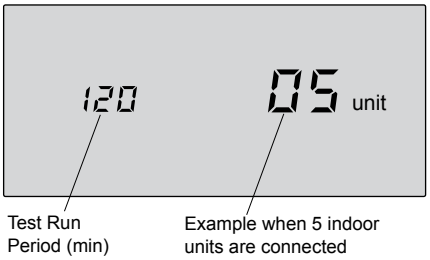
2 Set the “TEST RUN” mode by pressing the “MODE” and “OK” switch simultaneously for more than 3 seconds.

CAUTION

In case of the control by using two Remote controllers (Main & Sub), the test run shall be operated by the main controller.

NOTE

- *The completion of the automatic address setting requires 3 to 5 minutes after turning ON the power supply.*
- *The total number of the connected units is indicated on the liquid crystal display.*



In case that the indicated number is not correct, some abnormalities exist, incorrect wiring, the electric noise, etc.:

- Turn OFF the power supply and correct the wiring after checking the following points; (Do not repeat turning ON and OFF within 10 seconds.)
- Power Supply for Indoor Unit is Not Turned ON or Incorrect Wiring.
- Incorrect Connection of Connecting Cable between Indoor Units or Incorrect Connection of Controller Cable.
- Incorrect Setting of Rotary Switch (The setting is overlapped.) on the Indoor Units PCB.
- Check to ensure that the “Test Run” mode is not set.
- Set the required Test Run period by pressing ▽ and △ (Min. 10 minutes to Max. 600 minutes).

3 Cancelling “Test Run” Mode.

- When the unit is not operating, press the RESET switch.
- When the unit is operating, press the RUN/STOP switch.

CAUTION

When “00” is indicated, the auto address function may be performing. Cancel the “Test Run” mode and set it again.

4.2.5 Operation

◆ Before operation

⚠ CAUTION

- *Turn on the electrical power supply to the system approximately 12 hours before start-up after a long shutdown. Do not start the system immediately after connecting the power supply, because the compressor may be damaged if it is not sufficiently heated.*
- *Make sure the outdoor unit is not covered with ice or snow. If it is, remove the ice or snow with warm water (no hotter than 50°C). If the water temperature is over 50°C, the plastic parts may be damaged.*
- *When the system is started after being out of use for more than 3 months, we recommend that the system is checked by the service provider.*
- *If the system is not going to be used for a long period of time, turn it off at the mains. Otherwise it will continue to consume electricity, since the oil heater remains on even when the compressor is off.*

4.2.5.1 Operation mode selection procedure

◆ Procedure for operation in cooling, heating, dehumidifying and ventilation modes

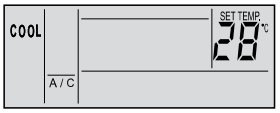
Switch on the power.

Two vertical lines are displayed on the LCD display together with the A/C or VENTI indications.

Press the MODE button.

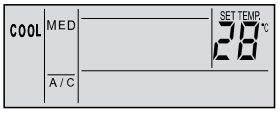
By pressing this button repeatedly, the indicator will change from COOL to HEAT, DRY and FAN modes (or from COOL to DRY and FAN in cooling only models).

(The figure shows the system status when COOL mode is selected).



Press the RUN/STOP button.

The run indicator will light up (green). The system will start up automatically.

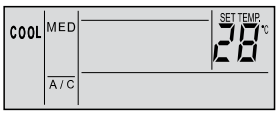


NOTE

Setting the temperature, fan speed and louver direction: *Once this setting is made it is stored in the memory and therefore does not need to be set again every day. To change this setting, refer to the "Procedure for setting the temperature, fan speed and louver direction." section.*

Turn off (STOP)

Press the RUN/STOP button again. The run indicator (green) will go off. The system will stop automatically.



NOTE

The fan may run for a further two minutes or so after stopping the system in heating mode.

◆ Procedure for setting the temperature, fan speed and louver direction.

NOTE

- *If the OK button is pressed for more than three seconds in operation mode, the unit will switch to check mode (CHECK).*
- *In check mode (CHECK), by pressing the OK button once the user can view the different variables using the TEMP ⌃ or ⌄ buttons.*
- *To return to operation mode, press and hold OK for more than three seconds and then press OK twice.*

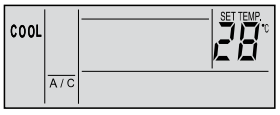
Setting the temperature

Set the temperature by pressing the TEMP ⌃ or ⌄ buttons.

The temperature increases by 1 °C when the ⌃ button is pressed (max. 30 °C).

The temperature decreases by 1 °C when the ⌄ button is pressed (min. 19 °C for Cool, Dry and Fan modes; minimum 17 °C for Heat mode)

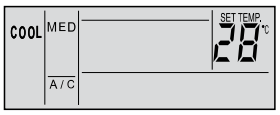
(The figure shows the temperature set to 28 °C).



Setting the fan speed

Press the FAN SPEED button.

By pressing the FAN SPEED button repeatedly, the indicator will switch from HIGH to MED and LOW. The unit is designed and sized for optimum operation with the fan set to HIGH. (The figure shows the MED speed setting.)



NOTE

In DRY mode, the fan speed changes automatically to LOW and cannot be changed (although the indicator will still show the current setting).

Setting the louver direction

Pressing the LOUVER button starts the louver. The louver oscillates at approximately 70° from the horizontal to vertical position. When the "◥" symbol moves, this indicates that the louver is oscillating.

When the louver oscillation function is not required, press the SWING LOUVER button again. The oscillator will stop (although not immediately) at the angle indicated by the direction of the "◥" symbol.

By commanding the louver to move to a specific position, it will move from the initial position to vertical and will then rise again to the horizontal position, before finally moving to the position indicated by the user.

Fixed position

For cooling mode, the air outlet angle can be set to one of 5 different positions. In heating mode, it can be set to one of 7 positions.

Automatic oscillation position

The louver position indicators will move continuously according to the oscillation of the louver.

NOTE

- *In heating mode, the louver angle changes automatically.*
- *There is a phase shift between the actual angle of the louver and the indicated on the LCD screen. When the SWING LOUVER button is pressed, the louver does not stop immediately. It will move an oscillate again before stopping.*
- *To find out the exact louver angles, check the corresponding Catalogue for the unit installed.*

◆ Ventilation mode procedure

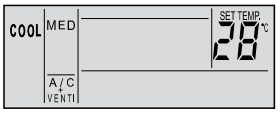
NOTE

- *This function is only available when the total heat exchanger is connected*. When carrying out the following procedures without the total heat exchanger connected, the NO FUNCTION indication will flash for 5 seconds.*
- **Total heat exchanger: When adjusting the temperature, the indoor unit will release air from inside the room and replace it with air from outside. To adjust the air from outside to the temperature setting inside the room, it is passed through the total heat exchanger. The air pretreated (preconditioned) in this heat exchanger is routed to the indoor unit where it is conditioned and then circulated into the room.*

Ventilation

Press VENTI button

By pressing this button repeatedly, the indicator changes from A/C to VENTI and A/C+VENTI. (The figure shows the A/C + VENTI setting).



NOTE

- *If the system mode is changed to VENTI during individual air conditioning system operation, the system will switch off.*
- *If the system mode is changed A/C during individual operation of the total heat exchanger, it will switch off.*

◆ Automatic COOL/HEAT mode procedure

Automatic COOL/HEAT mode must be configured as an optional function.

This function allows the system to be switched automatically to COOL/HEAT mode based on the difference between the temperature setting and the temperature of the suction air. If the intake air exceeds the temperature setting by 3 °C, the system will switch to COOL mode and, if it is 3 °C less than the temperature setting, the system will switch to HEAT mode.

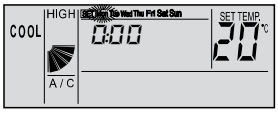
NOTE

- *If the heating function is set to LOW, the overload protection devices will often shut-off the system. When this happens, set the fan speed to HIGH or MED (medium).*
- *If the outdoor temperature is above 21°C, the system will not operate in heating mode.*
- *The temperature difference between the cooling and heating operations is quite considerable when this function is used. This function cannot therefore be used for air conditioning a room where accurate control of temperature and humidity is required.*

◆ Timer function procedure

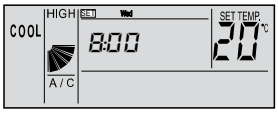
- **Setting the current date and time**

1 Press the SELECT DAY ▼ button for at least 3 seconds to change from operation mode to the current day setting mode. SET will be displayed and the day will flash. All of the days of the week are displayed.

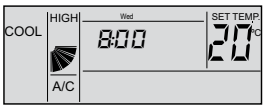


2 Press the SELECT DAY ▼ button until the current day is flashing and press OK. All the days will disappear except the selected day, and the time will start to flash.

3 Press SELECT DAY/SCHEDULE ▲ ▼ to move the "hour" up and down; once set, press OK. The "hour" will stop and the "minutes" will start to flash.



4 Press SELECT DAY/SCHEDULE ▲ ▼ again to set the "minutes" and, once set, press OK again. The current time setting mode will end and the system will return to operation mode. The "minutes" will be displayed and SET will turn off. The "seconds" will start to count from zero.



- **Setting the timer schedules**

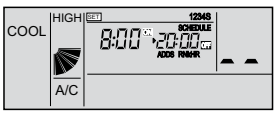
1 Press the TIMER button. SET will be displayed and the first schedule number "1" will flash. The rest of the schedule numbers will remain fixed.

NOTE

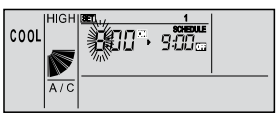
Pressing and holding the TIMER button for more than 3 seconds activates the weekday timer schedule setting.

2 By pressing the SELECT SCHEDULE ▲ button, the schedule number will change in sequence: [1]✳[2]✳[3]✳[4]✳[S]✳[1]✳….,

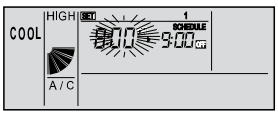
- By selecting [S], the user can set the on/off time and the temperature change as a means of saving energy (check the section on setting the temperature change).
- By pressing the TIMER button, SET and SCHEDULE are turned off and the system switches to operation mode.



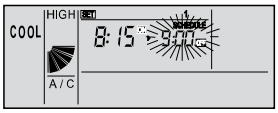
3 Pressing the OK button indicates the selected schedule number. The other schedule numbers will switch off and the switch-on "hour" for the selected program will flash.



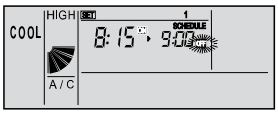
4 Press SELECT DAY/SCHEDULE ▲ ▼ to adjust the "hour" and, once set, press OK. The "hour" will stop and the "minutes" will start to flash.



5 Press the SELECT DAY/SCHEDULE ▲ ▼ button to adjust the "minutes" and, once set, press OK. The "minutes" will remain fixed and the switch-off "hour" will flash.



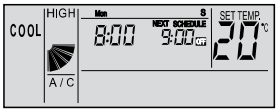
6 Set the switch-off time by following the same procedure as the switch-on time. The schedule will be stored in the memory and all the available schedule will reappear (1, 2, 3, 4, S).



NOTE

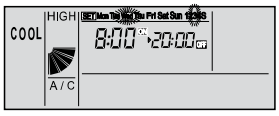
Repeat from step 2 onwards to adjust the other schedule settings.

7 By pressing the TIMER button, SET and SCHEDULE are turned off and the system switches to operation mode.



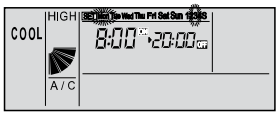
- **Assigning timer schedules to the days of the week**.

1 Press the TIMER button for more than 3 seconds and SET will appear. All the days of the week will be displayed along with the schedule numbers (as explained in the previous point).



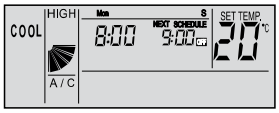
2 Press the DAY ▼ button until the desired day appears. When pressed, the days of the week will flash: [Mon]→[Tue]→… →[Sun]→[Mon~Sun]→[Mon~Fri]→[Sat, Sun]→[Mon]… If several days flash, the same setting will apply to all of these days.

3 Press the SCHEDULE ▲ button until the desired schedule number flashes.



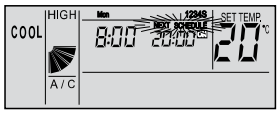
4 Press OK; the schedule number selected in step 3 applies to the days set in step 2. Pressing OK will either activate or deactivate the schedule. If it is activated, the word SCHEDULE will be displayed above the switch-off time.

5 Press the TIMER button; the system will exit the programming mode (SET will switch off) and return to operation mode.

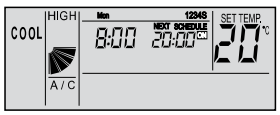


- **Cancelling the timer**

In operation mode, press and hold DAY/SCHEDULE ▲ ▼ simultaneously for at least 3 seconds. NEXT SCHEDULE will flash. (The entire timer setting is cancelled)

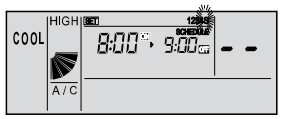


In timer cancellation mode, press and hold DAY/SCHEDULE ▲ ▼ simultaneously for at least 3 seconds. NEXT SCHEDULE will appear. (Timer activation)

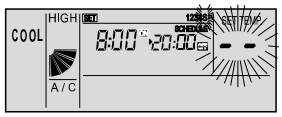


- **Setting the temperature change (energy-saving mode)**.

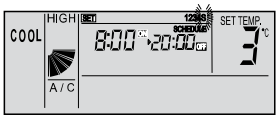
1 Follow the switch-on/switch-off setting procedure in steps 1 and 2 of the *"Setting the timer schedules"* section and select program "S".



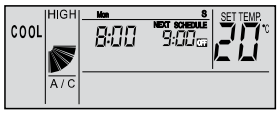
2 Follow the switch-on/switch-off setting procedure in steps 4, 5 and 6 in the *"Setting the timer schedules"* section and set the switch-on/switch-off time. This will bring up the setting temperature.



3 Select the temperature change using the TEMP buttons ⌃ ⌄. At this point, if the RESET button is pressed, the temperature change will not be set and "- -" will be displayed.



4 By pressing the TIMER button, SET and SCHEDULE are turned off and the system switches to operation mode.



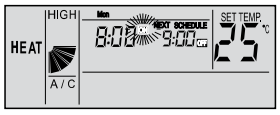
NOTE

- *Carrying out this operation will change the temperature setting indicator.*
- *The increase or decrease of the set temperature during the scheduled time (±3 °C or ±5 °C) will vary depending on the operation mode.*
- *If operating in "ventilation", "cooling" or "dehumidifying" mode, the temperature variation is + .*
- *If operating in "heating" mode, the temperature variation is - .*

4

◆ Automatic heating operation (freeze protection)

- **Activation**



In operation mode, press the MODE button for at least 3 seconds. Automatic heating operation is activated and ON will appear to the right of the current time. ON will flash continuously during automatic heating operation.

- **Cancellation**

During automatic heating operation, press the MODE button for at least 3 seconds to change to the operation mode.

The automatic heating operation is switched off and the ON indication to the right of the current time will disappear.

NOTE

- *If the room temperature drops below a certain level*, the heating will switch on automatically. In this case, when the room reaches the temperature setting, the system will switch off.*
- ** The user may select (5/10/15 °C) through an optional setting (see Optional function list, option FE).*

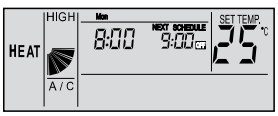
◆ Operating lock procedure

To avoid any incorrect use of the buttons, they can be locked (see below).

- **Activation**

In operation mode, press the SELECT ▲ ▼ buttons simultaneously for at least 3 seconds. The operation lock will be activated and OPER.LOCK will be displayed. If a button is pressed during this time, OPER. LOCK will flash.

- **Cancellation**



While system operation is locked, press the SELECT ▲ ▼ buttons simultaneously for at least 3 seconds to return to operation mode. The operation lock will be cancelled and OPER.LOCK goes off.

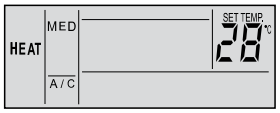
NOTE

- *The button to be locked can be selected in "change operation mode", "temperature setting", "air flow" and "automatic louver" through an optional setting (F8~Fb) indicated in Optional functions list.*
- *This setting can be changed from a second remote control.*

4.2.5.2 Indications in normal conditions

- **Thermostat Stoppage**

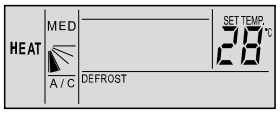
When the thermostat of the unit is off, the fan speed changes to LOW and the indicator will not change. (Heating mode only.)



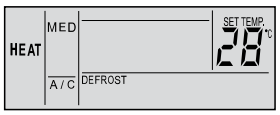
- **Defrost**

When the system is running in defrost mode, the DEFROST indication will appear.

The fan of the indoor unit will slow down or stop (as selected).The louver will stop in the horizontal position at 35°. However, the indicator on the LCD screen will remain on. (The figure shows the system status when set to DEFROST.)



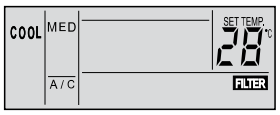
When the unit stops during defrost mode, the run indicator (green) will switch off. However, the system will continue to display DEFROST and the unit will start-up once the defrost mode is complete.



- **Filter**

Clogged filter: The FILTER indication will appear when the time programmed in function b4 (see Optional function list) expires, indicating that it needs to be cleaned.

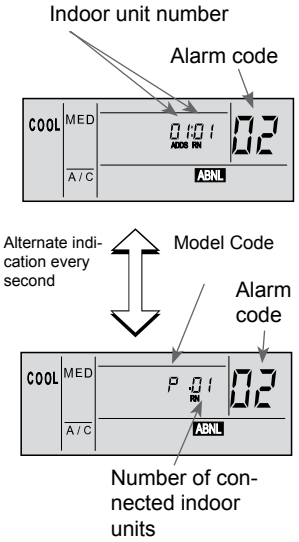
Clean the filter: Press the RESET button after cleaning. The FILTER sign will turn off.



4.2.5.3 Indications in abnormal conditions

- **Abnormal condition**

The run indicator (green) will flash.
The ALARM indicator will be displayed on the LCD screen.
The screen will also indicate the number of the indoor unit, the alarm code and the model code.
If several indoor units are connected, these indications will be displayed for each one, one at a time.
Note down the indications and contact your HITACHI service provider.



- **Power failure**

All on-screen indications will disappear.
When the unit stops due to a power failure, it will not restart automatically, even when the power is restored. In the event of a power failure lasting no more than 2 seconds, the unit will restart automatically.

- **Electrical noise**

There may be cases when all of the display indications are off and the unit is stopped.
This is because the microcomputer has switched on to protect the unit from electrical noise.

NOTE

- *In cases where a wireless remote control is being used for the indoor wall type unit, remove the connectors (CN25) connected to the indoor PCB. Otherwise, the unit will not work.*
- *Stored data cannot be deleted unless the remote control is reset.*

Model number	
Indication	**Model**
H	Heat pump
P	Inverter
F	Multiple
C	Cooling only
E	Other
b	IVX, individual operation
L	KPI

4.2.6 Optional functions

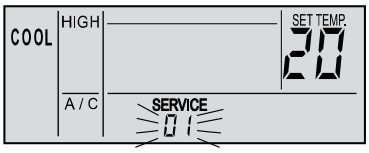
4.2.6.1 Command functions

The remote control changes the optional setting mode with the following procedures.

The optional functions are programmed using the remote control.

- **Programming and setting mode**

Check that the unit is off, press and hold the remote control buttons "OK" and "RESET" simultaneously for at least 3 seconds and the control will change to the field setting mode. Once the mode is changed, the unit will display the "SERVICE" indication, with the number "01" flash below it.



- **Optional setting mode. Selecting SERVICE 01**

In programming and setting mode (mentioned above), press either "TEMP ⌃" or "TEMP ⌄" and the number flashing beneath the "SERVICE" indication will change (01 <=> 02). Set the flashing number to "01", press "OK" and the remote control will switch to optional setting mode.

- **Selecting the indoor unit**

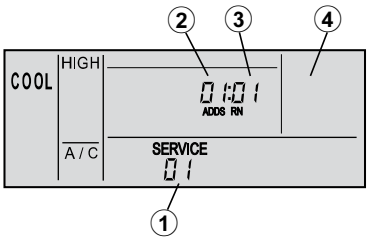
  a. In optional setting mode, selecting SERVICE 01 will change the indicator on the remote control display, as shown in the following diagram.

① Indication "01" will be activated.

② The address of the indoor unit on which the optional function is to be set is indicated in the timer setting hour indication section, with "ADDS" appearing below.

③ The refrigerant cycle number of the outdoor unit on which the optional function is to be set is indicated in the timer setting hour indication section, with "RN" appearing below.

④ The setting temperature indication is deactivated.



  b. At the point mentioned above (a), press either "TEMP ⌄" or "TEMP ⌃" on the remote control in order to change the indoor unit on which you wish to set the optional function.

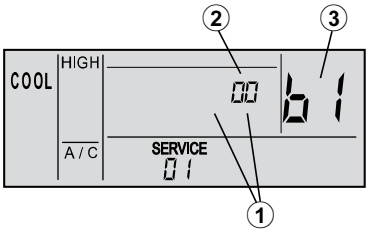
NOTE

- *The indoor unit can be selected from among those connected to the remote control.*
- *If the indication for both the address and the refrigerant cycle is "AA", the settings for all indoor units are the same.*

  c. After selecting the indoor unit, press "OK" and the remote control will switch to optional setting mode.

- **Changing optional functions and setting conditions**

  a. In optional setting mode, the indication on the control display will change, as shown below.



① The indications "ADDS" and "RN" will be deactivated.

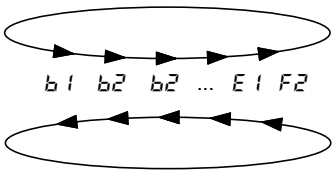
② The setting condition of the optional function is indicated in the timer setting hour indication sections.

③ The optional function number is indicated in the setting temperature indication section.

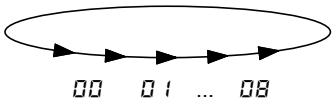
b. Press either “SELECT ▲” or “SELECT ▼” and the optional function indication will change, as shown below.

When pressing “SELECT▲”

When pressing “SELECT▼”



c. Press "OK" and the setting condition of the optional function will change, as shown.



- **Selecting a different indoor unit**

If you press “TEMP ⌄” or “TEMP ⌃” when in the optional setting mode, the condition of the remote control change so that the indoor unit may be selected to set the optional function, as described above.

- **Returning from optional function setting mode to operation mode**

Press the "RESET" button to store the optional function setting and return to operation mode.

4.2.6.2 Optional functions list

Items	Optional Function	Individual Setting	Setting Condition	Contents
b1	Removal of Heating Temperature Compensation	○	00	Standard (Set Temp. +4 °C)
			01	Removal (Set Temp.)
			02	Set Temp. +2 °C (*1)
b2	Circulator Function at Heating Thermo-OFF	○	00	Not Available
			01	Available
b3	3 Minutes OFF Guard Compressor	○	00	Not Available
			01	Available
b4	Period for Filter Sign	○	00	Standard
			01	100 hours
			02	1,200 hours
			03	2,500 hours
			04	No Indication
b5	Fixing of Operation Mode	×	00	Not Available
			01	Available
b6	Fixing of Setting Temperature	×	00	Not Available
			01	Available
b7	Fixing Cooling Operation	×	00	Not Available
			01	Available
b8	Automatic COOL/HEAT Operation	×	00	Not Available
			01	Available
b9	Fixing Fan Speed	×	00	Not Available
			01	Available
bA	**Not Prepared**	×	"- -" Fixed	Not Used
bb	Cooling Temperature Compensation	○	00	Standard (No Compensation)
			01	Set Temp. –1 °C
			02	Set Temp. –2 °C
bC	**Not Prepared**	-	00	Not Used
			01	(Use as 00 conditions)
bd	**Not Prepared**	-	00	Not Used
			01	(Use as 00 conditions)
bE	**Not Prepared**	-	00	Not Used
			01	(Use as 00 conditions)
C1	**Not Prepared**	-	00	Not Used
			01	(Use as 00 conditions)
C2	**Not Prepared**	-	"- -" Fixed	Not Used

Items	Optional Function	Individual Setting	Setting Condition	Contents
C3	**Not Prepared**	○	00	Not Used
			01	(Use as 00 conditions)
C4	Drain pump in heating mode	○	00	Not available
			01	Available
C5	Static pressure selection (RPI)	○	00	Average static pressure (factory set)
			01	High static pressure
			02	Low static pressure
	Increased Fan Speed (RCI, RCIM, RCD)		00	Normal
			01	Speed increase 1
			02	Speed increase 2
C6	Increasing Fan Speed	○	00	Not Available
			01	Available
C7	Cancelling 3 Minutes Compressor Guard.	○	00	Available
			01	Available
C8	Thermistor of Remote Control Switch	○	00	Control by Indoor Suction Thermistor
			01	Control by Thermistor of Remote Control Switch
			02	Control by Average Value of Indoor Suction Thermistor and Thermistor of Remote Control Switch
C9	**Not Prepared**	-	"- -" Fixed	Not Used
CA	**Not Prepared**	-	"- -" Fixed	Not Used
Cb	Selection of Forced Stoppage Logic	×	00	Forced Stoppage Input: A Contact
			01	Forced Stoppage Input: B Contact
CC	**Not Prepared**	×	00	Not Used
			01	(Use as 00 conditions)
Cd	**Not Prepared**	○	00	Not Used
			01	(Use as 00 conditions)
CE	**Not Prepared**	-	00	Not Used
			01	(Use as 00 conditions)

Items	Optional Function	Individual Setting	Setting Condition	Contents
CF	Change of Louver Swing Angle	○	00	Standard (7 Steps)
			01	Draft Prevention (5 Steps)
			02	High Ceiling (5 Steps) (*2)
d1	Power Supply ON/OFF 1	○	00	Not Available
			01	Available
d2	**Not Prepared**	-	"- -" Fixed	Not Used
d3	Power Supply ON/OFF 2	○	00	Not Available
			01	Available
d4	Prevention for Cooling Discharge Air Temp. Decrease	○	00	Not Available
			01	Available
d5	Prevention for Heating Discharge Air Temp. Decrease	○	00	Not Available
			01	Available
d6	Room Temp. Control for Energy Saving	○	00	Not Available
			01	Available
d7	**Not Prepared**	○	00~07	Not Used (Use as 00 conditions)
E1	KPI: Ventilation mode	○	00	Automatic Ventilation
			01	Ventilation with Total Heat Exchanger
			02	Ventilation with Bypass (No Total Heat Exchange)
	Econofresh: all fresh mode		00	Not Available
			01/02	All fresh mode
E2	KPI: Increasing Air Supply Volume	○	00	Not Available
			01	Available
	Econofresh: Enthalpy Sensor		00	Not Available
			01	Available
E3	**Not Prepared**	○	00	Not Used
			01	(Use as 00 conditions)
E4	KPI: Precooling / Pre-Heating period	○	00	Standard
			01	30 minutes
			02	60 minutes
	Econofresh: gas sensor		00	Standard
			01/02	CO_2 Sensor
E5	**Not Prepared**	○	00	Not Used
			01	(Use as 00 conditions)

Items	Optional Function	Individual Setting	Setting Condition	Contents
E6	Indoor Fan Operation Time After Cooling Operation Stoppage	○	00	Not Available
			01	60 min.
			02	120 min.
E7	**Not Prepared**	-	00	Not Used
			01	(Use as 00 conditions)
E8	Fan Operation Control at Heating Thermo-OFF	○	00	Not Available
			01	Available
E9	**Not Prepared**	-	00	Not Used
			01	(Use as 00 conditions)
EA	**Not Prepared**	○	00	Not Used
			01	(Use as 00 conditions)
Eb	Fan Operation Control at Cooling Thermo-OFF	○	00	Not Available
			01	LOW
			02	SLOW
EC	Forced Thermo-ON Stoppage at Cooling	○	00	Not Available
			01	Available
Ed	**Not Prepared**	○	00	Not Used
			01	(Use as 00 conditions)
EE	Automatic Fan Speed Control	○	00	Not Available
			01	Available
F1	Automatic Timer OFF Setting	×	00	Function not valid
			01	1 h
			02	2 h
			03	3 h
			04-24	(04-24) h
			0A	0.5 h
			0B	1.5 h
F2	Main and secondary remote control Setting	×	00	Master
			01	Slave
F3	Automatic Temperature Setting Release	×	00	Not available
			01	Available
F4	Automatic Release Time	×	00	30 minutes (Factory setting)
			01	15 minutes
			02	60 minutes
			03	90 minutes

Items	Optional Function	Individual Setting	Setting Condition	Contents
F5	Automatic Cooling Temperature Release	×	19	19 °C
			20	20 °C
			21-24	(21-24) °C
			25	25 °C (Factory setting)
			26-28	(26-28) °C
			29	29 °C
			30	30 °C
F6	Automatic Heating Temperature Release	×	19	19 °C
			20	20 °C
			21-24	(21-24) °C
			25	25 °C (Factory setting)
			26-28	(26-28) °C
			29	29 °C
			30	30 °C
F7	Prevention of Operation Stoppage due to Remote Control Operating Error	×	00	Not Available
			01	Available
F8	Lock Function for Operation Mode Selection	×	00	Not Available
			01	Available (Factory-Setting)
F9	Lock Function for Temperature Setting	×	00	Not Available
			01	Available (Factory-Setting)
FA	Lock Function for Fan Speed Selection	×	00	Not Available
			01	Available (Factory-Setting)
Fb	Lock Function for Swing Louver Operation	×	00	Not Available
			01	Available (Factory-Setting)
FC	Cooling Lower Limit for Setting Temperature (*3)	×	00	Standard
			01	Lower Limit +1 °C
			02	Lower Limit +2 °C
			...	...
			09	Lower Limit +9 °C
			10	Lower Limit +10 °C
Fd	Heating Upper Limit for Setting Temperature (*4)	×	00	Standard
			01	Upper Limit –1 °C
			02	Upper Limit –2 °C
			...	
			09	Upper Limit –9 °C
			10	Upper Limit –10 °C

Items	Optional Function	Individual Setting	Setting Condition	Contents
FE	**Not Prepared**	-	00	Not Used
			01	(Use as 00 condition)
			02	
FF	Lock Function for Timer	×	00	Not Available
			01	Available (Factory-setting)
H1	Maintenance alarm	○	00	Show
			01	Hide
H2	No automatic control indication	○	00	Show
			01	Hide
H3	Operation mode change restriction (*4)	○	00	Operation mode change off (hide operation mode) (factory setting)
			01	Operation mode set by the central control unit + “FAN” mode
			02	Unlimited operation
H4	Ventilation changeover (total heat exchanger only)	○	00	Air conditioning only
			01	Ventilation only
			02	Air conditioning + Ventilation
H5	Central control available after forced stoppage.	○	00	Off
			01	On

○: Allow individual setting.

×: Setting is used for all the outdoor units

-: Not used

NOTE

**1: The “02” setting may not be available according to the type of indoor unit.*

**2: 00: Standard (7-step operation), 01: Draft Prevention (lower 2 steps cut-off), 02: High ceiling (upper 2 steps cut off)*

**3: Applicable to fan, cooling and dry operation modes.*

**4: Applicable to heating operation mode.*

After at least 3 minutes from the power ON, change the optional setting.

When changing “CF” setting (change of louver swing range), restore the power supply or allow the louver to make one complete swing fully in the auto swing mode to apply the optional setting.

The optional settings are different according to the indoor and outdoor unit models. Check to ensure that the unit has the optional setting or not.

Record the setting conditions for each optional setting in the “Setting” column of the table.

Table B Input and Output number display and connectors

Input number display		Port	Factory Setting		Setting
Input / Output	Indication		Setting Item	Indiicaton	
Input1	,1	CN3 1-2	Remote ON/OFF 1 (level)	03	
Input2	,2	CN3 2-3	Forbidding Remote Control after Manual Stoppage	06	
Output1	o1	CN7 1-2	Operation	01	
Output2	o2	CN7 1-3	Alarm	02	
Output3	o3	CN8 1-2	Thermo-ON for Heating	06	

Table C Input and Output settings and display codes

Indication	Input	Output
00	Not set	Not set
01	Room Thermostat (for Cooling)	Operation
02	Room Thermostat (for Heating)	Alarm
03	Remote ON/OFF 1 (level)	Cooling
04	Remote ON/OFF 2 (Operation)	Thermo-ON for Cooling
05	Remote ON/OFF 2 (Stoppage)	Heating
06	Forbidding Remote Control after Manual Stoppage	Thermo-ON for Heating
07	Remote Cooling / Heating Change	Total Heat Exchanger

NOTE

- *After at least 3 minutes from the power ON, change the optional setting.*
- *Record the setting conditions for each input and output in the “Setting” column of the table.*

4.2.6.3 Remote control optional functions

b1 Removal of Heating Temperature Compensation (due to Uneven Heat Load).

This function is used when the temperature settings of the remote control switch and the suction air temperature of the indoor unit are required to be equal.

This is useful when the thermistor at the suction side of an indoor unit is removed and installed in another place.

Setting Temperature for Room Temperature Control at Heating

Setting Condition	Actual Control Temperature
00 (Standard)	Remote Control Switch Setting Temperature (Indicated Value) +4°C
01	Remote Control Switch Setting Temperature (Indicated Value)
02	Remote Control Switch Setting Temperature (Indicated Value) +2°C

NOTE

The setting temperature upper limit after compensation is as follows: Inverter Multi Unit: 34 °C

b2 Circulator Function at Heating Thermo-OFF

In case that the fan speed is changed to “LOW” tap at heating Thermo-OFF, the room air may stratify because warm air stagnates near the ceiling. In this case, it is recommended that the circulator function explained below is utilized. The function keeps the fan speed at thermo-OFF at the same level as thermo-ON. In this case, air movement in the room will be kept on the same level as thermo-ON, ensuring a homogenous air distribution. In case that an Auto Louver is equipped, this operation will be also activated when the heating is turned thermo-OFF.

NOTE

Perceptions of coolness, heat and air flow are subject to personal tastes and behaviours. It is therefore recommended to discuss this with customers thoroughly and then to set the unit accordingly.

b3 Enforced 3 Minutes Minimum Operation Time of Compressor

This function is used to guard the compressor. When this function is valid, the operation is prevented the compressor frequency starts and stops in short intervals. By setting this function, the mode of a minimum 3 minutes operation will be added.

Refer to Item (C7) to cancel this function. Even if this function is set as invalid, “3 Minutes Guard for Compressor Protection” function is still available.

The functions of enforced 3 minutes minimum operation and minimum 3 minutes stoppage are valid when factory shipping.

NOTE

When the safety device is activated or the “RUN/STOP” switch is pressed, the compressor is stopped immediately.

b4 Change of Filter Cleaning Time

The period for filter sign indication is set for each indoor unit model when shipping. The filter sing is indicated according to the filter cleaning time (Factory-Setting). However, this filter cleaning time can be changed depending on the condition of the filter as shown in the table below:

	Period for Filter Sign Indication			
	Approx. 100 hrs.	Approx. 1,200 hrs.	Approx. 2,500 hrs.	No Indication
In Case of 4-Way Cassette Type	○	◎	○	○
Liquid Crystal Display on Remote Control Switch	01 b4	02 b4 or 00 b4 *	03 b4	04 b4

◎: Factory-Setting

○: Change Setting Period

* : In case of RPK model, the factory setting is 200 hrs.

b5 Fixing of Operation Mode

This function is used when operation mode changes are not required.

When this function is valid, the operation mode which has been set cannot be changed by the remote control switch.

b6 Fixing of Setting Temperature

This function is used when setting temperature changes are not required. When this function is valid, the setting temperature which has been set cannot be changed by the remote control switch.

b7 Fixing of Operation as Exclusive Cooling Unit

This function is used when exclusive cooling operation is required. This function invalidates the heating operation and the automatic COOL/HEAT operation, as the operation of exclusive cooling unit.

b8 Automatic COOL/HEAT Operation

This function is used to operate the unit with changing cooling and heating operation automatically (same operation mode for indoor units in the same refrigerant cycle). This function is invalid when the outdoor unit is cooling only model or the function of “Fixing of Operation as Exclusive Cooling Unit” is valid.

b9 Fixing of Fan Speed

This function is used to fix the fan speed. When this function is valid, the fan speed is not changed by the remote control switch.

bA Not Prepared

bb Cooling Setting Temperature Compensation

This function is used to provide the longer cooling operation time. When this function is valid, Thermo-ON/OFF is controlled under the lower temperature conditions than the setting temperature (indicated value) of the remote control switch.

Setting Temperature for Room Temperature Control at Cooling

Setting Condition	Actual Control Temperature
00 (Standard)	Remote Control Switch Setting Temperature (Indicated Value)
01	Remote Control Switch Setting Temperature (Indicated Value) -1°C
02	Remote Control Switch Setting Temperature (Indicated Value) -2°C

NOTE

The setting temperature lower limit after compensation is 19 °C

bC Not Prepared

bd Not Prepared

bE Not Prepared

C1 Not Prepared

C2 Not Prepared

C3 Not Prepared

C4 Drain pump in heating mode

This function is used to activate the drain pump in heating mode (when the humidifier is installed).

C5 Static pressure selection (RPI) / Increasing fan speed (RCD, RCI, RCIM)

For RPI units, this function is used to change the static pressure.

For RCD, RCI and RCIM units, this function is used to increased the fan speed on the indoor units installed in high ceilings.

C6 Hi Speed at Heating Thermo-OFF

This function is used to increase the fan speed when thermo-OFF in heating operation with the function (C5). (The fan speed is not increased when thermo-OFF in heating operation at the function (C5) setting.)

C7 Cancelling of Enforced 3 Minutes Minimum Operation Time of Compressor

"Enforced 3 Minutes Minimum Operation Time of Compressor" described in the item (b3) is the standard function. This function is used to cancel the "Enforced 3 Minutes Minimum Operation Time of Compressor" function.

C8 Thermistor of Remote Control Switch

This function is used to control the unit by the built-in thermistor of the remote control switch (remote control thermistor) instead of the thermistor for suction air.

Set this function at "01" or "02" when utilizing this function.

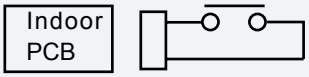
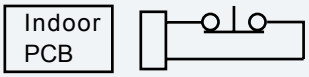
However, even when this function is set at "01" or "02", the detecting temperature is abnormal due to the failure of the remote control thermistor, etc., the thermistor to be used is changed to the thermistor for suction air of the indoor unit automatically.

C9 Not Prepared

CA Not Prepared

Cb Selection of Forced Stoppage Logic

This function is used to select the logic of the contact for forced stoppage signal input. The setting condition and the logic of the contact are as shown below.

Setting Condition	Logic of contact	Sequence	Activation	
			Contact "Open"	Contact "Close"
00	A Contact		Normal	Forced Stoppage
01	B Contact		Forced Stoppage	Normal

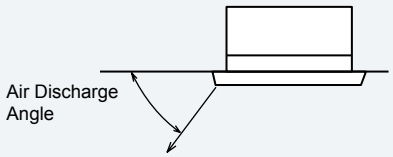
CC Not Prepared

Cd Not Prepared

CE Not Prepared

CF Change of Louver Swing Angle

This function is used to the change louver swing angle.

Setting Condition	Louver Swing Angle (Air Discharge Angle)	Purpose	
00	Approx. 30° to 60°	Standard Operation	
01	Approx. 30° to 50°	Draft Prevention	
02	Approx. 40° to 60°	For High Ceiling	

⚠CAUTION

Never change the setting without turning OFF the power.

d1 Not Prepared

d2 Not Prepared

d3 Power Supply ON/OFF 2 (Restarting Function After Power Failure)

This function is used to start the unit operation again automatically when the power supply is recovered after the power failure over 2 seconds.

The standard unit is started operation again automatically with all the same operating conditions such as operation mode, etc. in case of the power failure within 2 seconds.(The compressor is started operation again after three minutes guard in addition to 2 seconds power failure as a maximum.)

When this function is used in the condition that there is no person to operate the unit, provide the system with monitoring for disaster prevention

NOTE

- *In case of the power failure during the unit stoppage, the unit remains stopped after recovering the power supply. When the compressor does not reach fixed temperature, the system may not restart automatically after turning on the power supply by hot-start control.*
- **Hot-start Control:*
  The control program that cannot operate if fixed temperature is not being supplied after the power is turned ON.

d4 Prevention for Cooling Discharge Air Temperature Decrease

This function is used to change Thermo-ON/OFF conditions at cooling operation and prevent discharge air temperature decrease. In the result, the perception of cold draft is eliminated.

Thermo-OFF Conditions:

a. Cooling Operation (including Dry Operation) and

b. Indoor air discharge temp. <11 ºC has been kept for 3 minutes.(Thermo-OFF when discharge air temperature is low.)

Thermo-ON Conditions:

a. Indoor discharge air temp. >13 ºC and

b. Thermo-ON depends on indoor discharge air temperature.(Not Thermo-ON when discharge air temperature is low.)

d5 Prevention for Heating Discharge Air Temp. Decrease

This function is used to prevent discharge air temperature decrease by lowering actual fan speed than the indications on the remote control switch.

Indications on Remote Control Switch	Actual Fan Speed
HIGH	MEDIUM
MEDIUM	LOW
LOW	LOW

d6 Room Temperature Control for Energy Saving

When outdoor temperature air thermistor is detecting that the air-conditioning load is low from the outdoor temperature. This function is used to automatically save energy.

d7 Not Prepared

E1 Ventilation Mode (KPI) / All fresh mode (Econofresh)

Ventilation Mode (KPI)

This function is used to set the ventilation mode of the total heat exchanger. The setting condition and the ventilation mode are as shown below.

Setting Condition	Ventilation Mode	Contents
00	Automatic Ventilation	Selecting effective ventilation mode (Total Heat Exchanging Ventilation or Bypass Ventilation) for energy saving by detecting the temperature difference between the outdoor temperature and the room temperature.
01	Total Heat Exchanging Ventilation	The heat exchanging is performed continuously when the total heat exchanger is operated.
02	Bypass Ventilation	The heat exchanging is not performed continuously when the total heat exchanger is operated.

All fresh mode (Econofresh)

This function is able to open the outdoor air damper.

The setting condition is showing below.

Setting Condition	All fresh control	Contents of parts
00	Not available	The outdoor damper is fully closed.
01	Available	The outdoor damper is fully open.
02	Available	The outdoor damper is fully open.

E2 Increasing Air Supply Volume (KPI) / Enthalpy Sensor (Econofresh)

Increasing Air Supply Volume (KPI)

This function is used to increase the supply air volume with the one-step high tap of the fan motor for supply air during operation of the total heat exchanger, make the room pressure higher than the surrounded room with the increased supply air volume and prevent the polluted air and smell from entering into the room.
The setting air flow mode by remote control switch and the actual air flow of the total heat exchanger when setting this function are as shown below.

Setting Air Flow Mode by Remote Control Switch	Air Flow of Total Heat Exchanger
LOW	MED
MED	HIGH
HIGH	HIGH

Enthalpy Sensor (Econofresh)

This function is used to set the enthalpy sensor input.

The setting condition is showing next

Setting Condition	Enthalpy Sensor	Contents of parts
00	Not available	The enthalpy sensor is not available
01	Available	The enthalpy sensor is available

NOTE

In case that the setting air flow mode by the remote control switch is "HIGH", the air flow of the total heat exchanger is "HIGH" even when this function is set.

E3 Not Prepared

E4 Pre-cooling and Pre-heating Period (KPI) / Gas sensor (Econofresh)

Pre-cooling and Pre-heating Period (KPI)

This function is used to delay the start-up of the total heat exchanger operation. The setting condition and the delaying period of operation start-up are as shown below.

Setting Condition	Delaying Period of Operation Start-Up
00	0 minutes
01	30 minutes
02	60 minutes

Gas sensor (Econofresh)

This function is used to set the gas sensor input.

The setting condition is showing below

Setting Condition	Gas Sensor	Contents of parts
00	Not available	The gas sensor input is not available
01	Available	The gas sensor input is available
02	Available	The gas sensor input is available

E5 Not Prepared

E6 Indoor Fan Operation Time After Cooling Operation Stoppage

This function is used to prevent dew condensation “SLOW” indoor fan operation (for 60 minutes or 120 minutes depending on the setting) while cooling operation is stopped. Additionally, it is effective to prevent fangs or abnormal odor.

E7 Not Prepared

E8 Fan Operation Control at Heating Thermo-OFF

This function is used to prevent the perception of cold draft by reducing indoor fan speed at heating thermo-OFF.

Setting Condition	Fan Operation at Thermo-OFF
00	LOW
01	SLOW

E9 Not Prepared

EA Not Prepared

Eb Fan Operation Control at Cooling Thermo-OFF

This function is used to control odor diffusion and humidity level indoor fan speed at cooling thermo-OFF.

Setting Condition	Fan Operation at Thermo-OFF
00	Operation at Setting Fan Speed
01	LOW
02	SLOW

EC Forced Thermo-ON Stoppage at Cooling

This function is used to stop operation by forced thermo-ON when cooling operation is stopped. It is effective to prevent abnormal odor because the heat exchanger is kept in the clean condition such as the heat exchanger is rinsed with drain water.

Ed Not Prepared

EE Automatic Fan Speed Control

This function is used to economize the operation. The fan speed is automatically controlled when the room temperature is near the setting temperature.

F1 Automatic OFF Timer Setting

This function is used to set the OFF timer function automatically when the unit is started by the remote control switch. During operation with the automatic OFF timer setting function, the cancellation of the OFF timer and the changing of the setting period for OFF timer can not be performed.

However, the OFF timer function is canceled when the unit is stopped. When the unit is operated again after stoppage, the setting period for OFF timer is set by the optional setting.

The setting condition and the setting period for OFF timer are as shown below.

Setting Condition	Setting Period for OFF Timer
00	Function Invalid
01	1 hour
02	2 hours
03	3 hours
Omitted 04 to 21	...
22	22 hours
23	23 hours
24	24 hours
0A	0.5 hour
0B	1.5 hours

NOTE

This function is not available when controlled by the remote control connecting with CS-NET or 7-day Timer.

F2 Remote Control Master-Slave Setting

This function is used when two remote control switches are installed in one system.

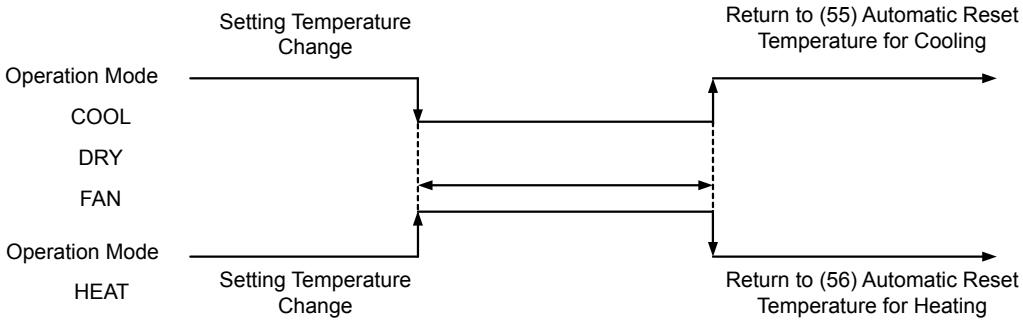
Set one remote control switch to “Master” 00, another remote control switch to “Slave” 01.

F3 Automatic Reset of Setting Temperature

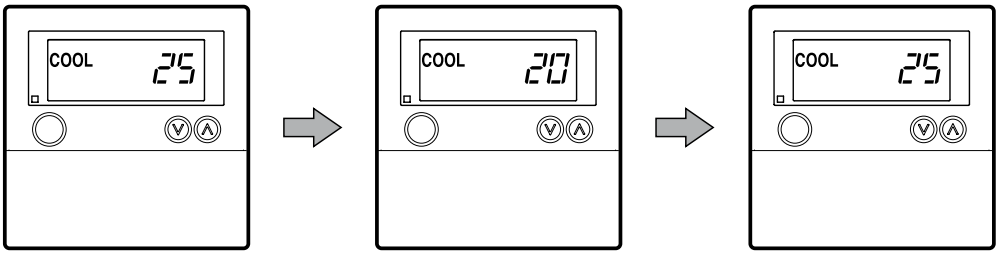
This function is used to economize the operation. When this function is valid, the setting temperature is automatically returned to the Automatic Reset Temperature for Cooling/Heating (55/56) as following condition. If no change for certain period of Automatic Reset Time (54) since setting temperature was changed.

It is effective to optimize the setting temperature and provide energy saving.

However, the setting temperature is not automatically restarted in case that “Automatic COOL/HEAT Operation” mode, or “Prohibiting Operation by Remote Control Switch” is set at the central control equipment.



Example: Automatic Reset Temperature for Cooling is 25 ºC



Setting temperature is changed from 25 to 20 ºC by the remote control switch

Cooling operation at 20 ºC is performed tempo-rarily

If no operation for a de-fined period, the setting temperature returns to 25 ºC automaticaly

F4 Automatic Reset Time

This function is used to set the automatic reset time with the setting temperature. The setting conditions and automatic reset time are as follows:

Setting Condition	Automatic Reset Time of Setting Temperature
00	30 minutes (Factory-Setting)
01	15 minutes
02	60 minutes
03	90 minutes

F5 Automatic Reset Temperature for Cooling

This function is used to set the automatic reset temperature for FAN/COOL/DRY operation.

The setting conditions and the automatic reset temperature for cooling are as follows:

Setting Condition	Setting Temperature for Automatic Reset
19	19 ºC
20	20 ºC
Omitted 21 to 24	. . .
25	25 ºC (Factory-Setting)
Omitted 26 to 28	. . .
29	29 ºC
30	30 ºC

F6 Automatic Reset Temperature for Heating

This function is used to set the automatic reset temperature for HEAT operation. The setting conditions and the automatic reset temperature for heating are as follows:

Setting Condition	Setting Temperature for Automatic Reset
17	17 ºC
18	18 ºC
Omitted 19 and 20	. . .
21	21 ºC (Factory-Setting)
Omitted 22 to 28	. . .
29	29 ºC
30	30 ºC

F7 Operation Stoppage Prevention by Remote Control Switch Operational Error

This function is used to prevent the careless operational stoppage caused by remote control switch operational error. When this function is valid, operation is stopped by pressing “RUN/STOP” switch on the remote control switch for more than 3 seconds. However, no change with operation method.

Operation Lock

Five operation lock functions are available as shown below.

These functions are utilized to restrict each switch operation from the remote control switch.

When these functions are valid, the operation is prevented from operational error or tampering.

All operation lock functions are valid (“01” setting) when factory shipping.

Each switch operation is not available by pressing ⏶ and ⏷ switches simultaneously for more than 3 seconds when this function is set as “01”. At this time “OPER. LOCK” is indicated at the remote control switch. If ⏶ and ⏷ switches are pressed simultaneously for more than 3 seconds during “OPER. LOCK” is indicated, “OPER. LOCK” indication is turned off and each switch operation is available.

This function is to restrict the operations of the remote control switch only. If operation is preformed from the central control equipment, the command from the central control is adopted.

F8 Lock function for operation mode selection.

This function is utilised when operation mode changes must to be blocked.

When this function is valid, the operation mode cannot be changed.

F9 Lock function for temperature setting.

This function is utilised when setting temperature changes must to be blocked.

When this function is valid, the setting temperature cannot be changed.

FA Lock function for fan speed selection.

This function is utilised when fan speed changes must to be blocked.

When this function is valid, the fan speed cannot be changed.

Fb Lock function for swing louver selection.

This function is utilised when swing louver selection must to be blocked.

When this function is valid, the swing louver selection cannot be changed.

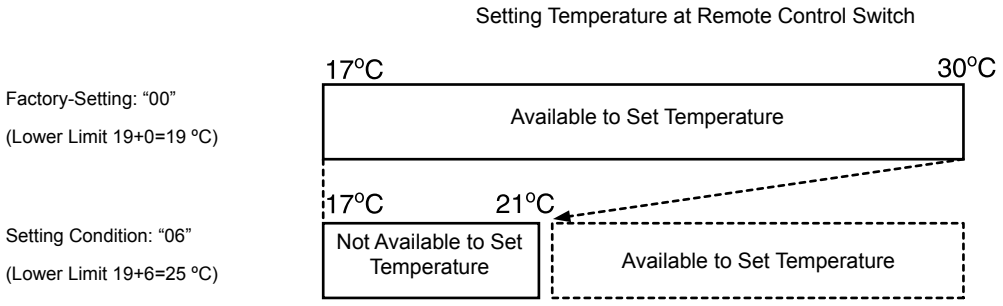
FC Cooling Lower Limit for Setting Temperature

This function is used to limit the lowest setting temperature for FAN/COOL/DRY operations.

When this function is valid, it provides the adequate cooling operation and energy-saving effect.

The setting conditions and the cooling lower limit for the setting temperature are as follows:

Example:



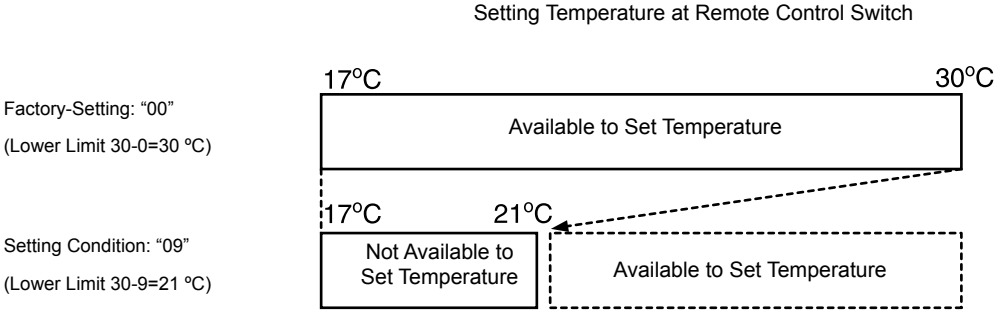
Setting Condition	Details	Setting Temperature Lower Limit (FAN/COOL/DRY) *
00	Standard Value	19 °C
01	Lower Limit +1 °C	20 °C
02	Lower Limit +2 °C	21 °C
Omitted 03 to 08	. . .	. . .
09	Lower Limit +9 °C	28 °C
10	Lower Limit +10 °C	29 °C

* In case of Standard Unit

Fd Heating Upper Limit for Setting Temperature

This function is used to limit the highest setting temperature for HEAT operation. When this function is valid, it provides the adequate heating operation and energy-saving effect. The setting conditions and the heating upper limit for the setting temperature are as follows:

Example



Setting Condition	Details	Setting Temperature Upper Limit (HEAT) *
00	Standard Value	30 °C
01	Upper Limit -1 °C	29 °C
02	Upper Limit -2 °C	28 °C
Omitted 03 to 08	:	:
09	Upper Limit -9 °C	21 °C
10	Upper Limit -10 °C	20 °C

* In case of Standard Unit

FE Not Prepared

FF Lock function for ON/OFF timer.

This function is utilised when activation of timer must to be blocked.

When this function is valid, timer cannot be activated or deactivated.

H1 Maintenance alarm.

This function is used in order to display or not the maintenance alarm.

When this function is “01”, maintenance alarm will not be displayed.

H2 No automatic control indication.

This function is used in order to display or not the no automatic control indication.

When this function is “01”, no automatic control indication will not be displayed.

H3 Operation mode change restriction.

This function is used in order to configure retrictions about the operation mode change action.

When this function is “00”, the operation mode change is disabled.

When this function is “01”, the operation mode change is only allowed from central control unit and mode FAN.

When this function is “02”, there are no restrictions.

H4 Ventilator changeover.

This function is only available with total heat exchanger.

The function is used in order to configure the changeover.

When this function is “00”, the ventilation changeover works with air conditioning only.

When this function is “01”, the ventilation changeover works with ventilation only.

When this function is “02”, the ventilation changeover works with air conditioning and ventilation.

H5 Central control available after forced stoppage.

This function is used in order allow the central control when unit is forced to stop.

When this function is “01”, the central control is available.

4.2.7 Maintenance and repair

4.2.7.1 Abnormal transmission between the remote control and indoor unit

In this case, the LED run indicator located at the bottom left of the screen will flash every 2 seconds.

DANGER

Before analysing these problems, the system must be switched off at the mains.

Problem	Cause	Check point	Action
Disconnection or inadequate contact of the remote control cable.	Cabling problem	Check the cable and the connections.	Repair or connect the cable.
Remote control fault.	Different causes	Check remote control using the self-check mode *1.	Replace the remote control, if faulty.
PCB fault (on the indoor unit and remote control).	Wire disconnected from PCB	Check connectors.	Connect wires correctly.
	PCB fault	Check PCB using the self-check mode *2.	Change the PCB, if faulty.

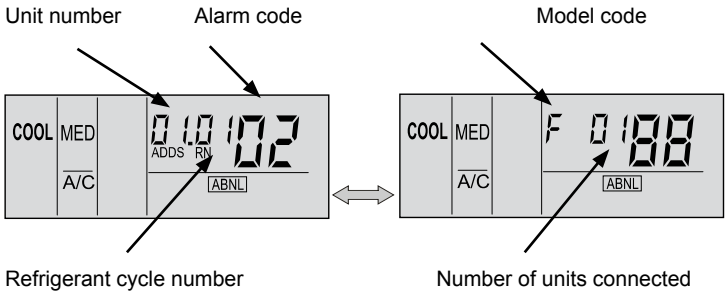
*1: See section Remote control self-checking procedure.

*2: See section Checking procedure for each main component.

4.2.7.2 Troubleshooting procedure for units connected to the remote control

Possible causes:

- The remote control cable is broken.
- Remote control cable contact failure.
- Remote control plate failure.
- If the LED run indicator flashes 5 times for 5 seconds, the display will show the unit number and alarm code.
- Note down the code (see table) and request assistance from your distributor.



Model number	
Indication	Model
H	Heat pump
P	Inverter
F	Multiple
C	Cooling only
E	Other
b	IVX, individual operation
L	KPI

The Alarm code corresponds to the alarm that is happening on the unit.

Refer to the Service Manual of the unit to know the meaning of the alarm code.

4.2.7.3 Troubleshooting on check mode

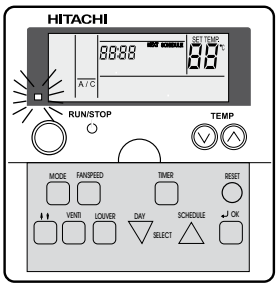
Use the OK button on the remote control in the following cases:

1 When the LED run indicator is flashing.

2 To monitor the cause of the problem after a system restart due to a stoppage with RUN indicator flashing.

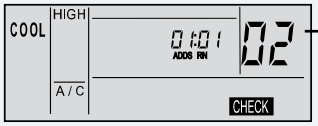
3 To perform checks during normal operation or stoppage.

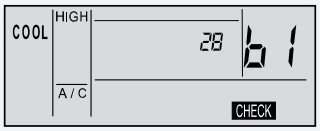
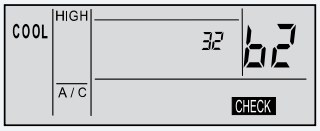
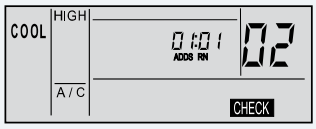
4 To monitor the inlet air and discharge air temperatures.

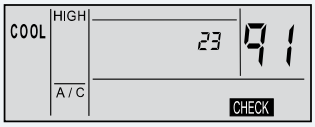
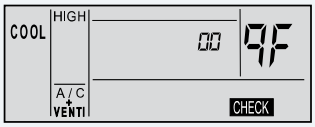


Check modes	
Check mode 1:	Indicating the current data.
Check mode 2:	Indicating the data saved immediately before the fault.

Step No.	Check modes

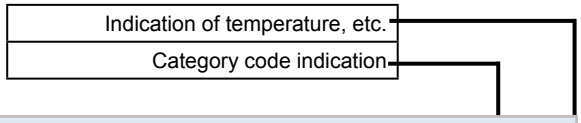
Normal mode			
1	Press the OK button for at least 3 seconds - The indication will be delayed since the transmission between the remote control and the indoor unit takes around 10 seconds. - All data may be displayed as “FF”, “-1” or “255”. These temporary values generated by the software do not affect the functions of the device at all. (The alarm code may also be displayed as “FF”).		
2	Unit number and alarm code displayed		Alarm code identifying the last fault that occurred on the indicated unit. Number of the connected unit or of the unit for which the check mode was previously set. ADDS: Number of the indoor unit of cycle no. ** RN: No. ** Refrigerant cycle no. **
3	For the next 7 seconds.	7-second interval for checking another unit. Forwards: Press “⌃” to increase from 00 to 01 to 02 ⋯ Backwards: Press “⌄” to reduce from 15 to 14 to 13	

Check mode 1			
4	After 7 seconds		Press "⌃" to view the next set of data.
			Press "⌄" to view the previous set of data.
5	Press and hold the button OK for at least 3 seconds to enter check mode 2	If we continue in check mode 1, steps 6 and 7 are a repetition of steps 2 and 3.	
	NOTE *From check mode 1, the user may only enter check mode 2 - the check mode cannot be switched off*		
6	Unit number and alarm code displayed		Press "⌃" to view the next set of data. Press "⌄" to view the previous set of data.
7	After 7 seconds	7-second interval for checking another unit. Forwards: Press "⌃" to increase from 00 to 01 to 02 ⋯ Backwards: Press "⌄" to reduce from 15 to 14 to 13	

Check mode 2			
9		Press "}" to view the next set of data.	
		Press "~" to view the previous set of data. - In check mode 2, the user can access data from the first three units connected in sequence to a remote control.	
10	Check mode switched off	Press and hold the button OK for at least 3 seconds.	

Content of check mode 1

By pressing "⏶" consecutively, the following indications will be displayed.



Step No.	Temperature indication		
1	Indoor unit temperature setting (°C).	b1	22
2	Indoor unit air inlet temperature (°C).	b2	20
3	Indoor unit discharge air temperature (°C).	b3	55
4	Indoor unit heat exchanger liquid piping temperature (°C).	b4	20
5	Remote sensor temperature (°C). - This is only displayed when connected to a remote sensor. The display normally shows "--". The RPK series cannot connect to a remote sensor. The indication is therefore "--".	b5	25
6	Outdoor unit ambient temperature (°C).	b6	10
7	Indoor unit heat exchanger refrigerant gas piping temperature (°C).	b7	25
8	Outdoor unit evaporating temperature during heating (°C).	b8	02
9	Control information. - Displays internal remote control information. For the SET-FREE unit, this indication shows the number of compressors running.	b9	--
10	Discharge gas refrigerant temperature in top of compressor chamber (°C). - (Example) When several compressors are running, the average temperature of 2 compressors is given. - If the temperature exceeds 126°C, the indication will read "126".	bA	41
11	Remote control thermostat temperature.	bb	23

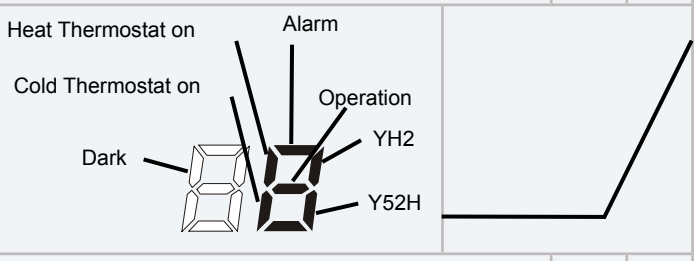
NOTE

Possible abnormal conditions

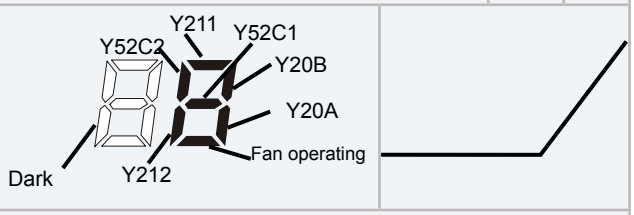
TEMPERATURE INDICATION	FAULT	
--	Open circuit on any thermistor except 129	Check that the PCB is not reading the thermistor incorrectly. Consult the "PCB self-checking procedure using the remote control" section
129	Open circuit in compressor discharge thermistor	
FF or 255	Short-circuit in any thermistor except 127	
127	Short-circuit in compressor discharge thermistor	

During transitory periods, such as on start-up, the "--" or "00" indicator may appear for a limited time.

Step No.	Microcomputer input/output indication		
12	Indoor unit microcomputer input/output.	C1	Z



13	Outdoor unit microcomputer input/output.	C2	-



PCB relay	Part name
YH2	Relay for drain pump (MD) and/or dew heater (EHW).
Y52H	Relay for electric heater (CEH).
Y211	4-way valve relay.
Y212	
Y52C1	Compressor relay.
Y52C2	
Y20A	Solenoid valve relay.
Y20B	

Symbols with the letter Y are relays on the indoor/outdoor unit PCB plate.

4

Step No.	Unit stoppage cause indication		
14	Cause of the stoppage.	d1	01

Codes:

00	Operation stopped, power switched off.
01	Thermostat switched off (see bottom section point 1).
02	Alarm (see bottom note section point 2).
03	Freeze protection, overheating protection
05	Instantaneous power failure in the outdoor unit, reset (see bottom note section, point 3)).
06	Instantaneous power failure in the indoor unit, reset (see bottom note section, point 4)).
07	Cooling process stopped due to a low outdoor temperature, heating process stopped due to a high outdoor temperature.
08	Compressor quantity changeover, stoppage.
09	4-way valve changeover stoppage request (FX only).
10	Stoppage request, forced stoppage.
11	Retry due pressure rate reduction.
12	Retry due to increased low pressure.
13	Retry due increased high pressure.
14	Retry due to abnormal current in the constant speed compressor.
15	Retry due to abnormal high temperature of the discharge gas, excessively low suction pressure.
16	Retry due to reduced overheating of the discharge gas.
17	Retry due to inverter disconnection.
18	Retry due to voltage reduction.
19	Expansion valve opening change protection.
20	Indoor unit operation mode changeover (see bottom note section point 5).
21	Forced thermostat deactivation when deactivated on another indoor unit.
22	Hot-start after 4 hours with outdoor unit on.
24	Thermostat off during energy-saving mode.

NOTE

1. Explanation of terms:

- *Thermostat on: A condition where the indoor unit requests compressor activation.*
- *Thermostat off: A condition where the indoor unit does not request compressor activation.*

2. Although the stoppage is caused by an “alarm”, it does not always indicate “02”.

3. If the transmission between the control printed circuit boards of the inverter and the control is not made within 30 seconds, a stoppage will occur due to cause d1-05 and alarm code “04” may be displayed.

4. If the transmission between the indoor and outdoor units is not made within 3 minutes, the indoor units will stop. In this case, the stoppage is due to cause d1-06 and alarm code “03” may be displayed.

5. The FSN system will read 20 when different modes are selected for indoor units.

Step No.	Abnormal operation occurrence counter		
15	Abnormal operation occurrence counter	E1	01
16	Indoor unit instantaneous power failure occurrence counter.	E2	00
17	Remote control to indoor unit transmission error occurrence counter.	E3	00
18	Abnormal inverter operation occurrence counter.	E4	00

- Counts up to 99.
- For counts above "99", it will always read "99".

NOTE

If a transmission error lasts for more than 3 minutes, one occurrence is added to the counter.

Stored data can be deleted by following the instructions given in section “PCB self-checking procedure using the remote control”.

Step No.	Indication of automatic swing louver status		
19	Swing louver sensor.	F1	00

- 00 : Normal
- FF : Abnormal.

Step No.	Compressor pressure/frequency indicator		
20	Discharge pressure (high) (x 0.1 MPa).	H1	18
21	Suction pressure (low) (x 0.01 MPa).	H2	04
22	Control information: Indicates internal remote control information. It has no specific meaning.	H3	44
23	Operating frequency (Hz): The total frequency is indicated when several compressors are running at once.	H4	44

Step No.	Indoor unit capacity indication		
24	Indoor unit capacity.	J1	08

The indoor unit capacity is indicated as shown in the following table:

Indoor unit capacity code

Indication code	Equivalent capacity in (HP)
06	0.8
08	1
10	1.3
13	1.5
14	1.8
16	2
18	2.3
20	2.5
26	3
32	4
40	5
48	6
64	8
80	10

25	Outdoor unit code: "n" indicates the total number of indoor units. n = 1 ~ , 9, A, b, C, d, E, F, U (10) (11) (12) (13) (14) (15) (16)	J2	Fn
26	Refrigerant cycle number: - J3: 01 ~ 16 (Refrigerant cycle number, configured with indoor unit DSW5 DipSwitch), decimal indication:	J3	01
27	Refrigerant cycle number: - J4: 00 ~ 0F (Refrigerant cycle number, configured with indoor unit DSW5 DipSwitch), hexadecimal indication (16 numbers).	J4	00

Step No.	Compressor pressure/frequency indicator		
28	Indoor unit expansion valve opening.	L1	20
29	Outdoor unit MV1 expansion valve opening. - For models with no expansion valve, the same value will appear on both MV2 and MV1	L2	99
30	Outdoor unit MV2 expansion valve opening. - For models with no expansion valve, the same value will appear on both MV2 and MV1	L3	99
31	Outdoor unit MVB expansion valve opening. - FXN only.	L4	00

Step No.	Estimated electrical current indication		
32	Compressor current. - The total current is indicated when several compressors are running at once. For the inverter compressor, the operating current from the primary side of the inverter is indicated.	P1	25
33	Go back to step 1, temperature indication.		

◆ Content of check mode 2

When more than three indoor units are connected to one remote control, only the most recent data from the three first indoor units connected in sequence will be shown.

Pressing "⌃" on the TEMP button takes you to the next screen, while pressing "⌄" on the same button takes you to the previous screen.

Step No.	Temperature indication	Indication of temperature, etc.	Category code indication
1	Indoor unit air inlet temperature in the thermistor (°C).	91	23
2	Indoor unit discharge air temperature in thermistor (°C).	92	50
3	Indoor unit heat exchanger liquid piping temperature (freeze protection) (°C).	93	25
4	Outdoor temperature (°C).	94	12
5	Indoor unit heat exchanger gas piping temperature (°C).	95	25
6	Evaporating temperature in heating mode (°C).	96	03
7	Control information - Indicates internal remote control information. It has no specific meaning.	97	--
8	Temperature of the discharge gas in the top of compressor chamber (°C). - When two components are running simultaneously, the average temperature is given.	98	45

NOTE

Possible abnormal conditions

TEMPERATURE INDICATION	FAULT	
--	Open circuit on any thermistor except 129	Check that the PCB is not reading the thermistor incorrectly. Consult the "PCB self-checking procedure using the remote control" section
129	Open circuit in compressor discharge thermistor	
FF or 255	Short-circuit in any thermistor except 127	
127	Short-circuit in compressor discharge thermistor	

During transitory periods, such as on start-up, the "--" or "00" indicator may appear for a limited time.

Step No.	Compressor pressure/frequency indicator		
9	Control information - Displays internal remote control information. - For the SET-FREE unit, this indication shows the number of compressors running.	99	18
10	Temperature of the discharge gas in the top of compressor chamber (°C). - (Example) When several compressors are running, the average temperature of 2 compressors is given.	9A	04
11	Remote control thermostat temperature - Indicates internal remote control information. - It has no specific meaning.	9b	44
12	Operating frequency (Hz) - The total frequency is indicated when several compressors are running at once.	9C	44

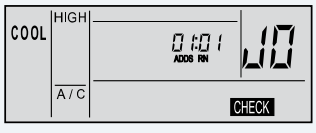
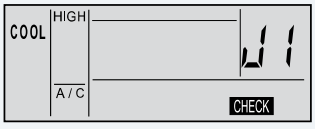
Step No.	Indication of the expansion valve opening		
13	Indoor unit expansion valve opening.	9d	20
14	Outdoor unit MV1 expansion valve opening.	9E	99

Step No.	Estimated electrical current indication		
15	Compressor operating current - The total value is indicated when several compressors are running at once.	9F	20
16	Go back to step 1, temperature indication.		

4.2.7.4 Checking procedure for each main component

◆ PCB self-checking procedure using the remote control

Use the following troubleshooting procedure to check the PCB in both indoor and outdoor units.

Step No.	Action required	Image
1	Stop the machine by pressing the Run/Stop button.	
2	PCB check mode: Press and hold both buttons for 3 seconds.	
3	Indication of the number of the outdoor unit (RN) and indoor unit (ADDS) to which the remote control is connected.	e.g.: Indication of unit no. "0 1" 
4	After 7 seconds: Automatic PCB operation check.	

(continued on next page)

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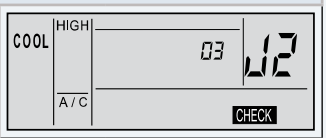
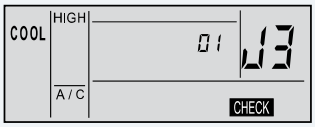
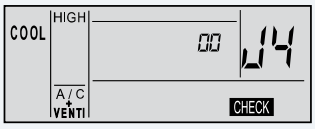
Step No.	Action required
5	After 5 seconds (maximum 30s in the event of a transmission failure between the indoor and outdoor units): The display will indicate a maximum of 3 types of FAULTS.

Types of abnormal condition	
Abnormal operation condition (1)	
After 1 second Abnormal operation condition (2)	
After 1 second Abnormal operation condition (3)	

Codes:

Indication	Condition	
00	Normal	
Abnormal condition (open circuit, short-circuit, etc.) on a circuit for:		
01	Air inlet temperature thermistor	Indoor unit PCB
02	Discharge air temperature thermistor	
03	Liquid piping temperature thermistor	
04	Abnormal remote thermistor	
05	Liquid piping temperature thermistor	
06	Remote sensor	
08	Transmission from central station	
0A	EEPROM	
0b	Zero-cross input fault	
EE	Transmission from indoor units during check	
07	Transmission from outdoor unit	Outdoor unit PCB
F4	Fan inlet internal thermostat fault	
F5	PSW input fault	
F6	PSH protection signal detection circuit	
F7	Phase detection	
F8	Transmission from inverter	
FA	High pressure sensor	
Fb	Discharge gas temperature thermistor of the compressor	
FC	Low pressure sensor	
Fd	Heat exchanger evaporation temperature thermistor	
FF	Ambient air temperature thermistor	

(continued on next page)

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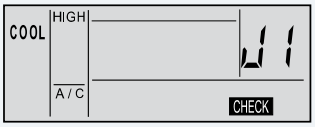
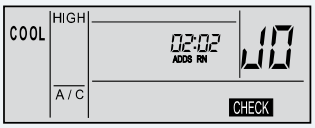
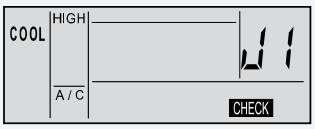
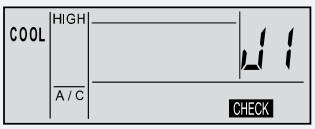
Step No.	Action required	Image
6	Press OK button	
7	If there is another unit. Next unit self-check indication.	TEMP ⌃ ⌄
8	e.g.: Indication of unit n° “2”.	
9	After 7 seconds.	
10	From 1 to 5 seconds.	
11	After 1 second.	→ J3 → J4 → J2 →
12	Press RESET button	Switch off PCB check mode

NOTE

- *If this condition persists and alarm code “J1” is not displayed, this means that none of the indoor units have been connected to the remote control. Check the wiring between the remote control and the indoor unit.*
- *During this troubleshooting procedure, the following PCB parts cannot be checked.*
  - *Indoor unit PCB: Relay circuit, DIP switch, option circuit, ventilation circuit, protection circuit*
  - *Outdoor unit PCB: Relay circuit, DIP switch, option circuit.*
- *If this system troubleshooting procedure is run through the central station, the central station indication may change during the procedure. Please note that this is normal.*
- *After this troubleshooting procedure is complete, the memory of the meter storing the abnormal conditions described above will be erased.*

To carry out the previous check using a wireless remote control with a receiver built into an indoor wall type unit, use the following procedure:

1 Switch off the power source.

2 Disconnect connector (CN25) on PWB(M).

3 Connect the PC-ART.

4 Switch on the power.

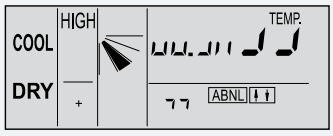
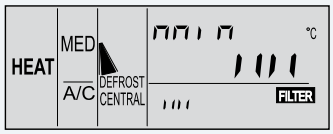
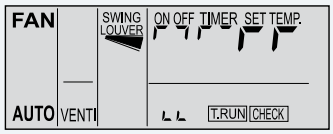
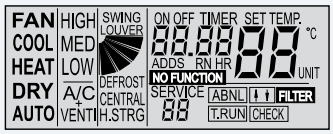
Once check is complete, switch off the power source again and reconnect the connectors as they were before the check.

4.2.7.5 Remote control self-checking procedure

When to use the OK button:

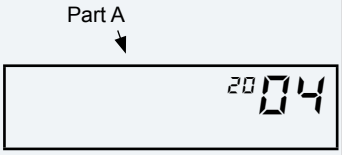
1 When the remote control displays an operating fault.

2 For periodic maintenance checks.

<table>
<tr><th>Step No.</th><th colspan="3">Action required</th></tr>
<tr><td>1</td><td colspan="3">Switch on the power source.</td></tr>
<tr><td>2</td><td>Press the following three buttons simultaneously.
(The buttons may be pressed when the system is running)</td><td colspan="2">TEMP MODE
⌃ ⌄ ▢</td></tr>
<tr><td>3</td><td colspan="3">The LCD screen will change, as shown below.
<table>
<tr><th>No.</th><th>LCD indication</th><th>Indication period (seconds)</th></tr>
<tr><td>1
â</td><td> 
</td><td>For 1 second</td></tr>
<tr><td>2
â</td><td> 
</td><td>For 1 second</td></tr>
<tr><td>3
↓</td><td> 
</td><td>For 1 second</td></tr>
<tr><td>4
↓</td><td> 
</td><td>For 1 second</td></tr>
<tr><td>5
↓</td><td> 
</td><td>For 3 seconds</td></tr>
</table>
To delete EEPROM memory only, press the three following buttons simultaneously during the LCD screen changes.
TEMP MODE
⌃ ⌄ ▢
Go to 11</td></tr>
<tr><td>4</td><td colspan="2">Once the LCD screen has changed, the RUN indicator will flash twice.</td><td> 
</td></tr>
<tr><td>5</td><td colspan="2">The LCD screen will change, as shown below.
Press all buttons (13), one at a time. Each time the button is pressed, the indication number shown in part (A) of the following diagram will increase by one.
- The check cannot proceed to the next step until all the buttons are pressed.</td><td>Part A
 
</td></tr>
<tr><td></td><td colspan="3">NOTE
The buttons may be pressed in any order.
If two or more switches are pressed at once, the action is not valid and is therefore not registered.</td></tr>
</table>

(continued on next page)

(continued from the previous page)

Step No.	Action required	Image
6	The LCD will change, as shown below: The remote control will begin to check the transmission circuit automatically. - If there is an abnormal condition on the transmission circuit, the LCD screen will remain as shown in the diagram on the right, and the check will not proceed to the next step.	
7	The LCD screen will change, as shown below: The temperature detected by the remote control thermostat is indicated in part (A) of the following diagram:	
	NOTE *If the "--" or "FF" indicators are displayed in part "A", the remote control thermostat is faulty.*	
8	The LCD screen will change, as shown below.	
	If the RESET button is pressed or no buttons are pressed for 15 seconds, all data in the remote control EEPROM memory will be erased. At this point, the number is indicated in part (A) as shown below. When the number "99" appears, the EEPROM memory is faulty. If the number indicated in part (A) is "99", the check will not proceed to the next component.	
9	The LCD screen will change, as shown below. After a few seconds, the remote control will restart automatically.	
10	Erasing the EEPROM memory (from step No. 3). The LCD screen will change as shown below, and the remote control will erase the EEPROM memory automatically.	
11	After a few seconds, the LCD screen will change, as shown below. The remote control will restart automatically. In this case, the system will not start to run automatically.	

4.3 PC-ARH

4.3.1 Safety summary

⚠DANGER

- ***DO NOT handle the remote control with wet hands.***
- ***DO NOT spill water on the remote control. This may cause an electric shock.***
- ***If the safety devices are activated too frequently or the buttons do not work properly, turn off the unit at the mains and contact your HITACHI service provider.***
- ***In the event of an incident of an electrical nature, turn off the system, switch it off at the mains and contact your HITACHI service provider.***

⚠CAUTION

- *DO NOT install the indoor unit, outdoor unit, remote control or any wiring in the following locations:*
- *Where there are oil vapours and the oil is dispersed.*
- *In the proximity of hot water or heat sources or in sulphuric environments.*
- *In locations prone to the generation, accumulation, leakage or flow of flammable gas.*
- *Close to the sea (saline atmospheres).*
- *In acidic or alkaline environments.*
- *Within the reach of children.*
- *Directly in front of the air-conditioning system outlet.*
- *To avoid electromagnetic compatibility problems, DO NOT install the indoor unit, outdoor unit, remote control or any wiring within 3m of strong sources of electromagnetic radiation (e.g. waves generated by medical equipment). If the system should be installed in a location where electromagnetic waves are produced, protect the remote control and wiring by covering them with the steel casing and passing the cable through the metal duct.*
- *If electrical noise should be generated at the indoor unit power source, install a noise filter.*

⚠CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle this appliance properly and safely.*
- *Children should be supervised to ensure that they do not play with the appliance.*

4.3.2 Installation

4.3.2.1 Installation site selection

Take note of the maximum admissible cable length between units and the control as well as between the units themselves, as shown in the following table:

Cable section	0.3 mm²	≥ 0.75 mm²
Cable length	30 m	500 m

4.3.2.2 Components list

Unpack the unit and check that:

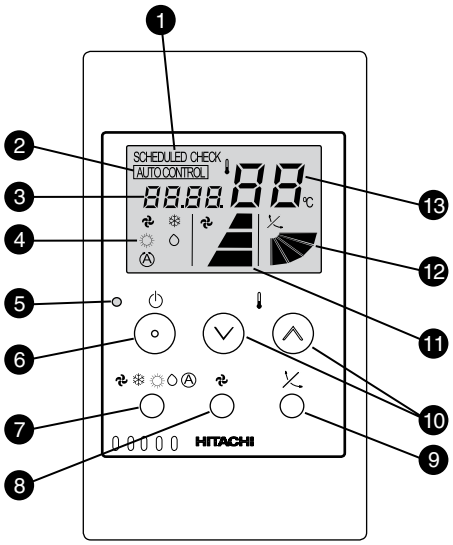
- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quant.	Comments
Remote control		1	For controlling system operation
M4x16L screws		2	For fixing the bracket to the wall
Cable tie		1	For attaching the cable to the ring core
Ring core		1	For securing the cables
Cable with connector (20 cm)		1	–
Installation and operation manual		1	Installation and operation unit instructions.

4.3.2.3 Description of the parts

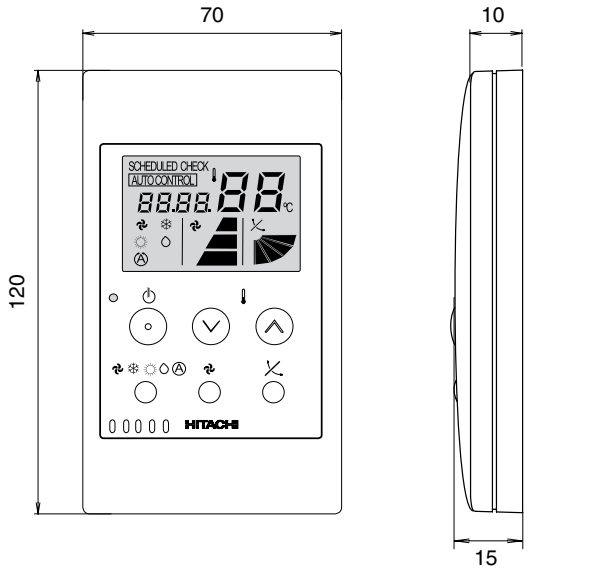
1. SCHEDULED CHECK indicator
2. AUTO CONTROL indicator
3. Alarm code indicator
4. Operation mode indicator
5. RUN LED
6. RUN/STOP button
7. MODE button
8. FAN SPEED button
9. Swing louver
10. TEMP button (temperature setting)
11. Fan speed indicator
12. Swing louver indicator
13. Temperature indicator



Model: PC-ARH

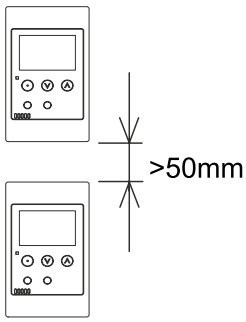
4.3.2.4 Dimension data

(mm)



4.3.2.5 Installation space

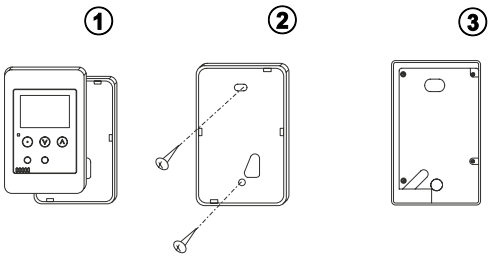
In case of installing the controllers in vertical line, keep a distance more than 50 mm between the controllers vertically. If the distance is insufficient, the controller can not be taken out.



4.3.2.6 Installation procedure

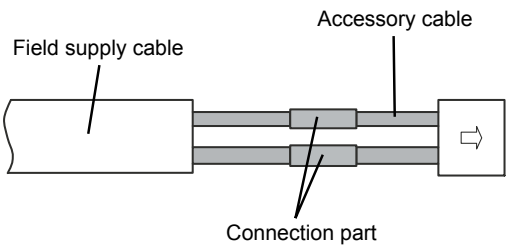
1 Insert the end of the screwdriver into the indents on the bottom of the bracket, push and rotate the screwdriver to remove the remote from the bracket.

Unscrew the base to release the bracket



2 Cable connection.

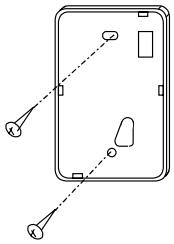
Connect and solder the accessory cable to the cable supplied with the unit. Insulate the contact area with vinyl tape.



3 Choose one of the following installation options for securing the remote control, depending on the installation requirements:
- With remote control cable exposed.
- Using an electrical box.
- With a bedside table.

◆ In cases where the remote control cable is exposed.

Secure the cable holder accessory to the wall using 2 M4 screws (accessories).



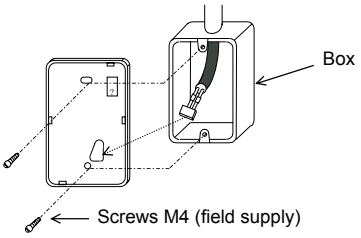
◆ If using an electric control box.

There are different types of electrical boxes available on the market that can be used for this installation, for example:

- Electrical box for one control unit (with or without cover.)

- Electrical box for 2 control units (with or without cover.)

- Other types of box



1 Pass the cable through the wall duct.

2 Pass the cable through the electrical box.

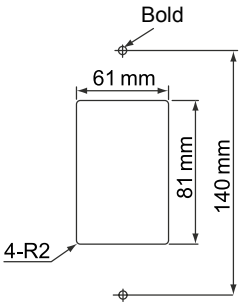
3 To secure the bracket to the box, make sure you leave the necessary length of cable, taking into account the height of the terminals A and B.

◆ If using a bedside table

1 Cut a hole to leave the remote control exposed and prepare the bolts (over 140 mm), as shown in the diagram.

NOTE

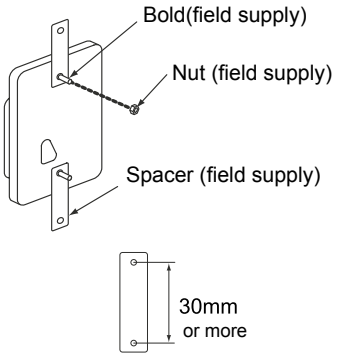
The bolts must be positioned in-line with the spacers (field supply).



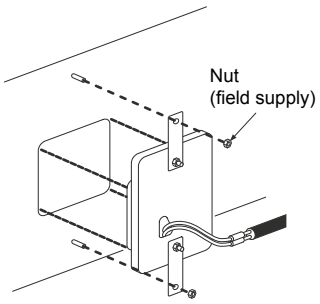
2 Fit the bolts into the fixing bracket and secure the spacers with nuts.
- Bolt (field supply).
- Nut (field supply).
- Spacer (field supply).

NOTE

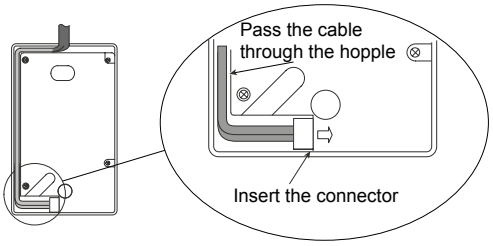
Leave a distance of at least 30 mm between the spacer holes.



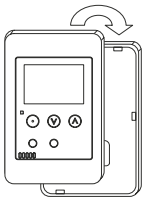
3 Remove the decorative cover and place the remote control in the hole for installation.



4 Secure the remote to the bracket using the screws and connect the cable as shown in the diagram.



5 Secure the remote to the fixing bracket. First connect the top, and then the bottom.



4.3.3 Electrical wiring

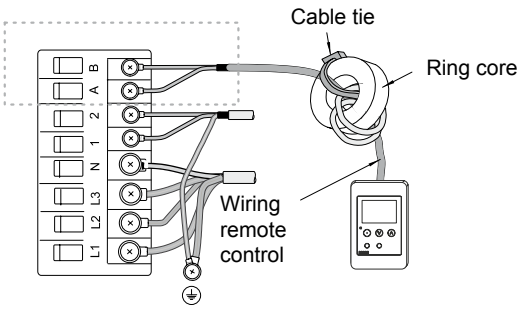
4.3.3.1 Standard electrical connection

⚠CAUTION

For operational and safety purposes, fit the ring core "attachment" when installing the unit.

- Wind the remote control cable around the ring core twice, as shown beside, before connecting it to the indoor unit terminal board.
- If the cable measures 0.75 mm2 or more, the outer insulation must be stripped (only on the part to be wound), otherwise you will not be able to wind the cable around the ring core.
- Secure the cable using the cable tie (accessory).

This diagram shows an example of a standard connection, with the cable connected to terminals A and B.

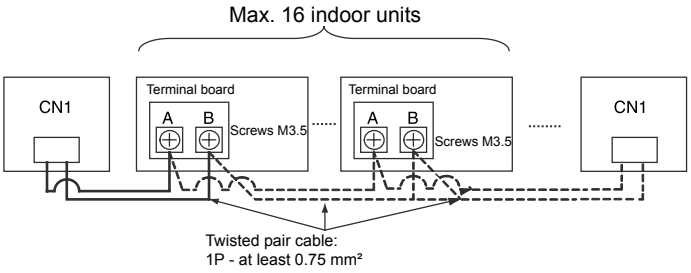


4.3.3.2 Electrical connection for multiple units

◆ Wiring example (Using a twist pair cable with shield tube)

This remote control can control up to a maximum of 16 units. If this setting is changed, the wiring connection and other necessary tasks must be carried out, as shown below.

Two remote controls can be connected to the same unit or group of units. The second is a secondary remote control, as shown below. See "Optional functions" for more information.



⚠ CAUTION

Always make sure to turn off the power of the indoor unit when performing electrical wiring work. Performing electrical wiring work with the power on can damage the circuit boards of the indoor unit and the remote control switch.

NOTE

- *Use a 0.3 - 0.75 mm2 cable (maximum total cable length: 30 m). If the total cable length exceeds 30m, use a twisted pair cable (1P - 0.75 mm2) (maximum total cable length: 200 m). If using the remote control timer, the maximum total cable length is 100m. The use of other cables can produce noise, which may lead to a defective system operation.*
- *The remote control cable/indoor unit transmission cables and the power supply cable must be kept at least 30cm apart.*
- *If this distance is less than 30 cm, install the cables in a conduit (type-D; ≤ 100 Ω) and connect one end to earth. Failure to do so may cause a fault or may cause the air conditioning unit to work incorrectly due to the noise.*
- *If several indoor units are controlled simultaneously, establish the addresses for the refrigerant cycle and indoor units. This is particularly important when simultaneously controlling indoor units with several refrigerant cycles since abnormal transmission may occur due to duplicate addresses.*
- *Do not leave any space in the remote control box cable hole. Any space must be covered using vinyl tape for example to prevent problems caused by dew or by insects entering the remote control box.*
- *To use two remote controls (primary and secondary), see Optional Functions.*

4.3.4 Checking procedure

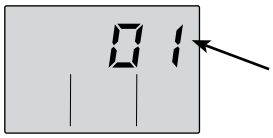
1 Switch on the power supply to all indoor units.

2 Models with automatic address function will take three to five minutes to complete the settings.

3 Set the system to “TEST RUN” mode from the outdoor units.

NOTE

- *The PC-ARH does not have Test Run mode. The test run must be carried out from the outdoor unit.*
- *It takes 3 to 5 minutes to complete the automatic address setting after the power source is switched on.*
- *The total number of units connected is indicated on the liquid crystal display.*



Example:

When 1 indoor unit is connected.

- *If the indicated number is incorrect, then there is an abnormal condition such as such as incorrect wiring, electrical noise, etc.*
- *Switch off the power source and correct the wiring after checking the following points (wait at least 10 seconds before switching the power source on/off)*
  - The indoor unit power source is not connected or the wiring is incorrect.
  - Incorrect connection of cable between indoor units or incorrect connection of remote control cable.
  - Incorrect setting of rotary switch (setting overlapped) on PCB of the indoor units.

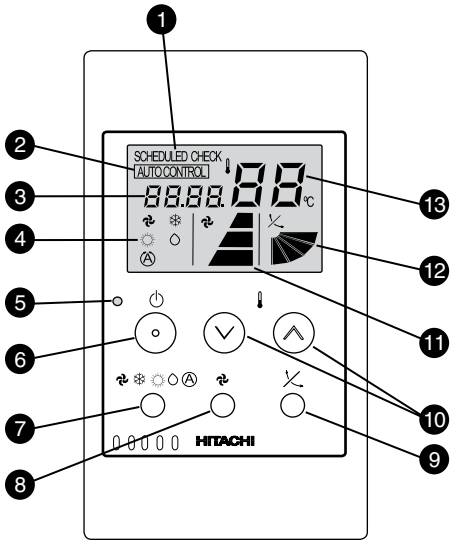
4 Cancelling test run mode

- Test Run mode will end automatically after 2 hours.
- Test Run mode can be cancelled from the outdoor unit or by pressing the on/off button on the PC-ARH.

NOTE

The operation mode during the test is stored on the PC-ARH. Once the Test Run is complete, select the operation mode - see “Optional functions”.

4.3.5 Operation



Model: PC-ARH (E)

❶ SCHEDULED CHECK indicator

Switches on during test mode

❷ AUTO CONTROL indicator

Appears when the operating condition is limited

❸ Alarm code indicator

Appears when there is an abnormal condition in the air conditioning unit

❹ Operation mode indicator

❺ RUN LED (green)

Indicates that the unit is running.

❻ RUN/STOP button

This button is used to start and stop the system.

❼ MODE button

: FAN : COOL : HEAT : DRY : AUTO

By pressing this button repeatedly, the setting will change in sequence: “COOL”, “FAN”, “HEAT”, “DRY” or “AUTO”.”FAN” (to restrict the change of operation mode H3:01; no restriction, H3:02).

❽ FAN SPEED button

By pressing this button repeatedly, the setting will change in sequence.

❾ Swing louver

Start the swing louver by pressing this button. Press it again to stop the swing louver. The louver will then stop at the angle indicated by the direction of the “◄”indicator.

❿ TEMP button (temperature setting)

This button is used to establish the setting temperature.

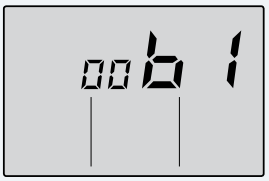
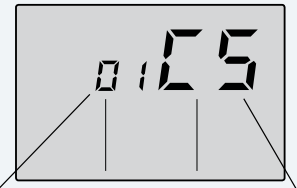
⓫ Fan speed indicator

⓬ Swing louver indicator

⓭ Temperature indicator

4.3.6 Optional Functions

4.3.6.1 Command functions

1.	**Switching to optional setting mode:** Press the “MODE” and “FAN SPEED” buttons at the same time for at least 3 seconds when the air conditioning unit is off. The screen will change, as shown in the diagram, when optional setting mode is activated.	
2.	**Changing options and setting elements:** Press “TEMP ▽” to change certain setting elements when shown. To change setting options, press the “TEMP △” button.Refer the following table for setting elements and options.	
3.	**Cancelling the function selection mode**: To return to normal mode from 2., press the "MODE" and "FAN SPEED" buttons at the same time.	Press the “TEMP △” button to change the setting options Press the “TEMP ▽” button to select setting elements

4.3.6.2 Optional functions list

Items	Optional Function	Individual Setting	Setting Condition	Contents
b1	Removal of Heating Temperature Compensation	○	00	Standard (Set Temp. +4 ºC)
			01	Removal (Set Temp.)
			02	Set Temp. +2 ºC (*1)
b8	Automatic cooling/ heating mode	×	00	Not Available
			01	Not Available
C5	Increasing Fan Speed	○	00	Not Available
			01	Hi Speed 1 (*2)
			02	Hi Speed 2 (*2)
C8	Thermistor of Remote Control Switch	○	00	Control by Indoor Suction Thermistor
			01	Control by Thermistor of Remote Control Switch
			02	Control by Average Value of Indoor Suction Thermistor and Thermistor of Remote Control Switch
F2	Remote Control Main-Sub Setting	×	00	Main
			01	Sub
FC	Cooling Lower Limit for Setting Temperature (*4)	×	00	Standard
			01	Lower Limit +1 ºC
			02	Lower Limit +2 ºC
			...	...
			09	Lower Limit +9 ºC
			10	Lower Limit +10 ºC

Items	Optional Function	Individual Setting	Setting Condition	Contents
Fd	Heating Upper Limit for Setting Temperature (*5)	×	00	Standard
			01	Upper Limit –1 ºC
			02	Upper Limit –2 ºC
			...	
			09	Upper Limit –9 ºC
			10	Upper Limit –10 ºC
H1	Maintenance alarm		00	Show
			01	Hide
H2	No automatic control indication		00	Show
			01	Hide
H3	Operation mode change restriction (5*)		00	Operation mode change off (hide operation mode) (factory setting)
			01	Operation mode set by the central control unit + “FAN” mod
			02	Unlimited operation
H4	Ventilation changeover (total heat exchanger only)		00	Air conditioning only
			01	Ventilation only
			02	Air conditioning + Ventilation
H5	Central control available after forced stoppage.		00	Off
			01	On

*1. Certain indoor units do not accept the setting “02”.

*2. If installed on a bedside table, use the setting “00”.

*3. Applies to “FAN”, “COOL” and “DRY” modes.

*4. Applies to “HEAT” mode.

*5. “01” is only available when using a remote control. Do not use this setting when using two remote controls (primary/ secondary).

NOTE

- *When connecting several indoor units, the same settings are applied to all units.*
- *To change the settings, wait at least three minutes after switching the power on.*
- *Some indoor and outdoor units do not accept certain settings or do not have the functions that relate to the activated settings. Check the available settings beforehand.*
- *Note down the option selected in the “settings” column on the table.*

4.3.6.3 Remote Control Optional Functions

b1 Removal of Heating Temperature Compensation (due to Uneven Heat Load).

This function is used when the temperature settings of the remote control switch and the suction air temperature of the indoor unit are required to be equal.

This is useful when the thermistor at the suction side of an indoor unit is removed and installed in another place..

Setting Temperature for Room Temperature Control at Heating

Setting Condition	Actual Control Temperature
00 (Standard)	Remote Control Switch Setting Temperature (Indicated Value) +4°C
01	Remote Control Switch Setting Temperature (Indicated Value)
02	Remote Control Switch Setting Temperature (Indicated Value) +2°C

NOTE

The setting temperature upper limit after compensation is as follows: Inverter Multi Unit: 34 °C

b8 Automatic COOL/HEAT Operation

This function is used to operate the unit with changing cooling and heating operation automatically (same operation mode for indoor units in the same refrigerant cycle).This function is invalid when the outdoor unit is cooling only model or the function of “Fixing of Operation as Exclusive Cooling Unit” is valid.

C5 Hi Speed

This function is used to increase the fan speed for the high ceiling.

C8 Thermistor of Remote Control Switch

This function is used to control the unit by the built-in thermistor of the remote control switch (remote control thermistor) instead of the thermistor for suction air.

Set this function at “01” or “02” when utilizing this function.

However, even when this function is set at “01” or “02”, the detecting temperature is abnormal due to the failure of the remote control thermistor, etc., the thermistor to be used is changed to the thermistor for suction air of the indoor unit automatically.

F2 Remote Control Master-Slave Setting

This function is used when two remote control switches are installed in one system.

Set one remote control switch to “Master” 00, another remote control switch to “Slave” 01.

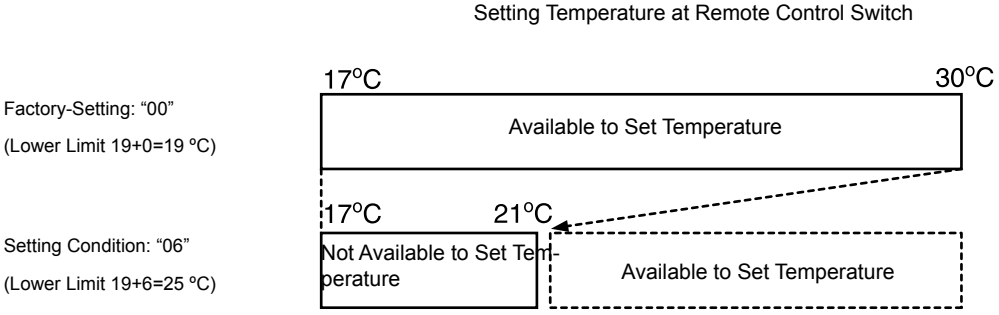
FC Cooling Lower Limit for Setting Temperature

This function is used to limit the lowest setting temperature for FAN/COOL/DRY operations.

When this function is valid, it provides the adequate cooling operation and energy-saving effect.

The setting conditions and the cooling lower limit for the setting temperature are as follows:

Example:



Setting Condition	Details	Setting Temperature Lower Limit (FAN/COOL/DRY) *
00	Standard Value	19 °C
01	Lower Limit +1 °C	20 °C
02	Lower Limit +2 °C	21 °C
Omitted 03 to 08	⋮	⋮
09	Lower Limit +9 °C	28 °C
10	Lower Limit +10 °C	29 °C

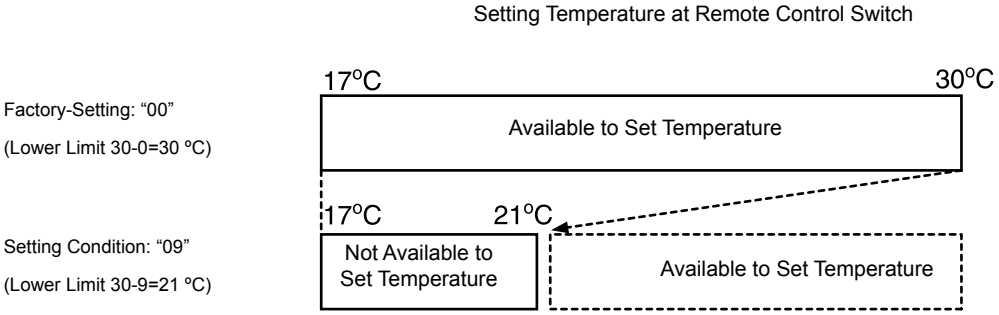
* In case of Standard Unit

Fd Heating Upper Limit for Setting Temperature

This function is used to limit the highest setting temperature for HEAT operation.

When this function is valid, it provides the adequate heating operation and energy-saving effect. The setting conditions and the heating upper limit for the setting temperature are as follows:

Example:



Setting Condition	Details	Setting Temperature Upper Limit (HEAT) *
00	Standard Value	30 °C
01	Upper Limit -1 °C	29 °C
02	Upper Limit -2 °C	28 °C
Omitted 03 to 08	⋮	⋮
09	Upper Limit -9 °C	21 °C
10	Upper Limit -10 °C	20 °C

* In case of Standard Unit

H1 Maintenance alarm.

This function is used in order to display or not the maintenance alarm.

When this function is “01”, maintenance alarm will not be displayed.

H2 No automatic control indication.

This function is used in order to display or not the no automatic control indication.

When this function is “01”, no automatic control indication will not be displayed.

H3 Operation mode change restriction.

This function is used in order to configure restrictions about the operation mode change action.

When this function is “00”, the operation mode change is disabled.

When this function is “01”, the operation mode change is only allowed from central control unit and mode FAN.

When this function is “02”, there are no restrictions.

H4 Ventilator changeover.

This option is used in order to allow the central control when the unit is forced to stop.

The function is used in order to configure the changeover.

When this function is “00”, the ventilation changeover works with air conditioning only.

When this function is “01”, the ventilation changeover works with ventilation only.

When this function is “02”, the ventilation changeover works with air conditioning and ventilation.

H5 Central control available after forced stoppage.

This option is used in order to allow the central control when the unit is forced to stop.

When this function is “01”, the central control is available.

4.3.7 Alarm indication

The run LED (green) will flash. The LCD screen will show the following information:

- No. of indoor unit affected by the alarm.
- Alarm code.
- Unit model.
- No. of indoor units connected to the system.

NOTE

- *The Alarm code corresponds to the alarm that is happening on the unit.*
- *Refer to the Service Manual of the unit to know the meaning of the alarm code.*

4.4 PC-LH3(A/B)

4.4.1 Safety summary

DANGER

- ***DO NOT handle the remote control with wet hands.***
- ***DO NOT spill water on the remote control. This may cause an electric shock.***
- ***If the safety devices are activated too frequently or the buttons do not work properly, turn off the unit at the mains and contact your HITACHI service provider.***
- ***In the event of other incidents of an electrical nature, turn off the system, switch it off at the mains and contact your HITACHI service provider.***

CAUTION

- *DO NOT install the indoor unit, outdoor unit, remote control or any wiring in the following locations:*
- *Where there are oil vapours and the oil is dispersed.*
- *In the proximity of hot water or heat sources or in sulphuric environments.*
- *In locations prone to the generation, accumulation, leakage or flow of flammable gas.*
- *Close to the sea (saline atmospheres).*
- *In acidic or alkaline environments.*
- *Within the reach of children.*
- *Directly in front of the air-conditioning system outlet.*
- *To avoid electromagnetic compatibility problems, DO NOT install the indoor unit, outdoor unit, remote control or any wiring within 3m of strong sources of electromagnetic radiation (e.g. waves generated by medical equipment). If the system should be installed in a location where electromagnetic waves are produced, protect the remote control and wiring by covering them with the steel casing and passing the cable through the metal duct.*
- *If electrical noise should be generated at the indoor unit power source, install a noise filter.*

CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle this appliance properly and safely.*
- *Children should be supervised to ensure that they do not play with the appliance.*

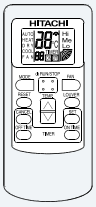
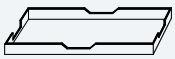
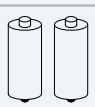
4.4.2 Installation

4.4.2.1 Components list

Unpack the unit and check that:

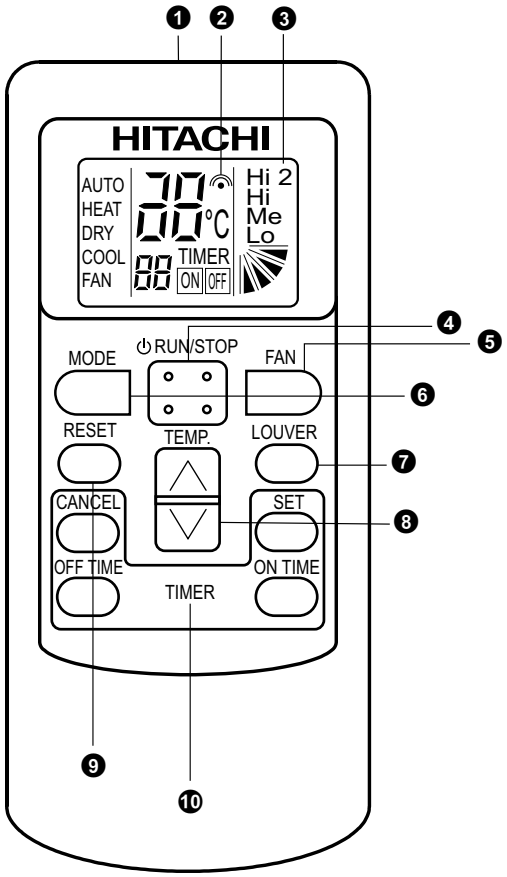
- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quant.	Comments
Wireless remote control		1	For controlling system operation
Bracket		1	For the remote control
AAA/1.5 battery		2	For the remote control
Screw		4	For fixing the bracket to the wall
Installation and operation manual		1	Installation and operation unit instructions.

4.4.2.2 Description of the parts

- PC-LH3A is intended for use in combination with receiver kits PC-ALH, PC-ALHN, PC-ALHC, PC-ALHD or PC ALHZ and indoor units with no support for HIGH2 fan speed mode. PC-LH3A can also be used with receiver kits PC-ALH3, PC-ALHP1 or PC-ALHZF, but HIGH2 fan speed cannot be selected through PC-LH3A in this case.
- PC-LH3B is intended for use in combination with receiver kits PC-ALH3, PC-ALHP1 or PC-ALHZF and indoor units with support for HIGH2 fan speed mode. It can also be used in combination with receiver kits PC-ALH, PC-ALHN, PC-ALHC, PC-ALHD or PC ALHZ, but the selection of HIGH2 fan speed through PC-LH3B has no effect in this case.



NOTE

This figure shows for PC-LH3B

❶ Transmitter

Point the transmitter towards the receiver of the indoor unit when sending commands. The transmitting indication on the liquid crystal display flashes when sending commands.

❷ Transmitting indication

❸ Liquid crystal display

The set temperature, timer operation, position of air louver, operation mode, air flow mode, etc., are indicated. The fan speed setting “HIGH2” is not shown on PC-LH3A. The diagram of the remote control display is for explanation purposes only. The display will differ during actual operation.

❹ Run/Stop switch

Operation of the unit can be started or stopped by pressing this switch.

❺ Fan speed switch

Press this switch to select the fan speed. By repeatedly pressing the button, the setting will change sequentially through HIGH2, HIGH, MED and LOW.

(Fan speed is fixed at Low for dry operation.)

	Model	
Fan speed	PC-LH3A	PC-LH3B
Hi 2 (HIGH2)	X	O
Hi (HIGH)	O	O
Me (MED)	O	O
Lo (LOW)	O	O

O Available

X Not available

NOTE

HIGH2 is not indicated on PC-LH3A.

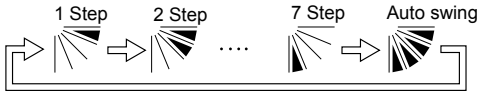
❻ Mode Selection Switch

By repeatedly pressing the mode switch, the unit cycles through the different operating modes in the order of HEAT, DRY, COOL and FAN. To select auto operation, press the switch for more than 3 seconds.

If the switch is pressed again, it will return to FAN mode.

❼ Louver angle switch

The airflow angle and auto-louver operation can be set by this switch. When pressing the switch, the angle is changed in the following order. (In cool or dry operation modes, steps 1-5 and Auto swing are available.)



❽ Temperature switch

The setting temperature can be adjusted using this switch.

❾ Reset switch

Press RESET to turn off the filter indicator lamp after filter cleaning.

If the unit is stopped abnormally due to protection devices etc., press the “RESET” switch to cancel the control stoppage after the cause of the abnormality has been removed.

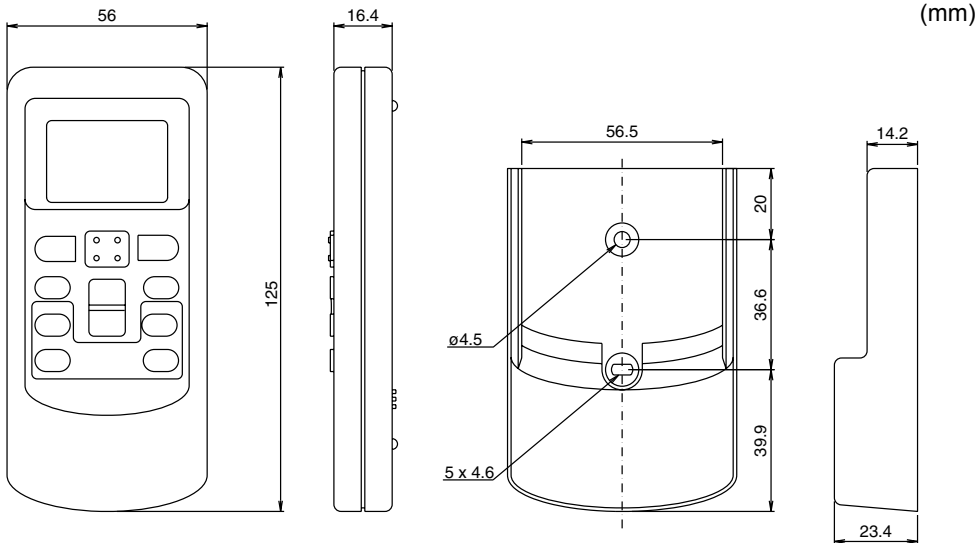
❿ Timer switches

Four switches control the timer operation.

The set time can be changed by pressing “ON TIME” or “OFF TIME” and is set by pressing the “SET” switch. Timer operation can be cancelled using “CANCEL”.

4.4.2.3 Dimension data

(mm)



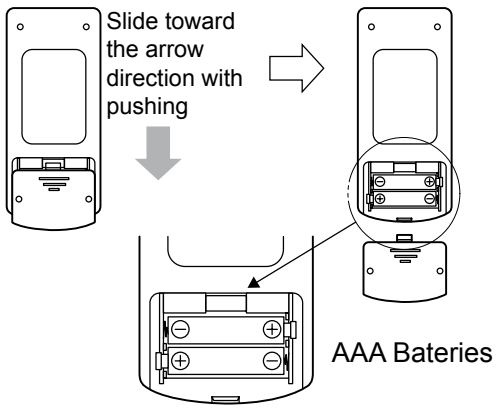
4.4.2.4 Installation space

The space necessary for the installation is the minimum necessary to fix the bracket allowing to remove without problems the remote control.

4.4.2.5 Batteries setting

Place the batteries (AAA/1.5Vx2) in the controller as follows.

1. Remove the battery cover by sliding toward the arrow direction by pushing the part of the cover as shown in the figure below.
2. Insert the batteries according to the marks of + and - on the case.



4.4.2.6 Installation procedure

◆ **Installing onto the wall or pillar**

⚠CAUTION

When the commands are sent by the controller hooked onto the wall, the receiver of the indoor unit may not receive the commands depending on the installation place. Refer to the details of receiver kit.

1 Select the suitable place for handling and install the controller with the customer's acceptance. Do not install the controller at the places as follows.

- where children can touch
- where the air from the air conditioner is directly discharged
- where there is oil vapour and the oil is dispersed
- where the humidity is high

2 Pay attention to the following points in case that the controller is installed in a place where there is medical equipment radiating electromagnetic waves.

a. Install the controller in a place without devices which radiate electromagnetic waves directly towards the electrical box of the indoor unit and the controller.

b. Keep a distance more than 3 meters away from the equipment radiating electromagnetic waves, the receiver of the radio, etc. for prevention of the noise through the air.

c. In case that there is electric noise at the power source for the indoor unit, the treatment such as providing a noise filter is required.

3 Do not install the controller in a place where generation, flowing, staying or leaking of flammable gas is detected.

4 Install the controller in a place where there is a distance more than 30 cm from the power supply cable when installing the controller onto the wall.

5 Install the holding bracket (accessory) onto the wall by using screw (accessory) and attach the controller to the holding bracket.

4.4.3 Checking procedure

◆ **Test running by controller**

⚠CAUTION

Test running by the controller can not be performed in case that the wired remote control switch is used together; in case that multiple units are operated simultaneously (SET-FREE and UTOPIA series). In such cases, perform the test running by the wired remote control switch.

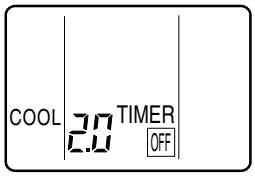
1 Perform the test run after the installation work is completed.

d. Set the batteries for the controller.

e. Turn ON the power supply for the indoor and outdoor units.

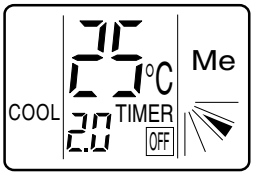
f. "((•))" lamp (yellow) on the receiver of the indoor unit flashes (0.25 seconds ON ◄► 0.25 seconds OFF), and then turns OFF. While the lamp is flashing, the unit will not operate because it is initializing.

2 Set the test run mode by pressing "SET" and "OFF TIME" switch simultaneously for more than 3 seconds. The LCD should be as shown in the figure on the right.



Test run mode is under suspension

3 Set the operation mode by pressing the “MODE” switch.



Test run mode is under operating

4 Operate the test run by pointing the transmitter towards the receiver of the indoor unit and press the ⏻ “RUN/STOP” switch. When the commands are received by the indoor unit, the “((•))” lamp (yellow) of the receiver will come on briefly. Check the commands are received well and the mode selected 3) is set correctly.
In the test run mode, the red lamp (RUN) of the receiver is turned ON and the green lamp (TIMER) flashes (0.5 seconds ON ◄► 0.5 seconds OFF) (*2).

NOTE

- *In the case that the “((•))” lamp (yellow) does not turn ON, the controls may not have reached the receiver. Send the commands again.*
- *(*2) In the case of RPK model, “TIMER” lamp is turned ON without flashing.*

5 Adjust the angle of the air louver as follows.

The air louver has a mechanism for the auto-swing function.

Do not move the louver by hand forcefully.

a. Select the FAN mode by pressing the ‘MODE’ switch.

b. **b.**Set the louver angle by pressing the ‘LOUVER’ switch. The louver direction is changed as follows. (For heating and fan operation).

LCD Indication

6 Stop the test run

a. Test run is stopped after 2 hours automatically.

b. Test run is stopped by pressing ⏻ “RUN/STOP” switch again. To complete test run, cancel the remained timer indication by pressing the “CANCEL” switch.

After Test Run is finished, check that the red lamp (RUN) and the green lamp (TIMER) are turned OFF.

4.4.4 Operation

◆ Before operation

⚠ CAUTION

- *Turn on the electrical power supply to the system approximately 12 hours before start-up after a long shutdown. Do not start the system immediately after connecting the power supply, because the compressor may be damaged if it is not sufficiently heated.*
- *Make sure the outdoor unit is not covered with ice or snow. If it is, remove the ice or snow with warm water (no hotter than 50°C). If the water temperature is over 50°C, the plastic parts may be damaged.*
- *When the system is started after being out of use for more than 3 months, we recommend that the system is checked by the service provider.*
- *If the system is not going to be used for a long period of time, turn it off at the mains. Otherwise it will continue to consume electricity, since the oil heater remains on even when the compressor is off.*

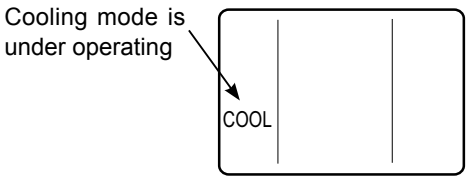
NOTE

- *The "((•)) " lamp (yellow) is turned ON with the beep sound for receipt confirmation.*
- *The beep sound may not be heard by surrounding noise.*
- *"((•)) " lamp (yellow) on the receiver of the indoor unit flashes (0.25 seconds ON 0.25 seconds OFF), and then turns OFF. While the "((•)) " lamp is flashing, the unit will not operate because it is initializing.*

4.4.4.1 Basic operation

◆ Start operation

Press "MODE" switch. By repeatedly pressing "MODE" switch, the unit cycles through the different operating modes in the order of HEAT, DRY, COOL and FAN.

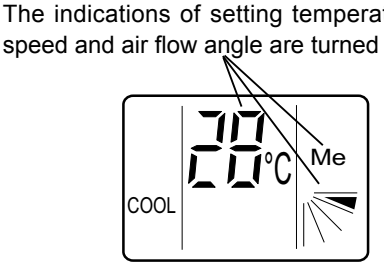


The indications of setting temperature, fan speed and air flow angle may be turned ON depending on the condition of control.

NOTE

Refer about automatic cooling/heating operation mode to the item Automatic cooling/heating operation

Point the transmitter towards the receiver kit and press "RUN/STOP" switch. When the transmitting indication "((•))" flashes on the LCD of wireless remote control switch, the "((•))" lamp (yellow) on the receiver will be turned on briefly. The RUN indicator (red) on receiver is turned ON when the operation is started.



NOTE

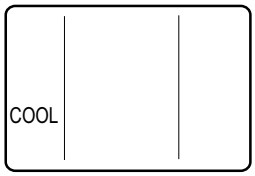
Do not press "RUN/STOP" switch repeatedly (less than 3 seconds). If the switch is pressed frequently, the controller may not work correctly.

◆ Temperature, fan speed and air flow direction setting

Once the setting is confirmed, the setting condition will be stored. Therefore the daily setting is not required. In case that the setting change is required, refer to the item Setting Method.

◆ Stop Operation

Point the transmitter towards the receiver kit and press “RUN/STOP” switch again. The RUN indicator (red) on receiver is turned OFF and the operation is stopped.



The indications of setting temperature, fan speed and air flow angle are turned OFF.

NOTE

After the heating operation is stopped, the fan mode may be operated for approximately 2 minutes.

4.4.4.2 Operation Mode (Cooling, Heating, Dry, Automatic Cooling/Heating and Fan Operation)

◆ Function

- Cooling operation (COOL): to decrease the room temperature.
- Heating operation (HEAT): to increase the room temperature.
- Dry operation (DRY): to decrease the humidity in the room.
- Automatic cooling/heating operation (AUTO): to cooling and heating automatic changeover.
- Fan operation (FAN): to circulate the air in the room.

NOTE

The recommendable set temperature is as follows;

** Cooling operation: 27 to 29 ºC*

** Heating operation: 18 to 20 ºC*

** Dry operation: 23 to 25 ºC*

4.4.4.3 Setting method

NOTE

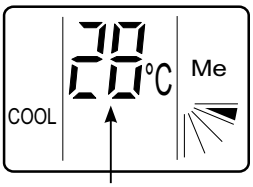
To adjust the air flow angle, refer to the installation and operation manual of indoor unit.

Temperature setting

Point the transmitter towards the receiver kit and press “TEMP.” switch to set the temperature.

By pressing “⋀”, the temperature is increased by 1 ºC.

By pressing “⋁”, the temperature is decreased by 1 ºC.



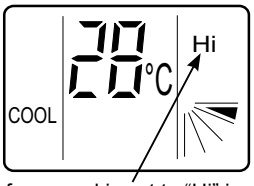
The set temperature is set to 28 ºC in the cooling operation

NOTE

- *The temperature is not displayed during the stoppage. In the case that the temperature is set during the stoppage, the temperature indication is turned ON temporally. It is automatically turned OFF after setting.*
- *The temperature can be set for each operation mode.*
- *The setting temperature is available from 17 ºC to 30 ºC by the wireless remote control switch. However, for indoor unit which setting temperature range is 19~30 ºC, the temperature settings of 17 ºC and 18 ºC are not available.*

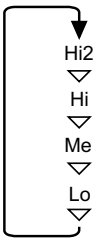
Fan Speed

Point the transmitter towards the receiver kit and press “FAN” switch to set the fan speed.



The fan speed is set to “Hi” in the cooling operation.

By repeatedly pressing the switch, the setting will change sequentially through Hi2, Hi, Me and Lo.

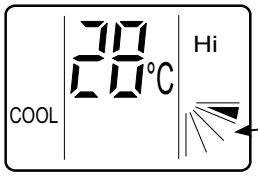


NOTE

- *The fan speed is not displayed during the stoppage. In the case that the fan speed is set during the stoppage, the fan speed indication is turned ON temporally. It is automatically turned OFF after setting.*
- *The fan speed can be set for each operation mode. However, the fan speed will be fixed at “Lo” in dry operation.*

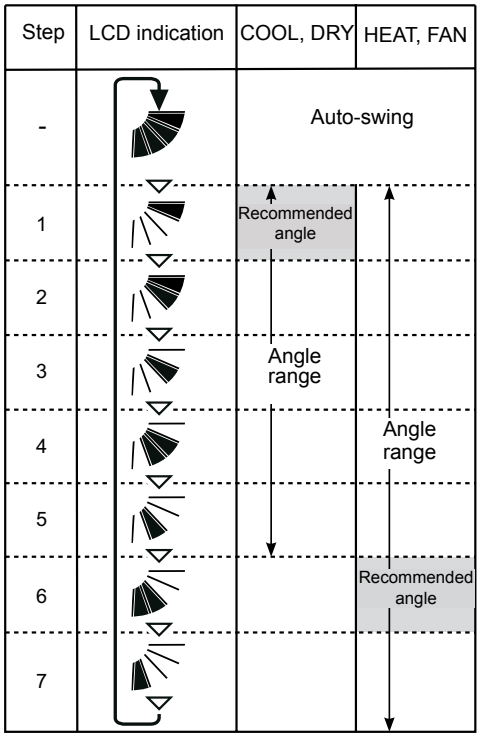
Air flow direction

Point the transmitter towards the receiver kit and press “LOUVER” switch to set the louver angle.



The louver angle is set to 1 step at “Hi” in the cooling operation.

By pressing “LOUVER” switch, the louver angle will be changed as follows.



: Auto swing operation will be started. At this time, the louver will swing repeatedly on LCD.

NOTE

- *The louver angle is not displayed during the stoppage.*
- *The louver setting are only available from 1 step through 5 step and auto swing at the cooling and dry operation modes.*
- *The louver angle may be changed automatically during the heating operation. (Refer to the installation and operation manual of indoor unit about detail.)*
- *The louver may NOT stop immediately right after the switch is pressed.*
- *The auto louver mechanism is not available for In-the-Ceiling type.*

4.4.4.4 Automatic Cooling/Heating Operation

This function is only available for DC Inverter UTOPIA series (single combination) and SET-FREE series (heat recovery system).

◆ **Function**

Automatic cooling/heating operation is automatically switched cooling and heating based on the set temperature as following inlet air temperature conditions.

The cooling operation is performed when the inlet air temperature is approximately 3 ºC higher than set temperature.

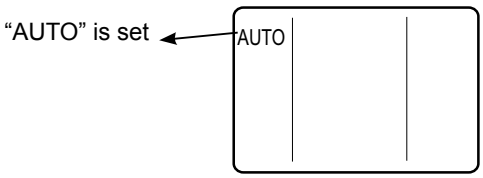
The heating operation is performed when the inlet air temperature is approximately 3 ºC lower than set temperature.

NOTE

- *If the fan speed is set to "Lo" during the heating operation, the operation tends to be stopped by activating the protection devices, etc. In this case, set to "Me", "Hi" or "Hi2".*
- *The heating operation is not available when the ambient temperature is higher than approximately 21 ºC.*
- *The threshold of switching temperature against the setting temperature is + 3 ºC in case of using this function. Therefore, this function should not be utilized in the room where the accurate temperature and humidity controls are required.*

◆ **Start operation**

Press and hold the "MODE" switch for more than 3 seconds. The indication "AUTO" (automatic cooling/heating operation) will appear.



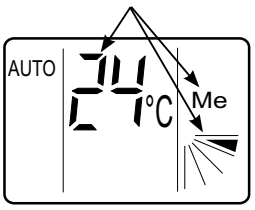
The indications of setting temperature, fan speed and air flow angle are turned ON depending on the condition of control.

NOTE

- *The automatic cooling/heating operation is required other setting. Contact your distributor and contractor for details.*
- *When the "MODE" switch is pressed at "AUTO", the fan operation is started.*

Point the transmitter towards the receiver kit and press "RUN/STOP" switch. When the transmitting indication " " flashes, the " " lamp (yellow) on the receiver will be turned on briefly. The RUN indicator (red) on receiver is turned ON and the operation is started.

The indications of setting temperature, fan speed and air flow angle are turned ON.

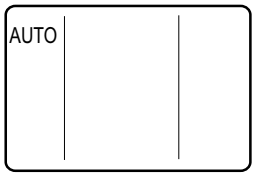


◆ **Temperature, fan speed and air flow direction setting**

To set the temperature, fan speed and air flow direction, refer to the item Setting Method.

◆ Stop operation

Point the transmitter towards the receiver kit and press “RUN/STOP” switch again. The RUN indicator (red) of receiver is turned OFF and the operation is stopped.



The indications of setting temperature, fan speed and air flow angle are turned OFF.

4.4.4.5 Timer Setting Method

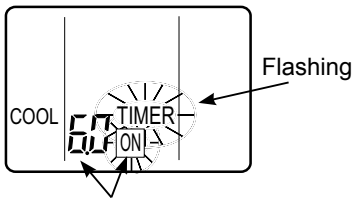
◆ Function

This function is used to start or stop the unit operation at the setting time.

The timer setting is available for “ON TIME” and “OFF TIME”.

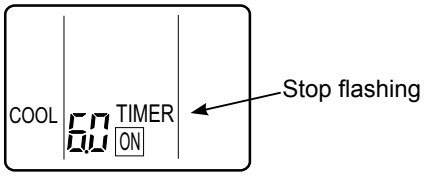
- ON TIME: The operation is started after the set time is passed.
- OFF TIME: The operation is stopped after the set time is passed.

Press “ON TIME” or “OFF TIME”. By repeatedly pressing “ON TIME” or “OFF TIME”, the indication of setting time is changed. The setting time is available at half hour intervals up to 10 hours and at one hour interval up to 23 hours after 10 hours.



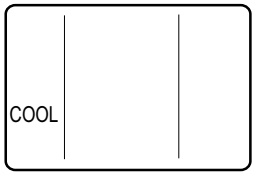
The setting time for “ON TIMER” is set to 6 hours.

Point the transmitter towards the receiver kit and press “SET” switch. The TIMER indicator (green) on receiver is turned ON.



Cancel setting

To cancel the timer setting, point the transmitter towards the receiver kit and press “CANCEL” switch. The TIMER indicator (green) on receiver is turned OFF.

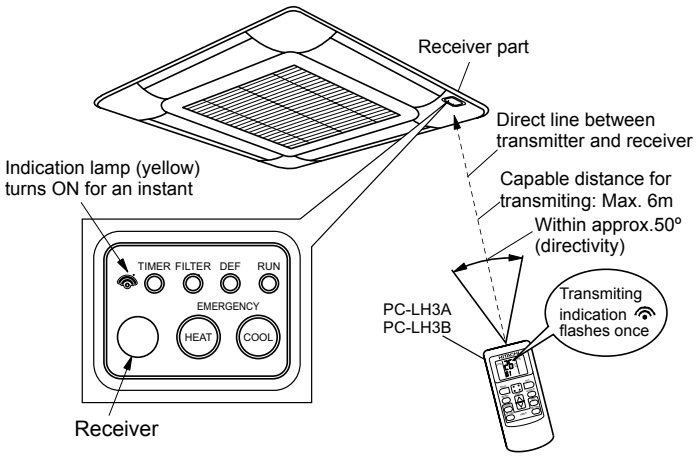


4.4.4.6 Sending commands from remote controller

When operating the controller, face the transmitter towards the receiver of the indoor unit and press the switch for the required operation.

1 When the commands are sent, the "((•))" indication on the liquid crystal display of the controller flashes once.

2 The indication lamp (yellow) on the receiver part of the indoor unit turns ON for an instant when the indoor unit receives the commands.



⚠ CAUTION

- *In case that the indication lamp (yellow) does not turn ON although the commands are sent, the commands are not received by the indoor unit. In such a case, send the commands again.*
- *The transmitter of the controller has the vertical directivity to the receiver, and the permissible angle for transmitting is within 50º. However, the capable distance for transmitting gets half when the transmitting angle is 50º, and also get shorter in case that an electronic type light is used in the room.*

NOTE

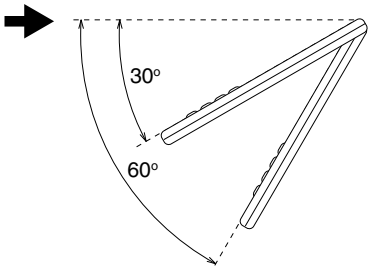
The above figure shows the case of a 4-way cassette type indoor unit. The figures for other models are partially different.

LCD (Liquid crystal display) indication

When viewed from certain angles the LCD can be difficult to read.

The viewing angle ranges from an optimal of 60º down to 30º, as shown in the diagram on the right.

If the viewing angle is below 30º, the indications not displayed are slightly faded so that makes the indication be hardly readable. It is the characteristics of this LCD, which is not abnormality.



4.4.4.7 Identifying of indoor units installed side by side

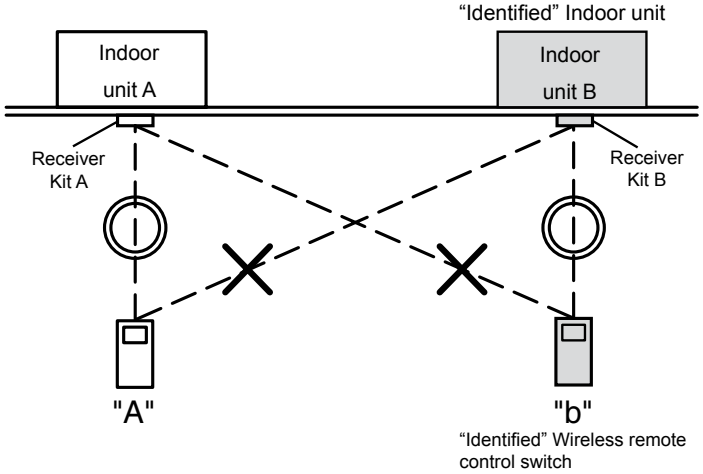
CAUTION

Turn OFF the power source completely before performing the dip switch setting for receiver kit. If not, it may cause an electric shock.

In the case that two indoor units are installed side by side, the commands from the wireless remote control switch may be received by both indoor units. The function, “Identifying of indoor units installed side by side” enables to operate the individual unit correctly without interfering other unit’s operation. As shown in the right figure, the indoor units of A and B are set side by side. In this case, the unit B is set as “Identifying indoor units installed side by side”.

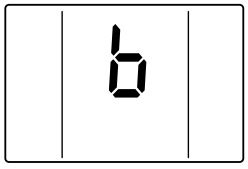
NOTE

This function must be set at the receiver side. It shall be set according to the installation manual of the receiver kit or the indoor unit.



Setting of identifying of indoor units installed side by side

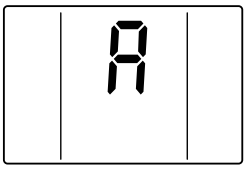
1. Receiver kit setting: Set number 2 pin of the receiver kit dip switch (DSW1) at the indoor unit B (“Identified” unit) “ON” side.
2. Press and hold “ON TIME” switch and “OFF TIME” switch of the wireless remote control switch simultaneously for 3 seconds. The “b” is indicated on the liquid crystal display for 3 seconds.
3. When the above procedure (1) is performed, only the identified indoor unit (B unit) operation is available. The indoor unit A does not correspond to the commands from the identified wireless remote controller.



Setting of identified indoor unit

Cancellation of identifying of indoor units installed side by side

1. Receiver kit setting: Set number 2 pin of the receiver kit dip switch (DSW1) “OFF” side for cancellation.
2. Press the “ON TIME” switch and the “OFF TIME” switch simultaneously for more than 3 seconds. The “A” is indicated on the liquid crystal display for 3 seconds.



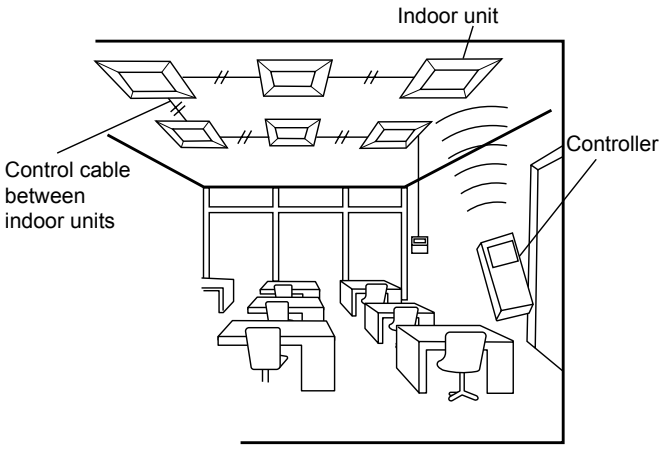
Cancellation of identified indoor unit

NOTE

This function is required to cancel at the receiver side. It shall be cancelled according to the installation manual of the receiver kit or the indoor unit.

4.4.4.8 Simultaneous operation of multiple indoor units

The multiple indoor units (Max. 16 units) can be started and stopped simultaneously by one controller. Perform this operation only in case that multiple indoor units are installed in a room. The detail for setting method shall be refered to the installation manual of the indoor unit.



Control example of simultaneous operation of multiple units

⚠ CAUTION

Do not perform this operation in case that the multiple indoor units are installed in different rooms separately. It may happen that some indoor units remain unchanged.

◆ **Remote control installation for several units**

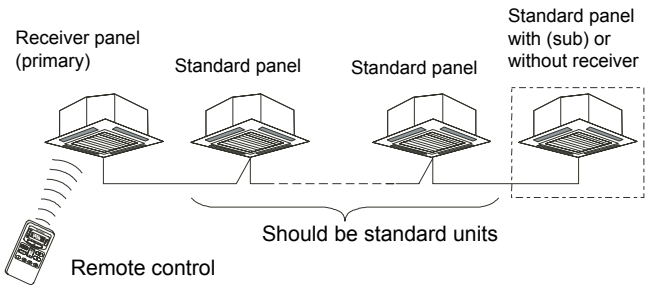
⚠ CAUTION

Disconnect all power supplies before carrying out operations such as wiring, rotary switch setting, etc.

When several indoor units (a maximum of 16) are operating simultaneously with just one remote control (wireless), apply the receiver kit for wireless control to the unit to be operated, and apply the standard panels (without receiver kit) to the rest of the units (wired control).

If you need to use several receiver panels for wireless control, a maximum of 2 can be installed.

If 2 receiver panels are used, set them as primary and secondary panels by following the procedures indicated below.



NOTE

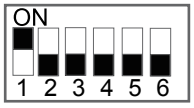
- *It is also possible to combine a remote control and a wireless control with the same group of units.*
- *The RPK units cannot be connected at the same time as the built-in receiver. If you want to use several RPK units simultaneously with only one remote control, the PC-ALHZ(F) should be used.*

The maximum permitted cable lengths between units shown in the following table must be taken into account:

Cable section	0.3 mm²	≥ 0.75 mm²
Cable length	30 m	500 m

◆ Secondary receiver kit setting for a wireless remote control

1. Remove the back cover of the receiver kit.
2. Set pin no. 1 of DIP switch to the ON position.



NOTE

Refer to the optional functions of the receiver kit for more information.

◆ Wiring procedure between indoor units

DANGER

- ***Turn OFF the power source completely before performing the dip switch setting and electrical wiring work for receiver kit. If not, it may cause an electric shock.***
- ***Perform securely the electrical wiring work. If the electrical work is not completed, heat generation at the connection, a fire or an electric shock may occur.***
- ***Make sure that the electrical wires are securely fixed in order not to apply an external force to the terminal connections of the wirings. If fixing is not completed, it may cause heat generation or a fire.***

1 Lay the wiring between the indoor units after reading the receiver installation manual. The total cable length should not exceed 500 metres.

References on the 2P extension cables (accessory) are indicated below:

2P extension cable	PRC-10E1	PRC-15E1	PRC-20E1	PRC-30E1
Cable length	10 m	15 m	20 m	30 m

2 Fix the connection control cable between the indoor units at certain points with flexible flanges ensuring that it does not run in parallel with the power supply cable inside the indoor unit. Keep a distance of more than 30 cm between the control cable and the power supply cable. Earth one end of the conduit after inserting the control cable inside the metal conduit.

NOTE

Do not run the connecting cable for receiver kit and the power source cable (220-240V) in parallel. It may cause malfunction of receiver kit by noise.

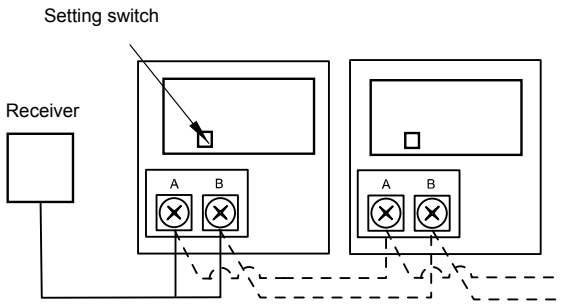
3 Fit the setting switches on the printed circuit boards of each indoor unit's electrical box as shown in the figure on the right.

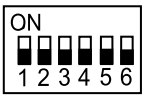
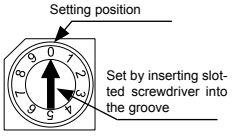
4 Check the number of indoor units connected using test mode.

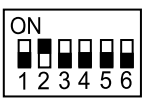
NOTE

The 7-segment display of the wireless remote control will show the number of indoor units connected when the operation test is carried out with the remote control.

However, this number cannot be indicated on some models. In these cases, check the number with the wired remote control.



Setting Switch	
10 digit	1 digit
	

Ex: In case of setting unit Number 25	
	
Turn ON pin number 2	Set Dial to number 5

Dip Switch and Rotary Switch setting before shipment is "00".

Maximum unit number is 63

4.4.5 Maintenance

4.4.5.1 Cleaning Wireless Remote Control Switch

- Wipe it by soft, dry cloth.
- Do not use wet cloth to clean. It may cause failure of wireless remote control switch.
- Do not use benzine, thinner or detergent (Surfactant). If it is used, the wireless remote control switch may be deformed or changed colour.

4.4.5.2 Replacing Batteries

Under the normal use, the battery life should be about 1 year (in case of alkaline batteries).

Replace the batteries if the following phenomenon is occurred:

The transmission distance between the remote control switch and the receiver kit gets shorter for operation or fan speed adjustment

NOTE

Pay attention to the followings to use the batteries correctly. If not, it may cause liquid spill or burst.

- *Never use the new and the used batteries together.*
- *Never use the different types of batteries (for example manganese battery and alkaline battery) together.*
- *When the wireless remote control switch is not used for a long time (more than 2 or 3 months), take out the batteries from the wireless remote control switch.*

The batteries attached are for validation. Therefore, the battery life may get shorter.

When the batteries are replaced, wait for more than 5 seconds to replace new.

All settings are reset after the batteries are replaced. Therefore, when “Identifying of Indoor Units Installed Side by Side” is set, this setting is cancelled once the batteries are replaced. After replacing the batteries, set the “Identifying of Indoor Units Installed Side by Side” again. (Press and hold “ON TIMER” and “OFF TIMER” simultaneously for 3 seconds. The indication “b” will appear. The details should be referred to the installation manual.)

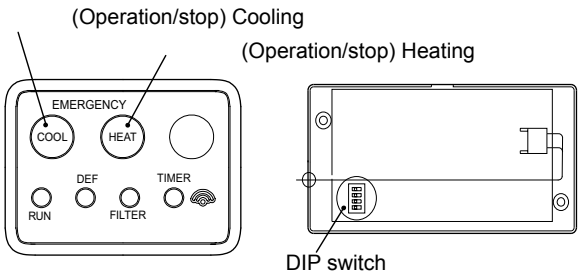
4.5 Receiver kit for wireless remote control

A receiver is required in order for the indoor units to receive the signal when a wireless remote control is used (PC-LH3(A/B)).

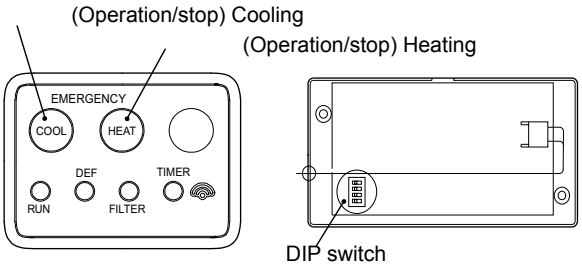
Compatible models:

Receiver	Compatible models	Mounted on
PC-ALH(N)	RCI-FSN2E	Panel
PC-ALHC	RCIM-FSN2	Panel
PC-ALHD	RCD-FSN2	Panel
PC-ALH3	RCI-FSN3	Panel
PC-ALHP1	RPC-FSN3	Panel
PC-ALHZ	RCI-FSN3Ei, RCIM-FSN3E, RCD-FSN2, RPC-FSN2, RPI-FSN(3/4)(P)E, RPIM-FSN4E(-DU), RPK-FSN(H)2M, RPF(I)-FSN2E	Wall
PC-ALHZF	RCI-FSN3, RCI-FSN3Ek, RPK-FSN(H)3M, RPC-FSN3	Wall

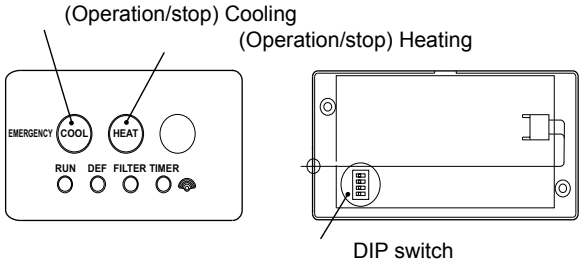
◆ PC-ALH(N)



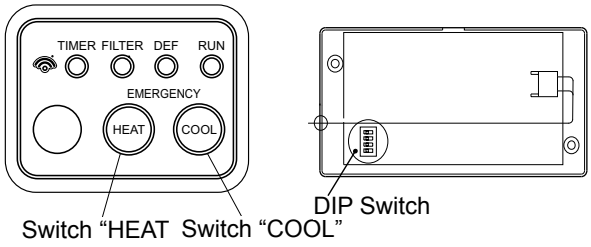
◆ PC-ALHC



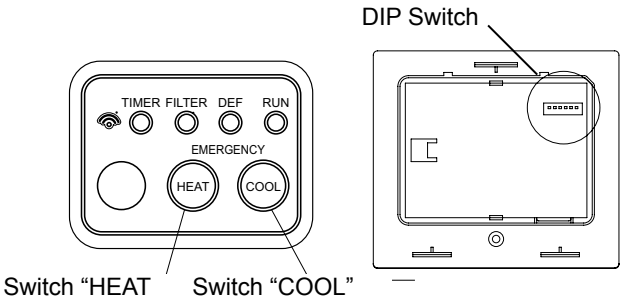
◆ PC-ALHD



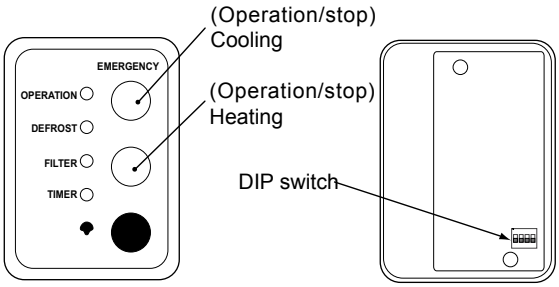
◆ PC-ALH3



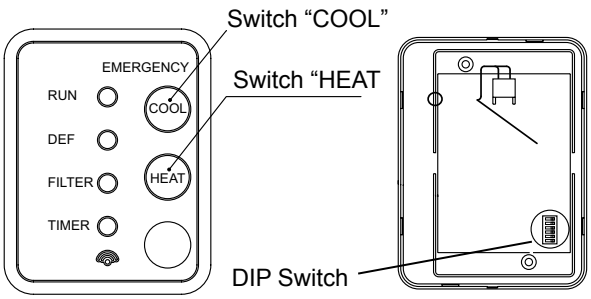
◆ PC-ALHP1



◆ PC-ALHZ



◆ PC-ALHZF



4.5.1 Installation of PC-ALH(N) Receiver kit (For RCI-FSN3Ei)

4.5.1.1 Safety summary

DANGER

- ***DO NOT handle the remote control with wet hands.***
- ***DO NOT spill water on the remote control. This may cause an electric shock.***
- ***If the safety devices are activated too frequently or the buttons do not work properly, turn off the unit at the mains and contact your HITACHI service provider.***
- ***In the event of other incidents of an electrical nature, turn off the system, switch it off at the mains and contact your HITACHI service provider.***

CAUTION

DO NOT install the indoor unit, outdoor unit, remote control or any wiring in the following locations:

- *Where there are oil vapours and the oil is dispersed.*
- *In the proximity of hot water or heat sources or in sulphuric environments.*
- *In locations prone to the generation, accumulation, leakage or flow of flammable gas.*
- *Close to the sea (saline atmospheres).*
- *In acidic or alkaline environments.*
- *Within the reach of children.*
- *Directly in front of the air-conditioning system outlet.*
- *To avoid electromagnetic compatibility problems, DO NOT install the indoor unit, outdoor unit, remote control or any wiring within 3m of strong sources of electromagnetic radiation (e.g. waves generated by medical equipment). If the system should be installed in a location where electromagnetic waves are produced, protect the remote control and wiring by covering them with the steel casing and passing the cable through the metal duct.*
- *If electrical noise should be generated at the indoor unit power source, install a noise filter.*

CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle this appliance properly and safely.*
- *Children should be supervised to ensure that they do not play with the appliance.*

NOTE

Model description meaning:

PC-ALH →Silky white colour

PC-ALHN →Neutral white colour

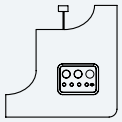
4.5.1.2 Installation

◆ Components list

Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

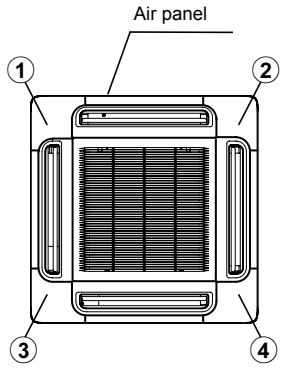
Name		Quant.	Comments
Receiver kit PC-ALH(N)		1	With connection wire
Connection cable		1	-
Flexible cable tie		3	For securing the cables
Wiring cover		1	To protect the connection cable
Installation and operation manual		1	Installation and operation unit instructions

◆ Installation procedure

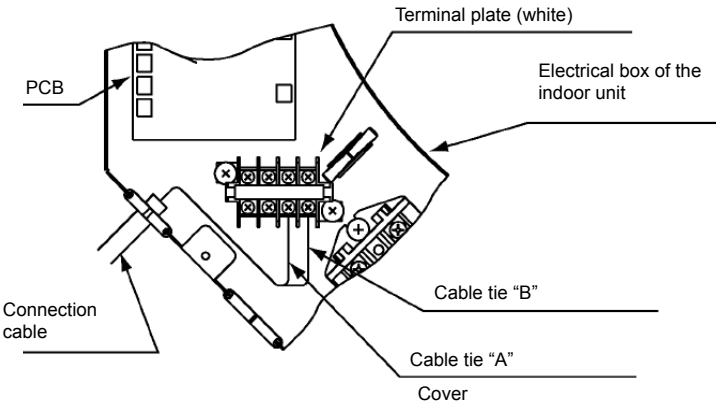
⚠CAUTION

Follow these installation procedures carefully. Failure to do so may cause the receiver to become detached from the panel causing a serious accident.

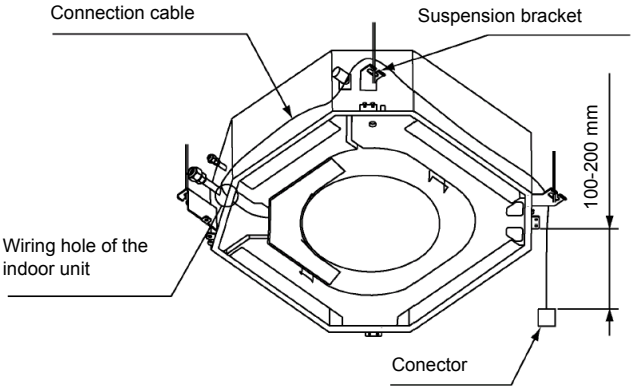
1. Install the wireless receiver kit, indoor unit and air panel at the same time.
2. If the wireless receiver kit is installed after the indoor unit, unplug the power source from the indoor unit and remove the air panel.
3. This receiver kit can be installed in positions 1, 2, 3 or 4.



4. Remove the cover from the electrical box of the indoor unit and connect the cable to the terminal plate (white) as shown below.



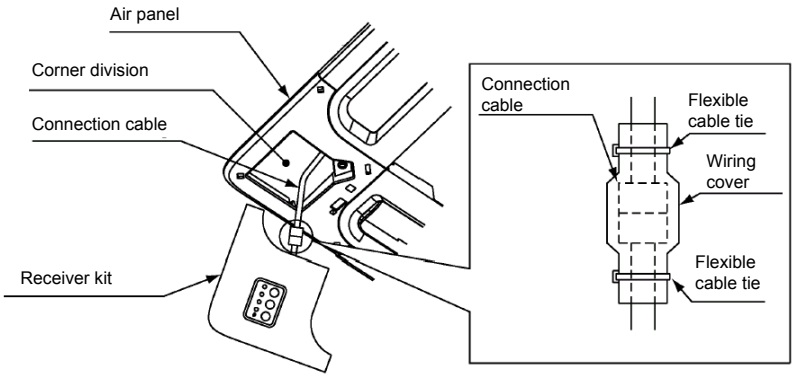
5 Draw the connection cable through the wiring hole on the indoor unit and pass it over the unit's suspension bracket to the receiver kit installation position. Secure any excess cable with a cable tie.



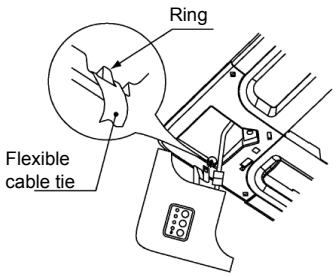
6 Install the air panel accessory on the indoor unit.

7 Connect the receiver kit using the following procedure.

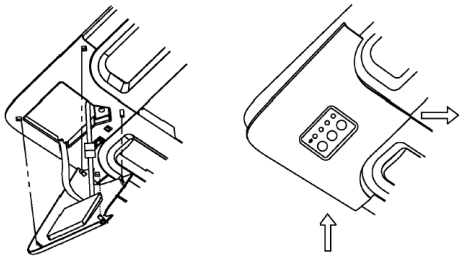
a. Route the connection cable outside the box and connect it to the receiver kit cable. Once connected, cover the connector with the wiring cover and secure the cables using a flexible cable tie.



a. Hook the cable tie onto the air panel ring at the back of the receiver kit, as shown in the following diagram.



a. Hook the L-shaped tab on the back of the receiver kit into the square hole of the air panel.

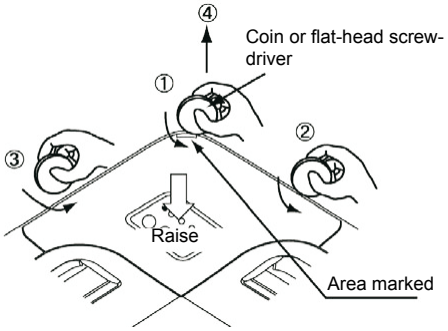


8 Hook the other fixing tabs (3 positions) into the square holes of the air panel.

NOTE

When removing the receiver kit after installing the air panel:

- *The corner point of the receiver kit can be raised by inserting a coin or flat-head screwdriver in the area marked ① and pressing downwards. With ① raised, turn a coin or flat-head screwdriver under positions ② and ③, and the entire receiver kit will lift up.*
- *After disconnecting the fixing tabs (3 positions), slide the receiver kit in the direction of the arrow ④ and remove it.*



4.5.2 Installation of PC-ALHC Receiver kit (For RCIM-FSN3)

4.5.2.1 Safety summary

⚠DANGER

- ***DO NOT handle the remote control with wet hands.***
- ***DO NOT spill water on the remote control. This may cause an electric shock.***
- ***If the safety devices are activated too frequently or the buttons do not work properly, turn off the unit at the mains and contact your HITACHI service provider.***
- ***In the event of other incidents of an electrical nature, turn off the system, switch it off at the mains and contact your HITACHI service provider.***

⚠CAUTION

DO NOT install the indoor unit, outdoor unit, remote control or any wiring in the following locations:

- *Where there are oil vapours and the oil is dispersed.*
- *In the proximity of hot water or heat sources or in sulphuric environments.*
- *In locations prone to the generation, accumulation, leakage or flow of flammable gas.*
- *Close to the sea (saline atmospheres).*
- *In acidic or alkaline environments.*
- *Within the reach of children.*
- *Directly in front of the air-conditioning system outlet.*
- *To avoid electromagnetic compatibility problems, DO NOT install the indoor unit, outdoor unit, remote control or any wiring within 3m of strong sources of electromagnetic radiation (e.g. waves generated by medical equipment). If the system should be installed in a location where electromagnetic waves are produced, protect the remote control and wiring by covering them with the steel casing and passing the cable through the metal duct.*
- *If electrical noise should be generated at the indoor unit power source, install a noise filter.*

⚠CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle this appliance properly and safely.*
- *Children should be supervised to ensure that they do not play with the appliance.*

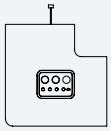
4.5.2.2 Installation

◆ Components list

Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

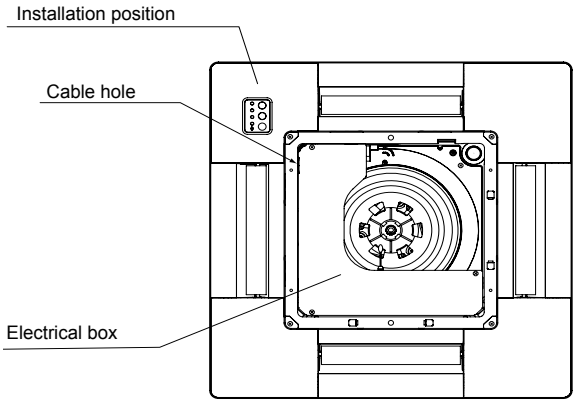
Name		Quant.	Comments
Receiver kit PC-ALHC		1	With connection wire
Connection cable		1	–
Flexible cable tie		2	For securing the cables
Wiring cover		1	To protect the connection cable
Installation and operation manual		1	Installation and operation unit instructions

◆ Installation procedure

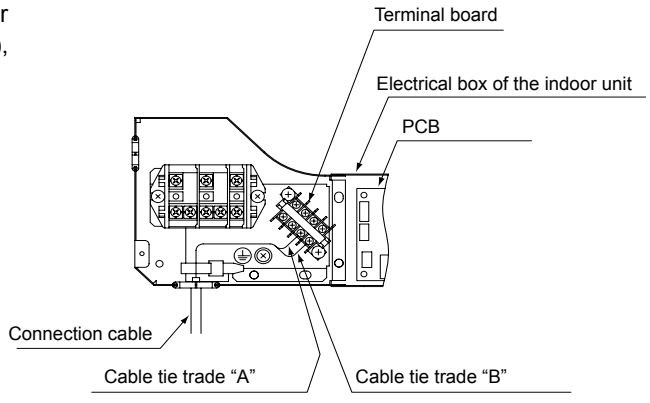
⚠CAUTION

Follow these installation procedures carefully. Failure to do so may cause the receiver to become detached from the panel causing a serious accident.

1. Install the wireless receiver kit, indoor unit and air panel at the same time.
2. If installing the wireless receiver kit after the indoor unit, unplug the power source from the indoor unit. Then remove the grille from the air inlet.
3. This receiver kit can only be installed in one position.



4. Remove the cover from the electrical box of the indoor unit and connect the cable to the terminal block (white), as shown below.

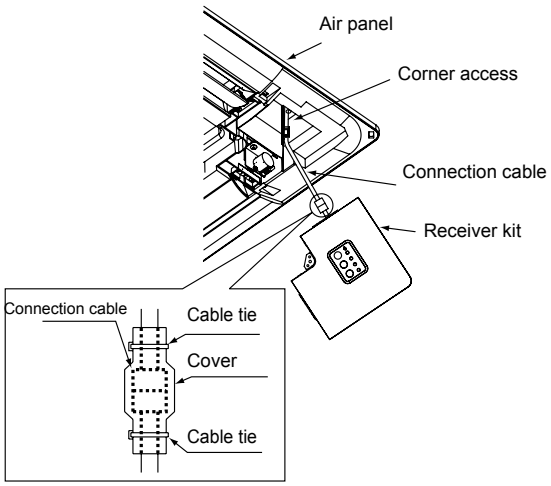


5 Draw the connection cable through the wiring hole of the indoor unit and run it across to the receiver kit installation position.

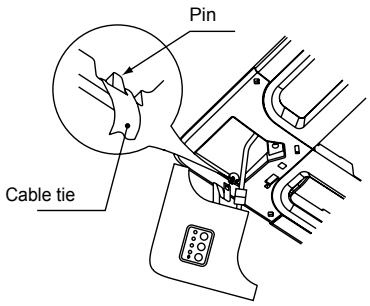
6 Install the air panel (optional) on the indoor unit.

7 Connect the receiver kit using the following procedure:

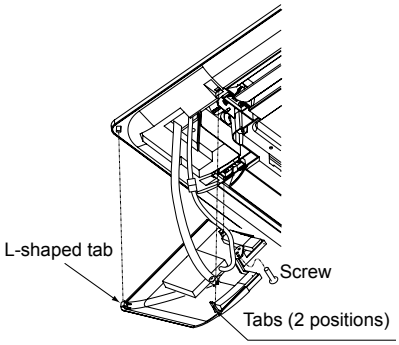
a. Pass the cable through the corner hole and connect the connection cable and receiver kit wire. Once the cable is connected, cover the connector with the cover and secure it using a cable tie.



b. **b.** Hook the tab on the back of the receiver kit to the pin of the air panel, as shown below.



c. **c.** Hook the L-shaped tab on the back of the receiver kit into the square hole on the air panel and secure it with a screw.

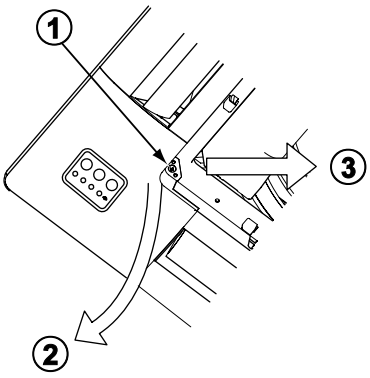


8 Hook the other fixing tabs (3 positions) into the square holes of the air panel.

⚠CAUTION

To remove the receiver kit after mounting the air panel:

- *Remove the screws ① (4 positions) from the front of the air panel.*
- *Move the receiver kit by hand in the direction indicated by the arrow ② and remove the tabs (2 positions) from the corner cover, then slide the receiver in the direction indicated by the arrow ③.*



4.5.3 Installation of PC-ALHD Receiver kit (For RCD-FSN2)

4.5.3.1 Safety summary

DANGER

- ***DO NOT handle the remote control with wet hands.***
- ***DO NOT spill water on the remote control. This may cause an electric shock.***
- ***If the safety devices are activated too frequently or the buttons do not work properly, turn off the unit at the mains and contact your HITACHI service provider.***
- ***In the event of other incidents of an electrical nature, turn off the system, switch it off at the mains and contact your HITACHI service provider.***

CAUTION

DO NOT install the indoor unit, outdoor unit, remote control or any wiring in the following locations:

- *Where there are oil vapours and the oil is dispersed.*
- *In the proximity of hot water or heat sources or in sulphuric environments.*
- *In locations prone to the generation, accumulation, leakage or flow of flammable gas.*
- *Close to the sea (saline atmospheres).*
- *In acidic or alkaline environments.*
- *Within the reach of children.*
- *Directly in front of the air-conditioning system outlet.*
- *To avoid electromagnetic compatibility problems, DO NOT install the indoor unit, outdoor unit, remote control or any wiring within 3m of strong sources of electromagnetic radiation (e.g. waves generated by medical equipment). If the system should be installed in a location where electromagnetic waves are produced, protect the remote control and wiring by covering them with the steel casing and passing the cable through the metal duct.*
- *If electrical noise should be generated at the indoor unit power source, install a noise filter.*

CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle this appliance properly and safely.*
- *Children should be supervised to ensure that they do not play with the appliance.*

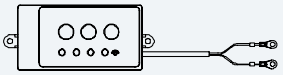
4.5.3.2 Installation

◆ Components list

Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quant.	Comments
Receiver kit PC-ALHD		1	With connection wire
Screw		2	For fixing receiver kit
Flexible cable tie		2	For securing the cables
Installation and operation manual		1	Installation and operation unit instructions.

◆ Installation procedure

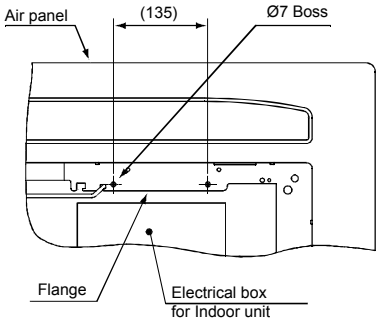
⚠CAUTION

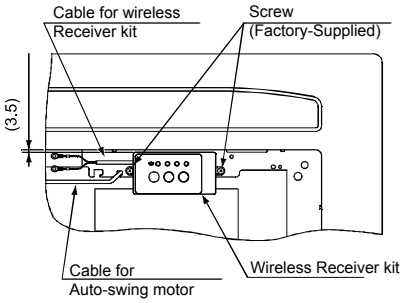
Follow these installation procedures carefully. Failure to do so may cause the receiver to become detached from the panel causing a serious accident.

1 Install the wireless receiver kit, the indoor unit and the air panel at the same time.

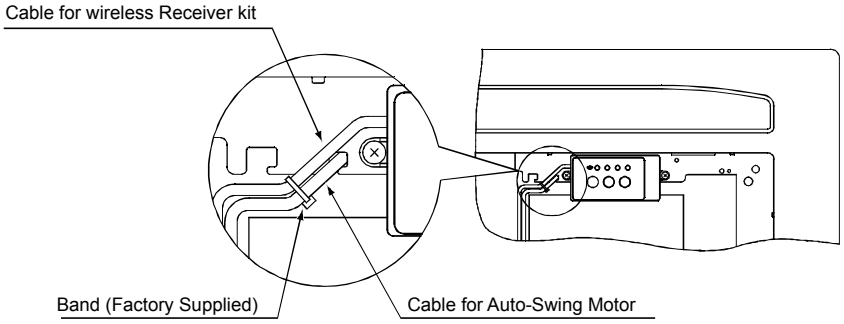
2 In case that the wireless receiver kit is installed after installing the indoor unit, turn off the power source of the indoor unit and remove the air inlet grille.

3 Fix the wireless receiver kit to the air panel by screws.
(The tightening torque must be 0.8 Nm.)

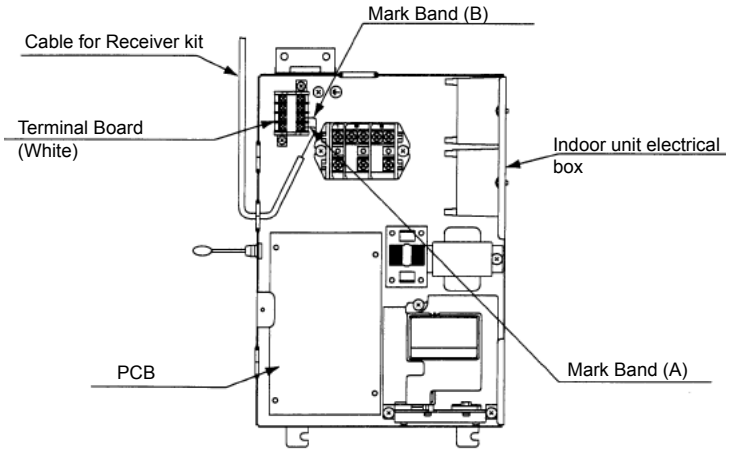




4 Lead the cable along the cable for the auto-swing motor and tie them by the band.



5 Remove the cover of indoor unit electrical control box and connect the cable to the terminals A and B of the terminal board. (No polarity in terminals A and B).

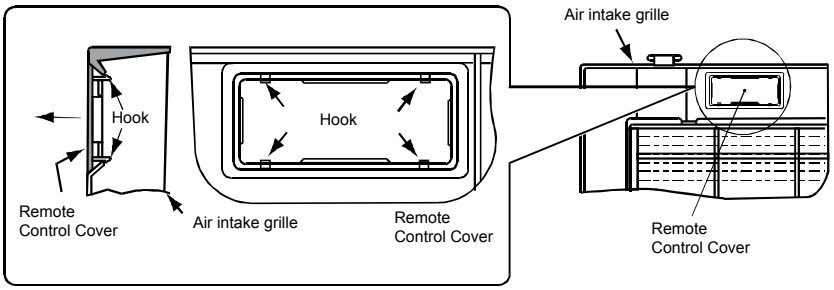


NOTE

After connecting the cable, bind up the remaining cable length portion by cable tie (Factory-supplied) and put them in the electrical control box.

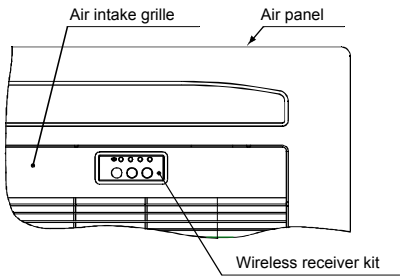
6 Remove the remote control cover of the air intake grille.

- Press the hooks of the remote control cover by hand.



7 After fixing the air panel, attach the air intake grille to the air panel.

- Check to ensure that the location of square hole of the air intake grille coincides with location of the wireless receiver kit of the air panel.
- Check to ensure that the cable of the wireless receiver kit is not clamped by the square hole of the air intake grille.



4.5.4 Installation of PC-ALH3 Receiver kit (For RCI-FSN3 and RCI-FSN3Ek)

4.5.4.1 Safety summary

DANGER

- ***DO NOT handle the remote control with wet hands.***
- ***DO NOT spill water on the remote control. This may cause an electric shock.***
- ***If the safety devices are activated too frequently or the buttons do not work properly, turn off the unit at the mains and contact your HITACHI service provider.***
- ***In the event of other incidents of an electrical nature, turn off the system, switch it off at the mains and contact your HITACHI service provider.***

CAUTION

DO NOT install the indoor unit, outdoor unit, remote control or any wiring in the following locations:

- *Where there are oil vapours and the oil is dispersed.*
- *In the proximity of hot water or heat sources or in sulphuric environments.*
- *In locations prone to the generation, accumulation, leakage or flow of flammable gas.*
- *Close to the sea (saline atmospheres).*
- *In acidic or alkaline environments.*
- *Within the reach of children.*
- *Directly in front of the air-conditioning system outlet.*
- *To avoid electromagnetic compatibility problems, DO NOT install the indoor unit, outdoor unit, remote control or any wiring within 3m of strong sources of electromagnetic radiation (e.g. waves generated by medical equipment). If the system should be installed in a location where electromagnetic waves are produced, protect the remote control and wiring by covering them with the steel casing and passing the cable through the metal duct.*
- *If electrical noise should be generated at the indoor unit power source, install a noise filter.*

CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle this appliance properly and safely.*
- *Children should be supervised to ensure that they do not play with the appliance.*

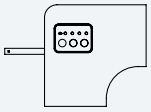
4.5.4.2 Installation

◆ Components list

Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quant.	Comments
Receiver kit PC-ALH3		1	With connection wire
Relay wire		1	–
Cable tie		2	For securing the cables
Wiring cover		1	To protect the connection cable
Installation and operation manual		1	Installation and operation unit instructions

◆ Installation procedure

⚠ DANGER

- ***Turn OFF the power source completely before performing the dip switch setting, installation work and electrical wiring work for receiver kit. If not, it may cause an electric shock.***
- ***Perform securely the installation work referring to this installation manual. If the installation is not completed, it may cause injury by falling down the receiver kit.***
- ***Do not install the receiver kit where the flammable gases may generate or enter. It may cause heat generation or a fire.***
- ***Perform securely the electrical wiring work. If the electrical work is not completed, heat generation at the connection, a fire or an electric shock may occur.***
- ***Make sure that the electrical wires are securely fixed in order not to apply an external force to the terminal connections of the wirings. If fixing is not completed, it may cause heat generation or a fire.***

⚠ CAUTION

- *When the receiver kit is attached near lighting which generates the ambient light, it may not receive the signal from the wireless remote control. Pay attention to the installation position of receiver kit.*
- *Do not run the wire for receiver kit and wire of 220-240V (power source wire) in parallel. It may cause malfunction of receiver kit by noise.*

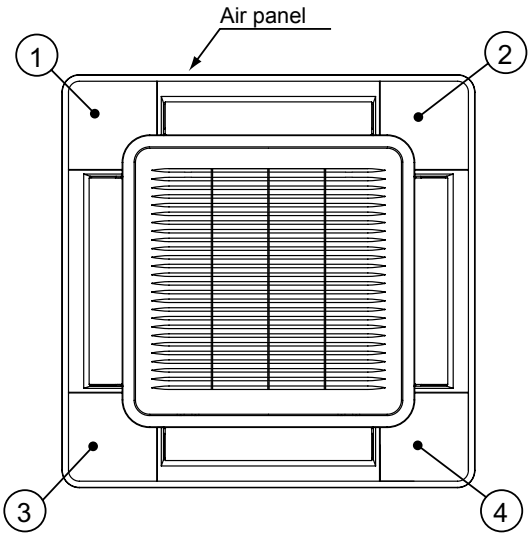
1 Perform the installation work for receiver kit while the optional air panel is being attached to the indoor unit.

2 In the case that the receiver kit is attached after the air panel is attached to the indoor unit, turn OFF the power source of indoor unit, and remove the air panel. The removing air panel should be performed according to the installation manual of the air panel or the service manual.

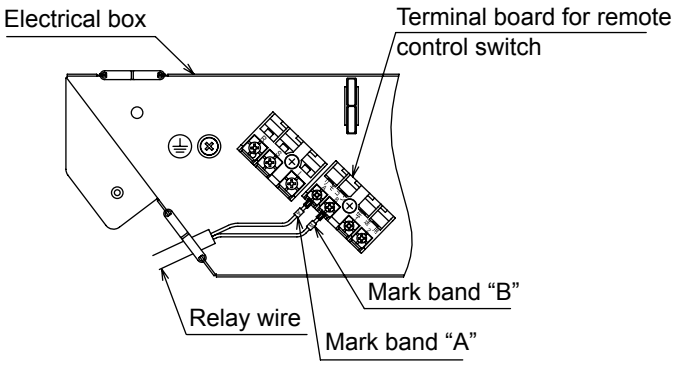
3 This receiver kit can be attached to any of corners (4 directions, ①, ②, ③ and ④). Determine the attaching place as user's request.

NOTE

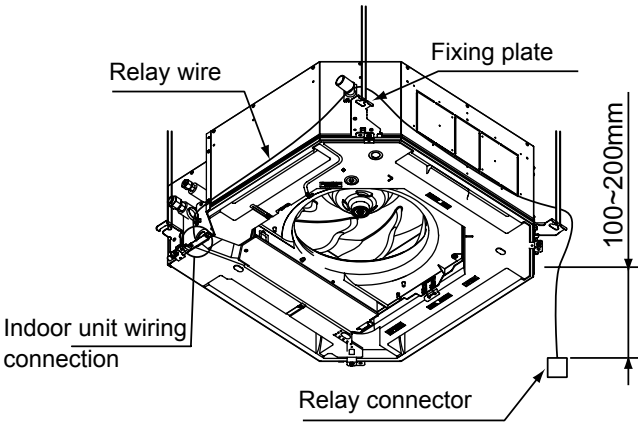
The dip switch setting for receiver kit is available to select each function. If the optional function selection is required, it shall be performed according to the item Optional Functions before the receiver kit is attached to the air panel.



4 Connect the optional relay wire to the terminal board. Open the electrical box cover at the indoor unit. Connect the relay wire terminals to the terminal A and B in the electrical box. (No polarity with terminals A and B).



5 After connecting the relay wire to each terminal, take it out to inside the false ceiling or outside of the unit. Then, run it to the installation position of receiver kit. The wiring connection at the indoor unit should be referred Installation and Maintenance Manual of the indoor unit. When running the relay wire, run it to the installation position of receiver kit through the top of fixing plate for the indoor unit. After running the relay wire, take the distance (from 100 mm to 200 mm) from the indoor unit undersurface to the relay wire as shown in the right figure. After running the relay wire, clamp the extra length of the relay wire by the plastic band and store it at inside the ceiling.

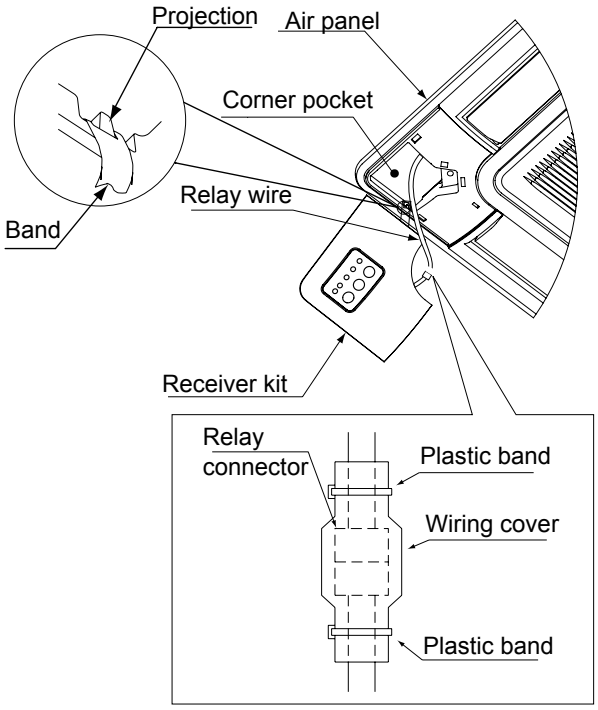


6 Attach the air panel. The installation of air panel should be referred to the installation manual of itself.

7 After the installation work for air panel is completed, attach the receiver kit.

a. Take the relay wire out from the corner pocket of the air panel. Connect the wiring for receiver kit to the relay connector as the following figure. After connecting, cover the relay connector connection by the wiring cover, and fix the wiring cover by the plastic bands.

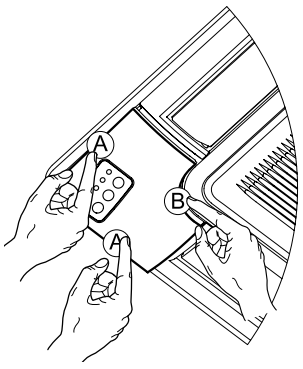
b. Catch the band at the rear side of the receiver kit onto the projection at the air panel as shown in the figure below.



NOTE

Catch securely the band onto the projection to prevent falling down the receiver kit.

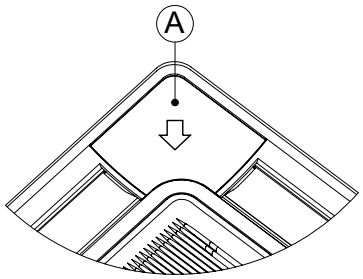
c. While pushing the wiring into the corner pocket, insert the fixing hooks (2 portions) at Ⓐ to the square hole of the air panel, and push the receiver kit toward the arrow direction (Ⓐ). Then, insert the fixing hook (1 portion) at Ⓑ to the square hole of the air panel.



NOTE

Catch securely the fixing hooks of the receiver kit to the air panel. If not, the fixing hooks will be damaged.

d. Removing corner pocket cover method
Remove the corner pocket covers.
The corner pocket covers can be removed pulling Ⓐ part toward the arrow direction.



8 After the installation work for receiver kit is completed, attach the corner pocket covers (3 portions). The detail should be referred to the installation manual of the air panel.

NOTE

After the receiver kit is attached to the air panel, the one corner pocket cover (It was attached with air panel.) becomes unnecessary.

4.5.5 Installation of PC-ALHP1 Receiver kit (For RPC-FSN3)

4.5.5.1 Safety summary

DANGER

- ***DO NOT handle the remote control with wet hands.***
- ***DO NOT spill water on the remote control. This may cause an electric shock.***
- ***If the safety devices are activated too frequently or the buttons do not work properly, turn off the unit at the mains and contact your HITACHI service provider.***
- ***In the event of other incidents of an electrical nature, turn off the system, switch it off at the mains and contact your HITACHI service provider.***

CAUTION

- *DO NOT install the indoor unit, outdoor unit, remote control or any wiring in the following locations:*
- *Where there are oil vapours and the oil is dispersed.*
- *In the proximity of hot water or heat sources or in sulphuric environments.*
- *In locations prone to the generation, accumulation, leakage or flow of flammable gas.*
- *Close to the sea (saline atmospheres).*
- *In acidic or alkaline environments.*
- *Within the reach of children.*
- *Directly in front of the air-conditioning system outlet.*
- *To avoid electromagnetic compatibility problems, DO NOT install the indoor unit, outdoor unit, remote control or any wiring within 3m of strong sources of electromagnetic radiation (e.g. waves generated by medical equipment). If the system should be installed in a location where electromagnetic waves are produced, protect the remote control and wiring by covering them with the steel casing and passing the cable through the metal duct.*
- *If electrical noise should be generated at the indoor unit power source, install a noise filter.*

CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle this appliance properly and safely.*
- *Children should be supervised to ensure that they do not play with the appliance.*

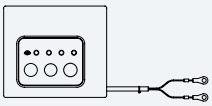
4.5.5.2 Installation

◆ Components list

Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quant.	Comments
Receiver kit PC-ALHP1		1	With connection wire
Flexible cable tie		5	For securing the cables
Wiring cover		1	To protect the connection cable
Installation and operation manual		1	Installation and operation unit instructions

◆ Installation procedure

⚠DANGER

- ***Turn OFF the power source completely before performing the dip switch setting, installation work and electrical wiring work for receiver kit. If not, it may cause an electric shock.***
- ***Perform securely the installation work referring to this installation manual. If the installation is not completed, it may cause injury by falling down the receiver kit.***
- ***Do not install the receiver kit where the flammable gases may generate or enter. It may cause heat generation or a fire.***
- ***Perform securely the electrical wiring work. If the electrical work is not completed, heat generation at the connection, a fire or an electric shock may occur.***
- ***Make sure that the electrical wires are securely fixed in order not to apply an external force to the terminal connections of the wirings. If fixing is not completed, it may cause heat generation or a fire.***

⚠CAUTION

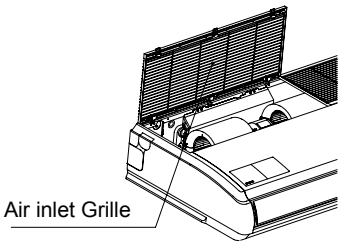
- *When the receiver kit is attached near lighting which generates the ambient light, it may not receive the signal from the wireless remote control. Pay attention to the installation position of receiver kit.*
- *Do not run the wire for receiver kit and wire of 220-240V (power source wire) in parallel. It may cause malfunction of receiver kit by noise.*

1 Perform the installation work for receiver kit while the indoor unit is being mounted.

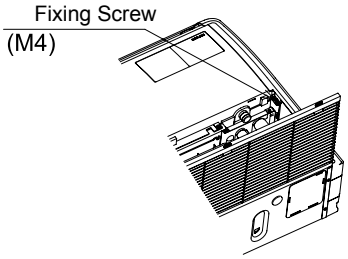
2 Be sure to turn OFF the power source of indoor unit when the receiver kit is attached after the indoor unit is mounted.

3 Remove the right side cover.

a. Open the air inlet grille.

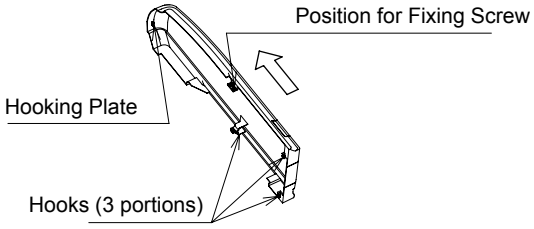


b. Remove the fixing screw (M4)



c. Push the side cover to 15 mm forward to remove the hooks and the hooking plate.

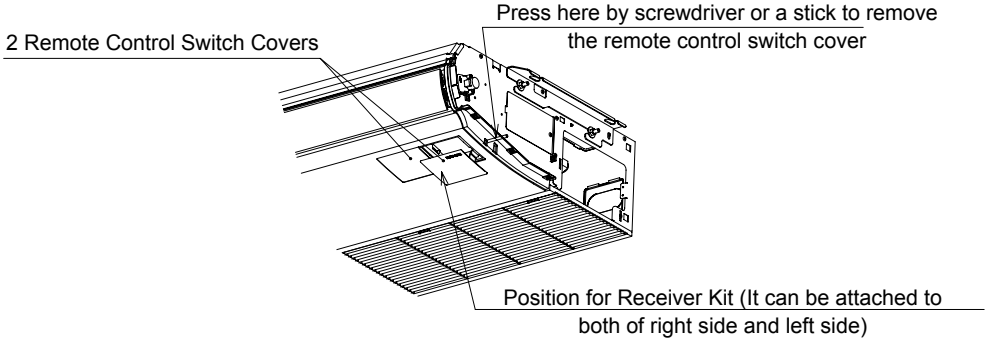
d. Remove the side cover to lift upward.



4 Remove the remote control switch cover attaching to the lower cover.

a. Insert screwdriver or a stick (maximum f5) into the service hole at the lower right side of lower cover.

b. Press the service hole to remove the remote control switch cover.

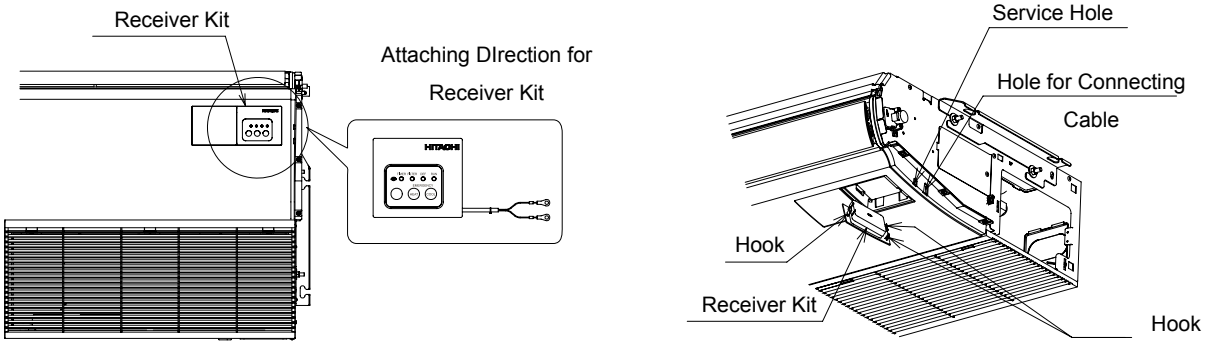


5 Attach the receiver kit to the lower cover.

a. Insert the receiver kit and the connecting cable to the position for receiver kit.

b. Lead the connecting cable through the hole for connecting cable.

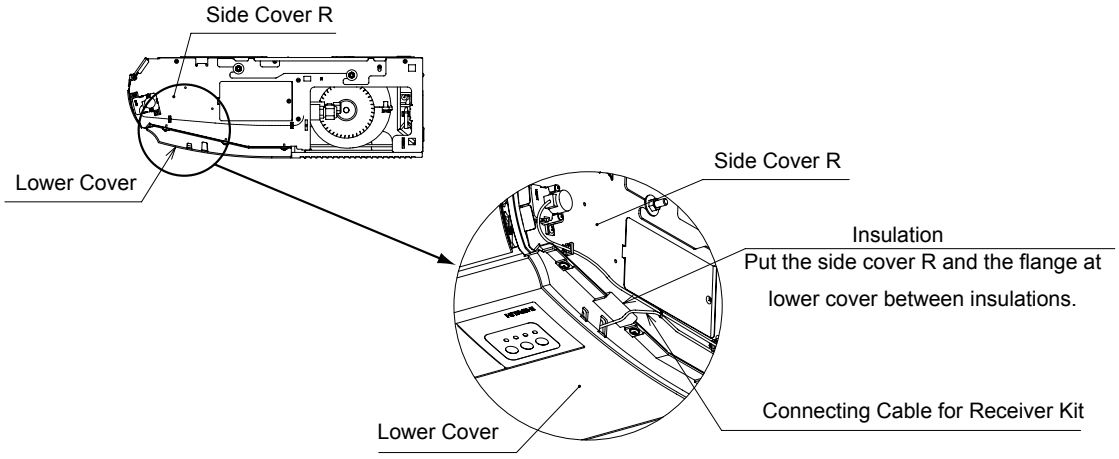
c. Catch 3 hooks of receiver kit onto the square hole. Pay attention to the direction of receiver kit when it is attached.



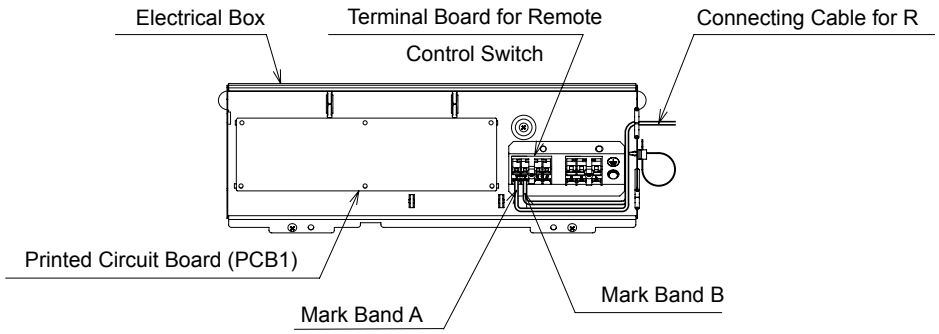
NOTE

Check whether the receiver kit is securely fixed.

6 Lead the connecting cable into the electrical box with other wires.Attach the accessory insulation to the edge of side cover R in order to prevent a scratch by contacting the connecting cable to the edge of side cover R.



7 Remove the electrical box cover. Connect the connecting cable to the terminals A and B at the terminal board for remote control switch as following figure. (There are no polarity between terminals A and B.)



4.5.6 Installation of PC-ALHZ Receiver kit (For RCI-FSN3Ei, RCIM-FSN3E, RCD-FSN2, RPC-FSN2, RPI-FSN(3/4)(P)E, RPIM-FSN4E(-DU), RPK-FSN(H)2M and RPF(I)-FSN2E)

4.5.6.1 Safety summary

⚠ DANGER

- ***DO NOT handle the remote control with wet hands.***
- ***DO NOT spill water on the remote control. This may cause an electric shock.***
- ***If the safety devices are activated too frequently or the buttons do not work properly, turn off the unit at the mains and contact your HITACHI service provider.***
- ***In the event of other incidents of an electrical nature, turn off the system, switch it off at the mains and contact your HITACHI service provider.***

⚠ CAUTION

DO NOT install the indoor unit, outdoor unit, remote control or any wiring in the following locations:

- *Where there are oil vapours and the oil is dispersed.*
- *In the proximity of hot water or heat sources or in sulphuric environments.*
- *In locations prone to the generation, accumulation, leakage or flow of flammable gas.*
- *Close to the sea (saline atmospheres).*
- *In acidic or alkaline environments.*
- *Within the reach of children.*
- *Directly in front of the air-conditioning system outlet.*
- *To avoid electromagnetic compatibility problems, DO NOT install the indoor unit, outdoor unit, remote control or any wiring within 3m of strong sources of electromagnetic radiation (e.g. waves generated by medical equipment). If the system should be installed in a location where electromagnetic waves are produced, protect the remote control and wiring by covering them with the steel casing and passing the cable through the metal duct.*
- *If electrical noise should be generated at the indoor unit power source, install a noise filter.*

⚠ CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle this appliance properly and safely.*
- *Children should be supervised to ensure that they do not play with the appliance.*

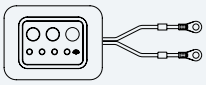
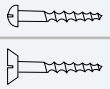
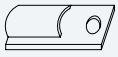
4.5.6.2 Installation

◆ Components list

Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quant.	Comments
Receiver kit PC-ALHZ		1	With connection cable
Flexible cable tie		1	For securing the cables
Screw		4	To secure the receiver kit
Screw		2	To secure the clamp
Clamp		2	For securing the cables
Installation and operation manual		1	Installation and operation unit instructions.

◆ Installation procedure

⚠CAUTION

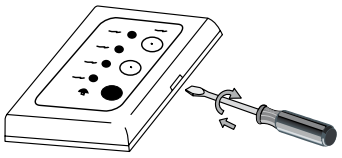
Follow these installation procedures carefully. Failure to do so may cause the receiver to become detached from the panel causing a serious accident.

1 Install the wireless receiver kit and indoor unit at the same time.

2 If installing the wireless receiver kit after the indoor unit, unplug the power source from the indoor unit.

3 Make sure the distance between the wireless receiver kit and indoor unit is less than 5 metres.

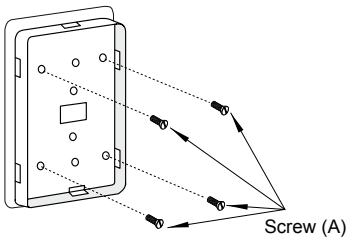
4 Remove the cover using a flat-head screwdriver.



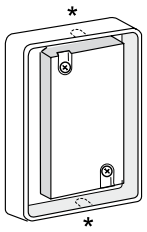
5 Install the wireless receiver kit on the wall or ceiling, as shown below:

◆ In cases where the remote control cable is exposed

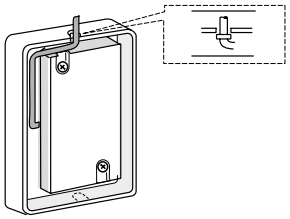
a. Mount the wireless receiver kit fixing bracket with the screws (A) at the 4 positions.



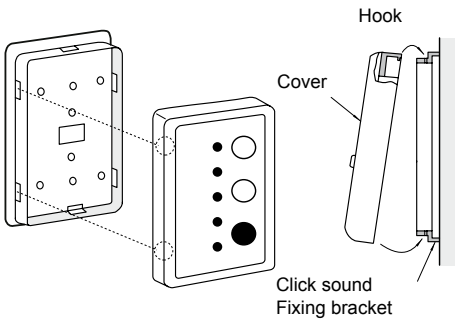
b. Cut one of the pre-drilled holes (*) on the cover.



c. Run the cable through the groove and pull it out through the pre-drilled hole.



d. Fit the cover, making sure not to snag the cable.



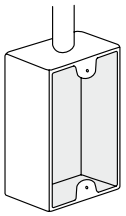
◆ If using an electric control box.

a. There are various types of electrical boxes on the market which can be used for this installation, for example:

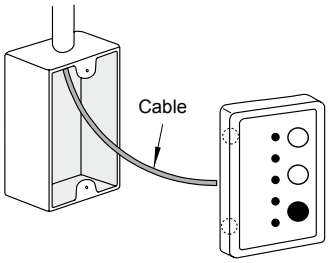
- Electrical box for one remote control unit (without cover.)
- Electrical box for one remote control unit (with cover)
- Output box (with cover)

Also used:

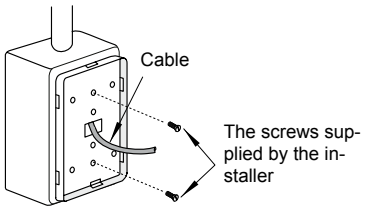
- Rigid metal duct (at least Ø20)
- Screws (M4) (field supply)



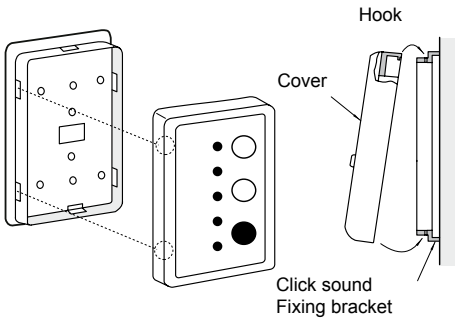
b. Insert the cable into the rigid metal duct.



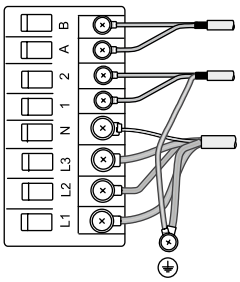
c. Mount the wireless receiver kit fixing bracket using the screws supplied by the installer. The diagram shows a switch box for 1 remote control.



d. Fit the cover, making sure not to snag the cable.



6 Remove the cover from the electrical box of the indoor unit and connect the cable to terminals A and B on the terminal plate.



NOTE

If using the RPK model, connect the cable to the CN13 connector (3P blue) on the PCB of the indoor unit using the cable with connector (factory-supplied with the RPK).

After connecting the cable, tie any excess cable using a cable tie (factory-supplied) and insert in the electrical control box.

4.5.7 Installation of PC-ALHZF Receiver kit (For RCI-FSN3, RCI-FSN3Ek, RPK-FSN(H)3M and RPC-FSN3)

4.5.7.1 Safety summary

⚠ DANGER

- ***DO NOT handle the remote control with wet hands.***
- ***DO NOT spill water on the remote control. This may cause an electric shock.***
- ***If the safety devices are activated too frequently or the buttons do not work properly, turn off the unit at the mains and contact your HITACHI service provider.***
- ***In the event of other incidents of an electrical nature, turn off the system, switch it off at the mains and contact your HITACHI service provider.***

⚠ CAUTION

DO NOT install the indoor unit, outdoor unit, remote control or any wiring in the following locations:

- *Where there are oil vapours and the oil is dispersed.*
- *In the proximity of hot water or heat sources or in sulphuric environments.*
- *In locations prone to the generation, accumulation, leakage or flow of flammable gas.*
- *Close to the sea (saline atmospheres).*
- *In acidic or alkaline environments.*
- *Within the reach of children.*
- *Directly in front of the air-conditioning system outlet.*
- *To avoid electromagnetic compatibility problems, DO NOT install the indoor unit, outdoor unit, remote control or any wiring within 3m of strong sources of electromagnetic radiation (e.g. waves generated by medical equipment). If the system should be installed in a location where electromagnetic waves are produced, protect the remote control and wiring by covering them with the steel casing and passing the cable through the metal duct.*
- *If electrical noise should be generated at the indoor unit power source, install a noise filter.*

⚠ CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle this appliance properly and safely.*
- *Children should be supervised to ensure that they do not play with the appliance.*

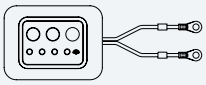
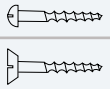
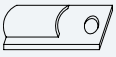
4.5.7.2 Installation

◆ Components list

Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quant.	Comments
Receiver kit PC-ALHZF		1	With connection cable
Flexible cable tie		1	For securing the cables
Screw		4	To secure the receiver kit
Screw		2	To secure the clamp
Clamp		2	For securing the cables
Installation and operation manual		1	Installation and operation unit instructions.

◆ Installation procedure

⚠ DANGER

- ***Turn OFF the power source completely before performing the dip switch setting, installation work and electrical wiring work for receiver kit. If not, it may cause an electric shock.***
- ***Perform securely the installation work referring to this installation manual. If the installation is not completed, it may cause injury by falling down the receiver kit.***
- ***Do not install the receiver kit where the flammable gases may generate or enter. It may cause heat generation or a fire.***
- ***Perform securely the electrical wiring work. If the electrical work is not completed, heat generation at the connection, a fire or an electric shock may occur.***
- ***Make sure that the electrical wires are securely fixed in order not to apply an external force to the terminal connections of the wirings. If fixing is not completed, it may cause heat generation or a fire.***

⚠ CAUTION

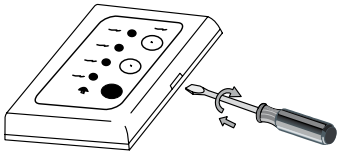
- *When the receiver kit is attached near lighting which generates the ambient light, it may not receive the signal from the wireless remote control. Pay attention to the installation position of receiver kit.*
- *Do not run the wire for receiver kit and wire of 220-240V (power source wire) in parallel. It may cause malfunction of receiver kit by noise.*

1 Install the wireless receiver kit and indoor unit at the same time.

2 If installing the wireless receiver kit after the indoor unit, unplug the power source from the indoor unit.

3 Make sure the distance between the wireless receiver kit and indoor unit is less than 5 metres.

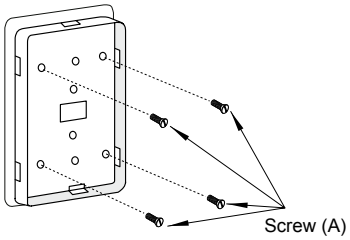
4 Remove the cover using a flat-head screwdriver.



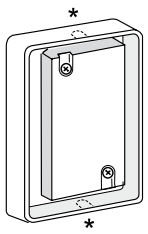
5 Install the wireless receiver kit on the wall or ceiling, as shown below:

◆ In cases where the remote control cable is exposed

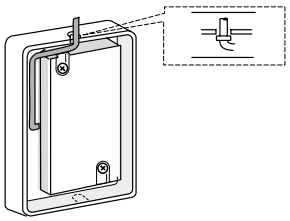
a. Mount the wireless receiver kit fixing bracket with the screws (A) at the 4 positions.



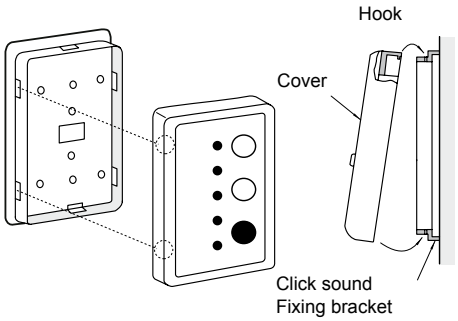
b. Cut one of the pre-drilled holes (*) on the cover.



c. Run the cable through the groove and pull it out through the pre-drilled hole.



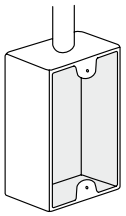
d. Fit the cover, making sure not to snag the cable.



◆ If using an electric control box.

a. There are various types of electrical boxes on the market which can be used for this installation, for example:

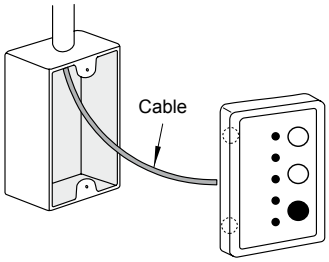
- Electrical box for one remote control unit (without cover.)
- Electrical box for one remote control unit (with cover)
- Output box (with cover)



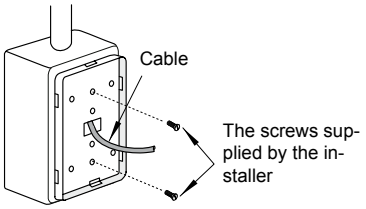
Also used:

- Rigid metal duct (at least Ø20)
- Screws (M4) (field supply)

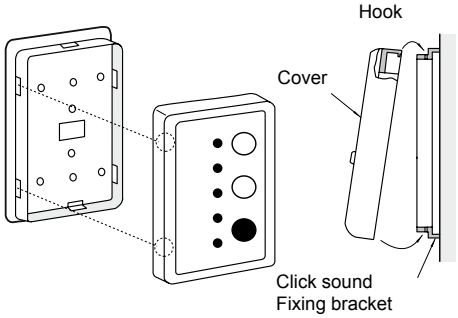
b. Insert the cable into the rigid metal duct.



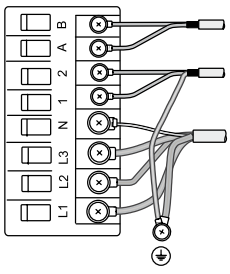
c. Mount the wireless receiver kit fixing bracket using the screws supplied by the installer. The diagram shows a switch box for 1 remote control.



d. Fit the cover, making sure not to snag the cable.



6 Remove the cover from the electrical box of the indoor unit and connect the cable to terminals A and B on the terminal plate.



NOTE

If using the RPK model, connect the cable to the CN13 connector (3P blue) on the PCB of the indoor unit using the cable with connector (factory-supplied with the RPK).

After connecting the cable, tie any excess cable using a cable tie (factory-supplied) and insert in the electrical control box.

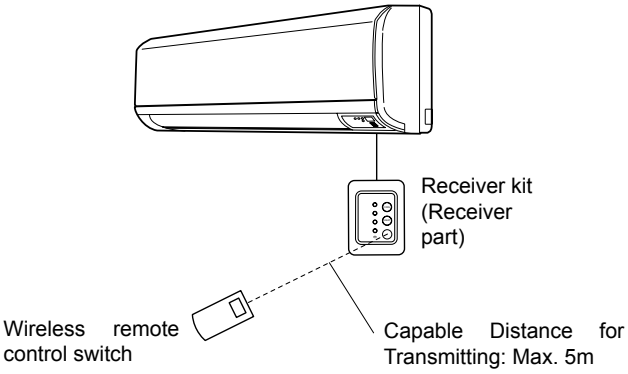
4.5.8 Operation

4.5.8.1 Communication between wireless remote control and receiver kit

◆ Sending commands from wireless remote control

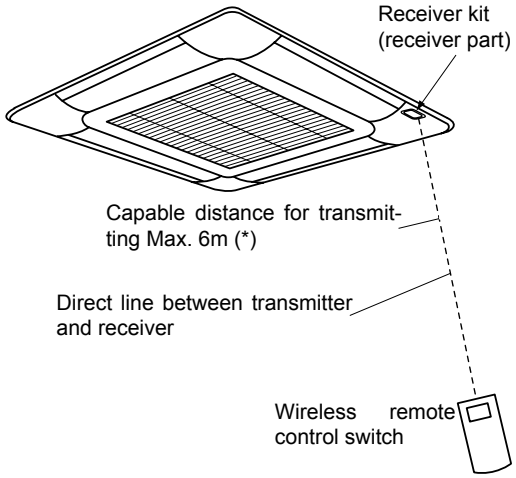
- The operation commands are sent by pressing the required operation switch by facing the transmitter of the wireless remote control switch toward the receiver of the indoor unit.
- When commands are sent from the wireless remote control switch, it should face vertically and be as close as possible to the receiver kit. The capable distance for transmitting will get shorter in case that the transmitting angle is not vertical to the receiver or an electronic type light is used in the room, etc.
- The distance for transmitting will get shorter due to battery consumption. In this case, replace the battery.
- The wireless remote control switch has directivity against the receiver. In case of receivers installed on the panel, the distance for transmitting depends on the ceiling height. Refer to the table below about the distance. The distance may differ depending on the building structure. Control the wireless remote control switch within the distance shown in the table below.

On the wall receiver kit



(The figure shows for the wall type indoor unit (RPK)).

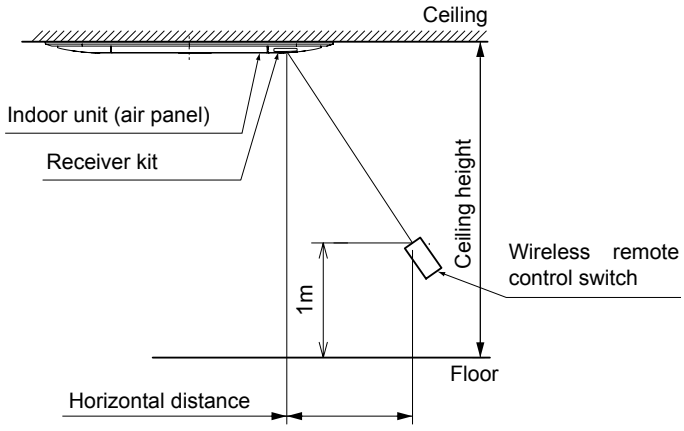
On the panel receiver kit



(The figure shows for the 4-way casette type indoor unit (RPK)).

(*) The distance for transmitting differs depending on the ceiling height. Refer to the table below about the detail.

Horizontal distance limit for receiver kit (in the case that height of wireless remote control from floor is 1 m):



- RCI-FSN3Ei

Height of indoor unit (m)	2.7	3.0	3.5	4.0	4.5	5.0
Horizontal distance (m)	2.9	3.5	4.0	4.5	4.5	4.5

- RCIM-FSN3

Height of indoor unit (m)	2.7	3.0	3.5	4.0
Horizontal distance (m)	2.9	3.5	4.0	4.5

- RCD-FSN2

Height of indoor unit (m)	2.5	3.0	3.5	3.8
Horizontal distance (m)	2.5	3.5	4.0	4.0

- RCI-FSN3 and RCI-FSN3Ek

Height of indoor unit (m)	2.7	3.0	3.5	4.0	4.5	5.0
Horizontal distance (m)	2.9	3.5	4.0	4.5	4.5	4.5

- RPC-FSN3

Height of indoor unit (m)	2.5	3.0	3.5	3.8
Horizontal distance (m)	2.5	3.5	4.0	4.0

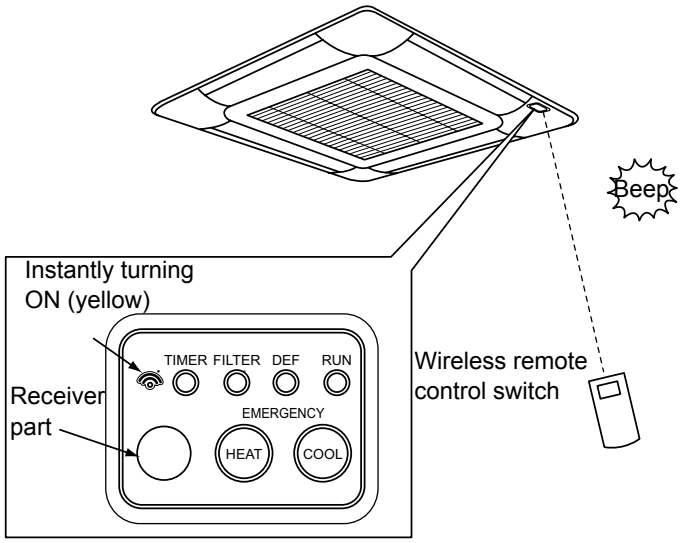
◆ Receipt Confirmation of Receiver Kit

The " " lamp (yellow) on the receiver part of the indoor unit is turned ON for an instant when the receiver kit receives the commands from the wireless remote control switch. In the case that the " " lamp (yellow) is not turned ON, the controls may not have reached the receiver. Send the commands again.

NOTE

- *The " " lamp (yellow) is turned ON with the beep sound for receipt confirmation.*
- *The beep sound may not be heard by surrounding noise.*

Example:



4.5.8.2 Indication of receiver kit

◆ In normal condition

Defrost

- Defrost operation: DEF indicator (green) is turned ON during the defrosting. The indoor fan is stopped. The louver is fixed at the horizontal position. However, the louver indication of LCD continues to activate.
- Operation stoppage during defrosting operation: The RUN indicator (red) is turned OFF when the operation is stopped during the defrosting. However, the operation continues with turning ON DEF indicator (green), and the unit is stopped after the defrost operation is finished.

Filter sign

The cleaning period for air filter is notified by turning ON the FILTER indicator (yellow).

(The detail of cleaning method and filter cleaning time should be referred to the installation and operation manual of the indoor unit.)

After cleaning, point the transmitter towards the receiver kit and press “RESET” switch to turn OFF the FILTER indicator.

Central Control

When “ ” lamp (yellow) remains turning ON, the indoor unit is under the centralized control. In this case, “RESET” and “RUN/STOP” switches are only available to control from the wireless remote control switch.

Periodic check (only for gas heat pump air conditioner)

For the gas heat pump air conditioning, the periodic check is required because the engine is equipped.

If the indication lamp flashes in follows, the periodic check shall be performed.

Contact your distributor or contractor to request the maintenance.

- When the FILTER indicator (yellow) and the TIMER indicator (green) flash slowly (2 seconds ON/ 2 seconds OFF cycle), it is notified that the periodic check for outdoor unit is nearby.
- When the FILTER indicator (yellow) and the TIMER indicator (green) flash quickly (0.5 seconds ON/ 0.5 seconds OFF cycle), it is notified that the periodic check time for outdoor unit is passed. Contact beforehand your distributor or contractor to request the maintenance.

◆ In abnormal condition

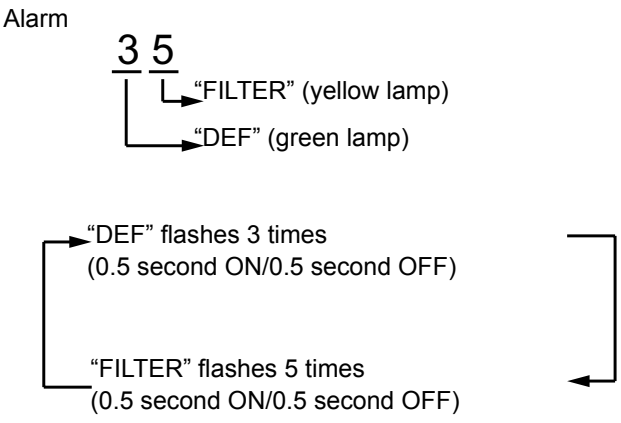
Abnormality

- When some troubles occur such as safety device actuation, etc. during the test run or the normal operation, “RUN” (red lamp) flashes (0.5 second ON / 0.5 second OFF).
- The alarm codes are indicated by the flashing times of “DEF” (green lamp) and “FILTER” (yellow lamp).

“DEF” (green): The number of flashing is shown at the tens digit of alarm code.

“FILTER” (yellow): The number of flashing is shown at the units digit of alarm code.

Example



These indications are repeated until the alarm is reset.

Power failure

- All the indications are OFF.
- Once the unit is stopped by the power failure, the unit will not be started again although the power recovers. Perform the starting procedures again.
- In case of instantaneous power failure within 2 seconds, the unit will be started again automatically.

Electric noise

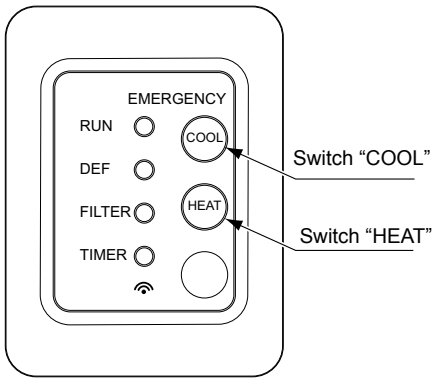
There could be a case that all the indications are OFF and the unit is stopped. This is occurred by the activation of the micro computer for the unit protection from the electric noise.

Perform the starting procedures again.

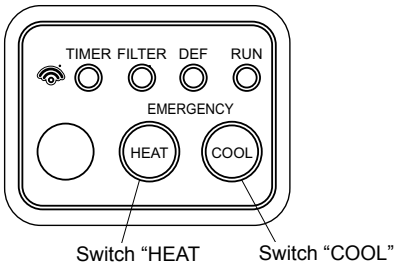
4.5.8.3 Emergency operation

"COOL" and "HEAT" switches are used for emergency operation when the wireless remote control (PC-LH3(A/B)) is unusable by batteries shortage, etc.

On the wall receiver kit



On the panel receiver kit



1 Switch "COOL":
- Press "COOL" so that the cooling operation is started.
- Press "COOL" again so that the cooling operation is stopped.

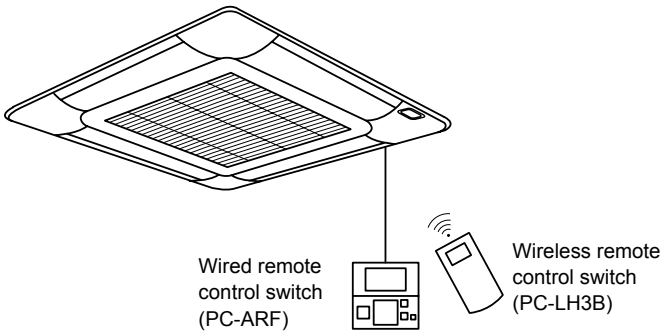
2 Switch "HEAT":
- Press "HEAT" so that the heating operation is started.
- Press "HEAT" again so that the heating operation is stopped.

NOTE

- *The setting temperature and the fan speed for cooling/heating operation are the same as before starting emergency operation.*
- *During the emergency operation, "((•))" lamp (yellow) flashes (0.5 second ON / 0.5 second OFF).*

4.5.8.4 Operation with wired remote control

The indoor unit can also be operated with a wired remote control in addition of the installed receiver kit for wireless use. Contact your dealer for more details.



4.5.9 Optional functions

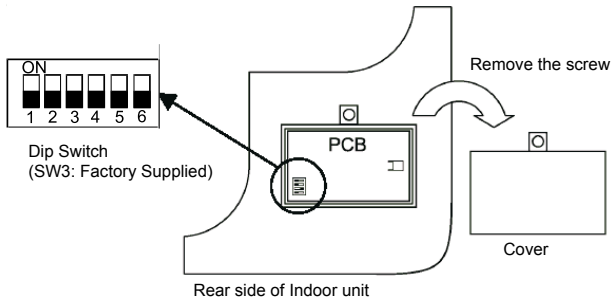
DANGER

Turn OFF the power source completely before performing the dip switch setting for receiver kit. If not, it may cause an electric shock.

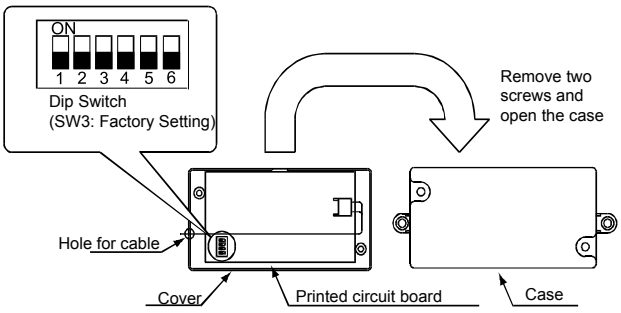
◆ DIP switch for optional functions (SW3)

Open the cover by removing the two screws in order to access the following functions.

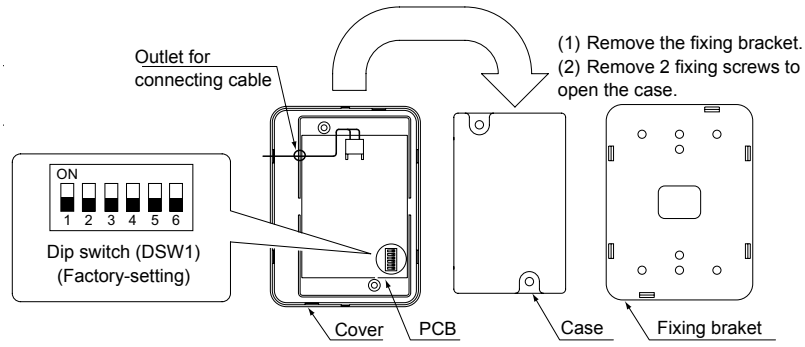
PC-ALH(N) and PC-ALHC

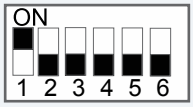


PC-ALHD



PC-ALHZ

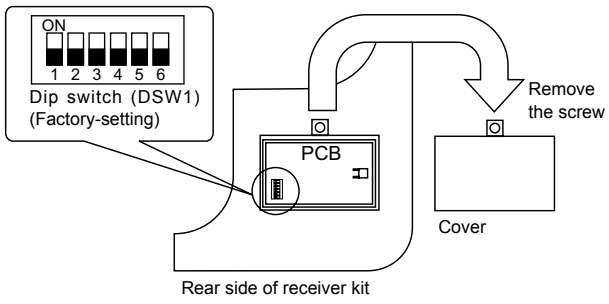


Operational function	DIP switch adjustment	Details
Secondary receiver adjustment.		Change the Main (OFF setting) / Sub (ON setting) remote control switch used for two remote control system.
Identifying of indoor units		In case of ON setting, it performs as B mode (Identifying of indoor unit) of wireless remote control switch.

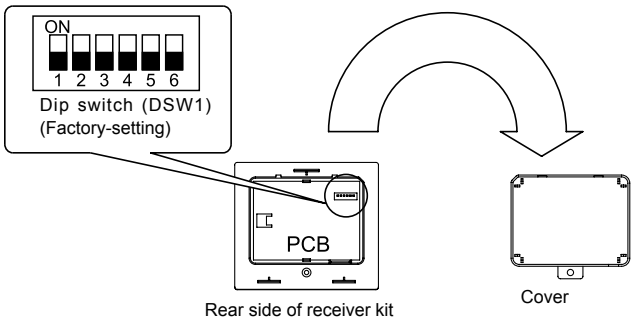
◆ DIP switch for optional functions (DSW1)

Open the cover by removing the two screws in order to access the following functions.

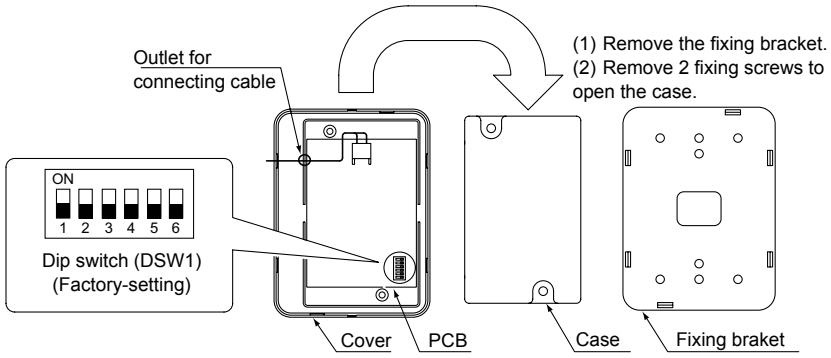
PC-ALH3

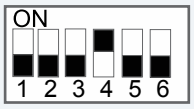


PC-ALHP1



PC-ALHZF



Operational function	DIP switch adjustment	Details
Secondary receiver adjustment.		Change the Main (OFF setting) / Sub (ON setting) remote control switch used for two remote control system.
Identifying of indoor units		In case of ON setting, it performs as B mode (Identifying of indoor unit) of wireless remote control switch.
Invalidity of Emergency Operation		The switches for emergency operation are invalid.

⚠ CAUTION

Pay attention to the following settings when the function for receiver kit is selected from the remote control switch or the centralized controller.

- *The cooling lower limit for setting temperature and the heating upper limit for setting temperature are not available. The setting is available beyond the upper and lower limit for setting temperature from the wireless remote control switch.*
- *The optional function setting "Fixing of Setting Temperature" is not available. When the operation mode is changed from the wireless remote control switch, the indicated temperature on the remote control switch becomes set temperature.*

4.5.10 Troubleshooting

◆ This is not abnormal

Refer to the operation manual of the indoor unit together.

Phenomenon		Cause and action
Stopped operation	All indication lamps on the receiver kit are turned OFF.	The micro-computer is activated to protect the device from electromagnetic waves. The operation can be recovered if it is started from the beginning.
	Power failure occurs.	Start the operation from the beginning.

◆ Before contact

Check the items before contacting a contractor.

Refer to the operation manual of the indoor unit together.

Trouble	Checking point	Action
Not Operated	Is the transmitter of wireless remote control switch pointed towards the receiver kit?	Point the transmitter towards the receiver kit.
	Is the receiver surface covered by dust?	Wipe the receiver part by soft, dry cloth.

5. Centralised remote controls

Index

5.1 PSC-A64GT

5.1.1 Safety summary

HITACHI can not anticipate every possible circumstance that might involve a potential hazard.

⚠ DANGER

- ***DO NOT pour water into the central station (hereafter called "controller"). This product is equipped with electrical parts. If water is poured, it will cause a serious electrical shock.***
- ***Prior to the installation work, ensure that foundation is flat, level and sufficiently strong and then fix the unit securely. If the foundation is not strong enough, it may lead to injuries caused by falling of the product, electrical shock or fire.***
- ***DO NOT install the unit in a place where generation, flow, accumulation or leakage of flammable gas is detected.***
- ***DO NOT perform installation work and electrical wiring connection by yourself. Contact your distributor or dealer of HITACHI and ask them for installation work and electrical wiring by a trained service person.***
- ***Perform electrical work according to the Installation Manual and all relevant regulation and standards. If the instructions are not followed, electrical shock and fire may occur due to insufficient capacity and inadequate performance.***
- ***Use the specified cables for connection between indoor unit and central station. Selecting incorrect cables may lead to fire or electrical shock.***
- ***As for the electrical wiring work and check, turn OFF the main power supply before opening/closing the service cover of the indoor unit. If the service cover is opened with main power supply left on, electrical shock may occur.***
- ***Turn OFF the main power supply when opening the case for checking or maintenance. If only the switch is turned OFF but not the power supply, the power terminal part or the power switch part will stay activated and may cause an electrical shock. When performing wiring work, make sure to turn OFF the power supply as well.***
- ***When performing local wiring work, check whether the local wiring has been gnawed by animals like mice or small rodents. Gnawed wiring could cause a fire.***

⚠ CAUTION

- *DO NOT install the indoor unit, outdoor unit, central station and cable in the following places:*
  - Where oil vapour or oil is dispersed (It may cause a fire, deformation, corrosion or failure.)
  - In the vicinity of hot springs (in a sulphuric environment)
  - In the vicinity of the sea (in a salty environment, which may cause corrosion.)
  - In an acid or alkaline environment
  - At the reach of children
  - Under direct blow of discharge air from the unit
  - In places with humid atmosphere
  - In places where the unit may get wet
  - In poorly ventilated places
- *DO NOT install the indoor unit, outdoor unit, central station and cable within approximately 3 metres from strong electromagnetic wave radiators such as a radio.*
- *In case that the central station is installed in a place where electromagnetic wave radiation is generated, shield the central station and cables by covering the unit with a steel box and running the cable through a metal conduit tube.*

⚠ CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle this appliance properly and safely.*
- *Children should be supervised to ensure that they do not play with the appliance.*

5.1.2 Installation

5.1.2.1 Installation site selection

Select a suitable place for handling and determine the installation place of the central station with the customer's acceptance.

Do not install the central station at such places as:

- Where children can touch.
- Where the air from the air conditioner is directly discharged.

Before installing a controller, prepare the following items.

Parts	Specification
Switch Box	JIS Switch Box for 4 Switches (with cover) (JIS C8340)
Power Supply Cable	Cable SPEC: 1.25 to 2mm^2 Recommended Cable: 600V CV, CCV, CEV
H-LINK Cable (For Control)	Cable SPEC: 0.75 to 1.25mm^2 Recommended Cable: Twist Pair Cable with Shield, Over 0.75mm^2 (Equivalent to KPEV-S)

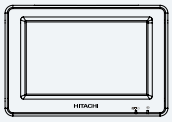
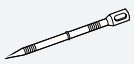
* The recommended cables are the model name of Hitachi Cables, Ltd.

5.1.2.2 Components list

Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quantity	Comments
Central station PSC-A64GT		1	For controlling system operation
M4x16L screws		4	For fixing the central station
Touch pen		2	For activating/deactivating the touch options on the screen.
Touch pen holder		1	For holding the touch pen on the central station
Installation and operation manual		1	Installation and operation unit instructions.

5.1.2.3 Description of the parts

❶ **Colour LCD Display with Touchscreen**

To operate and monitor the units through the touchscreen display. It is operated by using the touch pen (accessory). The touchscreen display will be automatically turned off when the touchscreen is not operated for the given length of time.

❷ **Touch Pen**

To operate the touchscreen of the central station.

❸ **Operation Indicator**

To indicate the Run/Stop condition of the units

OFF: All the units are stopped.

ON (Green): One or more units are in operation.

Flashing (Red): In abnormal condition.

❹ **Power Indicator**

To indicate the power condition of the central station

OFF (lamp): Power is turned OFF

ON (lamp): Power is turned ON

❺ Fixing holes for Touch Pen holder

❻ **TB2**
Terminals for connecting H-LINK control wiring (Non-pole)

❼ **TB3**
Terminals for external input/output
1-2: External input 1
2-3: External input 2
4-5: External output 1
5-6: External output 2

❽ **TB1**
Terminals for connecting the power cable

❾ **Power switch to turn OFF power supply**
Use this switch to avoid an electrical shock when unit body is opened

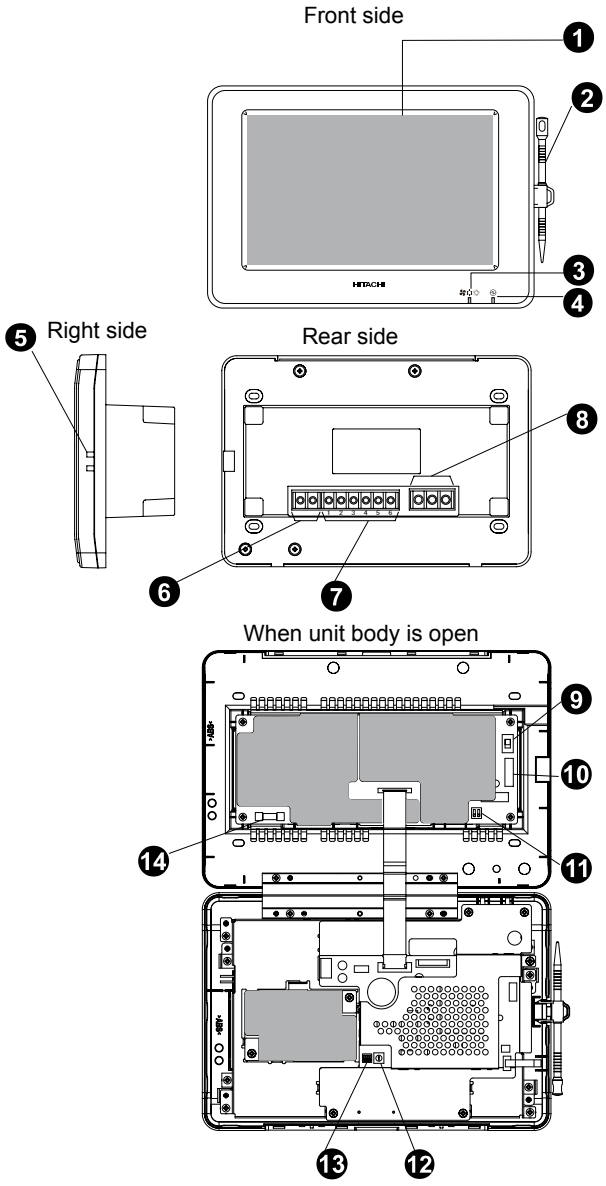
❿ **Fuse for H-LINK Transmission Line**
For protection of H-LINK transmission line

⓫ **DSW2**
For terminating resistance. It is used for transmission line recovery

⓬ **Rotatory Switch for Address Setting**
For address setting of controller

⓭ **DSW1**
For optional function setting

⓮ **Fuse for Power supply**
For protection of power circuit



Model: PSC-A64GT

NOTE

Remove the protection sheet on the LCD (liquid crystal display) before using this product.

DANGER

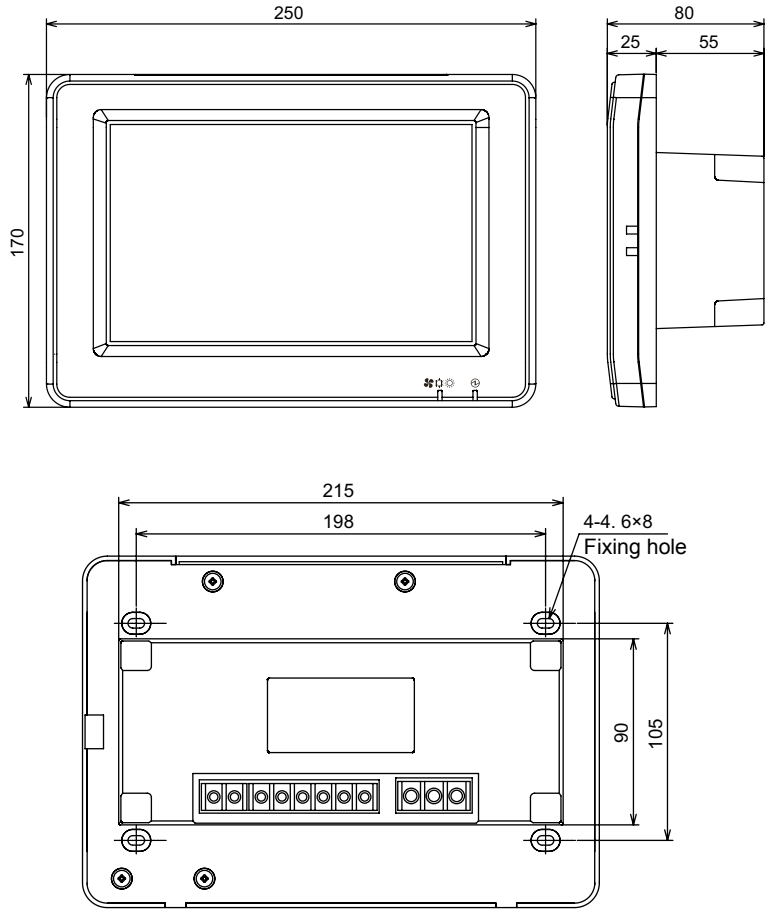
DO NOT remove the covers of parts marked with "[redacted]" for safety. If these covers are removed, contact with the inside components may cause a serious electrical shock.

5.1.2.4 General data

Model	PSC-A32MN
Outer Dimension <W x H x D + (Built-in Part)>	250 × 170 × 25 + 55 (mm)
Net Weight	1.5 kg (approx.)
Installation Location	Indoor
Installation Method	Wall built-in with JIS switch box for 2 switches (with cover) (JIS C 8340)
Connected Indoor Units (Quantity)	160 (Max.)
Clock Accuracy	± 70 seconds/month (at normal temperature)
Ambient Temperature	5 ~ 35°C
Ambient Humidity	35 ~ 90% (No dew condensation)
Display	8.5” TFT Color Liquid Crystal Display (800 x 480 dots)
Rated Power Supply	1ϕ, AC 100~240V, 50/60Hz
Electrical Power Consumption	30W (Max.)

5.1.2.5 Dimensional data

(Unit: mm)



5.1.2.6 Installation space

Keep the installation space for the central station as shown in the figure.

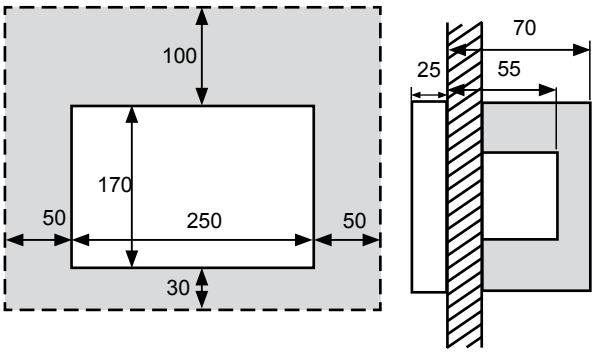
When installing more than 2 central stations in row or in line, keep the space between each.

* Vertical Direction: 100 mm

* Horizontal Direction: 50 mm

Do not attach anything in the halftone screen area "".

(Unit: mm)



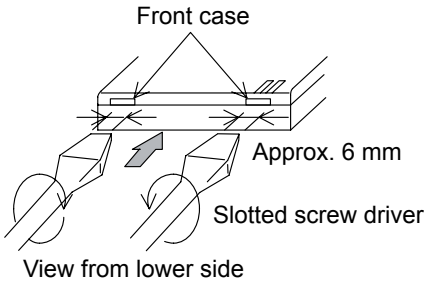
5.1.2.7 Installation procedure

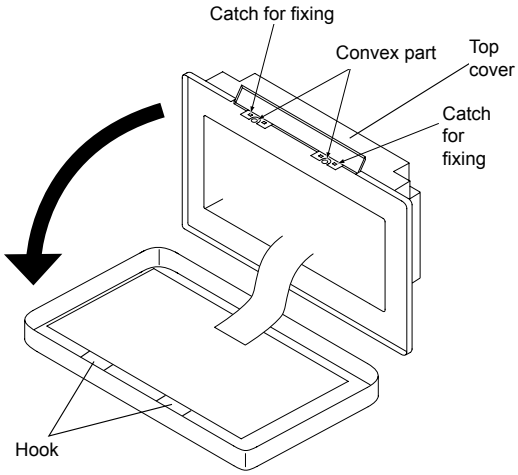
1 Install the switch box into the wall. (Field-supplied: JIS Switch Box for 4 Switches (with cover) (JIS C8340).

2 Open the unit body. (The unit body is opened when the factory shipping). If the unit body is closed, open it as shown below.

a. Open the top cover of unit body.

b. While pressing the convex part (2 portions), pull the top case and it is opened because the catches for fixing are removed.



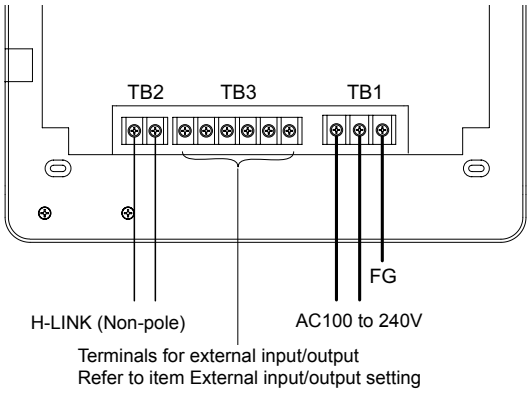


3 Connect the wiring to the terminal board of the central station.

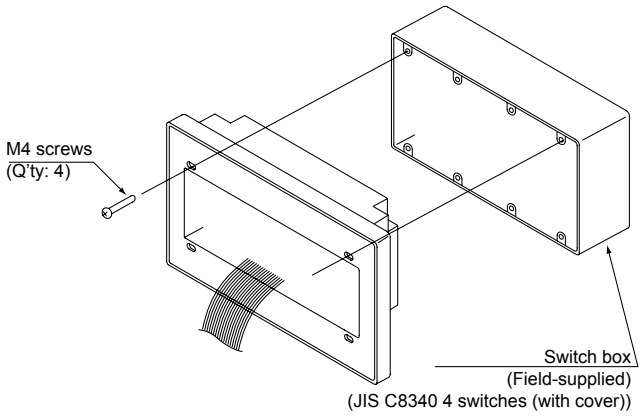
TB1: Terminal Board for Power Supply

TB2: Terminal Board for H-LINK

TB3: Terminal Board for External Input and Output



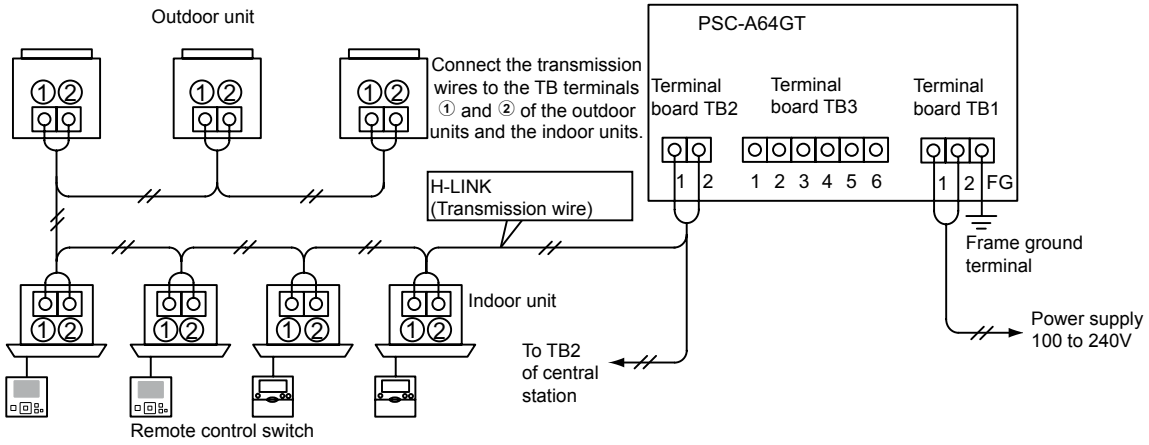
4 Fix the switch box (Field-supplied: JIS Switch Box for 4 Switches (with cover) (JIS C8340) by accessory fixing screw (M4 x 16 mm).



5.1.3 Electrical wiring

◆ Electrical wiring connection

The central station requires wiring work for the power supply, air conditioner and control wiring (H-LINK) cables.



Type of wiring	Specification	Length of wiring	Cable specification	Recommended cable model
Power supply cable	AC100~240V	-	1.25 to 2.0 mm2	600V CV, CCV, CEV (Hitachi Cable)
Earth wiring				
H-LINK (Control Wire)	DC5V	≤1000m	0.75 to 1.25 mm2	Twist pair cable with shield > 0.75 mm2 (Equivalent to KPEV-S)
Wiring for external input and output	Input: Non-voltage normal open Output: DC12V, ≤75mA	≤70m	0.75 to 1.25 mm2	JKPEV-S, JKEV-S, CVV-S, CVV, 600V VCT (Hitachi Cable)

NOTE

- *The central station may be damaged because of incorrect wiring.*
- *Transmission wires shall be separated from the power supply wiring and other electrical device wiring. Keep a separation of at least 30 cm between transmission wiring and the power supply wiring. If it is not possible to secure this space, then route the power supply wiring and transmission wiring through separate metal conduit tubes. One end of the metal conduit tubes shall be earthed for noise reduction.*
- *Do not connect the power supply wiring to the terminals for transmission of central station. However, if the power supply wires are connected incorrectly, the fuse of the printed circuit board will blow out for protection. In such a case, turn ON pin 2 of DSW2 on the printed circuit board to allow emergency operation without the fuse.*
- *Always remove the earth wiring of "FG" terminal when performing insulation capacity test or withstand voltage test. Failure to do so may result in damage to the central station.*
- *Remove the earth wiring of "FG" terminal securely when the insulating capacity test or the withstand voltage test is performed. If the above is not secured, it may cause of breaking down of the central station.*

Main breaker switch

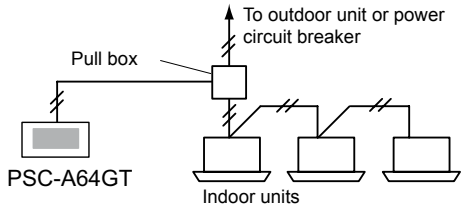
Model	Supply voltage	Maximum current (A)	ELB(1)		CB(2)
			Rated current (A)	Sensitivity (mA)	Rated current (A)
PC-A64GT	1~ 230V 50 Hz	5	40	30	5

(1) ELB: earth leakage breaker (field-supplied)

(2) CB: circuit breaker (field-supplied)

⚠ CAUTION

When using an AC200V to 240V power supply.



- *In case of using a 200V~240V power supply, diverge the main power supply cables by using a pull box as shown in the figure.*
- *The electricity supply to the unit should be via an exclusive power control switch and protective circuit breaker, certified and installed in accordance with local or national safety regulations.*
- *Use an earth leakage breaker with medium sensitivity, and an activation speed of 0.1 or less. If this is not fitted, there is a risk of electric shock and/or fire.*
- *Install an earth leakage breaker, fuse and circuit breaker for each outdoor unit power line. Not fitting it may cause an electric shock or fire.*

⚠ DANGER

- *Turn OFF the main power switch for the indoor units, outdoor units, and central stations before the electrical wiring work is performed. If not, it may cause a fire, electrical shock or device breaking down.*
- *Do not use cables that are lighter than the normal flexible coated polychloroprene cable (code H05RN-F).*

◆ DIP switch adjustment

The list for switch settings of central stations is shown in the following table.

1 Apply switch settings as appropriate.

Switch	Switch No.	Usage	Factory Setting	Remarks
RSW1 (Rotary Switch 16-poles)	-	For address setting of central station	0	When using multiple units of the central stations. (*)
DSW1 (Dip Switch 4-poles)	1	ON: Setting for Non-H-LINK II OFF: Setting for H-LINK II	OFF	Refer to the chart in the next page.
	2	OFF (Fixed)	OFF	Not Used
	3	OFF (Fixed)	OFF	Not Used
	4	OFF (Fixed)	OFF	Not Used
DSW2 (Dip Switch 2-poles)	1	ON: Terminating Resistance Enable OFF: Terminating Resistance Disable	OFF	Make sure no other terminating resistance exists on the same H-LINK when enabling the terminating resistance from the central station.
	2	ON: Protection Fuse for H-LINK ... Disable (Short-circuited) OFF: Protection Fuse for H-LINK ... Enable (Normal)	OFF	
SW1	-	ON: Turn ON Central Station OFF: Turn OFF Central Station	ON	

NOTE

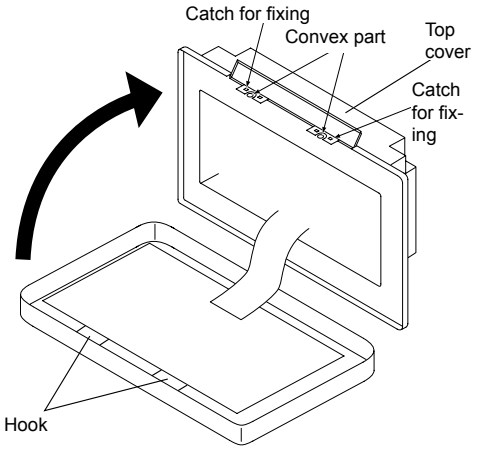
- *Turn OFF the power supply when setting the dip switches and rotary switch. Do not touch directly the printed circuit board and metal part to avoid the central station malfunction.*
- *The central station is reconnected to H-LINK/H-LINK II automatically when change the setting of H-LINK or H-LINK II.*
- *When same central station are connected to H-LINK with incorrect DIP switch setting, then "63" alarm will be indicated in the central station. In this case, turn OFF the power supply for all central control devices, and check the dip switch settings of each central control device. After that, restart central control devices.*
- *(*): When using several central stations at the same time, set the values of each "RSW1" not to overlap.*

DSW1 setting

		Name	Model	DSW1	DSW2	DSW3	DSW4
Combination of PSC-A64GT with other central controllers	Other central controllers	Central Station EZ	PSC-A64GT	OFF	OFF	OFF	OFF
		Central Station mini	PSC-A32MN	OFF	OFF	OFF	OFF
		Central Station	PSC-A64S	OFF	OFF	OFF	OFF
		Centralised ON/OFF Controller	PSC-A16RS	OFF	OFF	OFF	OFF
		BMS Gateways	HC-A(8/64)MB	Not compatible			
			HC-A16KNX	Not compatible			
			KNX001	Not compatible			
			HARC-BX E (A/B)	Not compatible			
		CSNET	CSNET Manager LT	Not compatible			
			CSNET Manager XT	Not compatible			
			CSNET WEB (1)	OFF	OFF	OFF	OFF
Without other central controllers				OFF	OFF	OFF	OFF

(1)Check compatibility limitations in CSNET WEB section.

2 Close the unit case until hearing a snapping sound, and make sure that the front and rear parts of the case close fully. At this time, check that connection bands are not trapped between the front and the rear parts of the case.

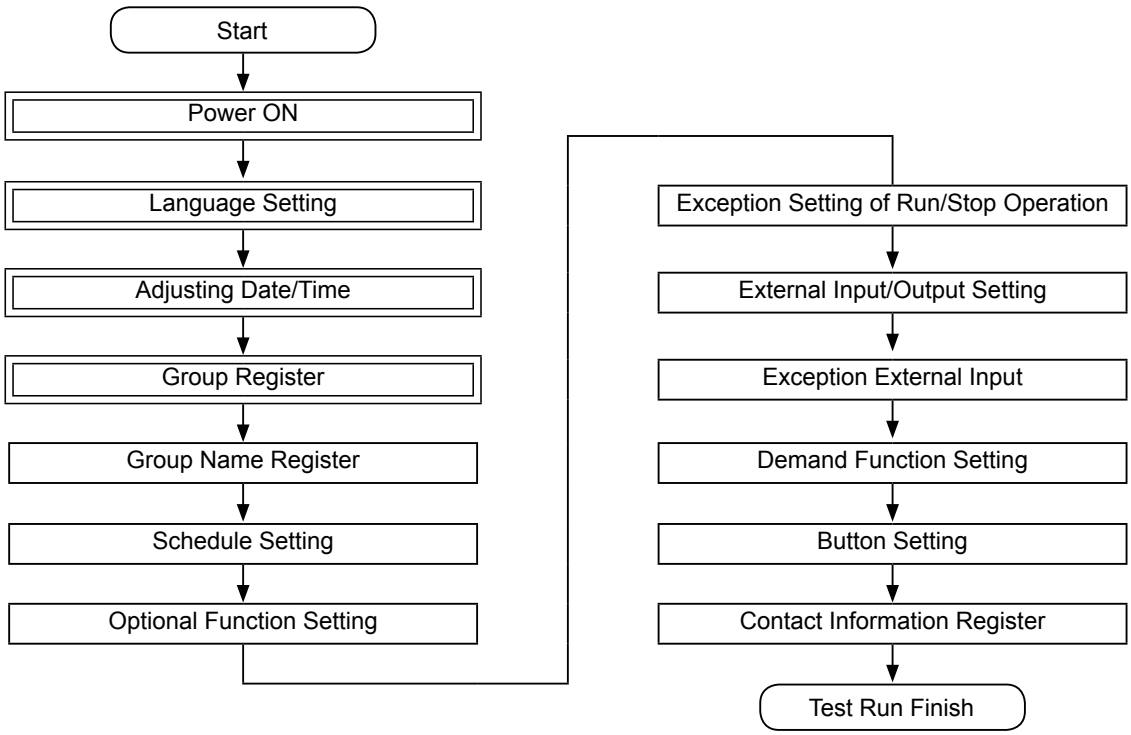


5.1.4 Operation

5.1.4.1 Test run

The outline of the test run procedure is indicated as shown in the figure. The items marked with the thick frame (▭) are required items.

The rest of items, which are not specifically required for the test run procedure but they are optional, are explained in its specific section.



List of items

Item	Function
Language Setting	This function is used for language selection.
Adjusting Date/Time	This function is used for adjusting the date and time.
Group Register	The connected indoor units are checked by the central station in the same H-LINK. This function is used for the group or block registration of them.
Main Unit Register	This function is used for the main unit registration in the each remote control group. (The main unit is the only one per one remote control group.) The control command is sent from the central station to the main unit for the remote control group.
Sub Unit Register	This function is used for registration of the sub units except the main unit in the same remote control group. In the case of using the remote control switches or the receiver kits as follows, the sub units are registered automatically by the central station after the main unit registration. • The remote control switches and the receiver kits which model names start from PC-A**. • The remote control switches which model names start from PC-P**.
Group Name Register	This function is used for registering name of the block and group. The registrable number of letters are maximum 20 letters for the name of each block or group. It is also available to copy the name. If the group/block is registered without name, it will be registered as “Group 1” or “Block 1” automatically.
Schedule Setting	This function is used for scheduled timer operation which is possible to set by each group or block.
Schedule Timer Setting	This function is used for setting the time (by the minute), “Run/Stop” and temperature (19~30 ºC). For weekly schedule setting, up to 10 schedule items can be set per day. It is also available to copy the setting contents.
Holiday Setting	This function is used for suspending the schedule operation temporarily. The schedule operation will not be available when this function is set. This function is used for setting irregular holidays such as national holidays.
Schedule Timer ON/OFF Setting	“Schedule Timer OFF Setting” is used for suspending the schedule operation for the target group. The schedule operation will not be available when Schedule Timer is OFF. This function is used for a long holiday, sudden holidays, national holidays, etc.
Optional Function Setting	This function is used for setting and changing of the function for air conditioners and central stations.
Exception Setting of Run/Stop Operation	This function is used to specify exceptional Groups/Blocks for “All Run/Stop” command. The “All Run/Stop” command will not be affected to the specified group/block.
Selecting of Exception Operation	This function is used to select which of the followings will be excepted. • Run • Stop • Run and Stop
Selecting of Exception Groups	This function is used to select “All Run/Stop” command of which of the following items will be excepted. • All Groups Run/Stop • Run/Stop by Block • All Groups Setting • Setting by Block
External Input/Output Setting	Two external input terminals and two (2) external output terminals are equipped in the central station. These terminals are used for “All Groups Run/Stop” and “Demand Function” operations for the connected air conditioners. The external output terminals are used for the operation signal output or alarm signal output of the air conditioners which is connected to the central station.
Exception External Input	This function is used for cancelling the operation commands such as “All Groups Run/Stop”, etc. by the external input signal. “Exception External Input” is available for each external input (Input 1 and Input 2).
Selecting Groups of Exception External Input 1	This function is used for selecting the group to cancel of operation command from the external input 1.
Selecting Groups of Exception External Input 2	This function is used for selecting the group to cancel of operation command from the external input 2.
Demand Function Setting	This function is used for setting of “Demand Function” to the terminal of “Input 1”. The operating condition is changed by the demand signal such as the operation stop, Thermo-OFF, etc. “Demand Function” is available under the following conditions. **1** Select “Demand Function” at “Input 1” on the “External Input/Output Setting” screen. (“Demand Function” will not be available without this setting.) **2** Select one of “Demand Function” No.1 to No.4 at “Demand Function Setting” screen.

Item		Function
	Demand Function Setting	This function is to select the action at “Demand Function” control.
	Selecting Group for Demand Function	This function is to select the target group for “Demand Function” control.
Button Setting		This function specifies each button to be shown/hidden. This function also includes specification/setting for “one-tap operation” or “press and hold” operation.
Contact Information Register		This function is used for editing the contents of contact information registration.
Restore Setting		This function is used for restoring all the settings such as registered Groups (Blocks) and schedules.
Checking Connection		This function is used for checking of the connected indoor unit numbers in the same H-LINK. When this function is used, the confirmation for the keeping of registered information such as the group names, schedules, etc. will be indicated. If “OK” is tapped, the connected indoor unit numbers are updated with keeping the registered information. If “Cancel” is tapped, the setting of the central station is all restored.
Alarm History		This function is used for displaying the list of alarm history that occurred in the air conditioner and the controller. (Maximum 100 records)

◆ Initial Power on Setting

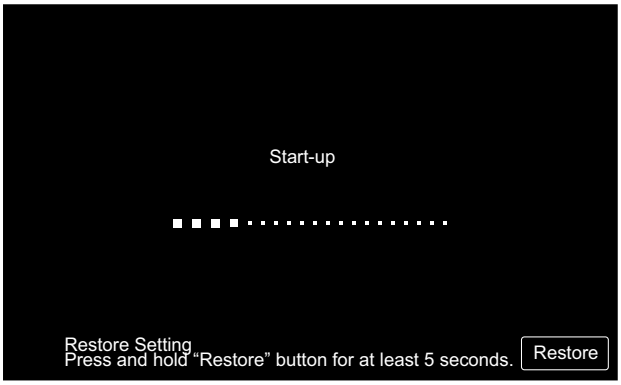
Turn on the power supply of the air conditioners.

To protect the compressor, the power supply should be turned on 12 hours before starting operation. Do not turn the power supply off during air conditioning seasons.

Perform a test run of each air conditioner first to ensure normal operation.

Turn on the power supply of the central station.

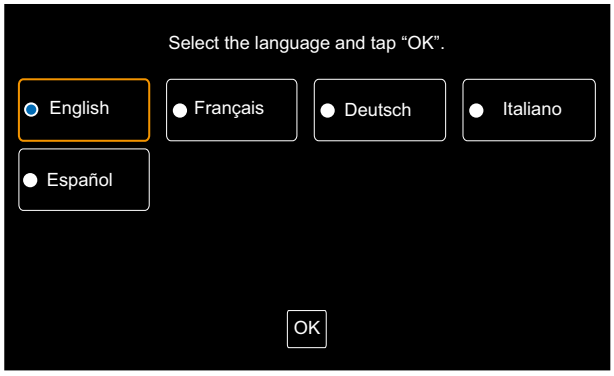
“Start-up” is displayed for a while during the boot process, after which the screen changes to “Monitor 1 (All Groups)”.



◆ Language Setting

When turning the power supply ON for the first time, the language setting screen is displayed after a few minutes.

Select the using language for operation and tap “OK”.



◆ Adjusting Date/Time

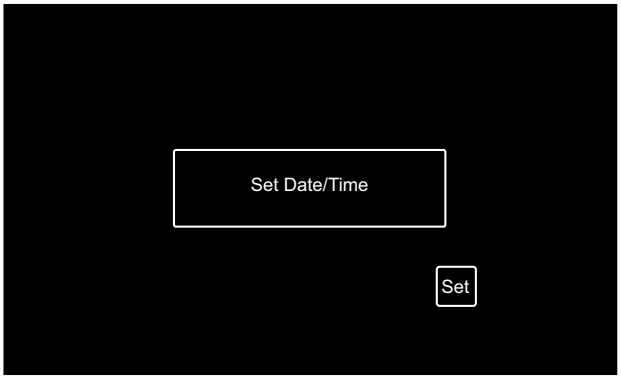
After setting the language, the screen for adjusting date and time screen is displayed on the touchscreen as shown in the figure.

Tap “Set” on the touchscreen display, and set the date and time following the indicated procedure.

Refer to the Adjusting Date/Time section in the Menu chapter for detailed information.

NOTE

Setting the date and time may be required after a prolonged power failure. If “Set Date/Time” is displayed on the screen in such a case, then tap “Set” to adjust the date and time.



◆ Group Register

Register the connected indoor units to the groups and blocks of the central station.

Tap “Set” on the touchscreen and the setting screen is displayed. (When the power supply is turned ON at the first time.)

The registrable number of letters is maximum 20 for the name of the group (block).

Definitions

- Group (Remote Control Switch Group):

The minimum operation unit controlled by one central station. 1 remote control group is considered as 1 group, and the same setting is applied to the entire group. A maximum of 64 groups (organized as 4 blocks with 16 groups each) can be controlled with one central station.

- Block:

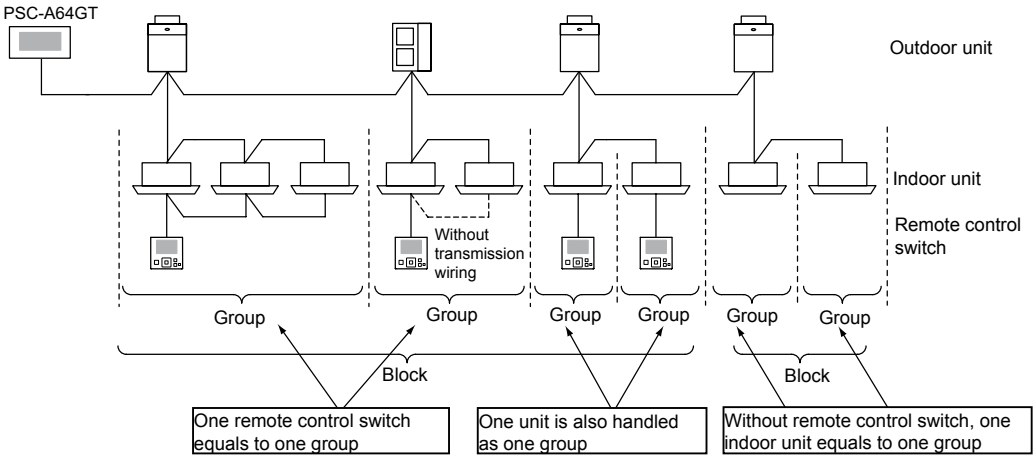
An operation unit composed of several groups. Maximum of 16 groups can be registered within one block. Maximum of 4 blocks can be controlled by one central station.

- Main Unit:

The representative unit of the remote control group. The central station transmits control orders to this representative unit.

- Sub Unit:

Indoor units other than the main unit of the remote control group.



Main Unit Registration

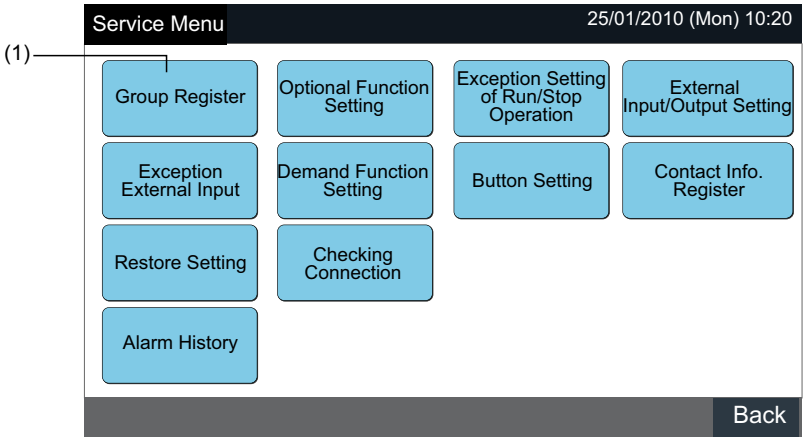
- Only one unit can be registered as the main unit of a group. Thus, duplicate registration of the main unit is not possible inside a group. If the unit registered as the main unit has to be changed for some reason, then cancel the current register of main unit before registering the new main unit again.
- When mixing indoor units with automatic swing louvre and indoor units with automatic swing louvre together in the same remote control group, an indoor unit with auto-louvre shall be registered as the main unit of the group. If an indoor unit without auto-louvre is registered as the main unit, then the auto-louvre setting cannot be applied for the entire group.
- When registering a group which has no transmission wiring, the indoor unit without a remote control switch cannot be registered as the main unit.

Sub Unit Registration

- A maximum of 15 sub units can be registered in the same remote group with the main unit (when applying the control pattern of 2 blocks with 16 groups each).
- In case of changing the registration of an indoor unit which is already registered as a sub unit, cancel the register settings first, and then proceed to the new register.
- If tap “Enter” at the name registration, the name of the group or the block will be indicated in the two lines. 10 letters can be input in each line. (Total 20 letters)

Registration of a group (Main unit)

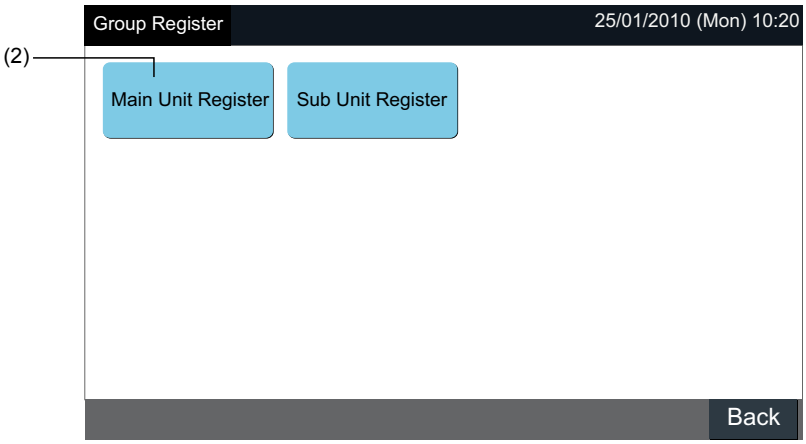
1 Select “Group Register” on the “Service Menu” screen.



NOTE

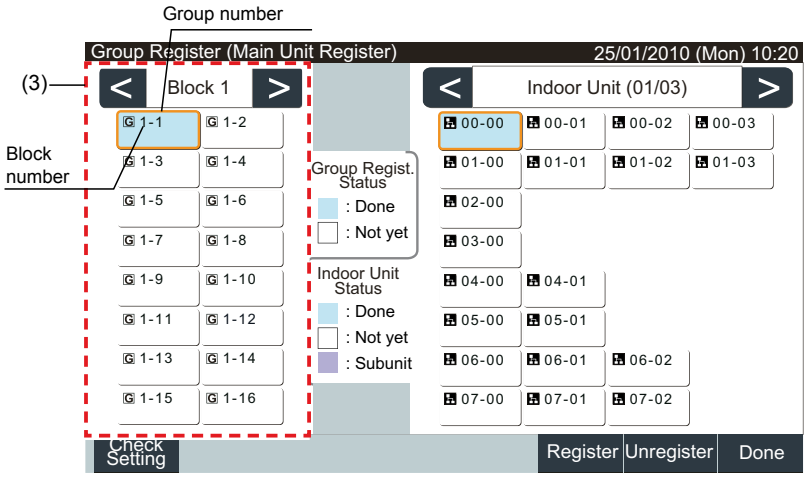
This function cannot be selected when the external input signal is input to the external input terminal 1 or 2.

2 Select “Main Unit Register” on the “Group Register”.



3 Select the group for registration of the main unit.

- Tap buttons “<” and “>” on the upper left of the touchscreen to switch the block display.
- The numbers shown inside the buttons indicate block number and group number.
- Select a group button by tapping it. The selected button is highlighted with an orange outline. If the selected group button is tapped again, the group selection is cancelled.



4 Select the indoor unit for registration of the main unit.

- Tap buttons “<” and “>” on the upper right of the touchscreen to switch the display of indoor units.
- The numbers shown inside the buttons indicate refrigerant cycle number and indoor unit address.
- Select an indoor unit button by tapping it. The selected button is highlighted with an orange outline. If the selected indoor unit button is tapped again, the indoor unit selection is cancelled.
- An indoor unit which has been already selected as a main unit cannot be selected again (its button becomes blue).
- About the Indoor Unit Selecting
  - It is not possible to register an indoor unit with red letters as a main unit. In this case, the indoor unit is registered as a sub unit automatically.
  - When mixing indoor units with auto louvre function and indoor units without auto louvre function together in the same H-LINK, register one unit with auto louvre function as the main unit. Otherwise, the auto louvre function becomes disabled for the entire H-LINK. The same applies to other functions as well.

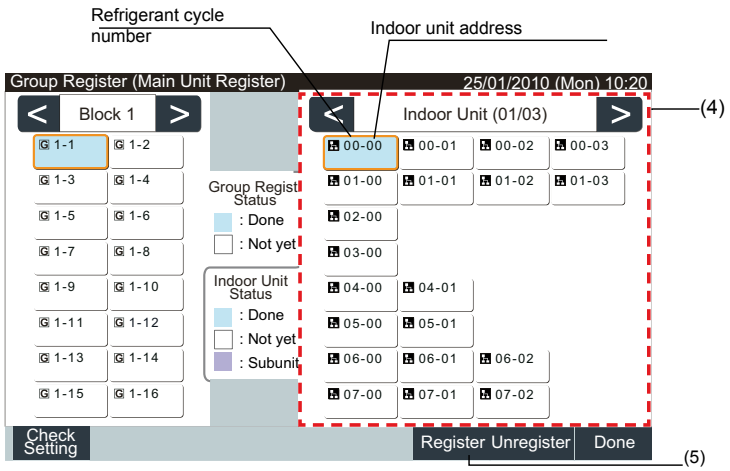
5 Tap “Register” to register the main unit while the group and indoor unit are selected.

- If the group and indoor unit for the main unit are not selected, the “Register” indication is greyed out and therefore cannot be tapped.
- The colour of the buttons of the registered group and the indoor unit changes to blue, and the following information is displayed inside the buttons.

Proceed the main unit registering depending on the setting afterwards.

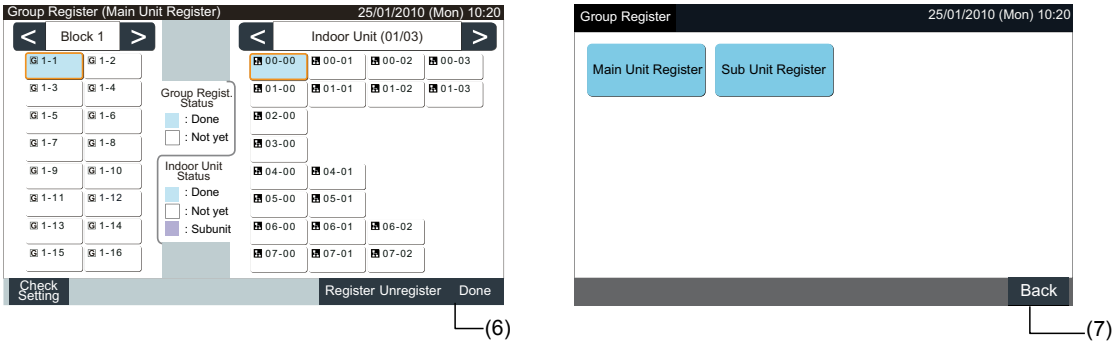
Continue “Main Unit Register” (3)

Exit “Main Unit Register” (6)



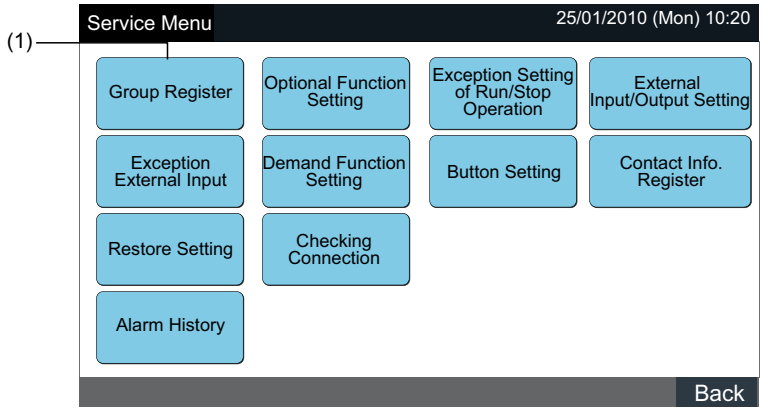
6 Tap “Done” to register the group and return to Group Register menu screen.

7 Tap “Back” on “Group Register” to return to the screen of “Service Menu”.



Registration of a group (Sub unit)

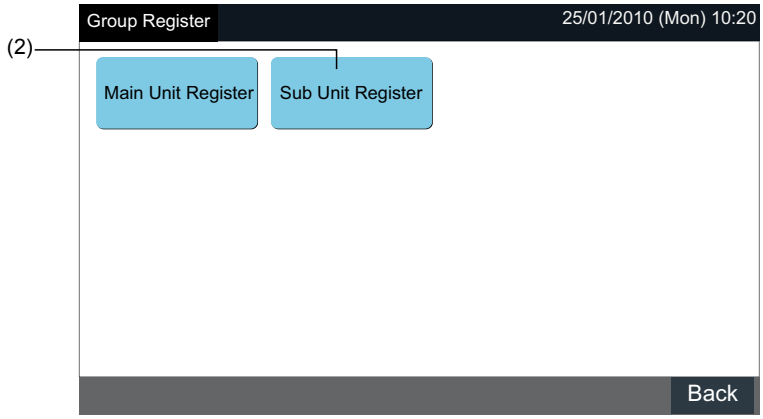
1 Select “Group Register” on the screen of “Service Menu”.



NOTE

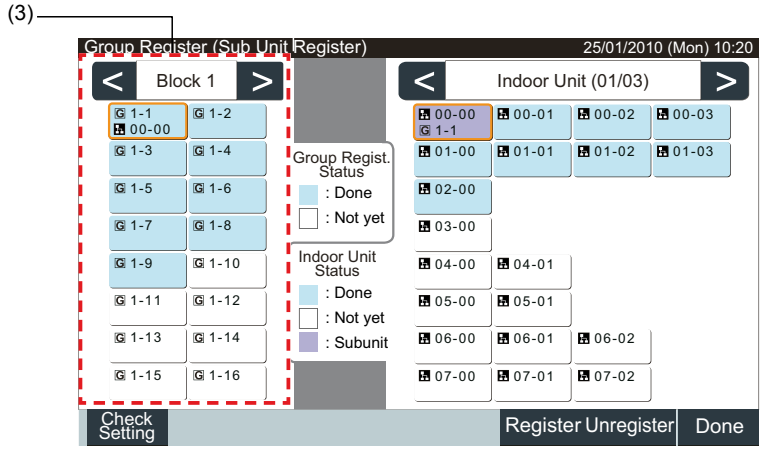
This function cannot be selected when the external input signal is input to the external input terminal 1 or 2.

2 Select “Sub Unit Register” on the screen of “Group Register”.



3 Select the group for registration of the sub unit.

- Tap buttons “<” and “>” on the upper left of the touchscreen to switch the block display.
- Select a group by tapping it. The selected button is highlighted with an orange outline.
- If the selected group button is tapped again, the selection is cancelled.



NOTE

The white colour button indicates the non-registered main unit which cannot be selected.

4 Select the indoor unit for registration of the sub.

- to switch the display of indoor units.
- The numbers shown inside the buttons indicate refrigerant cycle number and indoor unit address.
- Select an indoor unit button by tapping it. The selected button is highlighted with an orange outline. If the selected indoor unit button is tapped again, the indoor unit selection is cancelled.
- An indoor unit which has been already registered as main unit cannot be selected (its button appears in blue).

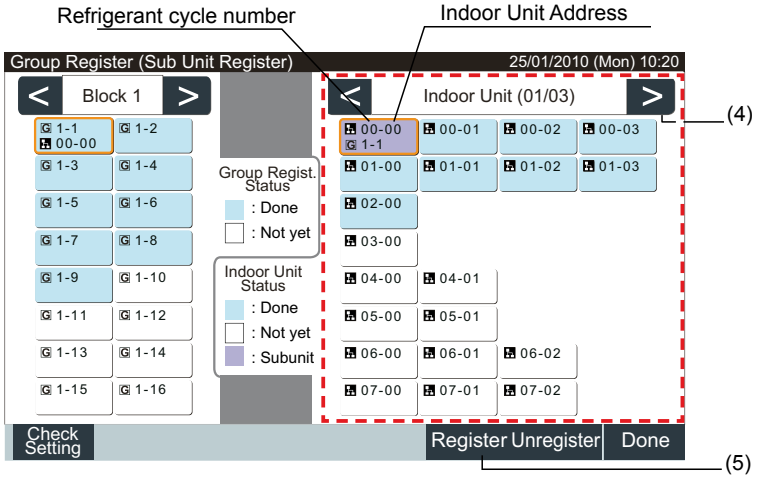
5 Tap “Register” to register the sub units while the group and indoor units are selected.

- If the group and indoor units for the sub units are not selected, the “Register” indication is greyed out and therefore cannot be tapped.
- The colour of the buttons of the registered group and the indoor unit changes to purple.

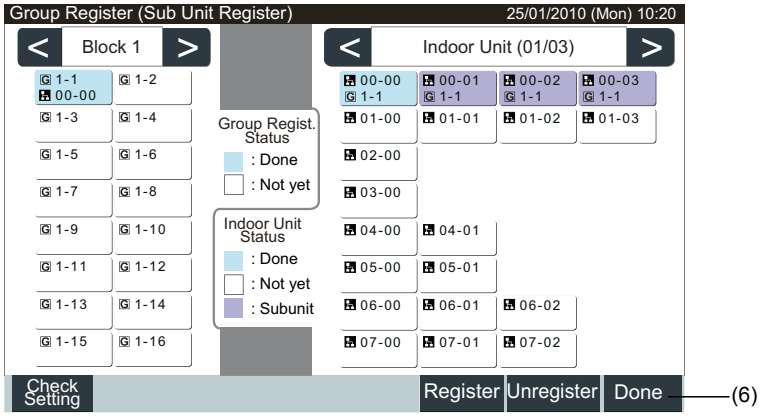
Proceed to register the sub unit depending on the setting afterwards.

Continue “Sub Unit Register” (3)

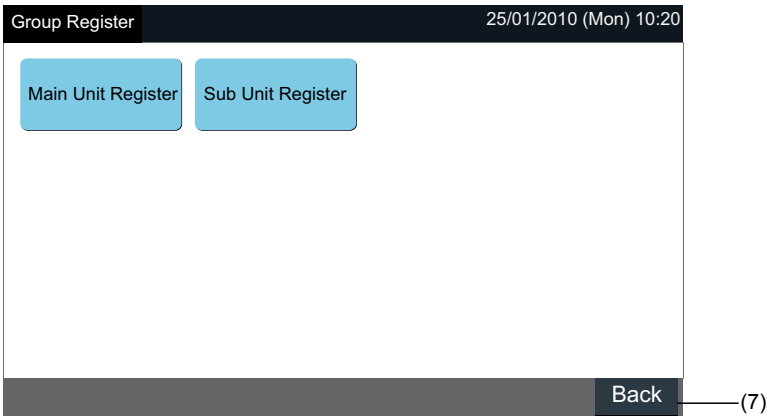
Exit “Sub Unit Register” (6)



6 Tap “Done” on “Group Register (Sub Unit Register)” to return to the “Group Register” screen.



7 Tap “Back” to return to the “Service Menu” screen.



NOTE

t is possible to register a maximum of 15 sub units in the same remote control group.
It is not possible to register an indoor unit without remote control switch as a sub unit. (Refer to Group Register section).

Cancellation of group registration

1 Select “Group Register” on the screen of “Service Menu”. Refer to “Registration of a group (Main unit)”.

NOTE

This function cannot be selected when the external input signal is input to the external input terminal 1 or 2.

2 Select “Main Unit Register (or Sub Unit Register)” on the screen of “Group Register”.

3 Select the group to cancel registration.

- Tap buttons “<” and “>” on the upper left of the touchscreen to switch the block display.
- Select a group button by tapping it. The selected button is highlighted with an orange outline. If the selected group button is tapped again, the group selection is cancelled.

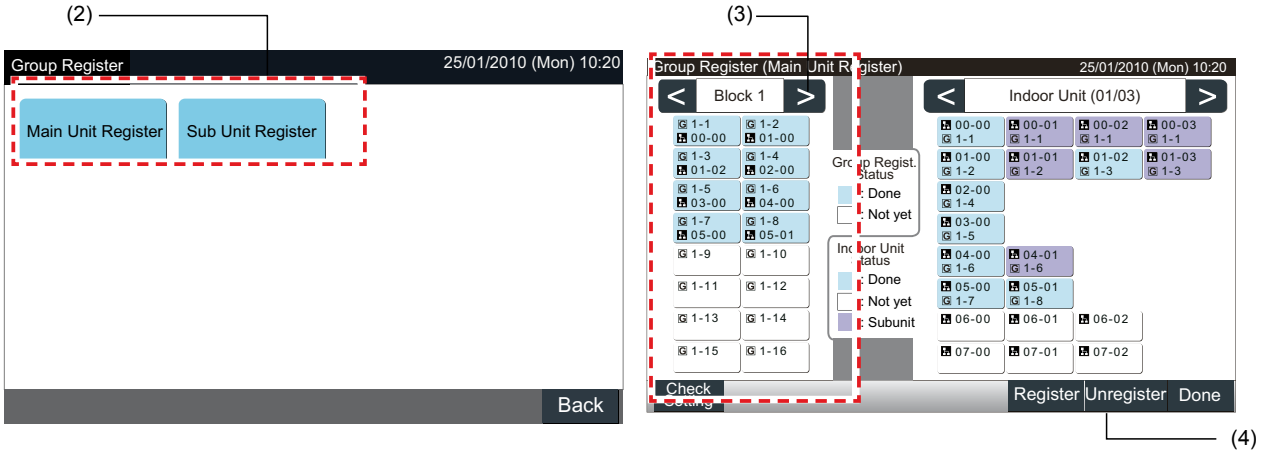
4 Tap “Unregister” and group register is unregistered. The button colour of the group and the indoor unit turn to white.

- When tapping “Unregister” on the screen of “Main Unit Register”, the main unit and the sub units are unregistered.
- When tapping “Unregister” on the screen of “Sub Unit Register”, the sub units are unregistered.

Proceed to unregister the group depending on the setting afterwards.

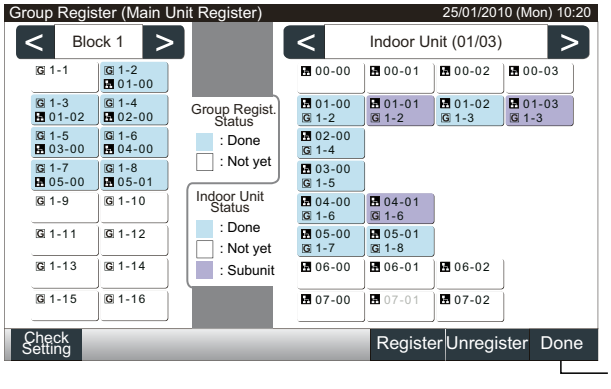
Continue of unregistering “Group Register” (3)

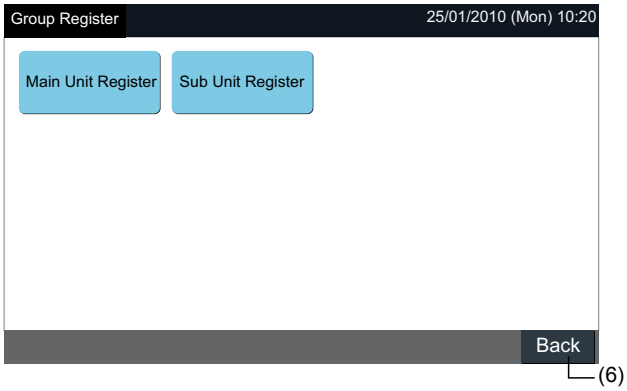
Exit of unregistering “Group Register” (5)



5 Tap “Done” to return to the “Group Register” screen.

6 Tap “Back” to return to Service Menu screen.





Checking of group registration (Checking of main unit register)

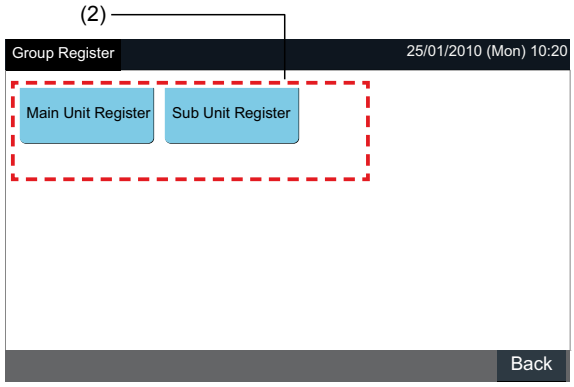
1 Select “Group Register” on the screen of “Service Menu”. Refer to item How to register group (Main unit).

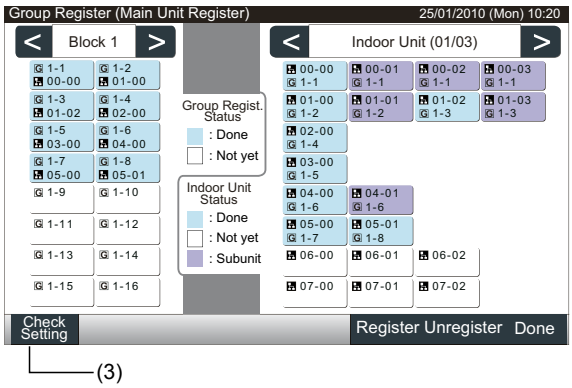
NOTE

This function cannot be selected when the external input signal is input to the external input terminal 1 or 2.

2 Select “Main Unit Register” (or “Sub Unit Register”) on the “Group Register” screen.

3 Tap “Check Setting” on the lower left of the touchscreen.





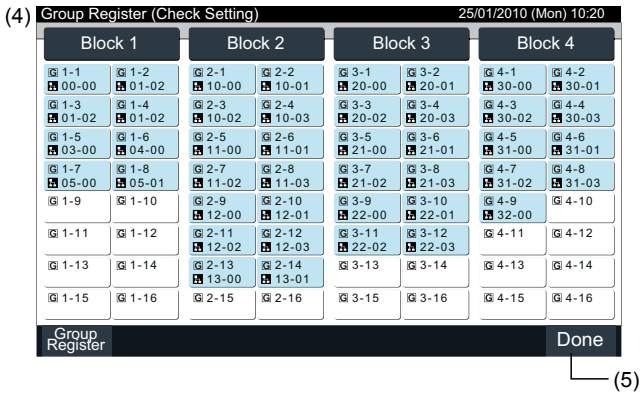
4 The screen switches to the Group Register check screen then.

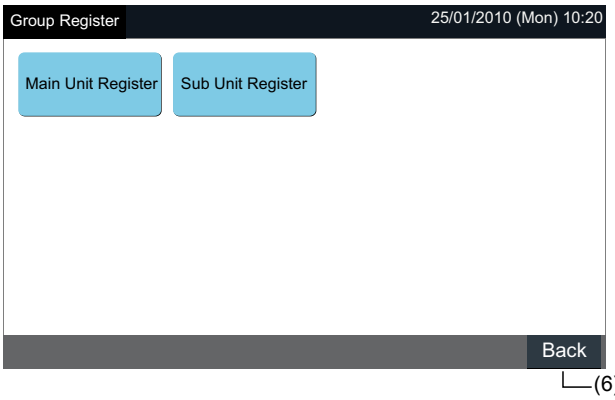
NOTE

If tap “Register” on the lower right of the touchscreen the screen of “Group Register” will be indicated.

5 Tap “Done” to return to the Group Register Menu screen.

6 Tap “Back” to return to “Service Menu” screen.

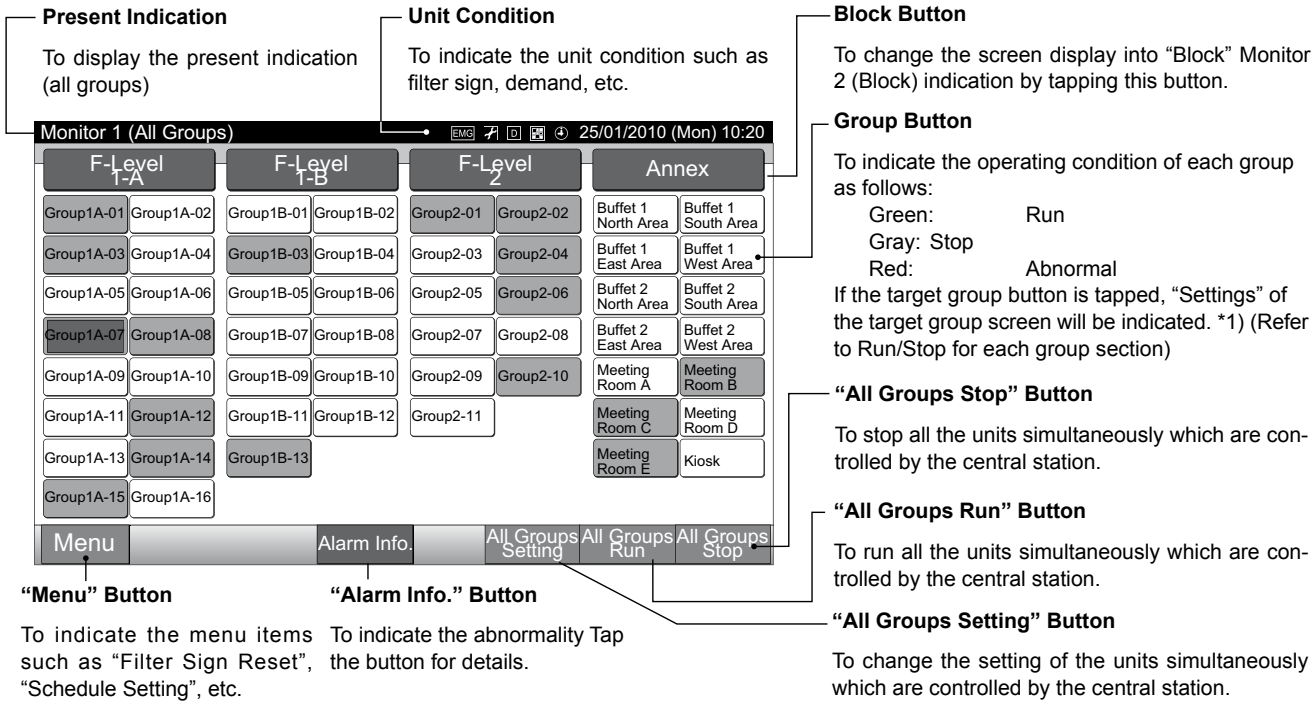




5.1.4.2 Main screen

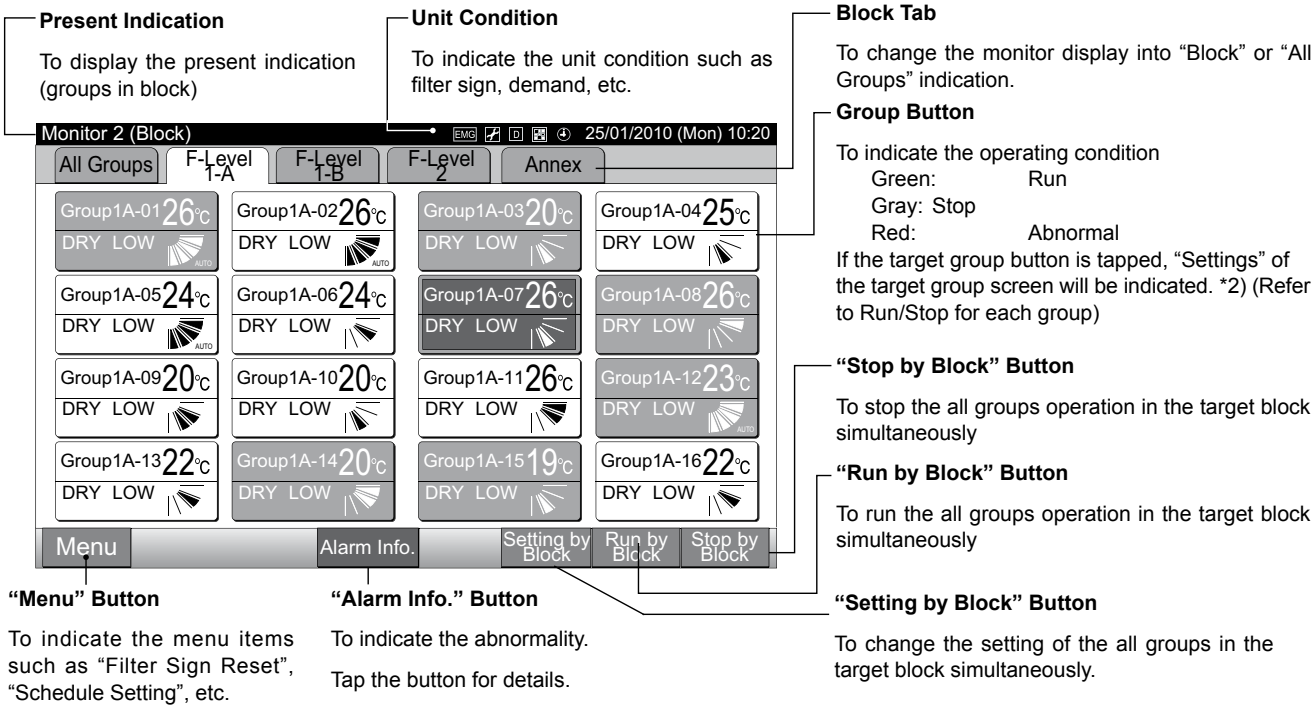
◆ Overall view

“Monitor 1 (All groups)”



*1) Only for the “Normal Mode” operation. In “Run/Stop Only” mode, the operation is switched to Run ⟷ Stop.

“Monitor 2 (Block)”



*2) Only for the “Normal Mode” operation. In “Run/Stop Only” mode, the operation is switched to Run ⟷ Stop.

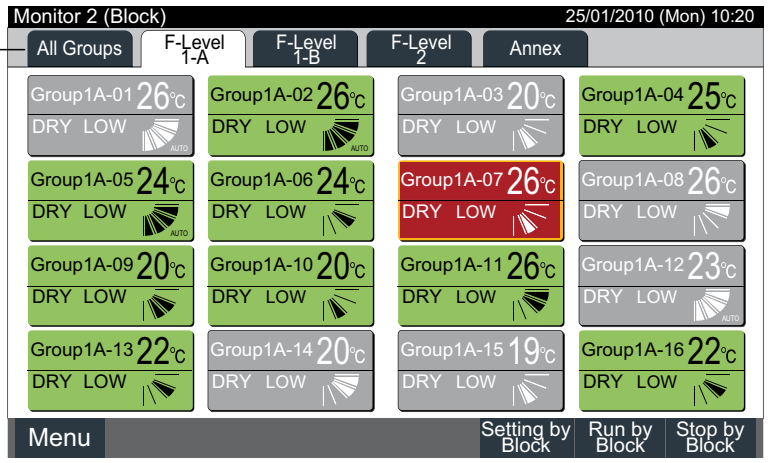
◆ Group and block settings

Display of All Groups

1 Tap “All Groups” on the touchscreen display.

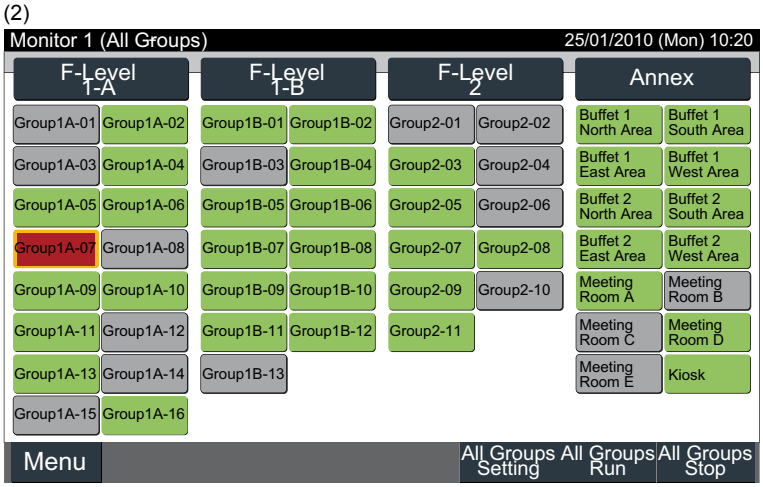
The tab of marked with (1), “All Groups” will not be displayed if only 1 (one) block has been registered.

(1)



2 All groups are displayed on the touchscreen. (All indoor units connected to the central station will be indicated). Each operation status is indicated by colour of the group button as follows:

(2)



Green: Run

Gray: Stop

Red: Abnormal

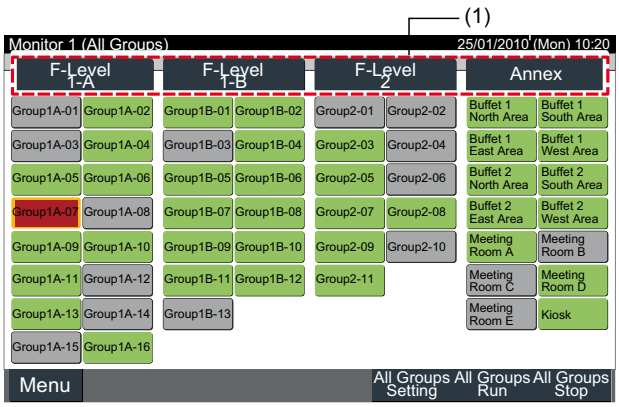
NOTE

The touchscreen display will automatically sleep when the touchscreen is not operated for the given length of time. (To wake up, tap the screen).

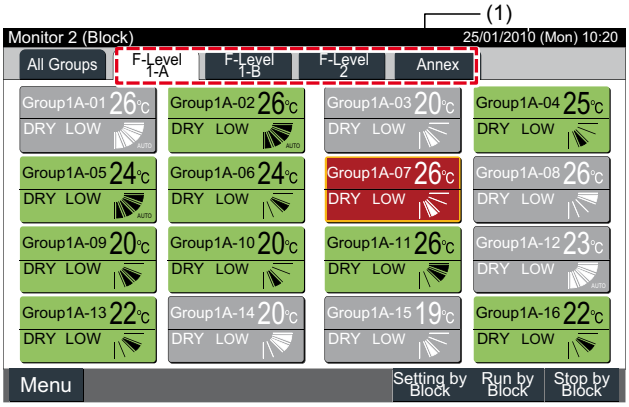
Display of Specified Block

1 Select the target block from the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.

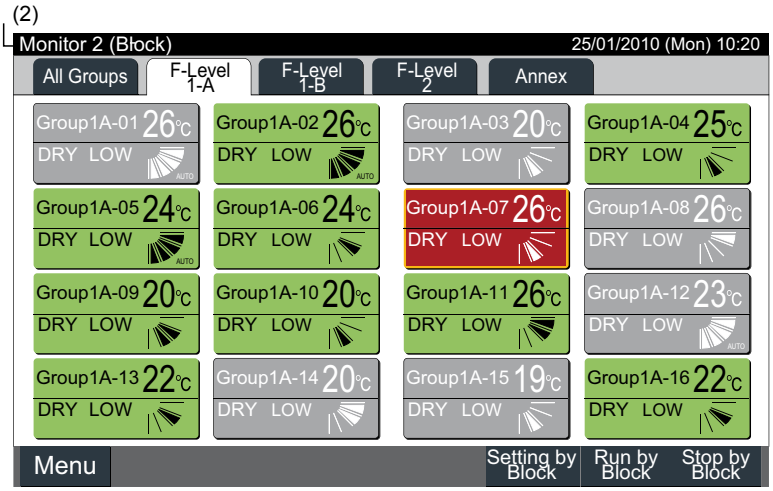
Monitor 1 (All Groups)



Monitor 2 (Block)



2 The groups in the selected block will be displayed on the touchscreen. Each operation status is indicated by colourof the group button as follows:



Green: Run

Gray: Stop

Red: Abnormal

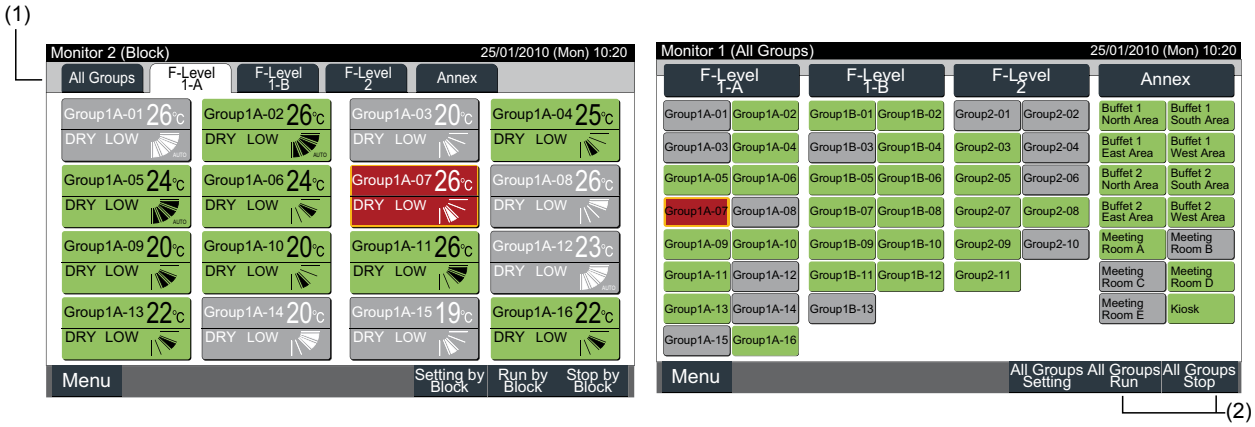
NOTE

The touchscreen display will automatically sleep when the touchscreen is not operated for the given length of time. (To wake up, tap the screen).

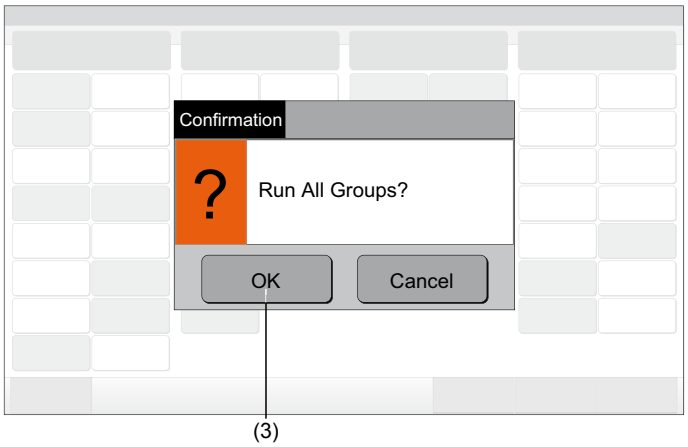
Simultaneous Run/Stop for All Groups

1 Tap “All Groups” on the touchscreen display.

2 Tap “All Groups Run” or “All Groups Stop”.



3 The confirmation screen will be displayed. Tap “OK”. (All indoor units connected to the central station will be simultaneously operated). Tap “Cancel” to cancel this command.



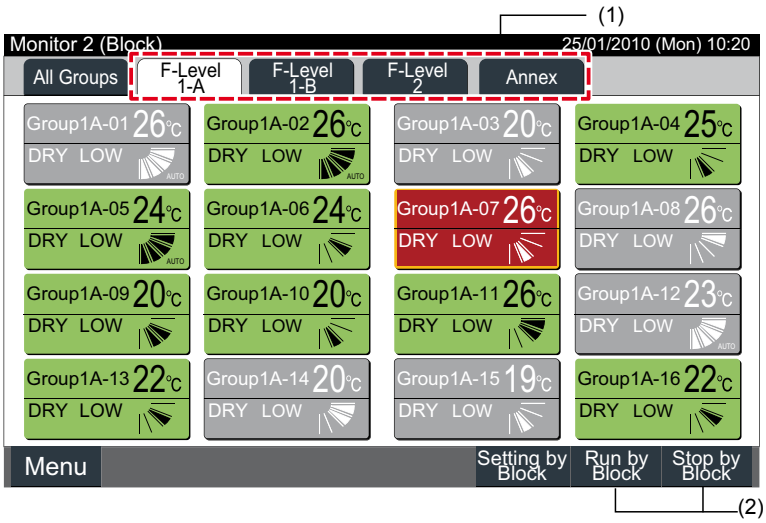
NOTE

“All Groups Run/Stop” command will not be effected to the groups specified in “Exception Setting of Run/Stop Operation”.

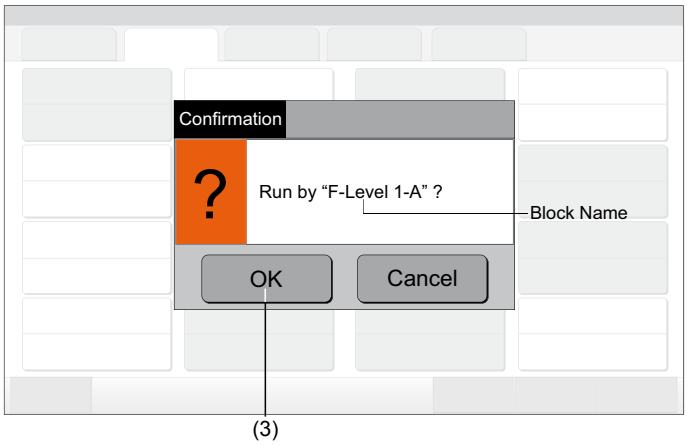
Simultaneous Run/Stop for Block

1 Select the target block from the touchscreen display to set simultaneous Run/Stop operation.

2 Tap “Run by Block” or “Stop by Block”.



3 The confirmation screen will be indicated. Tap “OK”. All groups (all indoor units) in the selected block connected to the central station will be simultaneously operated. Tap “Cancel” to cancel this command.



NOTE

“Run/Stop by Block” command will not be effected to the blocks specified ºin “Exception Setting of Run/Stop Operation”.

◆ Run/Stop for Each Group

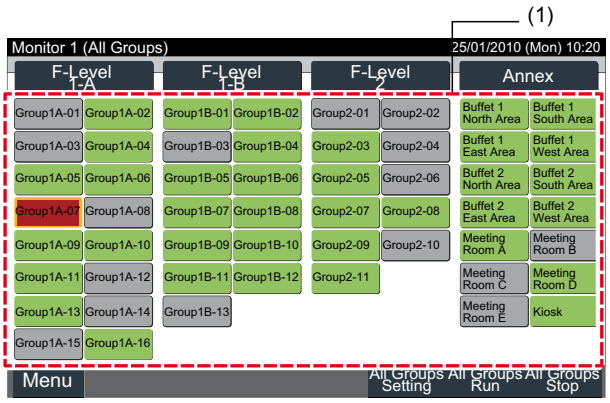
Check the control mode before setting.

The control method is different depending whether the control mode is set to “Normal” or “Run/Stop only”.

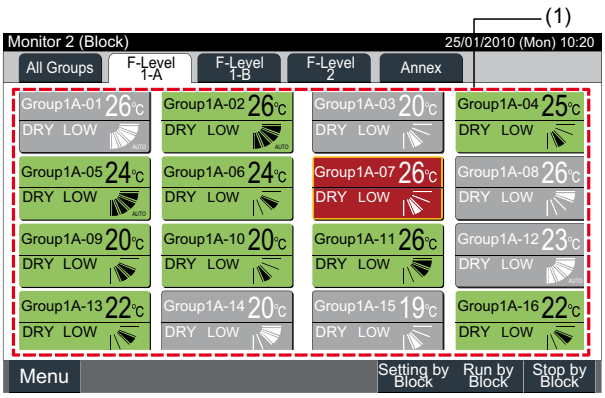
Run/Stop operation for each group (Control mode: Normal)

1 Select the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”. Select the group to set by tapping the group button.

Monitor 1 (All Groups)

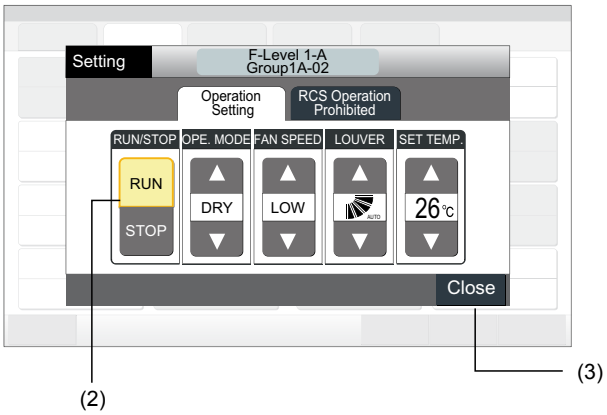


Monitor 2 (Block)



2 Selected group setting will be indicated on the touch-screen display. Tap “RUN” or “STOP”.

3 Tap “Close” to return to the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.



Run/Stop operation for each group (Control mode: "Run/Stop only")

Monitor 1 (All Groups)

1 Select the target group at screen of "Monitor 1 (All Groups)" in "Run/Stop Only" mode.

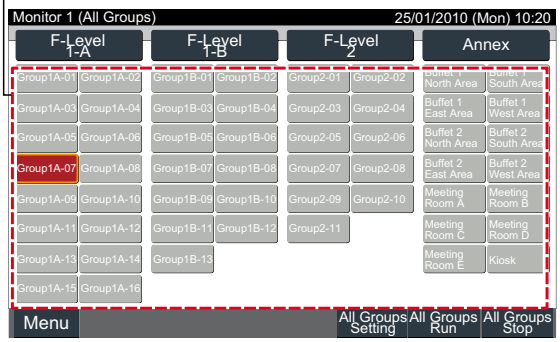
2 The selected group operation is alternately changed by tapping as follows.

"Stop" ◄► "Run"

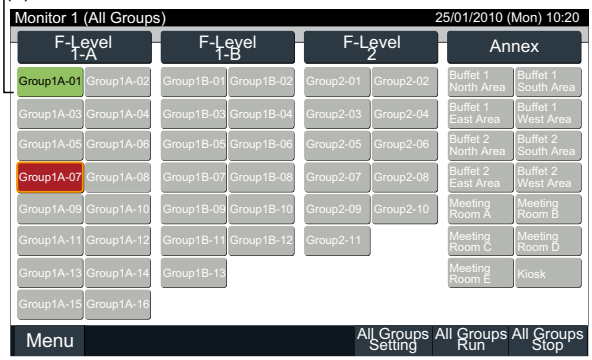
In this mode, simultaneous Run/Stop operations for all groups is available by "All Groups Run" and "All Groups Stop" buttons.

Refer to Simultaneous Run/Stop for All Groups section for details.

(1)



(2)



Monitor 2 (Block)

1 Select the target group at screen of "Monitor 2 (Block)" in "Run/Stop Only" mode.

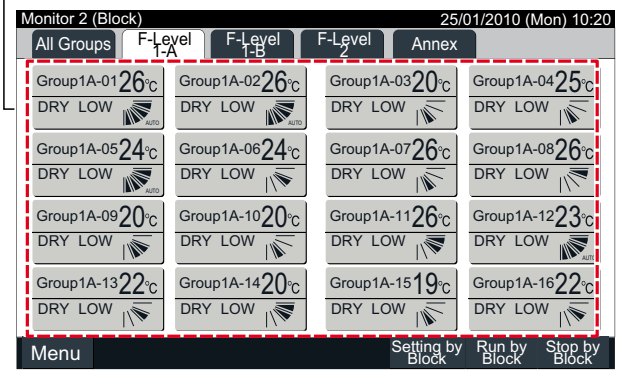
2 The selected group operation is alternately changed by tapping as follows.

"Stop" ◄► "Run"

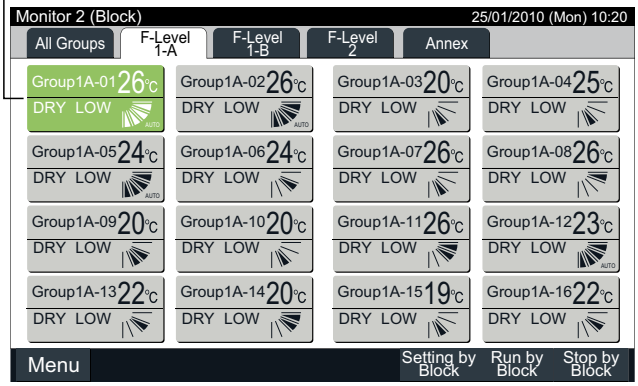
In this mode, simultaneous Run/Stop operations for block is available by "Run by Block" and "Stop by Block" buttons.

Refer to the item Simultaneous Run/Stop for Block section for details.

(1)



(2)



NOTE

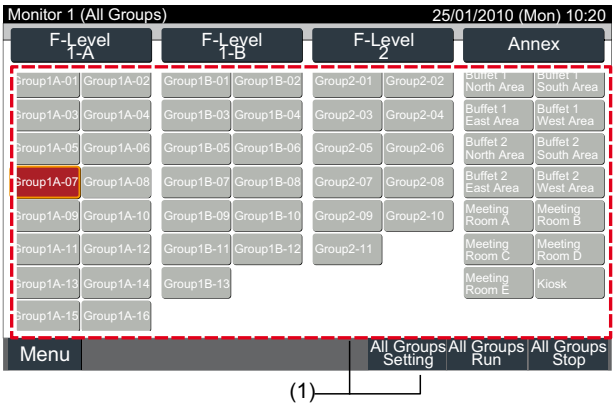
The details of setting method for this function are according to the item Optional function setting of Installation & Maintenance Manual.

◆ Main parameters setting

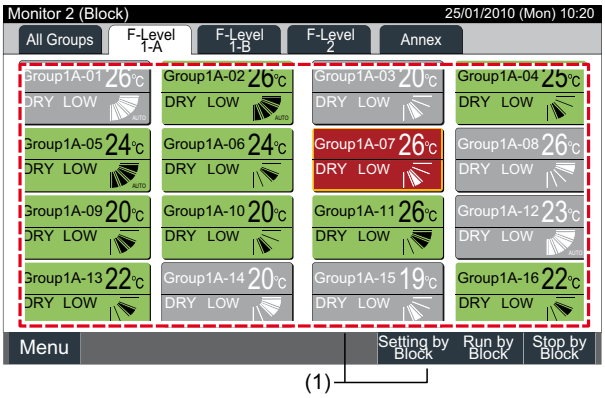
Operation Mode

1 Select the target group at screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)” to change the operation mode setting. The pop-up of “Setting” for the selected group is displayed on the touchscreen.

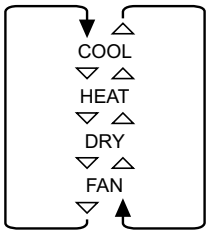
Monitor 1 (All Groups)



Monitor 2 (Block)

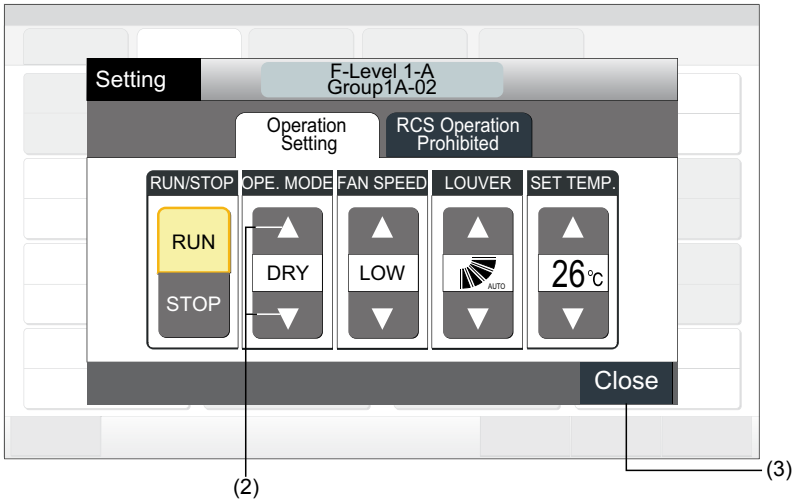


2 By tapping “△” or “▽” of the “OPE. MODE”, the operation mode will be changed alternately as follows.



The “AUTO” (Heating/Cooling Automatic Operation) will be included as option if applicable.

3 Tap “Close” to return to the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.



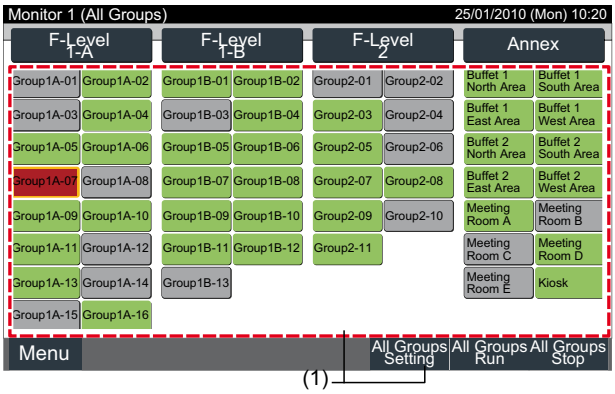
NOTE

- *In the case of “Run/Stop Only” mode, setting change is available by only “All Groups Setting” or “Setting by Block” button. (Setting change for each group is NOT available).*
- *Some operation modes cannot be set depending on the unit model. Contact your dealer for detailed information.*

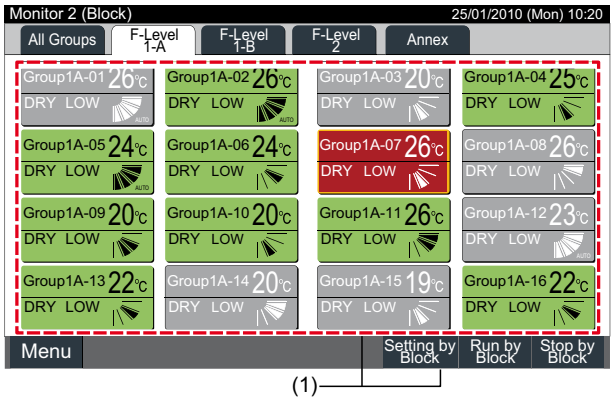
Fan Speed

1 Select the target group at screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)” to change the fan speed setting. The pop-up of “Setting” for the selected group is displayed on the touchscreen.

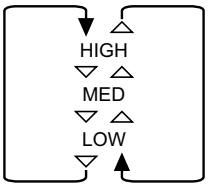
Monitor 1 (All Groups)



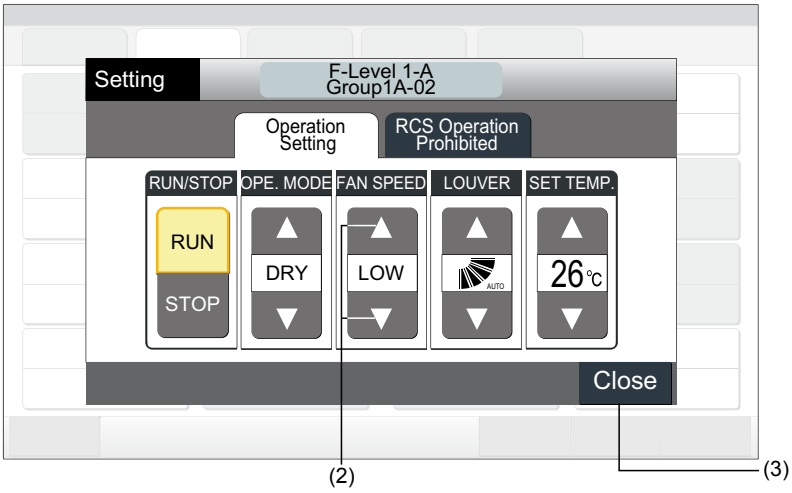
Monitor 2 (Block)



2 By tapping “△“ or “▽” of the “FAN SPEED”, the fan speed setting will be changed alternately as follows.



3 Tap “Close” to return to the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.



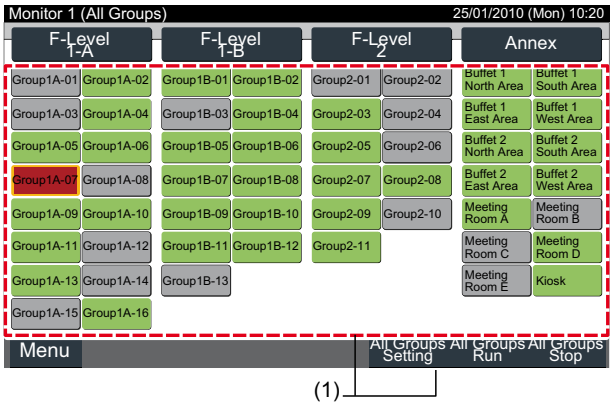
NOTE

- *In the case of “Run/Stop Only” mode, setting change is available by only “All Groups Setting” or “Setting by Block” button. (Setting change for each group is NOT available.)*
- *Actual fan speed during the dry operation will be “LOW” regardless of the fan speed setting.*
- *The figure above shows an example of standard unit. The fan speed may not be indicated for certain indoor unit model.*

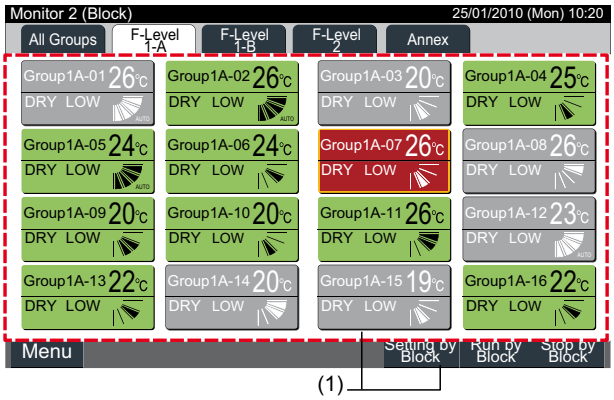
Swing Louver Direction

1 Select the target group at screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)” to change the swing louver direction. The pop-up of “Setting” for the selected group is displayed on the touchscreen.

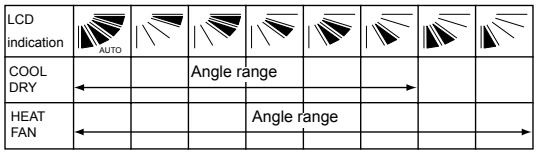
Monitor 1 (All Groups)



Monitor 2 (Block)

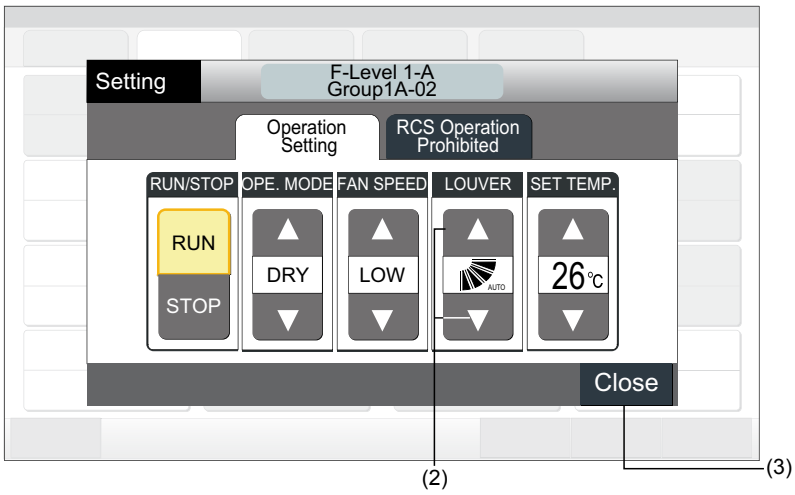


2 By tapping “△“ or “▽” of the “LOUVER”, the swing louver direction will be changed alternately as follows.



: Auto swing operation will be started.

3 Tap “Close” to return to the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.



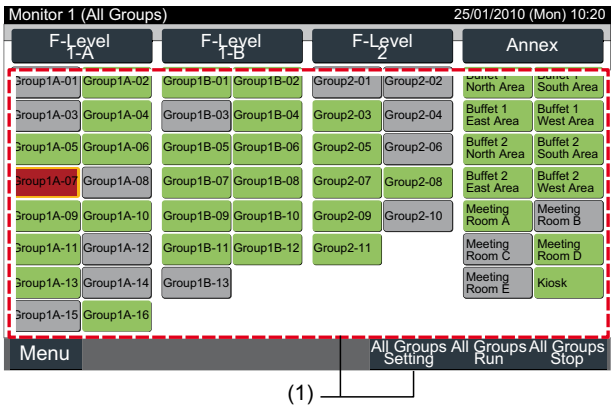
NOTE

- *In the case of “Run/Stop Only” mode, setting change is available by only “All Groups Setting” or “Setting by Block” button. (Setting change for each group is NOT available).*
- *This function (swing louver direction) may not be set depending on the unit model.*
- *Louver position on LCD and the actual louver position do not always match during the auto swing operation.*
- *The louver may not stop immediately after the switch is pressed.*

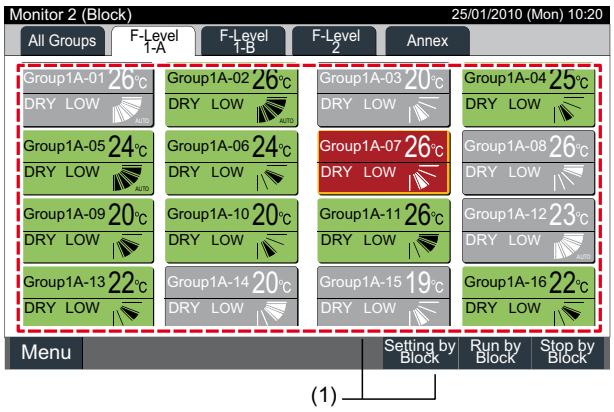
Setting Temperature

1 Select the target group at screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)” to change the setting temperature. The pop-up of “Setting” for the selected group is displayed on the touchscreen.

Monitor 1 (All Groups)



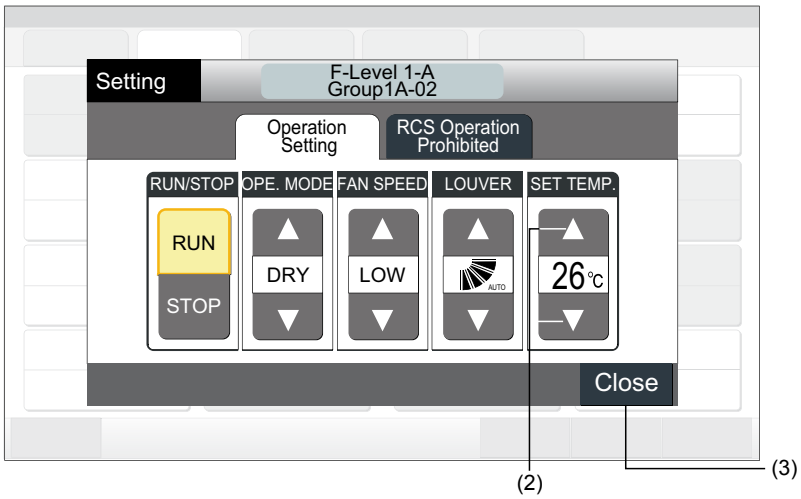
Monitor 2 (Block)



2 By tapping “△”, the temperature is increased by 1 ºC. (Max. 30 ºC). By tapping “▽”, the temperature is decreased by 1 ºC.

- At Cooling, Dry and Fan operation: Min. 19 ºC
- At Heating operation: Min. 17 ºC

3 Tap “Close” to return to the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.



NOTE

- *In the case of “Run/Stop Only” mode, setting change is available by only “All Groups Setting” or “Setting by Block” button. (Setting change for each group is NOT available).*
- *The figure above shows an example of the setting temperature for the standard unit. The temperature setting range may be different depending on the connected indoor units.*

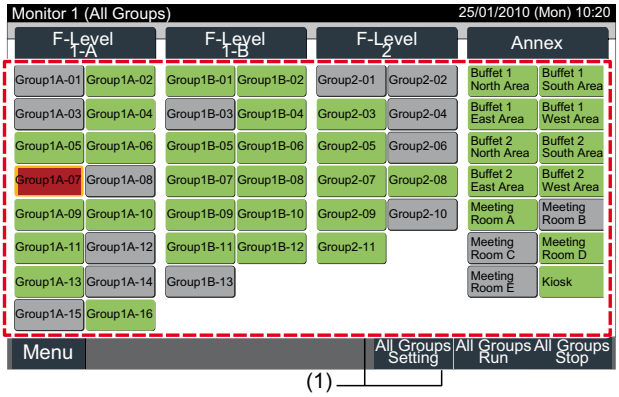
◆ Permitting/Prohibiting Operation from Remote Control Switch

This function is used for prohibiting the operation from the remote control switch.

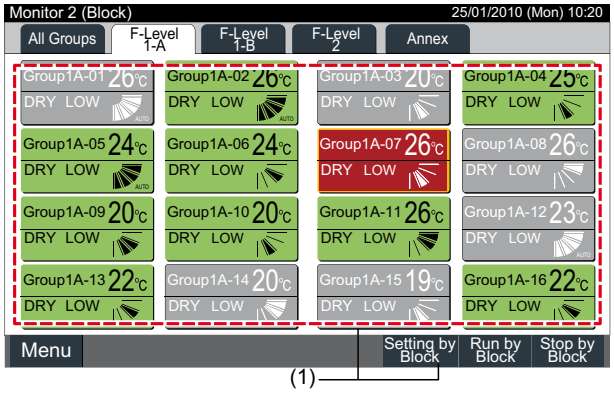
While operation is prohibited, “Central Control” is indicated on LCD of remote control switch and operating by the remote control switch is not available.

1 Select the target group at the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)” to set the function of “RCS Operation Prohibited” setting. The pop-up of “Setting” for the selected group is displayed on the touchscreen.

Monitor 1 (All Groups)



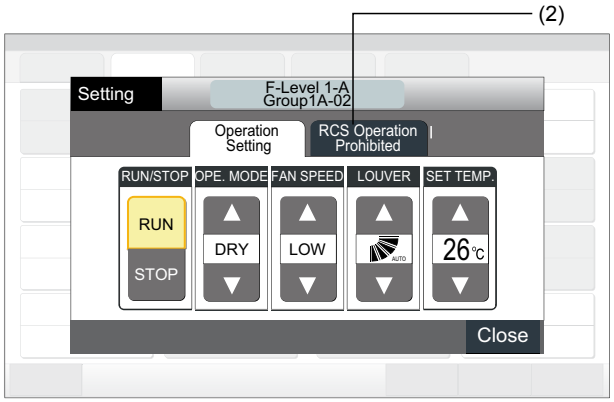
Monitor 2 (Block)

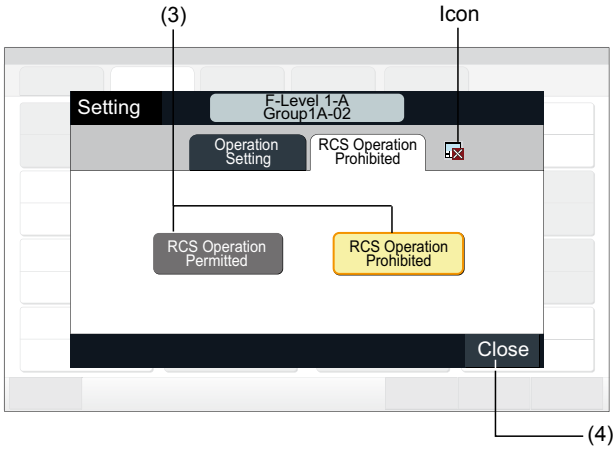


2 Select “RCS Operation Prohibited” by tapping.

3 Select “RCS Operation Prohibited” or “RCS Operation Permitted”. If “RCS Operation Prohibited” is selected, the icon “ ” will be indicated in “Setting” pop-up.

4 Tap “Close” to return to the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.





NOTE

- *In the case of “Run/Stop Only” mode, setting change is available by only “All Groups Setting” or “Setting by Block” button.*
- *If the unit is started from the central station (by tapping “Run” on the central station), it can be stopped from the remote control switch (by pressing “Stop” on the remote control switch) even while the operation from the remote control switch is prohibited. In this case, press “Run” on the remote control switch to start the operation again. However, this method is for an emergency stop therefore do not use this for the normal operation.*
- *For the unit without the remote control switch, the prohibiting operation should be set.*
- *Do not set the prohibiting operation if multiple centralised controllers are used in the same H-LINK. Additionally, do not set this by other centralised controller or it may cause malfunction.*

5.1.4.3 Menu

The table below shows menu item and its function.

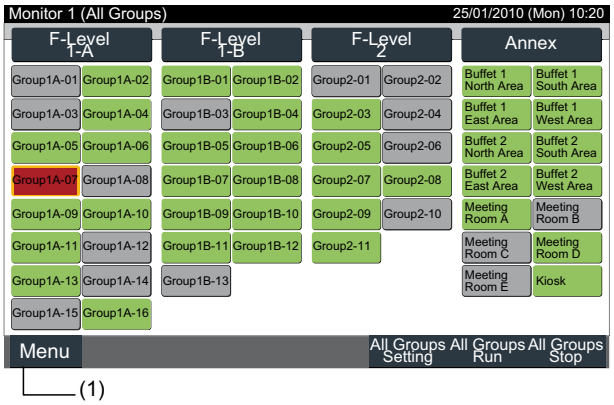
Item		Function
Filter Sign Reset		This function is used for turning off the filter sign of the connected indoor units. This function can be used only for the indoor unit with “Filter Sign”.
Schedule Setting		This function is used for scheduled timer operation which is possible to set by each block or group.
	Schedule Timer Setting	This function is used for setting the time (by the minute), “Run/Stop” and temperature (19~30 ºC). For weekly schedule setting, up to 10 schedule items can be set per day. It is also available to copy the setting contents.
	Holiday Setting	This function is used for suspending the schedule operation temporarily. The schedule operation will not be available when this function is set. This function is used for setting irregular holidays such as national holidays.
	Schedule Timer ON/OFF Setting	“Schedule Timer OFF Setting” is used for suspending the schedule operation for the target group. The schedule operation will not be available when Schedule Timer is OFF. This function is used for a long holiday, sudden holidays, national holidays, etc.
Adjusting Date/Time		This function is used for adjusting date and time.
Touchscreen Cleaning		This function is used for cleaning LCD (liquid crystal display) of central station.
Touchscreen Calibration		This function is used for calibrating the tap position for touchscreen. This function is used if the operation is not carried out smoothly when the button on the touchscreen is tapped.
Group Name Register		This function is used for registering name of the block and group. The registrable number of letters are maximum 20 letters for the name of each block or group. It is also available to copy the name. If the group/block is registered without name, it will be registered as “Group 1” or “Block 1” automatically.
Screen Display Setting		This function is used for setting the screen display.
	Brightness	This function is used for adjusting the brightness of the touchscreen display.
	Language Setting	This function is used for changing the displayed language.
	Temperature Unit	This function is used for changing the temperature unit.
Accumulated Operation Time		This function is used for indicating the accumulated operation time of the air conditioner. The accumulated operation time will be indicated by month. The operation time is memorized for 15 months.
Contact Information		This function is used for indicating the service contact address and the latest alarm code.
Service menu		This switch is for the serviceman only. Therefore do not use it. If this switch is used and the service menu is indicated on the screen, tap “Back”. The screen will return to the menu.

◆ Display menu screen

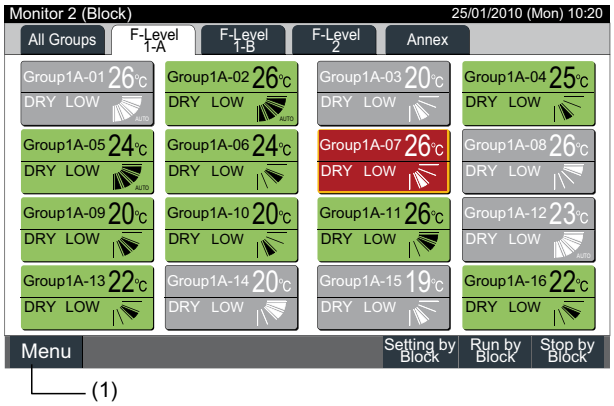
The setting items for the indoor unit and central station are laid out in the menu.

1 Tap “Menu” at screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.

Monitor 1 (All Groups)

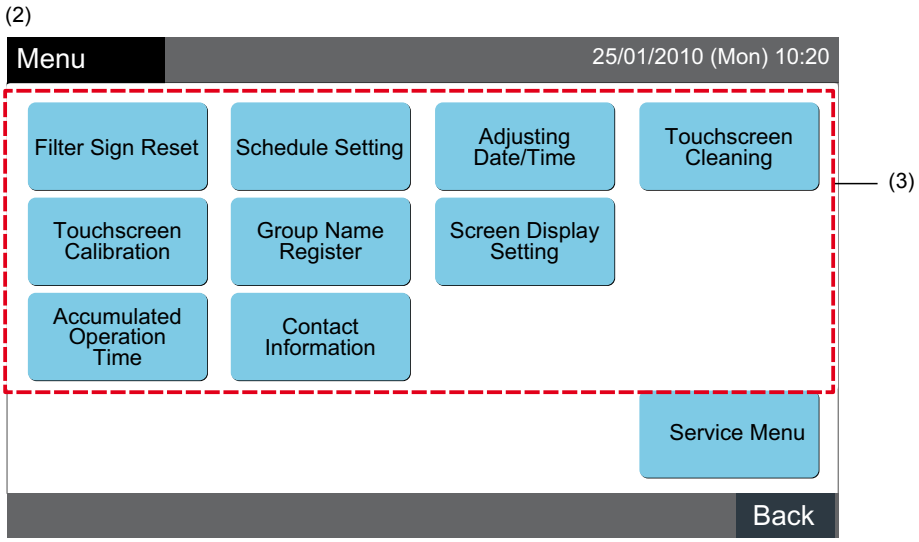


Monitor 2 (Block)

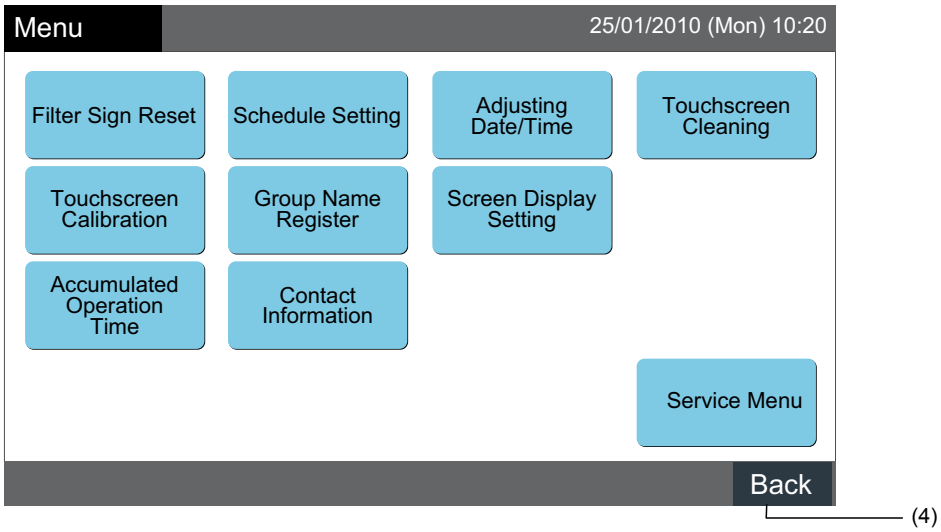


2 The screen of “Menu” will be displayed.

3 Select the item from the screen of “Menu”.

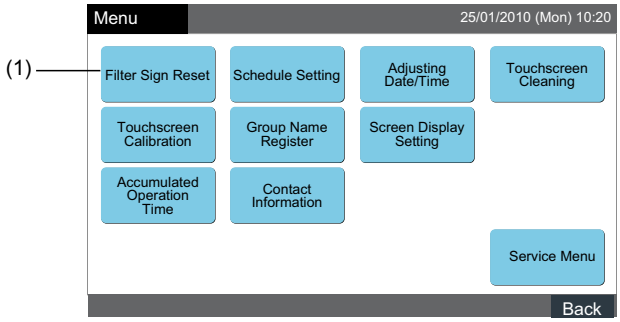


4 Tap “Back” to return the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.



◆ Filter Sign Reset

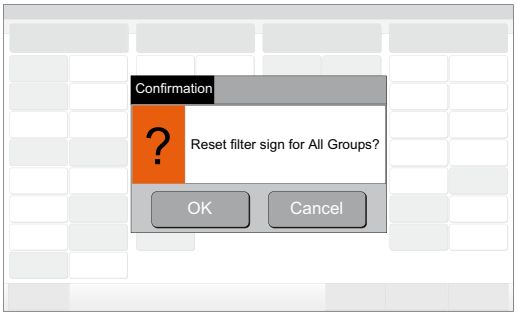
1 Select “Filter Sign Reset” from the screen of “Menu”. (This is available only when the filter sign is indicated).



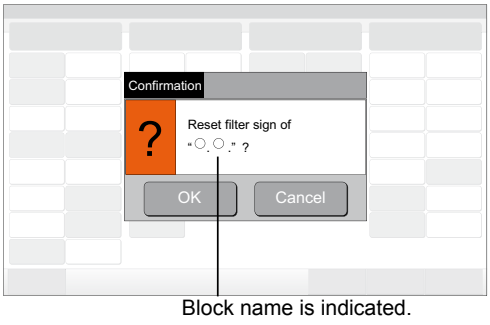
2 Select the target (all groups, block or group) to reset the filter sign. The yellow button is indicated for the group with filter sign.

In the case of simultaneous reset of filter sign: Select “All Groups” or “Block”. The following confirmation screen will be indicated. The filter sign can be reset simultaneously by selecting “OK”.

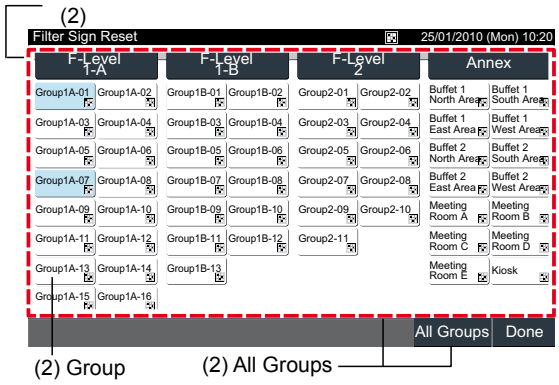
When “All Groups” is Tapped



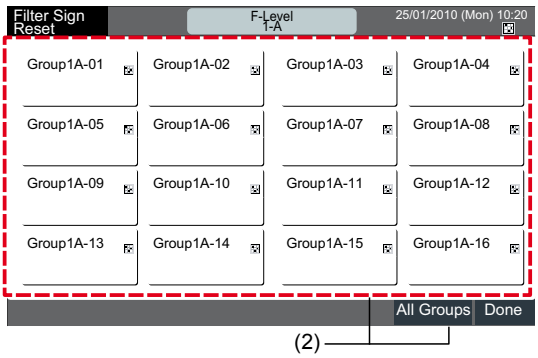
When “Block” is Tapped



Block (Q’ty): 2 and more

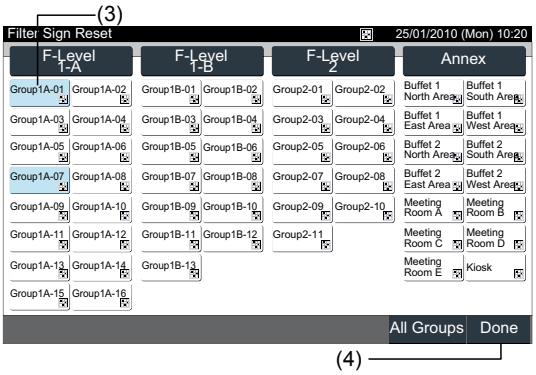


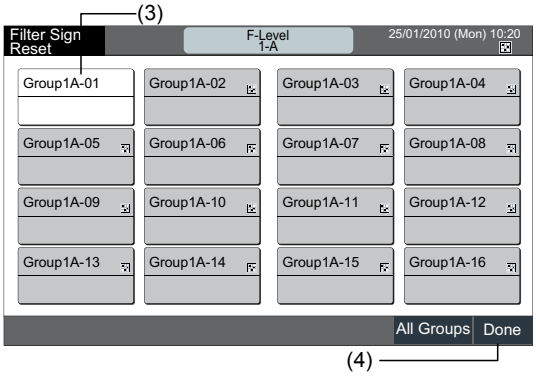
Block (Q’ty): 1



3 When the filter sign is reset, the group button colour changes into white.

4 Tap “Done” to return to the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.





◆ Schedule settings

This function is used for timer operation.

It is possible to set a schedule for a block and for each group.

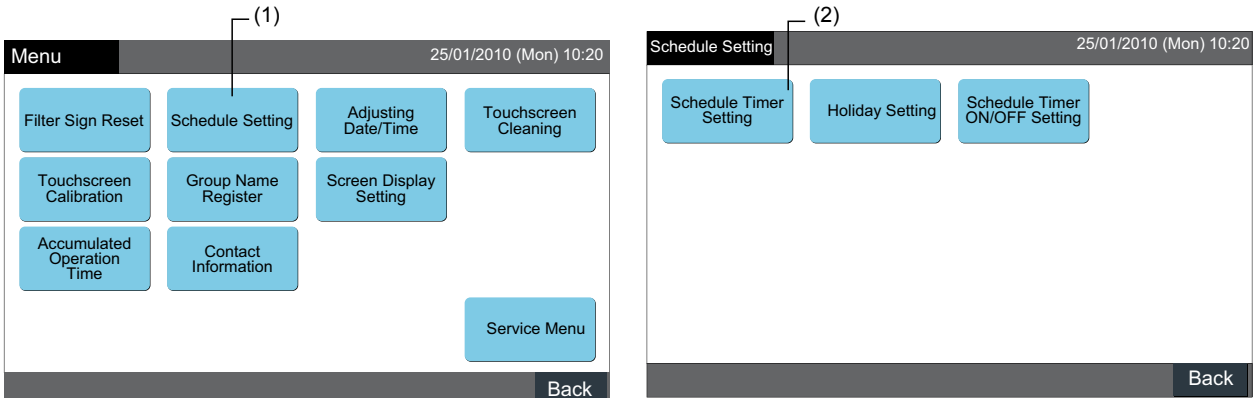
A holiday setting independent of the schedule is also available.

Schedule timer settings

Timer setting for weekly schedule

1 Select “Schedule Setting” from the screen of “Menu”.

2 Select “Schedule Timer Setting” from the screen of “Schedule Setting”.

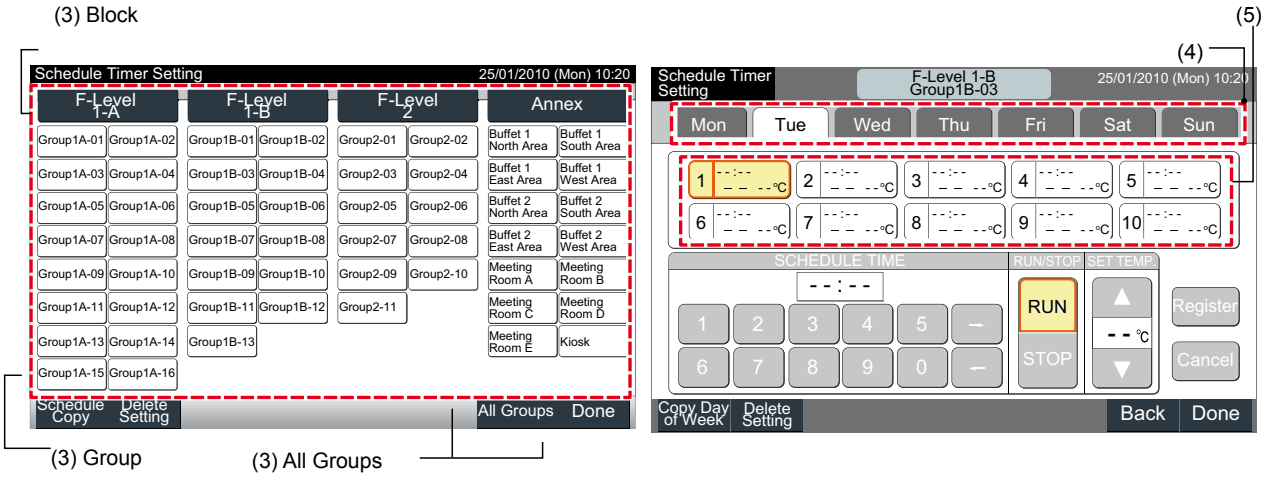


3 Select the target (all groups, block or group).

- The blue button is indicated for the group with setup schedule.
- The white button is indicated for the group without setup schedule.

4 Select the target day of the week. (from Mon. to Sun.).

5 Select the schedule item number (from 1 to 10).



6 Set the schedule time, run/stop operation and temperature.

Select the schedule item No. (1~10) and set the time.

Select “RUN” or “STOP”.

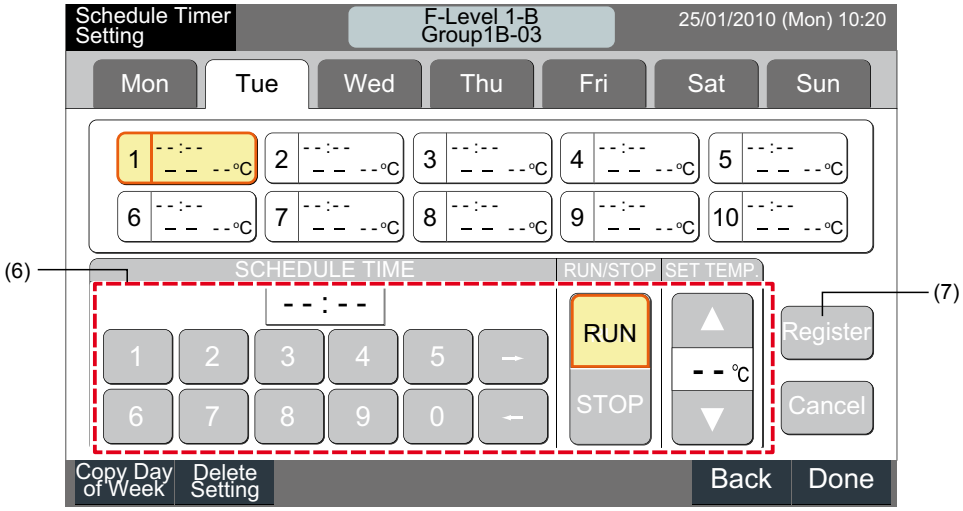
Set the temperature by tapping “△” or “▽”.

“- -” will be indicated when the time and temperature are not set.

7 Tap “Register” to register the scheduled items. If “Cancel” is tapped, the scheduled items will be cancelled.

To set the same day of the week, refer to the (5).

To set other days of the week, refer to the (4).



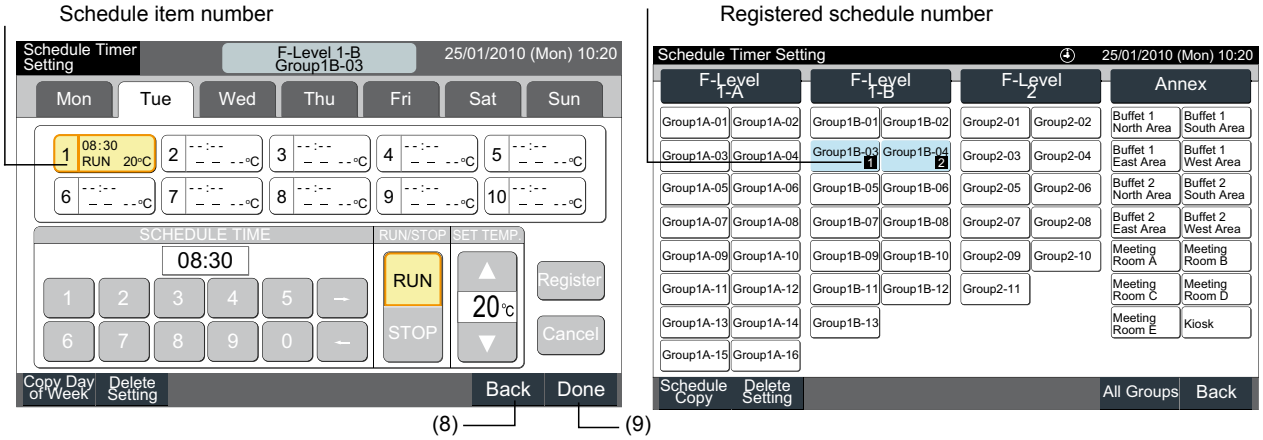
8 Tap “Back” to set the timer for other groups. The screen will return to “Schedule Timer Setting” (3).

After the schedule is set, the registered schedule number (1~64) will be indicated in the group button. (The scheduled group button colour changes to blue).

In case that the setting is the same, the same registered schedule No. will be indicated.

9 Tap “Done” to return the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.

If “Done” is tapped without registration, the scheduled items are cancelled. And the screen will be changed to “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.



NOTE

Make sure that the time and run/stop are set for the timer setting. (It is not necessary to set the temperature).

Copying Schedule Setting by Days of Week

1 Select “Schedule Setting” from the screen of “Menu”.

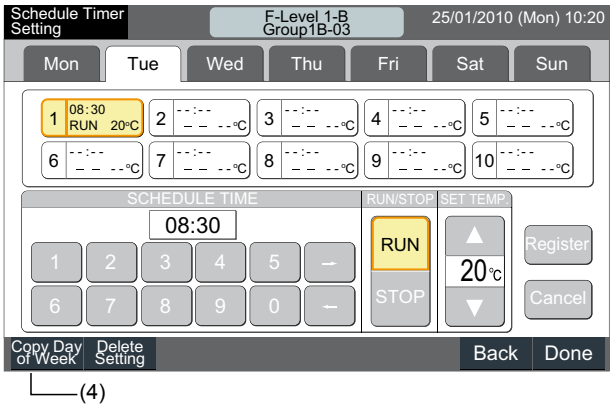
2 Select “Schedule Timer Setting” from the “Schedule Setting”.

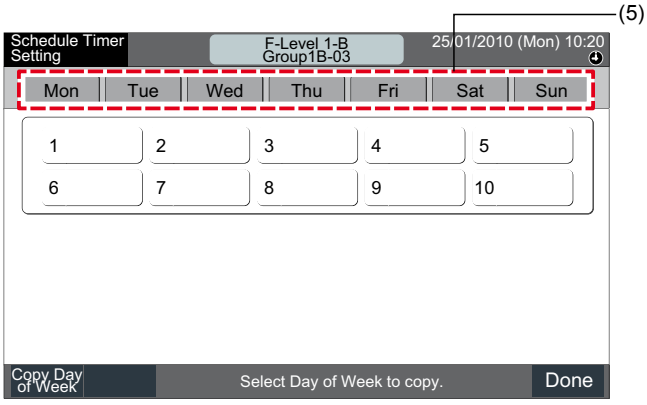
3 Select the target (all groups, block or group).

4 Tap “Copy Day of Week”.

5 Select the day of the week tab to copy.

All the schedules (Schedule Item No. 1 to 10) for the selected day are indicated with yellow.





6 Select the day of the week tabs to paste.

After the day of the week is selected, the mark of “✔” will be indicated in the day of the week tab.

Multiple selection of the days of the week is available to copy.

Tap the day of week for re selecting the day of the week tabs.

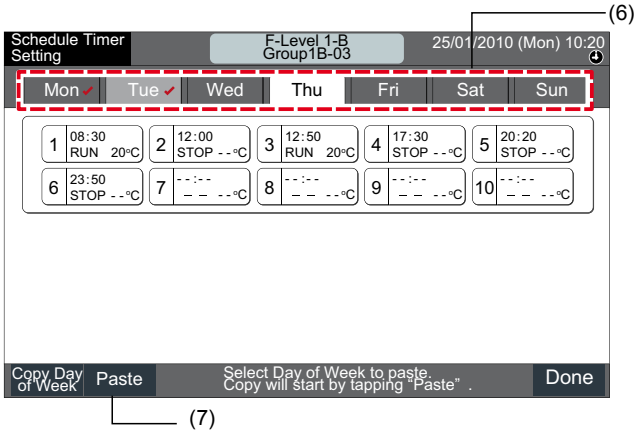
7 Tap “Paste”. The schedule setting is copied.

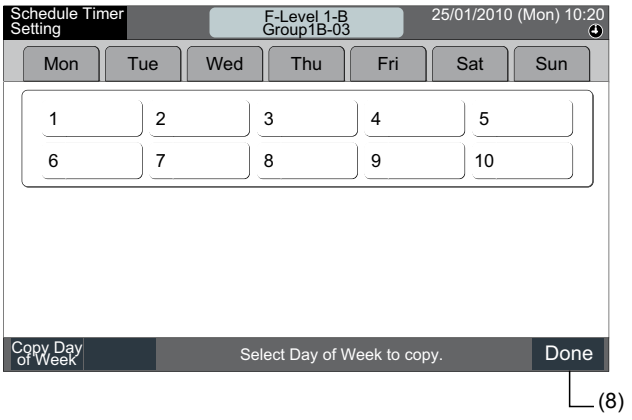
To copy the schedule for other days of the week, refer to the (5).

To finish, refer to the (8).

8 If “Done” is tapped, the screen will return to “Schedule Timer Setting”.

If “Done” is tapped without tapping of “Paste”, the selected items for copy are cancelled.





Copying Schedule Setting by Each Group

1 Select “Schedule Setting” from the screen of “Menu”.

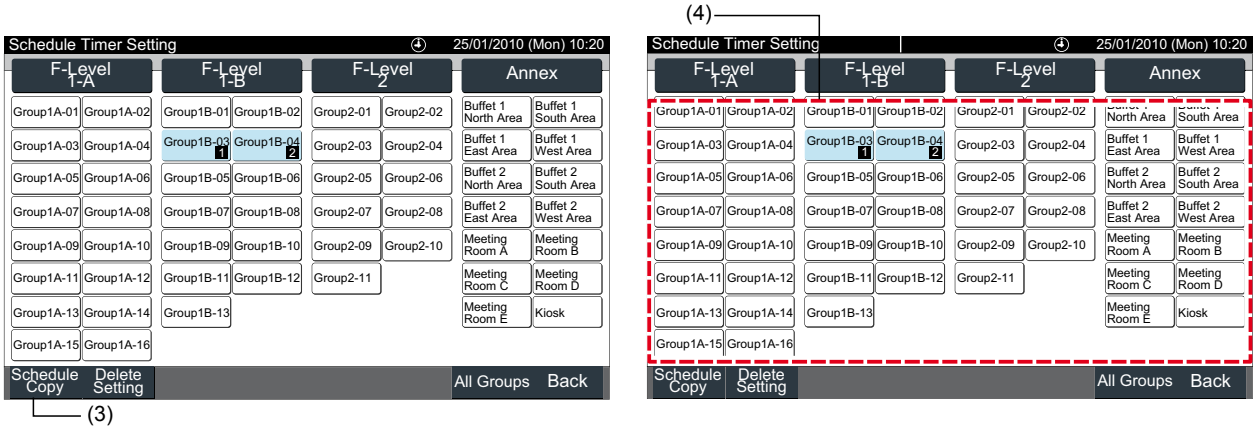
2 Select “Schedule Timer Setting” from the screen of “Schedule Setting”.

3 Tap “Schedule Copy”.

4 Select the group to copy. (Block cannot be selected to copy).

Selected group button is rimmed with orange line.

Tap the selected group again to cancel the selection. The orange line will turn off.



5 Select the group (block) to paste.

The mark of “✔” will be indicated in the button.

Multiple selection of the group (including block) is available to paste.

To cancel the selection, press the selected group again, the mark of “✔” will turn off.

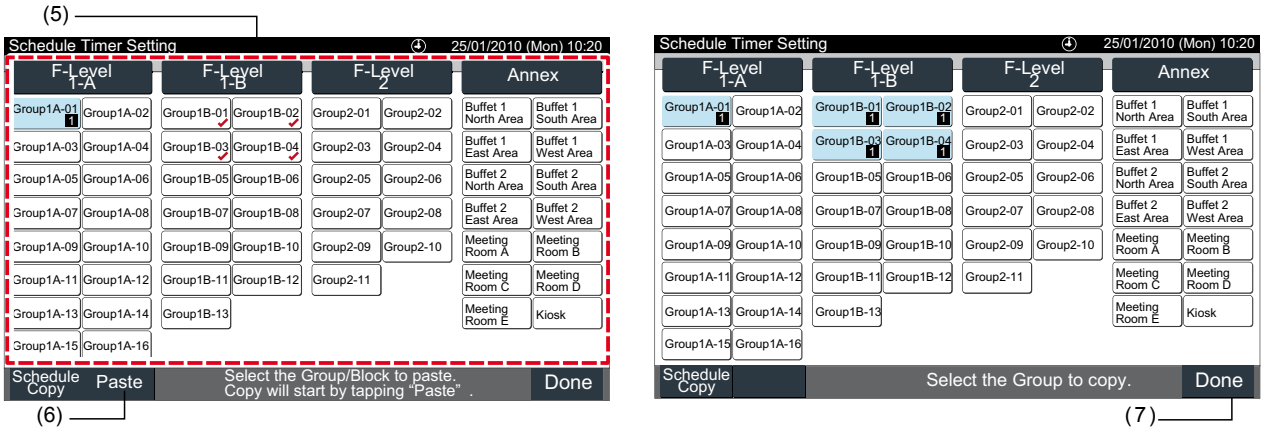
6 Tap “Paste”. The schedule setting is copied.

To copy the schedule for other groups, refer to (4).

To finish, refer to (7).

7 If “Done” is tapped, the screen will return to “Schedule Timer Setting”.

If “Done” is tapped without tapping “Paste”, the selected items for copy are cancelled.



Deleting Schedule Setting by Operation No.

1 Select “Schedule Setting” from the screen of “Menu”.

2 Select “Schedule Timer Setting” from the screen of “Schedule Setting”.

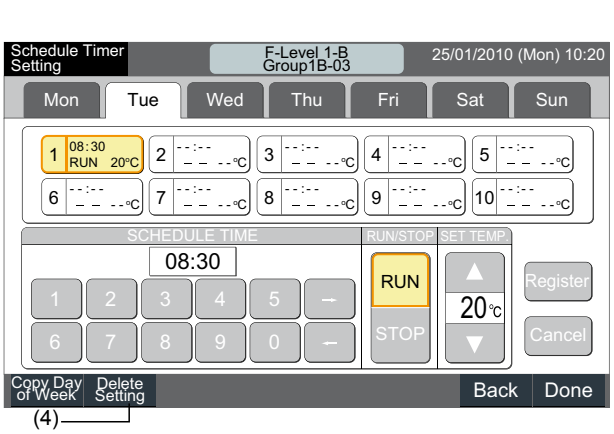
3 Select the target (all groups, block or group).

4 Tap “Delete Setting”.

5 Select the schedule item No. for deleting schedule.

If other days of the week tabs are tapped, the schedule item number for other days of the week can be selected.

If the schedule item number is selected, the mark of “✔” is indicated. Multiple selection of schedule item number is available.



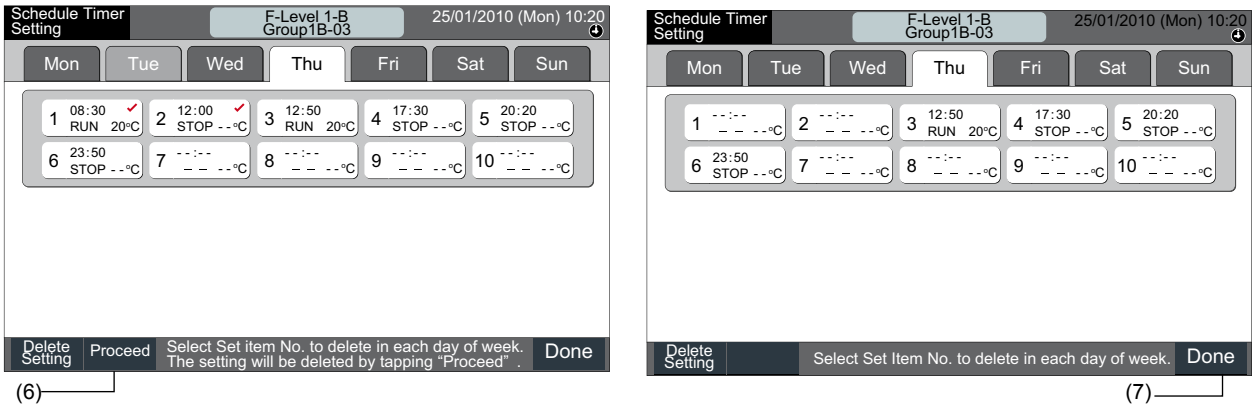
6 Tap “Proceed”. The selected schedule item number will be deleted.

To delete other schedule number, refer to (5).

To finish, refer to (7).

7 If “Done” is tapped, the screen will return to “Schedule Timer Setting”.

If “Done” is tapped without tapping “Proceed”, the selected items for deleting are cancelled.



Deleting Schedule Setting by Each Group

1 Select “Schedule Setting” from the screen of “Menu”.

2 Select “Schedule Timer Setting” from the screen of “Schedule Setting”.

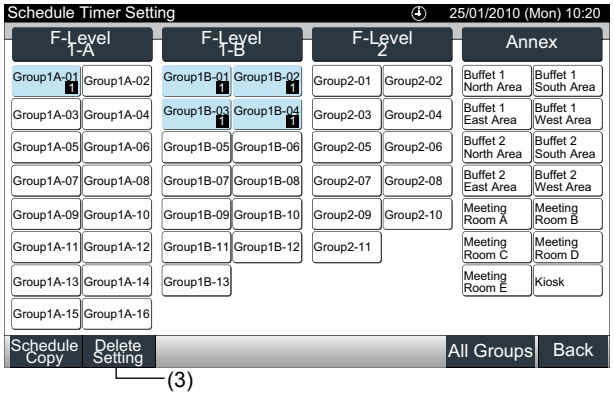
3 Tap “Delete Setting”.

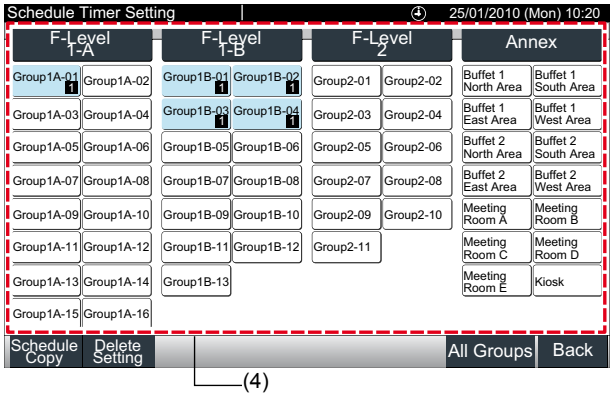
4 Select the groups or blocks to delete the setting.

If the groups or blocks are selected, the mark of “✔” is indicated.

Multiple selection of group and block are available for deleting.

To cancel the selection, press the selected group again, the mark of“✔” will turn off.



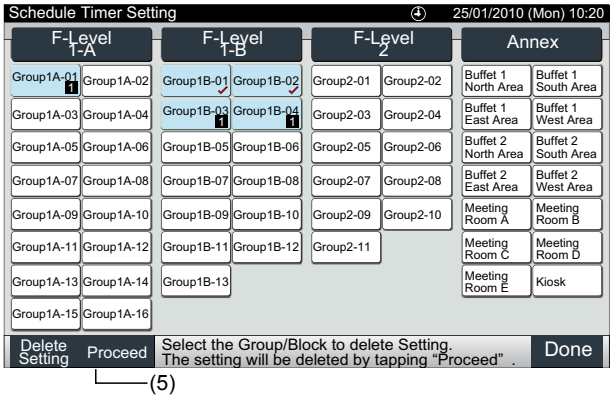


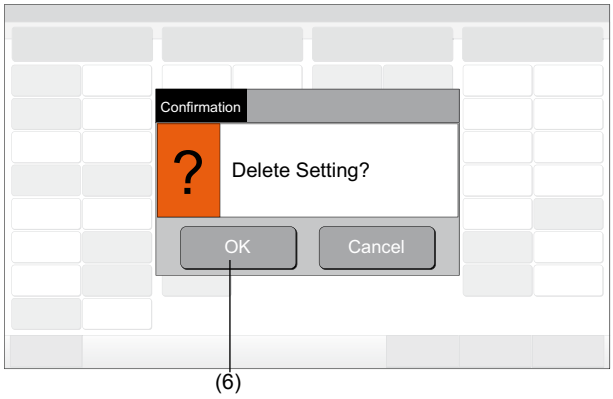
5 Tap “Proceed” and the confirmation screen will be displayed.

6 If “OK” is tapped, the schedule setting will be deleted.

To delete the schedule for other groups, refer to (4).

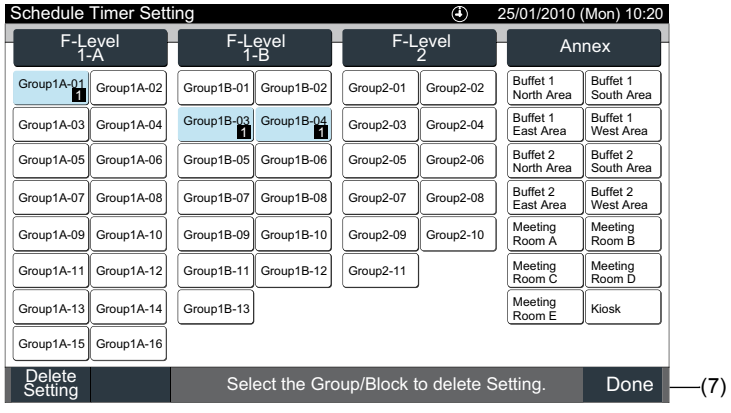
To finish, refer to (7).





7 If “Done” is tapped, the screen will return to “Schedule Timer Setting”.

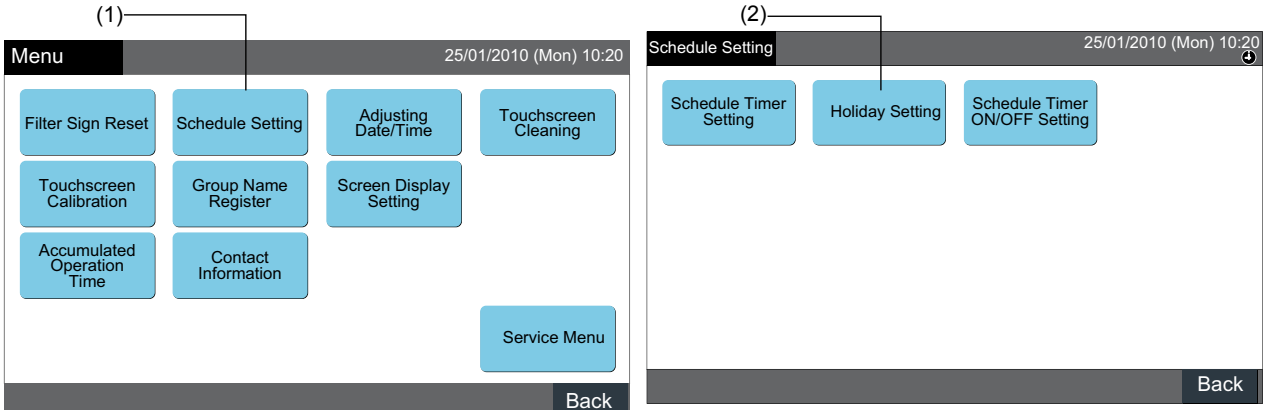
If “Done” is tapped without tapping “Proceed”, the selected groups for deleting are cancelled.



Holiday setting for suspending operation

1 Select “Schedule Setting” from the screen of “Menu”.

2 Select “Holiday Setting” from the screen of “Schedule Setting”.



3 Select the target (all groups, block or group). The calender will be indicated.

Blue button is indicated for the group with holiday set.

White button is indicated for the group without setup holiday.

NOTE

“Holiday” means Operation Suspended Day.

4 Set the date to suspend the scheduled operation.

The calender will be forwards/backwards by tapping “<” or “>”.

By tapping the date on the calendar, the “Holiday” is set with mark of “▢”. “Holiday Setting” is cancelled by tapping the same date again.

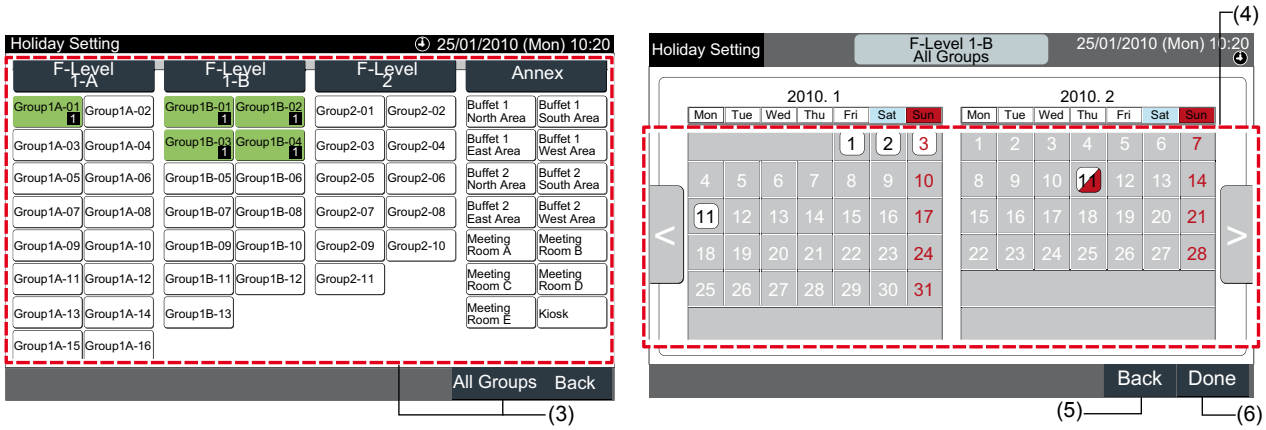
Holiday setting is not available for the days before the present day.

The mark of “▢” will be indicated for the day with holiday set.

With “All Groups” or “Block” selected, the mark of “◪” will be indicated for the day when the groups with setup holiday and the groups without setup holiday are mixed.

5 Tap “Back” to set the schedule for other groups. The screen will return to “Holiday Setting”.

6 Tap “Done” to return to the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.

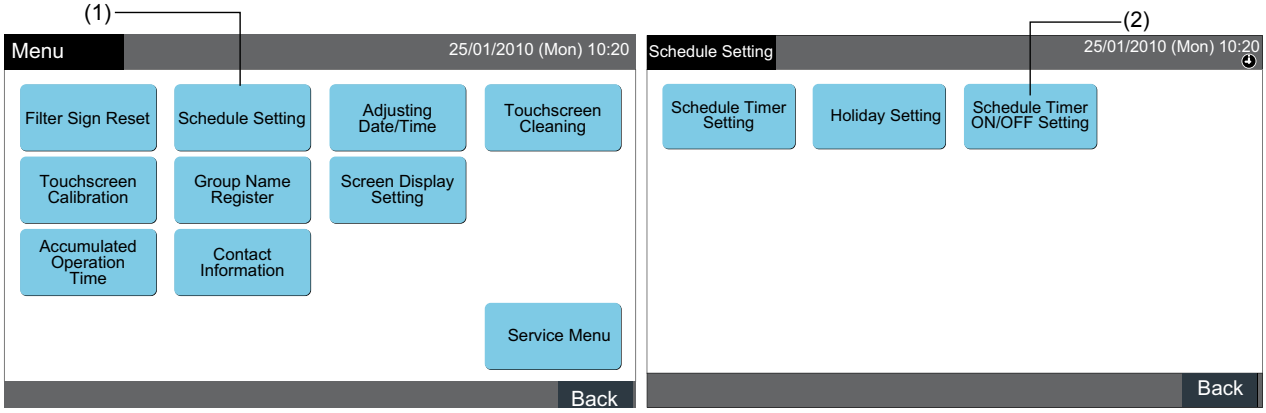


Schedule timer ON/OFF setting

1 Select “Schedule Setting” from the screen of “Menu”.

2 Select “Schedule Timer ON/OFF Setting” from the “Schedule Setting”.

The screen will be changed to the “Schedule Timer ON/OFF Setting”. At first, the setting is “ON” with the mark of “”.



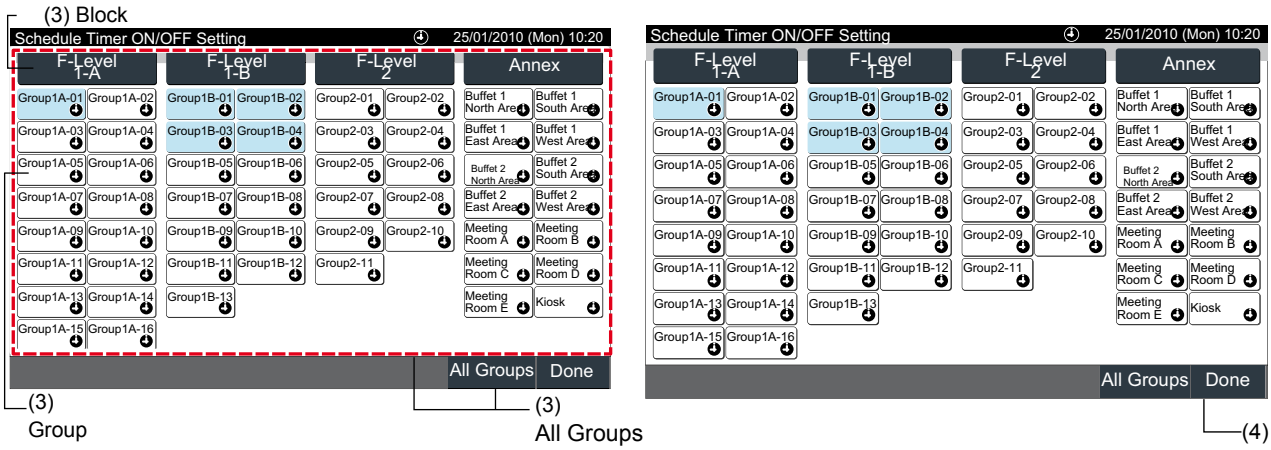
3 Select the target (all groups, blocks or groups).

By tapping the button of all groups, blocks or groups, the indication is changed to the “OFF” setting with the mark of “”.

By tapping the all groups, blocks or groups, the indication is changed alternately in order of “” and “”.

- Blue button is indicated for the group with schedule set.
- White button is indicated for the group with schedule unset.
- Schedule is turned ON:
  Schedule is turned OFF:

4 Tap “Done” to return to the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.

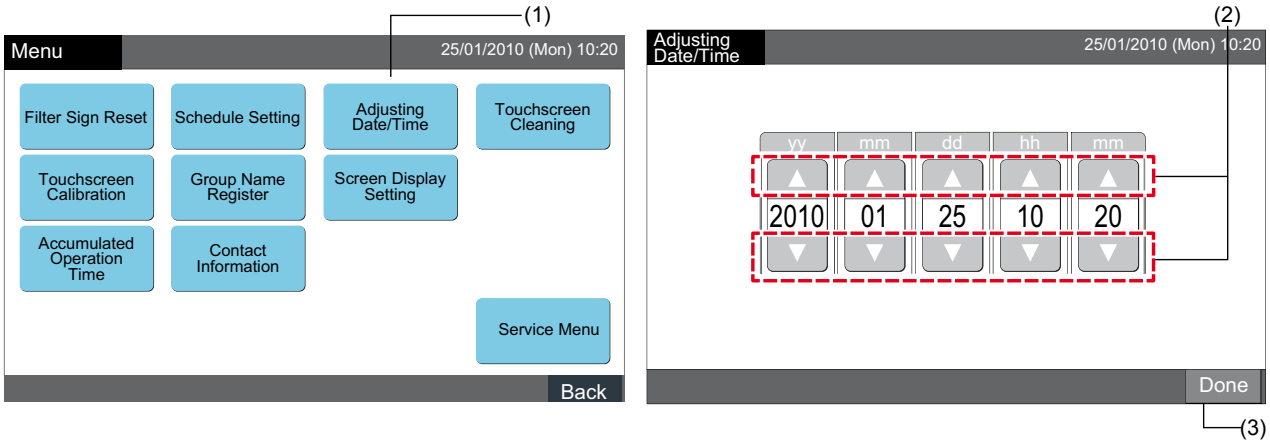


◆ Adjusting Date/Time

1 Select “Adjusting Date/Time” from the screen of “Menu”.

2 Tap or press-and-hold “△” or “▽” to adjust the date and time.

3 Tap “Done” to return to the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.



NOTE

- *According to the backup function of the central station, the clock works for 10 days (approx.) after the electric power failure. Set the date and time again after long-term electric power failure.*
- *Periodical clock adjustment is Recommended. (Clock accuracy: difference +70 sec. per month).*

◆ Touchscreen Cleaning

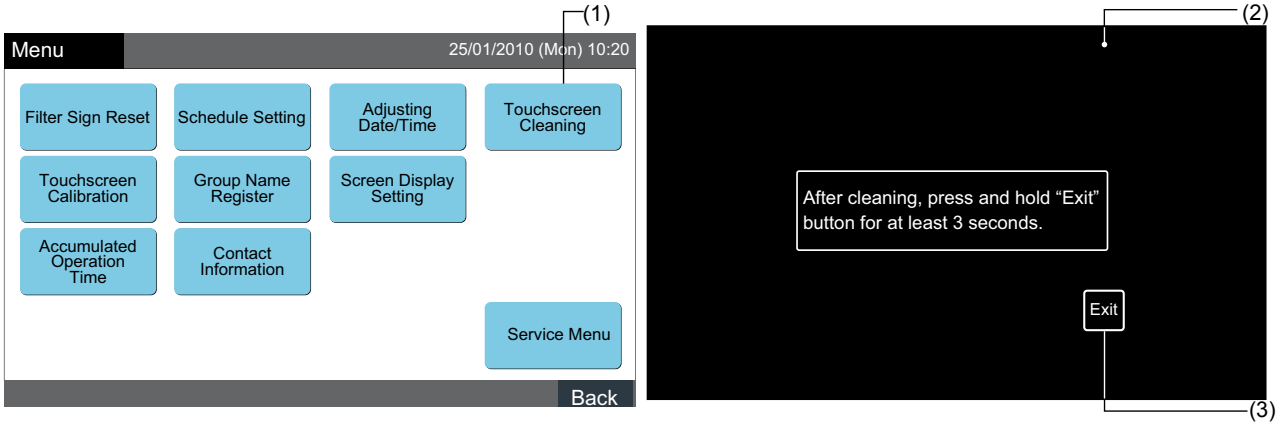
1 Select “Touchscreen Cleaning” from the screen of “Menu”.

2 The screen will be changed as shown in the figure (2).

The screen will be locked until “Exit” is pressed and held for at least 3 seconds.

Clean the touchscreen display while the screen is locked.

3 Press and hold “Exit” for at least 3 seconds to return to the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.

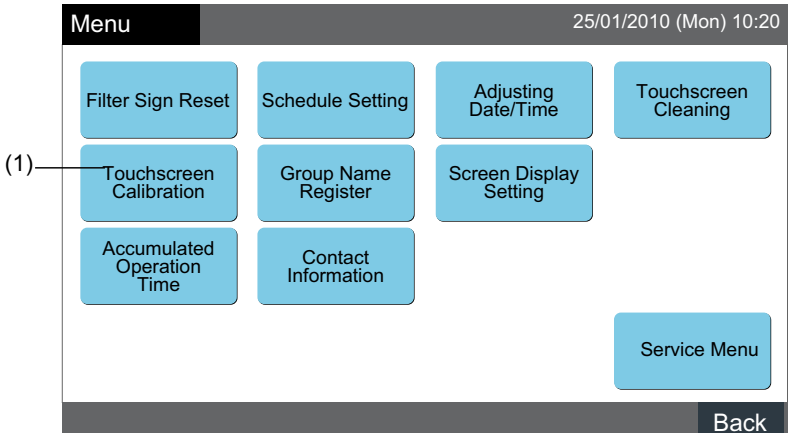


NOTE

- *Clean and wipe the display with dry and soft cloth.*
- *For oil and fat on the touchscreen such as finger print marks, use diluted neutral detergent. Before cleaning, wring water out to dry. After that, again wipe the display with dry and soft cloth.*
- *Do not use benzine, thinner or surface active agent in order to protect the touchscreen and body from deformation or deterioration.*

◆ Touchscreen Calibration

1 Select “Touchscreen Calibration” from the screen of “Menu”.



2 Calibrating touchscreen

Tap every intersections of white lines sequentially indicated on the screen.

After that, the screen will be changed to (3).

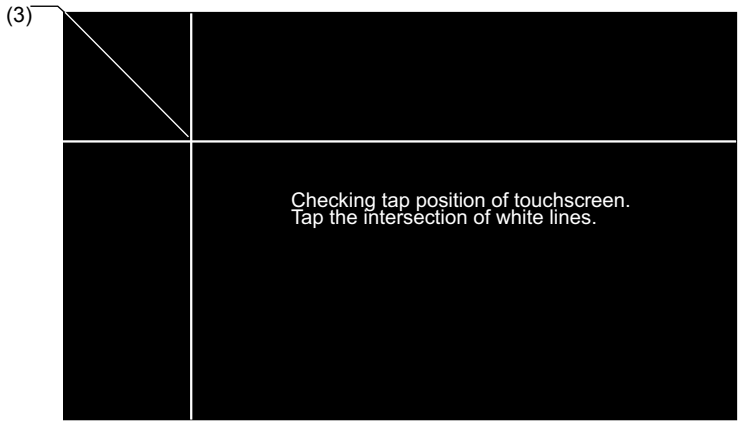
If the intersections of white lines are not recognized normally, “Calibration is cancelled” will be displayed on the screen. And then, the screen will automatically return to the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)” without calibrating.

3 “Checking tap position of touchscreen”

Touch the intersection of white lines sequentially according to the screen indication.

The white dots will be indicated when tapping other than the intersection of white lines.

When every intersections of white lines are normally recognized, the screen will automatically return to the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.

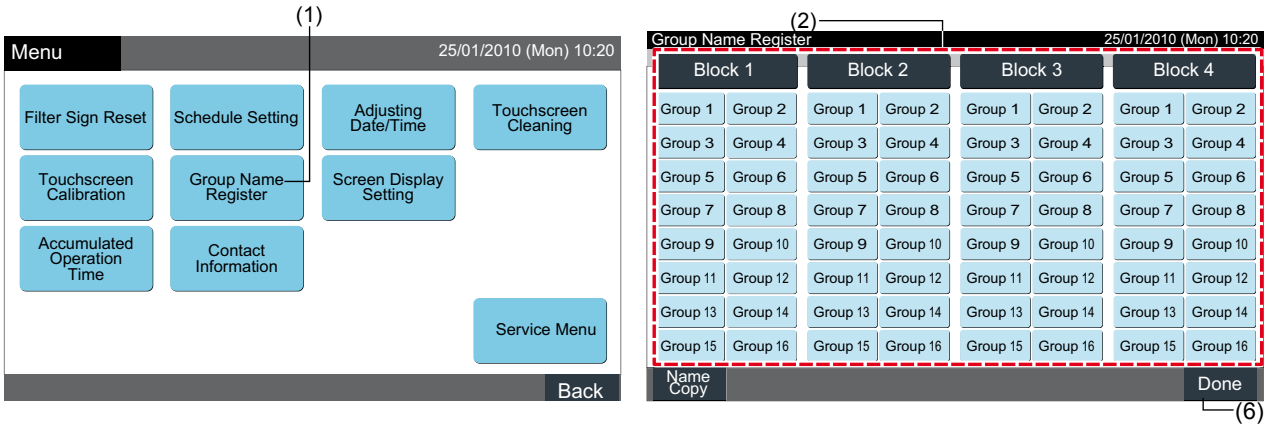


◆ Registering Groups/Blocks Name

Registering name of group (Block)

1 Select “Group Name Register” from the screen of “Menu”.

2 Select the target (block or group) to register the name.



3 Select the letter type from “Capital Letter”, “Small Letter”, “Symbol 1” or “Symbol 2”.

If “Delete Name” is pressed, the registered name for the selected group (block) will be deleted. If “Close” is tapped without inputting the group (block) name, the screen will return to “Group Name Register” and indicate the group (block) name as Group 1 (Block 1).

NOTE

The “Delete Name” will be switched to “Delete” by tapping any keys (except the letter tabs).

4 Enter the group (block) name and tap “Close”.

The screen will return to “Group Name Register” and entered name is stored.

5 Perform 3 and 4 to enter the name for other groups (block).

6 Tap “Done” on the screen of (2) to return to the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.

NOTE

The registrable number of letters are maximum 20 for the name of the group (block). If “↵” is pressed, the name is indicated in 2 lines (10 letters/line) on the touchscreen display.

Copying name of group (Block)

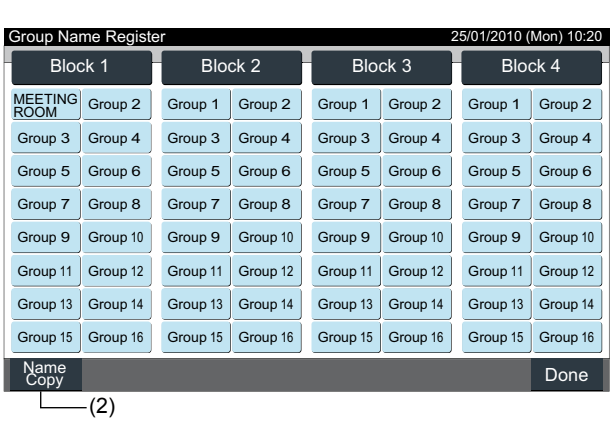
1 Select “Group Name Register” from the screen of “Menu”.

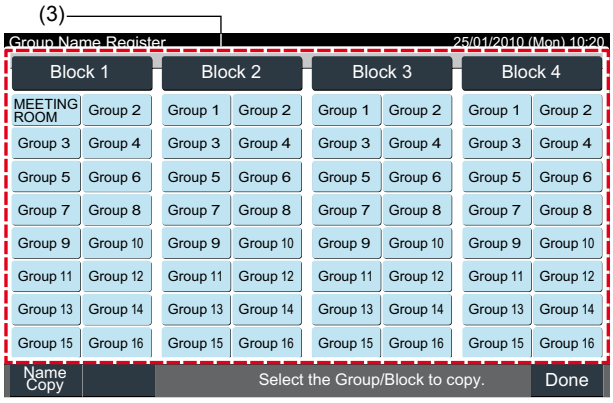
2 Tap “Name Copy”.

3 Select the source group (block) to copy.

Selected group (block) button is rimmed with orange line.

Press the selected group (block) again to cancel the selection. The orange line will turn off.





4 Select the destination group (block) to paste.

The mark of “✔” will be indicated in the button.

Multiple selection of group (block) is available to paste.

To cancel the selection, press the selected group (block) again, the mark of “✔” will turn off.

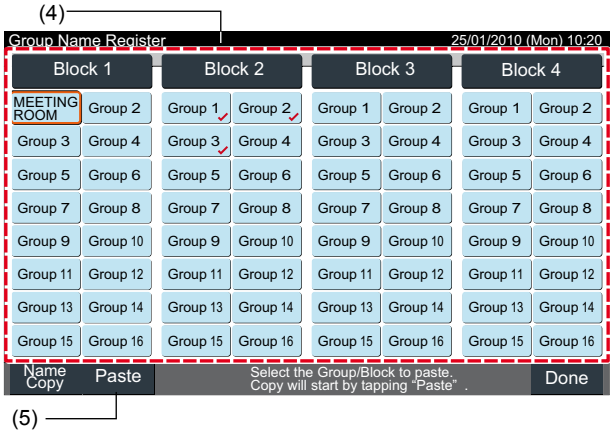
5 Tap “Paste”. The name of the group (block) is copied.

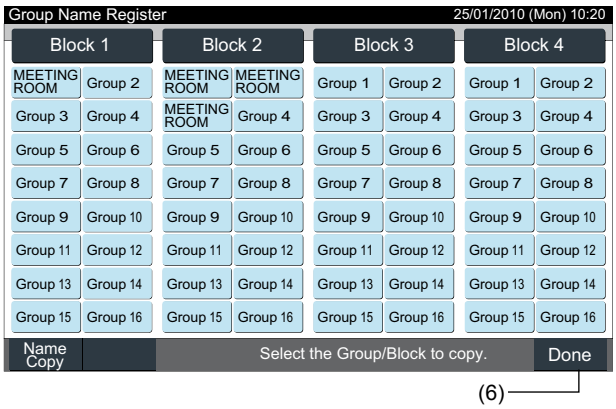
To copy the name of other groups, refer to (3).

To finish, refer to (6).

6 If “Done” is tapped, the screen will return to “Group Name Register”.

If “Done” is tapped without tapping “Paste”, the selected items for copying are cancelled.

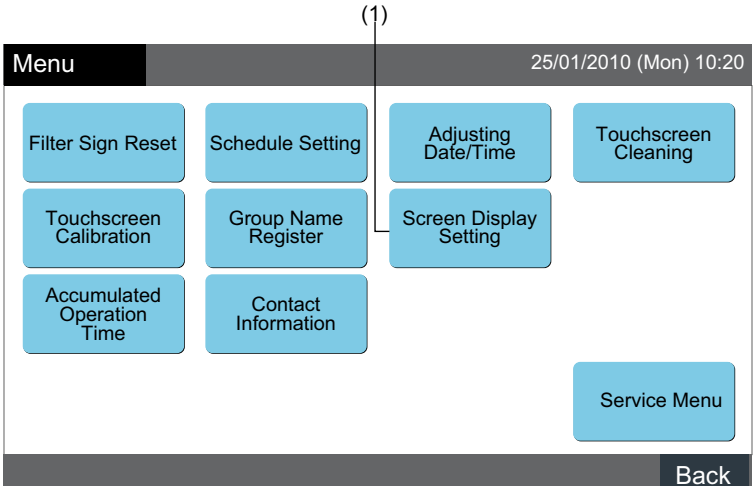




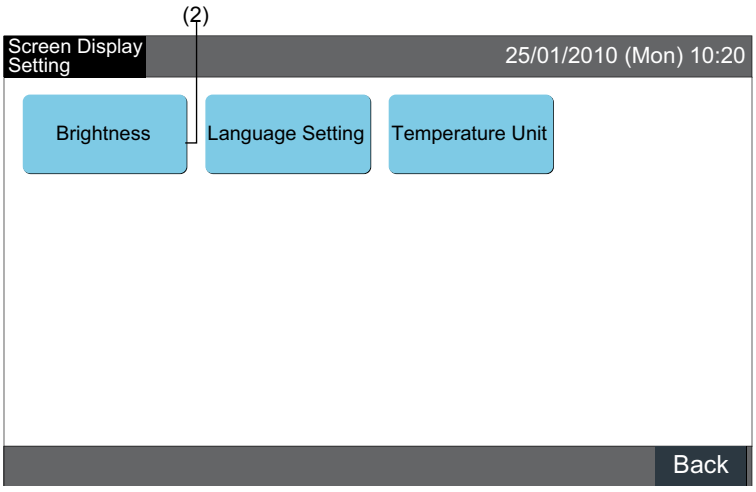
◆ Screen Display Setting

Adjusting backlight brightness of touchscreen display

1 Select “Screen Display Setting” from the screen of “Menu”.

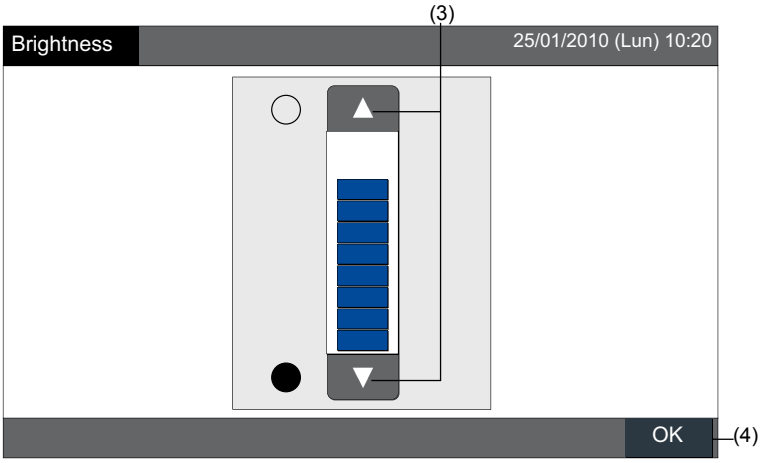


2 Select “Brightness” from the screen of “Screen Display Setting”.



3 Tap “△” or “▽” and adjust the brightness of the backlight.

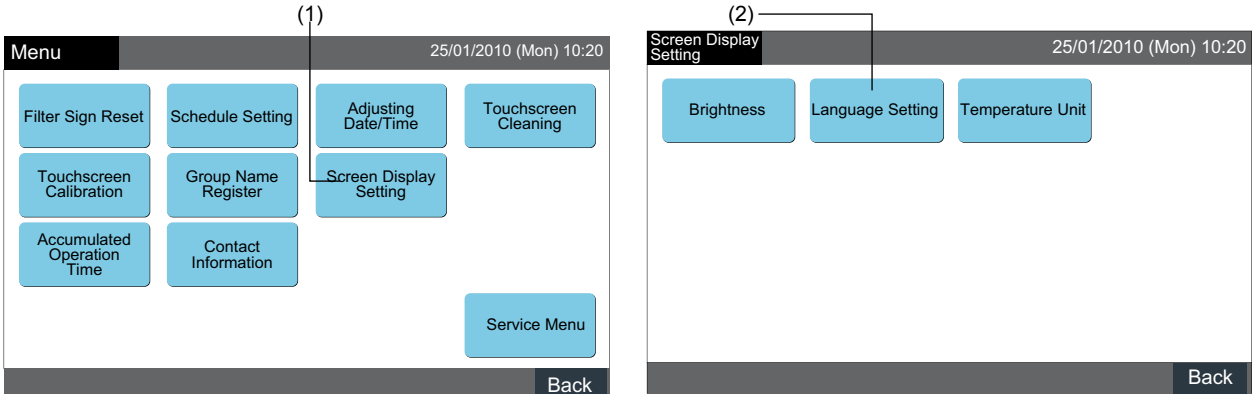
4 Tap “Done” to return to the screen of “Screen Display Setting”.



Language setting

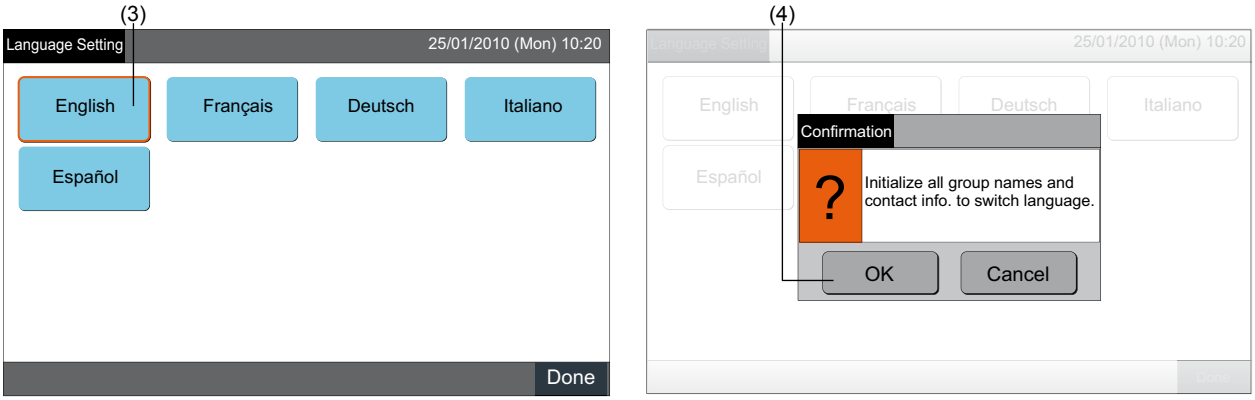
1 Select “Screen Display Setting” from the screen of “Menu”.

2 Select “Language Setting” from the screen of “Screen Display Setting”.



3 The confirmation screen is displayed when selecting the language button.

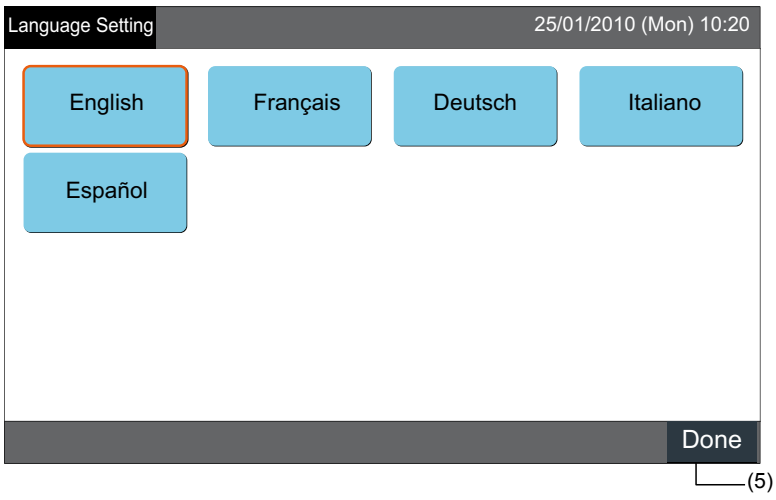
4 Tap “OK” at the confirmation screen.



NOTE

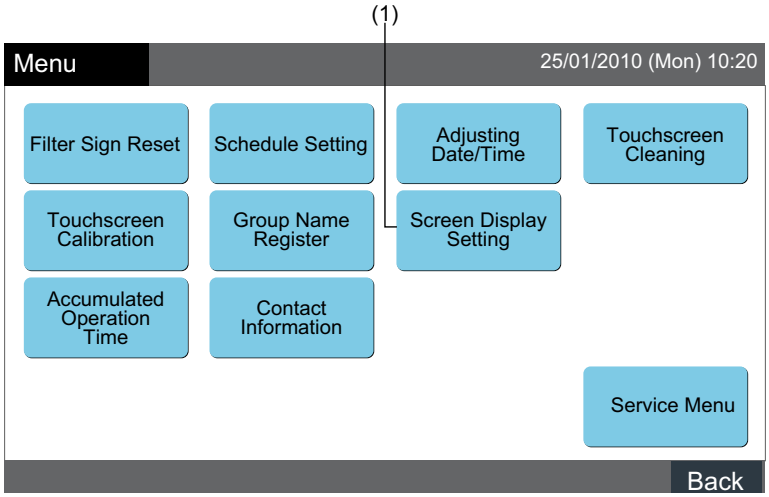
If language is changed, the registered block/group name and contact information will be initialized.

5 Tap “Done” to return to the screen of “Screen Display Setting”.

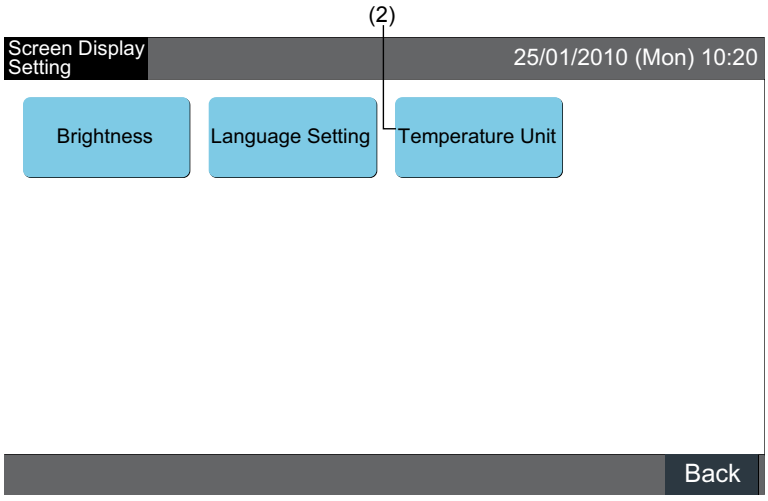


Temperature unit setting

1 Select “Screen Display Setting” from the screen of “Menu”.

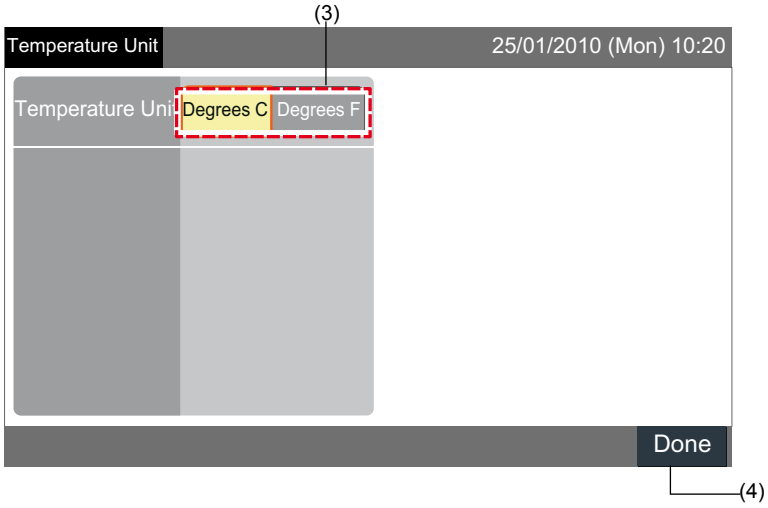


2 Select “Temperature Unit” from the screen of “Screen Display Setting”.



3 Select “Degrees C” or “Degrees F” for the operating button indication. The selected button colour is changed.

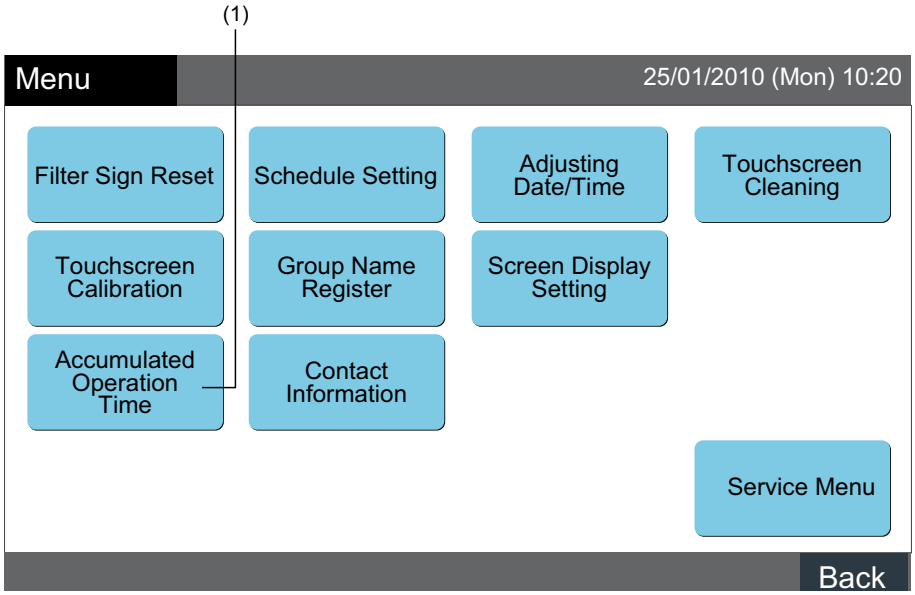
4 Tap “Done” to return to the screen of “Screen Display Setting”.



◆ Accumulated Operation Time of Unit

Display by month

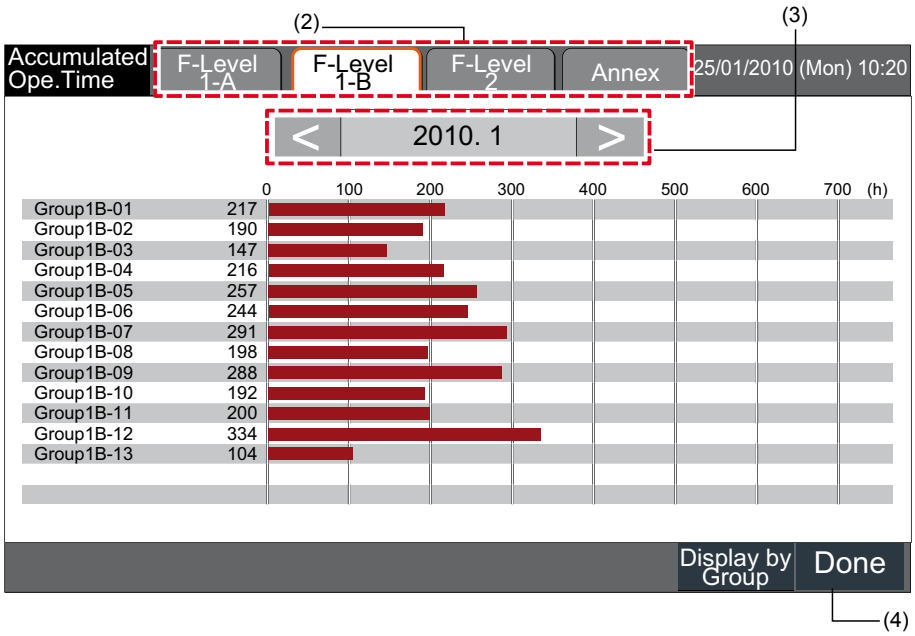
1 Select “Accumulated Operation Time” from the screen of “Menu”.



2 Select the target block.

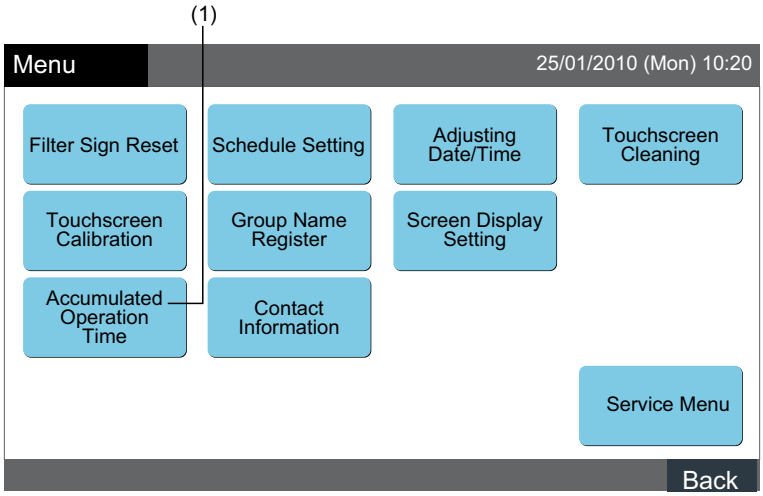
3 Tap “<” or “>” and select the target month. The operation time for the groups in the selected block are indicated according to the selected month.

4 Tap “Done” to return to the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.

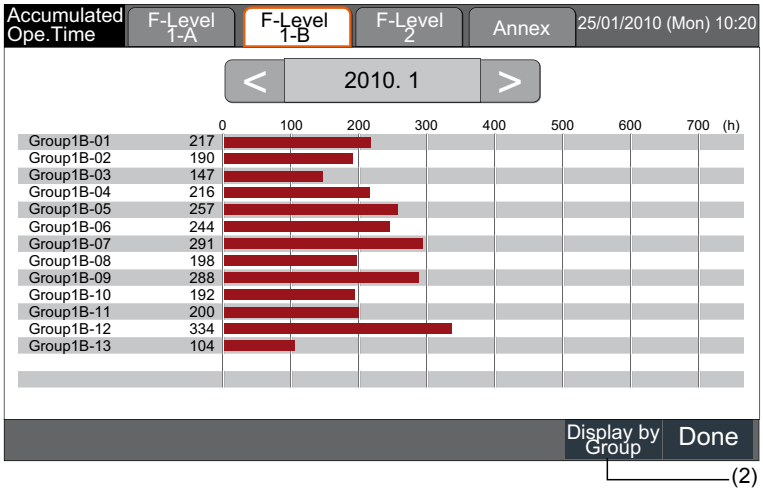


Display by group

1 Select “Accumulated Operation Time” from the screen of “Menu”.



2 Tap “Display by Group”.

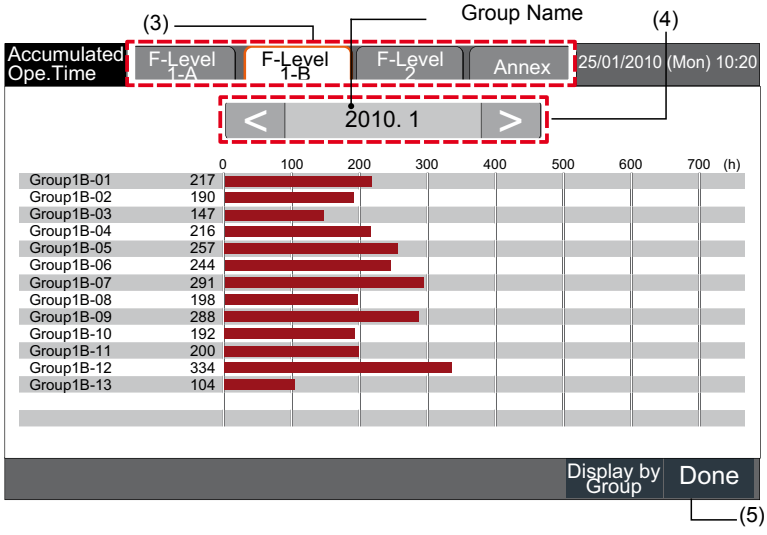


3 Select the target block tab.

4 Tap “<” or “>” and select the target group. The operation time for the group in the selected block is indicated.

5 Tap “Done” to return to the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.

If “Display by Month” is pressed, the screen will be changed to (2).



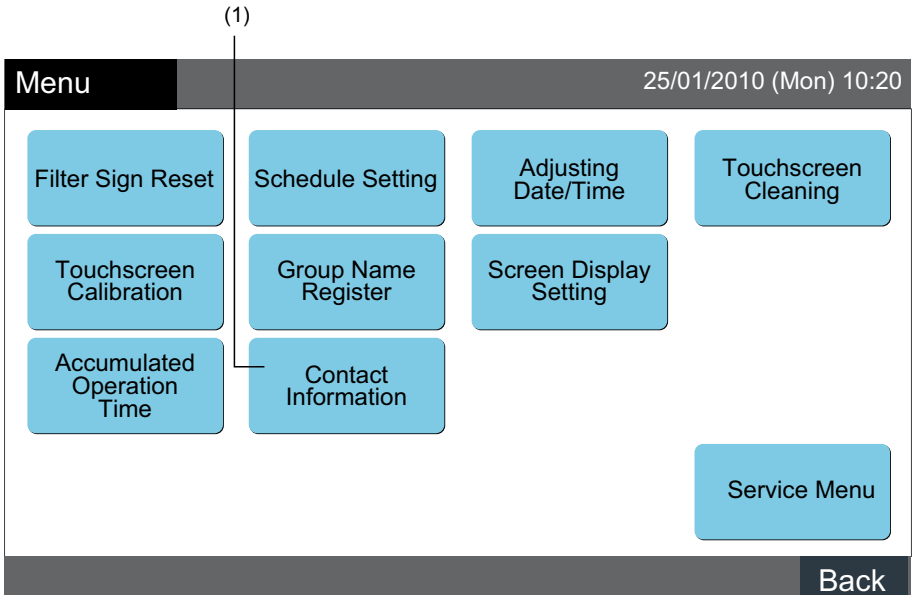
NOTE

Accumulated operation time of this central station is for only reference. Hitachi does not warrant about above reference accumulated operation time.

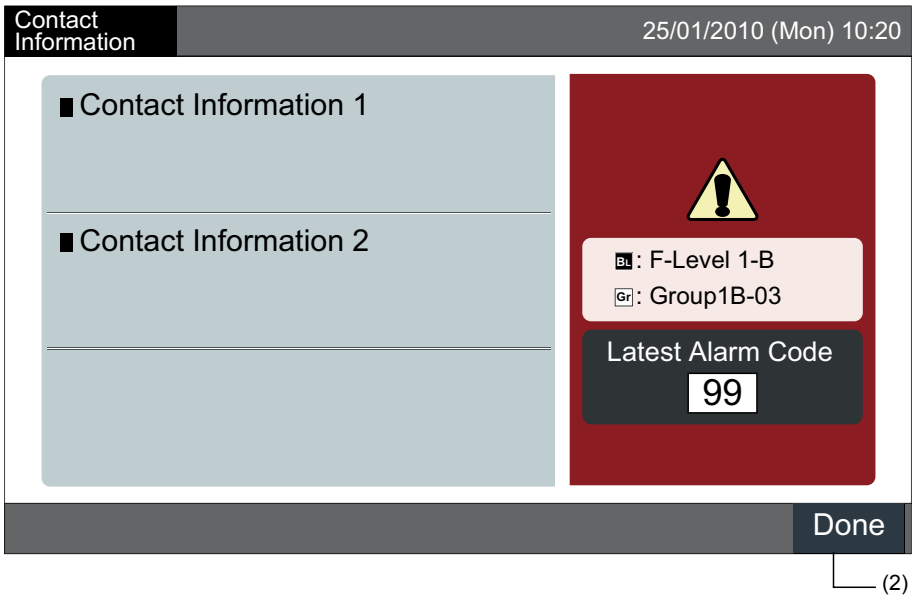
◆ Contact Information

1 Select “Contact Information” from the screen of “Menu”. The following information will be displayed:

- Contact address
- Block/group name of the latest alarm
- Latest alarm code



2 Tap “Done” to return to the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.



NOTE

- *This function is not available if there is no contact address registered.*
- *Without alarm occurrence, the name of the target block/group and the alarm code will not be indicated.*

5.1.4.4 Service Menu

NOTE

This switch is for the serviceman only. Therefore do not use it.

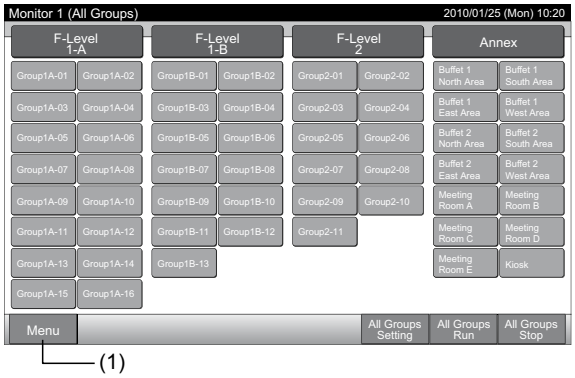
If this switch is used and the service menu is indicated on the screen, tap "Back". The screen will return to the menu.

Items		Contents
Group Register		The connected indoor units are checked by the central station in the same H-LINK. This function is used for the group or block registration of them.
	Main Unit Register	This function is used for the main unit registration in the each remote control group. (The main unit is the only one (1) in the one (1) remote control group.) The control command is sent from the central station to the main unit for the remote control group.
	Sub Unit Register	This function is used for registration of the sub units except the main unit in the same remote control group. In the case of using the remote control switches or the receiver kits as follows, the sub units are registered automatically by the central station after the main unit registration. • The remote control switches and the receiver kits which model names start from PC-A**. • The remote control switches which model names start from PC-P**.
Optional Function Setting		This function is used for setting and changing of the optional functions for the air conditioners and the central stations.
Exception Setting of Run/Stop Operation		This function is used to specify exceptional Groups/Blocks for All Run/Stop command. The All Run/Stop command will not be affected to the specified group/block.
	Selecting of Exception Operation	This function is used to select which of the followings will be excepted. • Run • Stop • Run and Stop
	Selecting of Exception Groups	This function is used to select All Run/Stop command of which of the following items will be excepted. • All Groups Run/Stop • Run/Stop by Block • All Groups Setting • Setting by Block
External Input/Output Setting		Two (2) external input terminals and two (2) external output terminals are equipped in the central station. These terminals are used for "All Groups Run/Stop" and "Demand Function" operations for the connected air conditioners. The external output terminals are used for the operation signal output of the air conditioners which is connected to the central station.
Exception External Input		This function is used for cancelling the operation commands such as "All Groups Run/Stop", etc. by the external input signal. "Exception External Input" is available for each external input (Input 1 and Input 2).
	Selecting Groups of Exception External Input 1	This function is used for selecting the group to cancel of operation command from the external input 1.
	Selecting Groups of Exception External Input 2	This function is used for selecting the group to cancel of operation command from the external input 2.
Demand Function Setting		This function is used for setting of "Demand Function" to the terminal of "Input 1". The operating condition is changed by the demand signal such as the operation stop, Thermo-OFF, etc. "Demand Function" is available under the following conditions. **1** Select "Demand Function" at "Input 1" on the "External Input/Output Setting" screen. ("Demand Function" will not be available without this setting.) **2** Select one of "Demand Function" No.1 to No.4 at "Demand Function Setting" screen.
	Demand Function Setting	This function is to select the action at "Demand Function" control.
	Selecting Group for Demand Function	This function is to select the target group for "Demand Function" control.
Button Setting		This function specifies each button to be shown/hidden. This function also includes specification/setting for "one-tap operation" or "press and hold" operation.
Contact Information Register		This function is used for editing the contents of contact information registration.
Restore Setting		This function is used for restoring all the settings such as registered Groups (Blocks) and schedules.

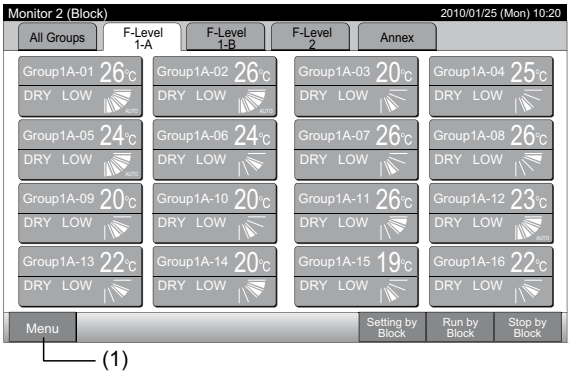
Items	Contents
Checking Connection	This function is used for checking of the connected indoor unit numbers in the same H-LINK. When this function is used, the confirmation for the keeping of registered information such as the group names, schedules, etc. will be indicated. If “OK” is tapped, the connected indoor unit numbers are updated with keeping the registered information. If “Cancel” is tapped, the setting of the central station is all restored.
Alarm History	This function is used for displaying the list of alarm history that occurred in the air conditioner and the controller. (Maximum 100 records)

1 Tap “Menu” on the “Monitor (All Groups)” or “Monitor (Block)” screens.

Monitor 1 (All Groups)



Monitor 2 (Block)



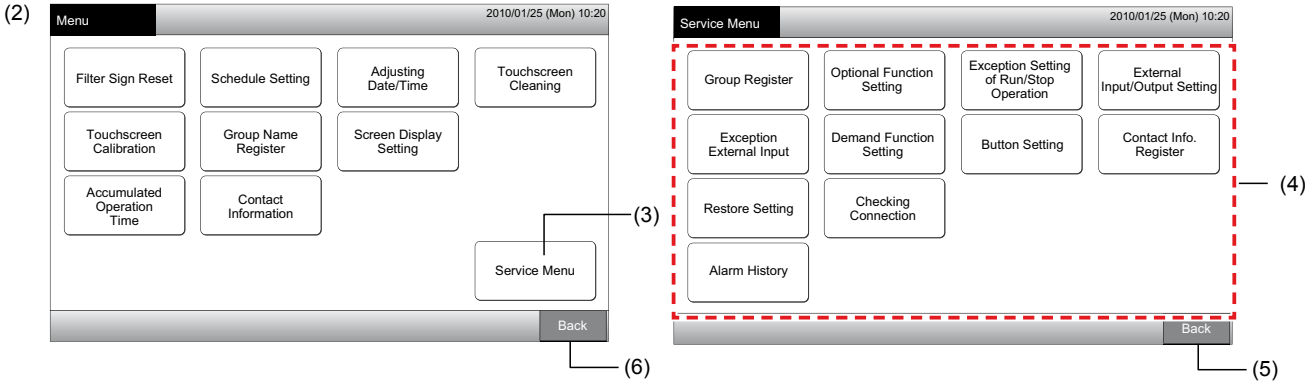
2 “Menu” screen is displayed.

3 Press and hold “Service Menu” for at least 3 seconds. “Service Menu” is displayed.

4 Select the service menu item by tapping each item button. The setting screen of the tapped item will be displayed.

5 Tap “Back” on the “Service Menu” to return to the “Menu” screen.

6 Tap “Back” on the “Menu” to return to Monitor screen.



NOTE

Following items are available only when none of the air conditioners (connected to the central station) is being operated.

** Optional Function Setting*

** External Input/Output Setting*

** Exception External Input*

** Checking Connection*

Stop the operation of all indoor units when selecting the items above. After that, perform the operation of (1) to (3).

◆ Group register

NOTE

This function is detailed in section "Test run" since it is a required item when performing the Test run procedure.

◆ Optional Function Setting

This function is used for setting and changing the function selection of air conditioner and central station listed in the following table.

Function	Description
Fixing Operation Mode	Set "Fixing Operation Mode" to "Enable" to fix the present operation mode. The operation mode is fixed to the present settings, which cannot be changed from the remote control switch or from the central station.
Fixing Temperature Setting	Set "Fixing Temperature Setting" to "Enable" to fix the present set temperature. The setting temperature is fixed to the present settings, which cannot be changed from the remote control switch or from the central station.
Cooling Only	Set "Cooling Only" to "Enable" to fix the operation mode to cooling. This function is used when setting heat pump models to restricted operation in cooling only. Operation modes "HEAT" and "AUTO" cannot be selected from the remote control switch or from the central station.
Auto	Set "Auto" to "Enable" to use the cooling/heating automatic operation. It is possible to set this mode from the remote control switch and from the central station. However, "AUTO" cannot be selected in the following cases: * When connected to a cooling-only model. * When the "Cooling Only" function is enabled.
Fixing Fan Speed	Set "Fixing Fan Speed" to "Enable" to fix the fan speed. The fan speed is fixed to the present settings, which cannot be changed from the remote control switch or from the central station.
Control Mode	This function is used for switching the control mode of the central station between "Normal" and "Run/Stop Only" *Normal: The settings of each group are displayed when tapping its button. This is the control mode by default. *Run/Stop Only: The control mode at "Monitor 1" and "Monitor 2" is changed to "Run and Stop" for each group only. Tapping the button of each groups has the effect of switching its operation on and off, without changing any of the settings.
OFF time Remote control prohibition	Set to "Enable" in order to set the prohibition of all remote control operation (all the items) together with a stop order to the remote control at the OFF time of the schedule function of the controller. In this case, the prohibition of all remote control operation (all the items) is cancelled at the ON time, but there is no operation order. This function cannot be set when there is a prohibition of remote control operation (for individual items). Set this function to "Disab." in such cases.
Display of Accumulated Operation Time	Tap "Disable" to hide the numerical value of the accumulated operation time. Before setting, tap "All Groups" at "Optional Function" screen.

NOTE

- *"Optional Function Setting" contents are set to the group by the central station, check the setting from the remote control switch in the same group. If setting is not reflected, set same contents by the remote control switch. In the same way, "Optional Function Setting" contents such as "Fixing Operation Mode", "Fixing Temperature Setting", "Cooling Only", "Fixing Fan Speed" or "Auto" are set to the group by the remote control switch, check the setting from the central station. If setting it not reflected, set same contents by the central station.*
- *Number 3 of "Demand Function Setting" is set to the group, the setting temperature is reset to 20 ºC (in heating operation) or 28 ºC (in cooling operation) when the demand signal is OFF. In the case, both of "Fixing Temperature Setting" and Number 3 of "Demand Function Setting" are set to group, the fixed temperature is not changed even if the demand signal is OFF.*
- *Do not set "Power Supply ON/OFF 1 and 2" by remote control switch when the function "RCS Operation Prohibited" is used. If use "Power Supply ON/OFF 1 and 2" mode, the function "RCS Operation Permitted" setting is required.*

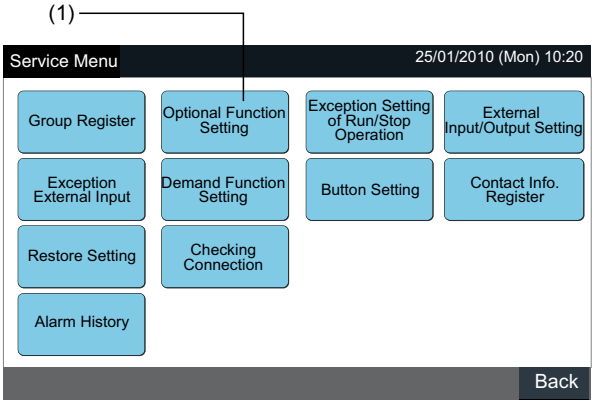
1 Select “Optional Function Setting” on the “Service Menu” screen when the air conditioners are not in operation.

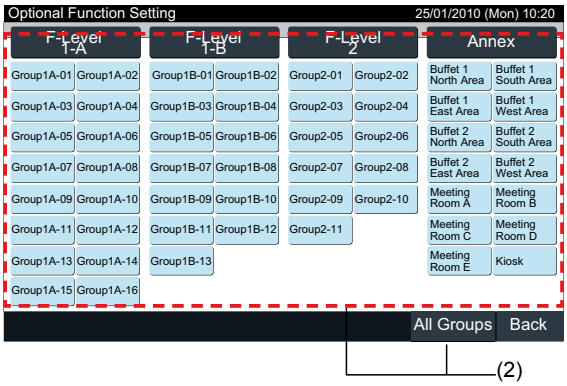
NOTE

This function cannot be selected when the air conditioner is operating.

2 Select the target groups or block for “Optional Function Setting” by tapping “All Groups”, “Block” or “Group”.

- Select “All Groups” for the optional function setting when the following item settings are changed.
- Operation mode
- Display of Accumulated Operation Time





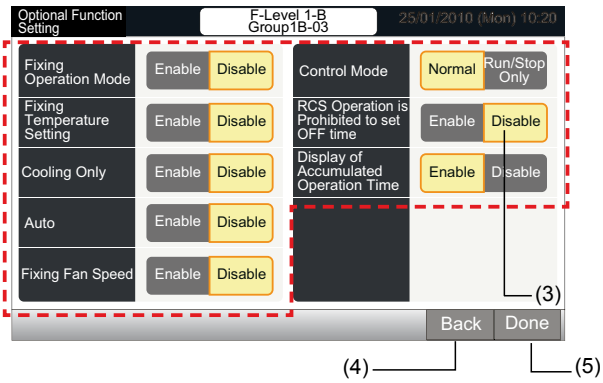
3 Select “Enable” or “Disable” for the each function.

The button colour of selected function is changed to yellow with orange rim.

Proceed to select the optional function setting depending on the setting afterwards.

Set the optional function of other group. (4)

Exit the optional function setting. (5)



4 Tap “Back” to return to the screen of “Optional Function Setting”. Repeat (2) and (3) to set “Optional Function Setting”.

5 Tap “Done” to finish this setting. The screen is returned to “Service Menu”.

◆ Exception Setting of Run/Stop Operation

This function is used in cases of exception to the command of “All Groups Run/Stop” operation and “Run/Stop by Block” operation to the selected groups or blocks.

Selecting of “Exception Setting of Run/Stop Operation” (All Groups/Block) is available as follows.

- Run and Stop
- Run
- Stop

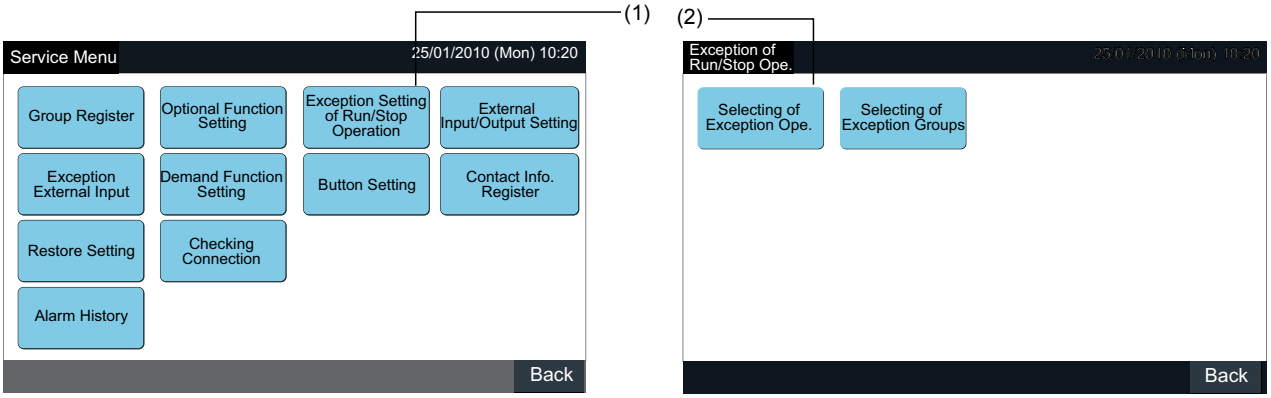
NOTE

- *“All Run/Stop” and “Run/Stop by Block” command will not be affected when they are set to the groups/blocks. However, these commands are affected as follows even this function is set.*
  - Scheduled Timer Operation.
  - “All Run/Stop” and “Run/Stop by Block” by External Input command.
- *“Run/Stop” operation is available when the group is selected individually.*

Selecting of exception operation

1 Select “Exception Setting of Run/Stop Operation” on the screen of “Service Menu”.

2 Select “Selecting of Exception Ope.” on the screen of “Exception of Run/Stop Ope.”



3 Select the operation button for exception.

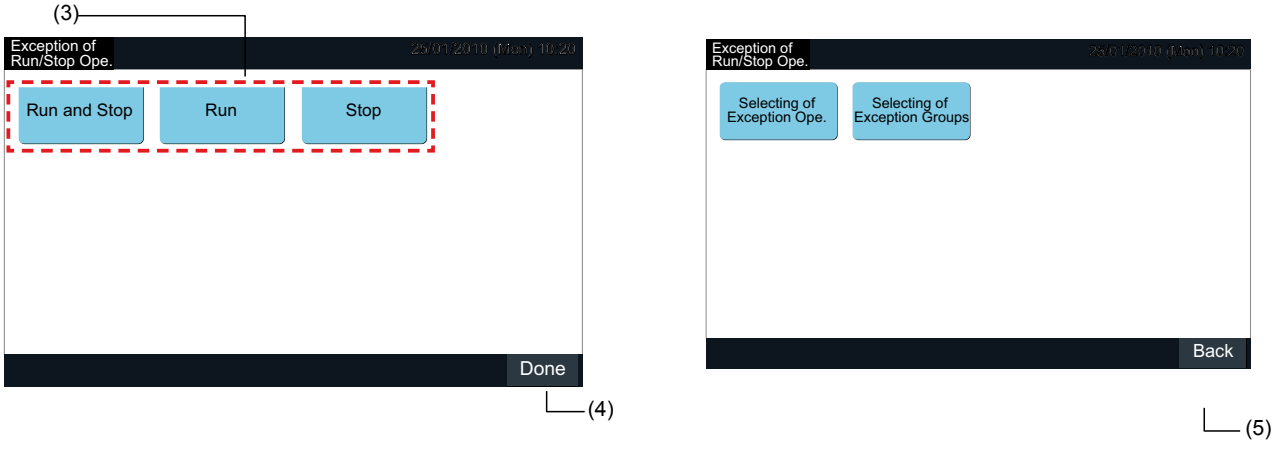
The selected button is rimmed with orange line.

4 Tap “Done” to return to the screen of “Exception of Run/Stop Ope.”

NOTE

If the target groups for the exception setting of Run/Stop operation are not selected, tap “Selecting of Exception Groups” and select the target groups.

5 Tap “Back” to return to the screen of “Service Menu”.



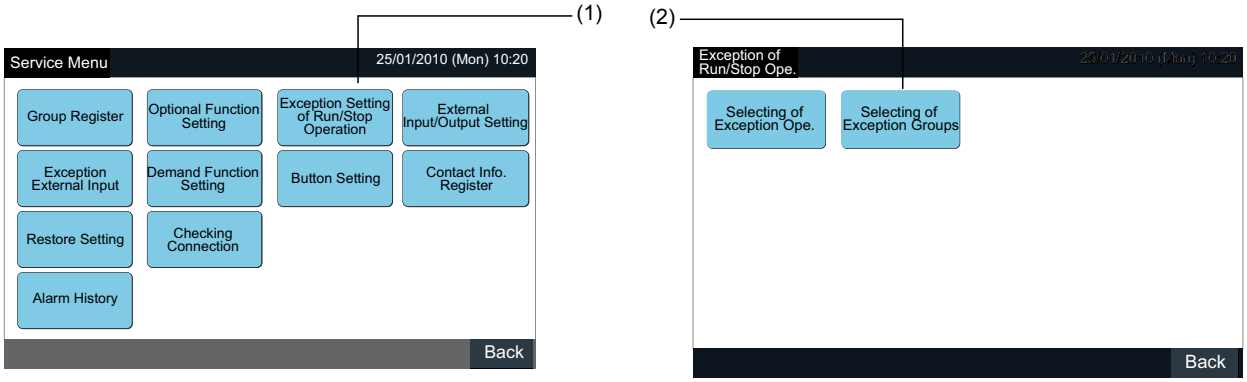
Selecting of exception groups

1 Select “Exception Setting of Run/Stop Operation” on the screen of “Service Menu”.

2 Select “Selecting of Exception Groups” on the screen of “Exception of Run/Stop Ope.”

NOTE

The button of “Selecting of Exception Groups” cannot select when “Selecting of Exception Ope.” is not set. Set “Selecting of Exception Ope.” content firstly.

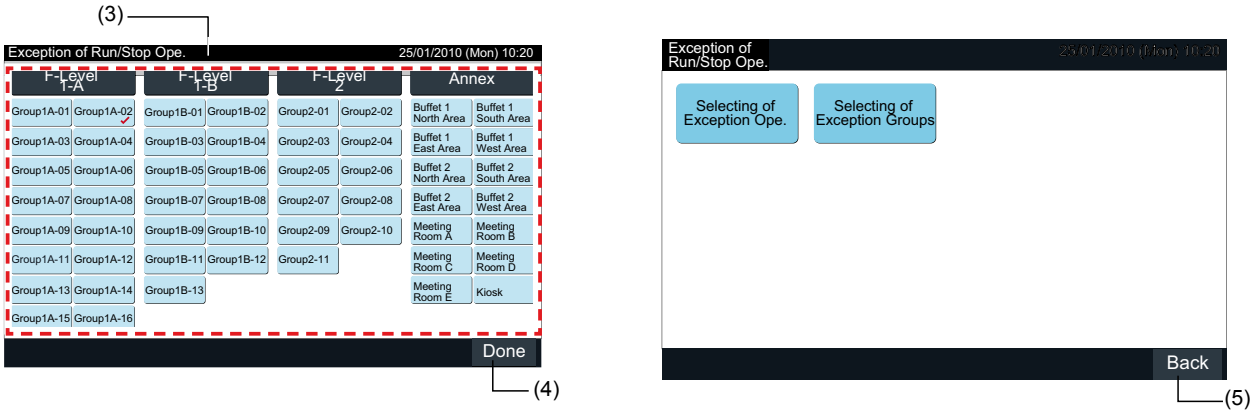


3 Select the target Blocks/Groups for exception operation.

- Tap the each group or block button to select the target. If tap again the same group or block button, the selection will be cancelled.
- The mark of “✔” is indicated in the selected group button.

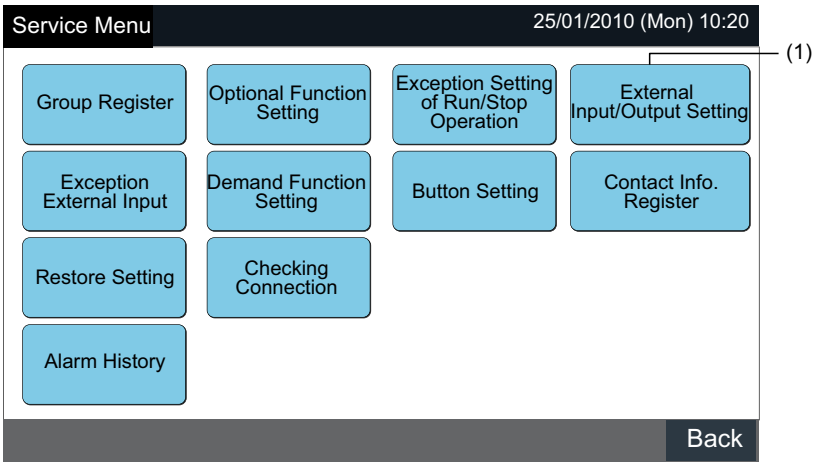
4 Tap “Done” to return to the screen of “Exception of Run/Stop Ope.”

5 Tap “Back” to finish this setting. The screen is returned to “Service Menu”.



◆ External Input/Output Setting

1 Select “External Input/Output Setting” on the screen of “Service Menu”.



NOTE

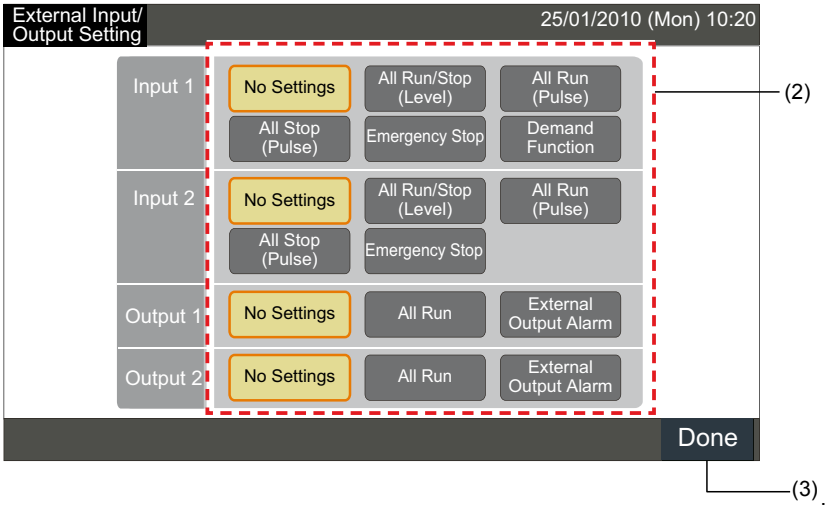
This function cannot be selected when the air conditioner(s) is operated or the external input signal is input to the external input terminal 1 or 2.

2 Select the function by tapping the button for each external input/output terminal as follows:

“Input 1”, “Input 2”, “Output 1” and “Output 2”

The selected function button colour is changed.

3 Tap “Done” to finish this setting. The screen is returned to “Service Menu”.



The external input/output each of two terminals are available. The assigned functions are shown in below.

Input and Output	Connection	Function	
Input 1	TB3 1-2 Pin	All Run/Stop (Level)	Emergency Stop (Level)
Input 2	TB3 2-3 Pin	All Run (Pulse) All Stop (Pulse)	Demand Function (Input 1 only) No Setting (Factory Setting)
Output 1	TB3 4-5 Pin	All Run	
Output 2	TB3 5-6 Pin	All Alarm No Setting (Factory Setting)	

External Input Function

1 All Run/Stop (Level): All groups simultaneously Run/Stop operation by the external input signal

2 All Run (Pulse): All groups simultaneously Run operation by the external pulse input signal

3 All Stop (Pulse): All groups simultaneously Stop operation by the external pulse signal input

4 Emergency Stop (Level): All groups simultaneously Stop operating on receiving an the external emergency stop signal. While an “Emergency Stop” is performed, the LCD of the remote control switch displays “Central Control” and the operation cannot be changed from the remote control switch.

In the case using with other central stations, “Run/Stop” operation is available from other central stations even if during the emergency stop.

5 Demand Control Function

A peak demand electrical consumption is cut by the external demand control signal. Only the input terminal 1 is available for the external demand signal. The operation mode of selected group will be changed by the demand signal as follows.

<table>
<tr><th></th><th>Demand Signal ON (*1)</th><th>Demand Signal OFF (*2)</th></tr>
<tr><td>Demand Function 1</td><td>Indoor Unit Operation Stop with RCS Operation Prohibited Mode</td><td rowspan="2">The operating condition returns to previous status.</td></tr>
<tr><td>Demand Function 2 (*3)</td><td rowspan="2">Cooling or Dry Operation
↓
Fan Operation with RCS Operation Prohibited Mode

Heat Operation
↓
Operation Stop with RCS Operation Prohibited Mode</td></tr>
<tr><td>Demand Function 3 (*4)</td><td rowspan="2">The setting temperature is set as follows.
Cooling and Dry Operation.....28 ºC,
Heating Operation.....20 ºC
The operating condition returns to previous status except for setting temperature.</td></tr>
<tr><td>Demand Function 4 (*5)</td><td>Indoor Unit Operation Stop with RCS Operation Prohibited Mode</td></tr>
<tr><td colspan="3">(*1): The target groups of “Demand Function” are controlled from large numbered group at intervals of 15 seconds. The numbered group arrangement is shown below.
(*2): The target groups of “Demand Function” are controlled from a small numbered group at intervals of 15 seconds. The numbered group arrangement is shown below.
(*3): When “AUTO” operation is performed, or “Fixing Operation Mode” is enabled at “Optional Function Setting”.
(*4): When “AUTO” operation is performed, or “Fixing Operation Mode” or “Fixing Temperature Setting” is enabled at “Optional Function Setting”.
(*5): When “Fixing Temperature Setting” is enabled at “Optional Function Setting”.</td></tr>
</table>

6 Demand Function Rotation

When the demand control signal is ON, the operation starting target group for “Demand Function” is selected randomly. After that, “Demand Function” operation is started from selected group to the small numbered group at every intervals for 15 seconds as shown below.

Example.

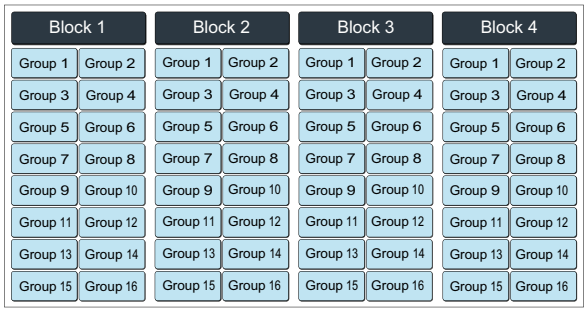
In the case of 6 groups

Group 5 → Group 4 → Group 3 → Group 2 → Group 1 → Group 6

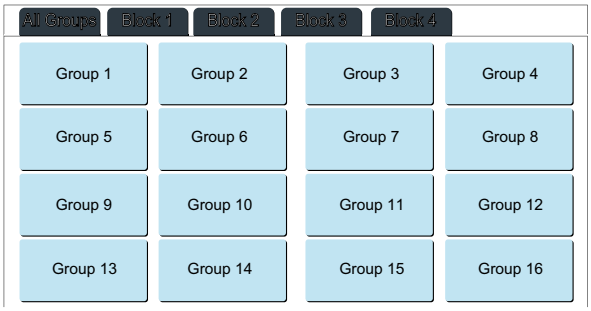
↑ Selected Group

The numbered group arrangement is shown below.

Monitor 1 (Group)



Monitor 2 (Block)



Numbered Group Arrangement

5

External Output Function

1 All Run Output

External output for indoor unit operation signal in the target group. The operation signal outputs even if one indoor unit in the target group is operated.

2 External Output Alarm

External output alarm signal for indoor unit in the target group. The alarm signal outputs even if one indoor unit abnormality occurs in the target group.

External Input/Output Terminals Specification

Input Terminal:

Non-voltage contact (normal open) for demand signal Input DC12V, 10 mmA.

The switching of the contact is available.

Pulse width is 300 mm or more for pulse signal input.

Output Terminal:

Contact (voltage is applied) for signal Output DC12V

Recommended Relay: MY Relay manufactured by Omron Corporation

(Do not use a diode built-in type.)

◆ Exception External Input

The external input signals such as “All Run/Stop”, etc. are not accepted when this function has been set for the group.

The external input signal exception is available for the input terminal 1 and 2.

NOTE

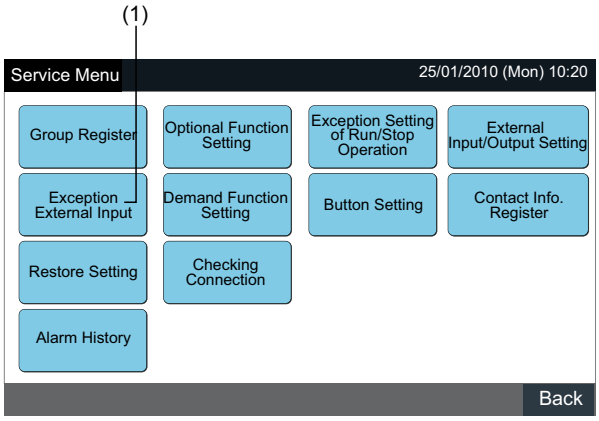
If this function is set, the emergency stop command from the external input will be disabled.

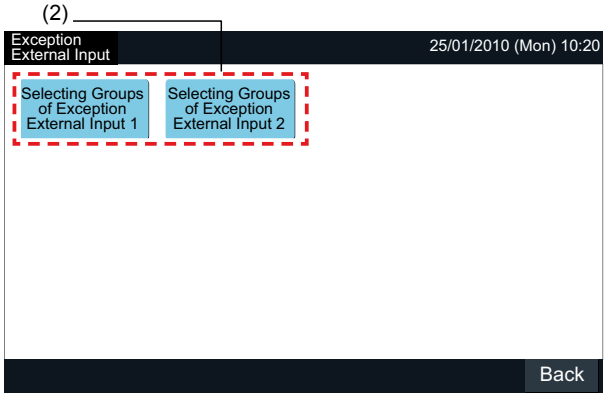
1 Select “Exception External Input” on the screen of “Service Menu”.

NOTE

This function cannot be selected when the air conditioner(s) is operated or the external input signal is input to the external input terminal 1 or 2.

2 Select “Selecting Groups of Exception External Input 1” or “Selecting Groups of Exception External Input 2” according to the exception external input command.





3 Select Blocks/Groups for exception operation.

Tap each group or block button for the exception operation target, the marked of “✔” is indicated in the selected group button.

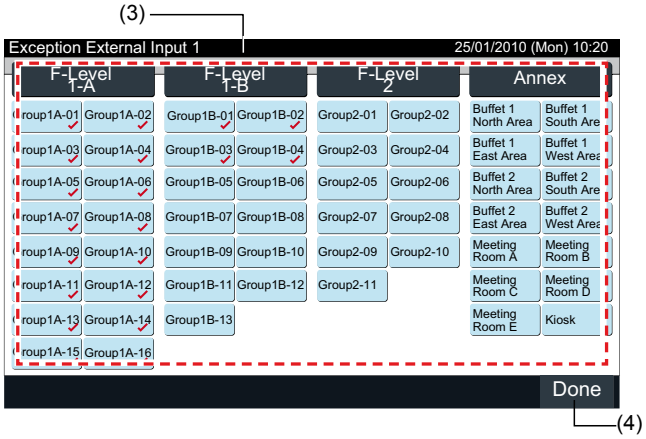
If tap the same group or block button again, the selection of the group will be cancelled.

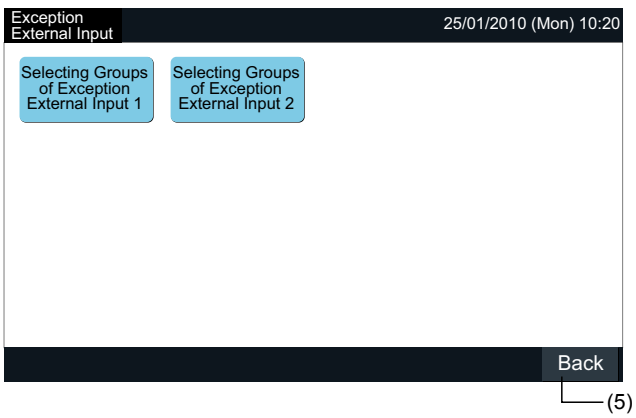
4 Tap “Done” to return to the screen of “Exception External Input”.

Proceed to select the group depending on the setting afterwards.

- Select exception group of other external input (1 or 2). (2)
- Exit “Exception External Input”. (5)

5 Tap “Back” to finish this setting. The screen is returned to “Service Menu”.





◆ Demand Function Setting

The operating condition of the indoor unit is changed to “Stop” or “Thermo-OFF” when “Demand Function” is selected to the terminal of external input 1.

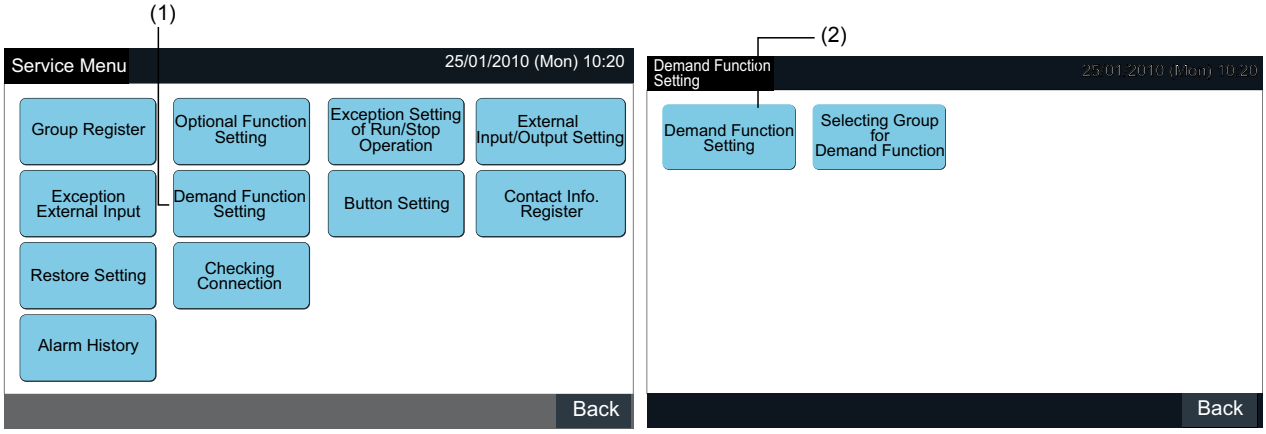
Demand Function Setting

1 Select “Demand Function Setting” on the screen of “Service Menu”.

NOTE

This function cannot be selected when the external input signal is input to the external input terminal 1 or 2.

2 Select “Demand Function Setting” on the “Demand Function Setting” screen.



3 Select the function by tapping the button for each demand function setting.

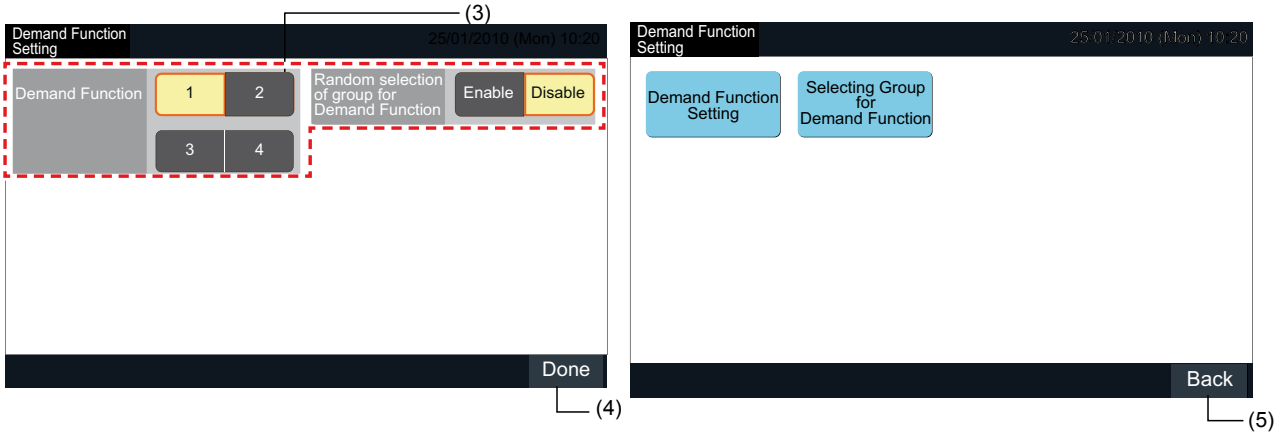
4 Tap “Done” to return to the screen of “Demand Function Setting”.

NOTE

If the target groups for the demand function are not selected, tap “Selecting Group for Demand Function” and select the target groups.

5 Tap “Back” to finish this setting.

The screen is returned to “Service Menu”.



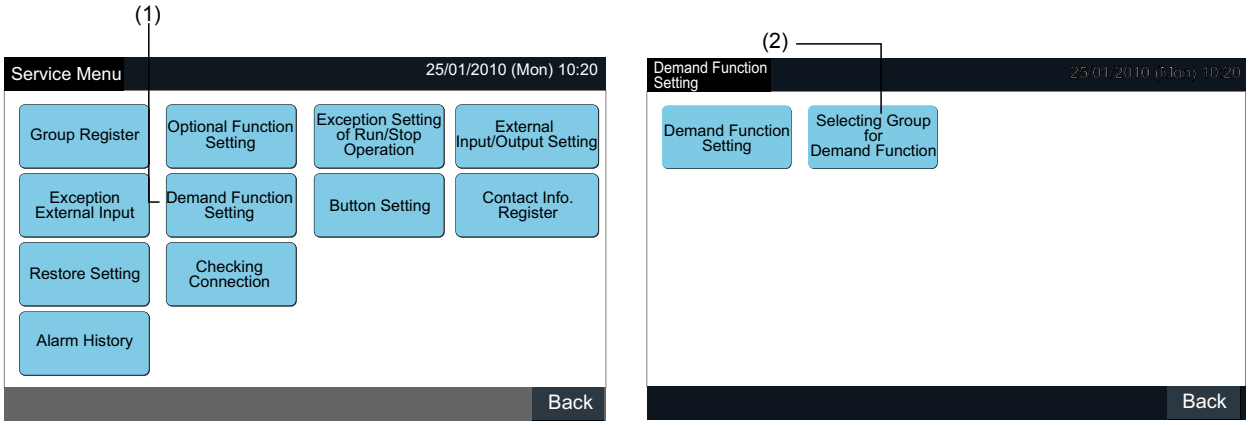
Selecting group for demand function

1 Select “Demand Function Setting” on the screen of “Service Menu”.

NOTE

This function cannot be selected when the external input signal is input to the external input terminal 1 or 2.

2 Select “Selecting Group for Demand Function” on the screen of “Demand Function Setting”.

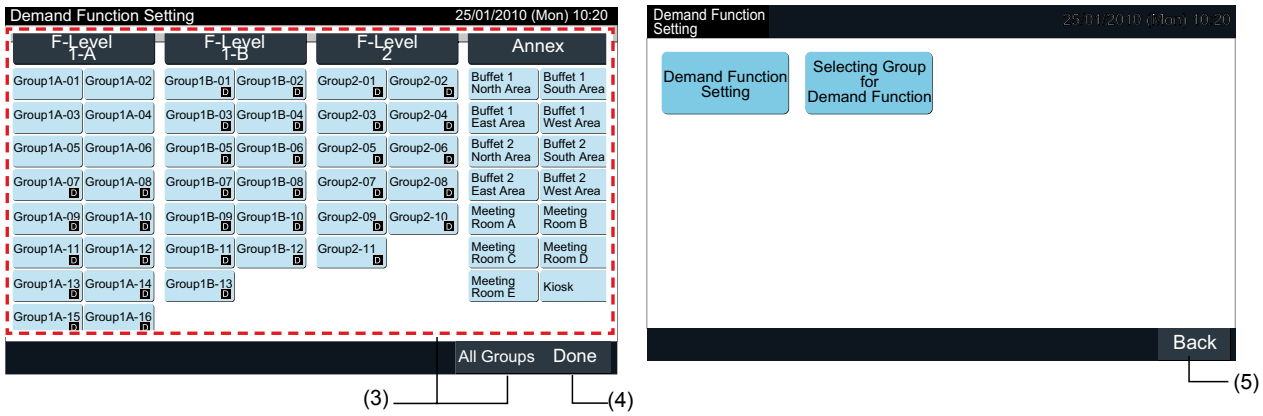


3 Tap the group, block or “All Groups” button(s) to select the target groups for the demand function control.

- The selected group button colour is changed to blue and the mark of “ D ” is indicated.
- If the selected group buttons, block buttons or “All Groups” are tapped again, the selection will be cancelled.

4 Tap “Done” to return to the screen of “Demand Function Setting”

5 Tap “Back” to finish this setting. The screen is returned to “Service Menu”.



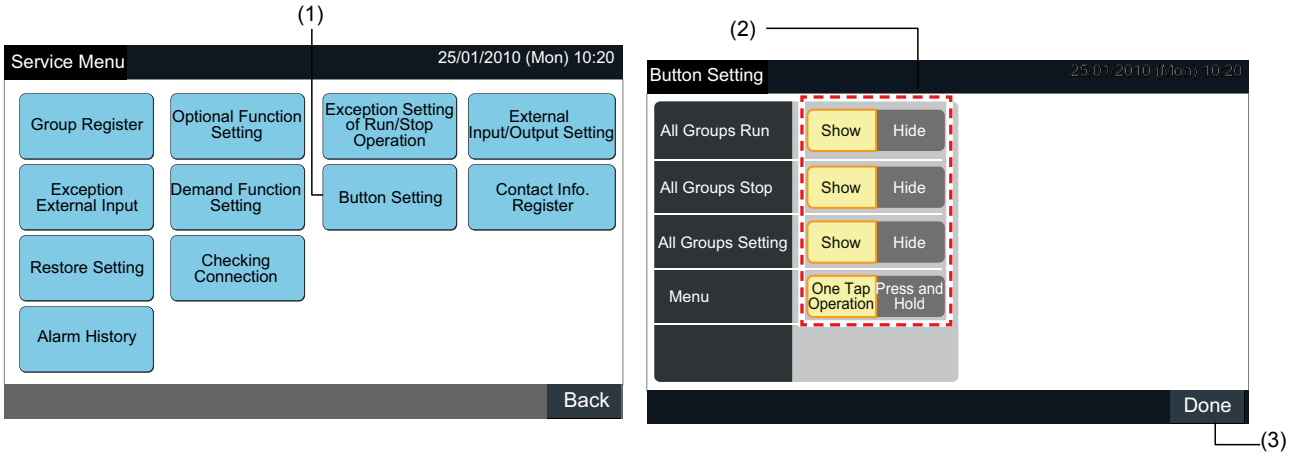
◆ Button Setting

The operating button indication can be selected to show or hide for restricting operation.

1 Select “Button Setting” on the screen of “Service Menu”.

2 Select “Show” or “Hide” for the operating button indication of the each function. The selected button colour is changed.

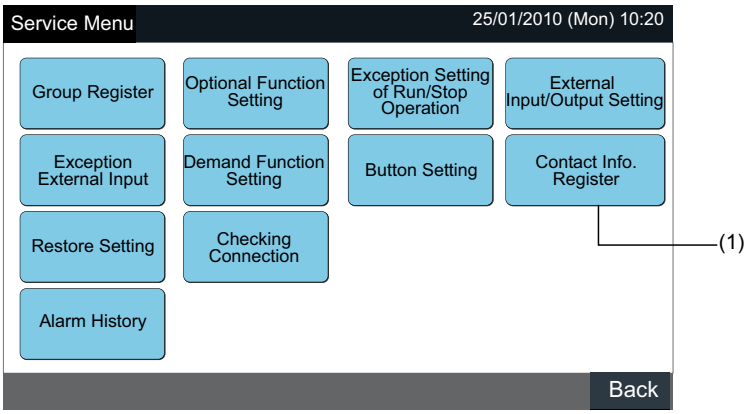
3 Tap “Done” to finish this setting. The screen is returned to “Service Menu”.



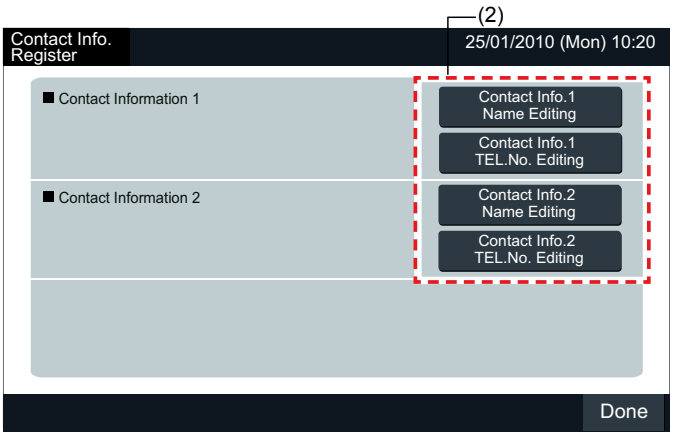
◆ Contact Information Register

The contact information editing or registering for “Contact Info. Register” indication function.

1 Select “Contact Info. Register” on the screen of “Service Menu”.



2 Select “Contact Info. 1 Name Editing” or “Contact Info. 1 TEL. No. Editing” (2) to register the information.



NOTE

Only the keyboard of numeric characters and symbols can be selected when “Contact Info. 1 TEL. No. Editing” (2) is selected

4 Select the characters to input from the keyboard.

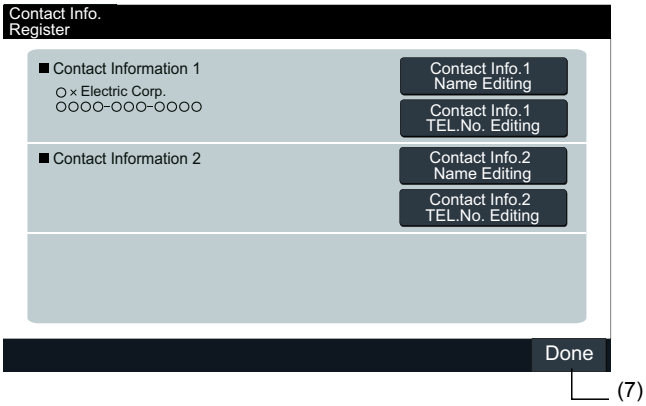
5 Input the information. Max. 50 characters are available to input.

6 Tap “Close” to finish. The screen is returned to “Contact Info. Register”.

7 Proceed to register the contact information depending on the setting afterwards.

- Continue to register or edit the contact information. (2)
- Finish this setting. (7)

8 Tap “Done” to finish this setting. The screen is returned to “Service Menu”.



◆ Restore Setting

1 Select “Restore Setting” on the screen of “Service Menu”.

NOTE

This function cannot be selected when “RCS Operation Prohibited” is set. Set “RCS Operation Permitted”.

2 Tap “OK” at the confirmation screen.

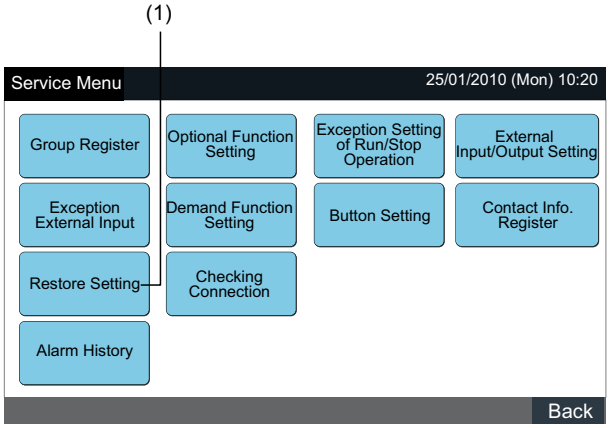
NOTE

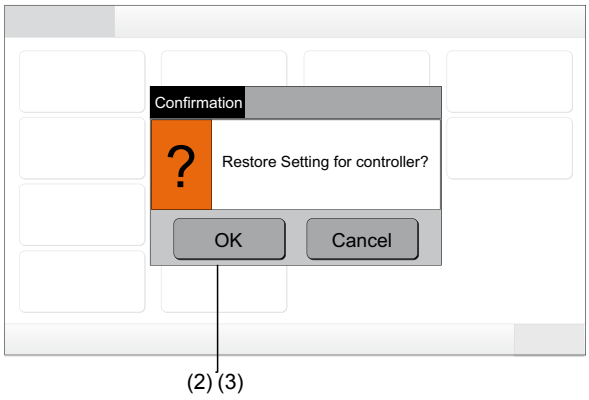
If “Cancel” is tapped, the screen will be returned to “Service Menu”.

3 The confirmation screen is displayed again, tap “OK” to restore. After several seconds, the screen is changed and the connection check of the system is started.

NOTE

If “Cancel” is tapped, the screen will be returned to “Service Menu”.





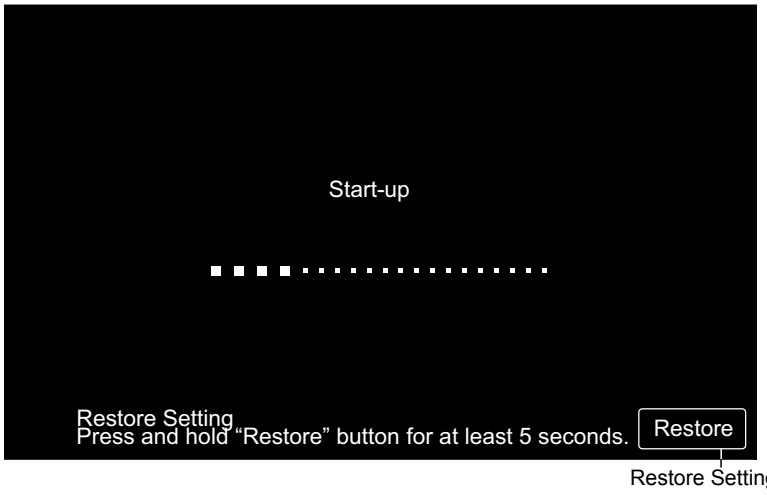
Information

Restore setting can be set by the screen of “Start-up” displayed.

1 Tap “Restore Setting” for more than 5 seconds in the lower right on the screen of “Start-up”.

2 After a while, connection check process is started.

3 When the process for connection check is finished, “Adjusting Date/Time” screen is indicated. (Refer to Adjusting Date/Time)



◆ Checking Connection

1 Select “Checking Connection” on the screen of “Service Menu”.

NOTE

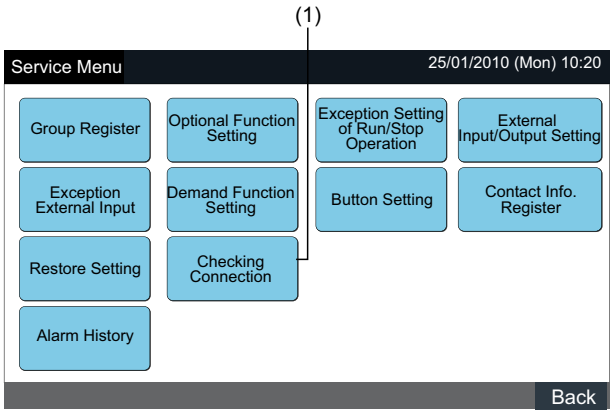
This function cannot be selected when the air conditioner(s) is operated or the external input signal is input to the external input terminal 1 or 2.

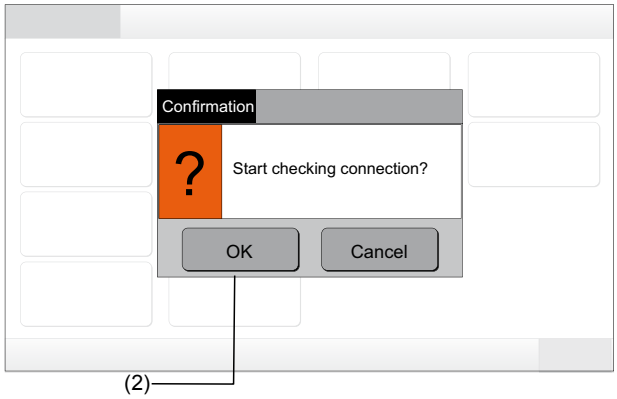
2 Tap “OK” at the confirmation screen.

NOTE

If tap “Cancel”, the screen will be returned to “Service Menu”. Proceed to update the connection information depending on the setting afterwards.

- *Update connection information with keeping Group register and settings such as schedule setting, etc. (3)*
- *Perform reconnection checking by initializing each setting. (It is same as the restore setting). (7)*



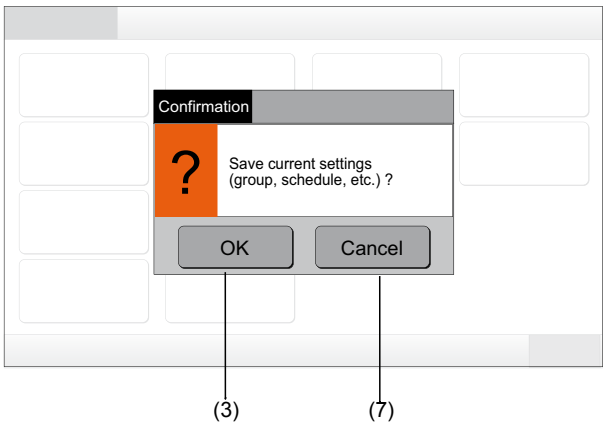


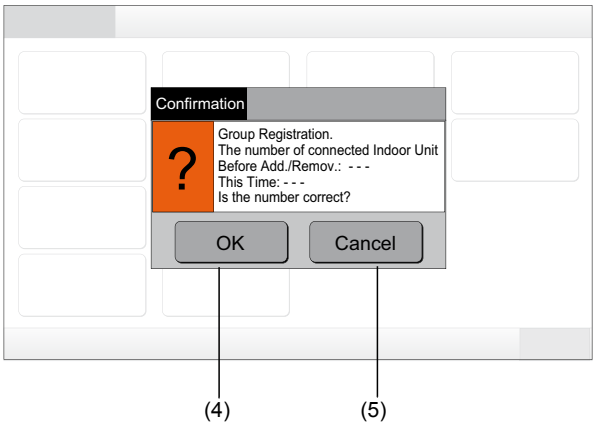
Keeping the setting

3 Tap “OK” at the confirmation screen for keeping the setting.

4 When the process of checking connection is finished, the number of connected units is indicated on the confirmation screen. If the number of connected units is indicated correctly, tap “OK”. The screen of “Main Unit Register” will be displayed. Refer to item How to register group (Main unit).

5 If the number of connected units indicates different from actual number, tap “Cancel”.





6 The confirmation screen is displayed again. Check the items in the confirmation screen to the air conditioners. The process of checking connection will start again.

NOTE

If tap “Cancel”, the screen is returned to “Service Menu”.

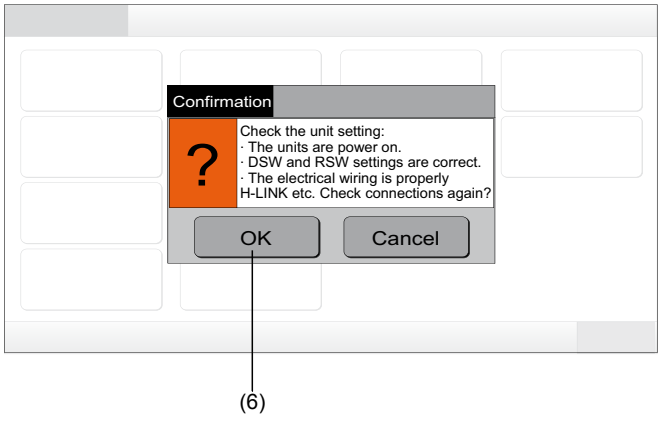
Not keeping the setting

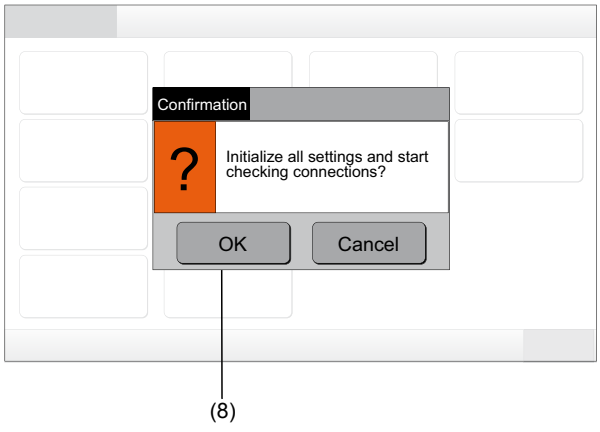
7 Tap “Cancel” at the confirmation screen.

8 Display the confirmation screen of initialization, tap “OK”. Initialize all settings and start checking connection. “OK” cannot be selected when the “RCS Operation Prohibited” is set, change to “RCS Operation Permitted”.

NOTE

If tap “Cancel”, the screen is returned to “Service Menu”.





◆ Alarm History

The alarm history record of the air conditioner and the central station.

The time of alarm occurrence, abnormal unit and alarm code are recorded, and the alarm history record deleting is performed by this function.

1 Select “Alarm History” on the screen of “Service Menu”.

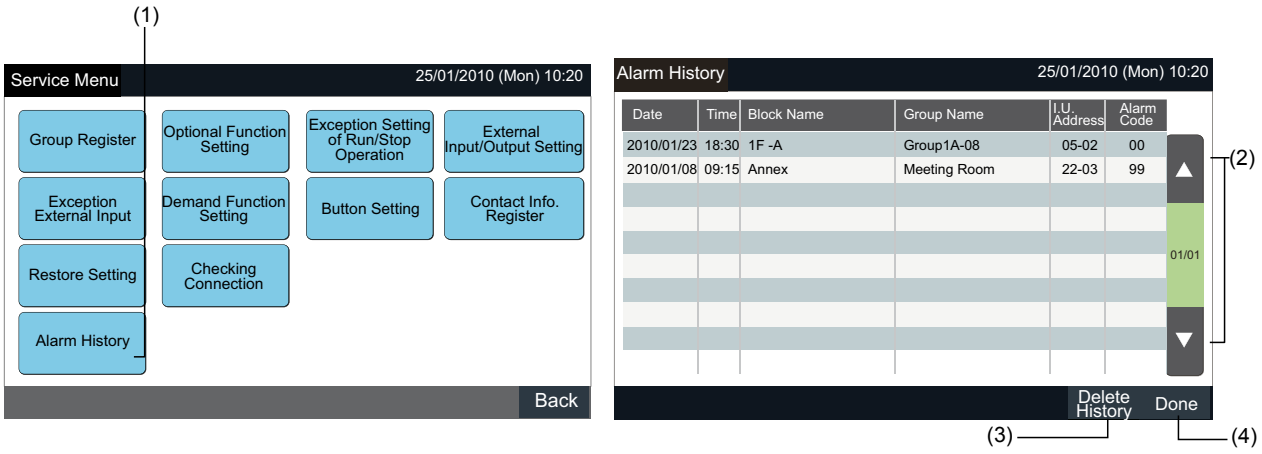
2 “Alarm History” screen is indicated. If the alarm records are more than 11, tap “△” or “▽” to change of the page.

- Maximum 100 records can be stored in the memory.

3 When deleting alarm history record, tap “Delete History”. When tapping “OK” at the confirmation screen, all alarm history records are deleted.

- If tap “Cancel”, the screen will be returned to “Alarm History”.

4 Tap “Done” to finish this setting. The screen is returned to “Service Menu”.



5.1.4.5 Other Indications on LCD

◆ In Normal Condition

	Schedule	“  ” is indicated for the group with the schedule setting
	RCS Operation Prohibited	“  ” is indicated for the group when operation by remote control switch is prohibited. Operation by remote control switch is not available while operation by remote control switch is prohibited (except for the emergency stop operation).
EMG	Emergency Stop	“EMG” is indicated when emergency stop signal is set by optional external input function. During the emergency stop, the indoor unit is stopped and operation by remote control switch is not available. Contact your dealer for detailed information.
D	Demand	“D” is indicated when demand signal is set by optional external input function. “D” is indicated for the group with demand setting and “D” is flashed when the demand signal is set..Contact your dealer for detailed information.
	Filter Sign	“  ” is indicated when the air filter of the indoor unit is clogged. After cleaning, press menu and reset the filter sign. The indication will turn off.

◆ In Abnormal Condition

Abnormality

- The operation indicator (Red) will be flashing when an abnormal condition of the air conditioner occurs.
- The red button is indicated on the screen when there is a group in abnormal condition.
- “Alarm Info.” is indicated on the lower screen.

If “Alarm Info.” is tapped, the following items are indicated.

a. Name of the block/group in abnormal condition

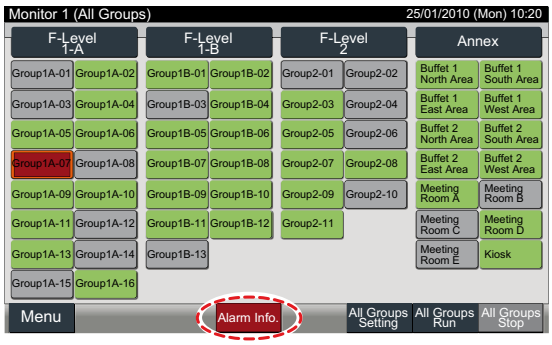
b. Refrigerant cycle number, address and model code* of indoor unit in abnormal condition

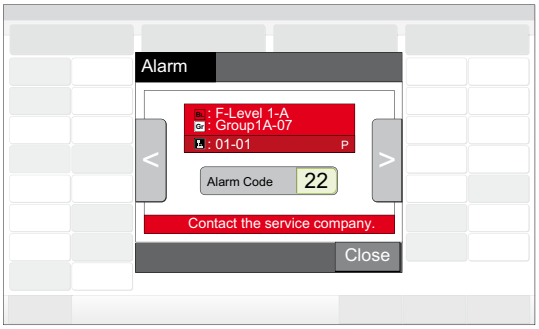
c. Alarm code

NOTE

(*) The model code may not be indicated depending on the unit model.

- In case that multiple indoor units are in abnormal condition, the details information of abnormality are indicated in turn as above. In that case, the group in abnormal condition can be also selected by tapping “<” or “>” on “Alarm” information screen. Check the contents of LCD indication and contact your dealer for details.





Power Failure

- The display is OFF.
- Once the unit is stopped by the power failure, the unit will not start again after the power recovery. Perform the starting procedures again.
- In case of instantaneous power failure within 2 seconds, the unit will automatically start again.

Noise

- There could be a case that the display is OFF and the unit is stopped. This is caused by the activation of the micro computer for the unit protection from the electric noise. When the unit is stopped, perform the starting procedures again.

5.1.5 Troubleshooting

Check the following table before contacting a dealer for maintenance.

Condition	Cause
Indications on the touchscreen are not displayed.	Check that the wiring for the power supply is connected to the plug. Check that the power supply is turned ON.
The touchscreen display is slept.	The touchscreen will automatically sleep when the touchscreen is not operated for the given length of time. Tap the screen to wake up.
A part of the touchscreen is not turned on or is constantly turned on.	There may be dead pixel on the LCD. This is not faulty.
The operation is not carried out smoothly when the switch is tapped.	When the central station is used for a long time, the touchscreen may not match the position of display indication. Refer to Touchscreen Calibration section for the Touchscreen Calibration.
"- -" is indicated for the setting temperature. The temperature cannot be set.	No setting temperature is set. Press and hold "△" or "▽" for 3 seconds on the setting touchscreen. Refer to Setting Temperature section.
The setting of louver direction returns to previous setting.	When the operation mode is "AUTO", the direction of louver is automatically corrected depending on the indoor unit model.
The timer operation by the schedule setting does not run.	Check if the holiday setting is turned ON. If so, cancel the holiday setting according to Holiday Setting for Operation Suspended section. Check if the setting of schedule operation is turned OFF. If so, the schedule operation should be turned ON according to Schedule Timer ON/OFF Setting section.
"- -" is indicated for the date and time.	"- -" is indicated when electrical power is shut down for a long time. Set the date and time again according to Adjusting Date /Time section.
The setting is not changed.	When the central station is operated immediately after turning ON the air conditioners, the central station may not be possible to control because the starting up of the air conditioners are prior. Wait for a certain time before operation.

5.1.6 Maintenance

- Clean and wipe the display with dry and soft cloth.
- For oil and fat on the touchscreen such as finger print marks, use diluted neutral detergent mixed with water to clean. Before cleaning, wring water out to dry. After that, again wipe the display with dry and soft cloth.
- Do not use benzine, thinner or surface active agent in order to protect the display from deformation or tarnish.

5.2 PSC-A32MN

(*): All the data regarding PSC-A32MN are preliminary data, and therefore, they are subject to changes.

5.2.1 Safety summary

HITACHI can not anticipate every possible circumstance that might involve a potential hazard.

⚠ DANGER

- ***DO NOT pour water into the central station (hereafter called "controller"). This product is equipped with electrical parts. If water is poured, it will cause a serious electrical shock.***
- ***Prior to the installation work, ensure that foundation is flat, level and sufficiently strong and then fix the unit securely. If the foundation is not strong enough, it may lead to injuries caused by falling of the product, electrical shock or fire.***
- ***DO NOT install the unit in a place where generation, flow, accumulation or leakage of flammable gas is detected.***
- ***DO NOT perform installation work and electrical wiring connection by yourself. Contact your distributor or dealer of HITACHI and ask them for installation work and electrical wiring by a trained service person.***
- ***Perform electrical work according to the Installation Manual and all relevant regulation and standards. If the instructions are not followed, electrical shock and fire may occur due to insufficient capacity and inadequate performance.***
- ***Use the specified cables for connection between indoor unit and central station. Selecting incorrect cables may lead to fire or electrical shock.***
- ***As for the electrical wiring work and check, turn OFF the main power supply before opening/closing the service cover of the indoor unit. If the service cover is opened with main power supply left on, electrical shock may occur.***
- ***Turn OFF the main power supply when opening the case for checking or maintenance. If only the switch is turned OFF but not the power supply, the power terminal part or the power switch part will stay activated and may cause an electrical shock. When performing wiring work, make sure to turn OFF the power supply as well.***
- ***When performing local wiring work, check whether the local wiring has been gnawed by animals like mice or small rodents. Gnawed wiring could cause a fire.***

⚠ CAUTION

- *DO NOT install the indoor unit, outdoor unit, central station and cable in the following places:*
  - Where oil vapour or oil is dispersed (It may cause a fire, deformation, corrosion or failure.)
  - In the vicinity of hot springs (in a sulphuric environment)
  - In the vicinity of the sea (in a salty environment, which may cause corrosion.)
  - In an acid or alkaline environment
  - At the reach of children
  - Under direct blow of discharge air from the unit
  - In places with humid atmosphere
  - In places where the unit may get wet
  - In poorly ventilated places
- *DO NOT install the indoor unit, outdoor unit, central station and cable within approximately 3 metres from strong electromagnetic wave radiators such as a radio.*
- *In case that the central station is installed in a place where electromagnetic wave radiation is generated, shield the central station and cables by covering the unit with a steel box and running the cable through a metal conduit tube.*

⚠ CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle this appliance properly and safely.*
- *Children should be supervised to ensure that they do not play with the appliance.*

5.2.2 Installation

5.2.2.1 Installation on site selection

Select a suitable place for handling and determine the installation place of the central station with the customer's acceptance.

Do not install the central station at such places as:

- Where children can touch.
- Where the air from the air conditioner is directly discharged.

Before installing the controller, prepare the following items.

Parts	Specification
Switch Box	JIS switch box for 2 switches (with cover) (JIS C 8340)
Power Supply Cable	Cable specification: 1.25 to 2 mm^2 Recommended cable: 600V CV, CCV, CEV
H-LINK Cable (For control)	Cable SPEC: 0.75 to 1.25 mm^2 Recommended cable: JKEPV-S, JKEV-S, CVV-S, CVV, 600V VCT

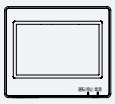
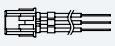
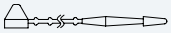
* The recommended cables are the model name of Hitachi Cable, Ltd.

5.2.2.2 Components list

Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quantity	Comments
Central station PSC-A32MN		1	For controlling system operation
M4x16L screws		4	For fixing the central station.
Touch pen		2	For activating/deactivating the touch options on the screen.
Touch pen holder		1	For holding the touch pen on the central station.
Installation and operation manual		1	Installation and operation unit instructions.
Connector Cord		3	For using external input/output functions (CN1~3).
Closed End Connector		9	For closing the wire end of the connection cord.
Nylon Band		3	For fixing the cables.

5.2.2.3 Description of the parts

❶ **Colour LCD with touchscreen**

For operation and monitoring of the units through the touch-screen display. It is operated by using the touch pen (accessory). The touchscreen display will be automatically turned off when the touchscreen is not operated for a given length of time. Gesture controls such as multi touch (simultaneous press of several points of the screen) or swipe operation are not supported.
- Tap 2 places simultaneously
- Flick Operation

❷ **Touch Pen**

Use the touch pen to operate the touchscreen of the central station.

❸ **Operation Indicator**

Indicates the Run/Stop state of the units

OFF: All the units are stopped.

ON (Green): One or more units are in operation.

Flashing (Red): In abnormal condition.

❹ **Power Indicator**

Indicates the power state of the central station.

OFF (lamp): Power is turned OFF

ON (lamp): Power is turned ON

Hole for attachment of the touch pen holder (accessory).

❺ Attaching holes are located on both sides.

Attach the touch pen holder to one side.

❻ **TB2**

Terminals for connection of the H-LINK control wiring

❼ **CN1 ~ CN3**

Terminals for connection of connector cords (accessory) in case of using external input/output

❽ **TB1**

Terminals for connection of the power cable

❾ **Power switch to turn OFF the power supply**

Use this switch to prevent electrical shock when the case of the unit is opened.

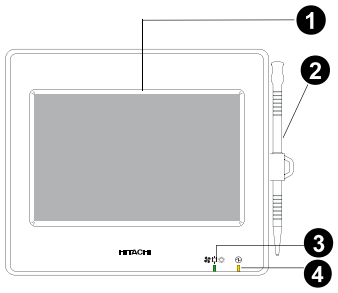
❿ **Fuse for H-LINK Transmission Line**
H-LINK Transmission Line(Behind the PCB)
For protection of H-LINK transmission line.

⓫ **DSW2**
For terminating resistance.
It is used for transmission line recovery.

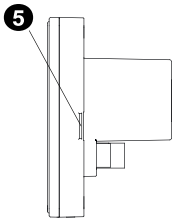
⓬ **Rotatory Switch for Address Setting**
For address setting of controller

⓭ **DSW1**
For optional function setting

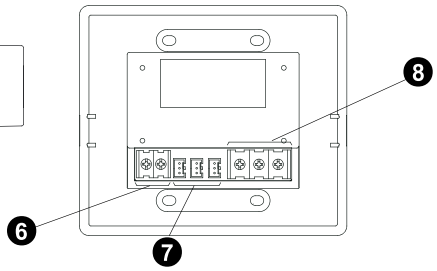
Front side



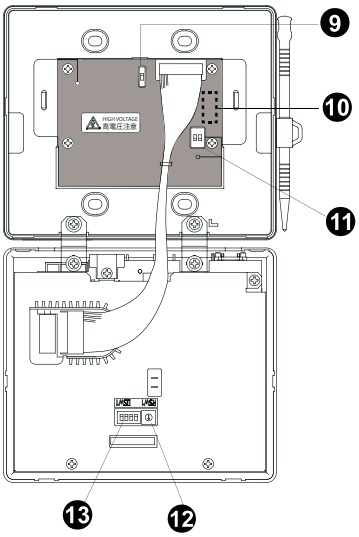
Right side



Rear side



When unit body is open



Model: PSC-A32MN

NOTE

Remove the protection sheet on the LCD (liquid crystal display) before using this product.

DANGER

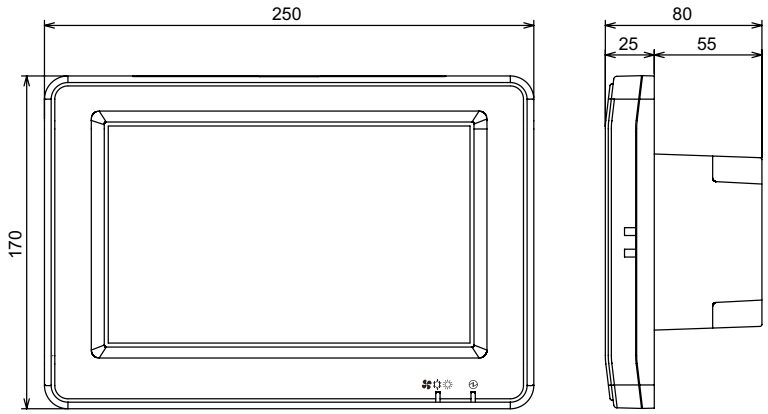
DO NOT remove the covers of parts marked with "[redacted]" for safety. If these covers are removed, contact with the inside components may cause a serious electrical shock.

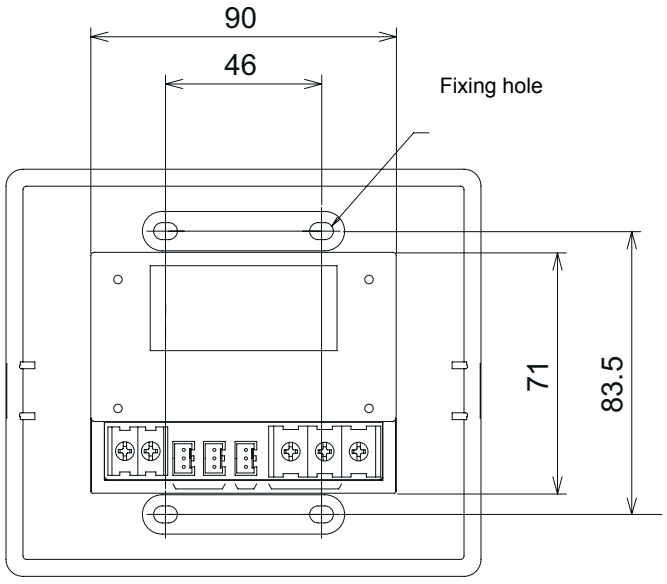
5.2.2.4 General data

Model	PSC-A32MN
Outer Dimension <W x H x D + (Built-in Part)>	140 × 120 × 22 + 52.7 (mm)
Net Weight	0.5 kg (approx.)
Installation Location	Indoor
Installation Method	Wall built-in with JIS switch box for 2 switches (with cover) (JIS C 8340)
Connected Indoor Units (Quantity)	160 (Max.)
Clock Accuracy	± 70 seconds/month (at normal temperature)
Ambient Temperature	5 ~ 35°C
Ambient Humidity	35 ~ 90% (No dew condensation)
Display	5.0” TFT colour liquid crystal display
Rated Power Supply	1ϕ, AC 100~240V, 50/60Hz
Electrical Power Consumption	20W (Max.)

5.2.2.5 Dimensional data

(Unit: mm)

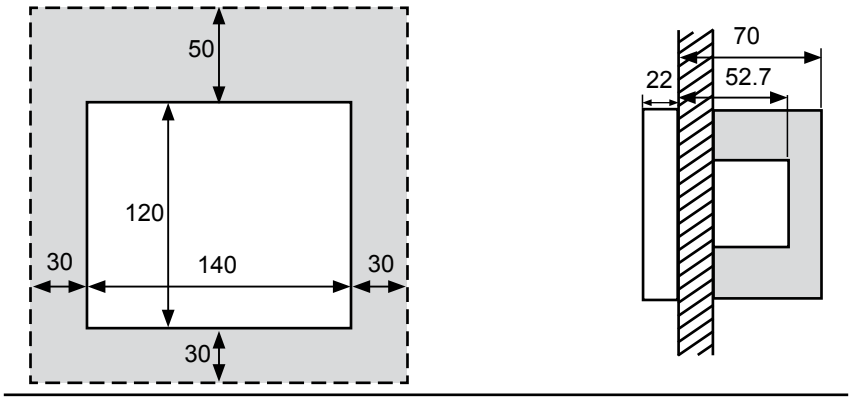




5.2.2.6 Installation space

Keep the installation space for the central station as shown below.

(Unit: mm)



Do not place anything in the shaded area "".

When installing two or more central stations side by side, keep the following separation between each of them.

* Vertical space: 50 mm

* Horizontal space: 30 mm

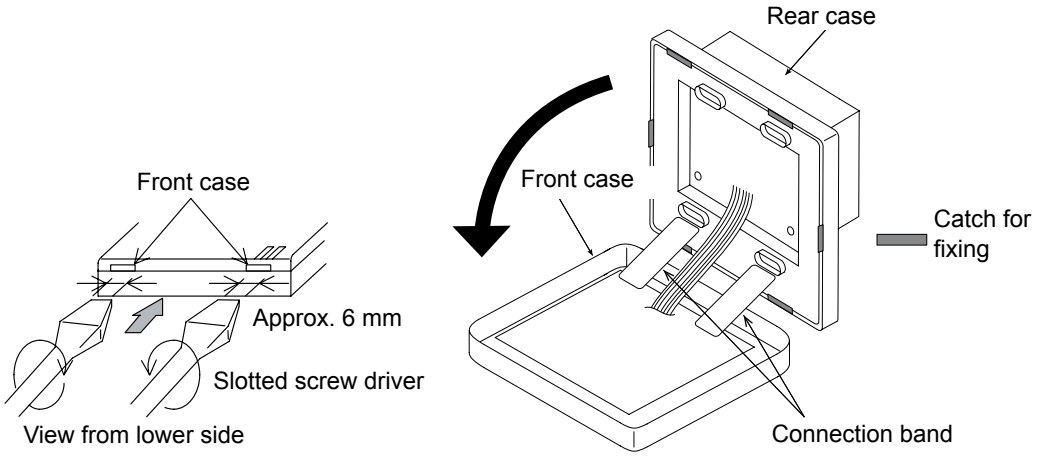
5.2.2.7 Installation procedure

1 Install the switch box into the wall. (Field supplied JIS switch box for 2 switches (with cover) (JIS C 8340))

2 Open the unit case, in case that it is closed. (It is shipped opened from the factory). Follow the procedure below to open the case.

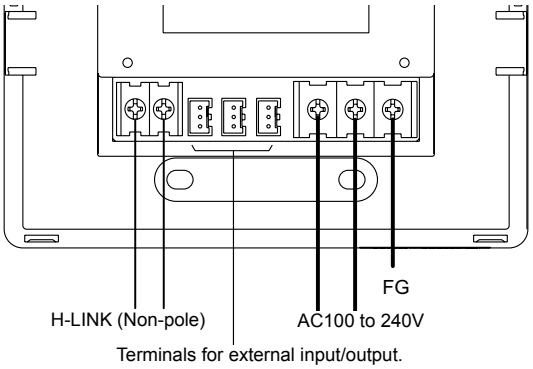
a. Remove the front side of the case by inserting and rotating a tool like the tip of a slotted screwdriver in the notches (2 notches on the lower side).

b. To open the case, pull up the front side from the bottom and unhook the tabs at the upper and lateral sides. Do not apply an excessive force when opening the front and rear sides of the case, as they are joined with connection bands.

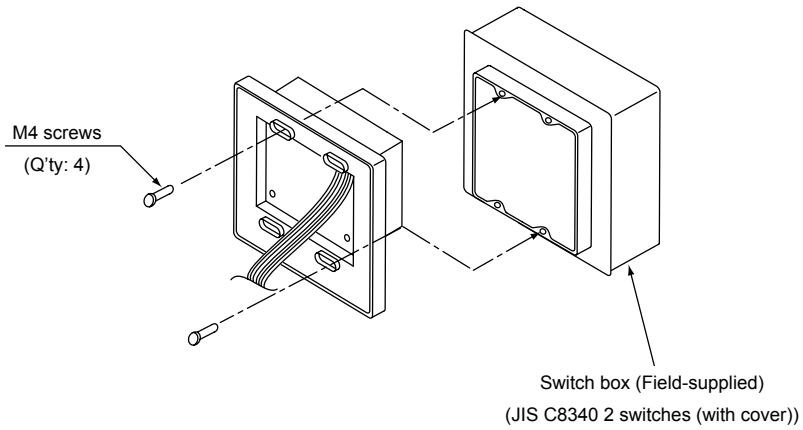


3 Connect the wiring to the terminal board of the central station.

Terminal Board	Use	Connection procedure
TB1	For power supply	M3 screw-on terminal Round terminal connection Tightening torque 0.5N·m
TB2	For H-LINK transmission	
CN1 ~ 3	For external input/output	3-pin connector Insert connector cords (accessory) until hearing a click.

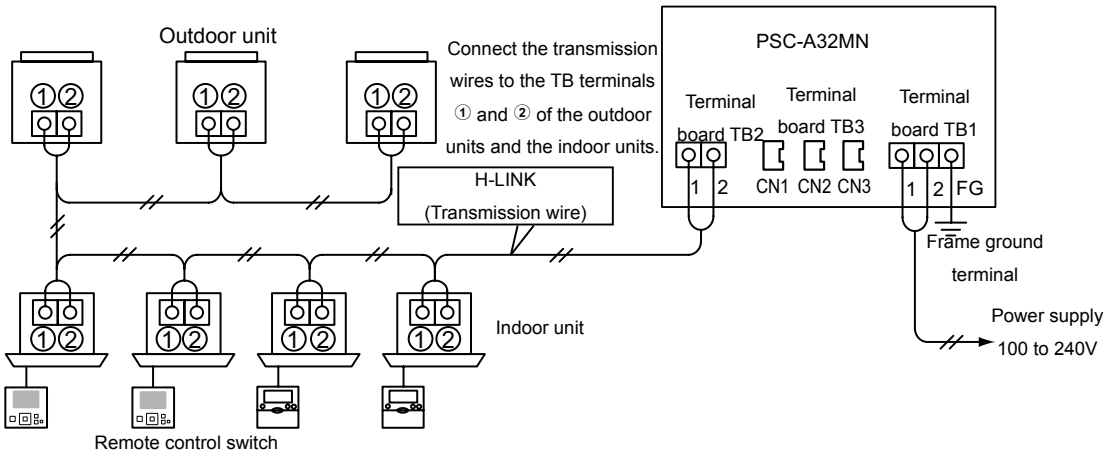


4 Fix the switch box (field-supplied JIS switch box for 2 switches (with cover) (JIS C 8340)) using the accessory fixing screw (M4 × 16 mm).



5.2.3 Electrical wiring

The central station requires wiring work for the power supply, air conditioner and control wiring (H-LINK) cables.



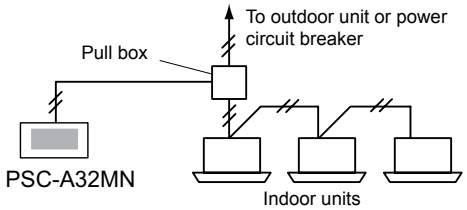
Type of wiring	Specification	Length of wiring	Cable specification	Recommended cable model
Power supply cable	AC100 ~ 240V	-	1.25 to 2 mm²	600V CV, CCV, CEV (Hitachi Cable)
Earth wiring	-	-	-	-
H-LINK(Control wire)	DC5V	≤1000 m	0.75 to 1.25 mm²	JKPEV-S, JKEV-S, CVV-S, CVV, 600V VCT (Hitachi Cable)
Wiring for external input and output	Input: Non-voltage normal open Output: DC12V, 75mA≥	≤300 m	0.5 to 1.25 mm²	

NOTE

- *In case that a specified wire length is mentioned for the external input of transmission side, use either [1] the specified wire length of transmission side or [2] 300 m, whichever is shorter.*
- *The central station may be damaged because of incorrect wiring.*
- *The controller may be damaged in case of performing wiring work with the main power turned ON.*
  Turn OFF the main power of the air conditioner and the controller before performing any wiring work.
- *Transmission wires shall be separated from the power supply wiring and other electrical device wiring. Keep a separation of at least 30 cm between transmission wiring and the power supply wiring. If it is not possible to secure this space, then route the power supply wiring and transmission wiring through separate metal conduit tubes. One end of the metal conduit tubes shall be earthed for noise reduction.*
- *Do not connect the power supply wiring to the terminals for transmission of central station. However, if the power supply wires are connected incorrectly, the fuse of the printed circuit board will blow out for protection.*
  In such a case, turn ON pin 2 of DSW2 on the printed circuit board to allow emergency operation without the fuse.
- *Always remove the earth wiring of "FG" terminal when performing insulation capacity test or withstand voltage test. Failure to do so may result in damage to the central station.*

CAUTION

When using an AC200V to 240V power supply.



- *In case of using a 200V~240V power supply, diverge the main power supply cables by using a pull box as shown in the figure.*
- *The electricity supply to the unit should be via an exclusive power control switch and protective circuit breaker, certified and installed in accordance with local or national safety regulations.*

- *Use an earth leakage breaker with medium sensitivity, and an activation speed of 0.1 or less. If this is not fitted, there is a risk of electric shock and/or fire.*
- *Install an earth leakage breaker, fuse and circuit breaker for each outdoor unit power line. Not fitting it may cause an electric shock or fire.*

DANGER

- *Turn OFF the main power switch for the indoor units, outdoor units, and central stations before the electrical wiring work is performed. If not, it may cause a fire, electrical shock or device breaking down.*
- *Do not use cables that are lighter than the normal flexible coated polychloroprene cable (code H05RN-F).*

◆ DIP switch adjustment

The list for switch settings of central stations is shown in the following table.

1 Apply switch settings as appropriate.

Switch	Switch No.	Usage	Factory Setting	Remarks
RSW1 (16-pole Rotary Switch)	-	For address setting of central station	0	When using multiple central stations units. (*)
DSW1 (4-pole DIP switch)	1	ON: Setting for no H-LINK II support OFF: Setting for H-LINK II support	OFF	Refer to the specific table
	2	OFF (Fixed)	OFF	Not used
	3	OFF (Fixed)	OFF	Not used
	4	OFF (Fixed)	OFF	Not used
DSW2 (2-pole DIP switch)	1	ON: Terminating resistance enabled OFF: Terminating resistance disabled	OFF	Make sure that no other terminating resistance exists on the same H-LINK when enabling the terminating resistance from the central station.
	2	ON: Protection fuse for H-LINK ... Disabled (Short-circuited) OFF: Protection fuse for H-LINK ... Enabled (Normal)	OFF	
SW1		ON: Turn the central station ON OFF: Turn the central station OFF	ON	

NOTE

- *Turn OFF the power supply when setting the DIP switches and the rotary switch. Do not touch the printed circuit board and metal parts directly to avoid malfunction of the central station.*
- *When switching the setting for H-LINK II support, perform a checking procedure following "Checking Connection".*
- *If DSW1-1 is misconfigured, alarm 63 (Central Device Combination Fault) will be emitted from a central control device with H-LINK support. In this case, turn OFF the power supply for all central control devices and correct the settings of each central control device. Then, restart the central control devices.*
- *(*): When using several central stations at the same time, set the values of each "RSW1" not to overlap.*

DSW1 setting

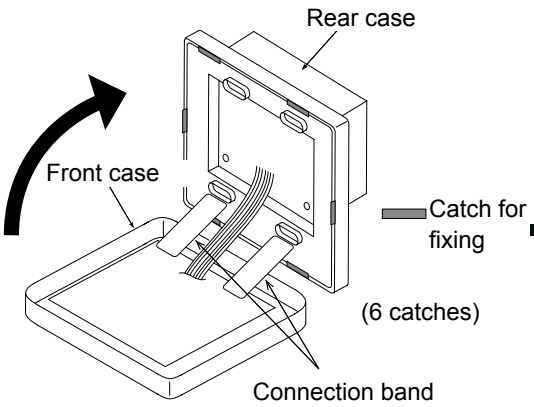
		Name	Model	DSW1	DSW2	DSW3	DSW4
Combination of PSC-A32MN with other central controllers	Other central controllers	Central Station EZ	PSC-A64GT	OFF	OFF	OFF	OFF
		Central Station mini	PSC-A32MN	OFF	OFF	OFF	OFF
		Central Station	PSC-A64S	OFF	OFF	OFF	OFF
		Centralised ON/OFF Controller	PSC-A16RS	OFF	OFF	OFF	OFF
		BMS Gateways	HC-A(8/64)MB	Not compatible			
			HC-A16KNX	Not compatible			
			KNX001	Not compatible			
			HARC-BX E (A/B)	Not compatible			
		CSNET	CSNET Manager LT	Not compatible			
			CSNET Manager XT	Not compatible			
			CSNET WEB (1)	OFF	OFF	OFF	OFF
Without other central controllers				OFF	OFF	OFF	OFF

(1)Check compatibility limitations in CSNET WEB section.

2 Close the unit case until hearing a snapping sound, and make sure that the front and rear parts of the case close fully. At this time, check that connection bands are not trapped between the front and the rear parts of the case.

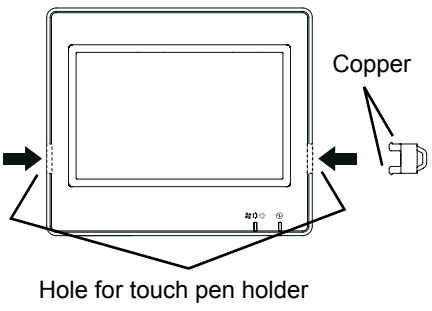
a. Hook the tabs into the front side of the case.

b. The front side of the case will close when hooking up the tabs of the lateral and lower sides.



To attach the touch pen holder

When attaching the touch pen holder to the controller, insert the chip into any of the attaching holes for the holder until hearing a click.



5.2.4 Operation

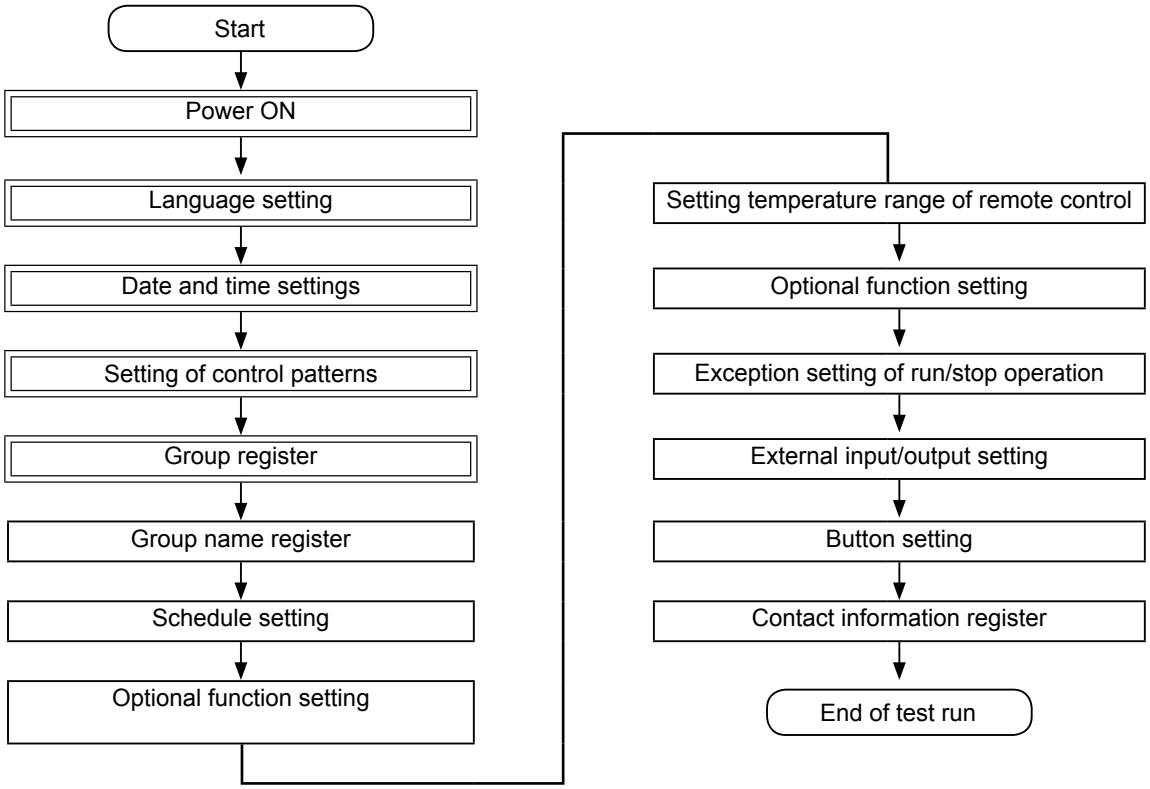
5.2.4.1 Test run

The outline of the test run procedure is indicated as shown in the figure. The items marked with the thick frame (▭) are required items.

The rest of items, which are not specifically required for the test run procedure but they are optional, are explained in its specific section.

NOTE

The actual design of the screens may vary with respect to the screenshots shown in this chapter.



List of Items

Item		Function
Language Setting		This function is used for language selection.
Date and Time Settings		This function is used for adjusting the date and time.
Group Register		The function is used for the registration of groups or blocks of the indoor units connected to the same H-LINK, and which have been identified by the central station.
	Main Unit Register	This function is used for the registration of the main unit in each remote control group. This unit represents the remote control group. Control orders for the entire remote control group are sent to this main unit from the central station.
	Sub Unit Register	This function is used for the registration of units other than the main unit in each remote control group. In case of using the following remote control switches or receiver kits, the sub units are registered automatically by the central station after registration of the main unit. • Remote control switches and receiver kits with model names beginning with PC-A**. • Remote control switches with model names beginning with PC-P**.
Group Name Register		This function is used for the registration of the names of groups and blocks. The name of each group or block may consist of up to 20 characters. It is also possible to copy names. If the group or block is registered without a name, it is registered as “Group 1” or “Block 1” automatically.
Schedule Settings		This function is used for the scheduling of timer operation available for each group or block.
	Schedule Timer Setting	This function is used for setting the time (by the minute), “Run/Stop” and temperature (19~30 oC). For weekly schedule setting, up to 10 schedule items can be set per day. It is also possible to copy setting contents.
	Holiday Setting	This function is used for suspending scheduled operation temporarily. Scheduled operation is not available when this function is set. This function is used for setting irregular holidays such as national holidays.
	Schedule Timer ON/OFF Setting	“Schedule Timer OFF Setting” is used for suspending scheduled operation for the target group. Scheduled operation is not available when Schedule Timer is OFF. This function is used for long holidays, sudden holidays, national holidays, etc.
Optional Function Setting		This function is used for setting and changing the functions of air conditioners and central stations.
Exception Setting of Run/Stop Operation		This function is used for specifying the exception of All Run/Stop commands for particular groups or blocks. All Run/Stop commands have no effect on the specified group or block.
	Selection of Excepted Operation	This function is used for selecting which of the following is affected by the exception. • Run • Stop • Run and Stop
	Selection of Excepted Groups	This function is used for selecting which of the following is affected by the exception of All Run/Stop commands. • All Groups Run/Stop • Run/Stop by Block • All Groups Setting • Setting by Block
External Input/Output Setting		The central station has two external input terminals and two external output terminals. These terminals are used for “All Groups Run/Stop” and “Demand Function” operations for the connected air conditioners. The external output terminals are used for the output of operation signals or alarm signals of the air conditioners connected to the central station.
Exception of External Input		This function is used for cancelling operation commands such as “All Groups Run/Stop” by means of the external input signal. “Exception of External Input” is available for each external input (Input 1 and Input 2).

Item		Function
	Selection of Excepted Groups for External Input 1	This function is used for selecting the groups whose operation orders are cancelled from external input 1.
	Selection of Excepted Groups for External Input 2	This function is used for selecting the groups whose operation orders are cancelled from external input 2.
Demand Function Setting		This function is used for setting of “Demand Function” to the terminal of “Input 1”. Operation state changes by demand signals such as operation stop, or thermo-OFF. “Demand Function” is available under the following conditions. **1** Selecting “Demand Function” for “Input 1” at the “External Input/Output Setting” screen. (“Demand Function” is not available without this setting.) **2** Selecting one of “Demand Function” No.1 to No.4 at “Demand Function Setting” screen.
	Demand Function Setting	This function is used for selecting the action for “Demand Function” control.
	Selection of Group for Demand Function	This function is used for selecting the target group for “Demand Function” control.
Button Setting		This function is used for specifying whether each button shall be shown or hidden. This function also includes the specification of “one-tap” or “press and hold” operation style of the touch-screen.
Contact Information Register		This function is used for editing the contents of contact information.

◆ Initial Power on Setting

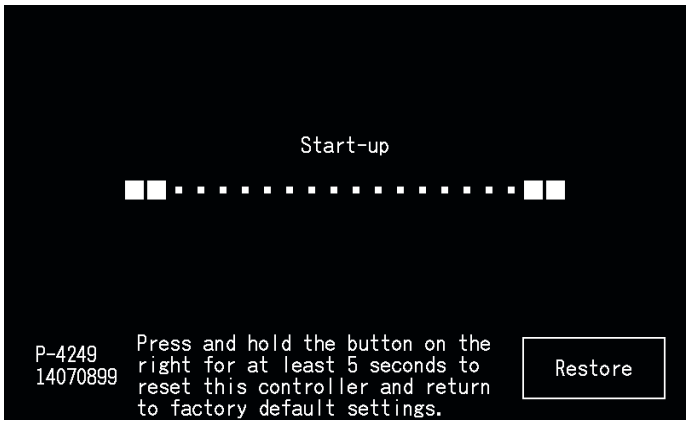
Turn on the power supply of the air conditioners.

To protect the compressor, the power supply should be turned on 12 hours before starting operation. Do not turn the power supply off during air conditioning seasons.

Perform a test run of each air conditioner first to ensure normal operation.

Turn on the power supply of the central station.

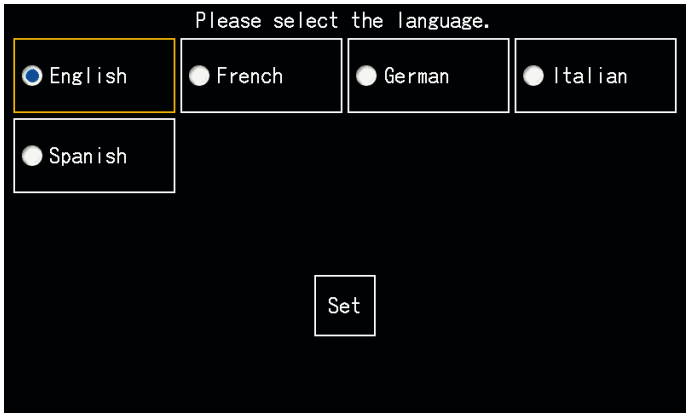
“Start-up” is displayed for a while during the boot process, after which the screen changes to “Monitor 1 (All Groups)”.



◆ Language Setting

When turning the power supply ON for the first time, the language setting screen is displayed after a few minutes.

Select the language for operation and tap “Set”.



◆ Adjusting Date/Time

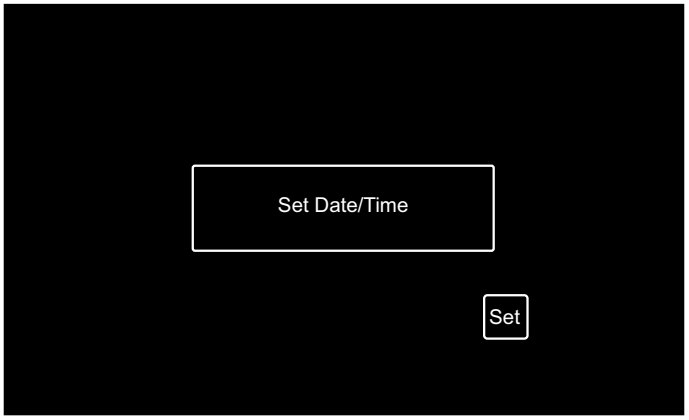
After setting the language, the screen for adjusting date and time screen is displayed on the touchscreen as shown in the figure.

Tap “Set” on the touchscreen display, and set the date and time following the indicated procedure.

Refer to the Adjusting Date/Time section in the Menu chapter for detailed information.

NOTE

Setting the date and time may be required after a prolonged power failure. If “Set Date/Time” is displayed on the screen in such a case, then tap “Set” to adjust the date and time.



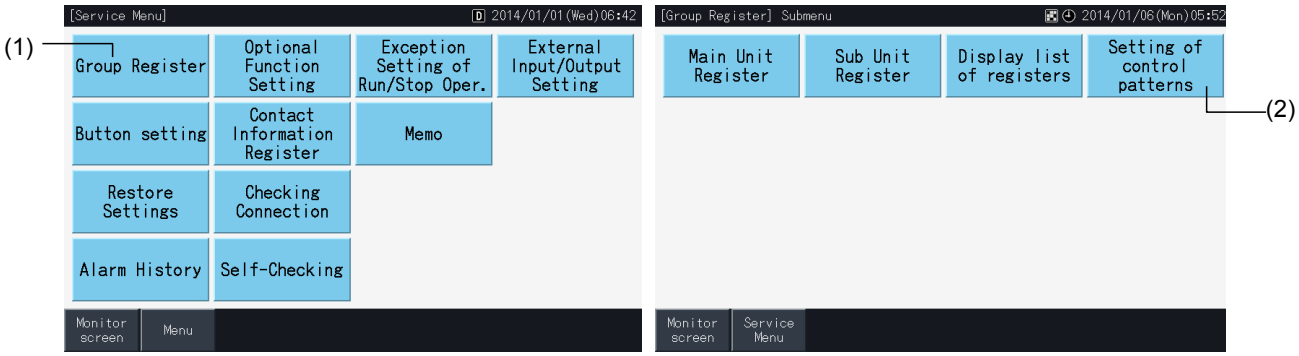
◆ Setting of control patterns

After adjusting date and time settings, the control pattern screen is displayed. Tap “Set” on the touchscreen to proceed to the setting of control patterns.

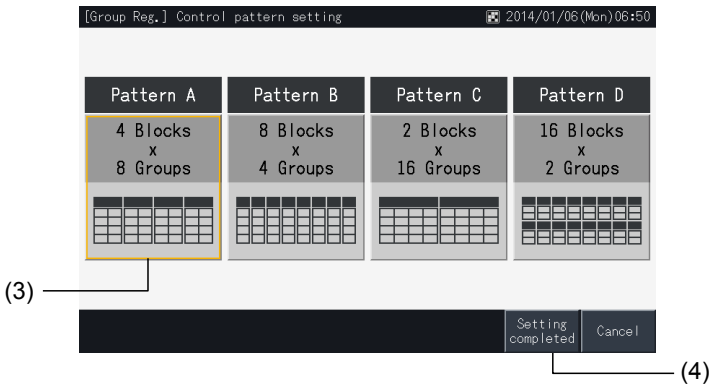
When tapping on a control pattern button, the selected button is highlighted with an orange outline.
The procedure for the setting of control patterns is explained below.

1 Select “Group Register” on the Service Menu screen.

2 Select “Setting of control patterns” on the Group Register screen.



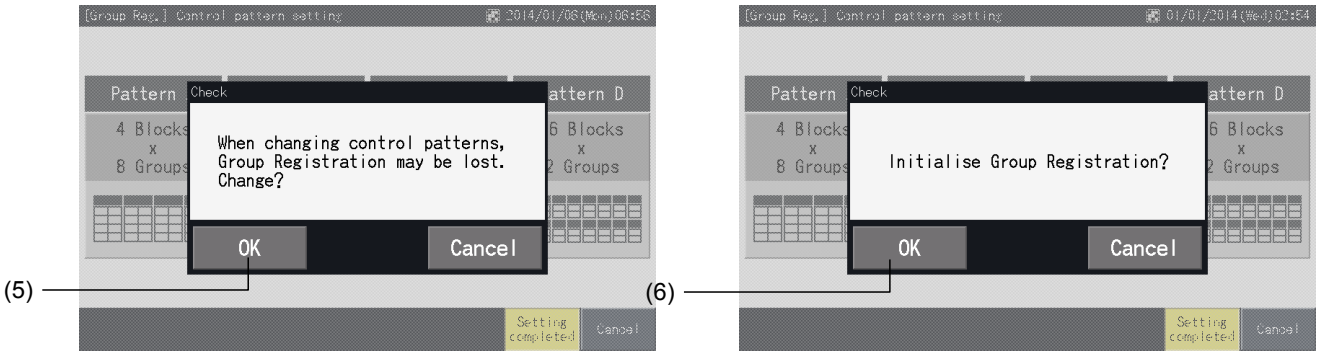
3 Set the Control Pattern.
When tapping on the Control Pattern button, the selected button is highlighted with an orange outline.



4 Tap “Setting completed”.

* In case of tapping “Cancel”, the screen returns to the Group Register menu.

* Group registration is deleted when changing to a different control pattern



5 Tap “OK” on the confirmation screen.

* Tap “Cancel” to return to the Setting of control patterns screen.

6 Tap “OK” on the confirmation screen to confirm the selected control pattern and to delete all group registers.

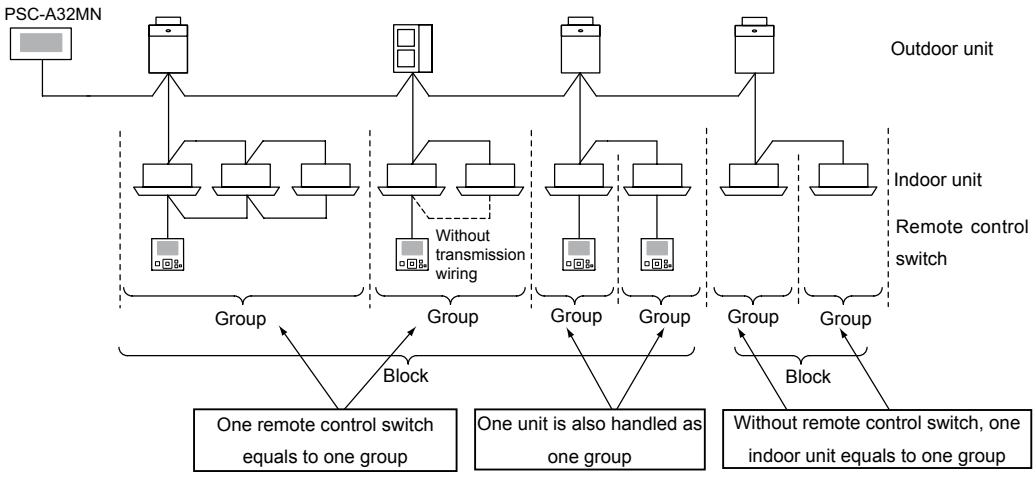
* Tap “Cancel” to confirm the selected control pattern. After modifying the control pattern, the assignment of main and sub units is maintained as much as the control range allows.

◆ Group register

Register the connected indoor units to groups and blocks of the central station.

Definitions

- Group :
  The minimum operation unit controlled by one central station. 1 remote control group is considered as 1 group, and the same setting is applied to the entire group. A maximum of 32 groups (organized as 4 blocks with 8 groups each, 8 blocks with 4 groups each, 2 blocks with 16 groups each or 16 blocks with 2 groups each) can be controlled with one central station.
- Block:
  An operation unit composed of several groups. The central station organizes blocks in patterns of 4 blocks with 8 groups each, 8 blocks with 4 groups each, 2 blocks with 16 groups each or 16 blocks with 2 groups each.
- Remote Control Group:
  A group of multiple indoor units (max. 16) connected by the transmission line of the remote control switch. The same settings are applied to all the indoor units in the same remote control group.
- Main Unit:
  The representative unit of the remote control group. The central station transmits control orders to this representative unit.
- Sub Unit:
  Indoor units other than the main unit of the remote control group.



Main Unit Registration

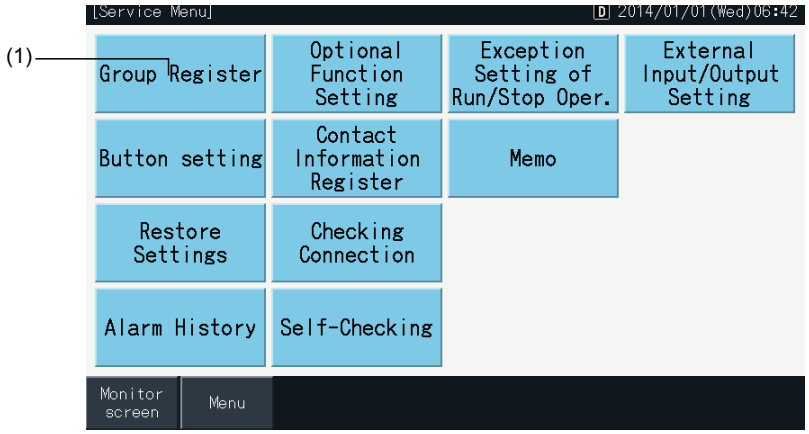
- Only one unit can be registered as the main unit of a group. Thus, duplicate registration of the main unit is not possible inside a group. If the unit registered as the main unit has to be changed for some reason, then cancel the current register of main unit before registering the new main unit again.
- When the indoor units with fan speed of 4 and 3 tap are mixed in same remote control group, register the indoor unit with fan speed of 4 tap as the main unit. If the indoor unit with fan speed of 3 tap is registered as the main unit, fan speed setting of 4 tap cannot be applied for this group.
- When mixing indoor units with automatic swing louvre and indoor units with automatic swing louvre together in the same remote control group, an indoor unit with auto-louvre shall be registered as the main unit of the group. If an indoor unit without auto-louvre is registered as the main unit, then the auto-louvre setting cannot be applied for the entire group.
- When registering a group which has no transmission wiring, the indoor unit without a remote control switch cannot be registered as the main unit.

Sub Unit Registration

- A maximum of 15 sub units can be registered in the same remote group with the main unit (when applying the control pattern of 2 blocks with 16 groups each).
- Indoor units without a remote control switch cannot be registered as sub units.
- In case of changing the registration of an indoor unit which is already registered as a sub unit, cancel the register settings first, and then proceed to the new register.

Registration of a group (Main unit)

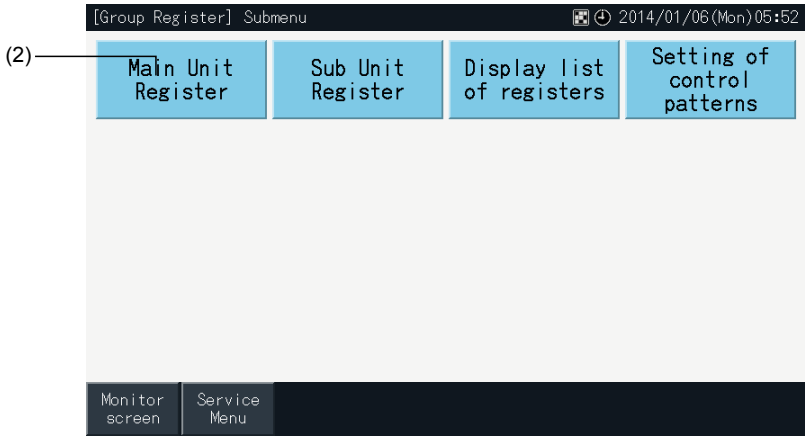
1 Select “Group Register” on the “Service Menu” screen.



NOTE

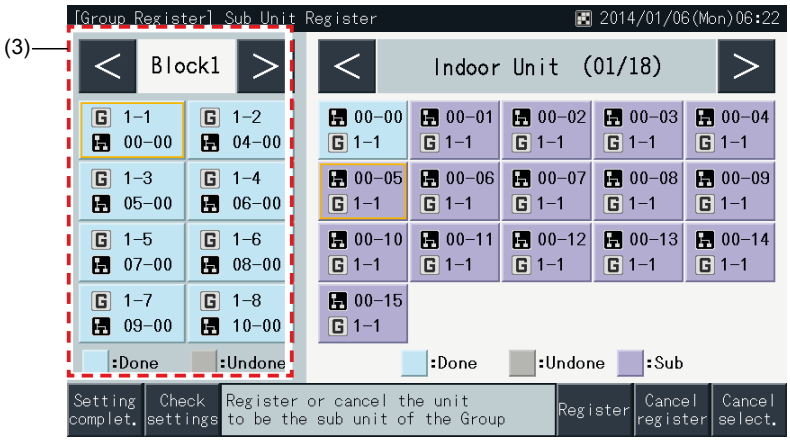
This function cannot be selected when the external input signal is input to the external input terminal 1 or 2.

2 Select “Main Unit Register” on the “Group Register”.



3 Select the group for registration of the main unit.

- Tap buttons “<” and “>” on the upper left of the touchscreen to switch the block display.
- The numbers shown inside the buttons indicate block number and group number.
- Select a group button by tapping it. The selected button is highlighted with an orange outline. If the selected group button is tapped again, the group selection is cancelled.
- The main unit screen may be different depending on the control pattern. The screen below shows the setting of control patterns when Pattern A (4 Blocks with 8 Groups each) is selected.

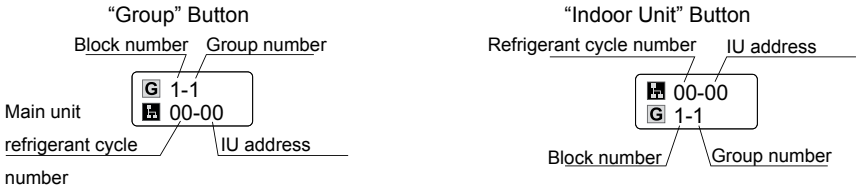


4 Select the indoor unit for registration of the main unit.

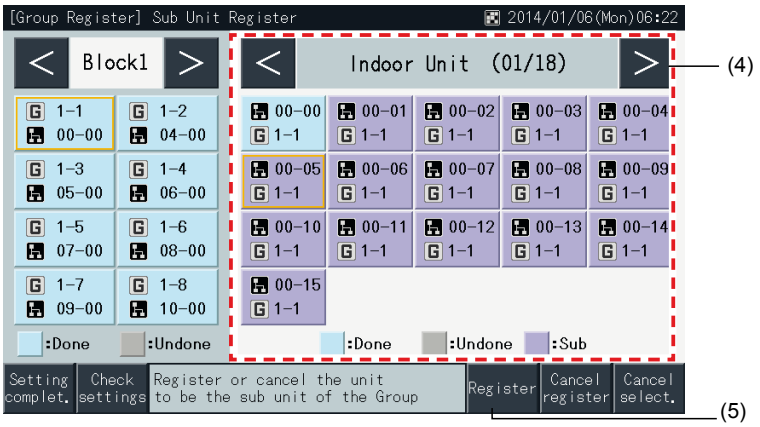
- Tap buttons “<” and “>” on the upper right of the touchscreen to switch the display of indoor units.
- The numbers shown inside the buttons indicate refrigerant cycle number and indoor unit address.
- Select an indoor unit button by tapping it. The selected button is highlighted with an orange outline. If the selected indoor unit button is tapped again, the indoor unit selection is cancelled.
- An indoor unit which has been already selected as a main unit cannot be selected again (its button becomes blue).
  - About the selection of indoor units
    - It is not possible to register an indoor unit with red letters as a main unit. In this case, the indoor unit is registered as a sub unit automatically.
    - When mixing indoor units with 4 fan speed taps and indoor units with 3 fan speed taps together in the same remote control group, register an indoor unit with 4 fan speed taps as the main unit.
    - When mixing indoor units with auto louvre function and indoor units without auto louvre function together in the same H-LINK, register one unit with auto louvre function as the main unit. Otherwise, the auto louvre function becomes disabled for the entire H-LINK. The same applies to other functions as well.

5 Tap “Register” to register the main unit while the group and indoor unit are selected.

- If the group and indoor unit for the main unit are not selected, the “Register” indication is greyed out and therefore cannot be tapped.
- The colour of the buttons of the registered group and the indoor unit changes to blue, and the following information is displayed inside the buttons.



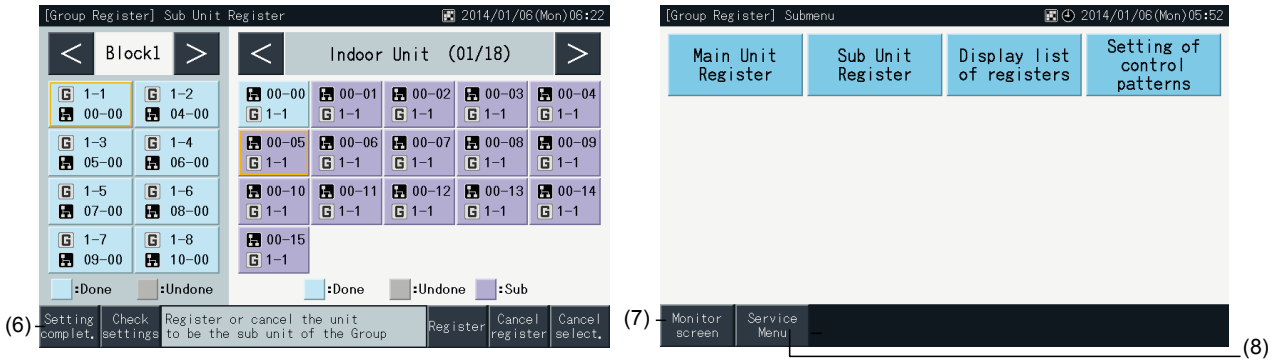
Tap buttons “<” and “>” on the upper left of the touchscreen to continue with the setting of another Block, or tap the “Setting complet.” button to exit.



6 Tap “Setting Complet.” to register the group and return to Group Register menu screen.

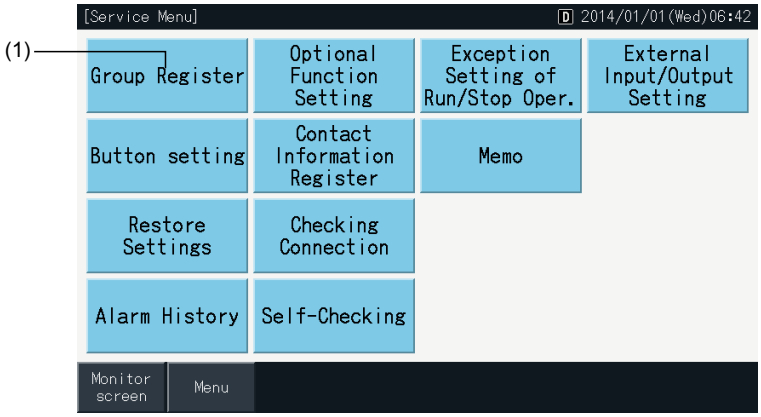
7 Tap “Monitor screen” to return to Monitor screen.

8 Tap “Service Menu” to return to Service Menu screen.



Registration of a group (Sub unit)

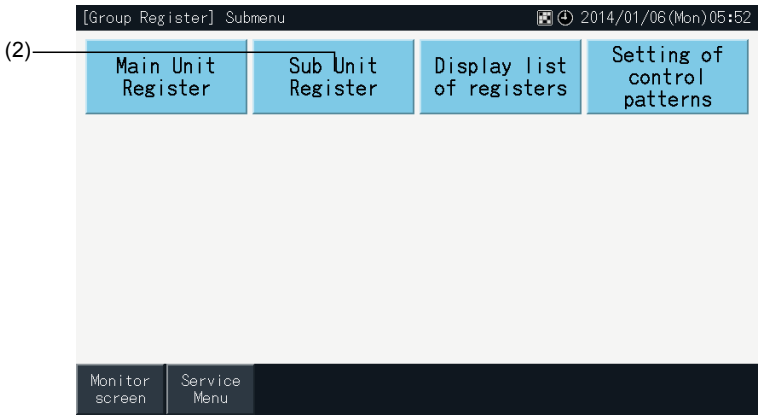
1 Select “Group Register” on the screen of “Service Menu”.



NOTE

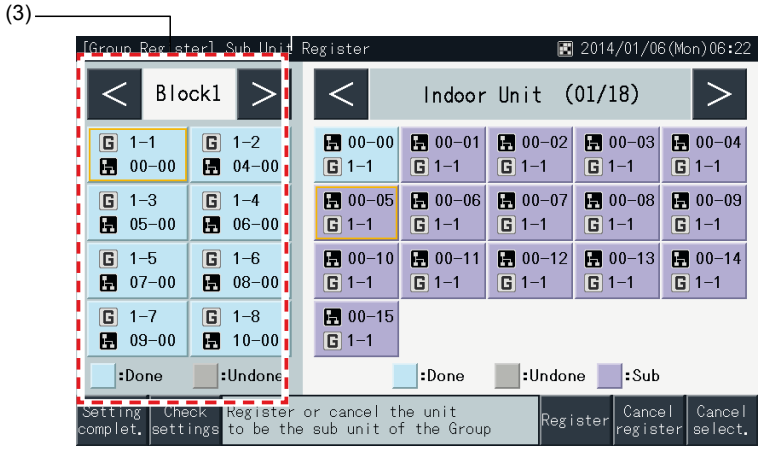
This function cannot be selected when the external input signal is input to the external input terminal 1 or 2.

2 Select “Sub Unit Register” on the screen of “Group Register”.



3 Select the group for registration of the sub unit.

- Tap buttons “<” and “>” on the upper left of the touchscreen to switch the block display.
- Select a group by tapping it. The selected button is highlighted with an orange outline.
- If the selected group button is tapped again, the selection is cancelled.
- The main unit cannot be selected if the group is unregistered (shown in grey).
- The sub unit register screen may be different depending on the control pattern. The screen below shows the setting of control patterns when pattern A (4 blocks with 8 groups each) is selected.



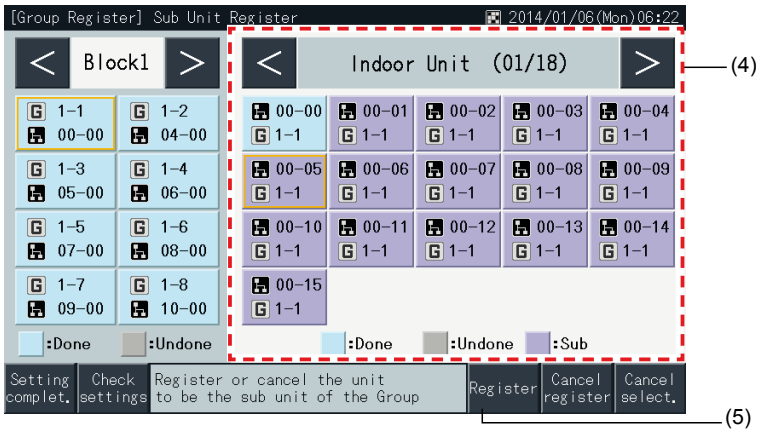
4 Select the indoor unit for registration of the sub.

- to switch the display of indoor units.
- The numbers shown inside the buttons indicate refrigerant cycle number and indoor unit address.
- Select an indoor unit button by tapping it. The selected button is highlighted with an orange outline. If the selected indoor unit button is tapped again, the indoor unit selection is cancelled.
- An indoor unit which has been already registered as main unit cannot be selected (its button appears in blue).

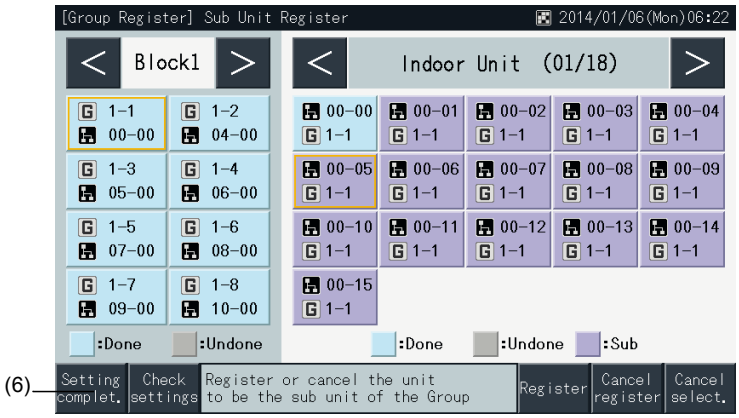
5 Tap “Register” to register the sub units while the group and indoor units are selected.

- If the group and indoor units for the sub units are not selected, the “Register” indication is greyed out and therefore cannot be tapped.
- The colour of the buttons of the registered group and the indoor unit changes to purple.

Tap buttons “<” and “>” on the upper left of the touchscreen to continue with the setting of another Block, or tap the “Setting complet.” button to exit.

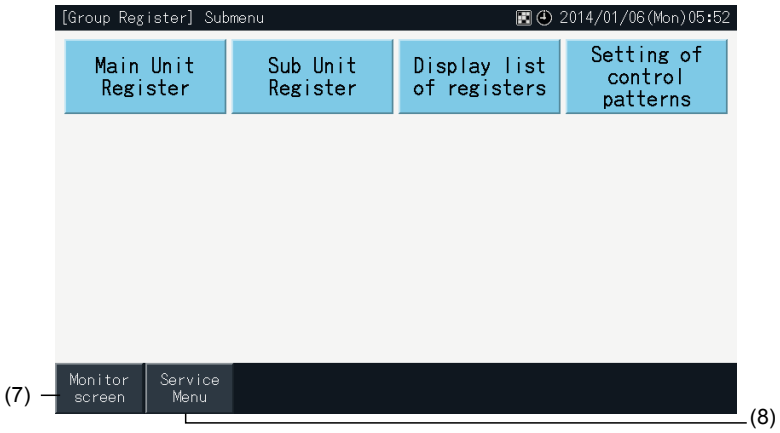


6 Tap “Setting complet.” on “Group Register (Sub Unit Register)” to return to the “Group Register” screen.



7 Tap “Monitor screen” to return to Monitor screen.

8 Tap “Service Menu” to return to Service Menu screen.



NOTE

It is possible to register a maximum of 15 sub units in the same remote control group.

It is not possible to register an indoor unit without remote control switch as a sub unit. (Refer to Group Register section).

Cancellation of group registration

1 Select “Group Register” on the screen of “Service Menu”. Refer to “Registration of a group (Main unit)”.

NOTE

This function cannot be selected when the external input signal is input to the external input terminal 1 or 2.

2 Select “Main Unit Register (or Sub Unit Register)” on the screen of “Group Register”.

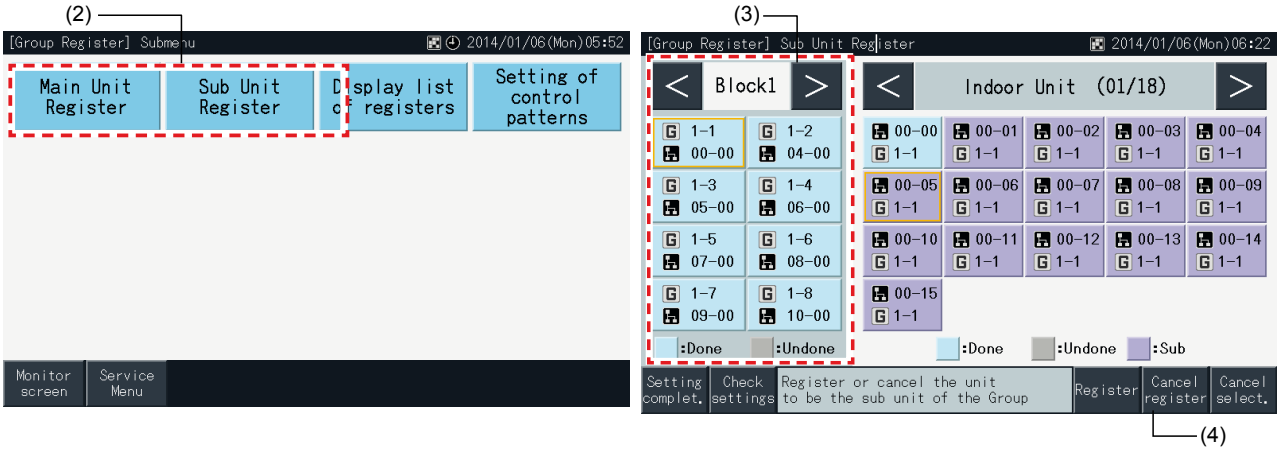
3 Select the group to cancel registration.

- Tap buttons “<” and “>” on the upper left of the touchscreen to switch the block display.
- Select a group button by tapping it. The selected button is highlighted with an orange outline. If the selected group button is tapped again, the group selection is cancelled.

4 Tap “Cancel register” to delete the register of the group. The group button and indoor unit button turn to grey.

- When tapping “Cancel register” on the “Main Unit Register” screen, the main unit and the sub units are unregistered.
- When tapping “Cancel register” on the “Sub Unit Register” screen, the sub units are unregistered.

Tap buttons “<” and “>” on the upper left of the touchscreen to continue unregistering groups in other blocks, or tap the “Setting complet.” button to exit.



5 Tap “Setting complet.” to return to the “Group Register” screen.

6 Tap “Monitor screen” to return to Monitor screen.

7 Tap “Service Menu” to return to Service Menu screen.

Checking of group registration (Checking of main unit register)

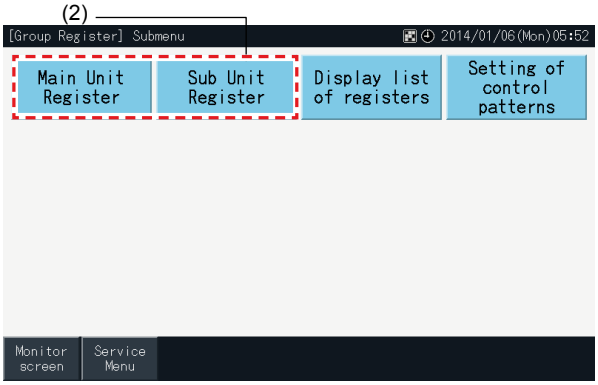
1 Select “Group Register” on the “Service Menu” screen. Refer to section Registration of a group (Main unit).

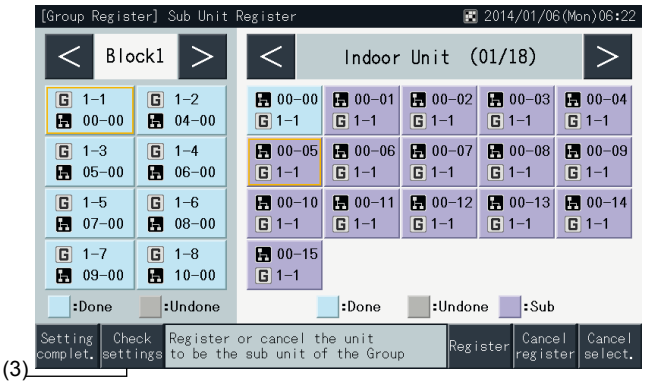
NOTE

This function cannot be selected when the external input signal is input to the external input terminal 1 or 2.

2 Select “Main Unit Register” (or “Sub Unit Register”) on the “Group Register” screen.

3 Tap “Check Setting” on the lower left of the touchscreen.



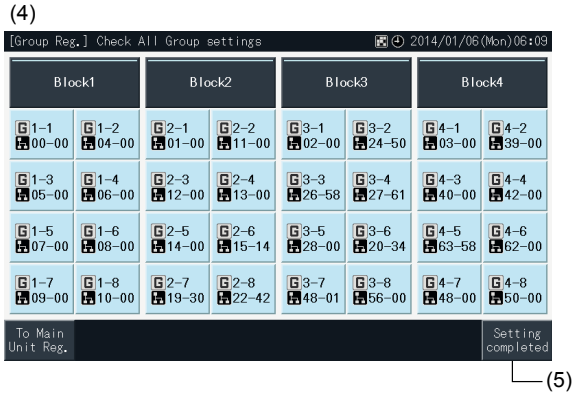


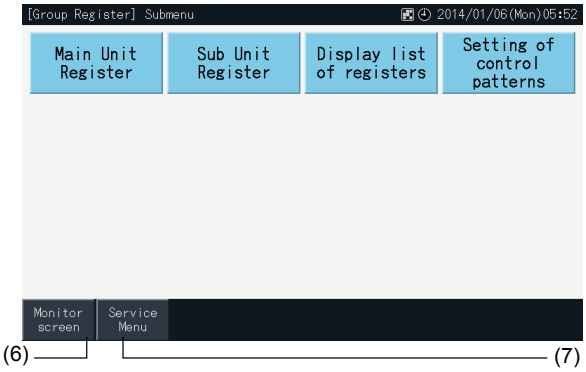
4 The screen switches to the Group Register check screen then. Tap “To Main Unit Reg.” to enter the Main Unit Register screen from there.

5 Tap “Setting completed” to return to the Group Register Menu screen.

6 Tap “Monitor screen” to return to Monitor screen.

7 Tap “Service Menu” to return to Service Menu screen.





Checking of group registration (checking register details)

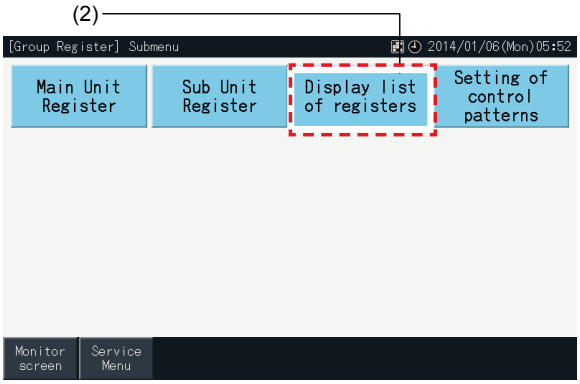
1 Select “Group Register” on the “Service Menu” screen. Refer to section Registration of a group (Main unit).

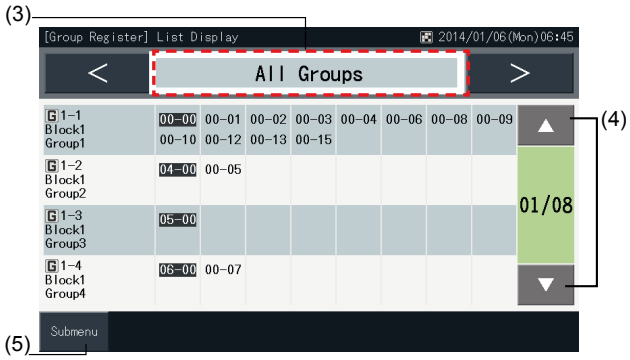
NOTE

This function cannot be selected when the external input signal is input to the external input terminal 1 or 2.

2 Select “Display list of registers” on the Group Register screen.

3 Select the display target (All Groups / individual Blocks)





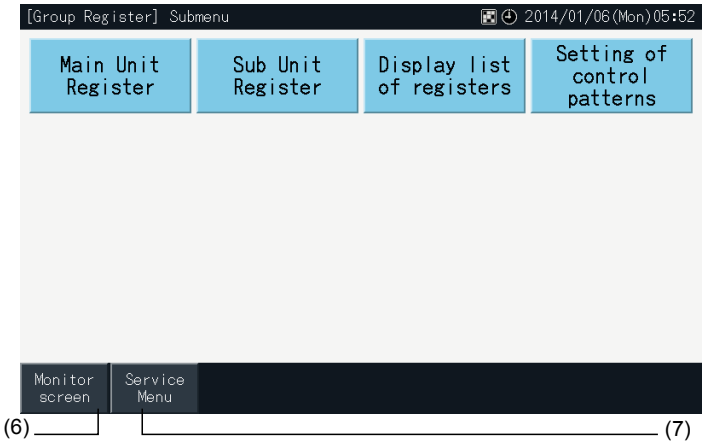
4 The refrigerant system number and the address of all the units connected to each Group are displayed.

- Black: Main Unit
- Other: Sub Unit
- Switch the page by tapping on “▲ ”or “▼ ”.

5 Tap “Submenu” to return to Group Register screen.

6 Tap “Monitor screen” to return to Monitor screen.

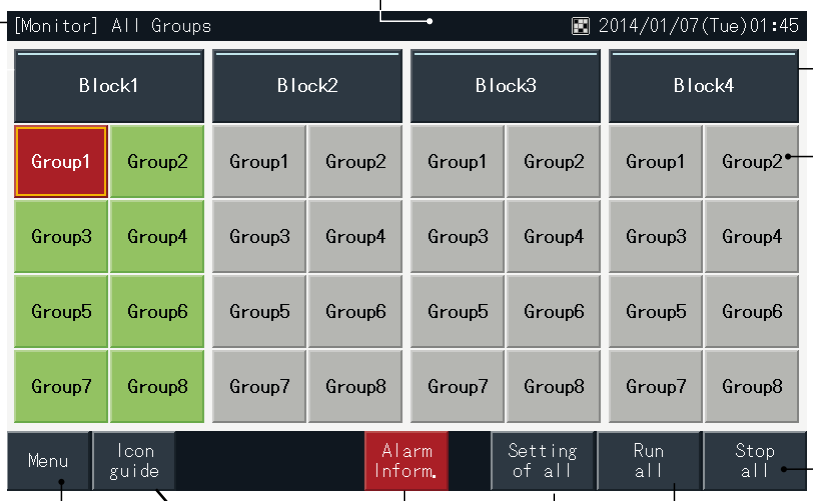
7 Tap “Service Menu” to return to Service Menu.



5.2.4.2 Main Screen

◆ Overall view

“Monitor 1 (All Groups)”



Current display

Indicates the current display (All Groups)

Unit state

Indicates the state of the unit with icons like filter sign, demand, etc.

Block button

The screen display changes into “Block” Monitor 2 (Block) display by tapping this button.

Group button

Indicates the operation state of each group as follows:

Green:	Running
Grey:	Stopped
Red:	Abnormal

If the target group button is tapped, “Settings” of the target group screen will be indicated.

“Stop all” button

Stops all the units controlled by the central station at once.

“Run all” button

Runs all the units controlled by the central station at once.

“Setting of all” button

Changes the setting of all the units controlled by the central station at once.

“Alarm Inform.” button

Provides detailed information about abnormalities.

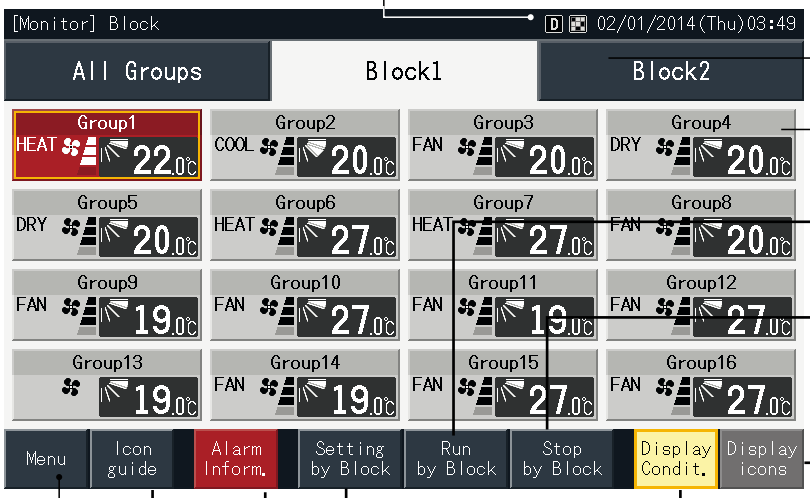
“Menu” button

Displays menu items such as “Filter Sign Reset”, “Schedule Setting”, etc.

“Icon Guide” Button

Displays an explanation of the Icons.

“Monitor 2 (Block)”



Current display

Indicates the current display (groups in block)

Unit state

Indicates the state of the unit with icons like filter sign, demand, etc.

Block tab

Changes the monitor display into “Block” or “All Groups” display.

Group button

Indicates the operation status

Green:	Running
Grey:	Stopped
Red:	Abnormal

If the target group button is tapped, “Settings” of the target group screen will be indicated.

“Run by Block” button

Runs the operation of all groups in the target block simultaneously.

“Stop by Block” button

Stops the operation of all groups in the target block simultaneously.

“Display icons” button

“Display Condit.” button

“Menu” button

Displays menu items such as “Filter Sign Reset”, “Schedule Setting”, etc.

“Icon Guide” button

Displays an explanation of the Icons.

“Alarm Info.” button

Provides detailed information about abnormalities.

“Setting by Block” button

Changes the setting of all the groups in the target block simultaneously.* This function can be used when Control Mode (Run/Stop Only) is in “Disable” mode.

If Control Mode (Run/Stop Only) is in “Enable” mode, the Run/Stop operation will be switched by tapping the target.

NOTE

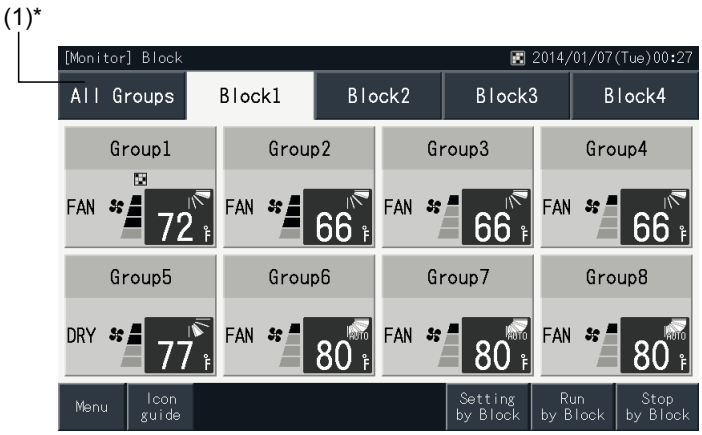
The screen image may be different from the actual screen.

◆ Group and block settings

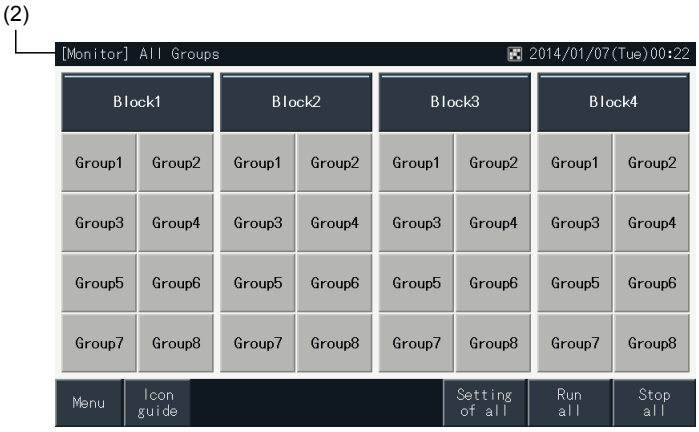
Display of All Groups

1 Tap “All Groups” on the touchscreen display.

The tab marked with (1), “All Groups”, is not displayed if only one block has been registered.



2 All groups are displayed on the touchscreen (all the indoor units connected to the central station are shown). The operation status of each group is indicated by the colour of the group, as shown below:



Green: Run

Grey: Stop

Red: Abnormal

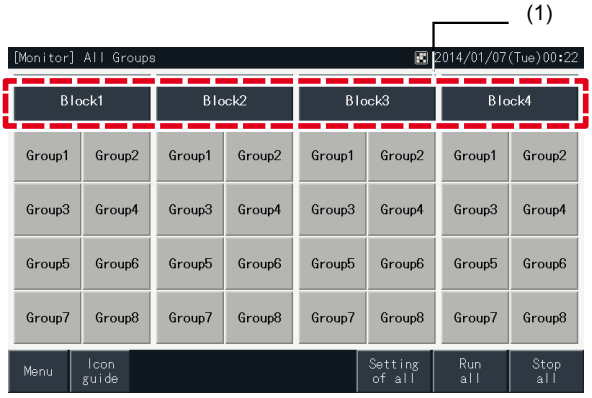
NOTE

- *“All Groups” screen may be different depending on the Control Pattern. The screen on the left corresponds to the display of Pattern A (4 Blocks × 8 Groups), as set by Control Pattern.*
- *The touchscreen display is put to sleep mode automatically when the touchscreen is not operated for a given length of time. Tap the screen to wake up.*

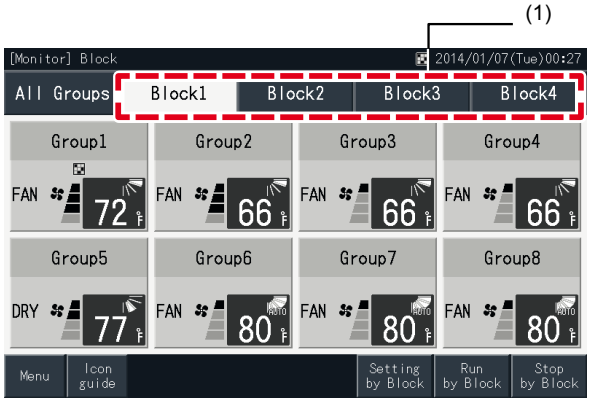
Display of Specified Block

1 Select the target block from the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”.

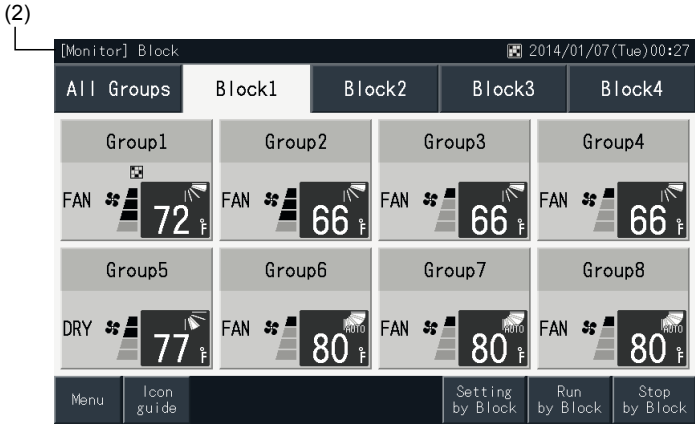
Monitor 1 (All Groups)



Monitor 2 (Block)



2 The groups in the selected block are displayed on the touchscreen. The operation status of each group is indicated by the colour of the group, as shown below:



Green: Run

Grey: Stop

Red: Abnormal

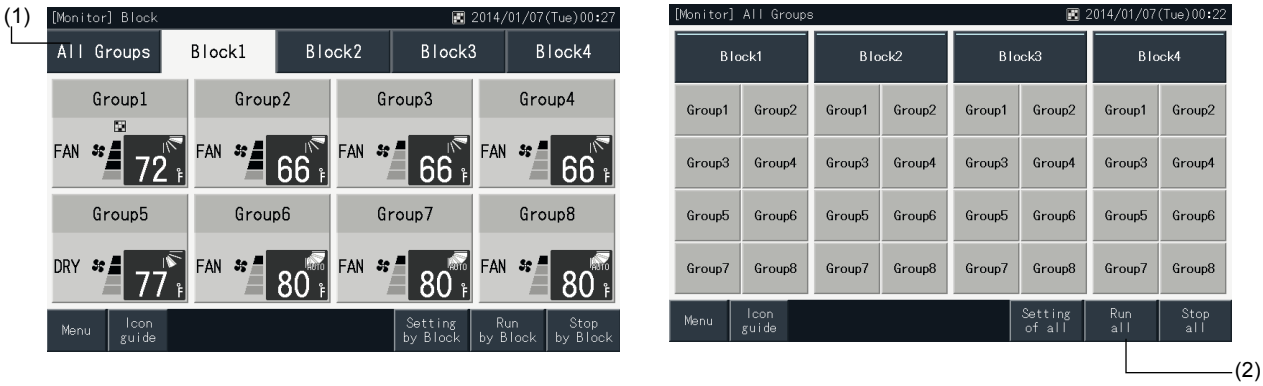
NOTE

- *“Block” screen may be different depending on the Control Pattern. The screen on the left corresponds to the display of Pattern A (4 Blocks × 8 Groups), as set by Control Pattern.*
- *The touchscreen display is put to sleep mode automatically when the touchscreen is not operated for a given length of time. Tap the screen to wake up.*

Simultaneous Run/Stop for All Groups

1 Tap “All Groups” on the touchscreen display.

2 Tap “Run all” to run all the groups simultaneously.
Tap “Stop all” to stop all the groups simultaneously.



3 The confirmation window is displayed. Tap “OK” for simultaneous operation of all indoor units connected to the central station. Tap “Cancel” to cancel this command.

NOTE

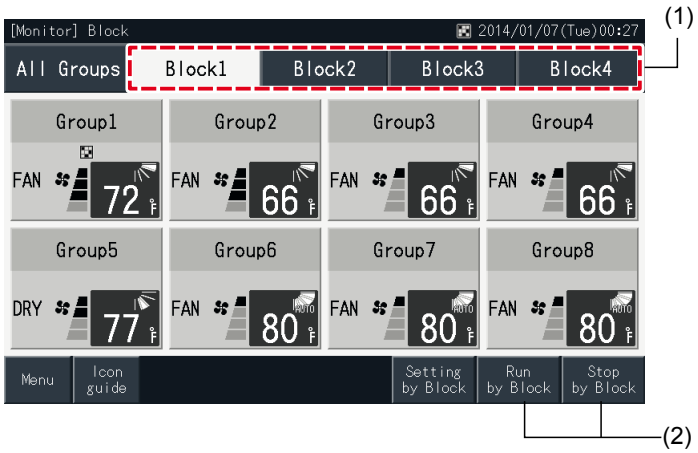
The commands to run all the groups and stop all the groups have no effect on the groups specified in “Exception Setting of Run/Stop Operation”.

5

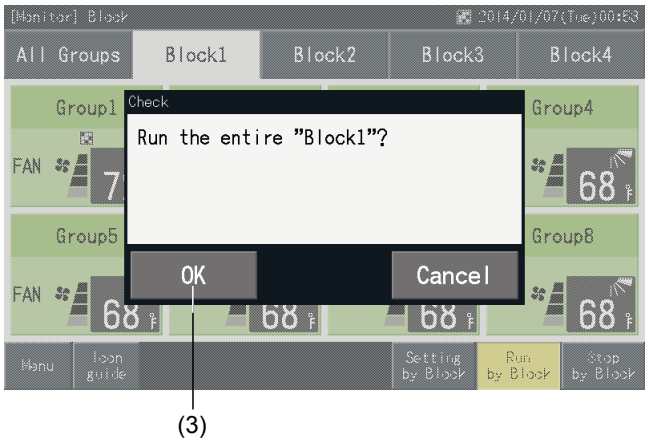
Simultaneous Run/Stop for Block

1 Select the target block from the touchscreen display to set simultaneous Run/Stop operation.

2 Tap “Run by Block” to run all the groups in the selected block simultaneously.
Tap “Stop by Block” to stop all the groups in the selected block simultaneously.



3 The confirmation window is displayed. Tap “OK”. for simultaneous operation of all the groups (all the indoor units) in the selected block connected to the central station. Tap “Cancel” to cancel this command.



NOTE

The commands to run by block and stop by block have no effect on the groups specified in “Exception Setting of Run/Stop Operation”.

Run/Stop for Each Group

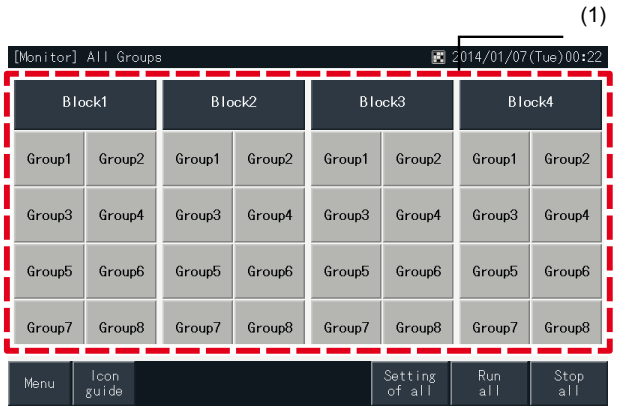
Check the control mode before setting.

The control method is different depending whether the control mode is set to “Normal” or “Run/Stop Only”.

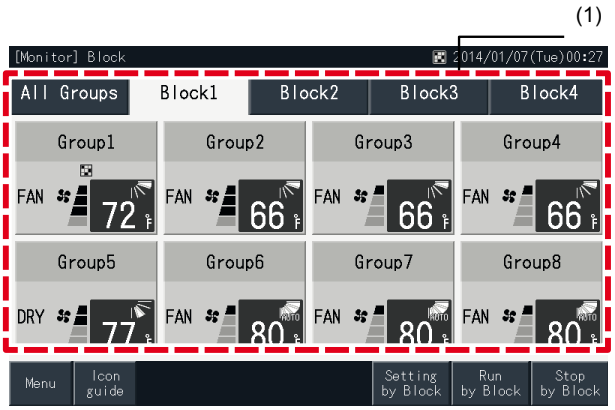
Run/Stop operation for each group (Control mode: Normal)

1 Select the screen of “Monitor 1 (All Groups)” or “Monitor 2 (Block)”. Select the group to set by tapping its group button.

Monitor 1 (All Groups)

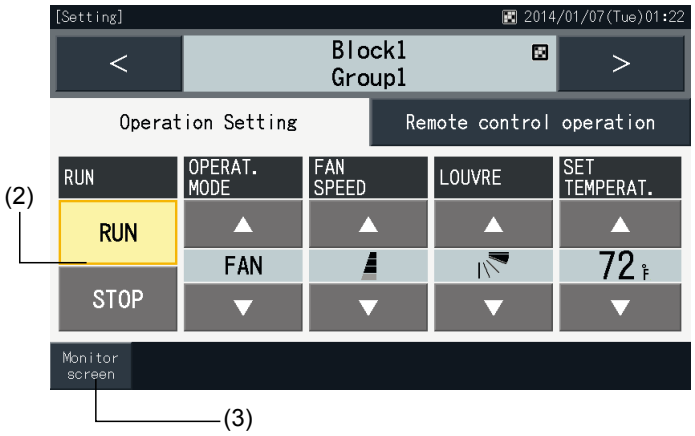


Monitor 2 (Block)



2 The settings of the selected group appear displayed on the touchscreen display. Tap “RUN” or “STOP” to change the operation state.

3 Tap “Monitor screen” to return to the “Monitor” screen.



Run/Stop operation for each group (Control mode: "Run/Stop only")

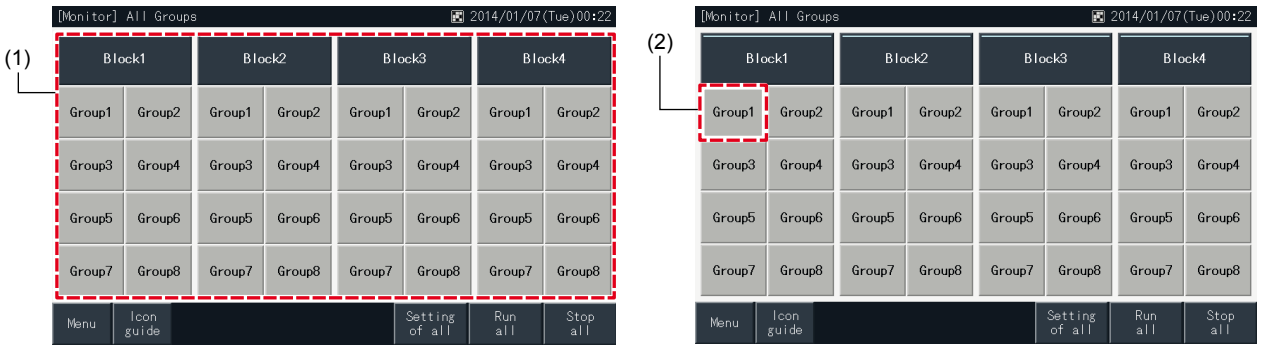
Monitor 1 (All Groups)

1 Select the target group at the "Monitor 1 (All Groups)" screen in "Run/Stop Only" mode.

2 The operation state of the selected group is switched alternatively between Run and Stop when tapping its button.

In this mode, simultaneous Run/Stop operation for all groups is available with the "Run all" and "Stop all" buttons.

Refer to section "Simultaneous Run/Stop for All Groups" for details.



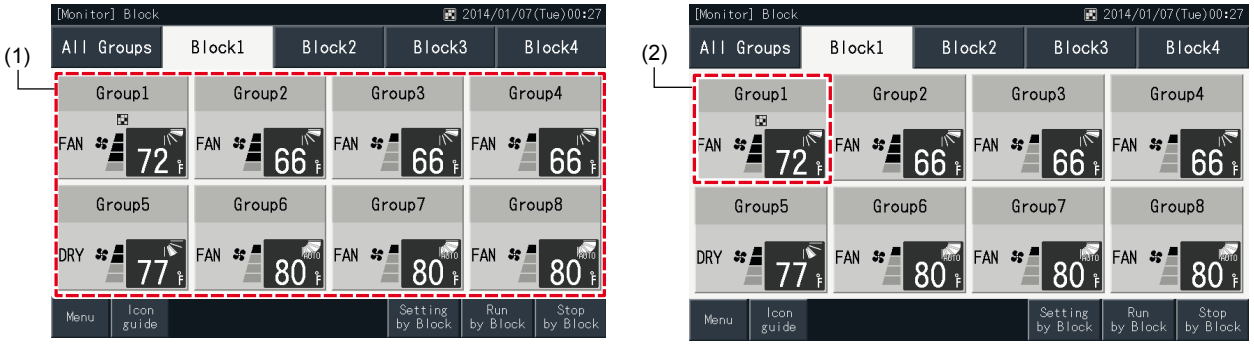
Monitor 2 (Block)

1 Select the target group at the "Monitor 2 (Block)" screen in "Run/Stop Only" mode.

2 The operation state of the selected group is switched alternatively between Run and Stop when tapping its button.

In this mode, simultaneous Run/Stop operation by block is available with the "Run by Block" and "Stop by Block" buttons.

Refer to section "Simultaneous Run/Stop for Block" for details.

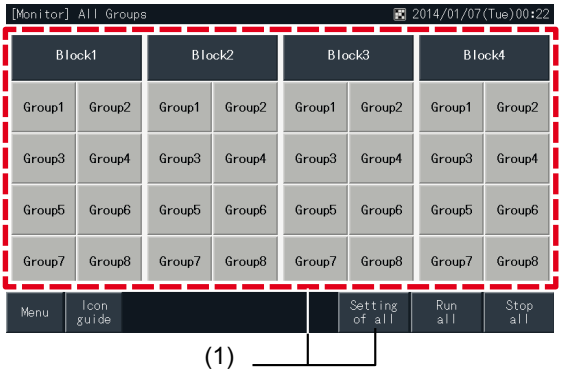


◆ Main parameters settings

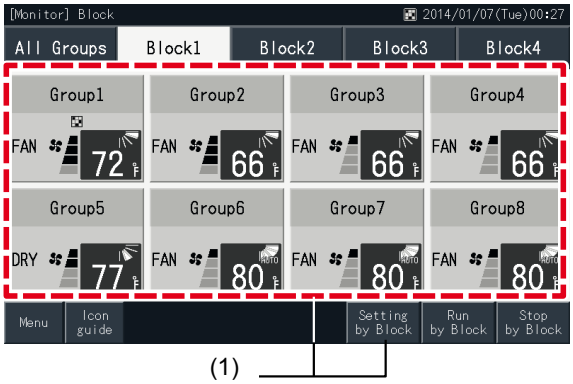
Operation Mode

1 Select the target group for the change of operation mode settings at the “Monitor 1 (All Groups)” or “Monitor 2 (Block)” screens. The screen with the settings for the selected group is displayed on the touchscreen.

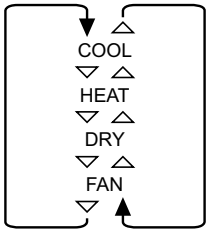
Monitor 1 (All Groups)



Monitor 2 (Block)

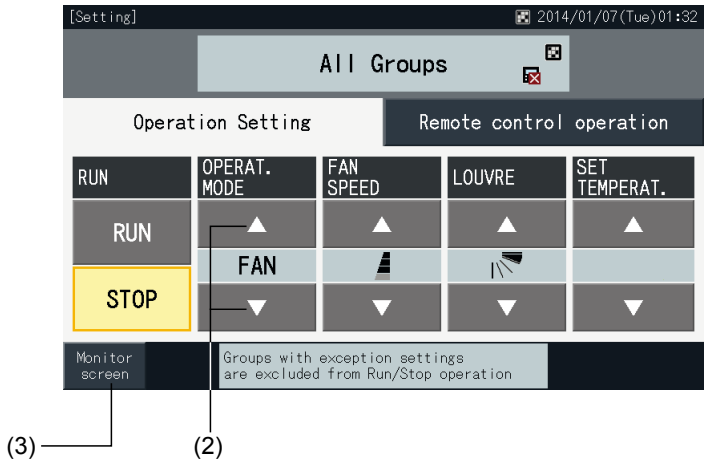


2 By tapping the “△” or “▽” buttons under “Operat. Mode”, operation mode changes alternatively as shown below:



The “AUTO” (Heating/Cooling Automatic Operation) is also included as an option when applicable.

3 Tap “Monitor screen” to return to the Monitor screen.



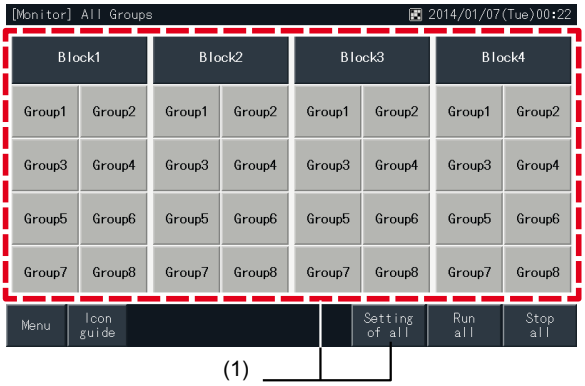
NOTE

- *When there are two or more groups registered in the same block, it is possible to change the target group for setting by tapping the arrow buttons at the upper corners of the screen.*
- *In case that control mode is set as “Run/Stop Only”, setting changes affect all groups or all blocks. It is not possible to change settings for each group.*
- *Some modes cannot be set, depending on the type of air conditioner unit. Contact your dealer or a Hitachi customer service centre for detailed information.*

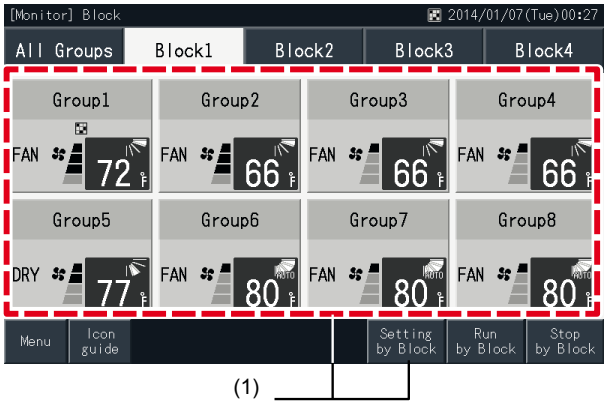
Fan Speed

1 Select the target group for the change of fan speed setting at the “Monitor 1 (All Groups)” or “Monitor 2 (Block)” screens. The screen with the settings for the selected group is displayed on the touchscreen.

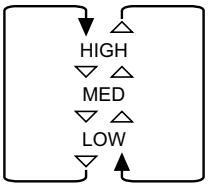
Monitor 1 (All Groups)



Monitor 2 (Block)

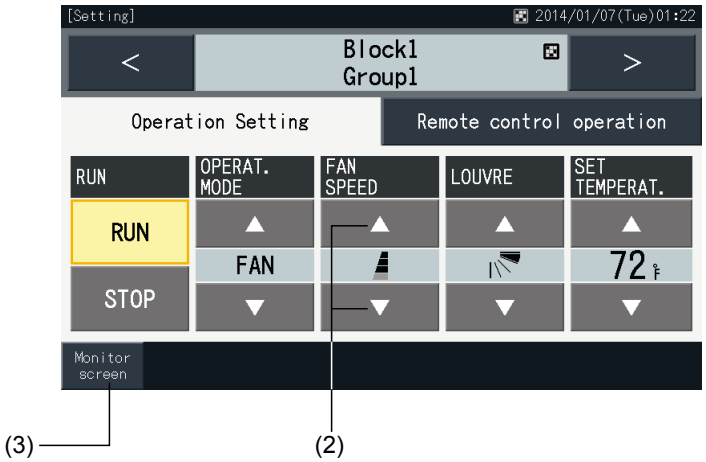


2 By tapping “△“ or “▽” buttons under “Fan Speed”, the fan speed setting changes alternatively as shown below.



* “HIGH2” or “AUTO” may not be indicated depending on the type of air conditioner.

3 Tap “Monitor screen” to return to the “Monitor” screen.



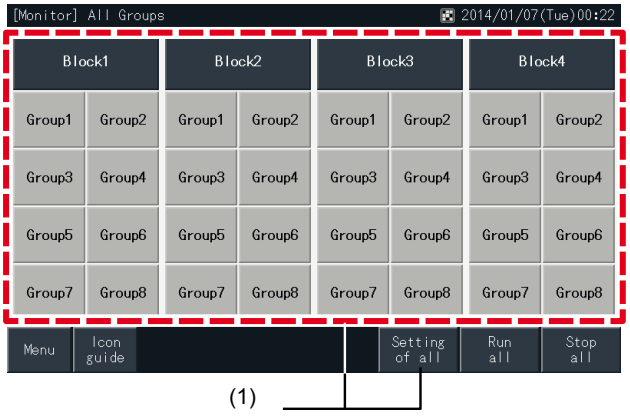
NOTE

- *When there are two or more groups registered in the same block, it is possible to change the target group for setting by tapping the arrow buttons at the upper corners of the screen.*
- *In case that control mode is set as “Run/Stop Only”, setting changes affect all groups or all blocks. It is not possible to change settings for each group.*
- *The actual fan speed during dry operation is always “LOW”, regardless of the fan speed setting.*
- *The figure above shows an example of a connected air conditioner unit. The fan speed may not be indicated in certain cases.*

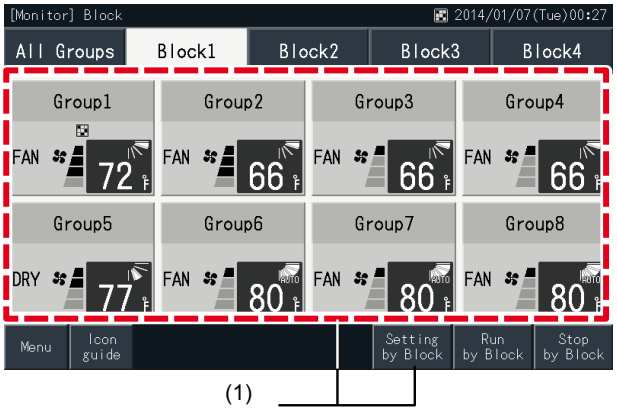
Swing louvre direction

1 Select the target group for the change of swing louvre direction at the “Monitor 1 (All Groups)” or “Monitor 2 (Block)” screens. The screen with the settings for the selected group is displayed on the touchscreen.

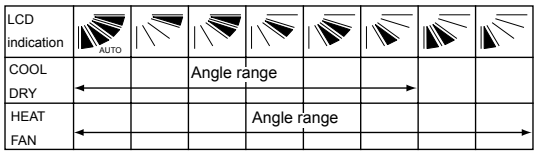
Monitor 1 (All Groups)



Monitor 2 (Block)

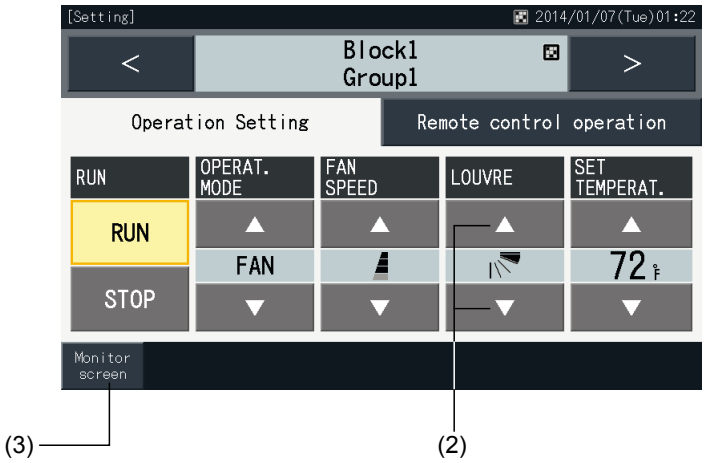


2 By tapping “△“ or “▽” of the “LOUVRE”, the swing louvre direction changes alternatively as shown below.



: Auto swing operation is started.

3 Tap “Monitor screen” to return to the “Monitor” screen.



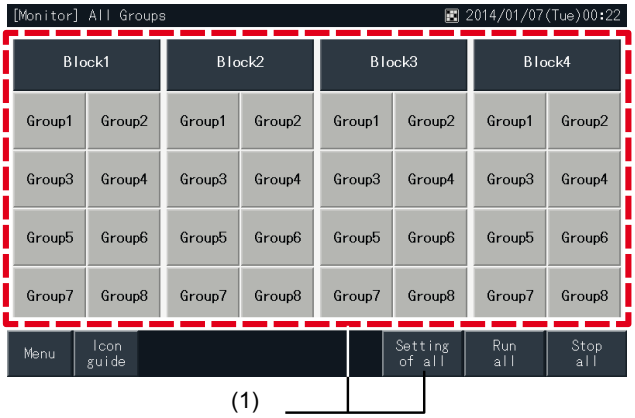
NOTE

- *When there are two or more groups registered in the same block, it is possible to change the target group for setting by tapping the arrow buttons at the upper corners of the screen.*
- *In case that control mode is set as “Run/Stop Only”, setting changes affect all groups or all blocks. It is not possible to change settings for each group.*
- *Depending on the type of air conditioner, the setting may not be possible or may be calibrated automatically.*
- *The louvre position displayed on the LCD and the actual louvre position do not always match during the auto swing operation.*
- *The actual swing louvre direction may not stop immediately after the switch is pressed.*

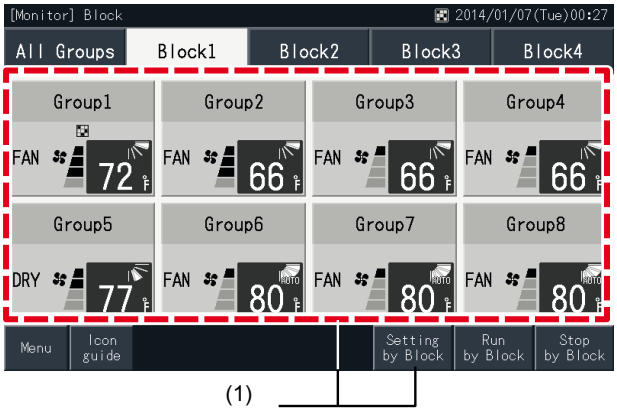
Setting Temperature

1 Select the target group for the change of setting temperature at the “Monitor 1 (All Groups)” or “Monitor 2 (Block)” screens. The screen with the settings for the selected group is displayed on the touchscreen.

Monitor 1 (All Groups)

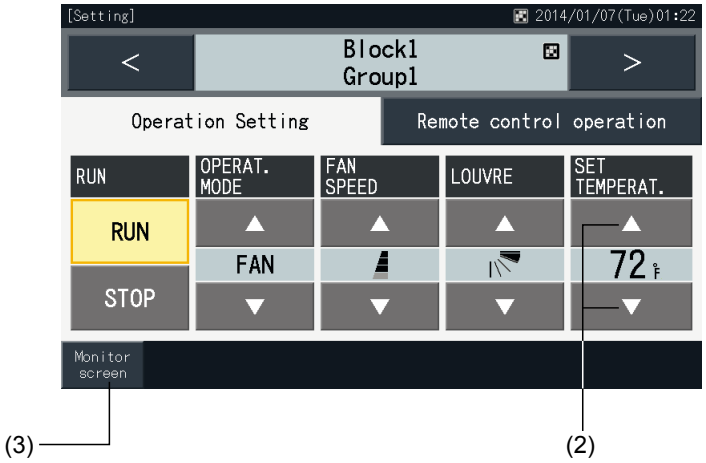


Monitor 2 (Block)



2 By tapping “△”, the temperature is increased by 1 ºC. (Max. 30 ºC). By tapping “▽”, the temperature is decreased by 1 oC. (Min. 9 ºC in cooling, dry and fan operation; Min. 17 ºC in heating operation)

3 Tap “Monitor screen” to return to the “Monitor” screen.



NOTE

- *When there are two or more groups registered in the same block, it is possible to change the target group for setting by tapping the arrow buttons at the upper corners of the screen.*
- *In case that control mode is set as “Run/Stop Only”, setting changes affect all groups or all blocks. It is not possible to change settings for each group.*
- *The figure above shows an example of a connected air conditioner unit. The setting temperature may not be indicated in certain cases.*

◆ Permission/prohibition of operation from remote control switch

This function is used for prohibiting the operation from the remote control switch (RCS).

When the remote control switch is set as prohibited (by item / for all Items), the control of the selected item becomes unavailable. The items that can be selected are: Run/Stop, operation mode, fan speed, swing louvre and temperature.

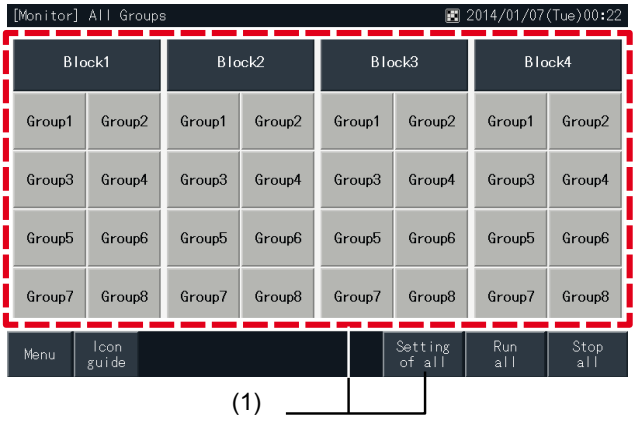
NOTE

Pay attention to the following when applying prohibition by Item to a group.

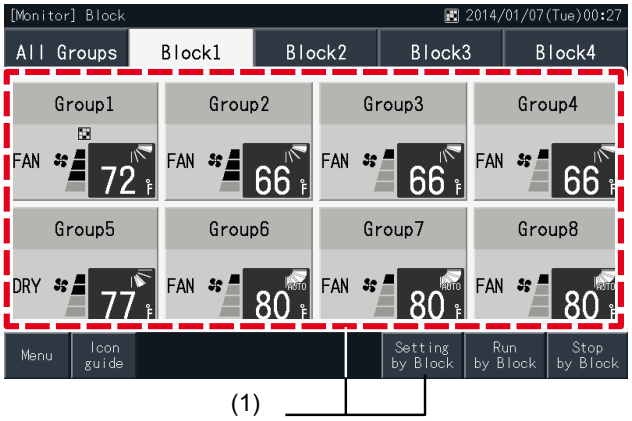
- *When setting a prohibition of remote control switch control, do not use the control lock function of the remote control switch.*
- *When trying to set a prohibition of remote control switch and control lock functions at the same time, remote control switch prohibition has priority and does not allow the setting of control lock functions.*
- *When changing the setting from "RCS control prohibited" to "RCS control permitted", all the settings for the control lock of the remote control switch are cancelled.*

1 Select the target group for setting the prohibition of RCS operation at the "Monitor 1 (All Groups)" or "Monitor 2 (Block)" screens. The window for change of the settings of the selected group is then displayed on the touchscreen.

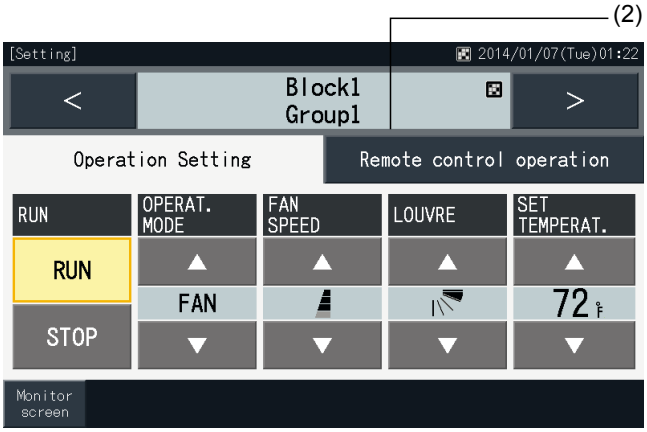
Monitor 1 (All Groups)



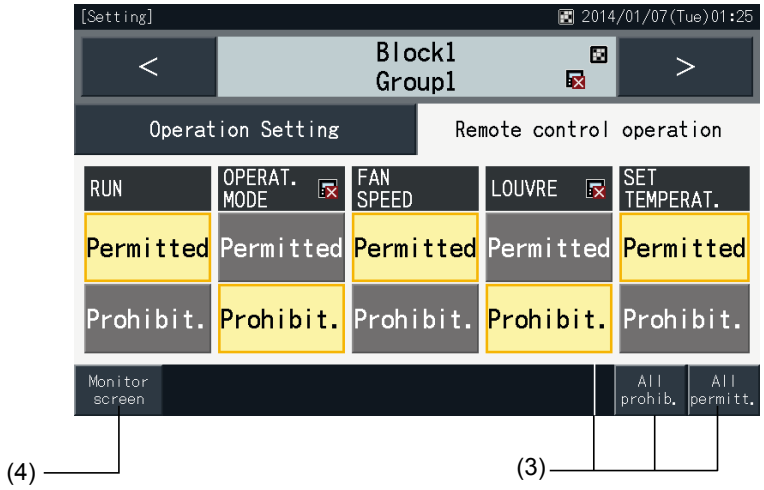
Monitor 2 (Block)



2 Select the "Remote control operation" by tapping on it.

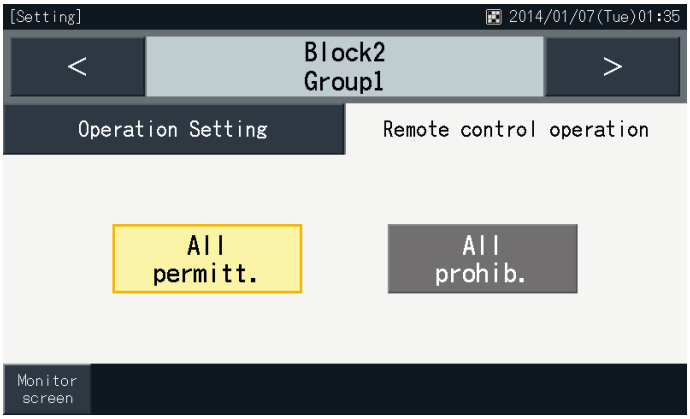


3 Select “Permitted” or “Prohibited” for each item. The Icon “ ” appears indicated on items selected as “Prohibited”. Buttons “All permitt.” and “All prohib.” set all the items to “Permitted” or “Prohibited” state.



NOTE

Depending on the air conditioner unit or the remote control switch being used, only “All permitt. “ or “All prohib.” buttons are available.



4 Tap “Monitor screen” to return to the “Monitor” screen.

NOTE

- *When there are two or more groups registered in the same block, it is possible to change the target group for setting by tapping the arrow buttons at the upper corners of the screen.*
- *When “Control Mode (Run/Stop Only)” is enabled, each setting change has an effect on all the groups or blocks. Setting changes for each group are not possible.*
- *Even if remote control switch is set as “Prohibited”, it is possible to stop operation with the remote control switch while running. It is also possible to restart operation using the remote control switch. However, this function is limited to cases of emergency, and it is not possible to make use of it for normal operation.*
- *If “Power Supply ON/OFF” (d1, d3) is set, do not set the remote control switch as “Prohibited”. If there is a need to restrict remote control switch operation while using “Power Supply ON/OFF”, the “Control lock” function of the remote control switch shall be used instead.*
- *If a communication error occurs, the remote control switch order for “STOP” (by item) may be cancelled. In this case, perform the setting again.*
- *When using other central controllers together at the same time, the “RCS Prohibited” function cannot be used if one of the following is connected. Prohibition settings can be established, but they do not operate properly.*
  - *An indoor unit of a type other than AP*
  - *An inverter-type remote control switch (for facilities)*
  - *A remote control switch which does not support RCS prohibition*
  - *A central controller of the same model or other central controllers.*

5.2.4.3 Menu

The table below shows the menu items and their functions.

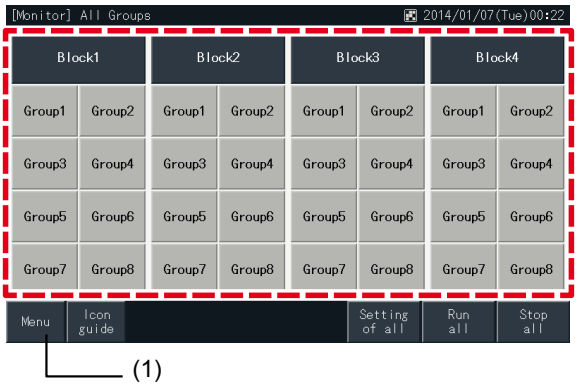
Item		Function
Filter Sign Reset		This function is used for turning off the filter sign display of indoor units in which filter sign has occurred. Regardless of the occurrence of the filter sign, it is also possible to reset the display time of the filter sign in the air conditioner units.
Schedule Setting		This function is used to start and stop the operation of air conditioners at the desired time. It is possible to set the schedule in block and group units.
	Schedule Timer Setting	This function is used for setting the time (by the minute), “Run/Stop” and temperature (19~30 oC). For weekly schedule setting, up to 10 schedule items can be set per day. It is also possible to copy the setting contents.
	Holiday Setting	This function is used for suspending the schedule operation temporarily. Scheduled operation remains suspended when the day is set as holiday. This function is used for setting irregular holidays such as national holidays.
	Schedule Timer ON/OFF Setting	“Schedule Timer OFF Setting” is used for suspending scheduled operation for the target group. Scheduled operation remains suspended when Schedule Timer is OFF. This function is used for long holidays, sudden holidays, national holidays, etc.
Adjusting Remote Control Switch Setting Temperature Range		This function is used for limiting the setting temperature range of the remote control. It is possible to define a minimum setting temperature for cooling and a maximum setting temperature for heating.
Adjusting Date/Time		This function is used for adjusting date and time.
Touchscreen Cleaning		This function is used when cleaning the LCD screen of the central station. The screen returns to “Menu” when it is not tapped for 10 seconds.
Touchscreen Calibration		This function is used for calibrating (correcting) the recognition position of the touchscreen of the control. This function shall be used when there is a continued lack of response to the press of the buttons displayed on the screen.
Group Name Register		This function is used for registering the names of blocks and groups. The maximum length allowed for the name of each block or group is of 16 characters. It is also possible to copy names If a group or block is registered without a name, it is registered as “Group 1” or “Block 1” automatically.
Screen Display Setting		These functions are used for adjusting settings related with the screen display.
	Brightness	This function is used for adjusting the brightness of the touchscreen display.
	Language Setting	This function is used for changing the display language.
	Temperature Unit	This function is used for changing the temperature unit.
Accumulated Operation Time		This function is used for indicating the accumulated operation time of the air conditioner. • The value of accumulated operation time is displayed by month. • The operation time is displayed for 16 months, including the current month. • It is also possible to display “Thermo ON time” by setting the appropriate controller option.
Contact Information		This function is used for displaying the service contact address and the latest alarm code.

◆ Display menu screen

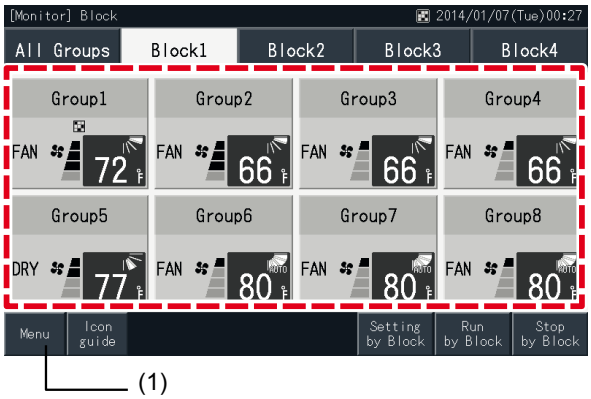
The setting items for the indoor unit and central station are laid out in the menu.

1 Tap “Menu” at the “Monitor 1 (All Groups)” or “Monitor 2 (Block)” screens.

Monitor 1 (All Groups)

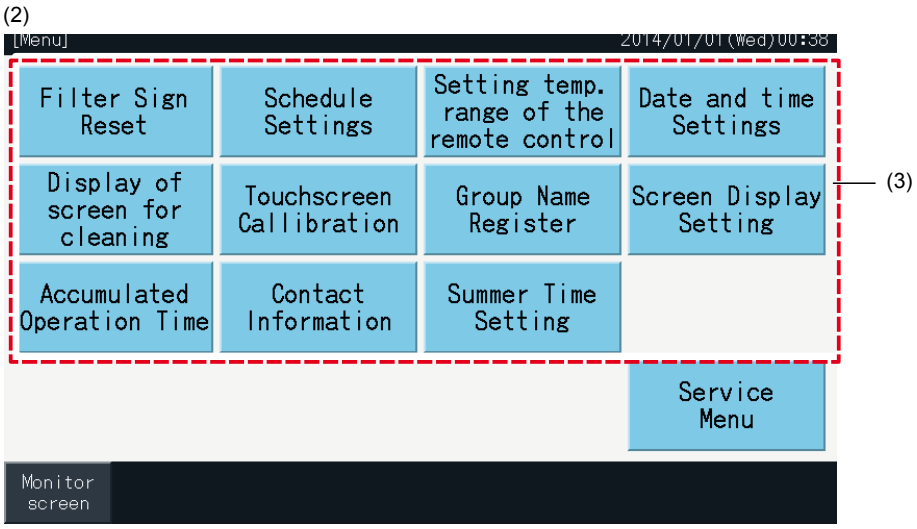


Monitor 2 (Block)

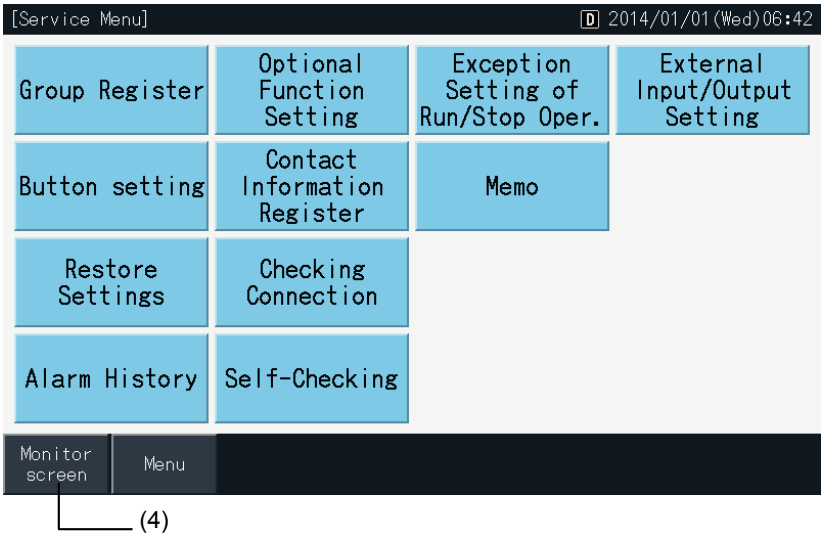


2 The “Menu” screen is displayed.

3 Select the item from the “Menu” screen.

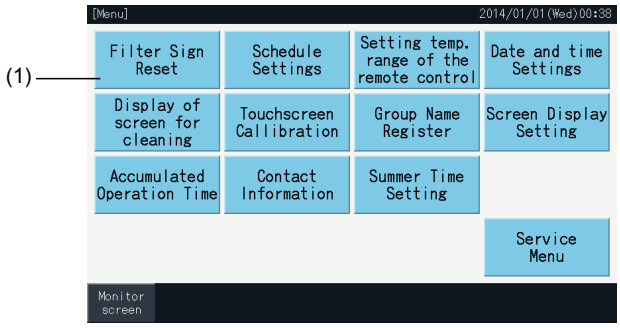


4 Tap “Monitor screen” on the screen to return to the “Monitor” screen.



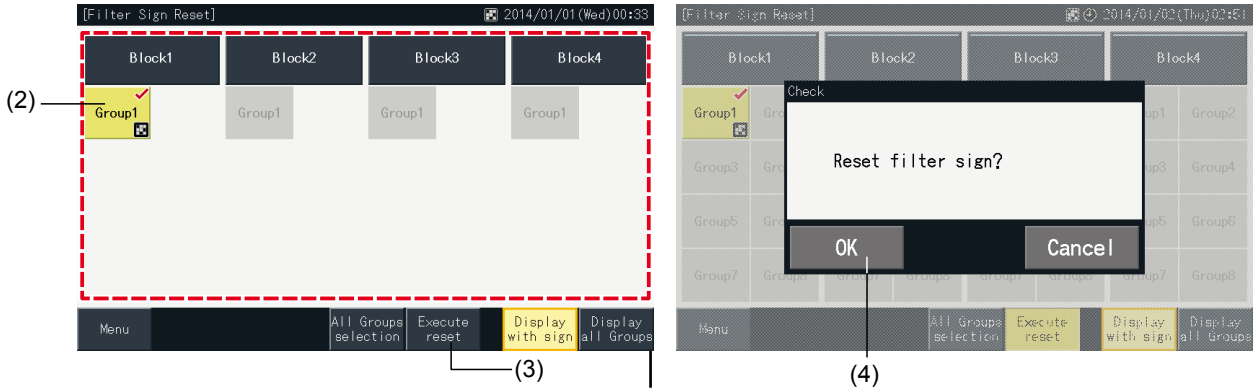
◆ Filter Sign Reset

1 Select “Filter Sign Reset” at the “Menu” screen. (This is available only when the filter sign is indicated)



2 Select the target to reset the filter sign.

- Tap “Display with Sign” to indicate only the groups with filter sign.
- The target groups are indicated in yellow.
- When selected, a “ ✔ ” sign appears on the group button.

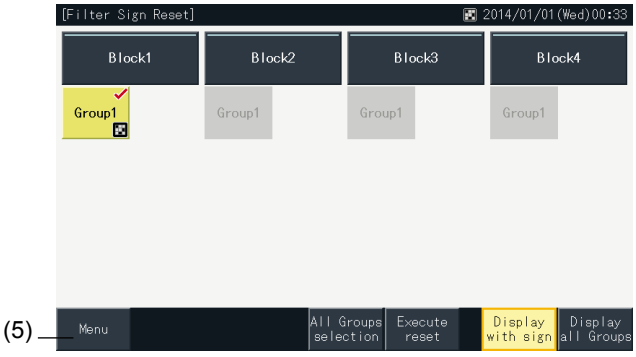


3 Tap “Execute reset”.

4 Tap “OK” on the confirmation window, to reset the display of the filter sign and the operation time.

- Tap “Cancel” to return to the “Filter Sign Reset” screen.
- After resetting filter sign, the button becomes inactive.

5 Tap “Menu” to return to the “Menu” screen.



◆ Schedule settings

This function is used for timer operation.

It is possible to set a schedule for a block and for each group.

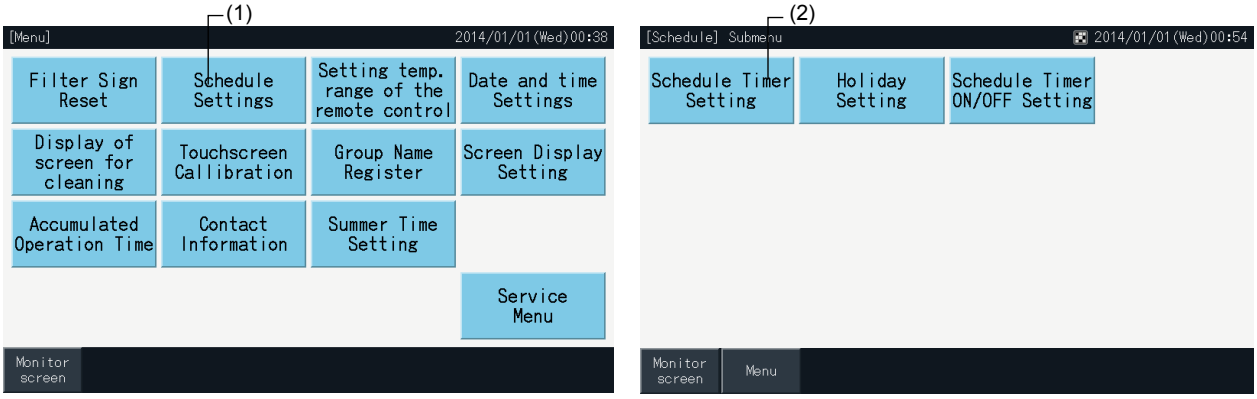
A holiday setting independent of the schedule is also available.

Schedule timer settings

Timer setting for weekly schedule

1 Select “Schedule Settings” at the “Menu” screen.

2 Select “Schedule Timer Setting” at the “Schedule Settings” screen.

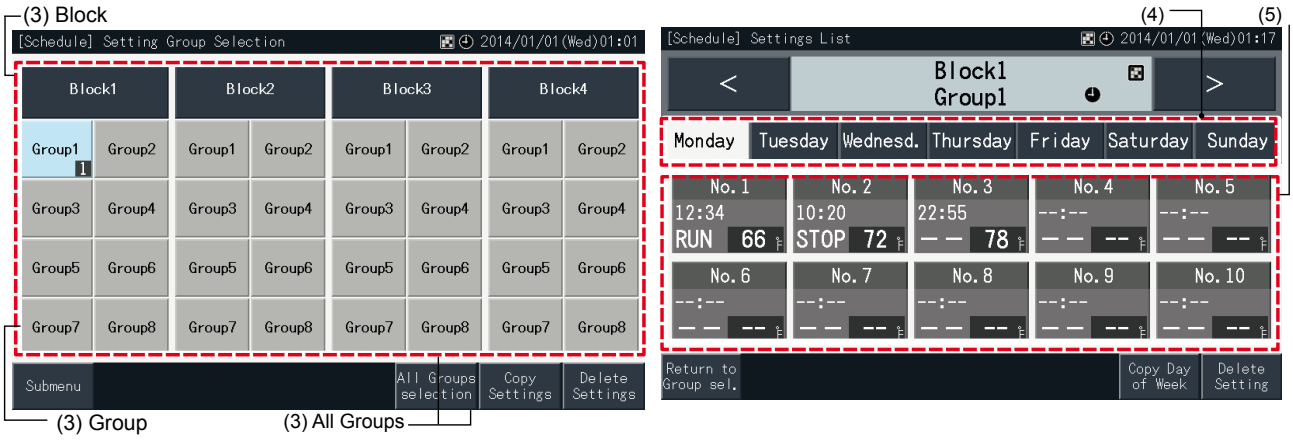


3 Select the target (all groups, block or group).

- The buttons of the groups with schedule setup are shown in blue.
- The buttons of the groups with no schedule setup are shown in grey.

4 Select the target day of the week (from Monday to Sunday).

5 Select the schedule item number (from 1 to 10).



6 Set the schedule time, run/stop operation and temperature parameters.

Select the schedule item No. (1~10) and set the time.

Select “RUN” , “STOP” or “NONE/Unspe”.

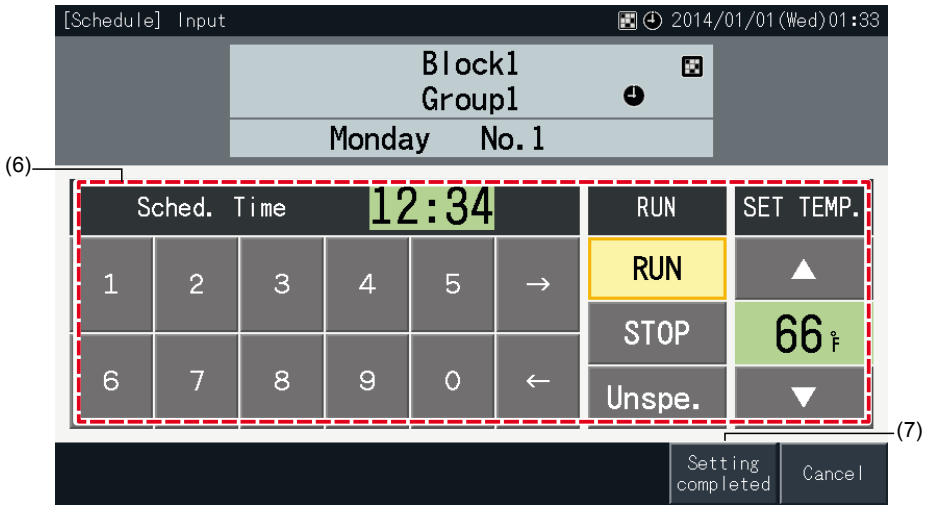
Set the temperature by tapping “△” or “▽”.

“- -” is shown in case that there are no settings for the change of a particular parameter, such as operation mode or temperature.

7 Tap “Setting completed” to confirm the setting. If “Cancel” is tapped, the displayed setting contents are discarded, and the screen returns to the schedule setting screen.

Go back to step (5) to continue adding settings for the same day of the week.

Go back to step (4) to continue adding settings for other days of the week.

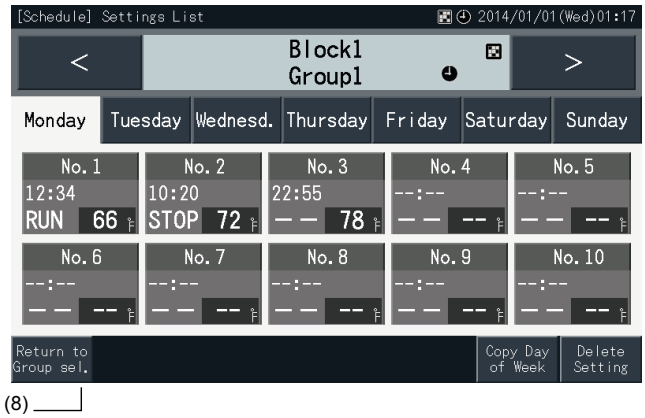


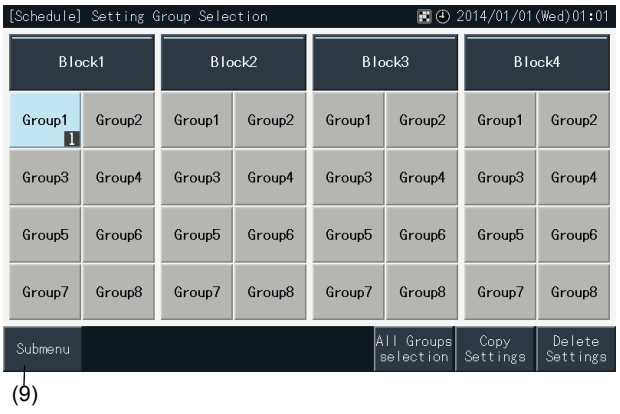
8 Tap “Return to Group Sel.” to set the schedule timer for other groups. The screen returns to “Setting Group Selection” screen.

After setting the schedule, the registered schedule number (1~64) appears indicated in the group button. (The colour of the buttons with schedule changes to blue)

In case that multiple groups share the same setting is the same, the same registered schedule numbers appears in all of them.

9 Tap “Sub Menu” to return to the “Schedule Settings” screen.





NOTE

- *Make sure that the time and run/stop are set for the timer setting. (It is not necessary to set the temperature).*
- *The schedule control selection screen may be different depending on the control pattern.*

Copying schedule setting by days of the week

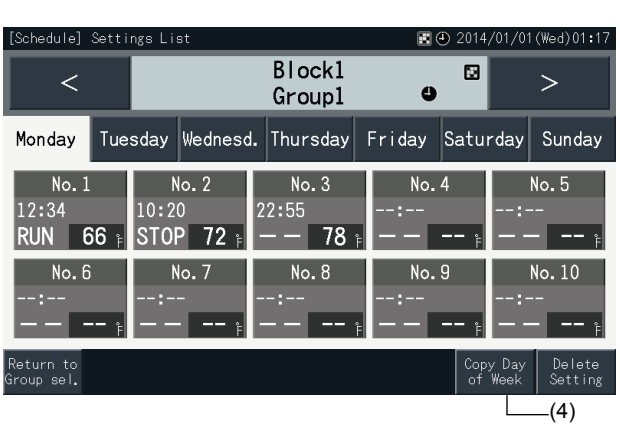
1 Select “Schedule Settings” at the “Menu” screen.

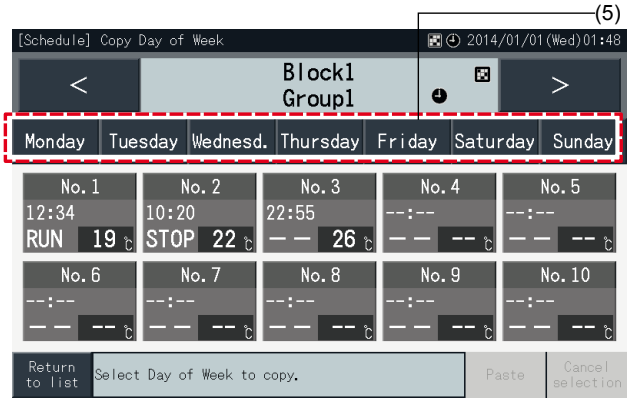
2 Select “Schedule Timer Setting” at the “Schedule Settings” screen.

3 Select the target (all groups, block or group).

4 Tap “Copy Day of Week”.

5 Select the day of the week to copy. The selected day appears highlighted with an orange frame.





6 Select the tab of the day of the week to paste.

A check mark “✔” is displayed in the selected tabs.

It is possible to select multiple tabs.

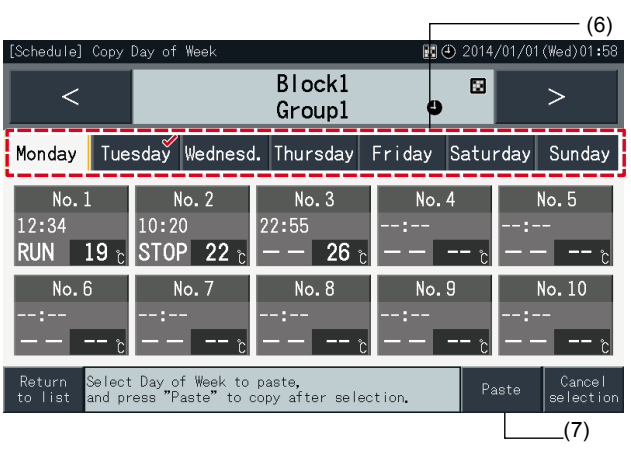
Tap on a selected tab to switch its selection status back to unselected.

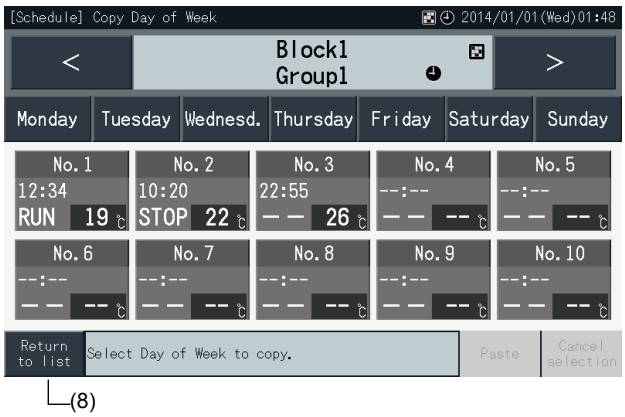
7 Tap “Paste” to copy the schedule settings.

Go back to step (5) to copy the schedule of other days of the week.

Proceed to step (8) to finish the settings.

8 Tap “Return to list” to return to the “Settings List” screen.





Copying schedule setting by each group

1 Select “Schedule Settings” at the “Menu” screen.

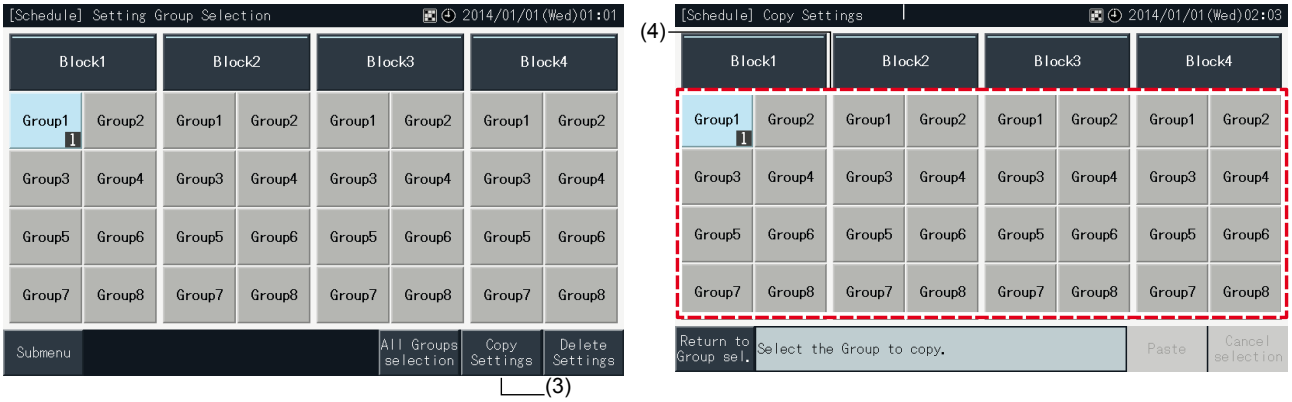
2 Select “Schedule Timer Setting” at the “Schedule Settings” screen.

3 Tap “Copy Settings”.

4 Select the group to copy. (A block cannot be selected as a source for copy).

The button of the selected group is highlighted in orange.

Tap the selected group again to cancel the selection. The orange frame disappears then.



5 Select the destination group (or block) to paste.

A check mark “✔” is displayed in the selected buttons.

It is possible to select multiple groups (including blocks) as paste destination.

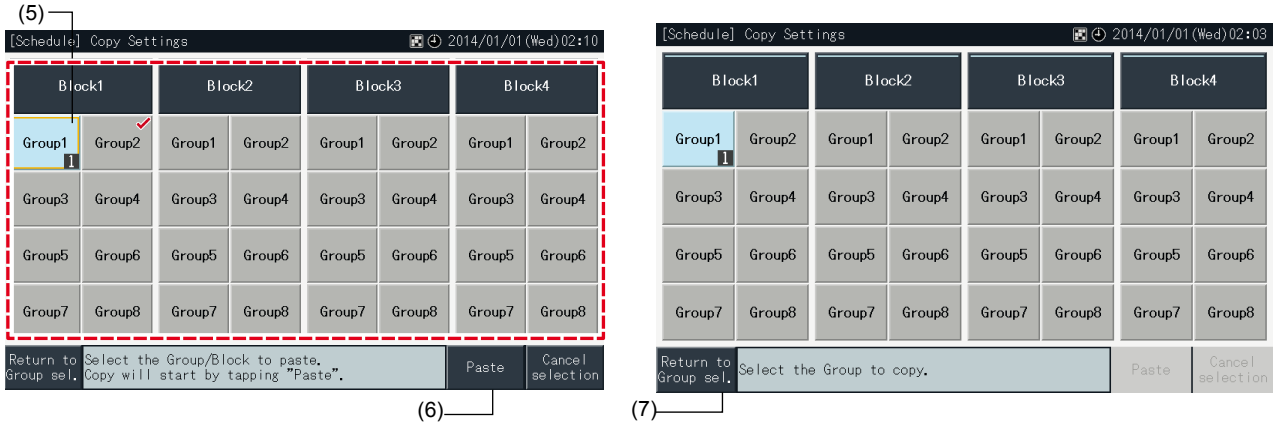
To cancel the selection, press the selected group again. The check mark “✔” disappears then.

6 Tap “Paste” to copy the schedule settings.

Go back to step (4) to copy the schedule of other groups.

Proceed to step (7) to finish.

7 Tap “Return to Group sel.” to return to the “Group Selection” screen.



Deleting schedule setting by individual item

1 Select “Schedule Settings” at the “Menu” screen.

2 Select “Schedule Timer Setting” at the “Schedule Setting” screen.

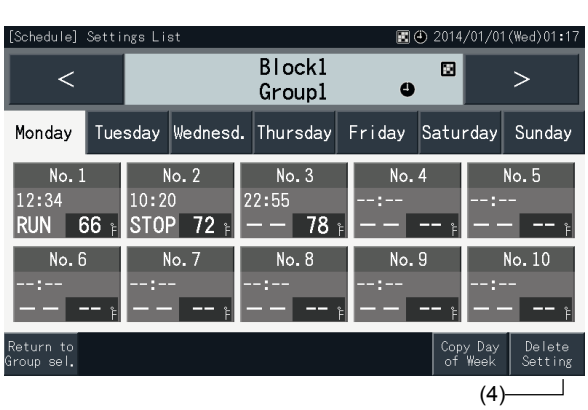
3 Select the target (all groups, block or group).

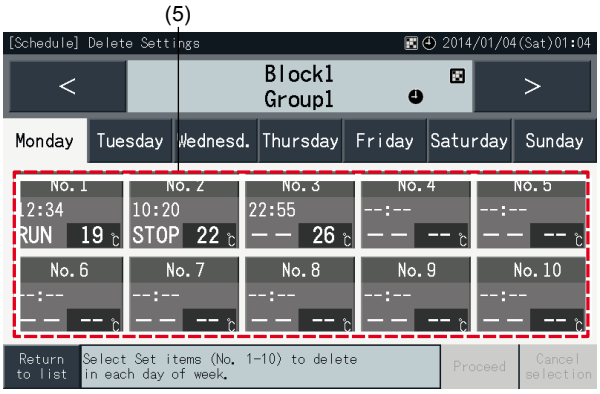
4 Tap “Delete Settings”.

5 Select a schedule item number to delete that schedule item.

It is possible to select multiple item number, even for different days of the week, when switching the display to each day by tapping its tab.

A check mark “✔” is displayed in the selected item numbers.



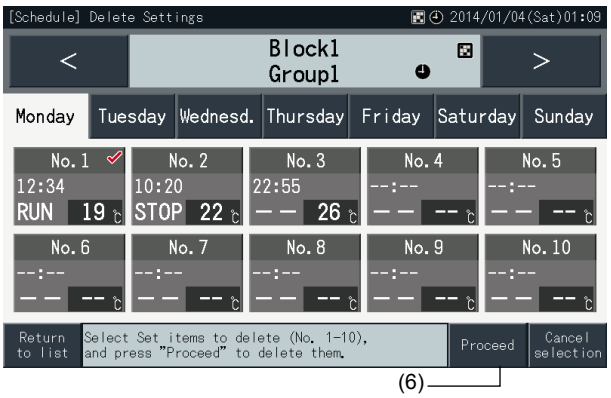


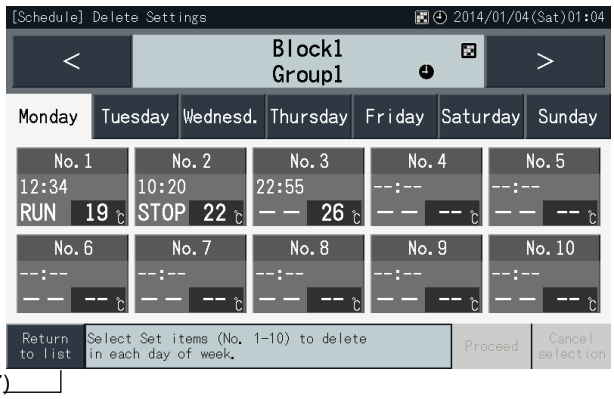
6 Tap “Proceed” to delete the selected schedule item number

Go to step (5) to delete other schedule numbers.

Proceed to step (7) to finish the setting.

7 Tap “Return to list” to return to the “Settings List” screen.





Deleting schedule setting by each group

1 Select “Schedule Settings” at the “Menu” screen.

2 Select “Schedule Timer Setting” at the “Schedule Settings” menu.

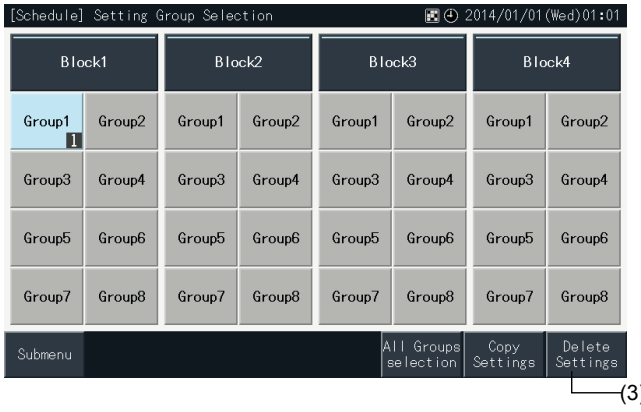
3 Tap “Delete Settings”.

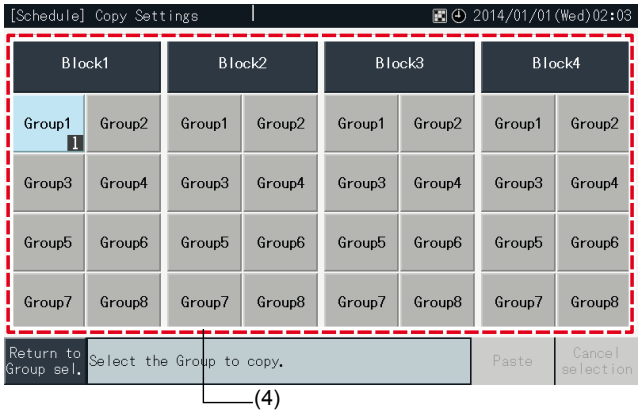
4 Select the groups or blocks to delete their settings.

A check mark “✔” is displayed in the selected groups and blocks.

It is possible to select multiple groups and blocks for deletion.

Tap the selected group again to cancel the selection. The check mark “✔” disappears then.



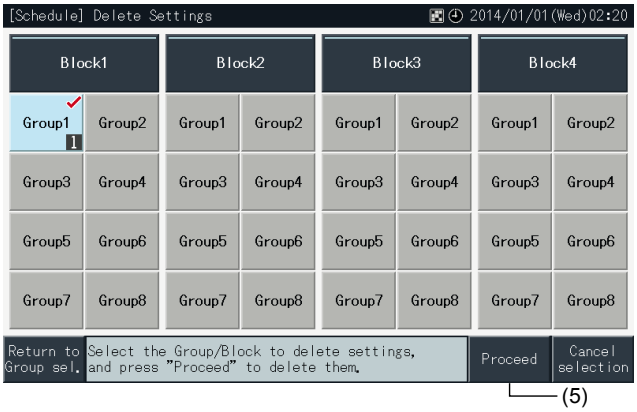


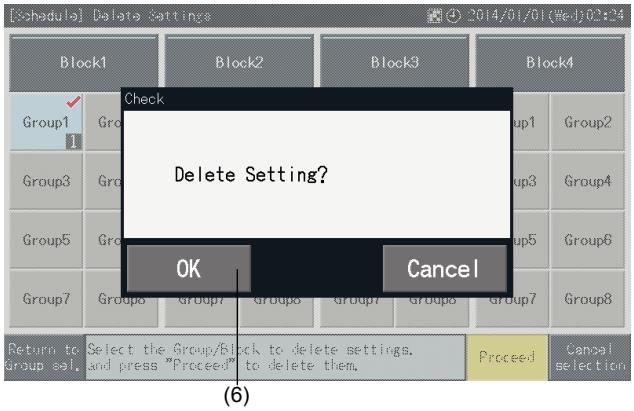
5 Tap “Proceed” to continue to the confirmation window.

6 Tap “OK” at the confirmation window to delete the schedule settings.

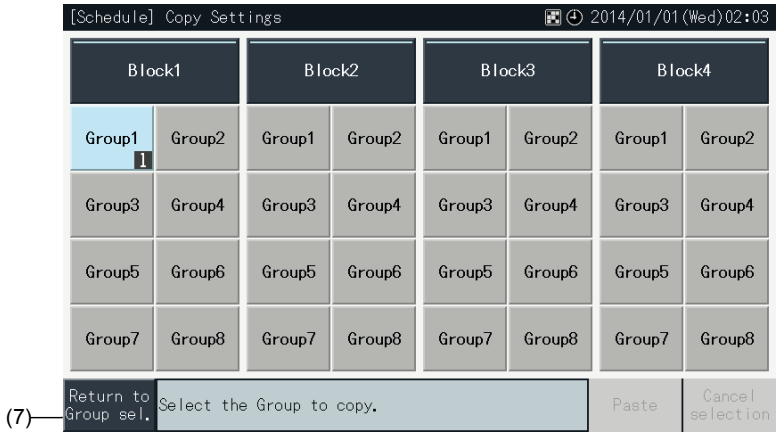
Go back to step (4) to delete the schedule of other groups.

Proceed to step (7) to finish.





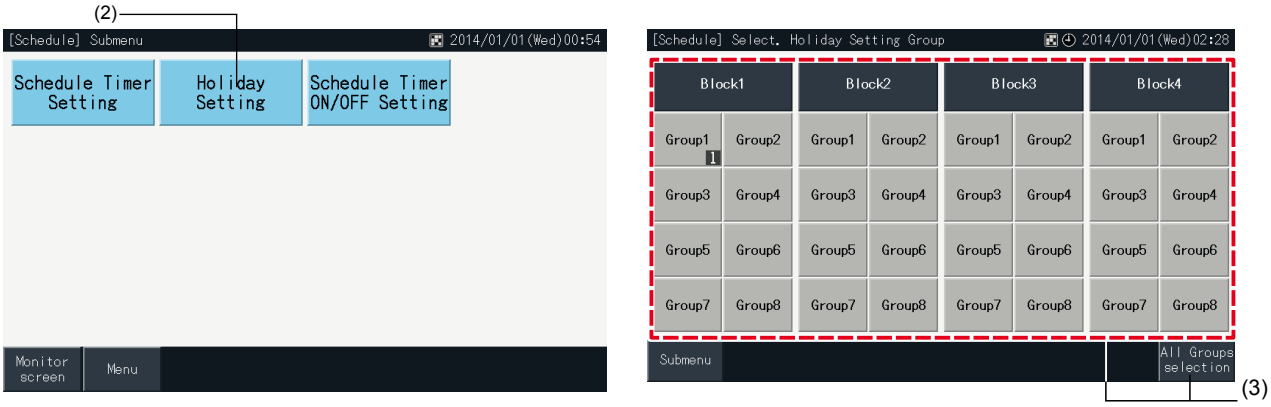
7 Tap “Return to Group sel.” to return to the “Group Selection” screen.



Holiday setting for suspending operation

1 Select “Schedule Settings” at the “Menu” screen.

2 Select “Holiday Setting” at the “Schedule Settings” screen.



3 Select the target (all groups, block or group). The calendar for the selection is shown.

The buttons of the groups with holiday setup are shown in blue.

The buttons of the groups with no holiday setup are shown in grey.

NOTE

“Holiday” means that operation is suspended for the entire day.

4 Set the date to suspend the scheduled operation.

Browse the calendar forth and back by tapping “<” or “>”.

By tapping on a date in the calendar, it is set as “Holiday” and marked with “▢”. The “Holiday” setting is cancelled by tapping on the same date again.

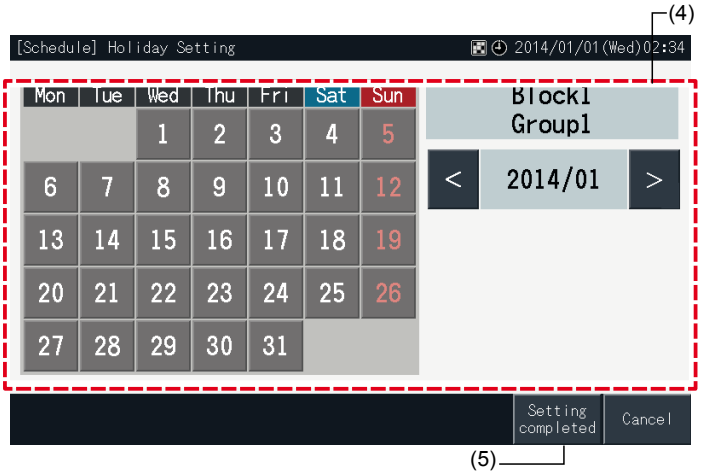
Holiday setting is disabled for days before the current day.

The days with holiday setting are marked with “▢”.

When “All Groups” or “Block” have been selected, the “◪” mark indicates those days when there are groups with holiday settings mixed with groups with no holiday settings.

5 Tap “Setting Completed” to confirm the contents of settings and return to the “Holiday Setting” selection screen.

6 Tap “Submenu” at “Holiday setting” selection screen to return to the “Schedule settings” screen.

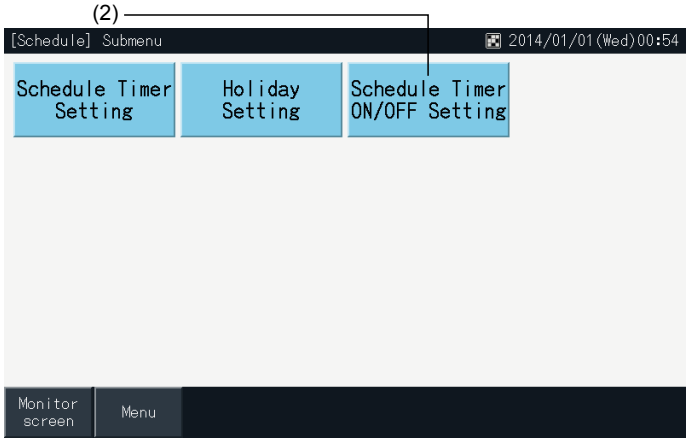


Schedule timer ON/OFF setting

1 Select “Schedule Settings” at the “Menu” screen.

2 Select “Schedule Timer ON/OFF Setting” at the “Schedule Settings” screen.

The screen changes to “Schedule Timer ON/OFF Setting”. The initial setting is “ON”, as indicated with the “” mark.

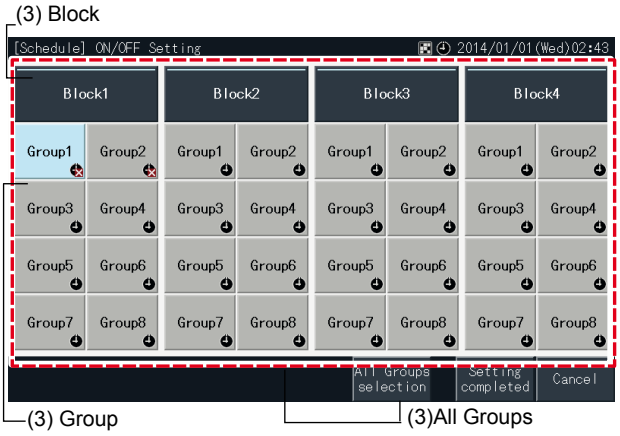


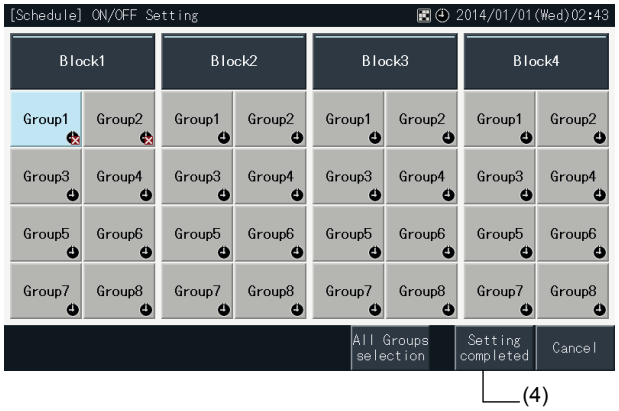
3 Select the target (all groups, blocks or groups).

By tapping the button of all groups, blocks or groups, the setting changes to “OFF”, as indicated with the “” mark.

- The buttons of the groups with schedule timer settings are shown in blue.
- The buttons of the groups with no schedule timer settings are shown in grey.
- Schedule is turned ON:
  Schedule is turned OFF:

4 Tap “Setting Completed” to confirm the content of the settings and return to the “Schedule settings” screen.

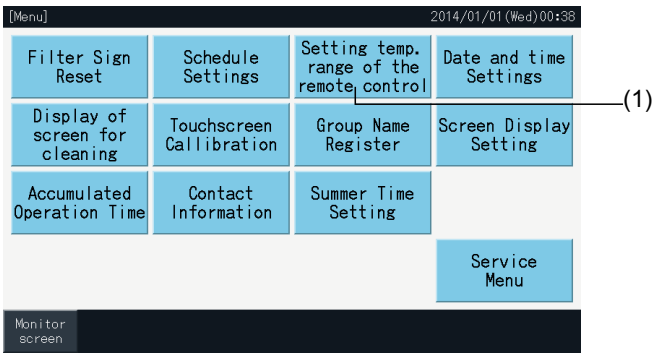




◆ Adjustment of the setting temperature range of the remote control switch

1 Select “Setting temp. range of the remote control” at the “Menu” screen.*

* Selection is not possible in case that the connected air conditioners do not support this function.

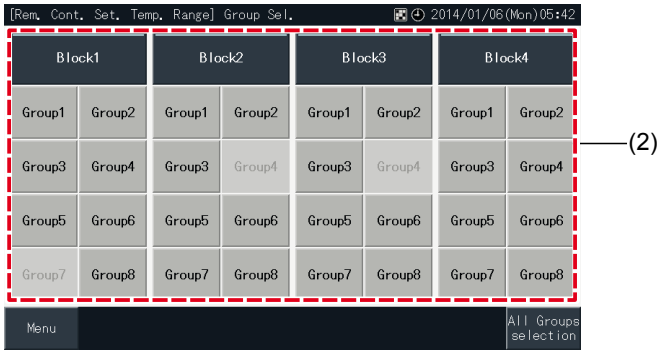


2 Select the target for setting of temperature range. (All Groups/Block/Group)*

- The buttons of the groups with temperature range settings are shown in blue.
- The buttons of the groups in which temperature range setting is not available are shown in grey.
- The buttons of the groups with no temperature range settings remain inactive.
- Do not apply settings in groups using a wireless receive kit (PC-ALH3), since it is possible to set temperatures outside of the setting range from a wireless remote control switch.

The following cannot be selected:

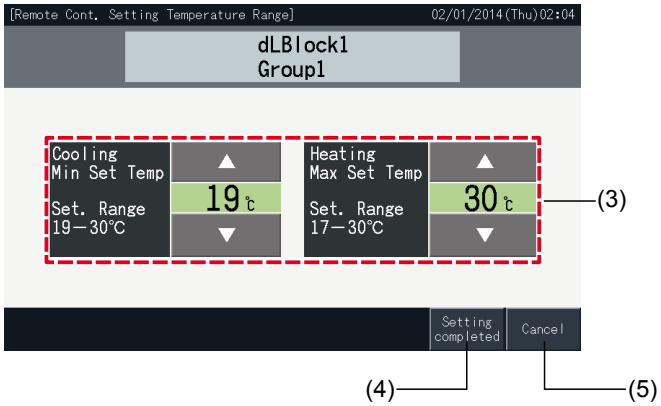
- Groups without a remote control switch
- Groups in which the representative remote control switch group is not a standard unit supporting H-LINK II (setting temperature range is from 19 to 30 degrees for cooling, and from 17 to 30 degrees for heating).



3 Tap “△” or “▽” to set the minimum setting temperature for cooling and/or the maximum temperature for heating.

4 Tap “Setting completed” to confirm the content of settings and to return to the selection screen.

5 Tap “Cancel” to discard the displayed settings and return to the selection screen.

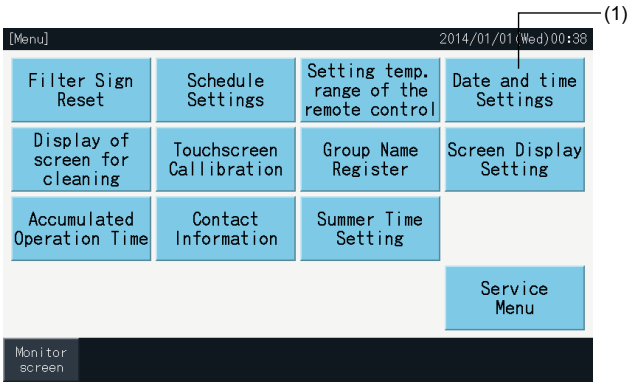


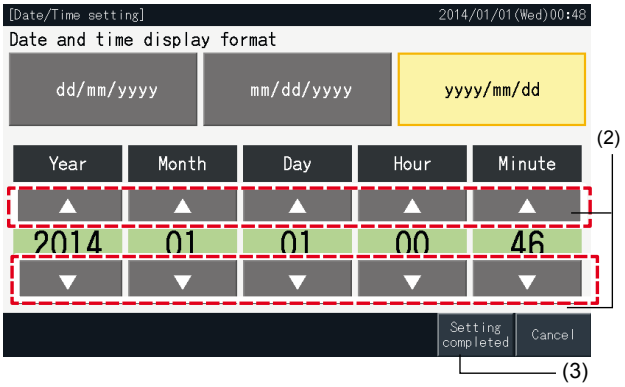
◆ Adjusting Date/Time

1 Select “Date and time Settings” at the “Menu” screen.

2 Tap or press-and-hold the “Δ” or “∇” buttons for each field to adjust the date and time.

3 Tap “Setting completed” to return to the “Menu” screen.





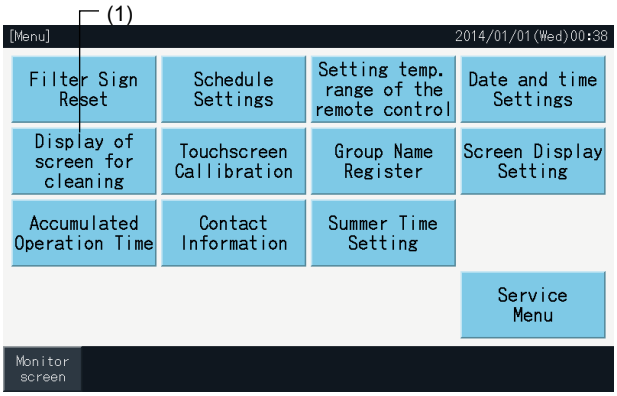
NOTE

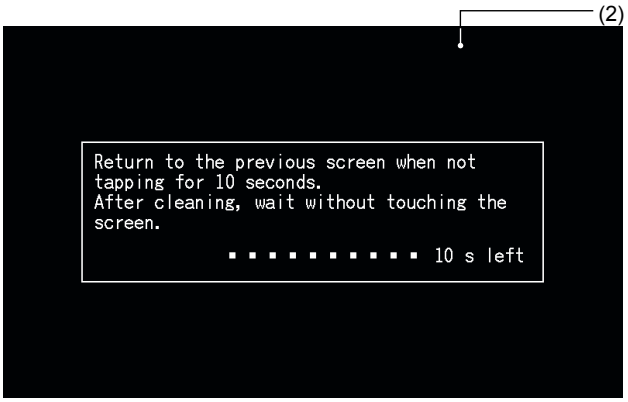
- *The clock can keep working for approximately 10 days after an electric power failure thanks to the backup function of the central station. It may be necessary to set the date and time again after a longer electric power failure.*
- *It is recommended to adjust the clock periodically. (Clock accuracy: ~70 s/month)*

◆ Touchscreen Cleaning

1 Select “Display of screen for cleaning” at the “Menu” screen.

2 The display is changed to the screen shown in figure (2). The screen becomes deactivated for cleaning. The display returns to the “Menu” screen when the touchscreen is not touched for 10 seconds.



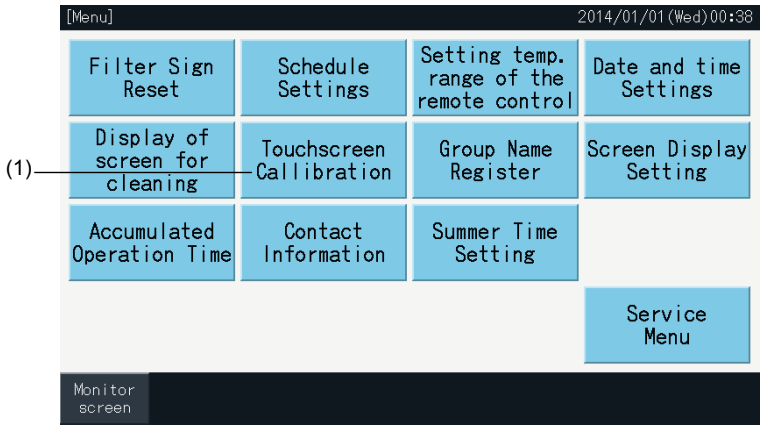


NOTE

- *Clean and wipe the LCD screen with a dry soft cloth.*
- *Use diluted neutral detergent to remove oil and fat such as fingerprint marks from the touchscreen. Wring water out to dry the cloth before cleaning. After that, wipe the LCD screen again with a dry soft cloth.*
- *Do not use benzine, thinner or surface active agents in order to protect the touchscreen and its case from deformation or deterioration.*

◆ Touchscreen Calibration

1 Select “Touchscreen Calibration” at the “Menu” screen.

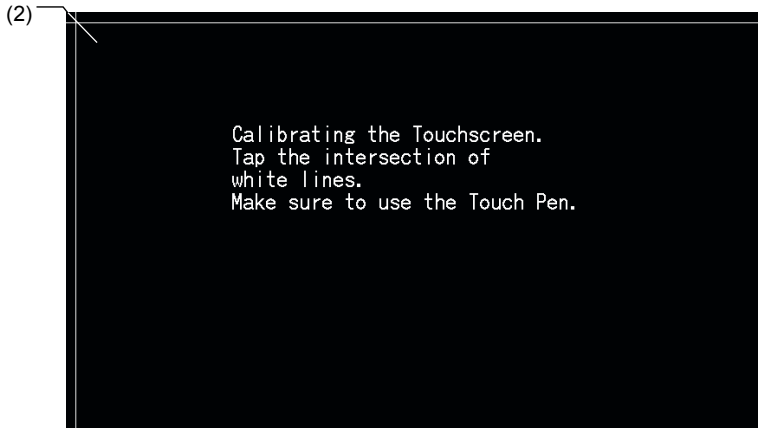


2 Calibrating touchscreen

Tap the intersections of white lines in order, as prompted on the screen.

After that, the display changes to the screen shown in figure (3).

If the intersections of white lines are not recognized normally, the message “Calibration is cancelled” is displayed on the screen. And then, and the display returns automatically to the “Monitor 1 (All Groups)” or “Monitor 2 (Block)” screens, without calibrating.

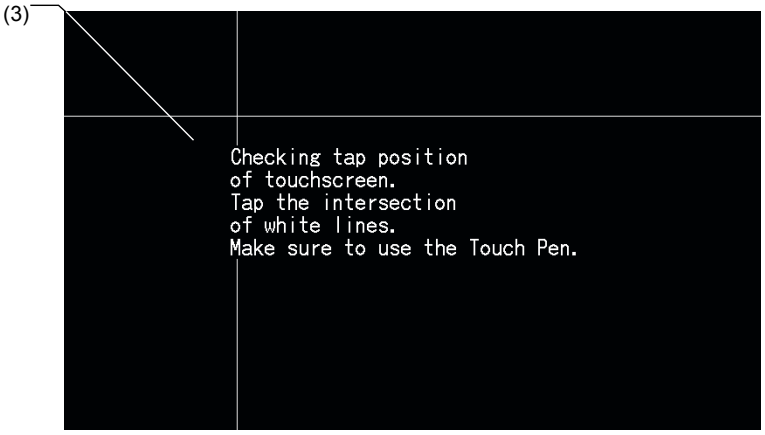


3 “Checking tap position of touchscreen”

Touch the intersections of white lines in order, as prompted on the screen.

White dots appear on the screen when tapping in positions other than the intersections of white lines.

When every intersection of white lines has been recognized normally, the display returns automatically to the “Monitor 1 (All Groups)” or “Monitor 2 (Block)” screens.

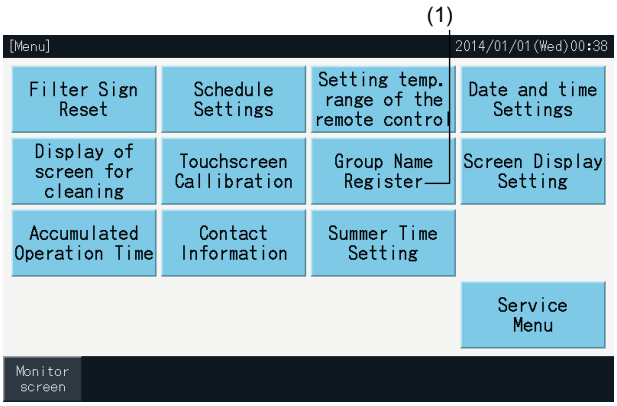


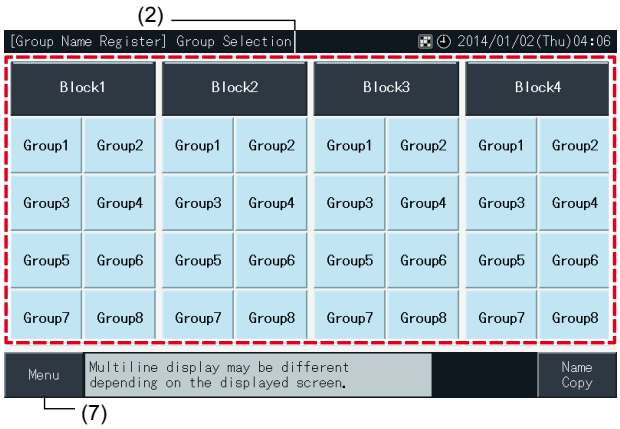
◆ Registration of names of groups and blocks

Registration of group or block name

1 Select “Group Name Register” at the “Menu” screen.

2 Select the target (block or group) to register its name.





3 The display changes to the text input screen.

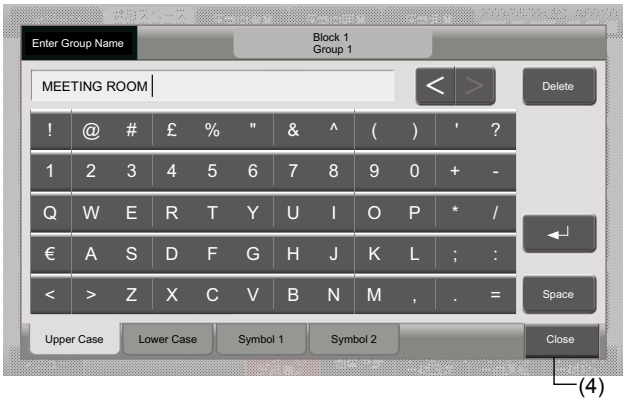
It is possible to choose between upper case, lower case and symbol keyboards.

4 Enter the name of the group or block and tap “Close” to store the entered name and return to “Group Name Register”.

5 Tap “Delete” to delete the character to the left of the current position of the cursor.

6 Tap “Register” to confirm the introduced name and return to the selection screen (2).

7 Tap “Menu” at the selection screen (2) to return to the “Menu” screen, after having registered all the group and block names.



NOTE

- *The names of groups and blocks may consist of a maximum of 16 characters. When the display of group and block names is restricted to 8 characters per line, the 9th character appears at the beginning of the second line.*
- *The layout of the “Name Register” selection screen may be different depending on the control pattern.*

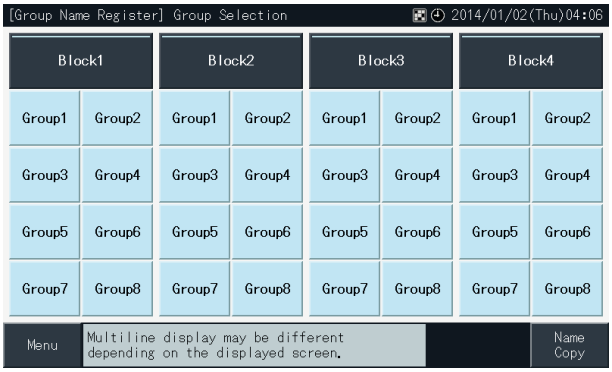
Copy of group or block name

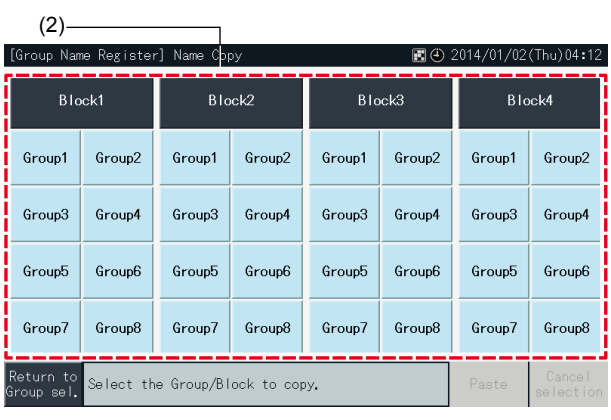
1 Select “Group Name Register” at the “Menu” screen.

2 Select the source group or block to copy.

The button of the selected group or block appears highlighted with an orange frame.

Press the button of the selected group or block again to cancel the selection. The orange frame disappears then.





3 Select the destination group or block to paste.

It is possible to select multiple groups or blocks for destination.

The buttons of the selected groups or blocks are indicated with a “✔” check mark.

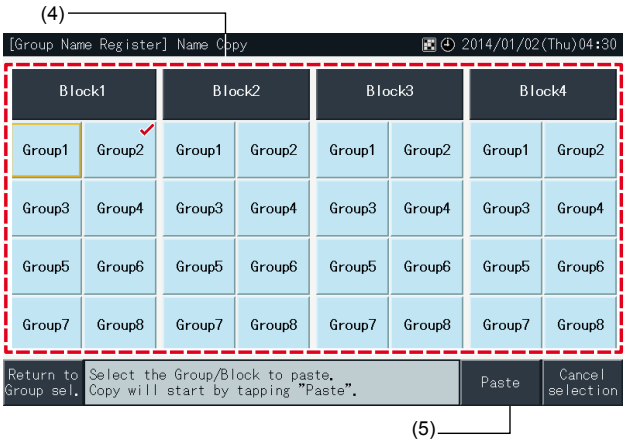
To cancel the selection, press the button of the selected group or block again. The “✔” check mark disappears then.

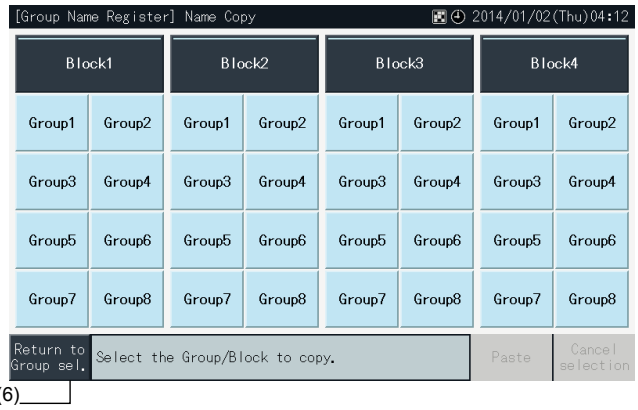
4 Tap “Paste” to copy the name of the group or block to the selected destination.

Go back to step (3) to copy the name of other groups or blocks.

Proceed to step (6) to finish.

5 Tap “Return to Group sel.” to return to the “Group Name Register” selection screen.

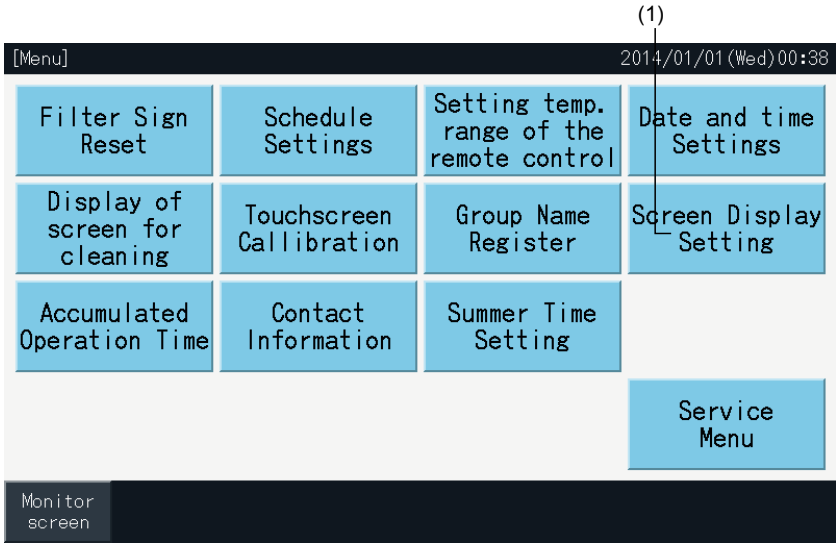




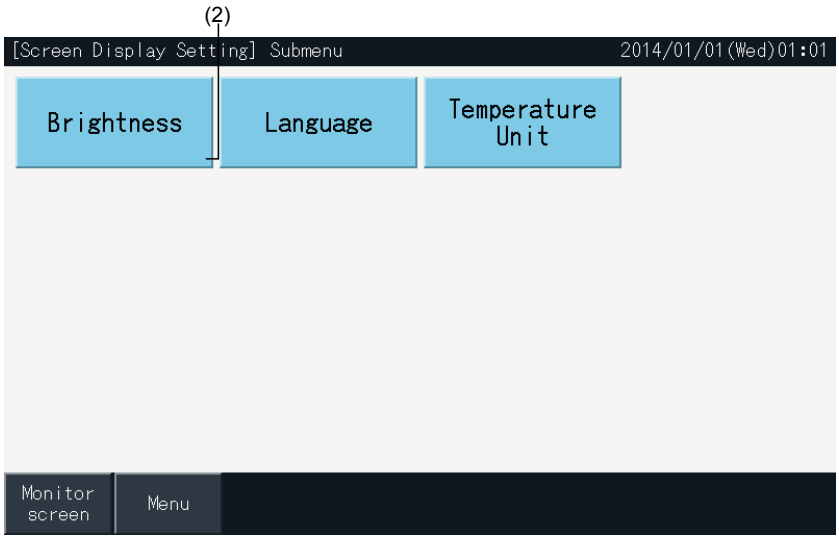
◆ Screen Display Setting

Adjustment of backlight brightness of the touchscreen display

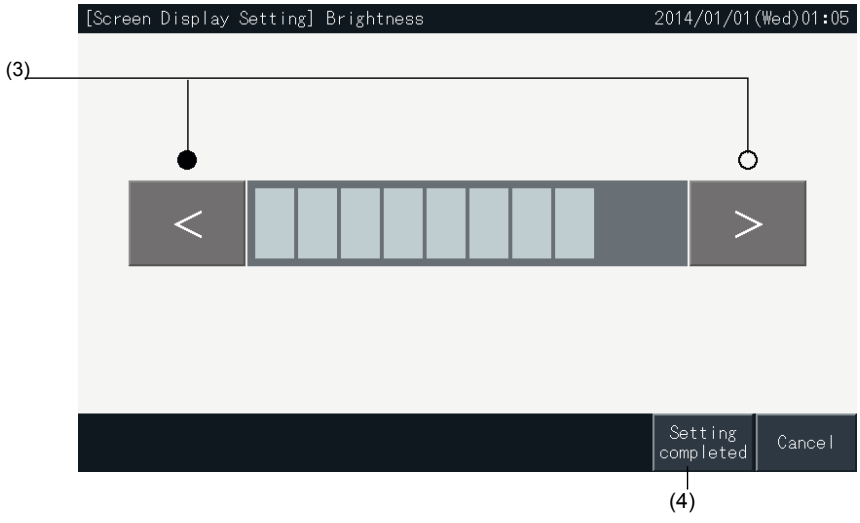
1 Select “Screen Display Setting” at the “Menu” screen.



2 Select “Brightness” at the “Screen Display Setting” screen.



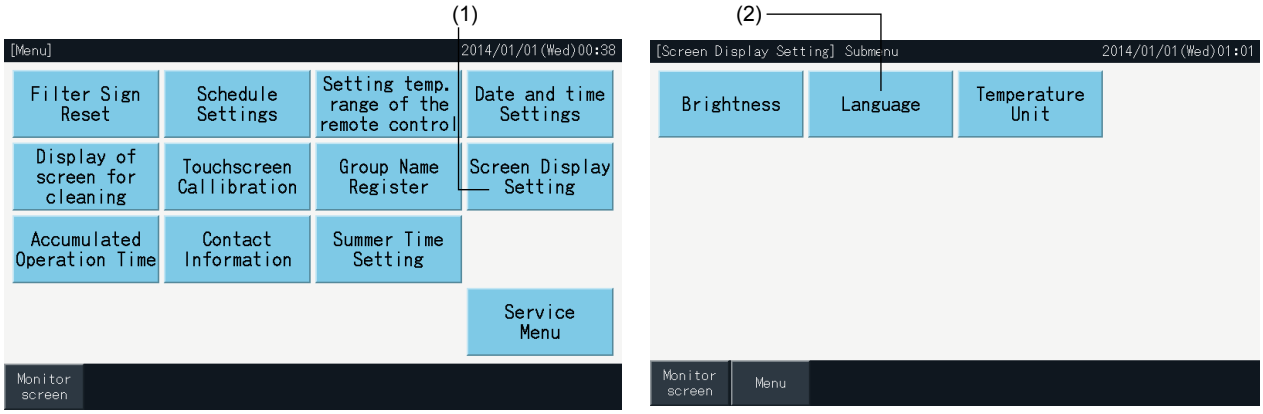
3 Tap “ < ” or “ > ” to adjust the brightness of the backlight. Tap “Setting Completed” (4) to return to the “Menu” screen.



Language setting

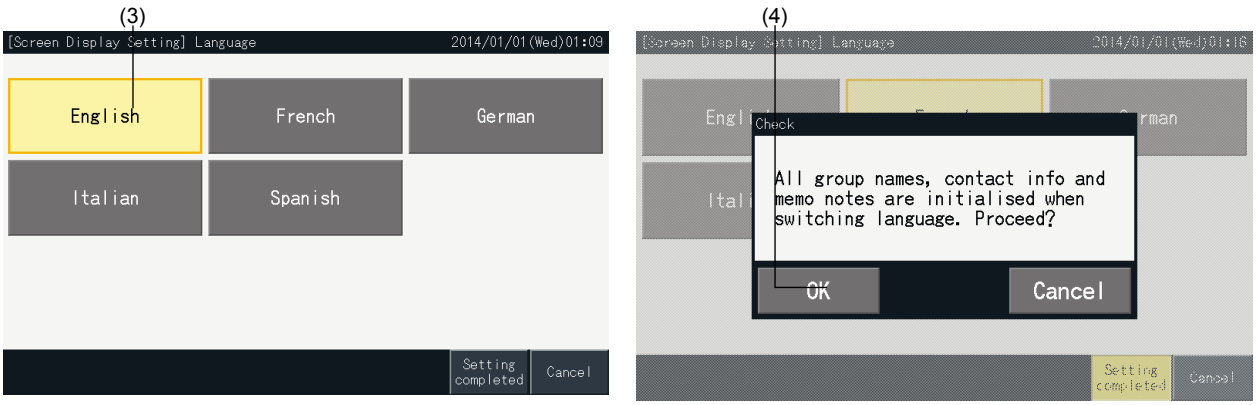
1 Select “Screen Display Setting” at the “Menu” screen.

2 Select “Language” at the “Screen Display Setting” screen.



3 A confirmation window is displayed when selecting the language button.

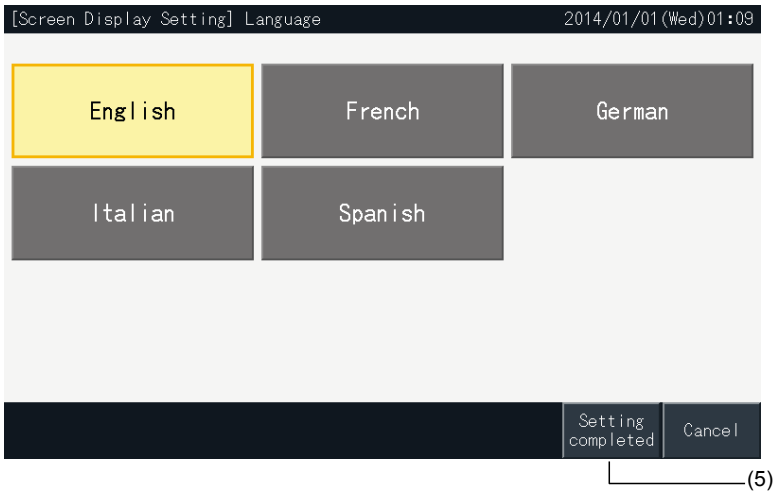
4 Tap “OK” at the confirmation window.



NOTE

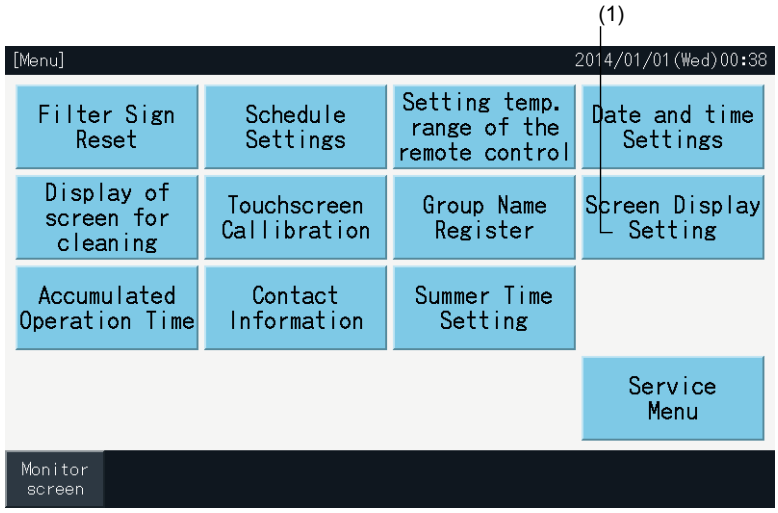
If the language is changed, the registered block and group names as well as contact information are initialized, too.

5 Tap “Setting completed” to return to the “Screen Display Setting” screen.

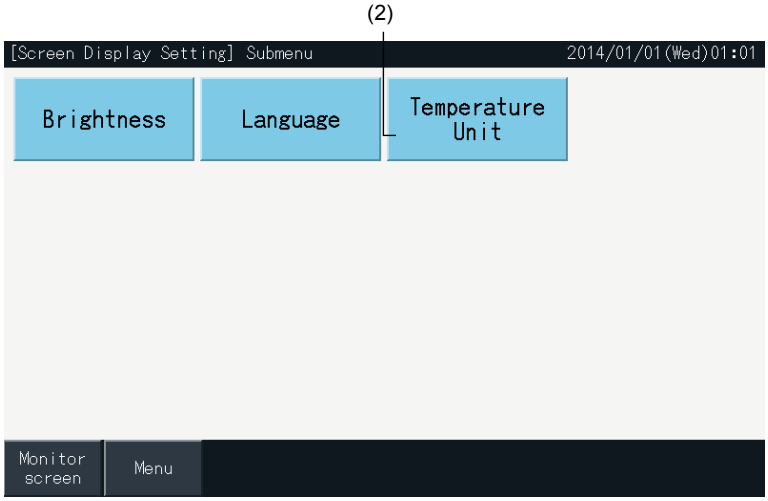


Temperature unit setting

1 Select “Screen Display Setting” at the “Menu” screen.

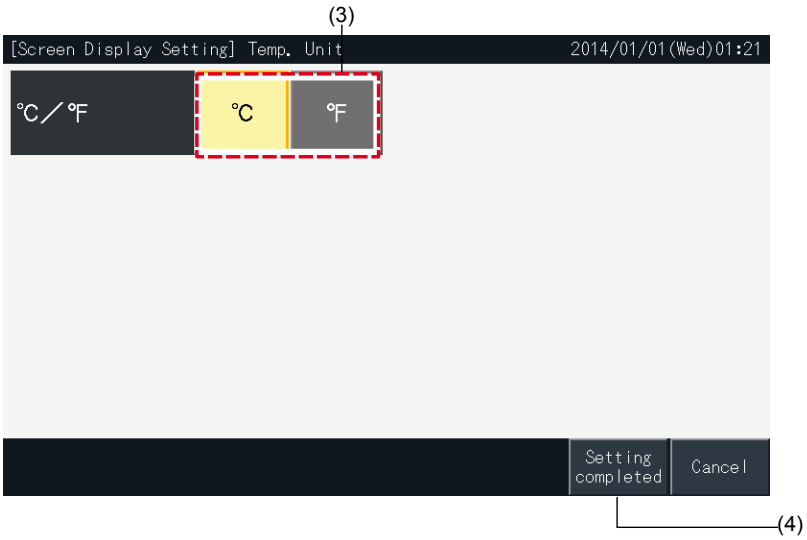


2 Select “Temperature Unit” at the “Screen Display Setting” screen.



3 Select Celsius degrees or Fahrenheit degrees with the corresponding button. The selected button is highlighted in yellow.

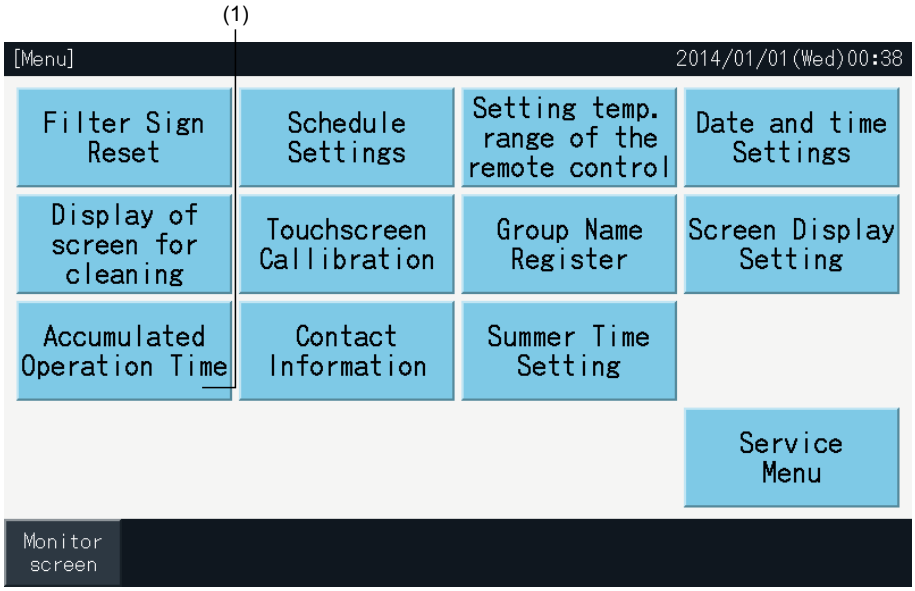
4 Tap “Setting completed” to return to the “Screen Display Setting” screen.



◆ Display of accumulated operation time

Display by month

1 Select “Accumulated Operation Time” at the “Menu” screen.

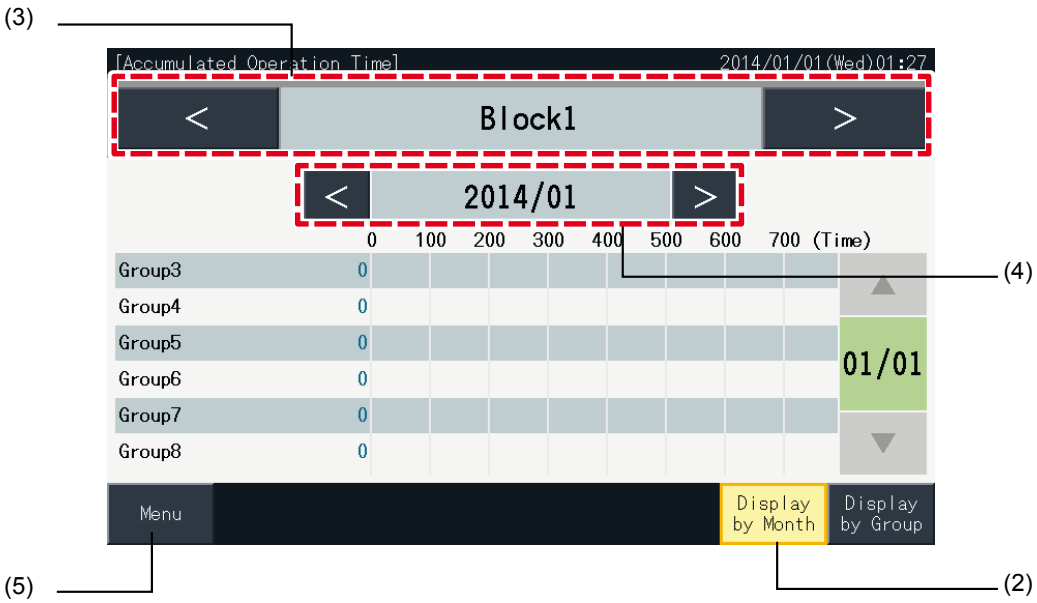


2 Tap “Display by Month”.

3 Tap the “<” or “>” buttons to select the target block.

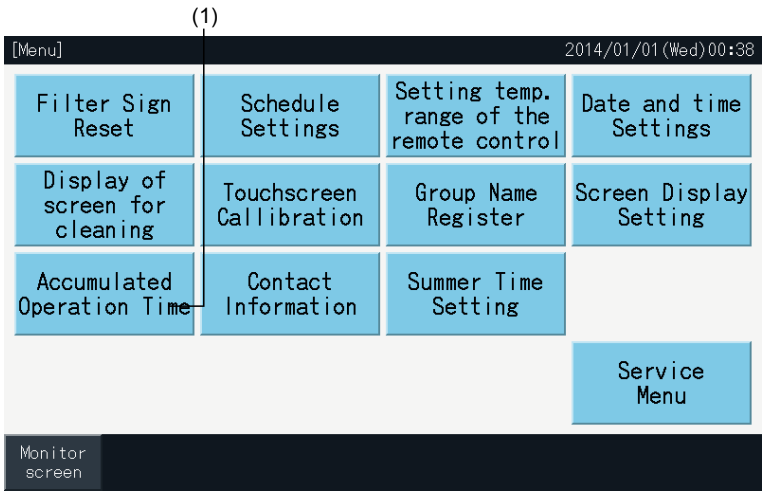
4 Tap the “<” or “>” buttons to select the target year and month

5 Tap “Menu” to return to the “Menu” screen.



Display by group

1 Select “Accumulated Operation Time” at the “Menu” screen.

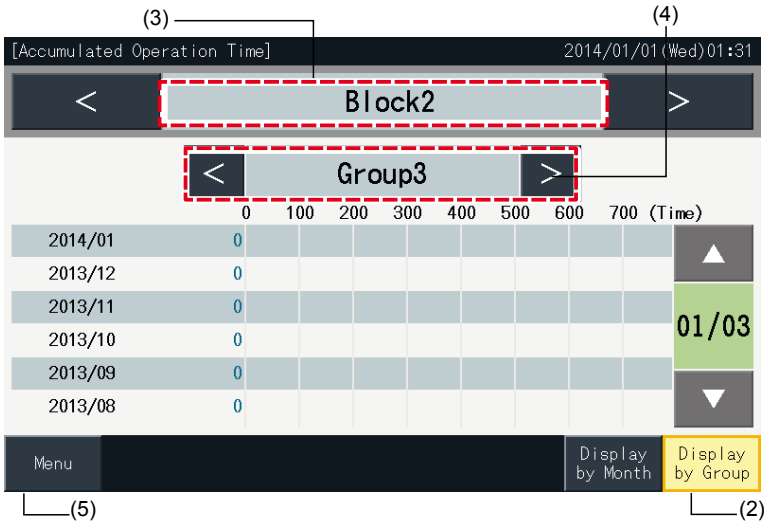


2 Tap “Display by Group”.

3 Tap the “<” or “>” buttons to select the target Block.

4 Tap the “<” or “>” buttons to select the target Group.

5 Tap “Menu ” to return to the “Menu” screen.



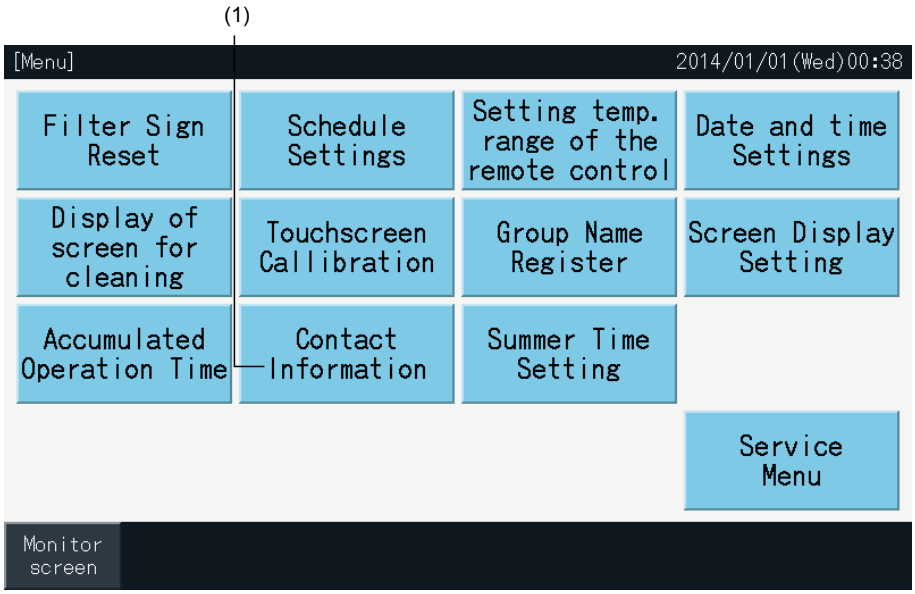
NOTE

- *Accumulated operation time of this central station is displayed for reference purposes only. Hitachi does not ensure the precise accuracy of the aforementioned accumulated operation time for reference.*
- *“Thermo ON Time” can also be displayed additionally, if the corresponding option is selected in “Optional Function Setting”. via the option for function selection setting. Contact your dealer or a Hitachi customer service centre for detailed information.*

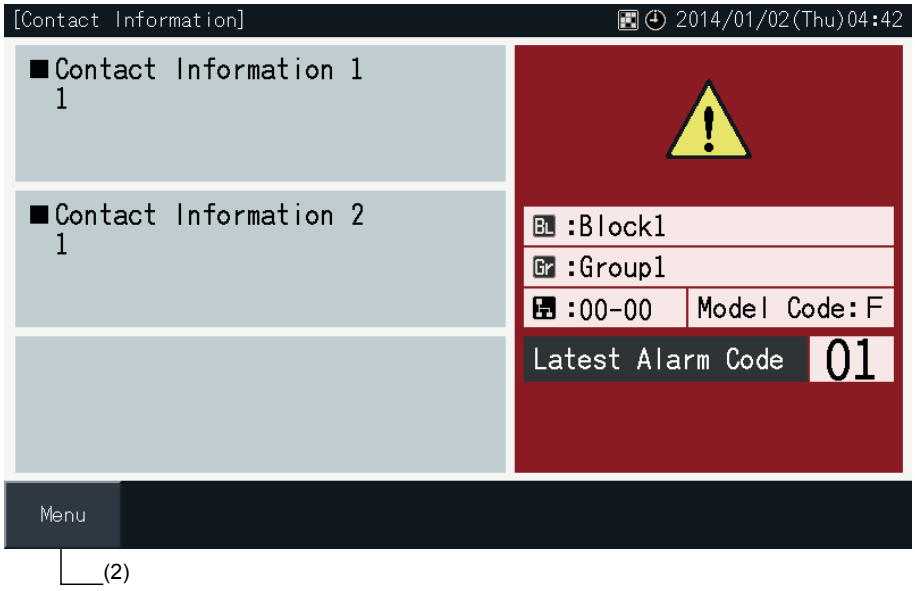
◆ Contact Information

1 Select “Contact Information” at the “Menu” screen. The following information is displayed:

- Contact information (2 independent items)
- Name of block and group of the latest alarm occurrence
- Latest alarm code



2 Tap “Menu” to return to the “Menu” screen.



NOTE

- *This function is not available if there is no contact address registered.*
- *There is no indication of target blocks and groups and alarm codes if there is no alarm occurrence.*

◆ Summer time setting

Pending.

5.2.4.4 Service Menu

NOTE

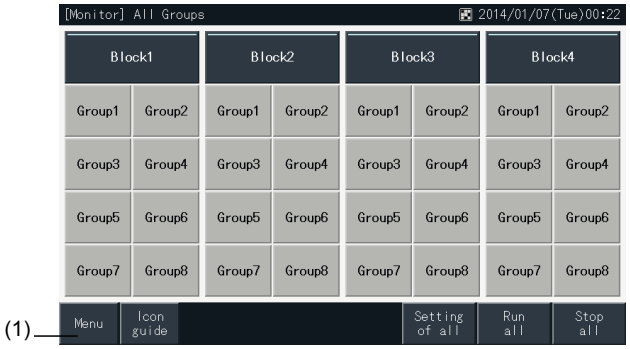
This switch is for the serviceman only. Therefore do not use it.

If this switch is used and the service menu is indicated on the screen, tap "Back". The screen will return to the menu.

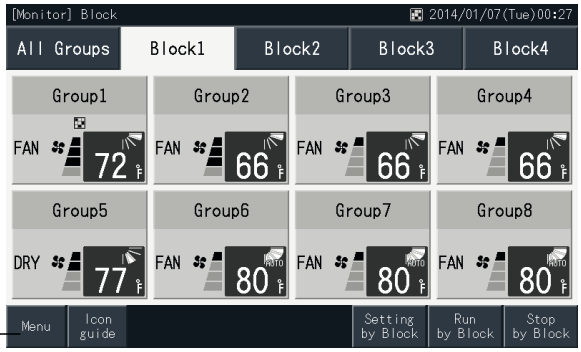
Items		Contents
Group Register		The connected indoor units are checked by the central station in the same H-LINK. This function is used for the group or block registration of them.
	Setting of control patterns	Set the control pattern.
	Main Unit Register	This function is used for the main unit registration in the each remote control group. (The main unit is the only one (1) in the one (1) remote control group.) The control command is sent from the central station to the main unit for the remote control group.
	Sub Unit Register	This function is used for registration of the sub units except the main unit in the same remote control group. In the case of using the remote control switches or the receiver kits as follows, the sub units are registered automatically by the central station after the main unit registration. • The remote control switches and the receiver kits which model names start from PC-A**. • The remote control switches which model names start from PC-P**.
	Display list of registers	Display the address of the Indoor Units which were registered in each group
Optional Function Setting		This function is used for setting and changing of the optional functions for the air conditioners and the central stations.
	Air Conditioner, Remote Control Switch Setting	Set or change the optional function of the air conditioner and remote control switch.
	Central Station Setting	Set or change the operation mode or the color of the operation indicator or the central station.
Exception Setting of Run/Stop Operation		The set group is "All Group Run (stop)", "Block run (stop)" or when"All Groups (Blocks)"operate as "Run(Stop)", this operation is not accepted.
External Input/Output Setting		There are 4 inputs and 2 outputs for external Input/Output function in the central station.
Button Setting		This function specifies each button to be shown/hidden. This function also includes specification/setting for "one-tap operation" or "press and hold" operation.
Contact Information Register		This function is used for editing the contents of contact information registration.
Memo		Record and Browse the Test Run and Maintenance Informations
Restore Setting		This function is used for restoring all the settings such as registered Groups (Blocks) and schedules.
Checking Connection		This function is used for checking of the connected indoor unit numbers in the same H-LINK. When this function is used, the confirmation for the keeping of registered information such as the group names, schedules, etc. will be indicated. If "OK" is tapped, the connected indoor unit numbers are updated with keeping the registered information. If "Cancel" is tapped, the setting of the central station is all restored.
Alarm History		This function is used for displaying the list of alarm history that occurred in the air conditioner and the controller. (Maximum 100 records)

1 Tap “Menu” on the “Monitor (All Groups)” or “Monitor (Block)” screens.

Monitor (All Groups)



Monitor (Block)



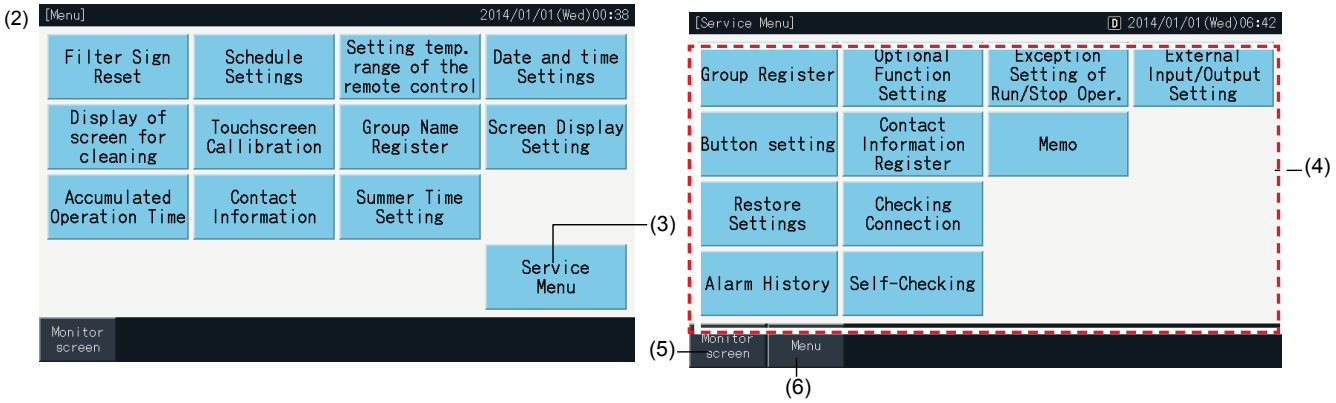
2 “Menu” screen is displayed.

3 Press and hold “Service Menu” for at least 3 seconds. “Service Menu” is displayed.

4 Select the service menu item by tapping each item button. The setting screen of the tapped item will be displayed.

5 Tap “Menu” on the “Service Menu” to return to the “Menu” screen.

6 Tap “Monitor screen” to return to Monitor screen.



NOTE

Depending on the conditions of the air conditioner unit and the central station, the following items may not be selected.

**Group Register (*1)*

** A/C unit and Remote Control Switch setting (Optional Function Setting) (*2)*

** External Input/Output Setting (*1) (*2)*

** Restore Settings (*1) (*3) (*4)*

** Checking Connection (*1) (*2)*

*(*1): When the external input signal is ON.*

*(*2): When one air conditioner unit is operating.*

*(*3): When one air conditioner unit has the remote control switch restricted (“Without Remote Control Switch” not included)*

*(*4): When one outdoor unit is operating in capacity control.*

◆ Group register

NOTE

This function is detailed in section "Test run" since it is a required item when performing the Test run procedure.

◆ Optional Function Setting

This function is used for setting and changing the selection of air conditioner and central station functions listed in the following table. Set by Monitor → Menu → Service Menu → Optional Function Setting.

Function	Description
Fixing Operation Mode	Set "Fixing Operation Mode" to "Enable" to fix the present operation mode. The operation mode is fixed to the present settings, which cannot be changed from the remote control switch or from the central station.
Fixing Temperature Setting	Set "Fixing Temperature Setting" to "Enable" to fix the present set temperature. The setting temperature is fixed to the present settings, which cannot be changed from the remote control switch or from the central station.
Cooling Only	Set "Cooling Only" to "Enable" to fix the operation mode to cooling. This function is used when setting heat pump models to restricted operation in cooling only. Operation modes "HEAT" and "AUTO" cannot be selected from the remote control switch or from the central station.
Auto	Set "Auto" to "Enable" to use the cooling/heating automatic operation. It is possible to set this mode from the remote control switch and from the central station. However, "AUTO" cannot be selected in the following cases: * When connected to a cooling-only model. * When the "Cooling Only" function is enabled.
Fixing Fan Speed	Set "Fixing Fan Speed" to "Enable" to fix the fan speed. The fan speed is fixed to the present settings, which cannot be changed from the remote control switch or from the central station.
Control Mode	This function is used for switching the control mode of the central station between "Normal" and "Run/Stop Only" *Normal: The settings of each group are displayed when tapping its button. This is the control mode by default. *Run/Stop Only: The control mode at "Monitor 1" and "Monitor 2" is changed to "Run and Stop" for each group only. Tapping the button of each groups has the effect of switching its operation on and off, without changing any of the settings.
RUN Indicator	This function allows to switch the colour of the RUN lamp between green and red. When an error occurs, the indicator flashes on and off regardless of the colour setting.
All Groups Automatic Switching	Set to "Enable" in order to begin operation from All Groups display. If a central station is not operated for a given time, the screen returns automatically from Block display to All Groups display.
OFF time Remote control prohibition	Set to "Enable" in order to set the prohibition of all remote control operation (all the items) together with a stop order to the remote control at the OFF time of the schedule function of the controller. In this case, the prohibition of all remote control operation (all the items) is cancelled at the ON time, but there is no operation order. This function cannot be set when there is a prohibition of remote control operation (for individual items). Set this function to "Disab." in such cases.
Display graph values	Set to "Disable" in order to display the graphs for operation time or Thermo ON time without numeric values.
Thermo ON time display	Set to "Enable" in order to display Thermo ON time in the operation time display.

NOTE

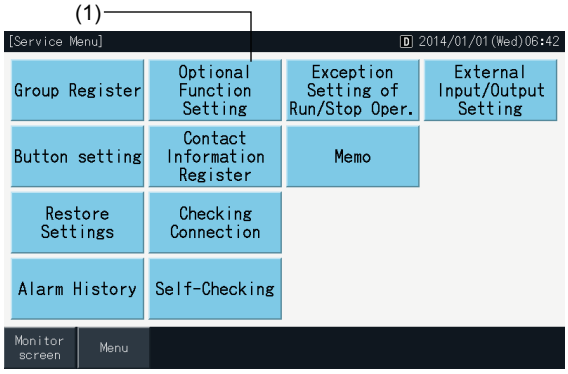
- *When setting optional functions (Air conditioner or remote control settings), please set the same optional functions at the remote control of the group which has been set. Also, in case of setting optional functions at the remote control which can also be set from the controller (** fixed, automatic cooling/heating), please set the same optional functions from the controller as well.*
- *For groups in which operation mode has been fixed by optional function settings and the demand of external input/output settings has been set to operation mode shift, demand signal ON results in stop regardless of the operation mode.*

Air Conditioner Remote Control Settings

1 Select “Optional Function Setting” on the “Service Menu” screen when the air conditioners are not in operation.

2 Select “Remote control setting” on the Menu screen.

- Selection is not possible when one or more air conditioners are in operation.



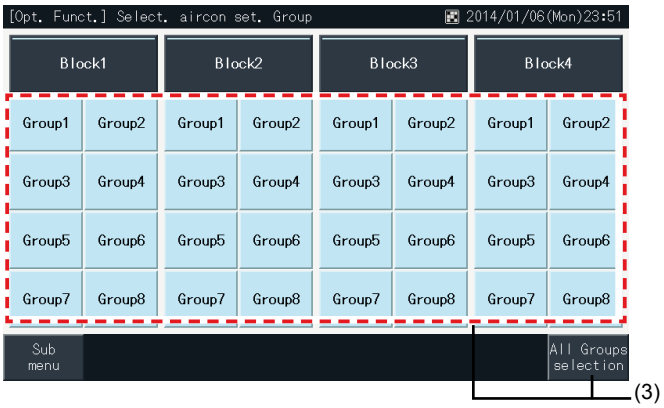
3 Select the target of Optional Function (All Groups/ Block/Group).

4 Enable or disable each of the function items. The selected setting appears highlighted in yellow.

5 Tap “Setting completed” to confirm the set contents and return to the Menu screen of the target group.

6 Tap “Cancel” to cancel the set contents and return to the Optional Function target selection screen.

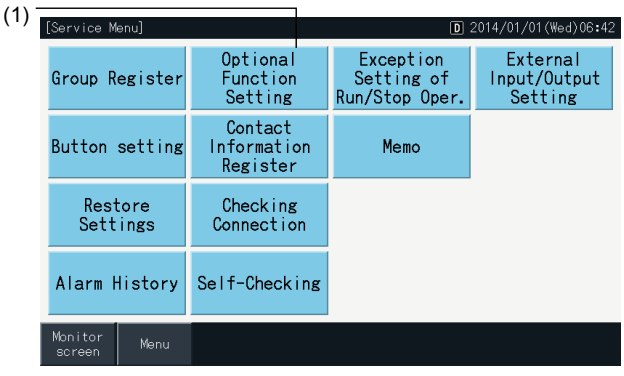
* Depending on the unit, the set contents may not apply. Please check the Installation and Operation Manual and the Instruction Manual of each indoor unit or remote control for more details.

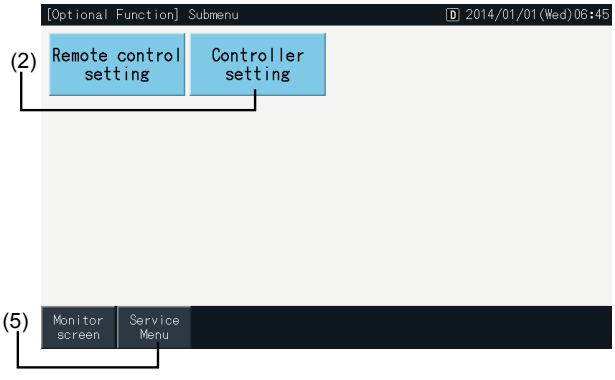


Controller Setting

1 Select “Optional Function Setting” on the “Service Menu” screen when the air conditioners are not in operation.

2 Select “Controller setting” on the “Optional Function Setting” screen.



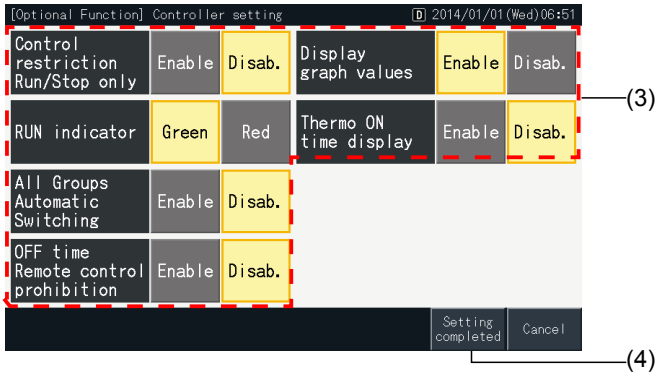


3 Select the setting of each of the function items as necessary. The selected setting appears highlighted in yellow.

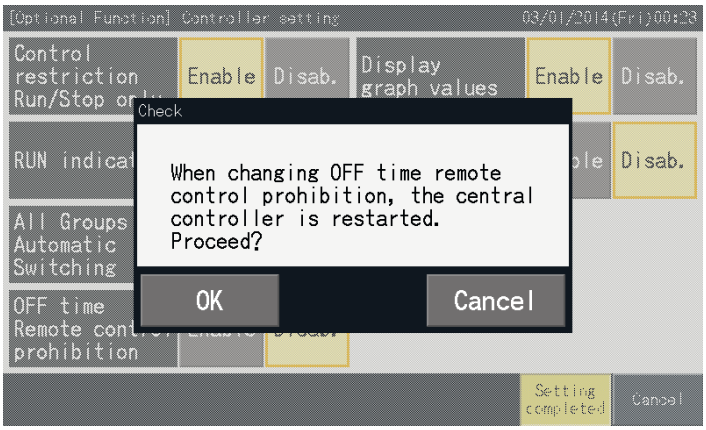
About OFF time Remote control prohibition

- When it is enabled, it is not possible to set remote operation prohibition (for individual items). When setting as Enable, the Remote Operation Prohibited (by item) cannot be set. The Remote Operation Prohibited (by item) can do setting but, if operating simultaneously with other controllers then do not do setting.
- When All groups have Remote Operation permitted (all items) only, It is possible to switch “Enable” ↔ “Disable”.

4 Tap “Setting completed” to confirm the content set and return to Optional Function Setting Menu screen.*



When switch “Enable” ↔ “Disable” of OFF Time Remote prohibited setting and tap “Setting completed”, the confirmation screen is displayed as below.



5 Tap “Service Menu” to complete Optional Function Setting and return to Service Menu screen.

◆ Exception Setting of Run/Stop Operation

"RUN" and "STOP" orders are not accepted when the group is set to operation in "All groups" or "All blocks".

However, it is possible to set an exception rule for any of the following orders or combinations of orders, affecting specific groups:

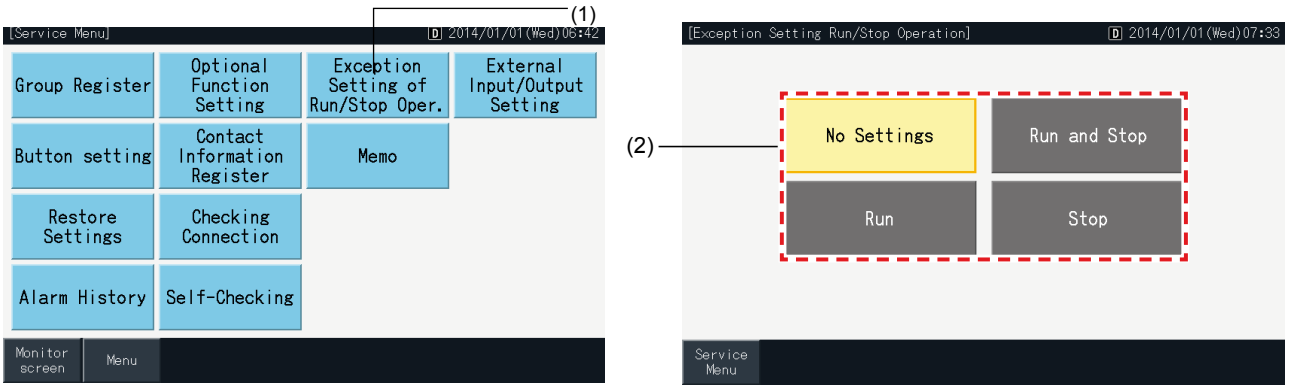
- None
- Run + Stop
- Stop
- Run

NOTE

- *The following commands are affected when this function is set.*
  - Scheduled Timer Operation.
  - "All Run/Stop" and "Run/Stop by Block" by External Input command.
- *"Run/Stop" operation is available when the group is selected individually.*

1 Select "Exception Setting of Run/Stop Operation" on the "Service Menu" screen.

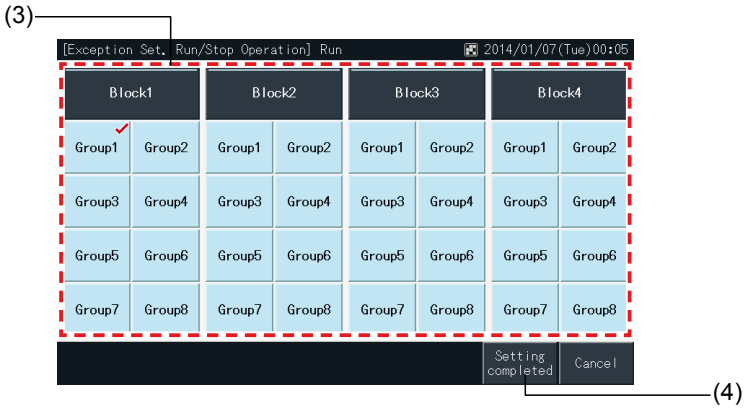
2 Select the operation to exclude.*The selected operation is highlighted in yellow.



3 Select the target for the rule of exception for the selected operation (group/block)

- Tap on a Group button to switch the selection state of that group.
- Tap on a Block button to switch the selection state of all the groups in that block.
- The selected groups are indicated with a check mark.

4 Tap "Setting completed" to confirm the set contents and to return to the "Exception setting of Run/Stop Operation" screen.



◆ External Input/Output Setting

The External Input/Output function of the central station provides the capacity to control 4 inputs and 2 outputs.

Select “External Input/Output Setting” on the “Optional Function Setting” screen to access the setting menu.

Input and Output	Connection	Function
Input 1	CN1 Pins 1-2	All Run/Stop (Level) Emergency Stop (Level) All Run (Pulse) Demand (Shift of Run/Stop mode / Outdoor Unit Capacity Control) All Stop (Pulse) No Setting (Factory Setting)
Input 2	CN1 Pins 2-3	
Input 3	CN2 Pins 1-2	
Input 4	CN2 Pins 2-3	
Output 1	CN3 Pins 1-2	All Run No Setting (Factory Setting) All Alarm
Output 2	CN3 Pins 1-3	

External Input Function

1 All Run/Stop (Level)
Performs run/stop operation of all groups simultaneously by means of the external input signal.

2 All Run (Pulse)
Performs run operation of all groups simultaneously by means of the external input signal.

3 All Stop (Pulse)
Performs stop operation of all groups by means of the external pulse signal input.

4 Emergency Stop (Level)
The operation of all groups is stopped simultaneously by means of the external emergency stop signal.
While “Emergency Stop” is being carried out, “Central Control” is displayed in the LCD of the remote control switch, and operation from the remote control switch becomes disabled.
In case of using other central stations together, “Run/Stop” operation is available from the other central stations even during the emergency stop.

5 Demand Control Function

The external demand control signal allows to cut a peak demand of electrical consumption. The external demand signal can only be input through input terminal 1.The operation mode of the selected group is changed by the demand signal as shown below.

	Demand Signal ON (*1)	Demand Signal OFF (*2)
Demand Function 1	Indoor Unit Operation Stop with RCS Operation Prohibited Mode	The operation condition returns to the previous state.
Demand Function 2 (*3)	Cooling or Dry Operation ↓ Fan Operation with RCS Operation Prohibited Mode	
Demand Function 3 (*4)	Heating Operation ↓ Operation Stop with RCS Operation Prohibited Mode	The setting temperature is set as follows. Cooling and Dry Operation.....28ºC, Heating Operation.....20ºC The operating condition returns to the previous state, except for setting temperature.
Demand Function 4 (*5)	Indoor Unit Operation Stop with RCS Operation Prohibited Mode	

(*1): Do not set “STOP” or “Run Mode Shift” when using other central stations at the same time. When setting outdoor unit capacity control, set one of the central station and do not set the others.

(*2): Setting is only possible for Stop or Run Mode Shift. And it is not possible to set multiple contact points.

(*3): When operating in “AUTO” mode, or when “Fixing Operation Mode” is enabled at “Optional Function Setting”.

(*4): Operation stops even if it is in Auto mode, or if the operation mode is fixed in the optional function settings.

(*5): Outdoor unit capacity control can be set to multiple contact points. When there is a signal input in multiple contact points, the priority for the execution of the controls is established according to the input number (Input 1 > Input 2 > Input 3 > Input 4).

(*6): There are cases in which the outdoor unit may not support certain settings, or in which available settings may differ according to its capacity value. Please contact with your dealer or with the designated customer service centre for detailed information.

(*7): It is possible to control via schedule without using demand control.

External Output Function

1 All Run Output

External output of indoor unit operation signal to the target group. The operation signal is output even if one indoor unit in the target group is in operation.

2 External Output Alarm

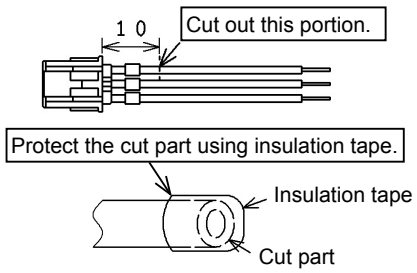
External output alarm signal of indoor units to the target group. The alarm signal is output even if one indoor unit abnormality occurs in the target group.

Specifications of the External Input/Output Terminals

- Input Terminal: Non-voltage contact (normal open) for demand signal Input DC12V, 10 mA
  The contact can be switched.
  Pulse width is 300 ms or more for pulse signal input.
- Output Terminal: Contact (voltage is applied) for signal Output DC12V
  Recommended Relay: MY Relay manufactured by Omron Corporation
  (Do not use a diode built-in type.)
- Input/Output connection: using accessory connector cord

Connection procedure:

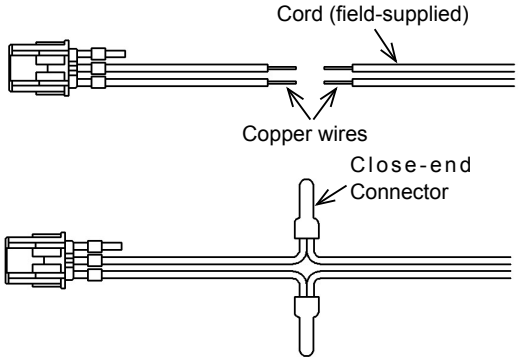
1 In case that there is a section of cord which is not going to be used, please confirm the connector number, cut the cord as shown in the figure on the right, and protect the cut section with locally supplied insulation tape.



2 Follow one of the procedures below in order to connect a relay or a timer with a locally supplied cord.

a. Soldering
Twist and solder copper wires together and insulate them by winding plastic tape around.

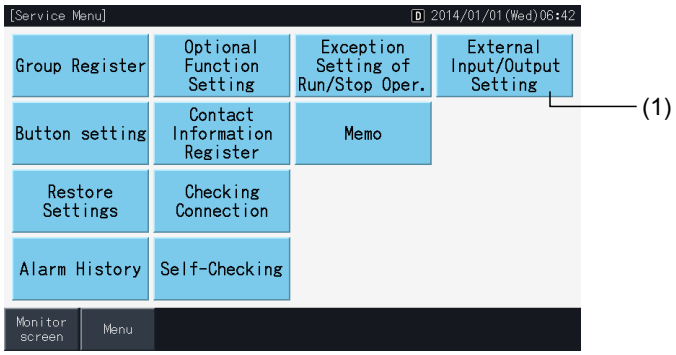
b. Caulking with closed-end connector accessory
Insert the closed-end connector after twisting and soldering copper wires together, then caulk with a clamping tool.(pull the cord to check the tightness of the connection)



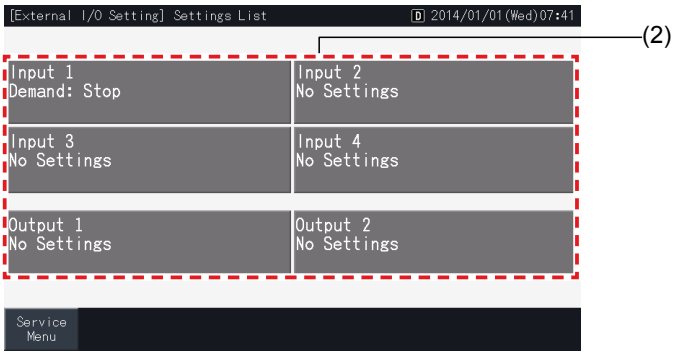
External Input setting

1 Select “External Input/Output setting” on the Service Menu screen.

* Selection is not possible when air conditioners are in operation, or when the contact for external input signal is ON.



2 Select the input target (From input 1 to 4) of the external input.



3 Select the function to be used with the external input.

* The button for the selected function is highlighted in yellow. After selecting a function, proceed to the following point in the process as indicated below:

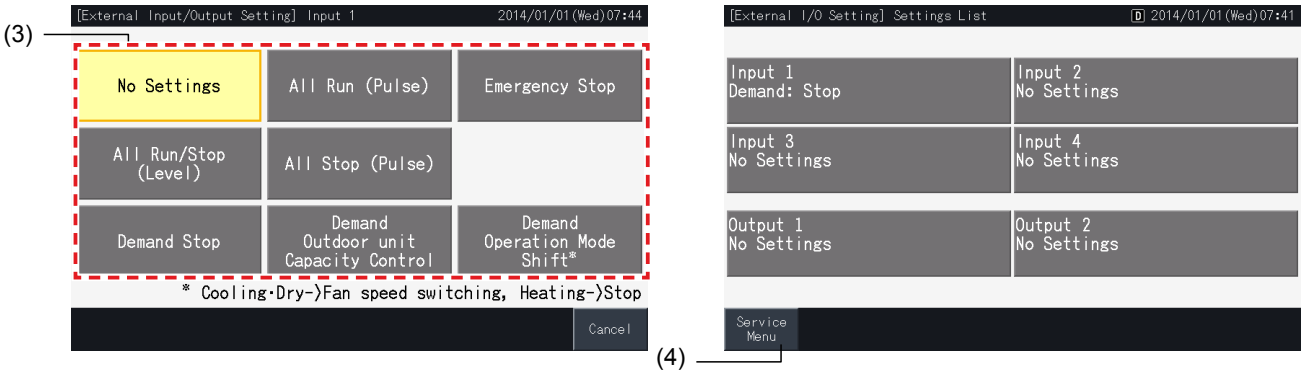
* If “No Setting” is selected, go to step 4.

* If “Outdoor unit capacity control” is selected, go to step 5.

* If any other function is selected, go to step 10.

< “No Setting” >

4 Tap “Service Menu” to complete External Input/Output setting and return to the Service Menu screen.



<Outdoor Unit Capacity Control>

5 Select the value for Outdoor Unit Capacity.

* The selected capacity value button is highlighted in yellow.

6 Use the buttons on the right side of the screen in order to schedule outdoor unit capacity control when there is no external input contact being applied for this purpose.

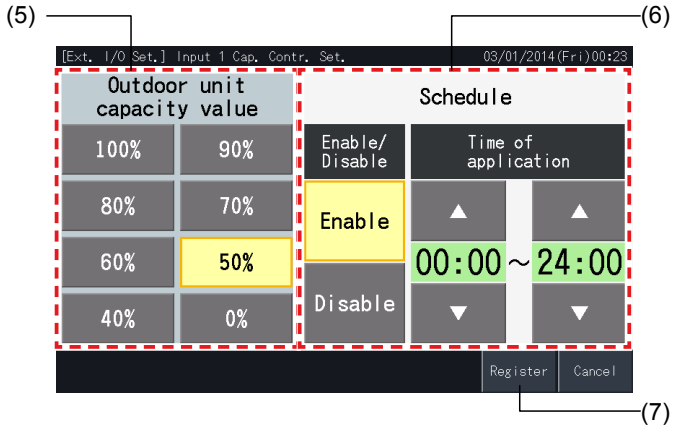
* Select “Enable” or “Disable”.

* Tap “△” or “▽” to set the applicable starting time and ending time, in 30 minute steps.

* When the ending time falls earlier than the starting time, ending time becomes effective on the next day.

For example :
Starting Time 15:00
Ending Time 08:00,
Capacity control starts at 15:00 and ends at 08:00 on the following day.

7 Tap “Register”



8 Select the target of capacity control (Refrigerant system).

* The buttons of the numbers of refrigerant systems of registered outdoor units are indicated in blue.

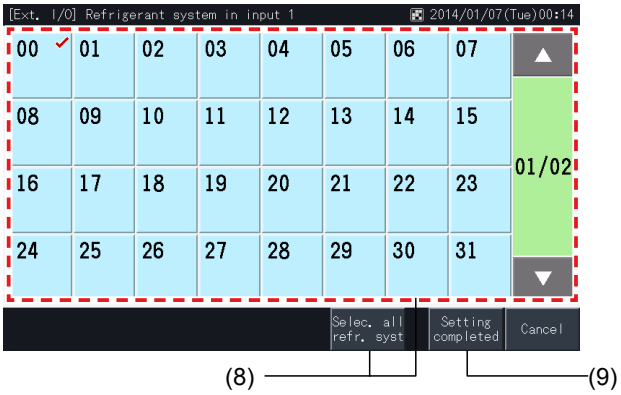
* The buttons of the numbers of refrigerant systems of unregistered outdoor units are indicated in grey. These refrigerant systems cannot be selected.

* Tap the button of a refrigerant system number in order to switch its selection state.

* Tap “Selec. all refr. syst” to switch the selection state of all refrigerant systems.

* The selected refrigerant systems are indicated with a check mark.

9 Tap “Setting completed” to confirm the setting contents and return to the External Input/Output Setting screen.



< Other settings >

10 Select the target of External Input Control.(All Groups/Block/Group).

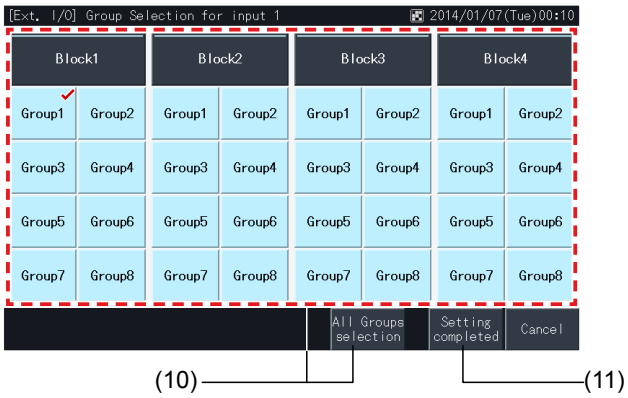
* Tap the button of a Group to switch its selection state.

* Tap the button of a Block to switch the selection state of all the Groups in the Block.

* Tap the “Select All Groups” button to switch the selection state of all the Groups.

* The selected groups are indicated with a check mark.

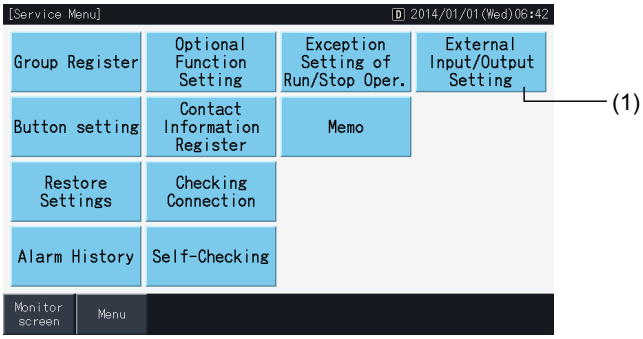
11 Tap “Setting completed” to confirm the set contents and return to the External Input/Output Setting screen .

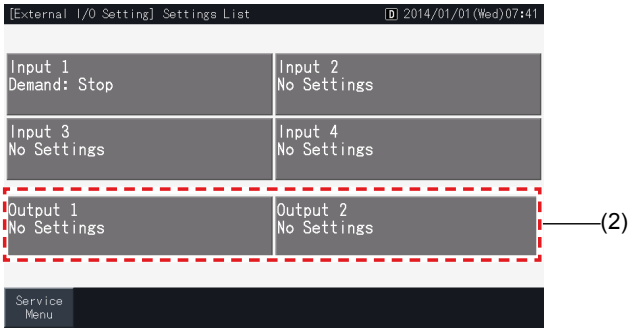


External Output Setting

1 Select “External Input/Output Setting” on the Service Menu screen.

* Selection is not possible when air conditioners are in operation, or when the contact for external input signal is ON.

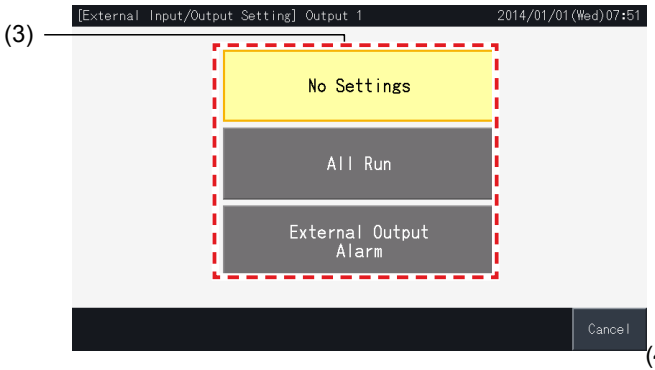


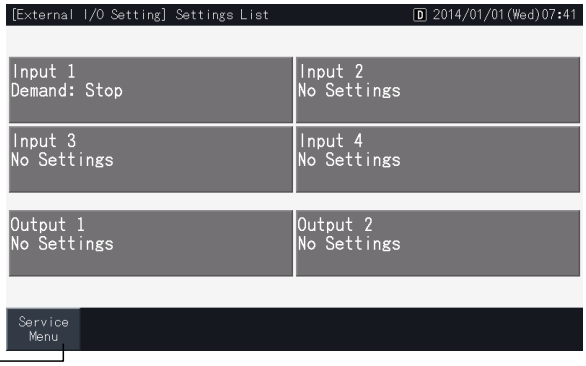


2 Select the Output target of the External Output (Output 1, Output 2).

3 Select the function to be used with the external output.

* The button for the selected function is highlighted in yellow.





4 Tap “Service Menu” to complete the external Input/Output Setting and return to Service Menu screen.

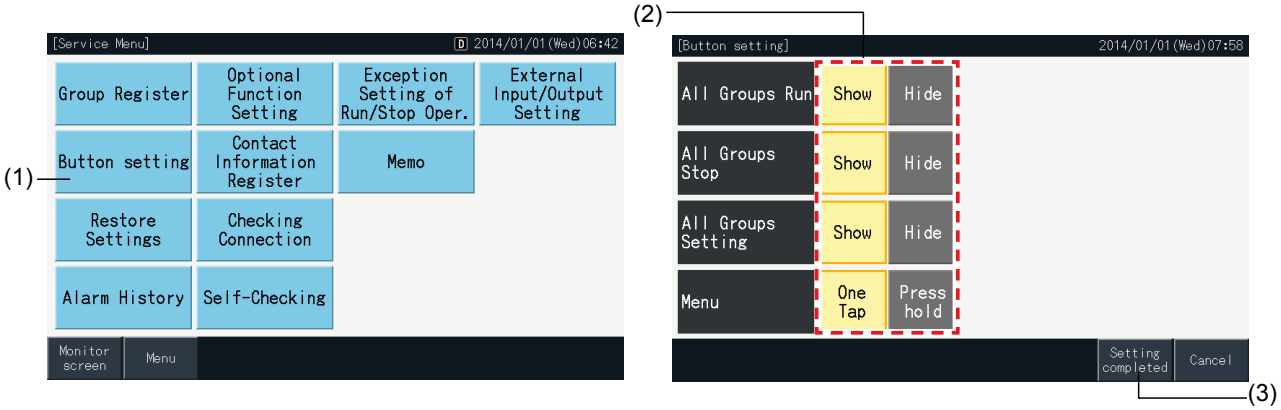
◆ Button Setting

Button setting is used to select whether to show or hide certain operation buttons, thus restricting operation.

1 Select “Button Setting” on the screen of “Service Menu”.

2 Select the function concerning each items. The selected function appears highlighted in yellow.

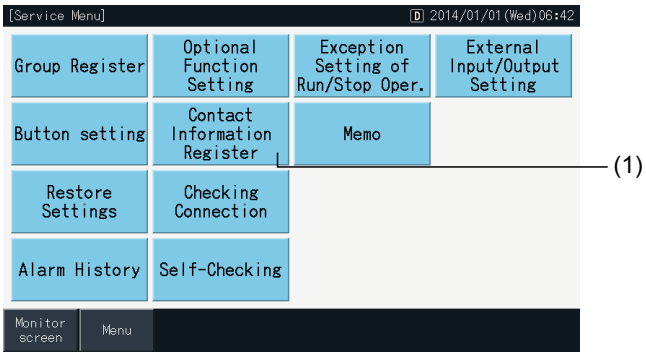
3 Tap “Setting completed” to confirm the set contents and return to Service Menu screen.



◆ Contact Information Register

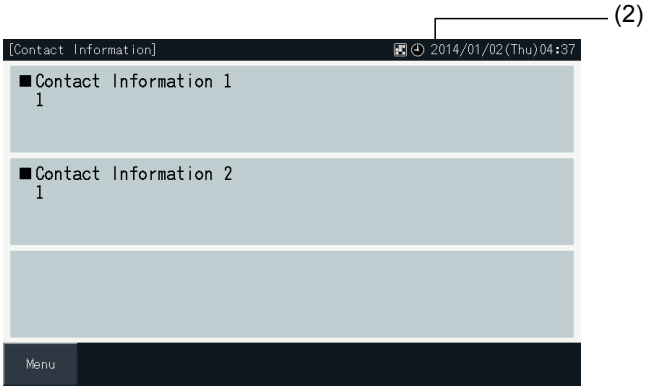
This function is used to edit or register the displayed contact information.

1 Select “Contact Information Register” on the “Service Menu” screen.



2 Tap “Name Edition” or “TEL. No. Edition” buttons (2) to register the information corresponding to each field of “Contact Information 1” and “Contact Information 2”.

3 Enter the desired text at the keyboard screen.



NOTE

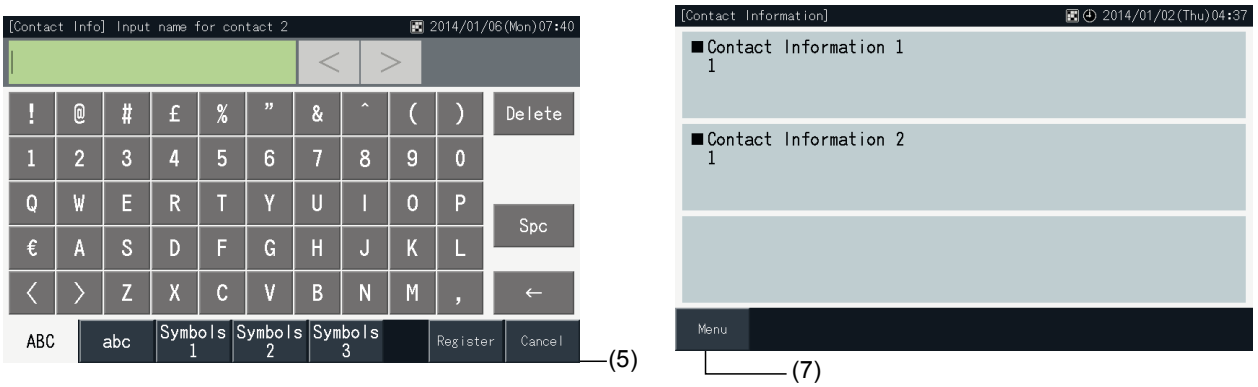
Only numbers and symbols are available at the keyboard when inserting telephone numbers.

4 The name fields have a maximum length of 50 characters.

5 Tap “Register” or “Cancel” to finish the edition, and return to the “Contact Information Register” screen.

6 Proceed to step 2 again to continue registering other fields or to step 7 to finish the setting.

7 Tap “Menu” to finish the setting and return to “Service Menu”.

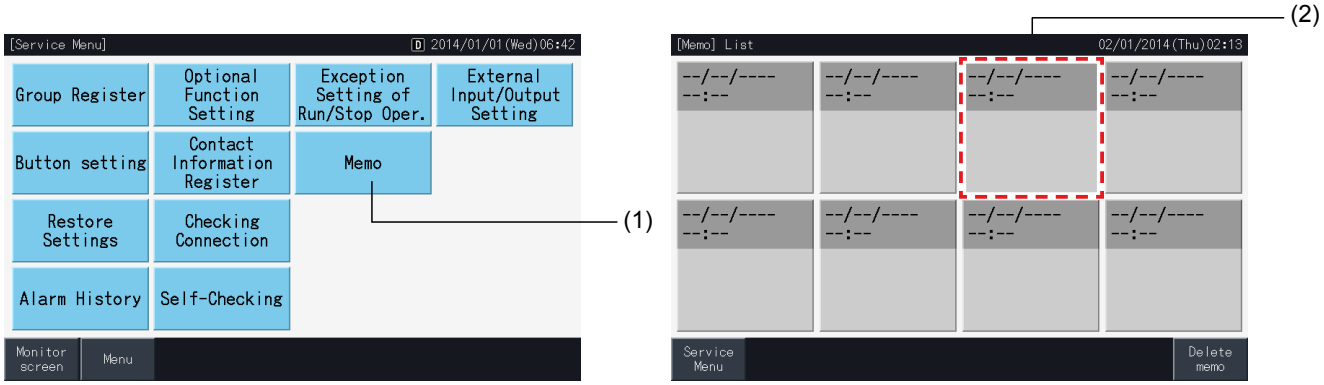


◆ Memo

Register memo

1 Select “Memo” on the “Service Menu” screen.

2 Select the target to register.

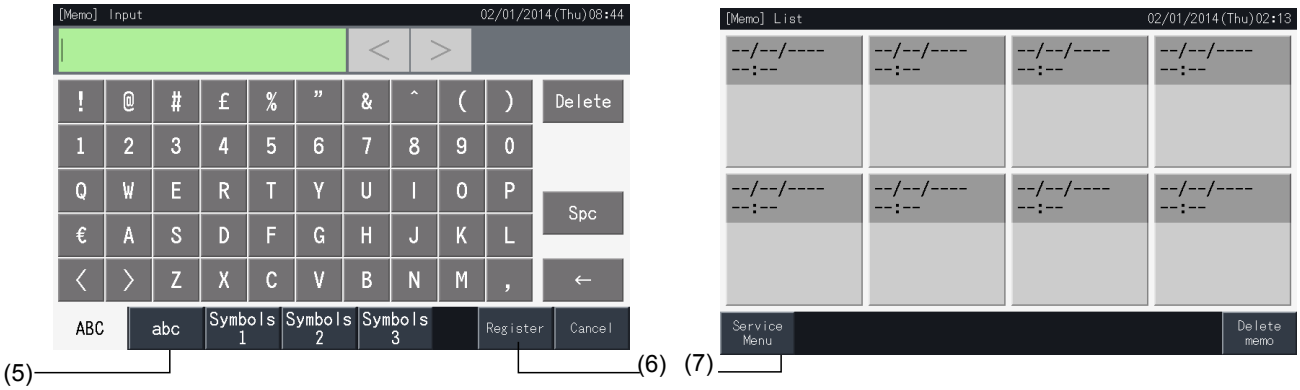


3 Enter the desired text at the keyboard screen.

4 The memo can have a maximum length of 52 characters.

5 Tap the buttons at the bottom of the screen to switch between upper and lower case and symbol keyboard.

6 Tap “Register” or “Cancel” to finish the edition, and return to the “Memo” screen.

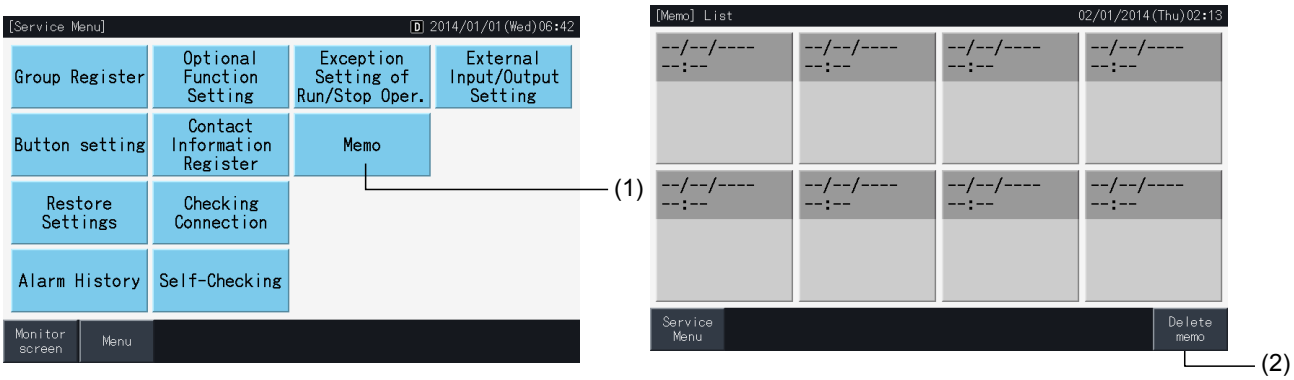


7 Tap “Service Menu” to return to the “Service Menu” screen.

Delete memo

1 Select “Memo” on the “Service Menu screen.

2 Tap “Delete Memo”.



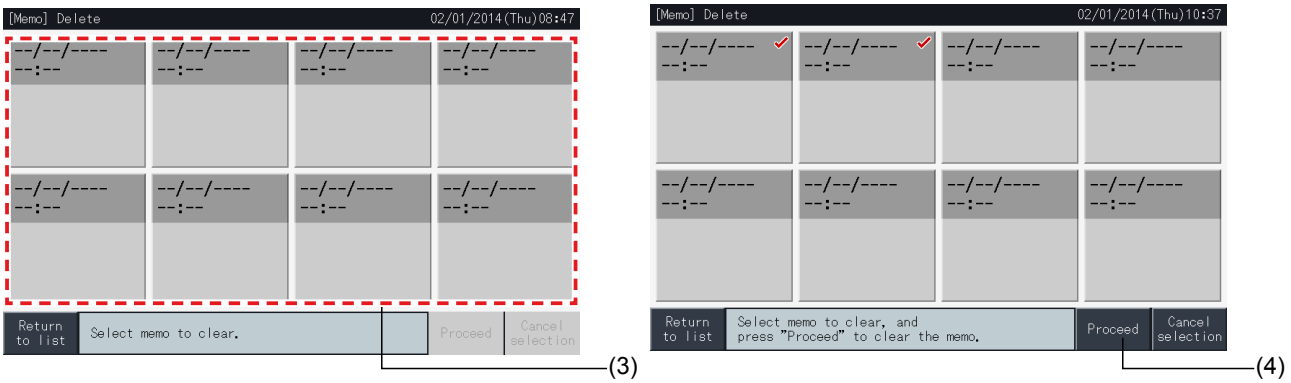
3 Select the memo to delete.

* Tap a memo button to switch its selection state.

* It is possible to select multiple memos.

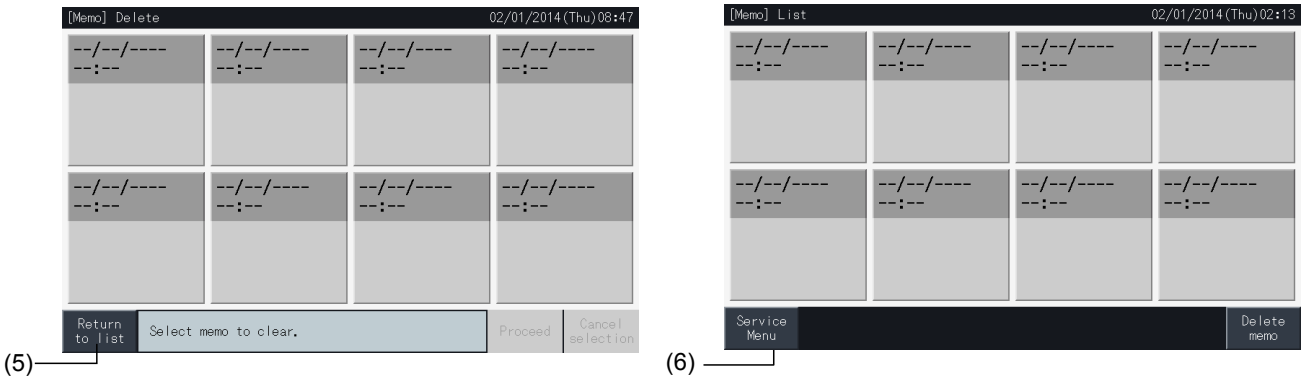
* A check mark is displayed on the selected memos.

4 Tap “Proceed” to clear the selected memos.



5 Tap “Return to list” to return to the “Memo” screen.

6 Tap “Service Menu” to return to the “Service Menu” screen.

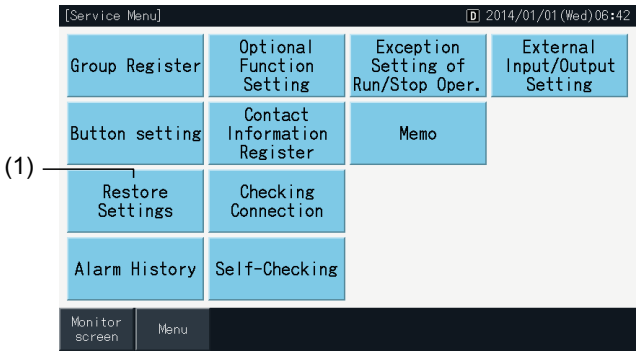


◆ Restore settings

1 Select “Restore Settings” on the “Service Menu” screen.

NOTE

This function cannot be selected when remote control switch operation is prohibited, an external input contact is ON, or outdoor unit capacity control is not cancelled. Cancel these parameters before performing “Restore settings”.



2 Tap “OK” at the confirmation screen.

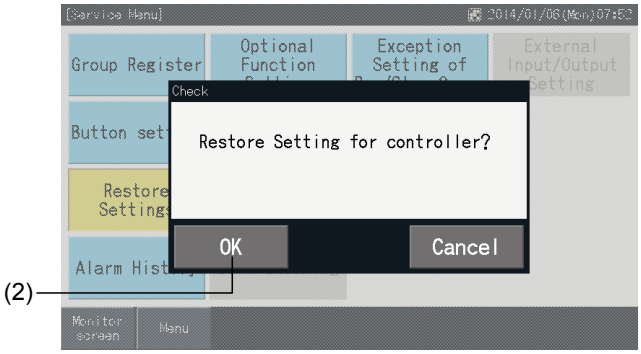
NOTE

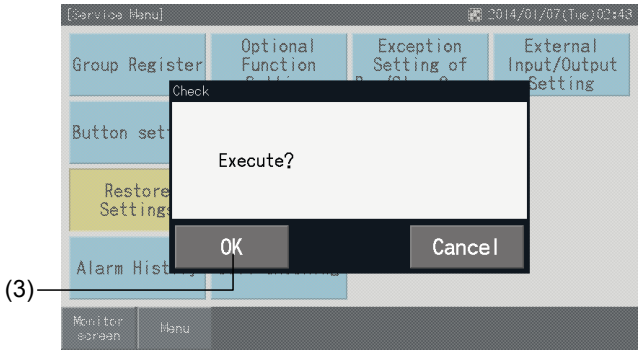
If “Cancel” is tapped, the screen returns to “Service Menu”.

3 A second confirmation screen is displayed. Tap “OK” here to restore the settings. The screen changes after several seconds, and a check of the connections of the system starts.

NOTE

If “Cancel” is tapped, the screen returns to “Service Menu”.





Information

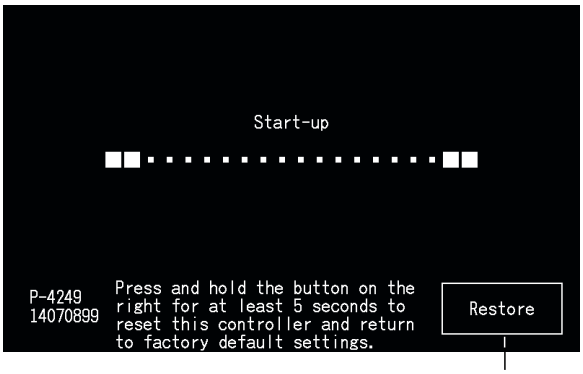
It is also possible to restore the settings when the “Start-up” screen is being displayed.

1 Tap the “Restore” at the lower right corner of the “Start-up” screen for more than 5 seconds.

* Restore settings is not displayed when remote control switch operation is prohibited, an external input contact is ON, or outdoor unit capacity control is not cancelled.

2 Connection check process starts after a few seconds.

3 When the process for connection check is finished, the “Date and Time Settings” screen is displayed. (Refer to Date and Time Settings)

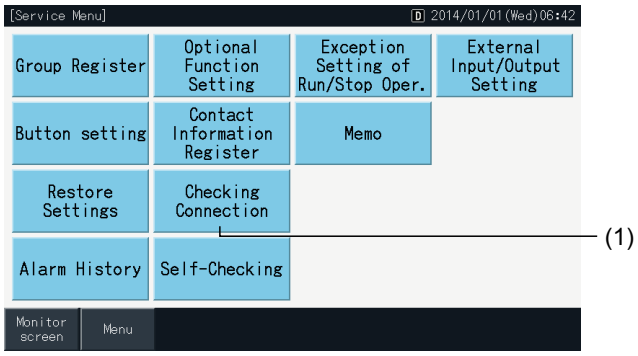


◆ Checking Connection

1 Select “Checking Connection” on the “Service Menu” screen.

NOTE

This function cannot be selected when there is one ore more air conditioners in operation, or if there is an external input signal input to external input terminals 1 or 2.

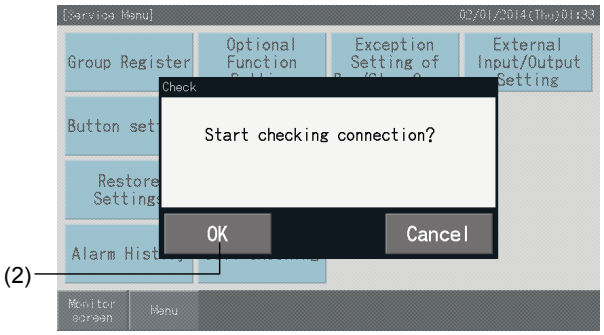


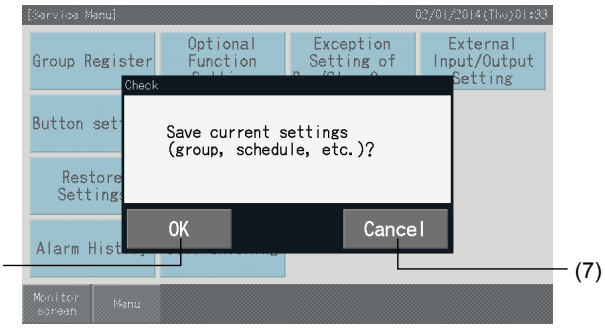
2 Tap “OK” at the confirmation screen.

NOTE

If tapping “Cancel”, the screen returns to “Service Menu”. The type of update of connection information depends on the following setting.

- *Proceed to step 3 to update connection information while keeping Group register and settings such as schedule setting, etc. (3)*
- *Proceed to step 7 to perform connection checking initializing each setting. (It is same as restoring the settings). (7)*





Keeping settings

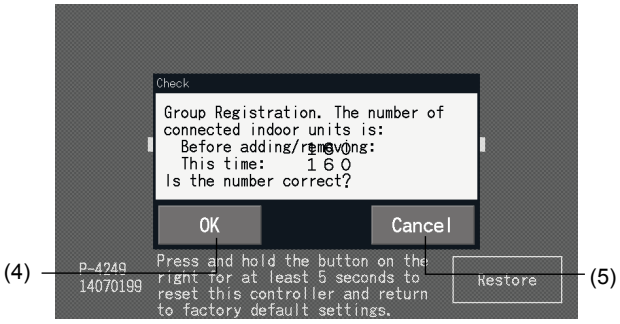
3 Tap “OK” at the confirmation screen for keeping settings.

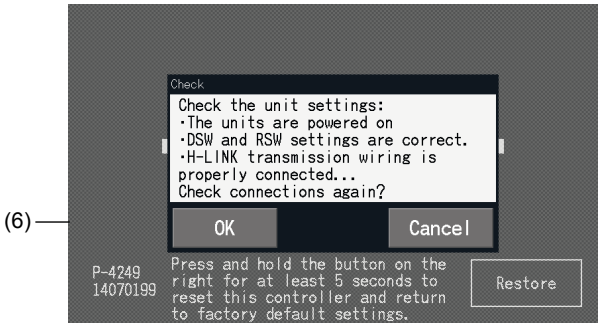
4 When the process of checking connection is finished, the number of connected units is indicated on the confirmation screen.

If the number of connected units is indicated correctly, tap “OK”.

The screen of “Main Unit Register” will be displayed. Refer to section “Registration of a group (Main unit)”.

5 If the indicated number of connected units is different from the actual number, tap “Cancel”.





6 A further confirmation screen is displayed. Check the air conditioners and tap “OK”.

NOTE

If “Cancel” is tapped, the screen returns to “Service Menu”.

** This function cannot be selected when remote control switch operation is prohibited, an external input contact is ON, or outdoor unit capacity control is not cancelled. Cancel these parameters before restoring the settings.*

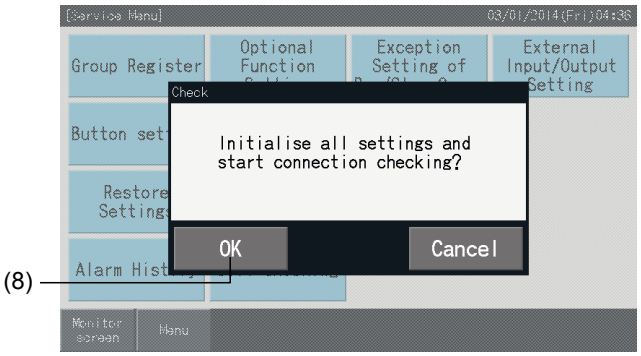
Not keeping settings

7 Tap “Cancel” at the confirmation window.

8 The confirmation window of initialization is displayed. Tap “OK” to initialise all the settings and to start checking connection. “OK” cannot be selected when there are units with remote control switch operation prohibition settings. All remote control switch operation prohibitions shall be cancelled beforehand.

NOTE

If “Cancel” is tapped, the screen returns to “Service Menu”.



◆ Alarm History

This function is used to record the time of alarm occurrence, the unit in which the abnormality has occurred and the relevant alarm code. The deletion of the alarm history record is also performed by this function.

1 Select “Alarm History” on the “Service Menu” screen.

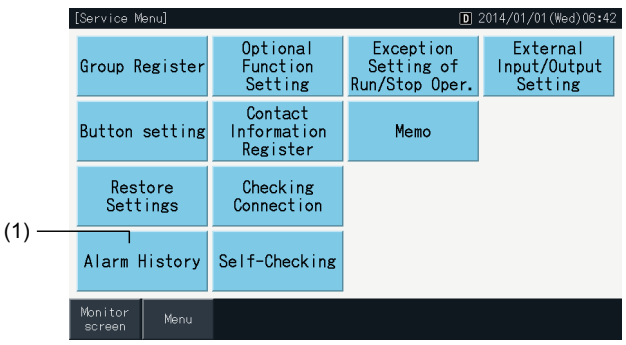
2 “Alarm History” screen is shown. Tap “△” or “▽” to scroll down the page in case that there are more than 11 alarm records.

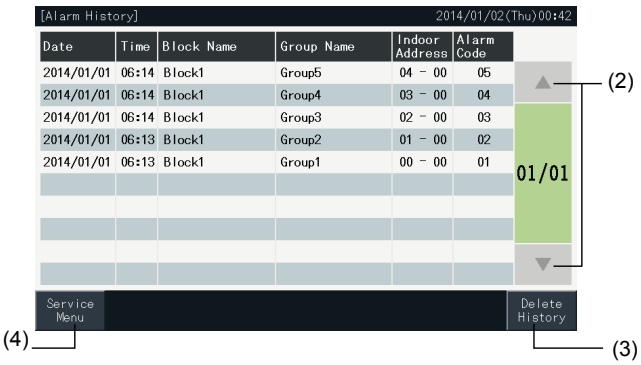
- It is not possible to scroll down the page if there are less than 10 alarm records.
- Up to 100 records can be stored in the memory.

3 Tap “Delete History” to delete the alarm history. When tapping “OK” at the confirmation screen, all alarm history records are deleted.

- If tapping “Cancel”, the screen returns to “Alarm History”.

4 Tap “Service Menu” to close the Alarm History display and return to Service Menu Screen.





◆ Self-cheking

Pending.

5.2.4.5 Other indications on the LCD

◆ In normal condition

Schedule	Displayed in case that the schedule is set.
Filter Sign	Displayed when it is necessary to clean the indoor unit filter or the dust box for automatic cleaning filter needs cleaning. After cleaning, it is possible to suppress this indication with filter sign reset at the menu.
Filter Automatic Cleaning Error	Displayed in abnormal stop in a unit with auto-cleaning. Please contact the shop where the product was purchased.
Demand	Displayed when demand input is set by optional external input function. The icon blinks during the demand control. Contact your dealer or a Hitachi customer service centre for detailed information.
Demand (Schedule)	Displayed when optional outdoor unit capacity control schedule is enabled, blinks during the control. Apart from the schedule, the icon blinks also during normal demand control when the demand input of the external input function is set.
Inspection (Gas Heat Pump only)	In case of using a gas heat pump air conditioner, the blinking indicates the time for periodic inspection of the outdoor unit. • When it blinks slowly (in a cycle of 2 seconds ON / 2 seconds OFF): It indicates that the periodic inspection of the outdoor unit is near. • When it blinks faster (in a cycle of 0.5 seconds ON / 0.5 seconds OFF): It indicates that the time for the periodic inspection has passed. An engine failure may occur is the outdoor unit continues to be used without performing the periodic inspection. Request a periodic inspection to your dealer as soon as possible. **NOTE** *The periodic inspection shall be performed every 5 years or 10,000 operation hours, whatever comes first. The accumulated operation time is indicated on the controller as mentioned above.*
Heat Storage Operating	Indicates that the heat storage is operating. At this time, the air conditioner cannot operate.
Emergency Stop	Indicates when emergency stop signal is set by optional external input function. During the emergency stop, the indoor unit is stopped and operation by remote control switch is not available. Contact your dealer or a Hitachi customer service centre for detailed information.
Remote Control Switch prohibited	Indicates the group in which operation from the remote control switch is prohibited. The set items cannot be operated from the remote control switch.

◆ In Abnormal Condition

Abnormality

- The operation lamp flashes in red when an abnormal condition of the air conditioners occurs.
- When there is a group in abnormal condition, the colour of its button changes to red.
- The “Alarm Inform.” button also appears at the lower side of the screen.

If “Alarm Inform.” is tapped, the following items are displayed.

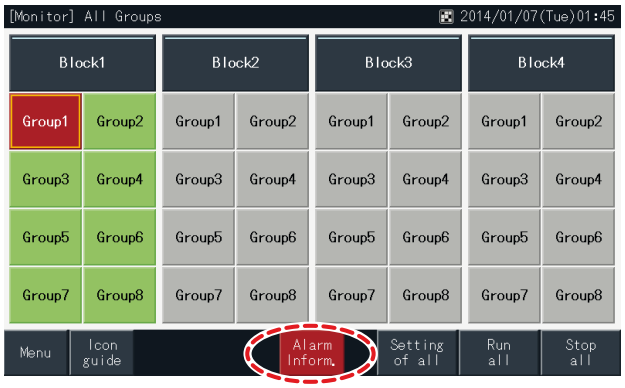
a. Refrigerant cycle number, address and model code* of the indoor unit in abnormal condition

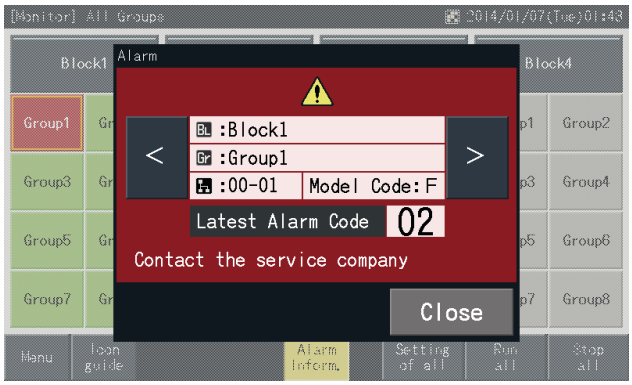
b. Alarm code

NOTE

(*) The model code may not be shown depending on the type of air conditioner unit.

- In case that multiple indoor units are in abnormal condition, the detailed information of abnormality for each unit is shown alternatively. In such cases, it is also possible to select the group in abnormal condition to display by tapping the “<” or “>” buttons at the “Alarm” window. Contact your dealer or a Hitachi customer service centre for detailed information, after checking the indications of the LCD





Power Failure

- The display turns OFF in the event of a power failure.
- Once the devices stops due to a power failure, it does not start again after the power is recovered. Starting procedure shall be performed again.
- In case of a momentary power failure which lasts less than 2 seconds, the device starts up automatically again.

Noise

- There may be cases in which the display turns OFF and the device stops due to the activation of the micro controller for protection from electric noise. When the device stops due to this reason, perform the starting procedures again.

Freezing of display at the “Start-up” screen

- There is the possibility that a communication error occurred. Contact your dealer or a Hitachi customer service centre for detailed information.

5.2.5 Troubleshooting

Check the following table before contacting a dealer for assistance.

Condition	Cause
Indications on the touchscreen are not displayed.	• Check that the wiring for the power supply is connected to the wall plug. • Check that the power supply is turned ON.
The touchscreen display is in sleep mode.	• The touchscreen enters in sleep mode automatically when the touchscreen is not operated for a given length of time. Tap the screen to wake it up.
A part of the touchscreen does not turn ON or is always turned ON.	• There may be dead pixels on the LCD. This is not faulty.
There is no response when tapping a button on the touchscreen. However, the button next to the tapped one is responding.	• When the central station is used for a long time, the touchscreen may not match the position of display indication. Refer to section “Calibration of the touchscreen”.
The air conditioner unit does not run.	• Check if the air conditioner unit is in heat storage mode. The air conditioner cannot operate while the heat storage unit is operating (with the exception of heat storage units which explicitly allow simultaneous operation).
The setting of louvre direction returns to previous setting.	• When the operation mode is “AUTO”, the direction of the louvre is automatically corrected depending on the indoor unit model.
Scheduled operation does not work.	• Check if the holiday setting is turned ON. If so, cancel the holiday setting following the instructions of section “Holiday setting for suspending operation”. • Check if the setting of scheduled operation is turned OFF. If so, the scheduled operation should be turned ON following the instructions of section “Schedule timer ON/OFF setting”.
Date and time appear as “- -”.	• Date and time appear as “- -” when the electrical power is suspended for a prolonged period. Set date and time again following the instructions of section “Adjusting Date/Time”.
The selected settings are not applied.	• It may happen that the air conditioners do not respond to the orders of the central station immediately after power ON, because the starting process of the air conditioners has priority. Wait for a brief time before attempting operation again.
Simultaneous Run/Stop of all the units does not work.	• Check if exception settings for Run/Stop operation are being selected. If so, cancel the settings.
The state of the remote control switch does not match with the state of this controller when the indoor unit is recovering from a power failure.	• There is the possibility that the power supply was not stable when recovering from a power failure. Perform control operation from this controller to make the state of the remote control switch to match.

5.2.6 Maintenance

- Clean and wipe the LCD screen with a dry soft cloth.
- Use diluted neutral detergent to remove oil and fat such as fingerprint marks from the touchscreen. Wring water out to dry the cloth before cleaning. After that, wipe the LCD screen again with a dry soft cloth.
- Do not use benzine, thinner or surface active agents in order to protect the touchscreen and its case from deformation or deterioration or tarnishing.

5.3 PSC-A64S

5.3.1 Safety summary

HITACHI can not anticipate every possible circumstance that might involve a potential hazard.

⚠ DANGER

- ***DO NOT handle the remote control with wet hands.***
- ***DO NOT spill water on the remote control. This may cause an electric shock.***
- ***If the safety devices are activated too frequently or the buttons do not work properly, turn off the unit at the mains and contact your HITACHI service provider.***
- ***In the event of other incidents of an electrical nature, turn off the system, switch it off at the mains and contact your HITACHI service provider.***

⚠ CAUTION

DO NOT install the indoor unit, outdoor unit, remote control or any wiring in the following locations:

- *Where there are oil vapours and the oil is dispersed.*
- *In the proximity of hot water or heat sources or in sulphuric environments.*
- *In locations prone to the generation, accumulation, leakage or flow of flammable gas.*
- *Close to the sea (saline atmospheres).*
- *In acidic or alkaline environments.*
- *Within the reach of children.*
- *Directly in front of the air-conditioning system outlet.*
- *To avoid electromagnetic compatibility problems, DO NOT install the indoor unit, outdoor unit, remote control or any wiring within 3m of strong sources of electromagnetic radiation (e.g. waves generated by medical equipment). If the system should be installed in a location where electromagnetic waves are produced, protect the remote control and wiring by covering them with the steel casing and passing the cable through the metal duct.*
- *If electrical noise should be generated at the indoor unit power source, install a noise filter.*

⚠ CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle this appliance properly and safely.*
- *Children should be supervised to ensure that they do not play with the appliance.*

5.3.2 Installation

5.3.2.1 Installation site selection

Take note of the maximum admissible cable length between units and the control as well as between the units themselves, as shown in the following table:

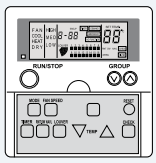
Cable section	0.3 mm^2	≥ 0.75 mm^2
Cable length	30 m	500 m

5.3.2.2 Components list

Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

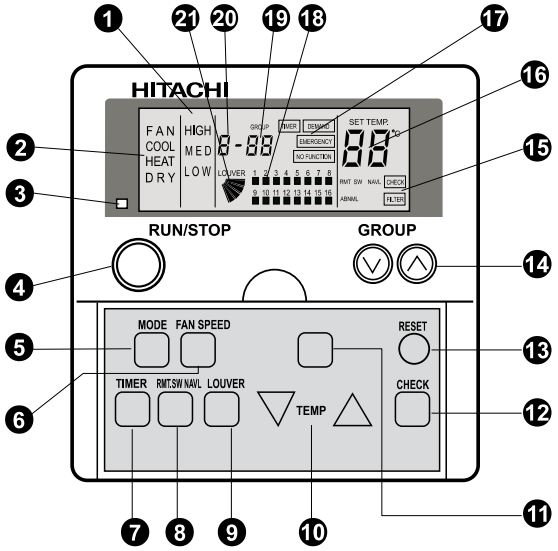
Name		Quant.	Comments
Central remote control		1	For controlling system operation.
M4x16L screws		2	For fixing the holding bracket to the wall
Installation and operation manual		1	Installation and operation unit instructions.

NOTE

Bear in mind that the central remote control is divided into two parts:

- *Central remote control*
- *Power source*

5.3.2.3 Description of the parts



Model: PSC-A64S

❶ Fan speed indicator
Indicates the fan speed selected for each group indicated: “HIGH”, “MED”, “LOW”.

❷ Mode indication
Indicates the operation mode selected for the indicated group: “Fan”, “Cool” , “Heat” and “Dry”.

NOTE

The automatic mode is available if the AUTO function is on.

❸ Run indicator (red pilot light)

❹ "RUN/STOP" button

❺ "MODE" button

❻ “FAN SPEED” button

❼ "ON/OFF TIMER" button (starts/stops timer).
Used to switch the timer on/off; when this button is pressed, the timer schedule of the control unit (PSC-A1T) will become available and the "TIMER" indication will appear.

❽ “RMT.SW AVL/NAVL” button
Used to either block or accept the control unit through each remote control. When “RMT.SW NAVL” appears, use of the remote control is blocked.

NOTE

When monitor mode is selected, the aforementioned operation modes will be indicated along with the temperature setting.

❾ "LOUVER" button

❿ "TEMP" button (temperature setting)

⓫ Button with no assigned function

⓬ “CHECK” button Used to set the unit as master or slave

⓭ “RESET” button
Used to cancel the “CHECK” and “FILTER” functions.

⓮ Group selection button
Used to change the number of the group of interior units to be monitored (01 to 16). Press “AA” to monitor all units simultaneously.

⓯ Indicators: “CHECK”, “FILTER”, “RMT. SW NAVL” and “ABNML” (alarm)

⓰ Temperature indicator

⓱ “TIMER”, “DEMAND”, “EMERGENCY” and “NO FUNCTION” indication.
“TIMER” appears when the timer is connected.“DEMAND” appears when the "DEMAND" function (Thermostat Stoppage) is selected. “EMERGENCY” appears when the outdoor input function sends out the emergency stop signal.“NO FUNCTION” when the button pressed is not available.

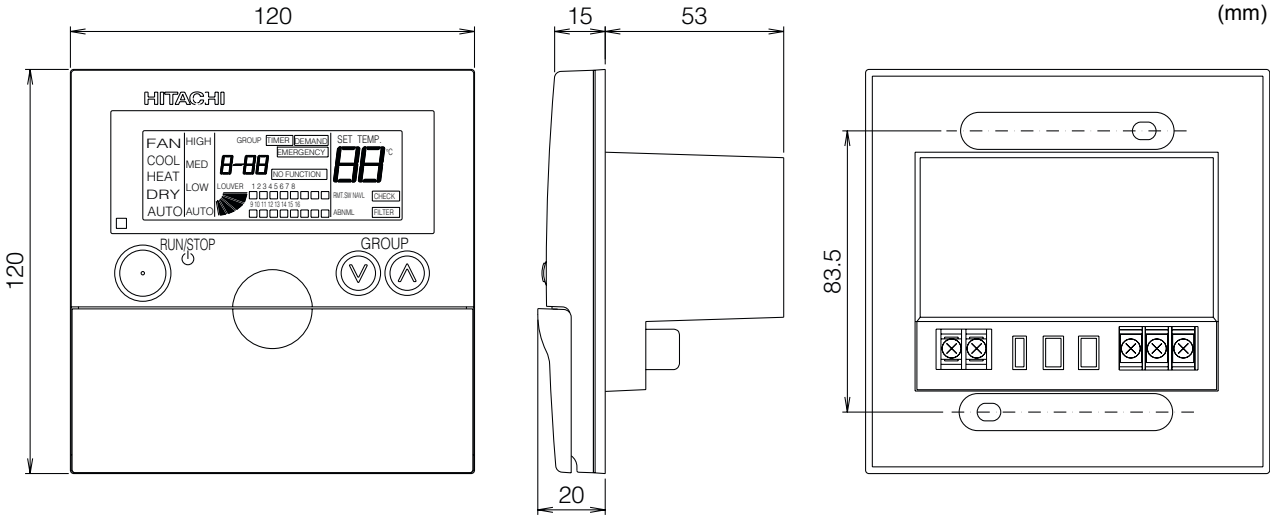
⓲ The ■ symbol indicates the operating condition of each group.
Off indicates a stoppage, on indicates running, and flashing indicates an abnormal condition.

⓳ Group number indication

⓴ Model number checking indication

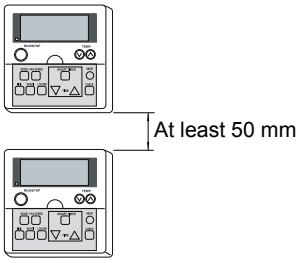
㉑ Swing louver indication

5.3.2.4 Dimensional data



5.3.2.5 Installation space

If several control units are to be installed in a vertical position, leave a distance of at least 50 mm between them to allow the front cover to be opened and to insert the tool for removing the control from its housing.

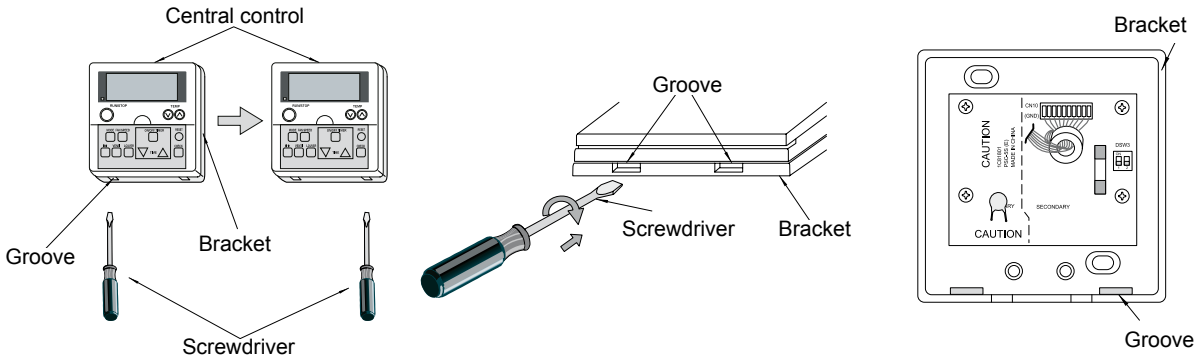


5.3.2.6 Installation procedure

NOTE

Follow the national regulations for the right assembly of the PSC-A64S in the wall.

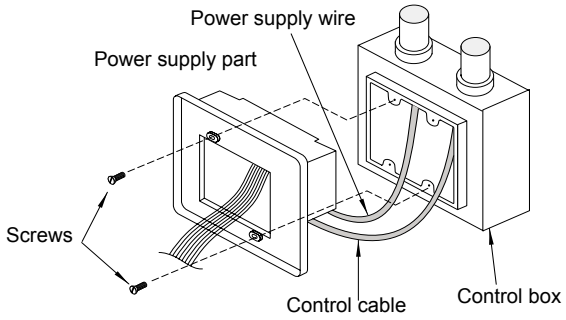
1 Using a flat-head screwdriver, separate the control unit bracket from the front section as indicated below.



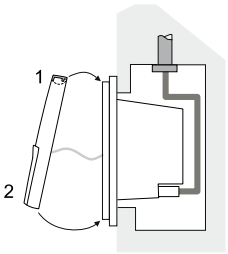
2 Connect the power supply part to the control box, as shown below.

NOTE

Do not lay the cables from the power source and the control unit in the same duct, since the power cable is liable to cause interference with the control cable.



3 Connect the control unit part to the power supply part. Join them at the top first, then at the bottom.

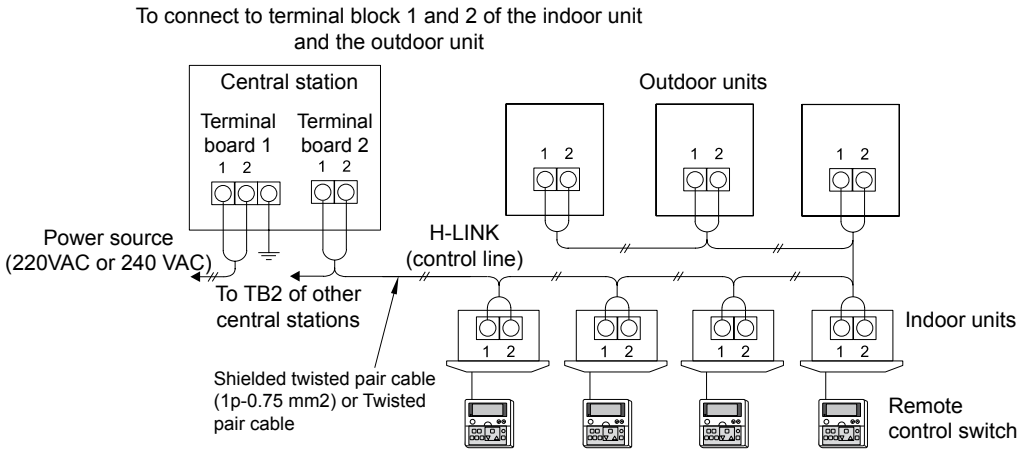


5.3.3 Electrical wiring

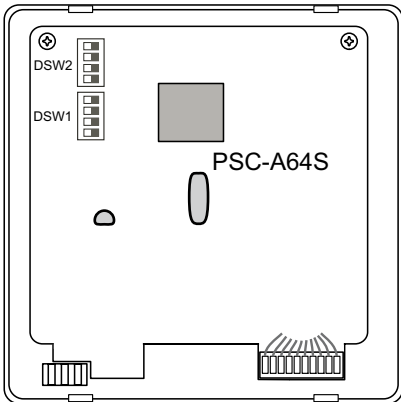
◆ Electrical wiring connection

Up to 8 central controls can be connected to the H-LINK system.

Use the 2-core cable of 0.75-1.25 mm² or the 2-core twist pair cable (Max. 1.000 m) for the transmission cable for the central station, for the outdoor unit and between indoor units (DC5V). The maximum total length of the cables shall be within 1.000 m.



◆ DIP switch setting



	Pin Nº	Contents	Setting of DSW		Remarks
			OFF	ON	
DSW1	1	For address setting	Refer to the description		For connecting plural central stations with H-LINK (control line), the adress setting for each central station is required
	2				
	3				
	4	Simultaneous use of other central controller	NO	YES	When using the following central controllers simultaneously, set the DSW1-4 pin ON - CS NET WEB - CS NET Manager
DSW2	1	External Input Function Changeover Operation Stoppage Level/Pulse	Level	Pulse	
	2	External Input Function Changeover Demand / Emergency Stop	Demand	Emergency Stoppage	- Available only when the DSW2-1 pin is OFF. - Pulse Stop when the DSW2-1 pin is ON.
	3	Not prepared	-	-	Set OFF
	4	H-LinkII Adaptive	Adaptive	Non-Adaptive	- Set DSW2-4 pin OFF: H-LINK II adaptive. - Set DSW2-4 pin ON: Non-H-LINK II adaptive.

NOTE

The DIP switches are all deactivated before they are sent from the factory.

Address setting with DSW1 Dip Switch

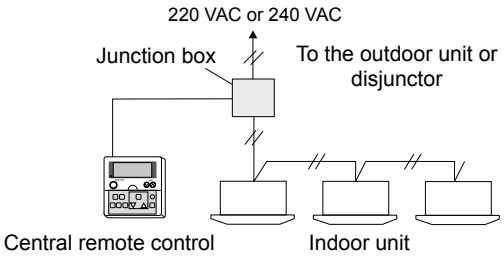
If connecting more than one central control (up to a maximum of 8) to the H-LINK system, first set the address using the DIP switch DSW1, as shown below:

Address 1	Address 2	Address 3	Address 4	Address 5	Address 6	Address 7	Address 8
							

NOTE

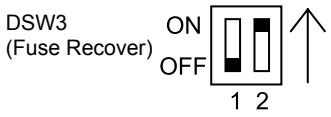
If using the central station PSC-5S and PSC-A64S together in the same H-LINK (control line) system, set the DSW1 not to be overlapped

Split the central control power supply line from the main power supply line using a junction box, as shown in the following diagram:



CAUTION

- *Before installing the wiring, switch off the power supply to the air conditioning system and central control unit. Installing the wiring while the central control power supply is switched on may cause the central control unit to malfunction.*
- *Check to ensure that the wiring is correct. Incorrect wiring may cause malfunction of the central station.*
- *DO NOT run all the transmission cable for the central station along the power line and other transmission cables, or malfunction may occur due to the noise, etc. If the transmission cable for the central station is required to be run along the power line and other transmission cables, separate the cable more than 30 cm away from other cables, or run the cable through a metal tube and earth the tube.*
- *In case of applying high voltage to the TB2, the fuse on the PCB is blown out.*
  In such a case, firstly correct the wiring to TB1, and then set Nº.2 pin ON.



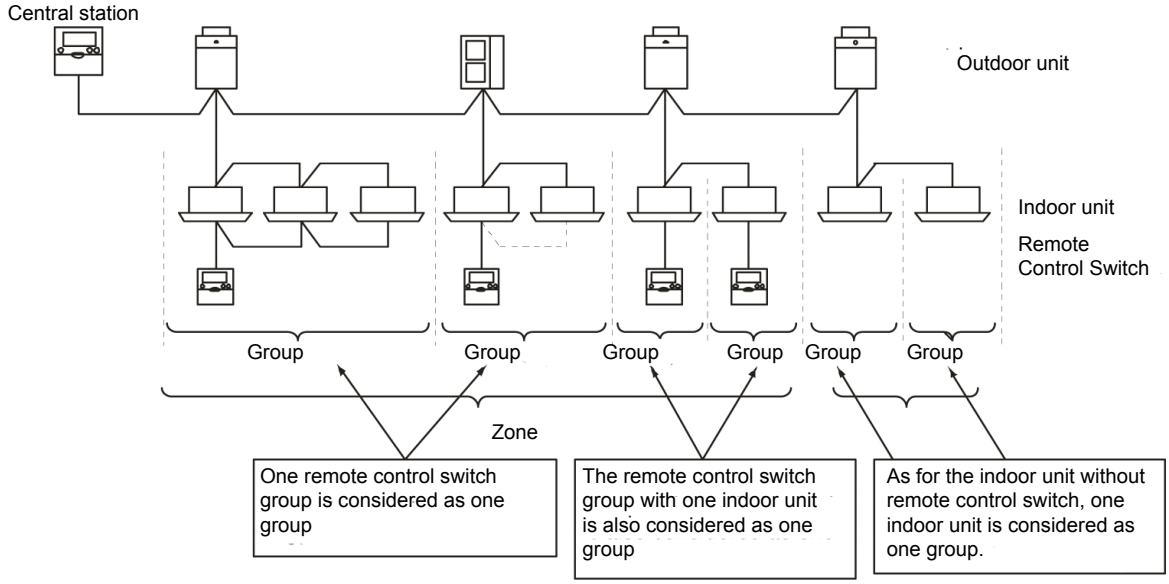
5

5.3.4 Operation

5.3.4.1 Group setting

◆ Group and zone concept

- Group: Minimum unit for operation of Central Station. One remote control switch group is considered as one group under the same control. The Central Station can control up to 64 groups (4 zones x 16 groups).
- Zone: Operation unit with Plural Groups. Up to 16 groups as maximum can be set in one zone. The central station can control up to 4 zones.
- Remote control switch group: Unit of plural indoor units (max. 16 units). Connected with Transmission Line of Remote Control Switch. In this group the indoor units are under the same control setting.



CAUTION

When setting the remote control switch group without transmission line between indoor units, the indoor unit connected with the remote control switch shall be set as master unit. If the setting of the master unit is wrong, the group can not be controlled with the central station.

The central control unit is designed to control up to 16 groups of up to 16 units (the maximum number of indoor units is defined by the H-Link limit).

Each of these groups is made up of two types of unit:

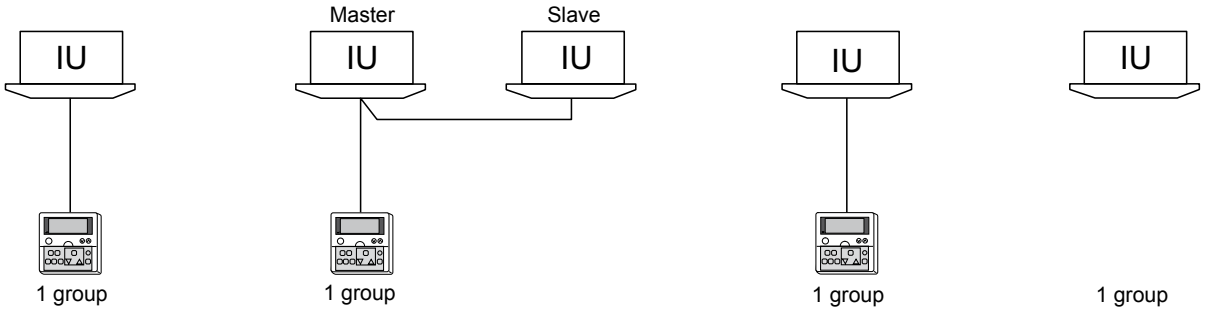
- Master Unit: Unit selected in each group to control and set each of the group parameters equally and at the same time.
- Slave Unit: Units (up to 15 in one group) which follow the master unit configuration assigned for this group.

To use the central control unit correctly, each group of units must be configured as indicated below:

CAUTION

- *Before installing the wiring, switch off the power supply to the air conditioning system and central control unit.*
- *Installing the wiring while the central control power supply is switched on may cause the central control unit to malfunction.*

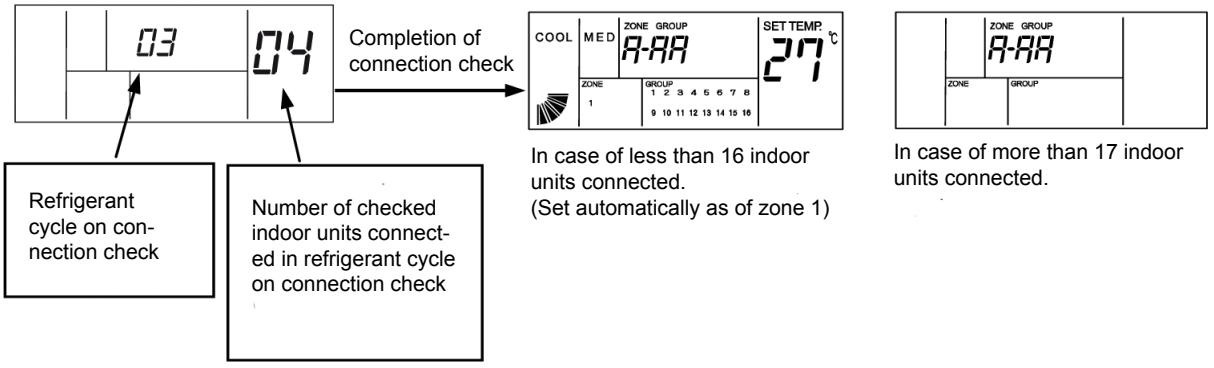
Examples of groups



◆ Automatic initial group configuration

After completion of electrical wiring work and test running of the air conditioner, turn ON the power supply of the central station. (Ensure to perform the test runing of the air conditioner before turning ON the power supply of the central station).

In case that group setting is not performed, the indication of the central station is as shown below for checking indoor unit connection after turning ON the power supply.



NOTE

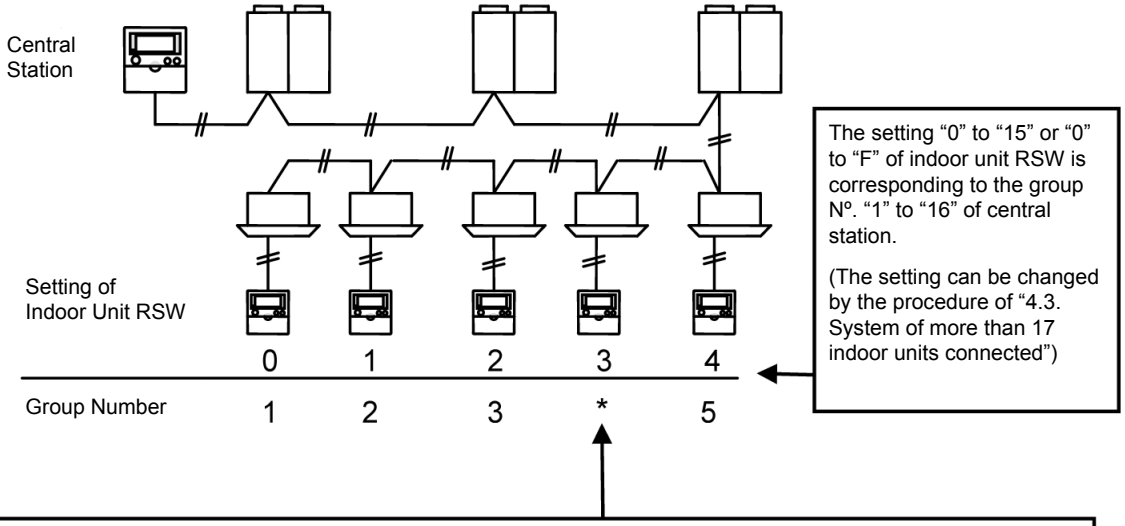
- *The checked number of connected indoor units may be more than the actual number according to the condition of transmission. After the connection check, the indications of "GROUP" and "SET TEMP."*
- *During the connection check, the indications of group No. and setting temperature may be "- -" temporarily.*
- *When the "63" alarm is indicated, the setting of H-LINKII adaptive is wrong. Check for the setting of the central station and other central controller used together.*

◆ Group configuration

- The group setting consists of the master unit setting and the slave unit setting. The indoor unit, which is connected directly to the remote control switch, is set as the master unit, and the indoor unit connected with the transmission line is set as the slave unit.
- Without the remote control switch, the control by the remote control switch group is not available. Therefore, in this case, one indoor unit is set as one group. (Only the master unit is set without the slave unit).
- When setting the remote control switch group without transmission line between indoor units, the indoor unit connected with the remote control switch shall be set as master unit.
- When using the remote control switch (PC-ART), the half-sized remote control switch (PC-ARH) or receiver kit (PC-ALH∗), after the setting of master unit, the central station automatically set the slave unit. Check for the setting state by the slave unit setting mode.

System of up to 16 indoor units connected, refrigerant system address and indoor unit address.

The group is automatically set as zone Nº 1 by the indoor unit address regardless of the refrigerant cycle address. Set the indoor unit address without duplication of address.



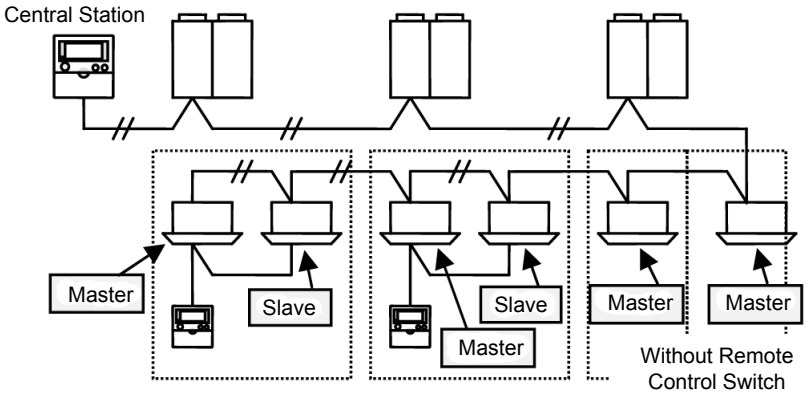
- When using the remote control switch (PC-ART) or the half-sized remote control switch (PC-ARH) and the receiver kit (PC-ALH∗), the indoor units are automatically recognized as the slave unit of the indoor unit 2 and set to the group 3. (The setting of the slave unit is not required. However, the contents of the setting should be checked.)
- When using other controllers than the described above, the indoor unit can not be recognized as the slave unit automatically, and set as the master unit of group 5. In this case change the setting to the slave unit of the group 3 according to the above “Group Setting Procedure”.

System of more than 16 indoor units connected

In this case, the group setting by central station is required. Group setting is for master unit (directly connected to remote control switch) and slave unit (connected by extension cable).

In case that the remote control switch is not connected, the group setting by remote control switch is not available and only one master unit is controlled as one group.

In case of up to 16 indoor units connected, the group setting is automatically performed as described in “4.2. System of less than 16 indoor units connected, Refrigerant system address and indoor unit address”. In this case, correct the group setting by the next procedure.



Refrigerant No. Setting	1	1	2	2	3	3
Indoor Unit RSW Setting	0	1	0	1	0	1
Group Number	1		2		3	4

◆ Setting of master unit

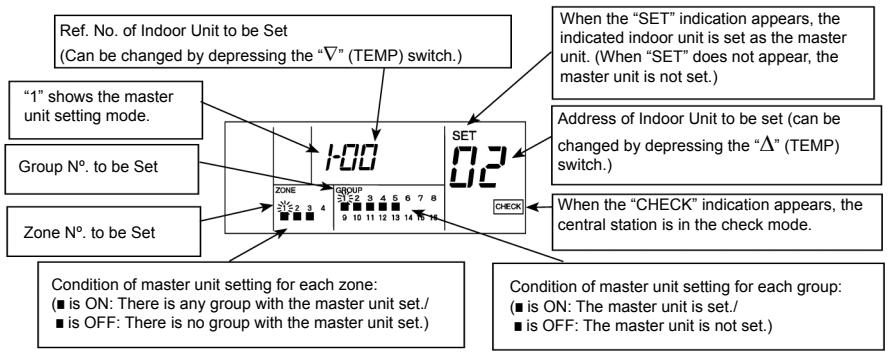
Indication of master unit setting mode

When the central station is changed to the master unit setting mode, the LCD indication on the central station is as shown below. The indication of the group to be set is flickered. The refrigerant cycle Nº (hereafter called “Ref. Nº”) and the indoor unit address (hereafter called “I.U. Add.”) indicates the address of the indoor unit which is set as the master unit of the group to be set.

The “■” indication of group flickers in case that the master unit of the group is set. When the “SET” indication appears, the indoor unit indicated on LCD is set as the master unit.

In case that the master unit is not set, “- -” is indicated at Ref. Nº and I.U. Add., and the “SET” indication does not appear.

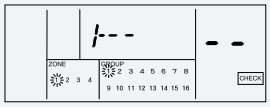
*When there is one or more group with indoor unit set as master unit in the zone, the zone indication “■” turns ON.



The above figure shows that the indoor unit of Ref. Nº. “00” and I.U. Add. “02” is set as the master unit for Group 1 of Zone 1.

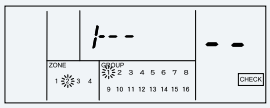
Procedure of master unit setting

a. Screen change for Master Unit Setting keep depressing the “CHECK” switch for 3 seconds during all the indoor unit is stopped (with “RUN” indicator OFF). The “CHECK” indicator turns ON, and it shows the state is changed to the CHECK mode. In addition, “1” (master unit setting mode) is turns ON at the 7-segment indicator for checking.



b. Select Zone to be set depress the “ZONE” switch, and the flickering indication of zone Nº is changed in order as shown below.

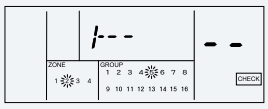
1 → 2 → 3 → 4



The above figure shows the case of selecting Zone “2”.

c. Select of Group Nº. to be set select the group to be set by depressing the “GROUP” switch.The flickering indication of group Nº is moved in order as shown below every time the “GROUP” switch depressed.

1 ↔ 2 ↔ -- ↔ 16



The above figure shows the case of selecting Zone “2” and group “5”.

i. When the main unit of the selected group is already set, the Ref. Nº and I.U. Add. of the main unit already set are indicated and the “SET” indication appears.

d. Selection of Indoor Unit to be set select the refrigerant system address and indoor unit address to set. The refrigerant system address is changed by depressing "∨" (TEMP) switch and the indoor unit address is changed by depressing "∧" (TEMP) switch in order as shown below. In this case, the switch is kept depressing, and the indication of the refrigerant system address or the indoor unit address is fast-forwarded.

00 → 01 → 02 → -- → 63

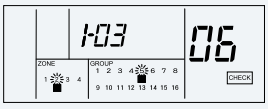
The above figure shows the case of selecting Ref. Nº. “3” and I. U. Add. “6”.

5

⚠CAUTION

- *When the indication of Ref. Nº is “- -”, the indication of I.U. Add. is also “- -”. In such a case, I.U. Add. can not be changed although the “Δ” (TEMP) switch is depressed.*
- *Ref. Nº with no indoor unit connected and I.U. Add. not connected are not indicated.*
- *The indoor unit already set as the master unit is not indicated.*

e. Setting Procedure
Depress the “RUN/STOP” switch after selecting indoor unit, the indicated unit is set as the master unit, and the “■” and “SET” indications appear. The “■” indicator of zone turns ON when there is one or more group with the master unit set.



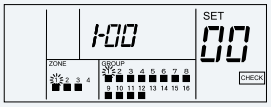
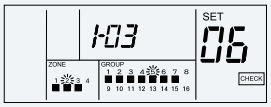
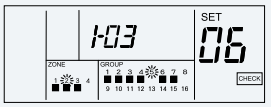
f. Perform the master unit setting procedure b. to e. for each group and zone.

g. After completion of the master unit setting, change the mode to the standard state by depressing “RESET” switch.

⚠CAUTION

- *When there is any group in operation (with “RUN” indicator ON), the “CHECK” mode is not available.*
- *Only one indoor unit can be set as the master unit in one group. Other indoor unit can not be set as the master unit for the group with the master unit set already. For setting the master unit as the master unit for another group, cancel the present master unit setting and perform the setting for another group.*
- *In case that there are indoor units with auto-louver and indoor units without auto-louver in the same group, set the indoor unit with auto-louver as the master unit. If the indoor unit without auto-louver is set as the master unit, the auto-louver setting is not available for all the units of the group.*
- *When setting the remote control switch group without transmission line between indoor units, the indoor unit connected with the remote control switch shall be set as master unit.*

Procedure for the cancellation of master unit setting

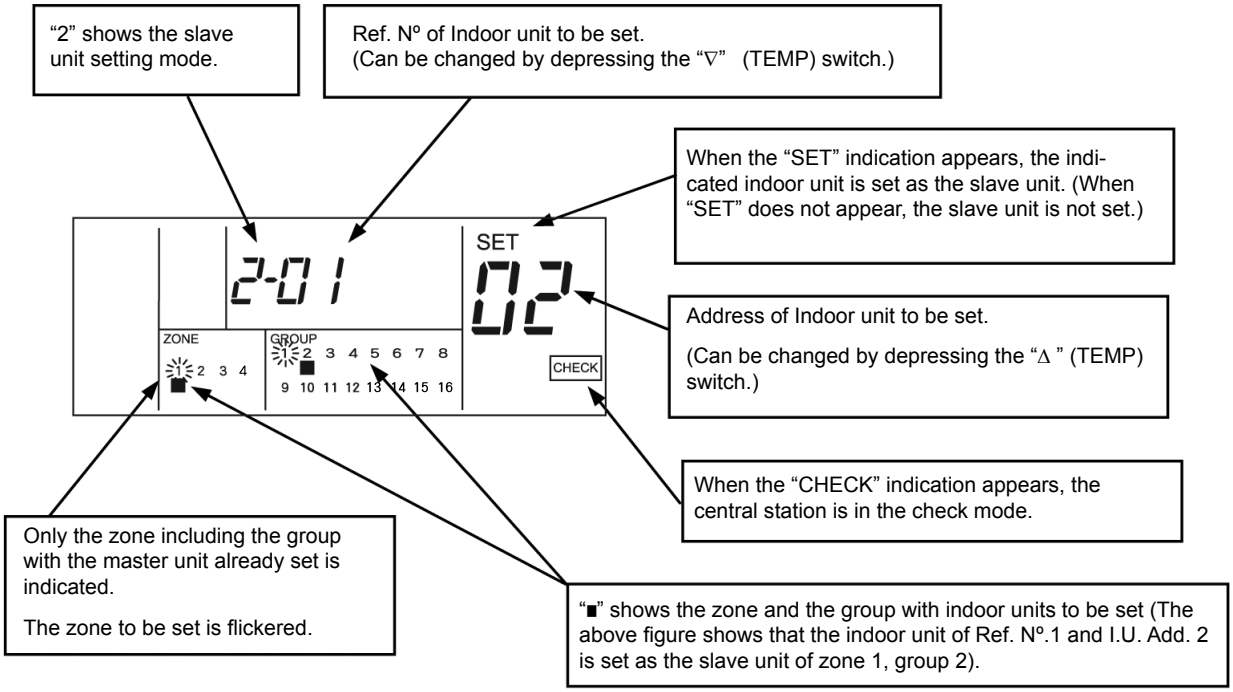
a. Screen change for cancellation of Master Unit setting keep depressing the “CHECK” switch for 3 seconds during all the indoor unit is stopped (with “RUN” indicator OFF). The “CHECK” indicator turns ON, and it shows the state is changed to the CHECK mode and “1” (master unit setting mode) turns ON at the 7-segment indicator for checking.	
b. Select of Zone to be cancelled depress the “ZONE” switch and the “GROUP” ﹀﹀ switch, and select the zone and the group to cancel.	
c. Cancel the slave unit setting. Depress the “RUN/STOP” switch and the master unit is cancelled “SET” indicator and the “■” indicators of group turn OFF. The “■” indicators of zone turns OFF when there is one or more group with the master unit set.	
d. Perform the cancellation of master unit setting procedure b and c for each zone and group. **e.** After completion of cancelling the master unit setting, change the mode to the standard state by depressing “RESET” switch.	

◆ Setting of slave unit

When using the remote control switch (PC-ART), the half-size remote control switch (PC-ARH) or receiver kit (PC-ALH∗), after the setting of master unit, the central station automatically set the slave unit. Check for the setting state by the slave unit setting mode.

Indication of slave unit setting mode

When the central station is changed to the slave unit setting mode, the LCD indication on the central station is as shown below. The indication of the group to be set is flickered. The Ref. Nº and I.U. Add. indicates the address of the indoor unit with the smallest address among the slave units of the group to be set. The “■” indication of group flickers in case that the slave units of the group are already set. In case that the slave units are not set, “- -” is indicated at Ref. Nº and I.U. Add.

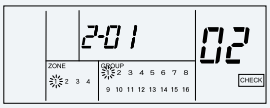


Procedure of slave unit setting

a. Screen Change for slave unit setting.
Keep depressing the “CHECK” switch for 3 seconds during all the indoor unit is stopped (with “RUN” indicator OFF). The “CHECK” indicator turns ON, and it shows the state is changed to the “CHECK” mode. When “1” (master unit setting mode) is turns ON at the 7-segment indicator for checking, depress the “CHECK” switch again, and then the checking indication is changed to “2” (slave unit setting mode).

b. Select the refrigerant system address and indoor unit address to set. The refrigerant system address is changed by depressing “▽” (TEMP) switch and the indoor unit address is changed by depressing “△” (TEMP) switch in order as shown below. In this case, the switch is kept depressing, and the indication of the refrigerant system address or the indoor unit address is fast-forwarded.

00 → 01 → 02 → - - → 63



The above figure shows the case of selecting Ref. Nº. “1” and I. U. Add. “2”.

CAUTION

A. Ref. Nº with no indoor unit connected and I.U. Add. not connected are not indicated.

B. When the selected unit is already set as slave unit, the zone and the group Nº indication “■” of the unit and “SET” indication appear.

C. The indoor unit already set as the master unit is not indicated.

c. Select of Zone to be set.
Depress the “ZONE” switch, and the flickering indication of zone Nº is changed in order as shown below.

→ 1 → 2 → 3 → 4 →

i. * The zone, in which there is no group with the master unit already set, is not indicated.

The above figure shows the case of selecting Zone “2”.

d. Select of Group to be set
Depress the “GROUP” ∨∧ switch, and the flickering indication of group Nº is changed in order as shown below.

→ 1 ↔ 2 ↔ - - - ↔ 16 ←

i. * The group, in which the master unit is not set, is not indicated.

The above figure shows the case of selecting Zone “2” and group “2”

e. Setting Procedure
Depress the “RUN/STOP” switch after selecting zone and group, the slave unit is set.
The “SET” indicator and the “■” indicator of group turn ON.

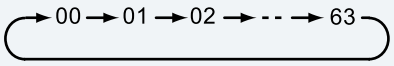
f. Perform the slave unit setting procedure “b” to “e” for each group and zone.

g. After completion of the slave unit setting, change the mode to the standard state by depressing “RESET” switch

CAUTION

- *Up to 15 slave units can be set in one group (Max. 16 units (including the master unit) in one group).*
- *For changing the setting of slave unit to another group, cancel the present slave unit setting and perform the setting for another group.*
- *In case that all the units are set as the master unit, the central station can not be changed to the slave unit setting mode.*
- *When there is any group in operation (with “RUN” indicator ON), the “CHECK” mode is not available.*

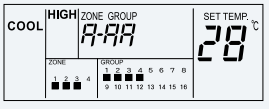
Procedure for the cancellation of slave unit setting

a. Screen Change for Cancellation of Slave Unit Setting. Keep depressing the “CHECK” switch for 3 seconds during all the indoor unit is stopped (with “RUN” indicator OFF). The “CHECK” indicator turns ON, and it shows the state is changed to the CHECK mode. When “1” (master unit setting mode) is turns ON at the 7-segment indicator for checking, depress the “CHECK” switch again, and then the checking indication is changed to “2” (slave unit setting mode).	
b. Select the refrigerant system address and indoor unit address to cancel. The refrigerant system address is changed by depressing “▽” (TEMP) switch and the indoor unit address is changed by depressing “△” (TEMP) switch in order as shown below. In this case, the switch is kept depressing, and the indication of the refrigerant system address or the indoor unit address is fast-forwarded.  **i.** * The Ref. Nº and I.U. address of the indoor unit unconnected are not indicated. **ii.** * The Ref. Nº and I.U. address of the indoor unit set as the master unit are not indicated.	 The above figure shows the case of selecting Ref. Nº. “1” and I. U. Add. “2”.
c. Cancellation of Slave Unit Address. Depress the “RUN/STOP” switch and the slave unit is cancelled “SET” indicator and the “■” indicators of zone and group turn ON.	
d. Perform the cancellation of slave unit setting procedure b and c for each intended refrigerant system and address.	
e. After completion of canceling the slave unit setting, change the mode to the standard state by depressing “RESET” switch.	

5.3.4.2 Operation selection procedure

◆ About Setting Target

The zone and the group subject to setting and monitoring are called as setting target. The central station indicates the setting target as shown below.

Indication Example 1 This indication is the example in the case where the setting target is group. The setting of the selected group is ordered.	 (ex. In case of Zone 1 and Group 2)
Indication Example 2 This indication is the example in the case where the setting target is zone. The setting of all the groups set in the selected zone is ordered.	 (ex. In case of All Group in Zone 1)
Indication Example 3 This indication is the example in the case where the setting target is all the indoor units. The setting of all the units (all the groups) set is ordered.	 (ex. In case of All Indoor Units)

◆ Setting target selection and monitoring operation status

The central station can control up to 64 groups by each group, each zone or simultaneously .
(The selected setting target can be operated and the unit operation status can be monitored.)

⚠CAUTION

- *When changing the zone Nº by depressing the "ZONE" switch, the zone, which is not set as group, is not indicated.*
- *The group number is changed by depressing the "GROUP" switch. The group without group setting is not indicated.*

Preparation 1
Supply power to the unit.

⚠CAUTION

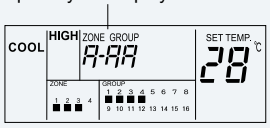
A. Supply power to the unit more than 6 hours before unit operation for compressor protection.

B. Do not cut off power during the term of using air conditioner.

Preparation 2

After the preparation for air conditioner operation is completed, turn ON the power supply of the central station.

The setting target zone and group Nº. Is indicated on the liquid crystal display.

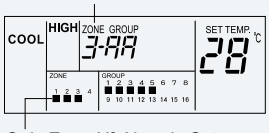


1 Depress the "ZONE" switch.
Every time the "ZONE" switch is depressed, the zone and group Nº. to be controlled is changed in the order as shown below:

A-AA → 1-AA → 2-AA → 3-AA → 4-AA →

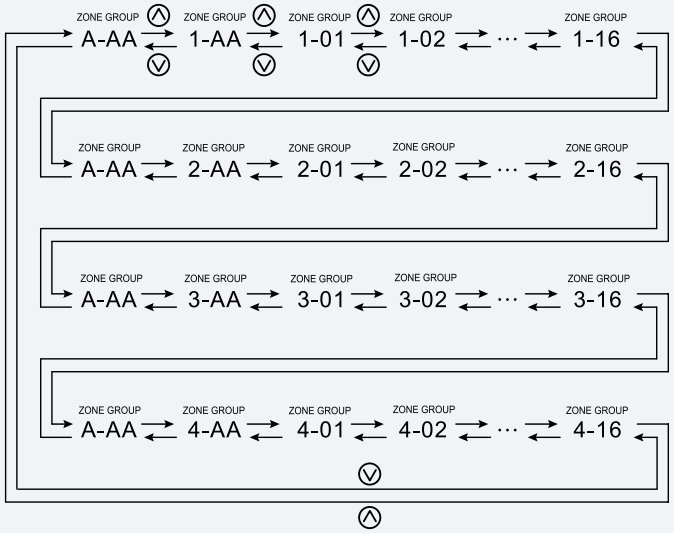
When the zone is changed, the setting target group is AA (All Groups) initially. For example, depressing "ZONE" switch when the setting target is 1-02, the indication is changed to 2-AA.

Zone Nº is changed. (ex. In case of All group in Zone 3)

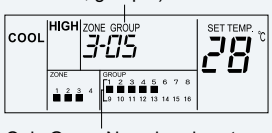


Only Zone Nº Already Set are indicated.

2 Depress the "GROUP" switch.
Every time the "GROUP" switch is depressed, the zone and group Nº. to be controlled is changed in the order as shown below. In case of "AA", all the units are controlled simultaneously.



Group Nº is changed.
(ex. In case of selecting Zone 3, group 5)



Only Group Nos already set are indicated.

3 When selecting the group, the setting conditions of each group are indicated.
i. By operating by the remote control switch, the content of the setting is indicated.

Zone 1 ■ ~ 4 ■ show the operating conditions of each zone as follows;

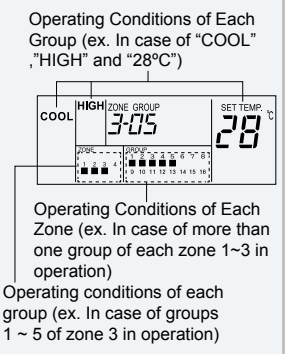
- OFF ... Stoppage of All Groups in Zone
- ■ ON ... Operation of One or More Group in Zone
- ■ Flickering ... Failure in One or More Group in Zone

1 ■ ~ 16 ■ show the operating conditions of each group as follows;

- ■ Turned OFF: Stop
- ■ Turned ON: Operation
- Flickering: Abnormality

The Run indicator (Red Lamp) shows the followings;

- Turned OFF: All indoor units stop.
- Turned ON: More than 1 group in operation.
- Flickering: More than 1 group in abnormal condition.



NOTE

- *The indication of setting temperature “- -” shows no setting of temperature.*
- *When the setting target group is “AA” (All Groups), the indications of operation mode, set temperature, fan speed, louver angle and remote control switch not available are indicated only for the items which all groups are under the same setting.*
- *When the setting target group is “A-AA” (All Indoor Units), the indication “■” turns ON when there is one or more group in operation in each zone, and also flickers when there is one or more group in failure in each zone.*

◆ Setting of operation mode

<Function>

“COOL” Operation: To cool the room temperature by distributing the cooled air.

“HEAT” Operation: To heat the room temperature by distributing the heated air.

“DRY” Operation: To dehumidify more than standard cooling operation.

“FAN” Operation: To circulate the room air.

NOTE

The recommended temperature for each operation is as follows:
“COOL” Operation: 27~29°C / “HEAT” Operation: 18~20°C / “DRY” Operation: 23~25°C

1 Depress the “ZONE” switch and the “GROUP” switch and select the setting target. (Refer to item “Setting target selection and monitoring operation status”).

The above figure shows the case of selecting “ZONE 3, GROUP 6”.

2 Depress the “MODE” switch.
The operation mode is changed in the following order.

FAN → COOL → HEAT → DRY

The above figure shows the case of setting “HEAT” operation.

NOTE

- *The above indications show the case of setting operation mode for “Zone 3, Group 6”. The same setting procedure shall be performed for other groups.*
- *Some operation modes can not be set according to the unit model. Contact to HITACHI dealer or your distributor for details.*
- *The operation mode can be set while the unit is stopped or in operation.*

◆ Setting of temperature, fan speed and louver angle

⚠CAUTION

- *Do not touch the “CHECK” switch. The “CHECK” switch is only for service use.*
- *When the “CHECK” switch is depressed by a mistake and the central station is changed to the check mode, depress the “RESET” switch to cancel.*

3 Depress the “ZONE” switch and the “GROUP” switch and select the setting target. (Refer to item “Setting target selection and monitoring operation status”).

The above figure shows the case of selecting “ZONE 3, GROUP 6”.

<TEMPERATURE>

Set temperature by depressing “TEMP” switch.

Depressing “∇” switch, the temperature is increased by 1 °C (Maximum: 30 °C).

Depressing “Δ” switch, the temperature is decreased by 1 °C (Minimum: 19 °C, for Cool, Dry and Fan mode, and 17 °C for Heat mode).

When depressing Δ for 3 seconds at set temperature at 30 °C, or depressing ∇ for 3 seconds at the minimum temperature, the temperature is not set and the indication of setting temperature is “--”. In this case, depress Δ or ∇, the indication of setting temperature returns to the minimum temperature or 30°C.

The above figure shows the case of setting 22°C.

NOTE

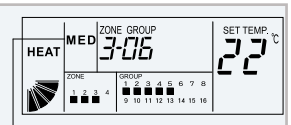
The above shows the setting range for standard model. The setting temperature range may be different according to the connected unit model.

<FAN SPEED>

Depress the “FAN SPEED” switch.

By depressing the “FAN SPEED” switch, the indication is changed in the following order;

HIGH → MED → LOW →



The above figure shows the case of setting “MED” fan speed.

NOTE

- *In case of dry operation, the fan speed is automatically changed and fixed at the “LOW” fan speed.*
- *In this case, the fan speed can not be changed (The indication remains at the setting condition).*

<LOUVER ANGLE>

Depress the “AUTO LOUVER” switch.

Every time the “AUTO LOUVER” switch is depressed, the indication of the louver angle is changed.

Depress the “AUTO LOUVER” switch at the position of , the indication is changed to and this indication indicates the auto-swing. Depress the “AUTO LOUVER” switch again, the indication is turned to .

The above figure shows the case of setting auto-swing.

NOTE

- *The above indications show the case of setting operation mode for “ZONE 3, GROUP 6”. The same setting procedure shall be performed for other groups.*
- *The temperature, fan speed and louver angle can be set while the unit is stopped or in operation.*

In Case of 4-Way Cassette Type (Example)

LCD Indication							
Air Louver Angle	Approx. 25°	Approx. 30°	Approx. 35°	Approx. 40°	Approx. 50°	Approx. 55°	Approx. 60°
Cooling / Dry							
	Angle Range						
Heat							
	Angle Range						

: Recommended Angle

NOTE

- *The fixing angle of the louver shown above is the case of 4-way cassette type indoor unit. The fixing angle is different according to unit model. Refer to the operation manual of each model for details.*
- *There exists a time lag between the indicated louver position on LCD and the actual louver angle in operation. Therefore, when fixing the louver, set the angle according to the indicated louver angle on LCD.*
- *When the "AUTO LOUVER" switch is depressed, the louver may not stop immediately.*

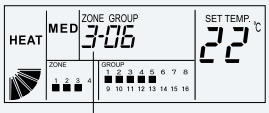
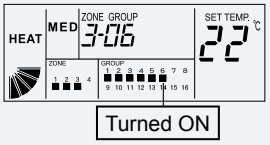
CAUTION

The louver angle is automatically changed during heating operation for unit control.

When heating operation is started When dry operation is started When temperature controller is activated	→	The louver angle is automatically changed. → When the discharged air temperature is increased over 30°C, the louver angle automatically return to the set position.

The LCD indication remains at the setting condition.

◆ Unit operation

1 Depress the "ZONE" switch and "GROUP" switch and select the setting target. (Refer to item 2 of "Setting Target Selection and Monitoring Unit Operation Status").	 The above figure shows the case of selecting "ZONE 3, GROUP 6".
2 Depress the "RUN/STOP" switch. In case that the selected group is in operation, the group is stopped by depressing "RUN/STOP" switch. In case that the group is not in operation, the group is started by depressing the "RUN/STOP" switch. In case of group "AA", depress the "RUN/STOP" switch, and; - All indoor units are stopped (when more than 1 group is in operation (Run lamp is ON)). - All the groups are started operation (When all the groups are stopped (Run lamp is OFF)).	 The above figure shows the case of "ZONE 3, GROUP 6".

NOTE

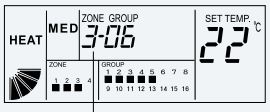
- *The above indications show the case of setting operation mode for "Zone 3, Group 6"*
- *The same setting procedure shall be performed for other groups. In case of the simultaneous operation for all groups, select the group number of "AA".*

◆ Prohibiting Operation by Remote Control Switch

<Function>

To prohibit the operation by the remote control switch.

When this function is available, the “CENTRAL” indication appears on the LCD on the remote control switch and the operation by the remote control switch is not available.

1 Depress the “ZONE” switch and the “GROUP” switch and select the setting target. (Refer to item 2 of “A. Setting Target Selection and Monitoring Unit Operation Status”).	 The above figure shows the case of selecting “ZONE 3, GROUP 6”.
2 Depress the “RMT. SW NAVL” switch. Every time the “RMT. SW NAVL” switch is depressed, the “RMT. SW NAVL” indication is turned ON and OFF alternately.	 The above figure shows the case of “ZONE 3,GROUP 6” prohibited from operating by the remote control switch.

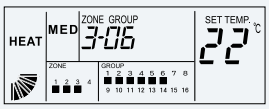
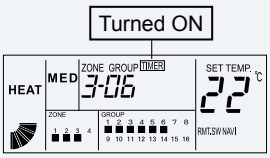
⚠CAUTION

- *The above indications show the case of setting operation mode for group 4. The same setting procedure shall be performed for other groups. In case of the same setting for all groups, select the group number of “AA”.*
- *Although the “RMT. SW NAVL” function is set, in case of operation by the central station, the unit can be stopped by the remote control switch, and in this case, the unit can be started again by the remote control switch.*
- *For the unit without remote control switch, the “RMT. SW NAVL” function shall be set.*
- *In case of using together with other controllers, do not set the “RMT. SW NAVL” function. Additionally, do not set the “RMT. SW NAVL” function by other controller or the malfunction may occur.*
- *In case of no setting of temperature (“- -”), the temperature can be set by the remote control switch during the “RMT. SW NAVL” function is available.*

◆ Timer Operation

<Function>

To set the schedule operation “available” or “not available” by the signal from the control timer in case of connection with the control timer (PSC-A1T; Option).
The schedule operation can be set “available” or “not available” individually for each unit, however, the operation schedule is all the same.

1 Depress the “ZONE” switch and the “GROUP” switch and select the setting target. (Refer to item 2 of “Setting Target Selection and Monitoring Unit Operation Status”).	 The above figure shows the case of selecting “ZONE 3, GROUP 6”.
2 Depress the “TIMER” switch. Every time the “TIMER” switch is depressed, the “TIMER” indication is turned ON and OFF alternately. The group with timer setting is operated according to setting schedule by the signal from the control timer.	 The above figure shows the case of “ZONE 3, GROUP 6” setting timer operation.

NOTE

- *The above indications show the case of setting operation mode for “ZONE 3, GROUP 6”*
- *The same setting procedure shall be performed for other groups.*

5.3.4.3 Input/Output function

The central station has two input functions and two output functions as shown below.

1 Simultaneous Operation/Stoppage.
This function is for operating / stopping all the indoor units of the group, which is set by the central station, by the external contact signal.

2 Simultaneous Operation.
This function is for operating all the indoor units of the group, which is set by the central station, by the external pulse signal.

3 Simultaneous Stoppage.
This function is for stopping all the indoor units of the group, which is set by the central station, by the external pulse signal.

4 Emergency Stop signal connection function.
This function is for stopping all the air conditioners connected with the central station by the external emergency stop signal.
* When other central controller is used together with, even in the state of emergency stop, the RUN/STOP operation by other central controllers is available.

5 Demand Control Function.
The peak-cut according to the electricity is available by the control of air conditioners with the control signal from the demand control. The group set by the central station is operated by the demand signal as follows.

Table A. Input / Output Setting Mode and Connector

<table>
<tr><th></th><th>Demand signal ON (1*)</th><th>Demand signal ON (2*)</th></tr>
<tr><td>Demand 1</td><td>Indoor Unit Stop
(Remote Control Inhibited)</td><td rowspan="2">Back to the former state of operation</td></tr>
<tr><td>Demand 2 (*3,*4)</td><td rowspan="2">COOL, DRY→FAN
HEAT→STOP
(Remote Control Inhibited)</td></tr>
<tr><td>Demand 3 (*3,*5)</td><td>The setting temperature is set as follows;
COOL, DRY...28ºC
HEAT...20ºC</td></tr>
</table>

- *1: The control is performed every 15 seconds for the zone, which is subject to demand control, in descending order of the zone Nº
- *2: The control is performed every 15 seconds for the zone, which is subject to demand control, in ascending order of the zone Nº
- *3: During automatic cooling/heating operation, the activation of “Demand 1” is executed.
- *4: For the group with the optional setting of fixing operation mode, the activation of “Demand 1” is executed.
- *5: For the group with the optional setting of fixing operation mode or fixing set temperature, the activation of “Demand 1” is executed.

6 Simultaneous Operation Output.
This function is for outputting signal outward in the case where there is any air conditioner in operation in the group set by the central station.

7 Simultaneous Alarm Output.
This function is for outputting signal outward in the case where there is any air conditioner in abnormal condition in the group set by the central station.

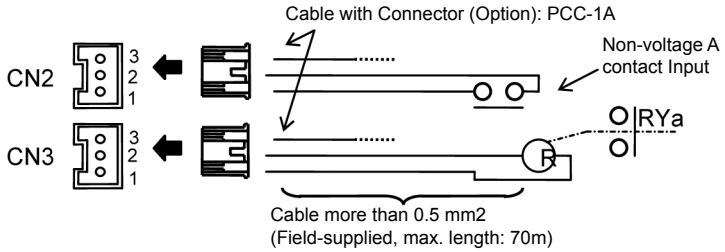
The input function is set by DSW2 as shown in the table below:

Function	DSW Pin Nº				Remarks
	1	2	3	4	
Simultaneous Operation/Stop-page (Level)	OFF	*	OFF	OFF	CN2 1-2 Pin Contact Con-nection
Simultaneous Operation/Stop-page (Pulse)	ON	OFF	OFF	OFF	CN2 1-2 Pin Contact Con-nection
Emergency Stop	OFF	ON	OFF	OFF	CN2 2-3 Pin Contact Con-nection
Demand 1~3	OFF	OFF	OFF	OFF	CN2 2-3 Pin Contact Con-nection

*Both ON and OFF setting are available. Set ON or OFF by the emergency stop or the demand function.

Specifications of Required Components:

- Input: DC12V,10 mA Non-voltage A contact (pulse with more than 300 ms)
- Output: OMRON MY Relay
- Cable: PCC-1A

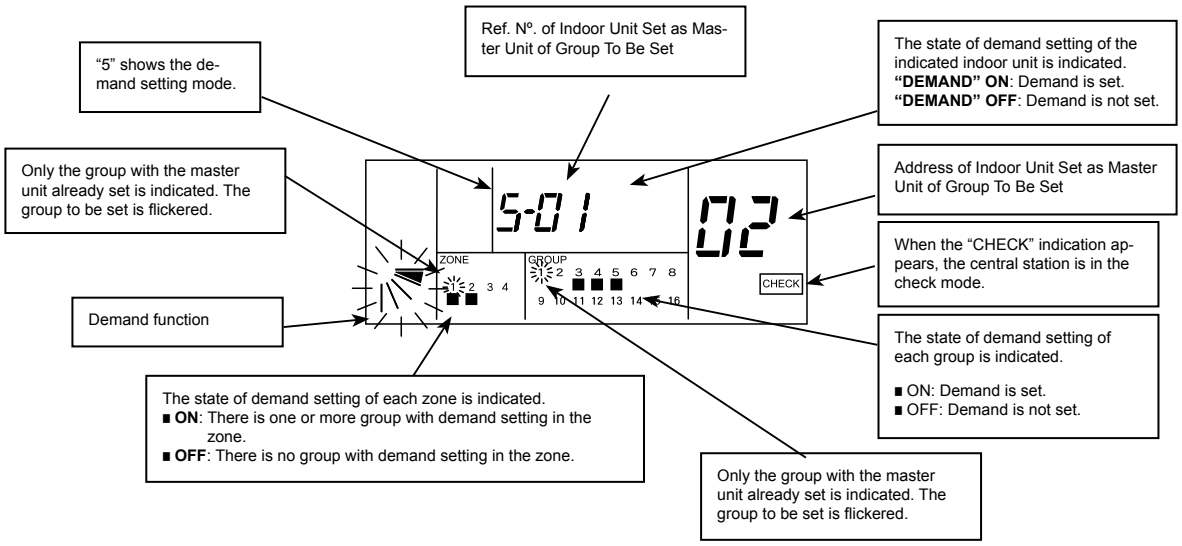


As for demand input, the group to be controlled can be set when signal is input.

◆ Demand setting procedure

1 Changing to Check Mode.
Depress the “CHECK” switch for more than 3 seconds, and the central station is changed to the check mode.
* When there is any group in operation (with “RUN” indicator ON), the “CHECK” mode is not available.

2 Changing to Demand Setting Mode.
Depress the “CHECK” switch and change the 7-segment indication for check to “5” (Demand Setting Mode). The LCD indication of the central station is as shown below.

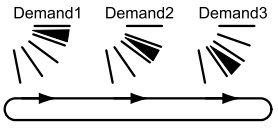


3 Selection of Demand Function.

a. Select the demand function by depressing the “LOUVER” switch.

b. Depress the “RUN/STOP” switch, and the flickering indication of louver angle turns ON.

By depressing the “LOUVER” switch, the indication of louver angle is changed as shown in right figure.



4 Selection of Group To Be Set
The demand function can be set for all the indoor units, each zone or each group.
The “■” indication of “GROUP”, for which the demand setting is already set, turns ON.
In the case where there is one or more group with demand setting in the zone, the “■” indication of “ZONE” section turns ON.

- Simultaneous Setting for all Indoor Units

a. Depress the “ZONE” switch to make all the zone Nº. flicker. Then, the minimum refrigerant system address and the minimum indoor unit address of the indoor unit, which is set as the master unit, in all groups are indicated.

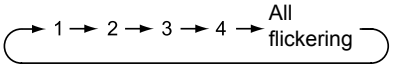
- Setting for each Zone

a. Depress the “ZONE” switch and select the zone to set.

b. Depress the “GROUP” ∨∧ switch to make the group Nº to set flicker. Then, the minimum Ref. Nº and the minimum I.U. Add. of the indoor unit set as the master unit of all groups are indicated.

[Zone Selection]

Depress the “ZONE” switch, and the flickering indication of zone Nº is changed in order as shown below.



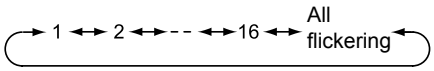
* Only the zone Nº to set is indicated.

* When selecting the all flickering state (Simultaneous Operation for all Indoor Units), the groups to set are automatically fixed at the all flickering state. For selecting the group, select the indication state except all flickering.

- Setting for Each Group
  - **a.** Depress the “ZONE” switch and select the zone to set.
  - **b.** Depress the “GROUP” ∨∧ switch to select the group to set. Then, the Ref. Nº and I.U. Add. of the indoor unit set as the master unit of selected group are indicated.

[Group Selection]

Depress the “GROUP” ∨∧ switch, and the flickering indication of group Nº is changed in order as shown below.



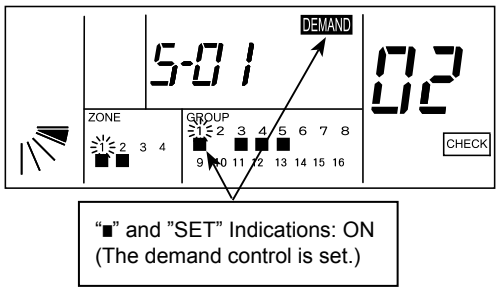
* Only the group Nº to set is indicated.

5 Setting Procedure

Depress the “RUN/STOP” switch and the selected group is set with demand control, and the “■” and “DEMAND” indications appear.

In the case where there is one or more group with demand setting in the zone, the “■” indication of zone turns ON.

(Every time the “RUN/STOP” switch is depressed, the demand control is set and canceled alternately.)



5.3.4.4 Option setting

◆ Changing to Option Setting Mode

1 Depress the “CHECK” switch for more than 3 seconds while all the groups are stopped. The central station is changed to the option setting mode and the “CHECK” indication appears, and “1” (Master Unit Setting Mode) is indicated on the 7-segment for check.

⚠ ATTENTION

When there is a group in operation, the central station can not be changed to the check mode.

2 Depress the “CHECK” switch and change the indication of the 7-segment.

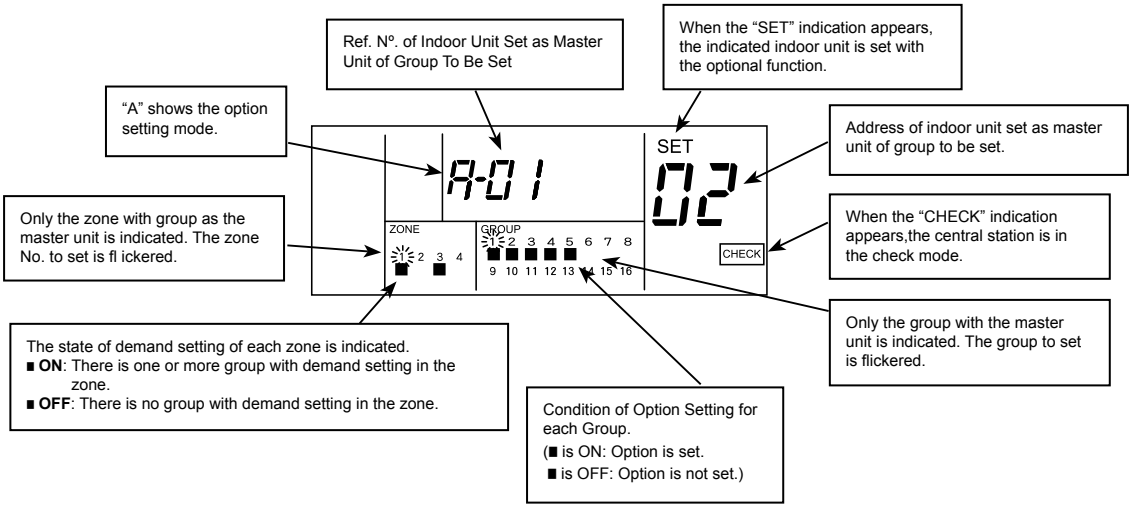
7-Segment	Function
A	Fixing Operation Mode
b	Fixing Setting Temperature
c	Fixing Cooling Only
d	Fixing Air Flow
E	Auto COOL / HEAT

3 Depress the “RESET” switch and the central station is changed to the normal mode.

◆ Indication of Option Setting Mode

When the central station is changed to the slave unit setting mode, the LCD indication on the central station is as shown below. The indication of the group to be set is flickered. The Ref. Nº and I.U. Add. indicates the address of the indoor unit which is set as the master unit of the group to be set. The "■ " indication of group flickers in case that the option setting is already done.

When the "SET" indication appears, the indoor unit indicated on LCD is already set with the optional function.



◆ Setting Procedure

a. Depress the "CHECK" switch and select the setting item A – E.

b. Select the group to be set by depressing the "ZONE" switch and the "GROUP" switch.
Refer to the "Group setting procedure", for the group selection procedure.

c. Depress the "RUN/STOP" switch, the selected group is subject to option setting and the "■" indication and the "SET" indication turn ON.
When there is one or more group with indoor unit set with option in the zone, the zone indication "■" turns ON.
Every time the "RUN/STOP" switch is depressed, the "■" indication and the "SET" indication turn ON and OFF alternately, and the state of option setting is changed; the selected group is to be set/not to be set with option setting.

⚠ CAUTION

- *In case that the optional functions are set by the central station, it is required to set the same optional functions for the group by the remote control switch.*
- *In case that the optional functions (items A – E as shown above) are set by the remote control switch, it is required to set the same optional functions for the group by the central station.*
- *The group, which is set with both of the fixing set temperature (option setting) and "Demand 3" function, is back to the former set temperature (before Demand ON) when the demand signal is OFF.*

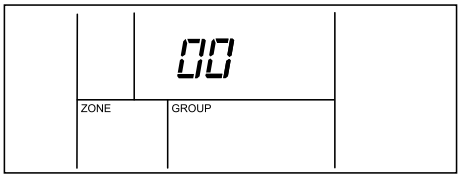
5.3.4.5 Initialization of central station

The procedure for initialization of the group setting and the optional setting is as follows.

◆ Changing to self check mode

Depress the “GROUP (∨∧)” and ”MODE” switches simultaneously, the central station is changed to the self check mode. In case that there is a group in operation, the “NO FUNCTION” is indicated and the central station can not be changed to the self check mode.

After changing to the self check mode, the LCD indication is changed as shown below. Then, depress the “GROUP(∨∧)” and “MODE” switches simultaneously again, and the central station is changed to the initializing mode.



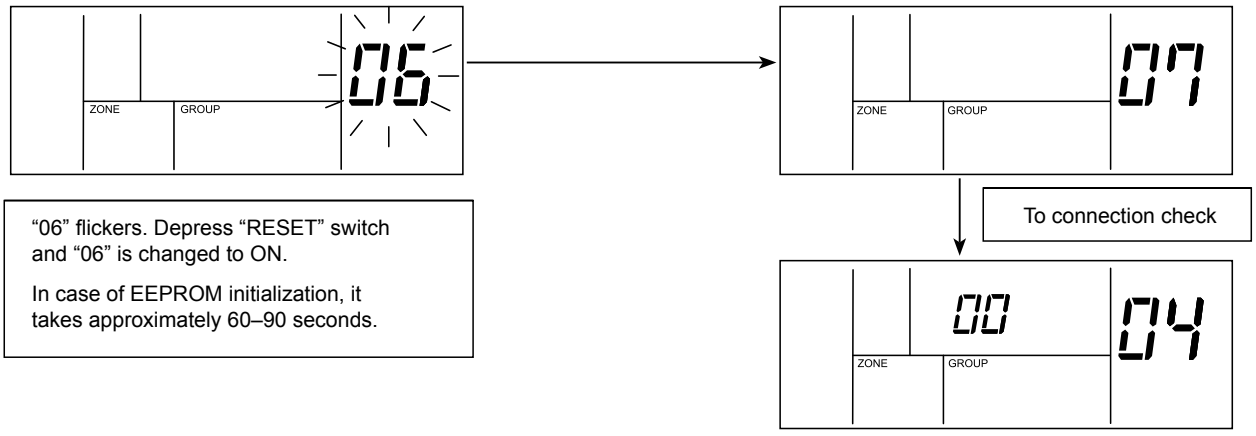
NOTE

In case that the “GROUP (∨∧)” and ”MODE” switches are not depressed again, the self check operation continues.

◆ Initialization of EEPROM

When the central station is changed to the initializing mode, the LCD indication on the central station is as shown below. In this condition, depress the “RESET” switch, and the flickering “06” indication is changed to ON and the initialization is performed.

(In case that initialization is not required, depress the “CHECK” switch, the LCD indication is automatically changed as shown below.)



5.4 PSC-A16RS

5.4.1 Safety summary

DANGER

- ***DO NOT pour water into the centralised ON/OFF controller. This product is equipped with electrical parts. If poured, it will cause a serious electrical shock.***
- ***DO NOT perform installation work and electrical wiring connection by yourself. Contact your distributor or dealer of HITACHI and ask them for installation work and electrical wiring by service person.***
- ***When performing the insulation test, withstand voltage test and so on, ensure to remove the FG terminal connection of TB1. If performing aforementioned test with the FG terminal connected, the malfunction will occur.***
- ***DO NOT turn OFF the power supply within 3 minutes after operation by the controller. It may cause the malfunction.***

CAUTION

DO NOT install the indoor unit, outdoor unit, remote control or any wiring in the following locations:

- *Where there are oil vapours and the oil is dispersed.*
- *In the proximity of hot water or heat sources or in sulphuric environments.*
- *In locations prone to the generation, accumulation, leakage or flow of flammable gas.*
- *Close to the sea (saline atmospheres).*
- *In acidic or alkaline environments.*
- *Within the reach of children.*
- *Directly in front of the air-conditioning system outlet.*
- *To avoid electromagnetic compatibility problems, DO NOT install the indoor unit, outdoor unit, remote control or any wiring within 3m of strong sources of electromagnetic radiation (e.g. waves generated by medical equipment). If the system should be installed in a location where electromagnetic waves are produced, protect the remote control and wiring by covering them with the steel casing and passing the cable through the metal duct.*
- *If electrical noise should be generated at the indoor unit power source, install a noise filter.*

CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle this appliance properly and safely.*
- *Children should be supervised to ensure that they do not play with the appliance.*

5.4.2 Installation

5.4.2.1 Installation site selection

Take note of the maximum admissible cable length between units and the control as well as between the units themselves, as shown in the following table:

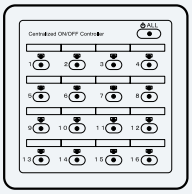
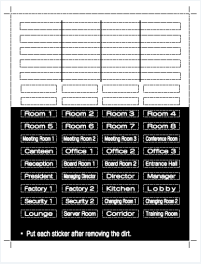
Cable section	0.3 mm^2	≥ 0.75 mm^2
Cable length	30 m	500 m

5.4.2.2 Components list

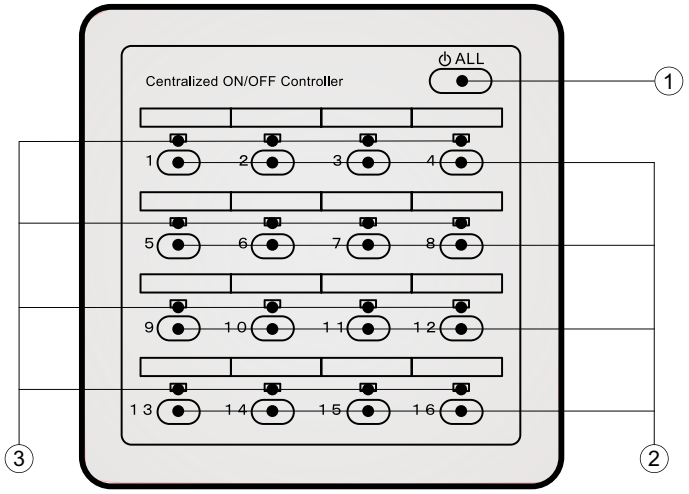
Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

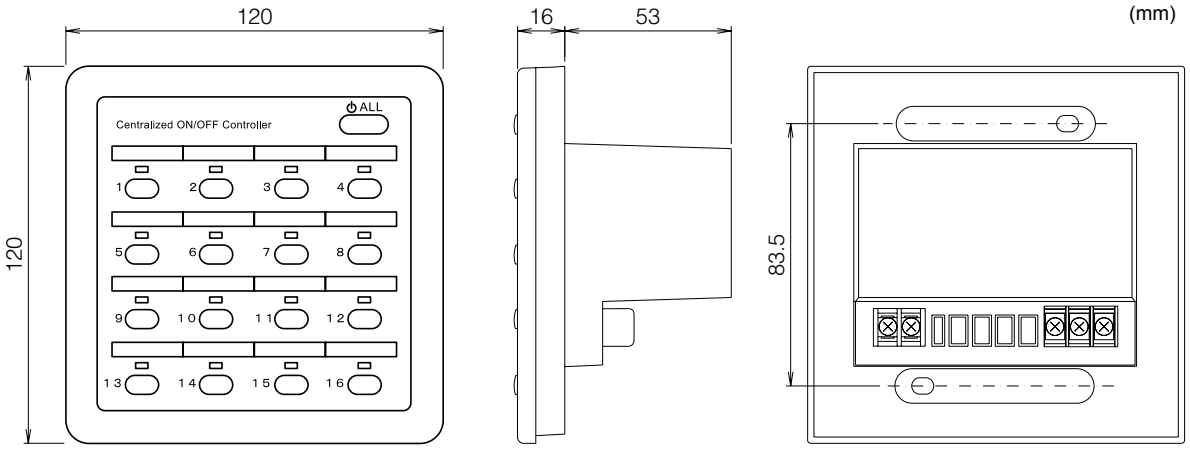
Name		Quant.	Comments
Centralised ON/OFF Controller		1	For managing the run/stop state of up to 16 groups of units
M4x16L screws		2	For fixing the centralised ON/OFF controller to the wall
Seal		1	For attaching nameplate
Installation and operation manual		1	Installation and operation unit instructions.

5.4.2.3 Description of the parts



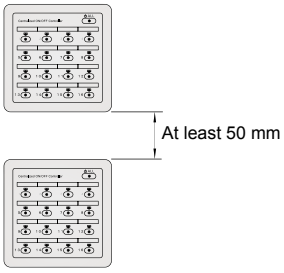
No.	Description
①	Simultaneous RUN/STOP Switch This switch is for ordering the simultaneous operation/stoppage to all groups. Depressing this switch when there is any group in operation, all the group is stopped simultaneously. Depressing this switch when all the group is stopped, all the group is started operation simultaneously.
②	Individual RUN/STOP Switch This switch is for ordering the operation/stoppage of the air conditioner. Depressing this switch when the air conditioner, which is stopped, is started operation and the air conditioner in operation is stopped.
③	Individual Operation Lamp (Red) The operation state of the air conditioner is indicated. • ON: Operation • OFF: Stoppage • Flickering: Abnormal

5.4.2.4 Dimensional data



5.4.2.5 Installation space

If several control units are to be installed in a vertical position, leave a distance of at least 50 mm between them to allow the front cover to be opened and to insert the tool for removing the control from its housing.

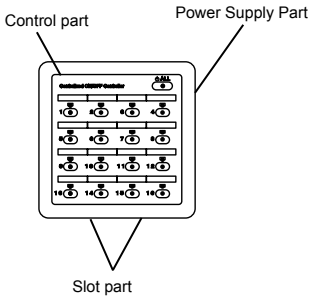


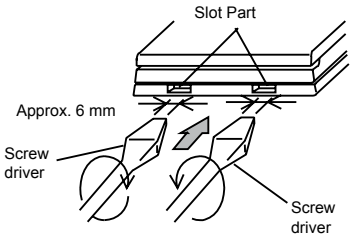
5.4.2.6 Installation procedure

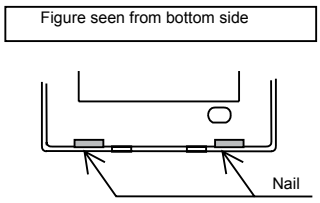
DANGER

Ensure to fix the centralised ON/OFF controller according to this manual. The incorrect installation will cause personal injury due to the fall of the centralised ON/OFF controller

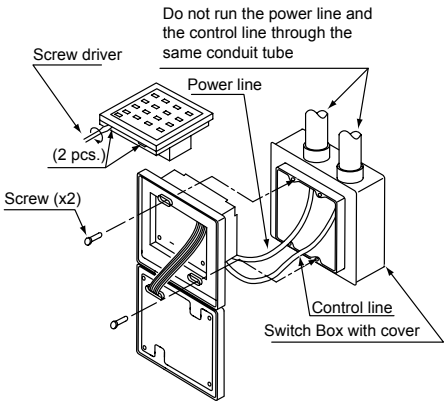
1 Insert the edge of the screwdriver into the slot parts at the bottom of the case, push and turn the screw-driver and remove the control part from the power supply part. Do not insert the screwdriver into the nail near the slot part, or the nail will be damaged.





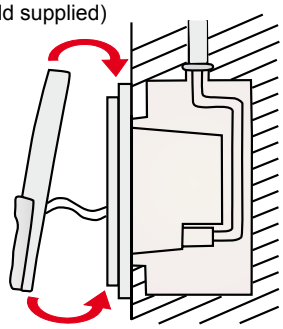


2 Attach the power supply part to the switch box.



3. Attach the control part onto the power supply part. At first, attach the upper side, and then the lower side.

(Field supplied)

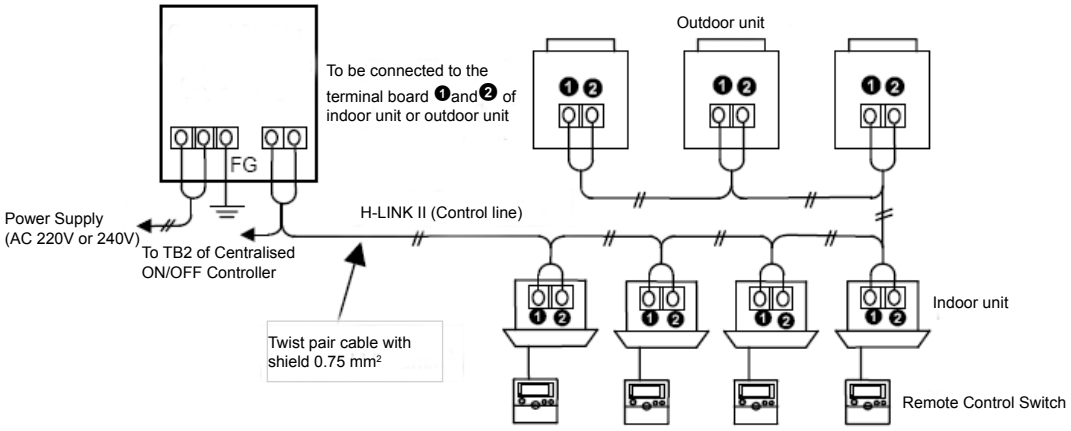


5.4.3 Electrical wiring

◆ Electrical wiring connection

Up to 8 centralised ON/OFF controllers can be connected to the H-LINK II (Control Line).

Use the 2-core cable of 0.75-1.25 mm² or the 2-core twist pair cable (Max. 1,000 m) for the transmission cable for the centralised ON/OFF controller, for the outdoor unit and between indoor units (DC5V). The maximum total length of the cables shall be within 1,000m.



◆ DIP switch setting

Set the dip switches as shown below.

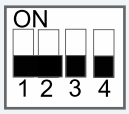
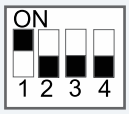
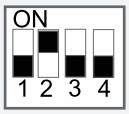
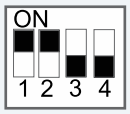
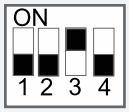
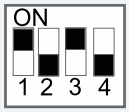
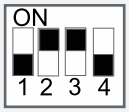
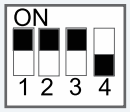
The address setting is required only if multiple centralised ON/OFF controllers (Max. 8 units) are connected to the H-LINK(Control Line). (The setting of dip switches is all OFF before shipping).

	Pin No.	Contents	Setting of DSW		Remarks
			OFF	ON	
SW18	1	For Address Setting	Refer to the SW18 table.		For connecting plural centralised ON/OFF controllers with H-LINK (control line), the address setting for each centralised ON/OFF controllers is required. (*)
	2				
	3				
	4	Not In Use	-	-	Set SW18-4 pin OFF.
SW19	1	External Input 1 Function Changeover Operation Stoppage Level / Pulse	Level	Pulse	Available only when the SW19-1 pin is OFF. Pulse Stop when the SW19-1 pin is ON.
	2	Simultaneous Use of Other Centralised Controller	No	Yes	When using the following centralised controllers simultaneously, set the SW19-2 pin ON. Central Station III-S Central Station W Central Station Web
	3	Not In Use	-	-	Set SW19-3 pin OFF.
	4	H-LINKII Adaptive	Adaptive	Non-Adaptive	Set SW19-4 pin OFF: H-LINK II adaptive. Set SW19-4 pin ON: Non-H-LINK II adaptive.

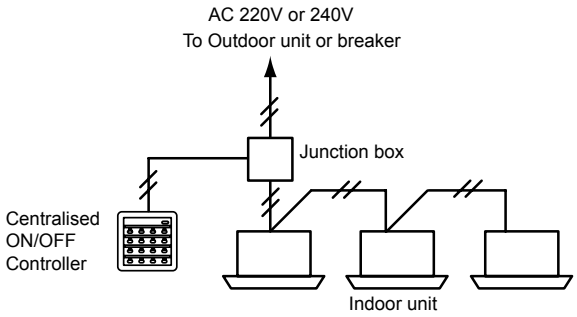
NOTE

(*): When using the multiple centralised ON/OFF controllers in the same H-LINK (control line) system, set the SW18 not to be overlapped.

SW18 (Address Setting)

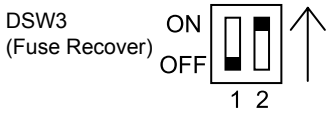
Address 0	Address 1	Address 2	Address 3
			
Address 4	**Address 5**	**Address 6**	**Address 7**
			

Split the central control power supply line from the main power supply line using a junction box, as shown in the following diagram:



⚠ CAUTION

- *Before installing the wiring, switch off the power supply to the air conditioning system and centralised ON/OFF controller. Installing the wiring while the centralised ON/OFF controller power supply is switched on may cause the centralised ON/OFF controller to malfunction.*
- *Check to ensure that the wiring is correct. Incorrect wiring may cause malfunction of the centralised ON/OFF controller.*
- *DO NOT run all the transmission cable for the centralised ON/OFF controller along the power line and other transmission cables, or malfunction may occur due to the noise, etc. If the transmission cable for the centralised ON/OFF controller is required to be run along the power line and other transmission cables, separate the cable more than 30 cm away from other cables, or run the cable through a metal tube and earth the tube.*
- *In case of applying high voltage to the TB2, the fuse on the PCB is blown out. In such a case, firstly correct the wiring to TB1, and then set Nº.2 pin ON.*



- *Connect the shield tube of cable to earth.*

5.4.4 Operation

5.4.4.1 Test run

◆ Preparation

- Ensure to perform the test running of air conditioner before turning ON the power supply of the centralised ON/OFF controller.
- Check to ensure that the setting temperature is indicated on the remote control switch after the test running of air conditioner.
  (If the setting temperature is not indicated on the remote control switch, the test running of the centralised ON/OFF controller is not available.)

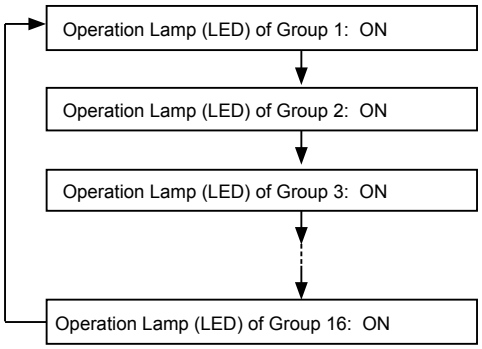
1 Perform the group recognition according to the following procedures.

a. After the operation check of air conditioner, turn ON the power supply of air conditioner.

b. Turn ON the power supply of the centralised ON/OFF controller and reset.

c. The operation lamp (LED) turns ON and the connection check is started. The group recognition is completed when all the operation lamp turns OFF.

- Flowchart of Operation Lamp (LED) Lighting State



During connection check, the operation lamp (LED) turns ON as shown above and repeats several times. When the connection check of all 16 groups is completed before the refrigerant cycle address 16, the lighting state is back to the beginning; “Operation Lamp (LED) of Group 1: ON”.

* When all the operation lamp (LED) flickers quickly (cycle: 0.25sec. ON/0.25sec. OFF), the setting of H-LINK adaptive / non-adaptive is incorrect. Check for the setting of the centralised ON/OFF controller and other centralised controller used together.

2 Check the group.

a. Check to ensure that the group recognition is correct by operating air conditioner from group 1 in order.

b. When the actual operation corresponds to the group setting, it is considered that the group recognition is correct.

c. If the actual operation does not correspond to the group setting, the connection is incorrect. Turn OFF the power supply of the centralised ON/OFF controller, check for the following items and correct the wiring connection and the setting.

- Is the power supply turned ON and the wiring connection correct?
- Is the setting of the indoor unit address and the refrigerant cycle address correct?
- Is the address setting of the centralised ON/OFF controller correct?

d. After correcting the wiring connection and the setting, turn ON the power supply of the indoor unit and the outdoor unit, and reset the centralised ON/OFF controller.

◆ Resetting of Centralised ON/OFF Controller

1 Depress the switches “15” and “16” simultaneously for 3 seconds when all group is stopped. The operation lamps (LED) of the group 15 and 16 is turned ON.

2 Depress the switches “15” and “16” simultaneously again. The operation lamp (LED) of the group 16 flickers, then depress the switch “2” and confirm that the operation lamp(LED) of the group 6 is turned ON.

3 When the resetting of centralised ON/OFF controller is completed, all the operation lamp (LED) is turned OFF, and the group recognition is started again.

⚠CAUTION

DO NOT perform the resetting within 3 minutes after the operation order from the centralised ON/OFF controller is performed. If the resetting is performed within 3 minutes, the remote control switch may be in the state of centralised control. When turning OFF the power supply of the centralised ON/OFF controller within 3 minutes, the same consequence may occur.

5.4.4.2 Group setting

For group setting with the centralised ON/OFF controller, the remote control switch is required. When using with other centralised controllers, the remote control switch is also required.

In case that there are indoor units with auto-louver and indoor units without auto-louver in the same group, the address of the smaller number in the remote control switch group shall be applied for the indoor units with auto-louver. If the address of the smaller number is applied for the indoor units without auto-louver, the setting of auto-louver is not available for the remote control switch group.

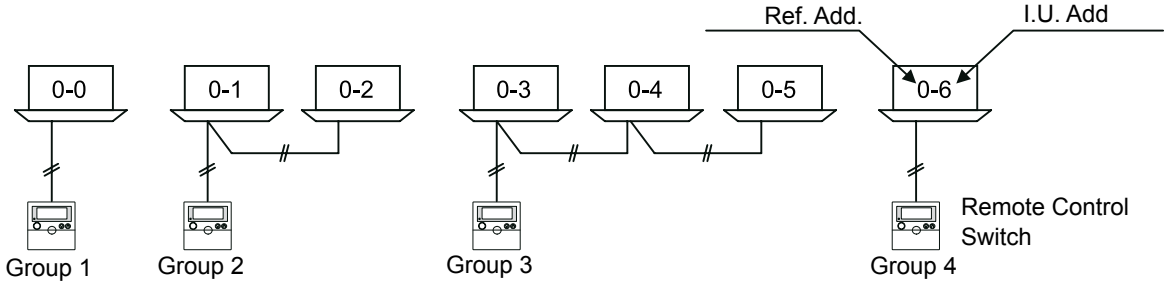
5

◆ Case 1: Group Setting by Centralised ON/OFF Controller Alone

Group setting

1 The centralised ON/OFF controller has no function of group setting itself. The group setting is automatically performed according to the address setting of the indoor unit.

2 The group of indoor units controlled by the same remote control switch is regarded as one group. Therefore, in the case where the remote control switch is connected individually with each indoor unit, one unit is regarded as one group as shown below.



3 Up to 8 centralised ON/OFF controllers can be connected to the same H-LINK (Control Line) system. For connection of multiple centralised ON/OFF controllers, provide address for each centralised ON/OFF controller by setting the dip switch (SW18) inside of the centralised ON/OFF controller.

4 The group setting of the centralised ON/OFF controller is performed in order, from the indoor unit with the smallest address number, and finished on the following conditions.

- When the group setting up to 16 groups is completed.
- When there is no indoor unit in the same refrigerant cycle.
- When the serial numbered address of the indoor unit breaks off, and there are indoor units with continued address number in the same refrigerant cycle.

5 In the case where the multiple centralised ON/OFF controllers are connected in the same H-LINK (Control Line) system, the group setting is performed in order from the centralised ON/OFF controller No. 0. After completion of the group setting of the centralised ON/OFF controller No. 0, the group setting of the centralised ON/OFF controller No. 1 is started, and the group setting is continued in order of the number of centralised ON/OFF controller.

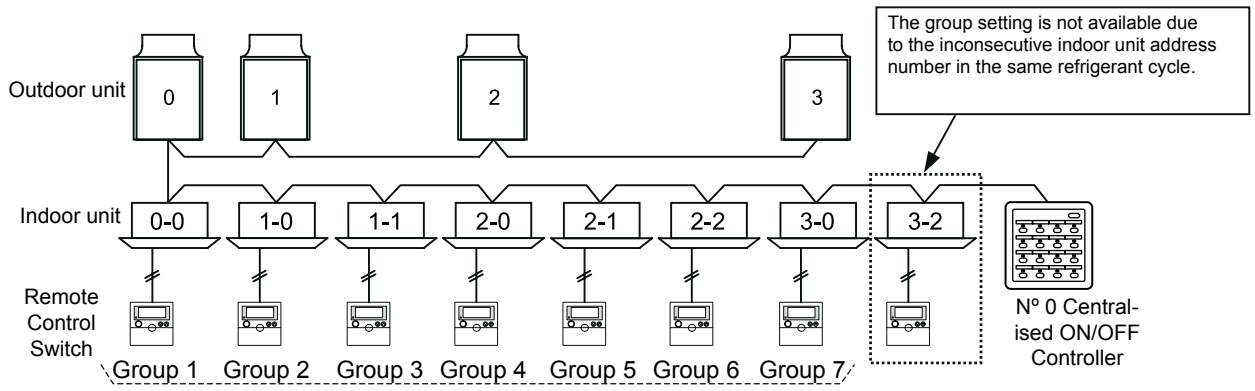
I.U. Add. / Ref. Add.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	...
0	G1	G2 Remocon Group		G3 Remocon Group			G4	G5	G6	G7	G8										
1									G9	G10	G11	G12	G13	G14	G15	G16	G1	G2			
2			G3	G4	G5	G6	G7	G8	G9	G10											
3																					
4	G1	G2	G3	G4	G5	G6	G7	G8													
5	G9	G10	G11	G12		G1	G2	G3	G4	G5	G6										
6	G7	G8																			
...																					

NOTE

"G1 to G16" indicates the group number set for the centralised ON/OFF controllers

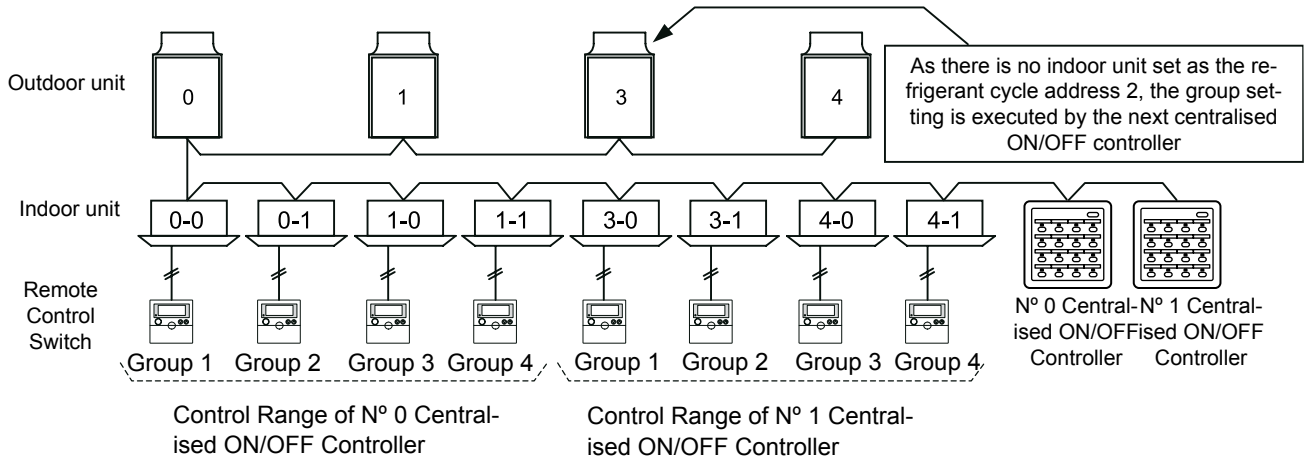
Examples of Group

1 In the case where the remote control switch is connected to each indoor unit.

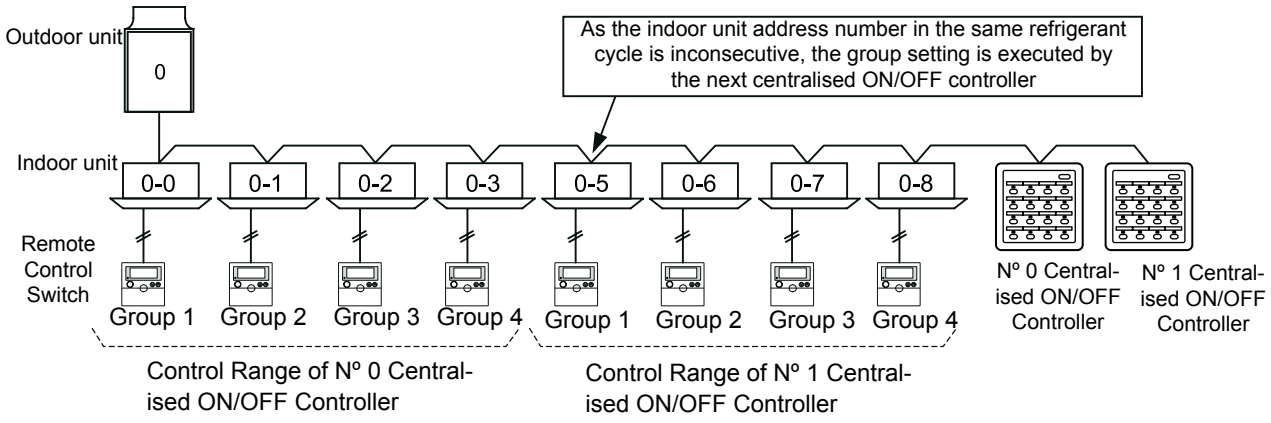


Control Range of Nº 0 Centralised ON/OFF Controller

2 In the case where there are multiple centralised ON/OFF controllers:

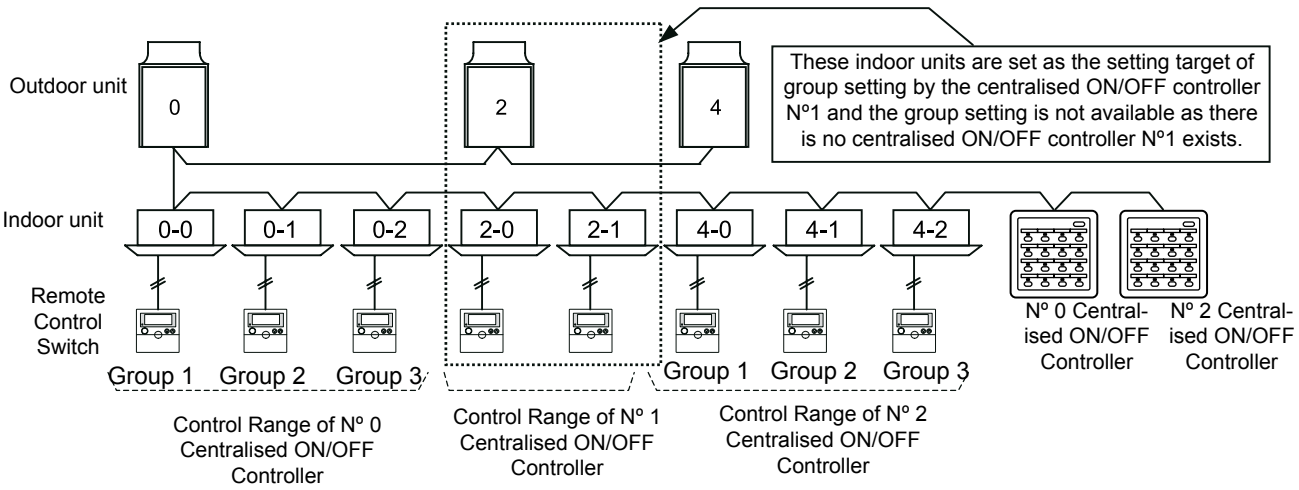


3 In the case where the indoor units in the same refrigerant cycle are controlled by different centralised ON/OFF controllers:

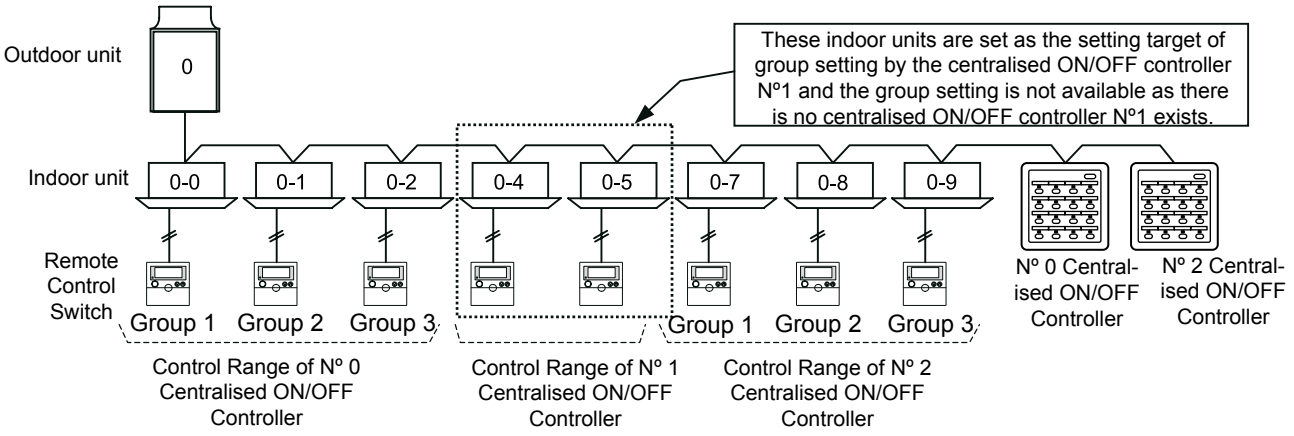


4 In the case where there is any indoor unit not to control by the centralised ON/OFF controller. Exclude the intended indoor unit from the setting target of group setting by the address setting of the centralised ON/OFF controller.

a. Set the intended indoor unit with the inconsecutive refrigerant cycle address number.



b. Set the intended indoor unit with the inconsecutive indoor unit address number.



◆ Case 2: Group Setting for Centralised ON/OFF Controller with group information of central station (PSC-A64S)

Set up the centralised ON/OFF controller with the same group information of the central station (PSC-A64S). In this case, the group information for Zone 1 of Central Station No. 0 is provided to the centralised ON/OFF controller.

⚠CAUTION

- *This function is available only when the central station (PSC-A64S) is used together in the same H-LINK (Control Line) system.*
- *When the central station is other than No. 0 and/or belongs to other than Zone 1, the group information of the central station is not provided to the centralised ON/OFF controller.*
- *When the group setting is executed by this function, the former group information will be deleted.*

1 Group Setting of Central Station

The group setting is performed for Zone 1 of the central station No. 0. Refer to the “Installation & Maintenance Manual” of the central station for the procedures of group setting.

2 Group Setting of Centralised ON/OFF Controller

a. Depress the switches “1” and “16” simultaneously for 3 seconds in the state where all the operation lamp (LED) of the centralised ON/OFF controller is OFF. Then, the operation lamp of Group 1 flickers, and the group setting is started. If there is any group in operation (with the operation lamp ON), the group setting is not available. Stop all the operation and perform the group setting again.

b. When the group setting is completed normally, all the operation lamp (LED) is turned ON for 3 seconds. If failed, all the operation lamp flickers.

NOTE

In the case where the group setting fails to complete normally, check to ensure that the following items are satisfied and perform the group setting by the centralised ON/OFF controller again.

- *The central station is connected to the same H-LINK (Control Line) system where the centralised ON/OFF controller is connected.*
- *The power is distributed to the central station and the liquid crystal display is appeared.*
- *The address of the central station is No. 0 (DSW1-1 to 3 pin: OFF).*
- *The group setting is performed for Zone 1 of the central station No. 0 (main unit and slave unit).*

⚠CAUTION

- *The remote control switch is required to control indoor units by the centralised ON/OFF controller.*
- *The remote control switch is required when other centralised controller is used together.*
- *The operation by the centralised ON/OFF controller is not available during the process of group setting.*

5.4.4.3 Operation selection procedure

◆ Individual operation/stoppage

- **Preparation 1**

Supply power to the unit.

⚠CAUTION

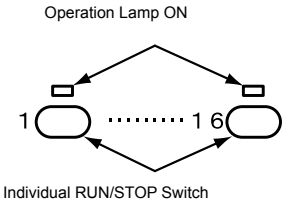
- *Supply power to the unit more than 6 hours before unit operation for compressor protection.*
- *Do not cut OFF power during the term of using air conditioner.*

- **Preparation 2**

Supply power to the centralised ON/OFF controller after the preparation of the unit is completed.

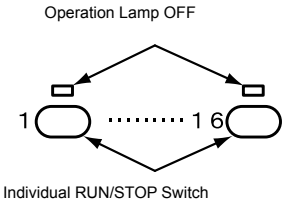
- **Operation**

Depress the individual RUN/STOP switch of the room (group) No. to operate/stop. The operation lamp corresponding to the depressed switch is turned ON, and the air conditioner is started operation.



- **Stoppage**

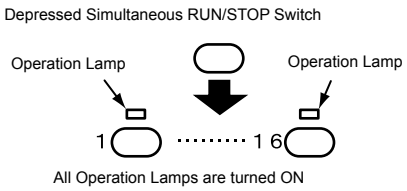
Supply power to the centralised ON/OFF controller after the preparation of the unit is completed.



◆ Simultaneous operation/stoppage

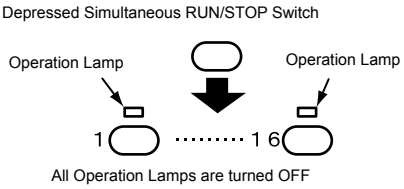
- **Operation**

Depress the simultaneous RUN/STOP switch when 16 rooms (16 groups) is stopped. The operation lamp of 16 rooms (16 groups) is turned ON, and all the air conditioner of 16 rooms (16 groups) is started operation simultaneously.



- **Stoppage**

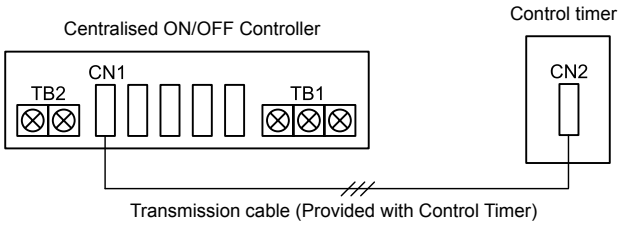
Depress the simultaneous RUN/STOP switch when one or more room (group) is in operation. The operation lamp of the room (group) in operation is turned OFF, and the air conditioner of the room (group) in operation is stopped operation.



5.4.4.4 Schedule control function

The centralised ON/OFF controller, connecting to the control timer, can control the running schedule of “RUN/STOP” operation three times a day for a week.

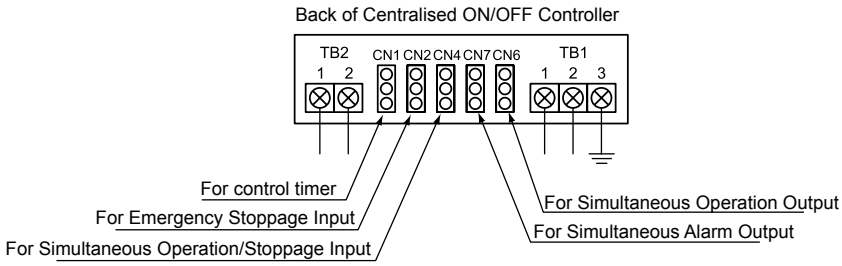
The “RUN/STOP” operation is controlled simultaneously, and the schedule control for each group is not available.



5.4.4.5 External input/output function

The centralised ON/OFF controller has two input / output function shown as below:

Mode	Port	Setting
Input 1	CN2 1-2 Pin	Emergency Stop
Input 2	CN4 2-3 Pin	Simultaneous Operation / Stoppage (Level Signal) or Simultaneous Operation (Pulse Signal)
Input 3	CN4 1-2 Pin	Simultaneous Stoppage (Pulse Signal)
Output 1	CN6 1-3 Pin	Simultaneous Operation Output (DC12V)
Output 2	CN7 1-3 Pin	Simultaneous Alarm Output (DC12V)



The input function is set by the dip switch (SW19) as follows:

1 Simultaneous Operation/Stoppage

This function is for operating/stopping all the indoor units of the group, which is set by the centralised ON/OFF controller, by the external contact signal.

2 Simultaneous Operation

This function is for operating all the indoor units of the group simultaneously, which is set by the centralised ON/OFF controller, by the external pulse signal.

3 Simultaneous Stoppage

This function is for stopping all the indoor units of the group simultaneously, which is set by the centralised ON/OFF controller, by the external pulse signal.

4 Transmission Function of Emergency Stop Signal

This function is for stopping all the air conditioners connected to the centralised ON/OFF controller by the external emergency stop signal.

* When other centralised controller is used together, even in the state of emergency stop, the RUN/STOP operation by other central controllers is available.

5 Simultaneous Operation Output

This function is for outputting signal outward in the case where there is any air conditioner in operation in the group set by the centralised ON/OFF controller.

6 Simultaneous Alarm Output

This function is for outputting signal outward in the case where there is any air conditioner in abnormal condition in the group set by the centralised ON/OFF controller. The input function is set by the dip switch SW19-1 as follows:

Function	Setting of SW-19-1	Remarks
ALL RUN/STOP (Level)	OFF	CN4: 2~3 Pin Connection
ALL RUN (Pulse)	ON	CN4: 2~3 Pin Connection
ALL STOP (Pulse)		CN4: 1~2 Pin Connection

Specifications of Required Components:

- Input: Non-Voltage A Connection (DC12V)
- Output: DC12V
- OMRON MY Relay (Recommended)
- PCC-1 Cable (Option): For Connection of External Input/Output

⚠CAUTION

Use the cable more than 0.3 mm2 (Field-Supplied, Maximum Length: 70m) for Input/Output.

6. Building air conditioning controls

Index

6.1 CSNET WEB (PSC-A160WEB1)

6.1.1 Safety summary

HITACHI cannot anticipate every possible circumstance that might involve a potential hazard.

DANGER

- ***DO NOT pour water into the remote controller. This product is equipped with electrical parts. If poured, it will cause a serious electrical shock.***
- ***DO NOT perform installation work and electrical wiring connection by yourself. Contact your HITACHI distributor or dealer and ask them for installation work and electrical wiring by service person.***
- ***Do not connect the electrical power to the control system until the preparation for the trial operation has been finalized successfully.***

CAUTION

- *DO NOT install the PSC-A160WEB1 in places as:*
  - Where there is oil vapour and the oil is dispersed.
  - Where the hot springs are near (in a sulphuric environment).
  - Where generation, flowing, staying or leaking of flammable gas is detected.
  - Where the sea is near (in the salty environment).
  - An acid or alkaline environment.
- *DO NOT install the indoor unit, outdoor unit, controller and cable within approximately 3 meters from strong electromagnetic wave radiators such as medical equipment. In case that the controller is installed in a place where there is electromagnetic wave radiation, shield the controller and cables by covering with the steel box and running the cable through the metal conduit tube.*
- *In case that there is electric noise at the power source for the indoor unit, provide a noise filter.*
- *Use specified cables to connect between indoor unit and remote control switch. Selecting incorrect cables may lead to fire or electrical shock.*
- *Use a power circuit which is not subject to surges in demand.*

NOTE

- *The installer and system specialist shall comply with local regulations or standards for the safety. The following standards may be applicable, if local regulations are not available. International Organization for Standardization, ISO5149 or European Standard, EN378 or Japan Standard, KHKS0010.*
- *Perform electrical work according to the Installation Manual. As for the electrical wiring work and check, turn OFF the main power supply before opening/closing the service cover of indoor unit. If service cover is opened with main power supply left on, it may result in an electrical shock.*
- *It is assumed that this control remote will be operated and serviced by English speaking people. If this is not the case, the customer should add safety such as and operating signs in the native language for non English speakers.*
- *This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.*
- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle this appliance properly and safely.*
- *Children should be supervised to ensure that they do not play with the appliance.*
- *Important: read and understand this manual before using this remote controller.*

If you have any questions, contact your HITACHI distributor or dealer.

6.1.2 System description

6.1.2.1 Distributed system

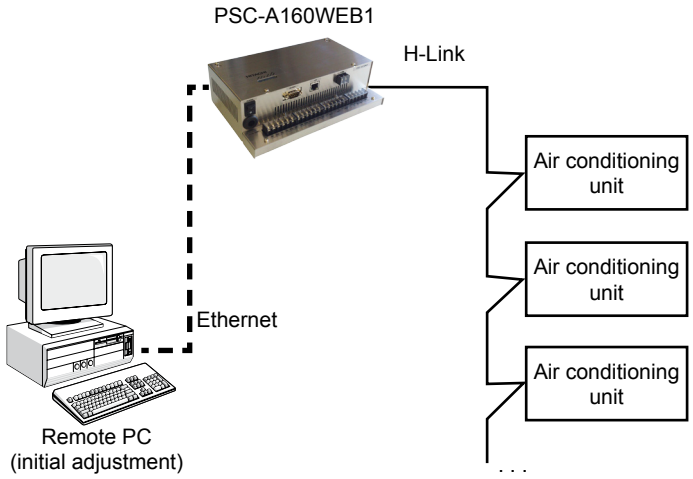
CSNET WEB is an independent centralised control system which can control an H-LINK communication line. When it is connected to a system with Packaged units, it can control up to 160 indoor units and 64 outdoor units.

CSNET WEB connects to a Local Area Network or Internet (using a DSL Router) by means of its Ethernet port, so that the parameters can be adjusted and monitored at a distance.

The internal memory for adjustments to the timer and the units allows CSNET WEB to perform independently after initial adjustment through a personal computer or similar device.

CSNET WEB does not need a dedicated computer to operate.

The physical device (hardware) of CSNET WEB is called PSC-A160WEB1.



NOTE

An initial adjustment is always required.

6.1.2.2 CSNET WEB Network

Up to 4 CSNET WEB servers can be connected to a CSNET WEB client thus forming a CSNET WEB network. This network should be configured from Local Computer Configuration.

6.1.2.3 Based on Java technology

CSNET WEB uses JAVA technology to control and monitor remotely operation of the installation.

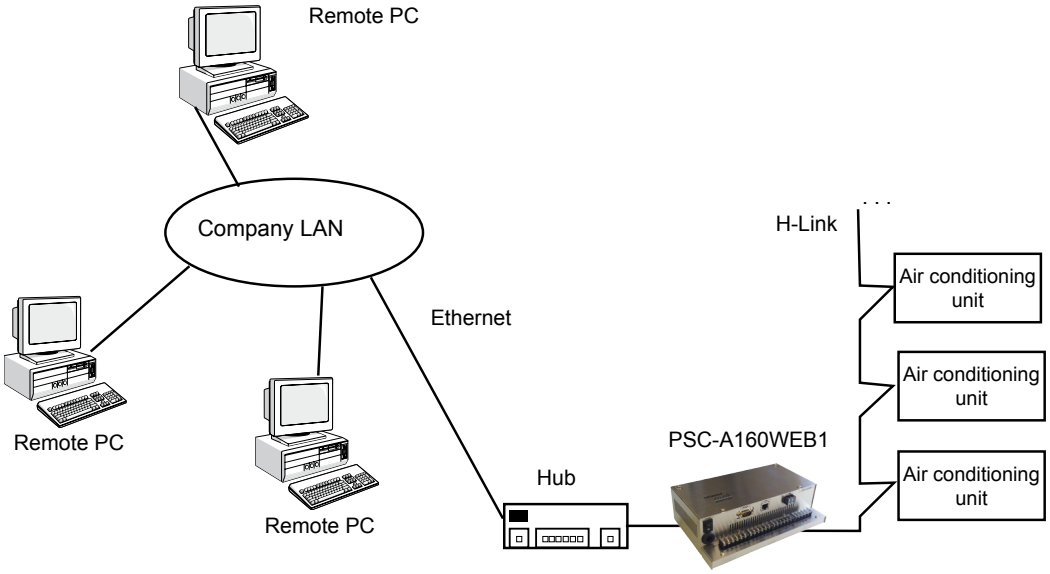
If you want the CSNET WEB application to run in a PC, JAVA J2SE Runtime Environment must be installed.

PSC-A160WEB1 is supplied with a CD-ROM to ensure simple installation.

6.1.2.4 LAN connection

PSC-A160WEB1 can be connected to a Local Area Network through its Ethernet port. After configuring the network, the system will be accessible from any site in the company's network.

Some adjustments are required for the LAN connection, and the network administrator's assistance is needed.



6.1.2.5 Internet connection

PSC-A160WEB1 been designed to be accessible via Internet. This means that maintenance is quick and effective, which satisfies the needs of the final user.

NOTE

It is recommended to set up a dedicated DSL line, in order to reduce the burden on the existing data network of the building.

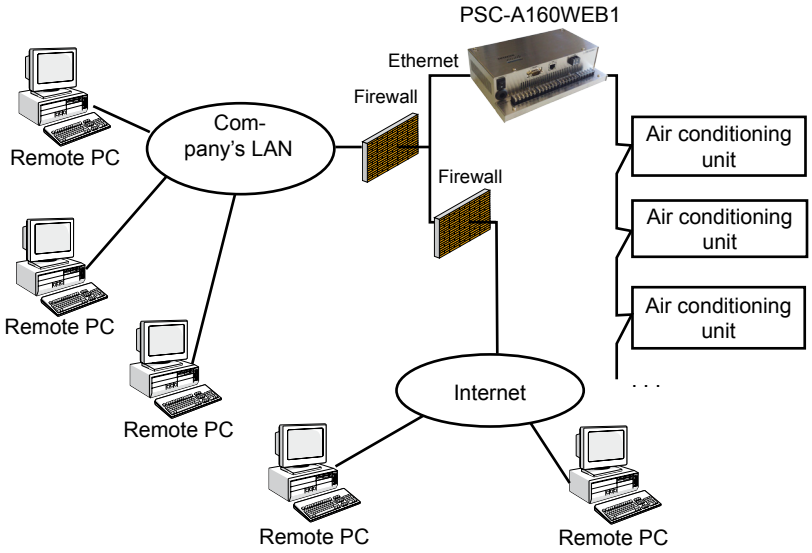
6

◆ Via a LAN

PSC-A160WEB1 can be connected to the Internet and to the company's LAN using a router.

The LAN has to be specially configured to guarantee security, using firewalls and anti-virus software.

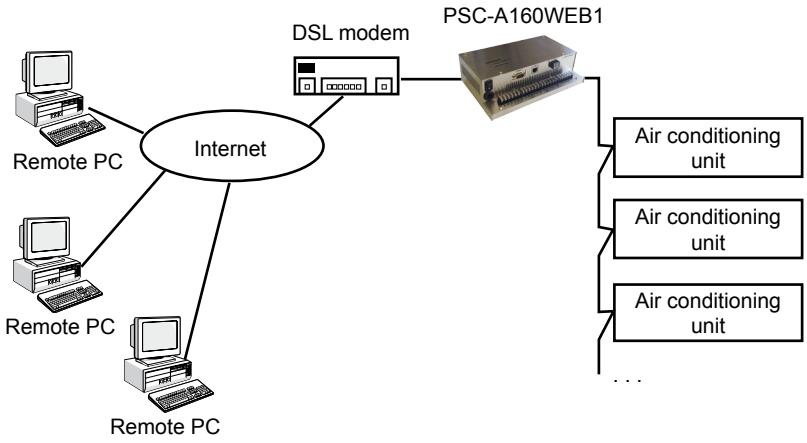
This requires the assistance of the company's LAN administrator.



◆ Direct

Using the Ethernet port, PSC-A160WEB1 can be connected directly to the Internet via a suitably configured DSL modem. This makes possible to monitor the system from any computer with Internet access.

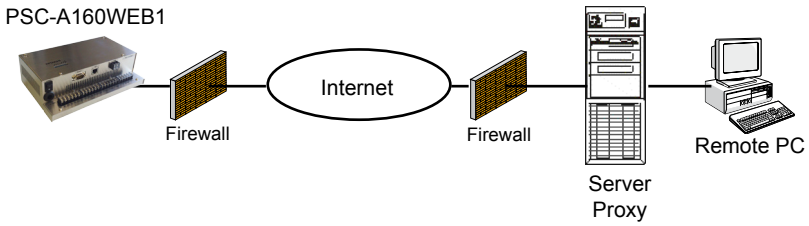
Assistance from an IT expert is required. Security should also be ensured by external means such as firewalls and anti-virus software.



◆ Proxy

A proxy is a network server which generally only allows access to WEB content.

It is configured in the new proxy adjustment window which has been added to the Local software configuration, as shown later.



NOTE

- *Proxy uses NTLM1, Kerberos, Basic or Digest authentication. NTLM2 authentication is not permitted. Your network administrator should provide you the information about authentication. The operation through a proxy is not guaranteed as the network configuration and the antivirus software may hinder the correct communication between the client computer and the PSC-A160WEB1.*
- *The proxy and firewalls allow communication through port 8080.*

6.1.2.6 H-LINK

◆ H-LINK II Compatible

PSC-A160WEB1 has compatibility with the new version of H-LINK communication called H-LINK 2 while maintaining full compatibility with current H-LINK (H-LINK 1) units.

Connection of both H-LINK 1 and H-LINK 2 units in the same H-LINK unit is possible considering the unit limitations and addressing.

H-LINK 2 communication system adds new addressing for up to 64 Refrigerant Address and up to 64 Indoor Unit Address per each Refrigerant Address.

Also H-LINK 2 adds increased number of devices up to a maximum of 200 devices in the H-LINK 2 line. It is considered as a device a CSNET WEB, an Indoor Unit, an Outdoor Unit or other devices with H-LINK address.

PC-A1IO, KPI or DX-Kit count as a normal indoor unit.

The maximum number of Indoor units is 160, and for the outdoor units are 64.

When there is a central control device like PSC-A160WEB1, the maximum number of total units (indoor and outdoor units) for only 1000 meters of H-LINK line is shown on the following table:

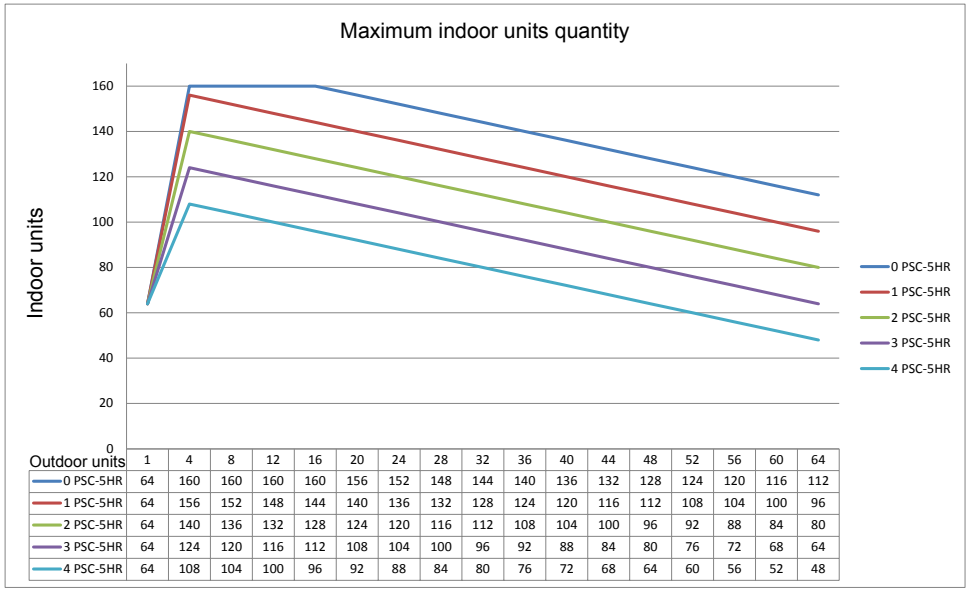
	Maximum number
Outdoor units	64
Indoor units	160
Units (outdoor and indoor)	176
H-LINK devices	200

H-LINK line length could be up to 1000 meters, they could be increased to 5000 meters using up to 4 PSC-5HR. Each of them adds 1000 meters to the line, affecting the quantity of indoor unit that can be connected to the same H-LINK.

Each H-LINK line repeater (PSC-5HR) counts as 16 indoor units. The following table summarize the affection of the PSC-5HR to the indoor and outdoor unit maximum number.

Number of PSC-5HR	Maximum length of H-LINK	Maximum number of indoor and outdoor units
0	1000 meters	176
1	2000 meters	160
2	3000 meters	144
3	4000 meters	128
4	5000 meters	112

Therefore, considering the previous maximums and the number of PSC-5HR, the maximum number of indoor units with one central control, on that case CSNET WEB, is shown on the following table and graphic.



Outdoor units	1	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64
0 PSC-5HR	64	160	160	160	160	156	152	148	144	140	136	132	128	124	120	116	112
1 PSC-5HR	64	156	152	148	144	140	136	132	128	124	120	116	112	108	104	100	96
2 PSC-5HR	64	140	136	132	128	124	120	116	112	108	104	100	96	92	88	84	80
3 PSC-5HR	64	124	120	116	112	108	104	100	96	92	88	84	80	76	72	68	64
4 PSC-5HR	64	108	104	100	96	92	88	84	80	76	72	68	64	60	56	52	48

◆ Compatibility with Central Stations

PSC-A160WEB1 is compatible with PSC-A64GT , PSC-A32MN & PSC-A64S central stations.

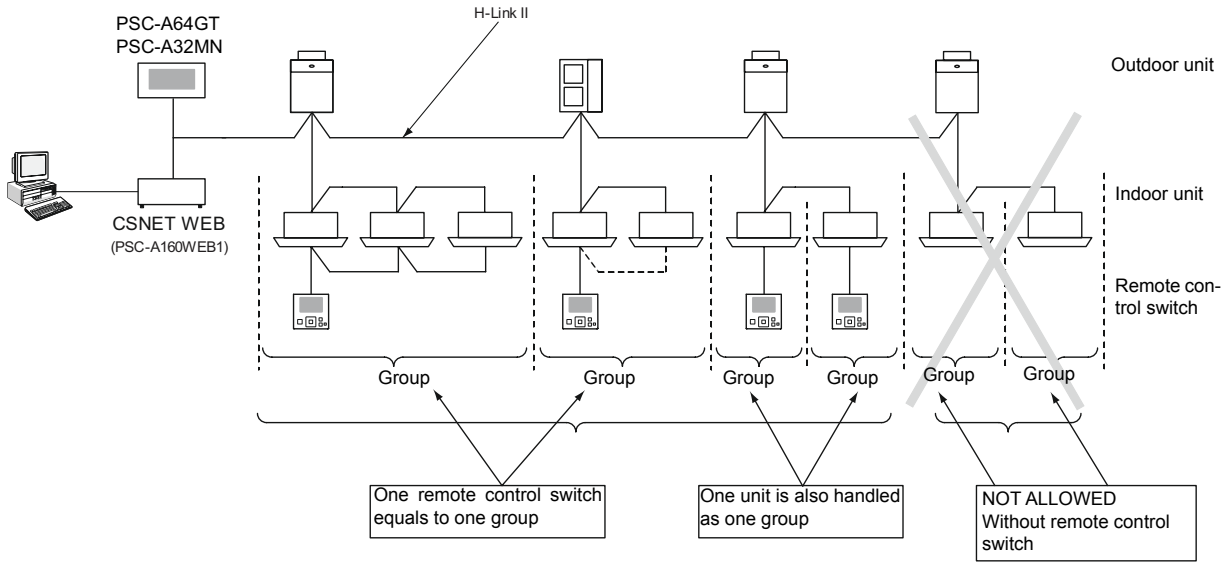
By switching on the Pin 7 of the option dip-switch, PSC-A160WEB1 activates the compatibility with the central stations.

When all the system is set for control in central mode, orders input by CSNET-WEB have preference over those input from Central Stations; if Central Station tries to send an order, CSNET WEB will overwrite the order and restore the state configured in the CSNET WEB.

⚠ CAUTION

- *When this function is enabled, CSNET WEB requires a Central Station to communicate with the units. Important H-LINK communication problems will occur if no unit in the group is controlled by a Central Station.*
- *At Central Station compatibility mode, CSNET WEB does not detect the RCS Sensor, so it will not be displayed on system status and it will not be available for selection as an input on the auto cool/heat operation.*
- *There are some variables in system status like liquid or gas temperature that will only be displayed after a change in value. Those values are only requested by CSNET WEB after the change of value, so right after starting CSNET WEB they will be displayed as 0 until their value changes.*

H-Link II wiring for CS NET WEB and Central Station compatibility



6.1.3 Installation

6.1.3.1 Installation site selection

Take note of the maximum admissible cable length between units and the control as well as between the units themselves, as shown in the following table:

Cable section	0.3 mm^2	≥ 0.75 mm^2
Cable length	30 m	500 m

6.1.3.2 Components list

Unpack the unit and check that:

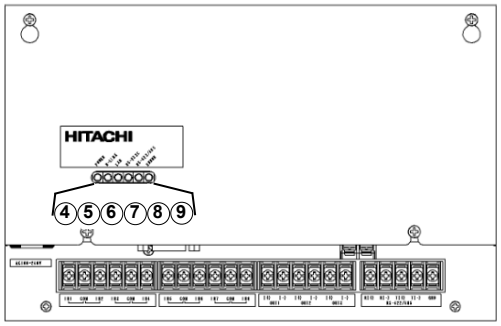
- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

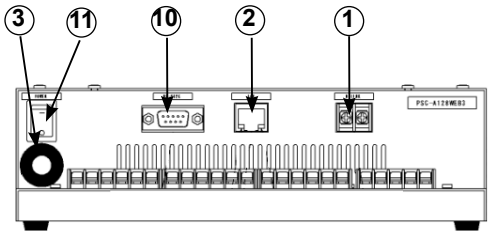
Name	Figure	Qty	Purpose
PSC-A160WEB1		1	Centralized control system for H-Link communication
CD-ROM		1	For the installation of the software
Ethernet crossed cable		1	For PC connection
Cable tie		3	For fixing the electrical wiring (One cable tie as spare component)
Cable tie mount		2	
Installation Manual and Declaration of Conformity		1	Instructions and important notice

6.1.3.3 Description of the parts

Rear view



Front view from “A”



① H-LINK connector. Connected to the air conditioning equipment.

② LAN connector. Connected to the local area network.

③ Power supply cable. Power supply input.

④ POWER: LED power indicator.

⑤ H-LINK: LED indicator of transmission from the air conditioning equipment.

⑥ RS-422/RS-485: Transmission LED (not used)

⑦ RS-232-C: LED indicator of transmission (not used)

⑧ LAN: LED indicator of LAN transmission. The LED is ON when adjusting the LAN link.

⑨ ERROR: LED indicator of abnormality. Blinks in case of error.

⑩ Unused connectors.

⑪ ON/OFF button.

6.1.3.4 General data

◆ Hardware specifications

Components	Specifications
Power supply	AC 230 V 1~ ±10% (50Hz)
Consumption	10W (maximum)
External dimensions	Width: 240 mm, Depth: 154 mm, Height: 89 mm
Weight	1.4 kg
Installation conditions	Indoors (in a control panel, table-top)
Ambient temperature	0~40 °C
Humidity	20~85% (Without condensation)

◆ Specifications for communication with the units

Elements	Specifications
Communication with	H-LINK (H-LINK II Compatible)
Communication cable	Twin wire, without polarity
Communications system	Half-duplex
Communication method	Asynchronous
Speed of transmission	9600 Bauds
Length of wiring	1000 m maximum (total length)
Number of units	Up to 64 outdoor units and 160 indoor units

◆ Specifications for communication with a local area network

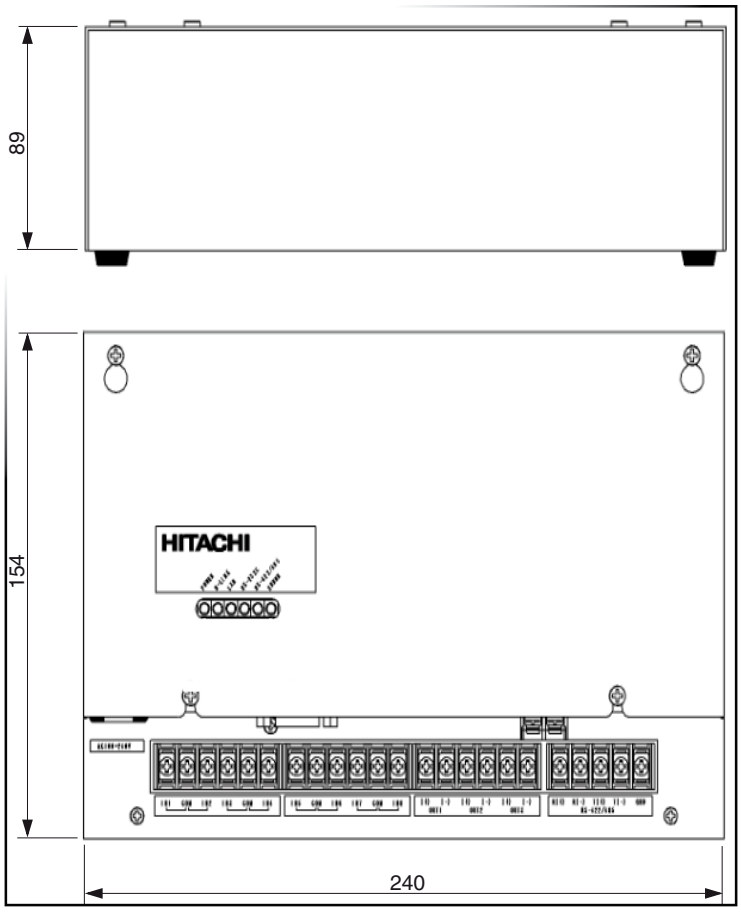
Elements	Specifications
Remote computer	Processor at 1000 MHz, 256 MB RAM, 200 MB free hard disc space. Windows 2000 or higher. Java Runtime Environment Versión 6 Update 3 (*1) or higher installed (included in the CD-ROM)

NOTE

- *(*1) Java(R) is a registered trade mark of Sun Microsystems.*
- *Remember that H-LINK II has a limit of 200 devices connected. Therefore, in the case of 64 outdoor units connected to the same H-LINK, only 135 other element*s may be connected (including indoor units and control system).

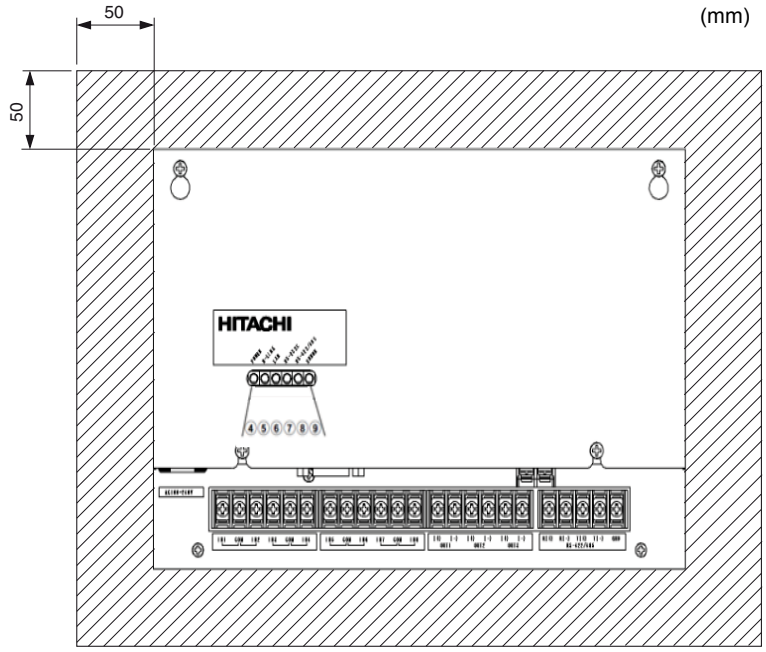
6.1.3.5 Dimensional data

Units in mm.



6.1.3.6 Installation space

Make sure that there is sufficient space around the PSC-A160WEB1 (a minimum of 50 mm) to dissipate properly the heat.



6.1.3.7 Installation procedure

When unpacking the equipment, make sure that it has not been damaged during transport.

Perform the following procedure:

1 Remove the rubber base pads.
2 Remove the 4 screws from the cover and take it off.
3 Attach the box to the rear vertical board from the inside with M5 screws (not provided) using 3 mm washers outside to separate the box from the wall.
4 Put the cover back in place. Be careful to position it correctly.

CAUTION

Before switching on and starting PSC-A160WEB1 you should make sure that:

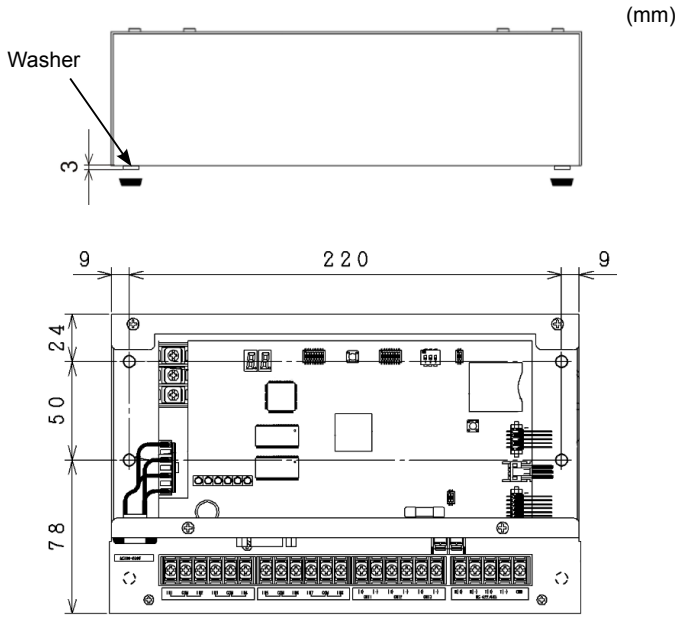
- *All the units and refrigerant circuits are powered on and are working correctly.*
- *All the H-Link connections have been set up.*
- *All the units are Packaged units. Mixed connection of Packaged units and water chillers is not permitted.*

Any unit that is not connected or is not powered on when turning on PSC-A160WEB1, will not be recognised and will have to be configured later.

The signal cables should be a short as possible. Keep other power cables at a distance of at least 150 mm. Do not bind them together (although they may intersect). If they must necessarily be installed together, take the following measures to avoid noise:

- *Protect the signal cable with a metallic tube earthed at one end.*
- *For communications, use a shielded cable earthed at one end.*

If the equipment is installed vertically, situate the power feed below and the control outputs above.



DANGER

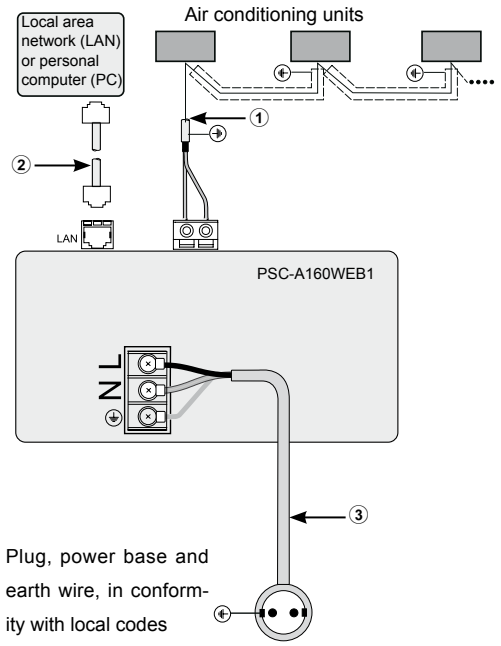
- ***Always disconnect the power from PSC-A160WEB1 when handling the equipment to prevent electrocution.***
- ***Do not connect the interface to the power supply until the installation has been completed.***
- ***Comply strictly with local security codes and regulations when connecting the machine to the electricity grid.***
- ***A three-wire cable is needed for a connection to the electrical transmission network (two wires plus earth), with a suitable plug at one end.***

6.1.4 Electrical wiring

In order to run, PSC-A160WEB1 has to be connected to the electrical power network, to the transmission line with the air conditioning equipment (H-Link) and to the Ethernet local area network (LAN).

No	Connection	Cable Specifications
①	Transmission cable for the units (H-Link)	Twin core twisted pair cable 1P-0.75 mm². Non-polar. Shielded, earthed at one end. In order to choose the type of cable, refer to the Outdoor Unit Installation and Operation Manual.
②	Ethernet connection	Category 5 or higher LAN cables: • PC connection: Use the crossed cable (factory-supplied) for direct connection. • LAN connection: Use a direct cable (field-supplied) for connection to a commercial distributor (Hub).
③	Power supply cable twin core + earth	AC 1~ 230V 50 Hz Ensure that the cable used complies with local regulations and that both plug and socket are correctly earthed.

Reinstall the cover once the connections are performed.



◆ DIP switch adjustment

During the installation it must be specified what kind of units are installed.

PSC-A160WEB1 offers a variety of options letting you know its status at all times. These options are only accessible from the hardware itself.

To activate a function:

1. Remove the four screws in the upper part of the hardware.
2. Locate the “Option” Dip-Switch.
3. Put the pin of the function required into the “ON” position.
4. Put the pin 1 to “ON” to activate the function.

When the dip-switch has been configured, the seven-segment display shows different characters according to the function established. The values appear as rolling text.

To deactivate the function and return to rest mode:

- In the “Option” Dip-Switch put all the pins to “OFF”, leaving the pin 1 until last.

◆ Factory dsw setting

OPTION DSW2	MODE DSW6	HLINK DSW7	422/485 DSW8	OPT.OUT DSW9
				

◆ DSW2 options setting

The table with all the functions and their description is shown below.

Pins	Function	Description
1	Function selection	This pin enables the activation of the functions selected with the other pins.
2	Restore the network configuration	Restore the IP address Mask and Gateway to the initial values of: IP: 192.168.0.3 Mask: 255.255.255.0 Gateway: 192.168.0.1
3	Restore passwords	Set the “User” password to “User” and the “Installer” password to “Installer”
4	Restore configuration	Deletes the configuration of the installation and restores the passwords as in the previous point
5	Notification of the IP address	Shows the IP address and the PSC-A160WEB1 port.
6	Information on units	Shows the number of indoor and outdoor units recognized by PSC-A160WEB1.
7	Central Station compatibility	It enables the compatibility with central stations. CSNET WEB software has always priority so if a unit is set as central, Central Station will not be able to modify the state of the unit. The same happens with Remote Sensor not configured option. ⚠ **CAUTION** *All units should be controlled by a Central Station, otherwise it will appear a communication alarm.*
8	Not used	Internal use, it always must be set as “OFF”.
All OFF	Rest	Indicates the type of installation (PA: Packaged). If there is an alarm it shows the alarm code and the units with this alarm.

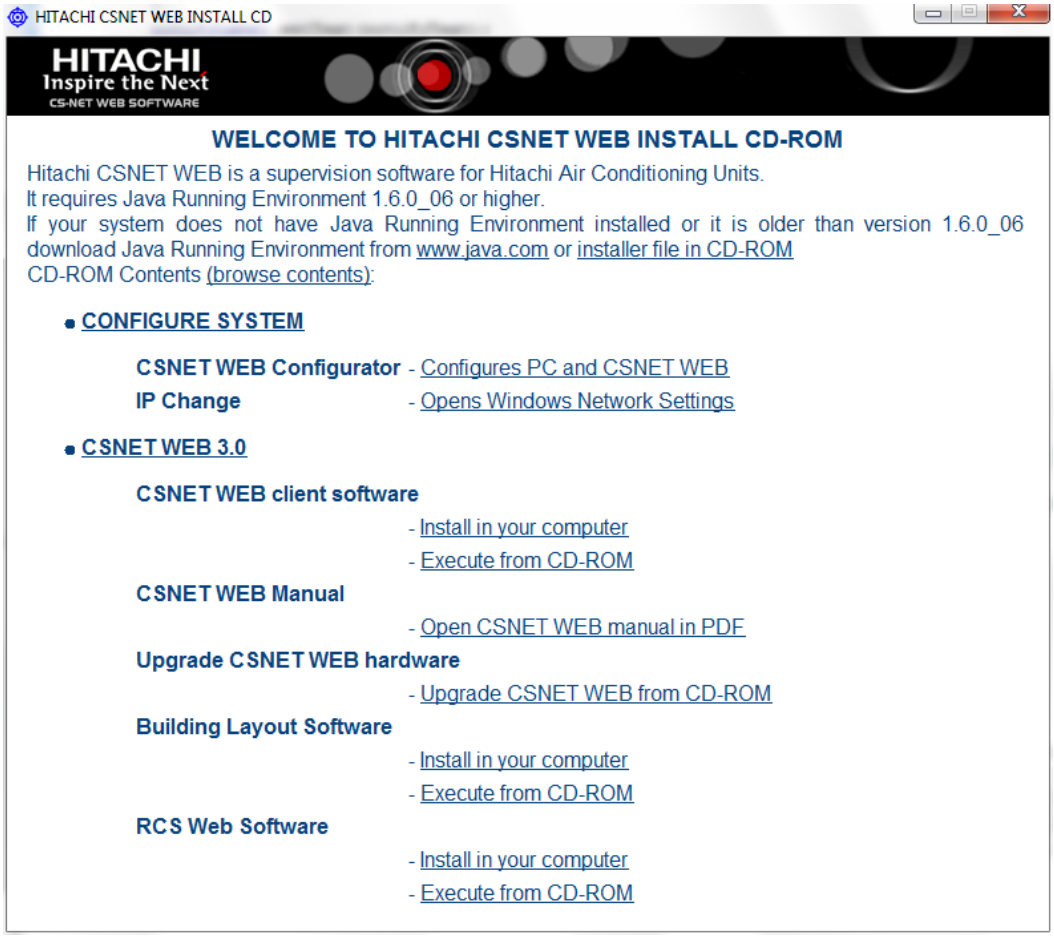
6.1.5 Operation

6.1.5.1 Test run

◆ Configuring the Hardware

After completing and checking the electrical installation, ensure that all the air conditioning units are running, and supply power to CSNET WEB in order to configure the CSNET WEB interface

1 Connect the computer that will be used for configuration to CSNET WEB with a crossed Ethernet cable.
2 Insert the CD-ROM that is supplied with the CSNET WEB Packaged into the computer that is already connected. If the Windows auto-start option is enabled, the installation programme will start automatically; if this option is not enabled, execute the Autoinstall.exe application that is included in the CD-ROM.
3 The initial page for the installation will be displayed with the following options:
- **CSNET WEB Configurator:** open the CSNET WEB Configurator interface in order to configure and install your installation.
- **IP Change:** Open the network settings of your system allowing change the IP of your computer.
- **CSNET WEB Software:** execute the CSNET WEB Software from the CD.
- **Install CSNET WEB in PC:** Install a copy of CSNET WEB in the local computer.
- **CSNET WEB Manual:** opens the technical catalogue of CSNET WEB.
- **Upgrade CSNET WEB hardware:** Upgrade the firmware of your CSNET WEB using our interface.
- **Building Layout Software:** Execute the Building Layout Editor in order to use this application to create a Building Layout file.



◆ CSNET WEB Configurator

The initial page for the installation, “CSNETWEB Hardware & Software Setup”, will be displayed with the following options:

- **Configure CSNET WEB Hardware (Change Network Settings)**: Change CSNET Web’s TCP/IP configuration in order to adapt it to the network where it will be installed.
- **Connect to CSNET WEB for Configuration:** Connect to the CSNET WEB application in order to configure all the points that are explained in the following chapters.
- **Install CSNET WEB Software in local PC:** to install the CSNET WEB application on our PC, and afterwards on the computers in the same network that will use CSNET WEB.
- **Update CSNET WEB Hardware:** this permits remote updating of the firmware of the CSNET WEB interface.

Connecting to the CSNET WEB interface

1 Select “**Configure CSNET WEB Hardware (Change Network Settings)**” and the “**Select Network Card**” screen will be displayed showing the different network adapters available on the PC.
2 Select the network adapter that you will use and click “**Next**”.
3 The “**CSNET WEB Hardware Settings**” screen will be displayed in order to change CSNET WEB’s TCP/IP configuration.

The “Installer” password will be required in order to configure CSNET WEB. Initially, the password is “Installer”; it can be changed afterwards. Enter this password in the “**INSTALLER PWD**” field.

The HW IP ADDRESS, HW NETMASK and HW GATEWAY fields must be the configuration parameters required for CSNET WEB; they will be provided by the network administrator.

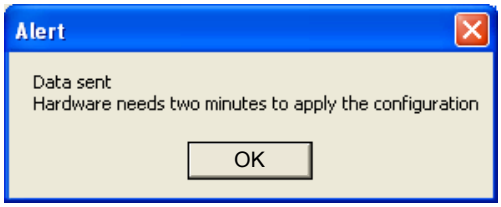
Click “**Next**” to continue. The “**Time, date & zone configuration**” screen will be displayed.

Enter the date and time.

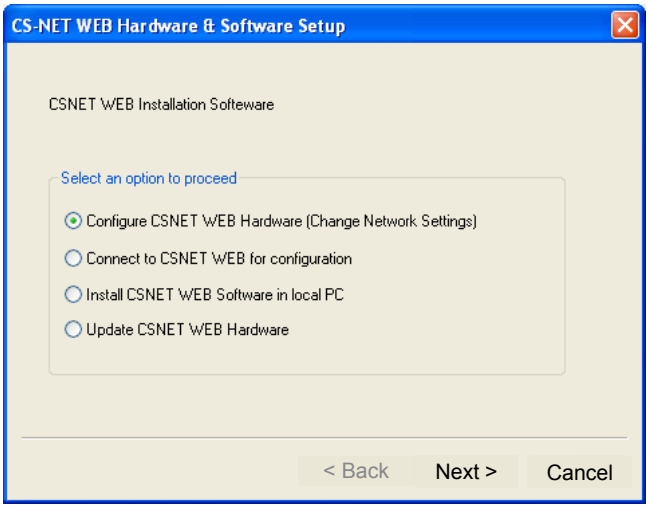
Select the geographical area nearest the installation.

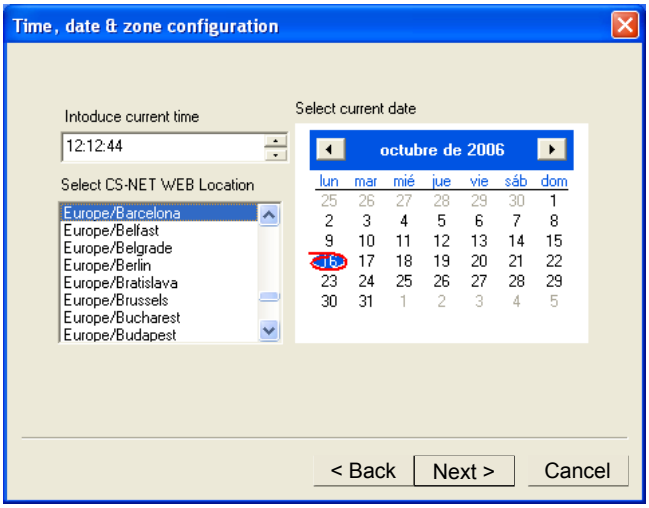
Click “**Next**” in order to configure CSNET WEB.

The installation programme will display the following message as a reminder that 2 minutes are required to apply the configuration.



Once CSNET WEB’s TCP/IP configuration is finished, the installation software will return to the initial screen.





Connecting to CSNET WEB to configure the software

This option lets you change the PC network settings temporarily and connect to the CSNET WEB interface.

⚠ CAUTION

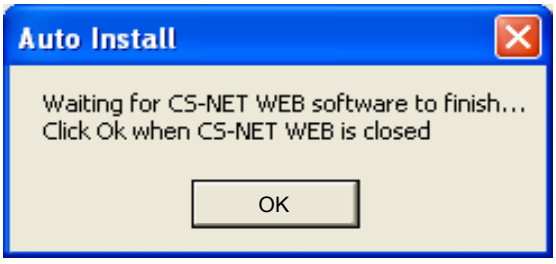
We recommend that you do not configure the software without configuring the CSNET WEB interface first.

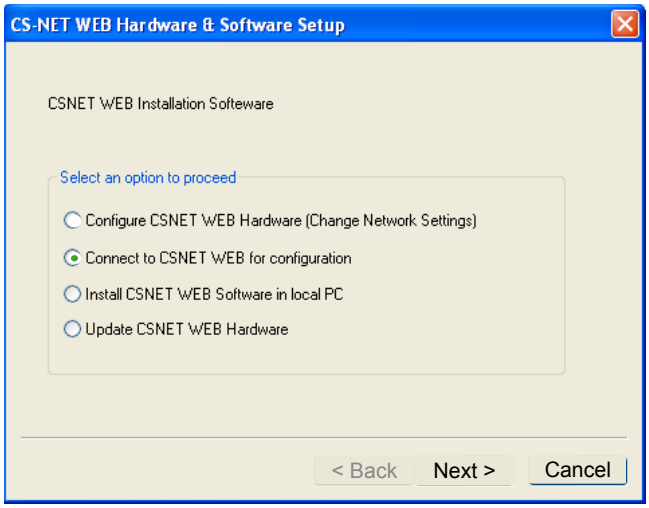
1 Select **Connect to CSNET WEB for Configuration**, press **Next** and the **Select Network Card** window appears, showing the network adaptors available in your PC.
2 Select the network adaptor you are going to use and press **Next**.
We recommend you choose **Local area connection** if the system does not already have a specific network (the network administrator will help you make the correct choice).
3 Introduce the IP of the CSNET WEB you want to connect to. The configuration you have already chosen appears by default. You should always introduce the temporary IP the PC has to use.

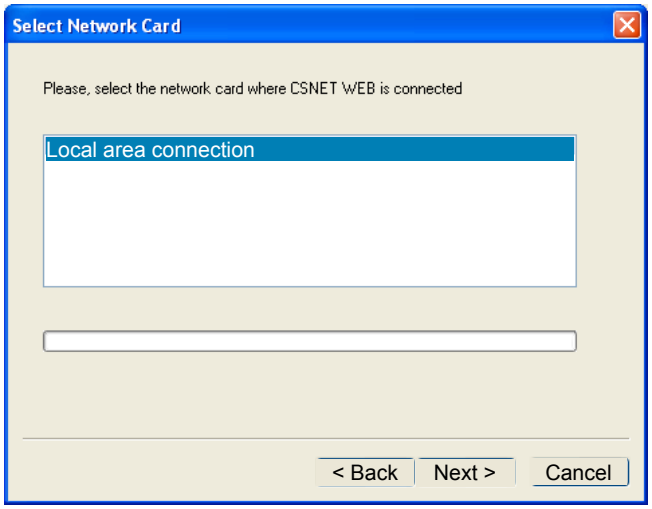
⚠ CAUTION

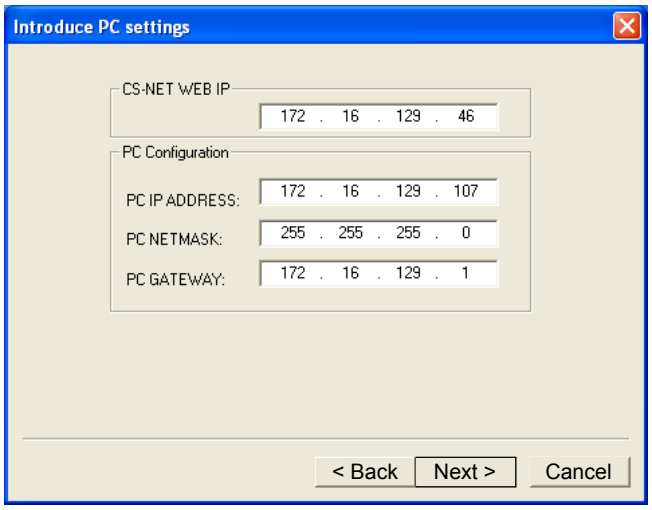
If the PC and CSNET WEB interface are connected to a local area network, the network configuration should be supplied by the network administrator. Otherwise, use a valid configuration within the range set for the CSNET WEB interface. In case of doubt, consult the network administrator.

4 Press **Next** to validate the changes, change the PC network configuration temporarily and start the CSNET WEB application which configures the system.
5 When the application starts it configures the system as indicated in chapter *Operation and configuration of packaged units*.
6 After completing the configuration close the CSNET WEB application and choose **OK** in the message **Waiting for CSNET WEB software to finish....** The installation will return to its initial screen.





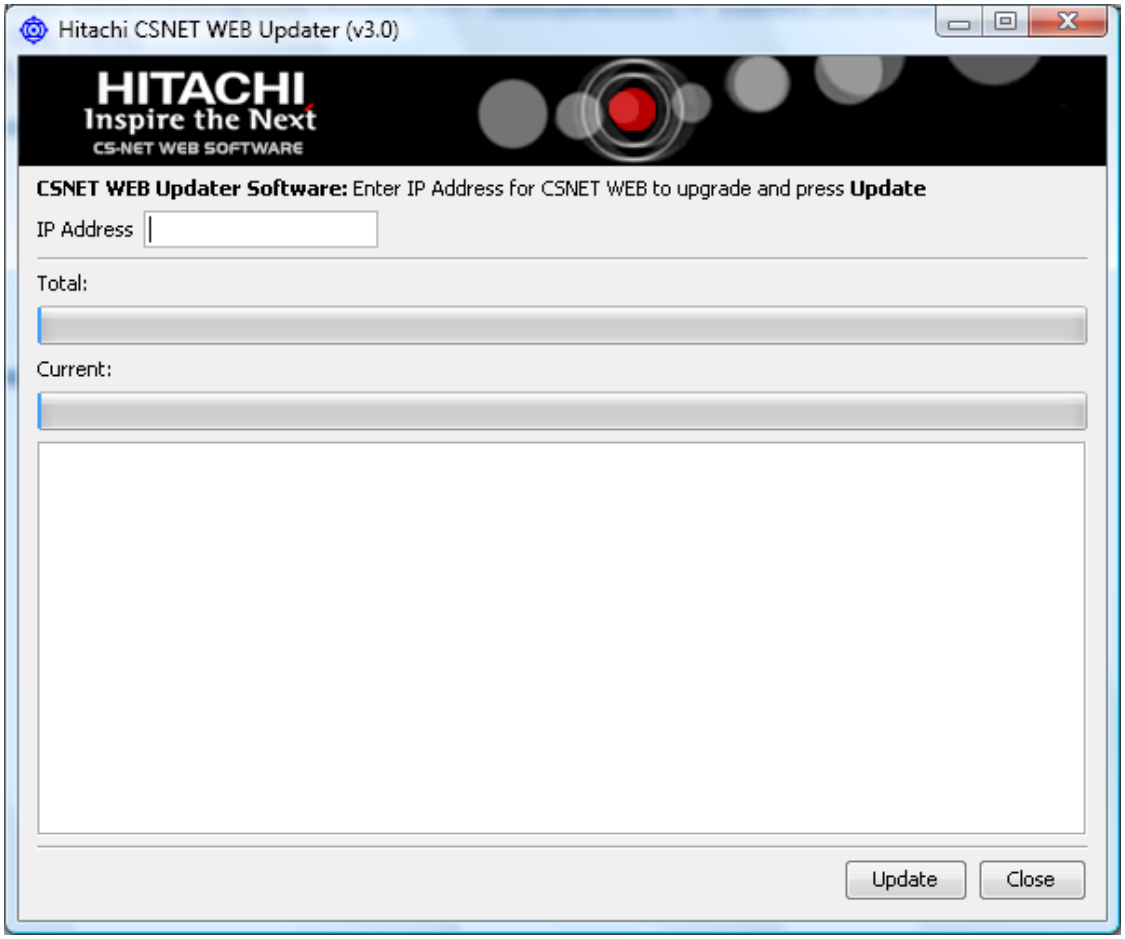




◆ Updating the CSNET WEB hardware

This option allows updating of the firmware of the CSNET WEB.

1 Enter the installer's password, by default "**Installer**", in the "Installer Password" field. Enter IP address or the CSNET WEB network name in the "**IP Address**" field.
2 Press "**Update**". After a few minutes the progress bar will indicate that the process has ended (the time will depend on the speed of the connection with CSNET WEB).
3 Close the update software by pressing "**Close**".



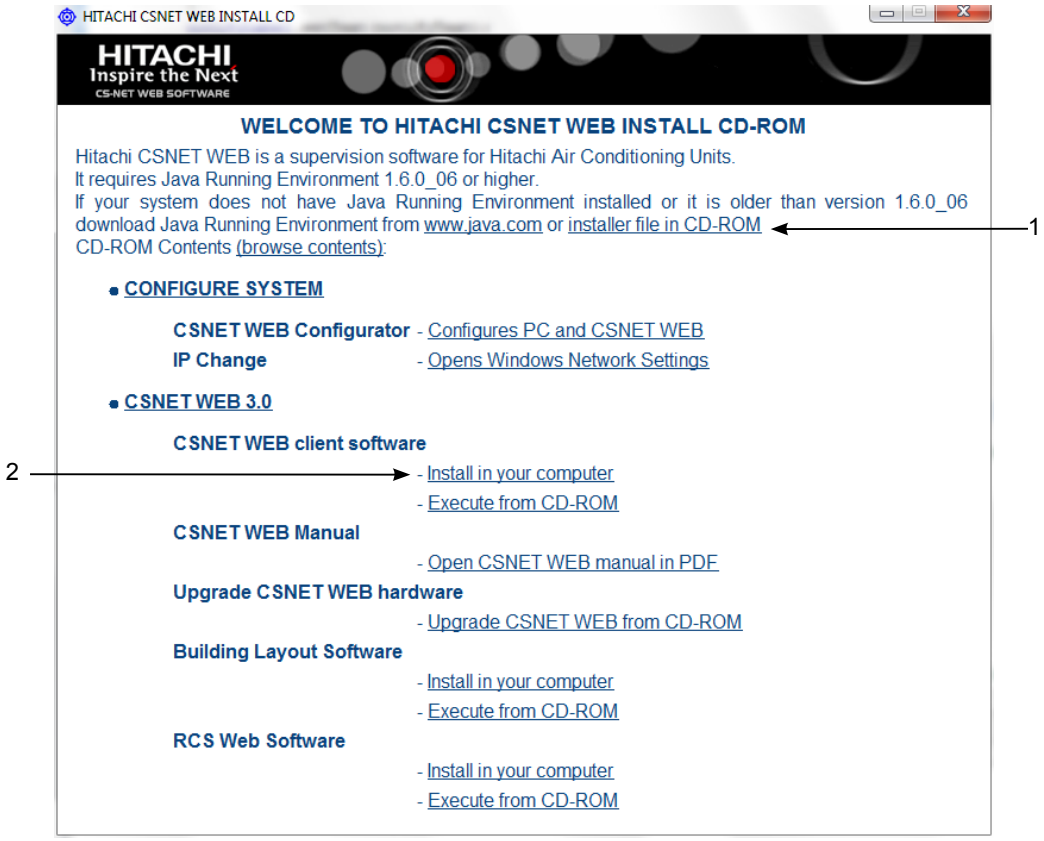
◆ Installation of the CSNET WEB software and of a shortcut in your PC

Proceed as follows to install the CSNET WEB application on your PC and/or on computers in the same network which have to be connected with the CSNET WEB interface:

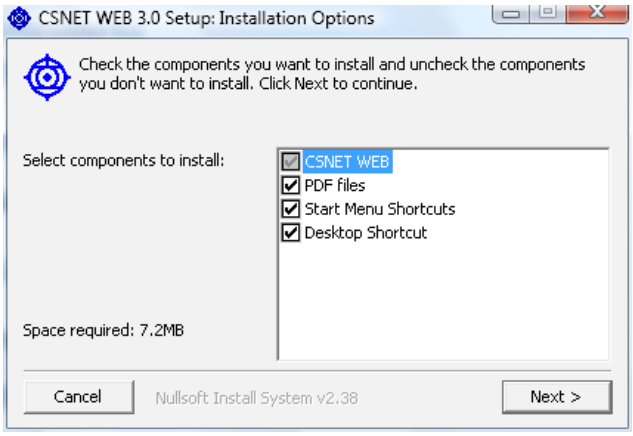
⚠ CAUTION

In order to run, the CSNET WEB application requires Java J2SE Runtime Environment to be installed in your PC. If it is not correctly installed, carry out step 1. In case of doubt, or if it is installed, go to step 2. If still in doubt, consult the network administrator.

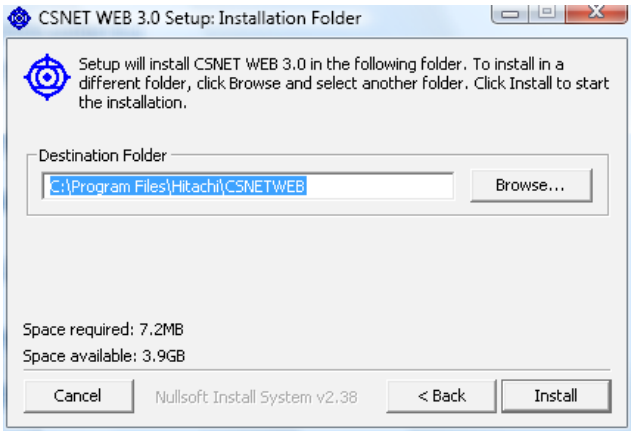
1 Press the **Installer file in CD-ROM** link in order to Install Java J2SE Runtime Environment 6.0. The Java installation application will start.
2 Press the **Install in your computer** link to install the CSNET WEB application.



3 Select the installation options.



4 Select the installation folder.



6.1.5.2 Graphic interface

CSNET WEB has two ways of presenting information and the available program options:

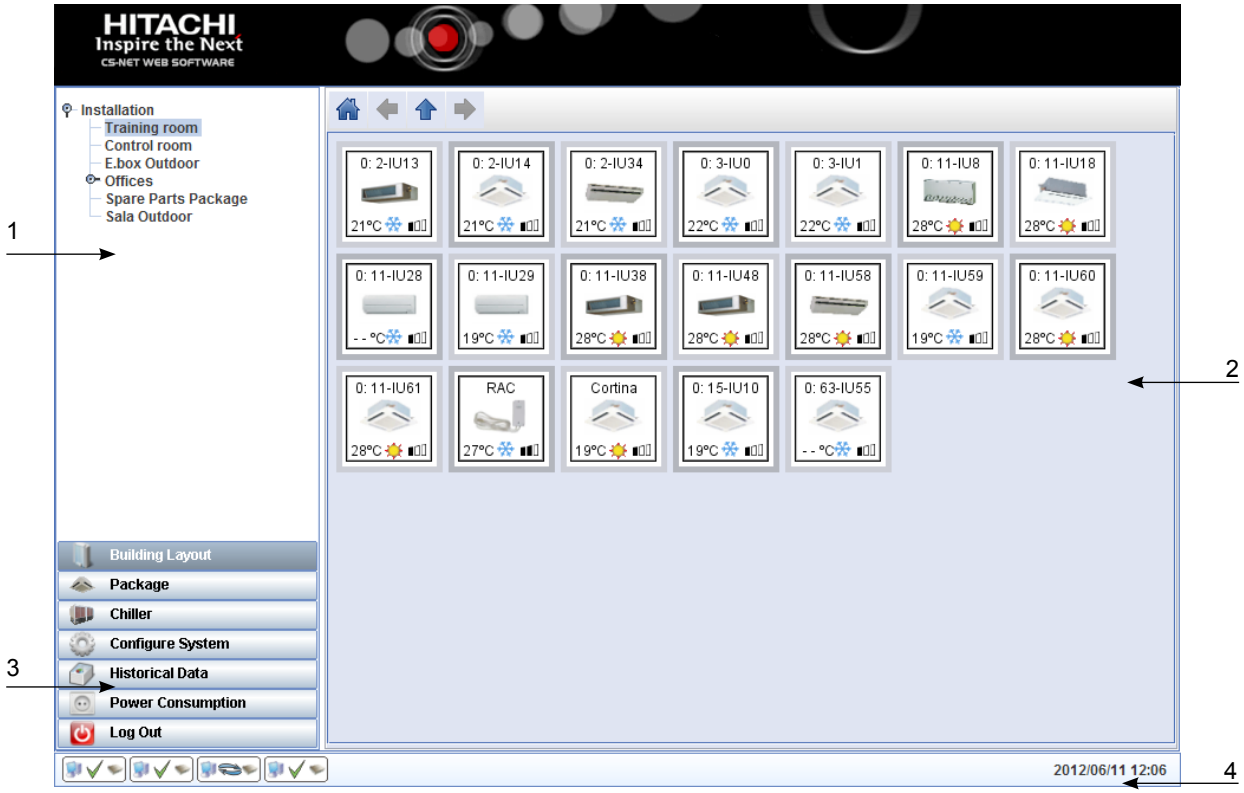
- Overall view: use a tree to organise the installation units and a table to show the units information.
- Building Layout view: use a tree to organise the installation units and a zone layout to show the units information.

These two interfaces make usage easier and allow access to the system in a clearer, more streamlined way.

◆ Building layout view

CSNET WEB has an initial screen that shows a virtual layout with the detected units.

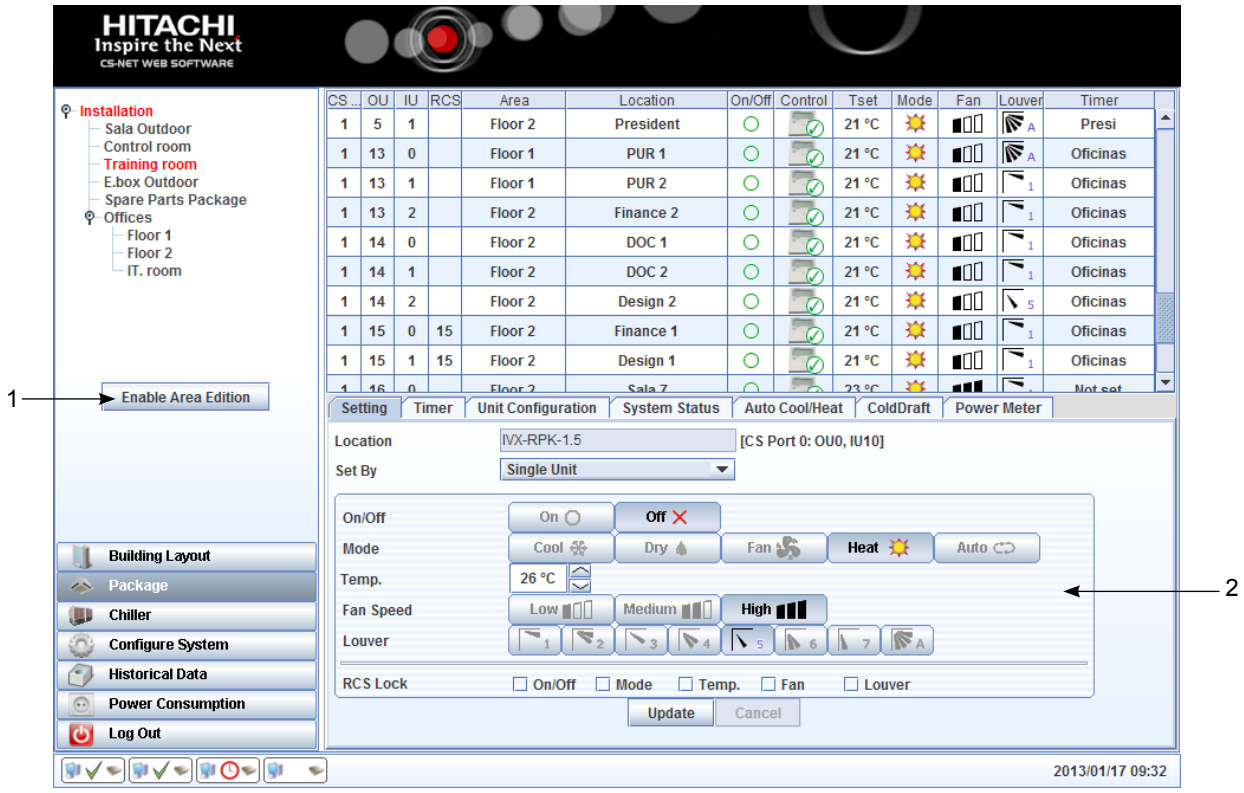
By clicking on the unit icon a virtual remote controller will appear giving to the user the option of managing the units.



1 **Area tree**: Installation tree with the different areas defined by the user.
2 **Units zone**: Lists of all the indoor units with a basic state information.
3 **Main options**: Gives access to the installation data view, the configuration of CSNET WEB, the Historical Data and the Power Consumption.
4 **HARC-WEB Status**: show the current state of four HARCWEB connections, software functions enabled and if there are automatic updates available.

◆ Overall view

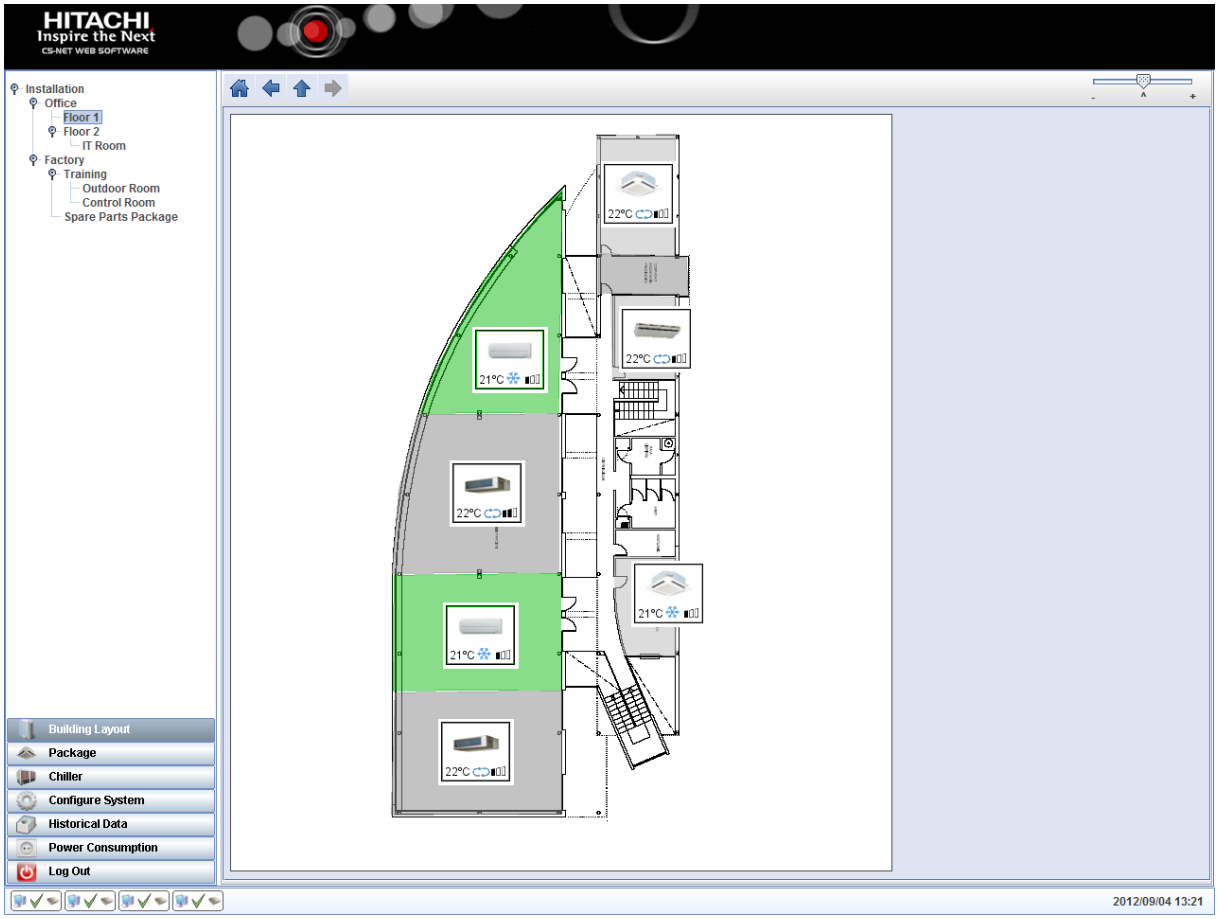
CSNET WEB has also an extended view that allows more complex functions.



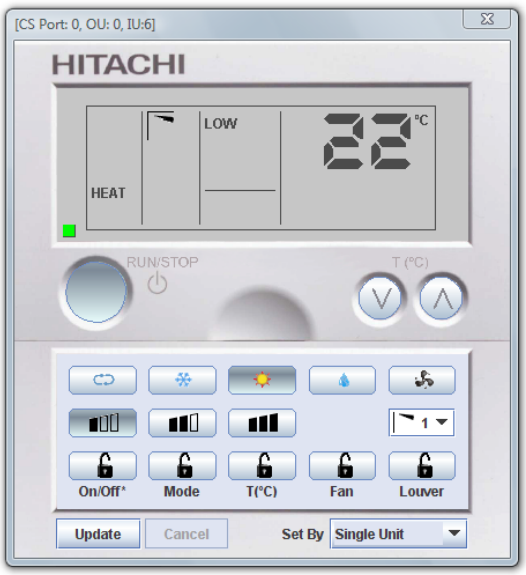
1 **Edition of area tree**: Allows you to edit the area tree.
2 **Operation panels**: Control area for the operation of units.

◆ Building layout editor

CSNET WEB is supplied with a Building Layout Editor that lets the user to customize their view and the way of how the units are distributed through the installation.



The functions are the same than normal CSNET WEB, but there is a new user friendly view. To control a Packaged unit, just click on the area or the icon of the unit and start to work with the virtual remote controller.



6.1.5.3 Local software configuration

After configuring the CSNET WEB interface you should begin the configuration of the system. To install the RCS Web instead of CSNET WEB read the chapter *RCS Web*. Remember that RCS Web is a reduced version of CSNET Web with only remote control functions but more user-friendly for a non-expert user.

NOTE

CSNET WEB needs at least the following to be configured:

- *Local software configuration (see next page)*
- *Area tree (see chapter Area tree)*
- *Configuration of the unit (see chapter Unit settings)*
- *Auto Cool/Heat (see chapter Auto cool/heat)*

We recommend configuring the other points indicated in the manual at the same time, although this can be done later.

CAUTION

Remember that to access CSNET WEB by a shortcut you need to connect the computer to the Ethernet connection connected to the CSNET WEB interface.

When you click on the shortcut, a page appears in which you have to specify the language you want to use. The same screen shows a second timer (this can be configured later), which runs down to zero and then runs CSNETWEB in the selected language.

If you wait 10 seconds or press the OK button, CSNET WEB will show the Initial Page.

◆ Initial page

The initial page is divided into two parts:

1 Access to the installation required

Local Software Configuration: The user name and password are case-sensitive.

When you try to access to the required installation, the initial screen shows three text fields which have to be completed to access the installation:

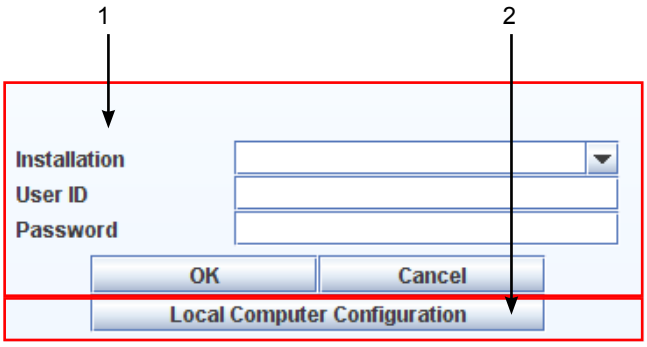
- **Installation**: Enter the IP address of the CSNET WEB to which you want to connect or the name of a previously created installation. The default IP of CSNET WEB is 192.168.0.3.
- **User ID**: Enter the name of the type of user who will access the installation.
- There are two types of user:
  - **"Installer"**: Has access to all the options. We recommend that only authorized people who know the program have access to this option.
  - **"User"**: Only has access to the Configuration of the units and visualization of the Timer.

NOTE

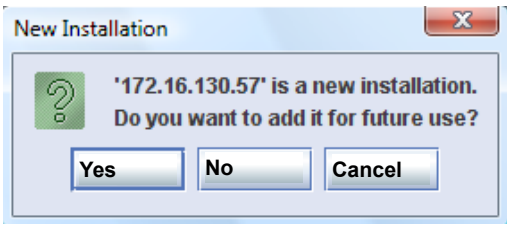
The User ID is case-sensitive.

- **Password**: Write the password of the user you have entered.
  - The default password for the "Installer" is: **Installer**
  - The default password for the "User" is: **User**

2 Using a proxy: As can be seen in the *Local Computer Configuration* section, if you select this option, the connection will be made through a proxy (if one is configured).



Once all the data have been introduced, press the "**OK**" button. If you are accessing this installation for the first time, the message "**New installation**" will appear:



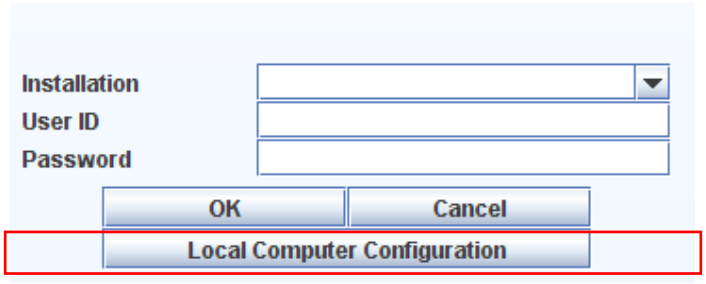
If you click "Yes", the data introduced will be saved. In this way, each time you start CSNET WEB in the "Installation" text field, you will see a drop-down menu with the different installations saved.

Next, CSNET WEB will connect to the installation you have entered, and show the main screen.

6.1.5.4 Local computer configuration

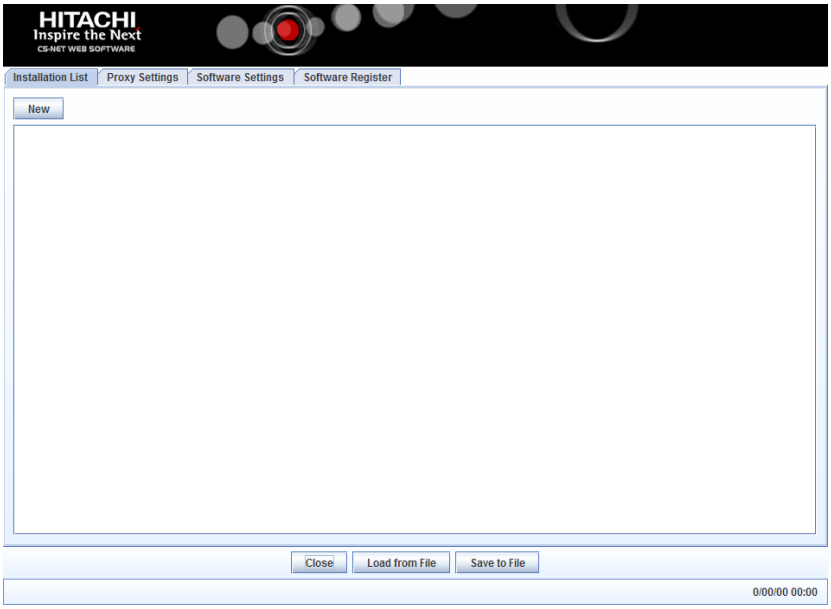
This option allows the different client computer configuration parameters to be modified, such as the Internet connection configuration, default language, local data storage or list of rapid access to installations.

If you click this button the following screen appears:



This screen lets you configure the operation of the software in your computer in terms of:

- Installation list.
- Proxy settings.
- Software settings.
- Software register.



◆ Installation list

Press **New** to create a new installation.

"**New Network Item**" window will appear. Installation may also be edited or deleted by pressing in the Installation "**Edit**" and "**Delete**" buttons respectively.

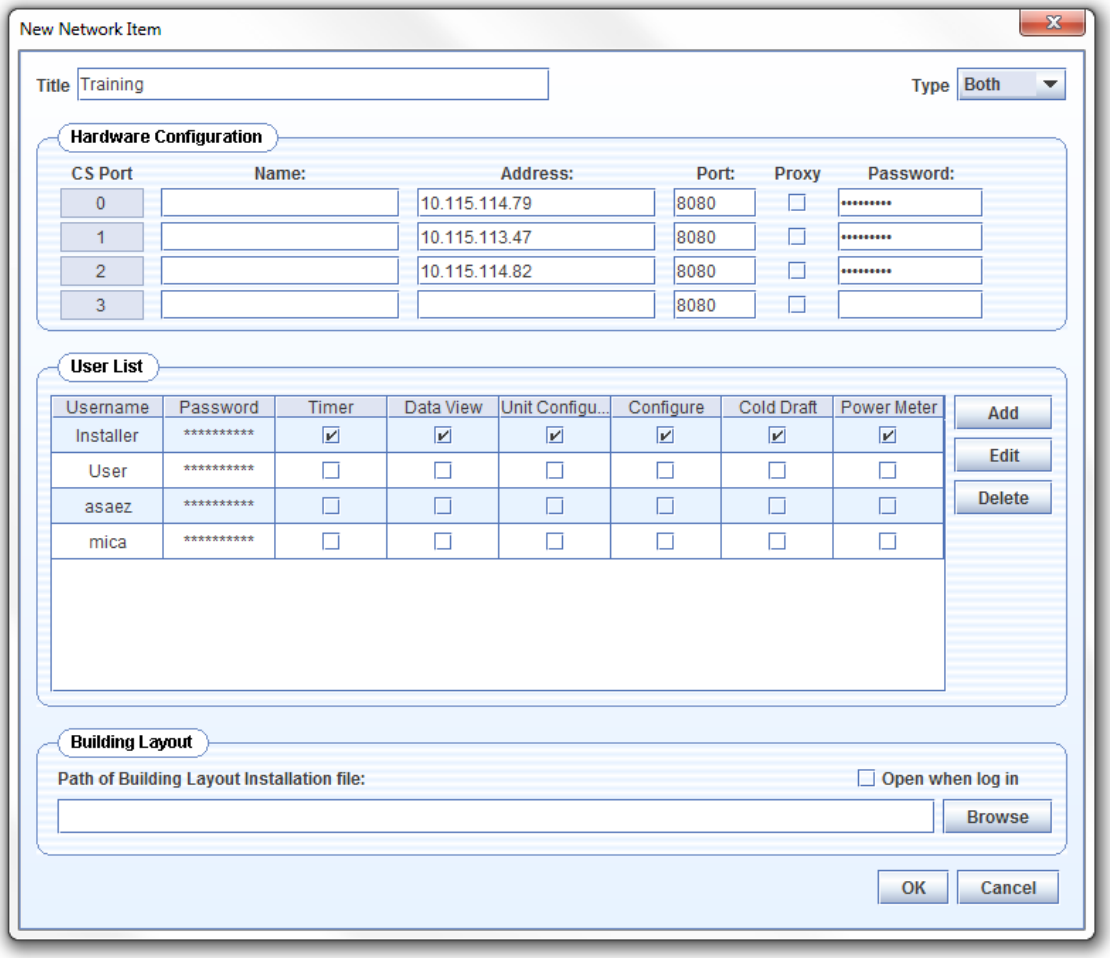
Enter details for the installation as follows:

- **Title**: Identification name for installation.
- **Building Layout:** Folder of the building layout file that represents this installation. This file must to be created previously using the building layout editor. Adding this file will appear a building layout button automatically when you log in your installation.
- **Open when Log In:** Open Building Layout as a default view after log in CSNET WEB.

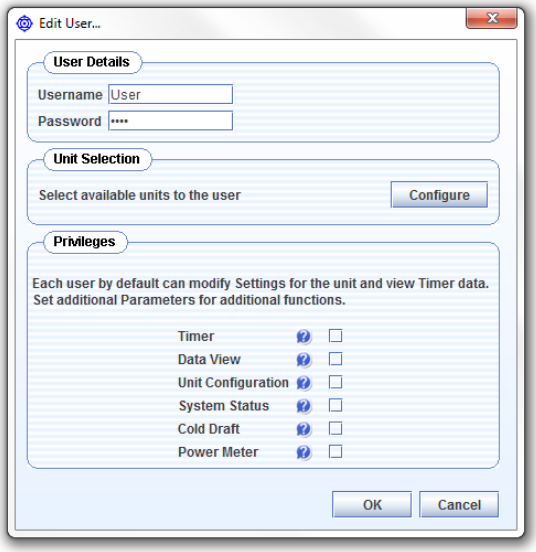
For each CS Port (available CSNET WEB server to connect):

- **Name**: Identification name for CSNET WEB server.
- **Address**: IP Address for CSNET WEB server.
- **Port**: Connection port where CSNET WEB server is listening.
- **Proxy**: Determine if communication with CSNET WEB server shall pass a proxy server.
- **Password**: Password for CSNET WEB. By default it is Installer.

Press **Add** button in User List area to create a new user. At least a user needs to be created in order to connect to an installation. "**New User…**" window will appear. Users may also be edited or deleted using **Edit** or **Delete** buttons respectively.

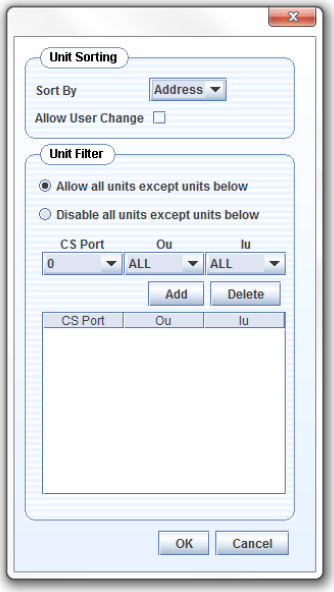


Enter desired user name and password. Also select the different privileges for the user. Note that user name may not be repeated.



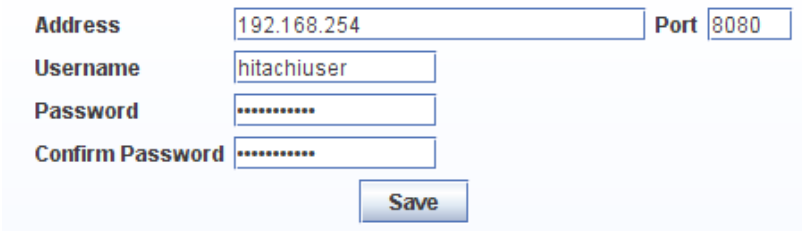
On unit selection, all the available units on CSNET WEB can be assigned to the current user. By click on configure, it will appear a dialogue to specify which pattern describe the units for this user.

Unit sorting can also be configured.



◆ Proxy settings

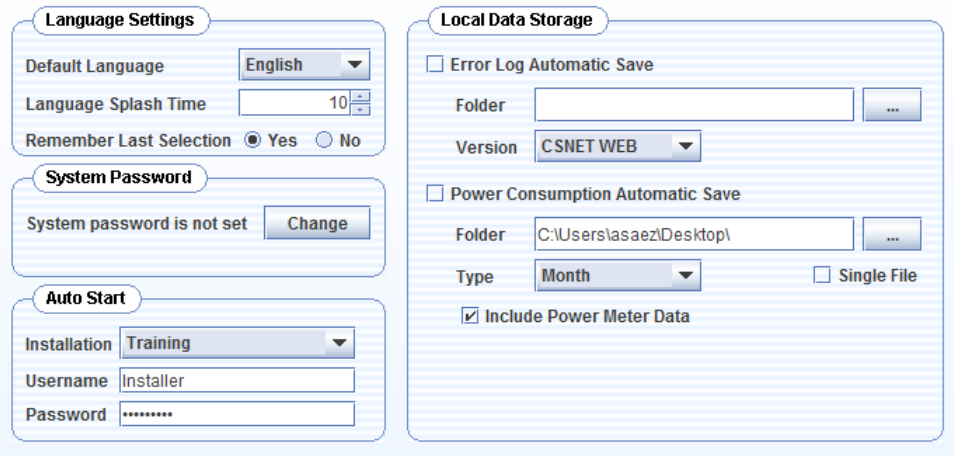
The “Proxy Settings” tab lets you configure the connection through a proxy if necessary. If you have any doubts about the data you need consult your network administrator.



◆ Software settings

This tab lets you configure four kinds of data:

- **Language settings**: You can choose the default language to be used in the main screen. You can set the countdown time (in seconds) and make the program remembers the changes.
- **Local data storage**: The chapters *Visualization of alarms* and *Power consumption* will give more details about these settings.
- **System password**: By setting this password when any user wants to open Local computer configuration will be queried for password.
- **AutoStart**: Select desired installation, user name and password that should automatically start when CSNET WEB client software is started.

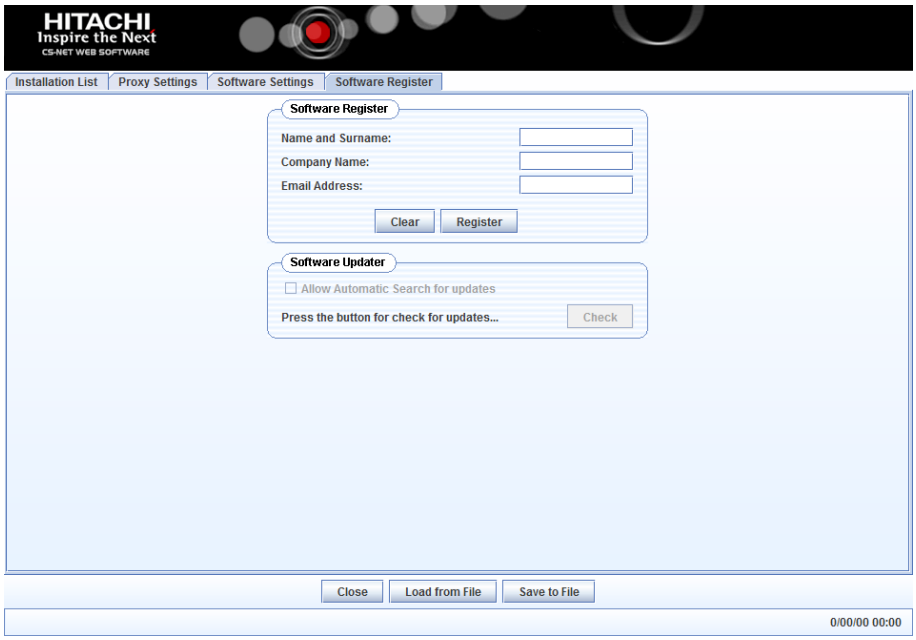


◆ Software register

Software register tab let the user register its software due to be able of having access to the updates server.

After register the software, automatic search for updates can be activated and it can be checked for new client versions just by clicking the check button.

If there is an update it can be downloaded using same button, and after updates will be downloaded, CSNET WEB will ask for install and restart the software.



6.1.5.5 Configure System

To configure the system, access the historical data and power consumption files you should access the bottom left of the CSNET WEB window, where the following buttons are located:

- Building Layout
- Package
- Chiller (*)
- Configure system
- Historical data
- Power consumption
- Log Out

NOTE

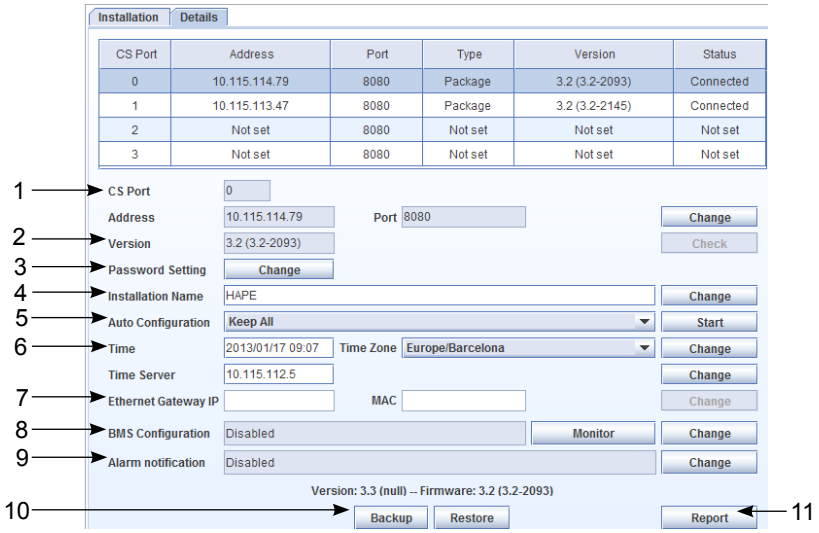
These options are only available if the user has entered as Installer.

NOTE

- *(*): Direct connection of Chiller units to PSC-A160WEB1 is not possible. However, CSNET WEB software can be used to manage CSNET WEB v3 devices, which on its turn can control Chiller units. For further information, check the CSNET WEB v3 documentation supplied with the relevant device.*
- *These options are only available if the user has entered as Installer.*

The CSNET WEB configuration has the following sections:

1 Network settings
2 Version and updates
3 Change password
4 Installation name
5 Auto configuration
6 Time configuration
7 Ethernet gateway
8 BMS configuration
9 Alarm notification
10 Backup copy
11 Configuration report



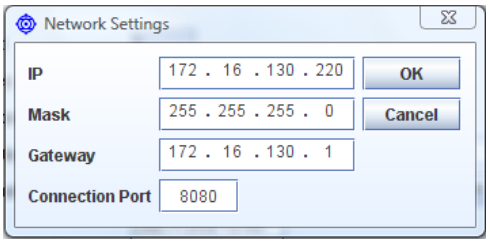
◆ Network settings

⚠ CAUTION

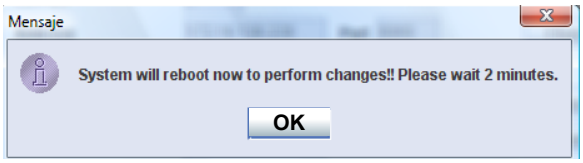
- *If this is the first time that CSNET WEB is being run in this installation, we recommend using the CD supplied with the interface, as explained in section Configuring the hardware.*
- *The network settings specify the parameters for configuring CSNET WEB to be able to communicate with the rest of the network. These parameters are essential, and a bad configuration may cause conflicts in the local area network. This is why we recommend that for making these settings you get in touch with the network administrator where CSNET WEB will be installed.*

To enter and/or modify the network configuration click on **Change** button in **Network settings** section and follow these steps:

1 Enter the IP address. The IP address consists of four numbers which must be between 0 and 255.
2 Enter the Mask. As in the case of the IP address, the four numbers must be between 0 and 255.
3 Enter the IP address of the Gateway. Again, the numbers for these four fields follow the same rule as the IP address and Mask. If you do not have a Gateway, the field should contain an IP address within the margins of the specified network.

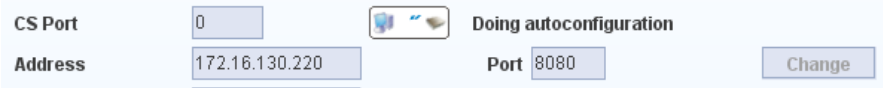


4 Click on the **OK** button situated in the upper right (by the IP line). A message will appear as in the example:



5 When you press the **OK** button, changed CSNET WEB will restart and therefore communication with it will be lost by approximately 2 minutes.

If harc is doing auto configuration, it will not be able to modify settings from that pane. User must wait for the end of auto configuration.



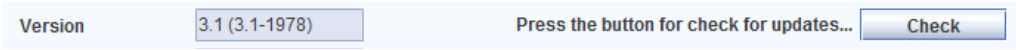
◆ Version and updates

Version and updates gives the information to the user about which software is installed on the HARC.

If the internet connection is properly configured, it can download updates for the HARC and install them just by clicking the button.

⚠ CAUTION

HARC cannot be updated through a proxy.

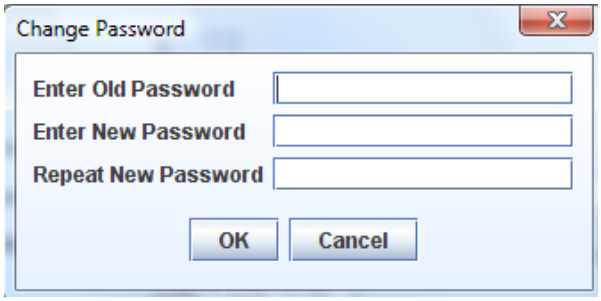


◆ Change password

The **Change** button beside Password setting opens the Change password panel.

To change your password:

- Enter the installer password. (The default factory password is “**Installer**”).
- Enter the new password.
- Repeat the new password to confirm it.
- Click the “**OK**” button to validate the changes and return to system configuration window.



NOTE

Only Installer password may be changed for CSNET WEB Server. User password will no longer be used for CSNET WEB Server.

◆ Installation name

The name of the installation is the title of the main window. This lets you identify where CSNET WEB is connected.

To change the name of the installation first enter the name you want and then click on the **Change** button by the “Installation Name” line.

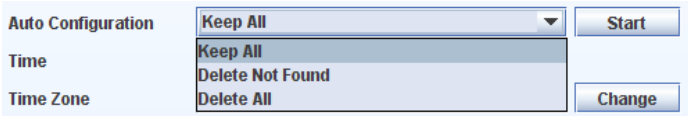
This takes you to the main window, where you can see that the title of the main page has changed.

◆ Auto configuration

When the system is started for the first time, it recognizes all the machines connected to H-Link. With time, the air conditioning installation may undergo changes which have certain repercussions on CSNET WEB. If the system detects machines which have been added after CSNET WEB was installed, or that machines have been removed from the H-Link, the Auto Configuration function lets you recognize all the machines again.

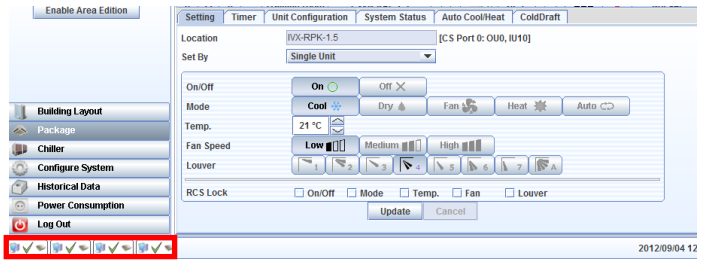
There are three Auto Configuration options:

- **Keep All**: Only the machines found are added. The other machines in the table of indoor units are kept as they were.
- **Delete Not Found**: If there are machines in the table of indoor units which are not present in the H-Link, CSNET WEB will delete these machines. All the machines which were not present in the table of indoor units but in the H-Link will be added.
- **Delete all**: All the machines in the table of indoor units will be deleted, and CSNET WEB will again detect all the machines connected to H-Link. Once they are added, you have to remember that the configuration has to be carried out again.



To carry out Auto Configuration:

- Select the option required in the **Auto Configuration** selection table.
- Press the **Start** button at the right of the menu.
- If you return to the main window, you will see the progress as a percentage (%) in the bottom left of the screen.

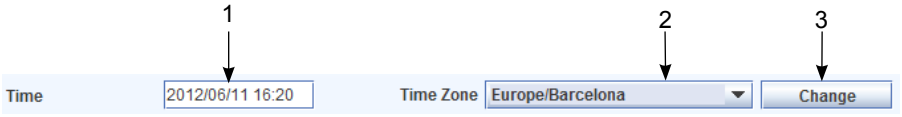


◆ Time configuration

The time configuration is used to synchronize CSNET WEB with your time zone. It is very important that this configuration is correct for the timer to work correctly.

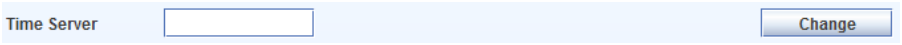
To carry out time configuration:

1 Enter the date and time. It is very important to follow the yyyy/mm/dd hh:mm format, as follows: four figures for the year, a slash "/", two figures for the month, a slash "/", two figures for the day, a space " ", two figures for the hour in 24-hour format, a colon ":" and two figures for the minutes.
2 Select the time zone. This is very important as CSNET WEB needs to know precisely the time zone in order to identify time changes and how many hours to change.
3 When you have finished, click the **Change** button, which is in the bottom right of the window. When you press the button a message appears and the application closes.
4 Wait for a couple of minutes and restart CSNET WEB.



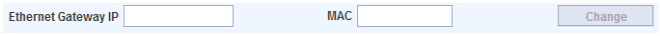
CSNET WEB allow to set a time server that will automatically set the correct date and time.

If you have a server with time and date SNTP service enable, you must set the IP of that server on the Time Server field.



◆ Ethernet gateway

You can change the IP and MAC values of your Getaway here by clicking the button **Change.**

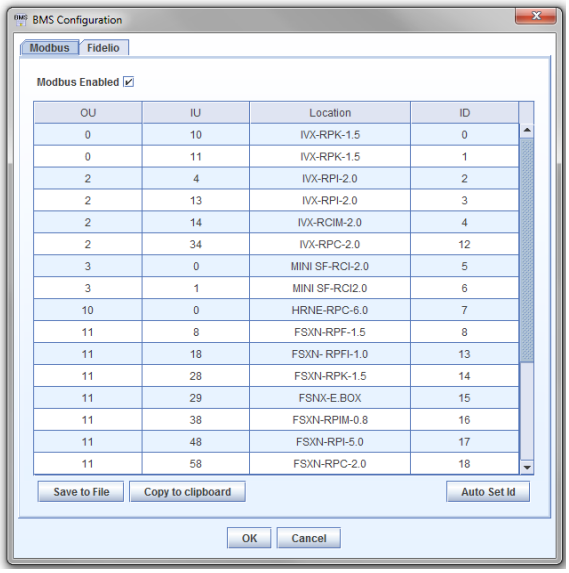


◆ BMS configuration

Modbus Configuration

CSNET WEB allows to configure the BMS system by setting the ID for each indoor unit. This configuration will link the BMS with the H-LINK.

To open the BMS configuration click on the change button. After clicking the button a dialog will appear and you could start to set the configuration.



BMS Configuration for Packaged

In this dialogue you can enable the BMS to activate this option, and after this, set in each row the unit information.

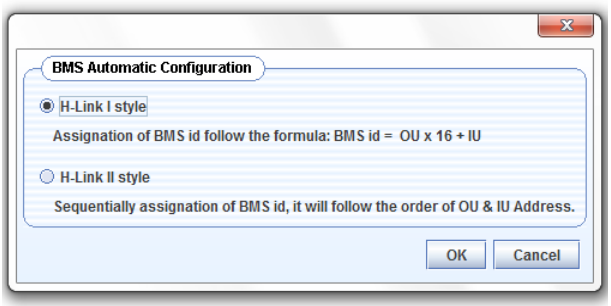
- OU is the outdoor unit number.
- IU is the indoor unit number.
- Location is the location field of the unit. This field is only editable from the unit setting tab.
- ID field is automatically set and is not modifiable.

CSNETWEB automatically assigns an ID for each found unit. You can change this ID on the table.

The ID field can not be repeated, if it will occurs, CSNET WEB will ask you to change the repeated ID.

In case of Packaged, “Auto Set Id” button will be available. This button open a new window when user could automatically assign the ID to the units. This assignation could be done in two ways:

- H-LINK I: BMS ID = OU x 16 + IU.
- H-LINK II: BMS ID is assigned following the order of OU & IU.



Export buttons

Save to file button writes in a selected comma-separated values file the content of the table.

Copy to clipboard button will set in your clipboard the content of the table, separating the information by tabs.

In both cases the information of the table is ready to create an easy view of the information and an easier exportation to other programs like Excel.

Available data for Packaged

The available data for CSNET WEB for Packaged is:

Address (Note 1)	Name	Description	Read/Write
0	EXIST	0: Not exist 1: Exist	Read
1	SYSTEM_ADDRESS	H-LINK 1: 0~15 H-LINK 2: 0~63	Read
2	UNIT_ADDRESS		
3	SET_ONOFF	ON/OFF setting order: 0: Stop 1: Run	Read/Write
4	SET_MODE	Mode setting order: 0: Cool 1: Dry 2: Fan 3: Heat 4: Auto	Read/Write
5	SET_FAN	Fan setting order: 0: Low 1: Medium 2: High	Read/Write
6	SET_TSET	Setting temperature 17ºC ~ 30ºC	Read/Write
7	SET_LOUVER	Louver setting 0 ~ 7 (7 is Auto)	Read/Write
8	SET_CENTRAL	Central Setting: Bit 0: ON/OFF (always can be stopped) Bit 1: Mode Bit 2: Setting temperature Bit 3: Fan	Read/Write
9	READ_ONOFF	ON/OFF read: 0: OFF 1: ON	Read
10	READ_MODE	Mode read: 0: Cool 1: Dry 2: Fan 3: Heat 4: Auto	Read
11	READ_FAN	Fan read 0: Low 1: Medium 2: High	Read
12	READ_TSET	Setting temperature read (17ºC to 30ºC)	Read
13	READ_LOUVER	Louver read 0 ~ 7 (7 is Auto)	Read
14	RCS_GROUP	Remote controller group 0 ~ 255	Read
15	TIN	Inlet temperature (Note 2)	Read
16	TOUT	Outlet temperature (Note 2)	Read
17	TGAS	Gas pipe temperature (Note 2)	Read

Address (Note 1)	Name	Description	Read/Write
18	TLIQUID	Liquid pipe temperature (Note 2)	Read
19	ERROR_CODE	Alarm code	Read
20	STOP_CAUSE	Compressor stop cause	Read
21	VALVE_OPEN	Indoor unit expansion valve opening	Read
22	OPER_CONDITION	Unit operation condition 0: OFF 1: Thermo OFF 2: Thermo ON 3: Alarm	Read
23	DEFROST	Defrost	Read
24	AMBIENT_TEMP	Ambient temperature (Note 2)	Read
25	POWER_GROUP	Power meter group	Read
26	TIMER_DISABLED	Timer disabled 0: Disabled 1: Enabled	Read/Write
27	OPTIONS	Options setting	Read
28	POWER	Calculated power consumption	Read
29 ~ 31	RESERVED	Reserved for future use	Not used

NOTE

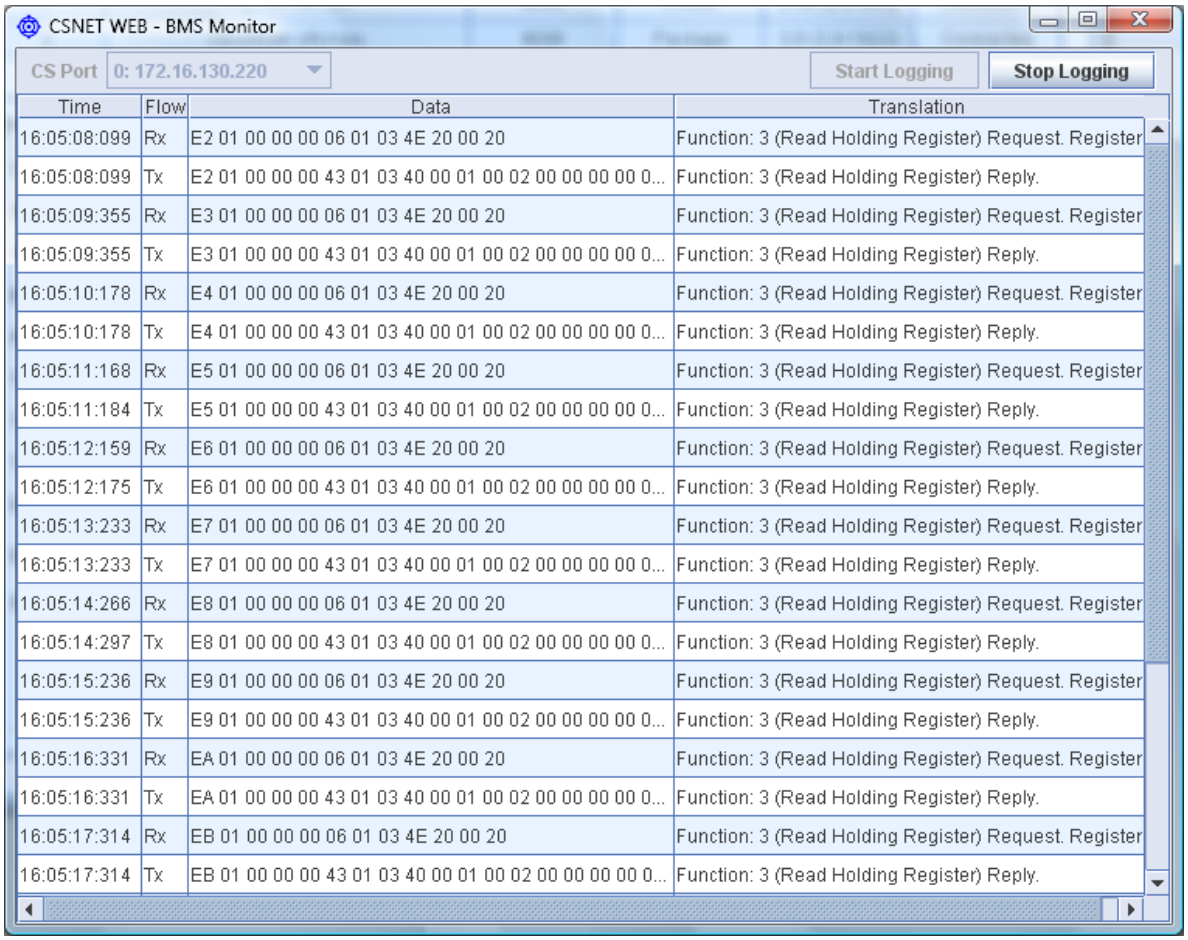
1. *Offset position is: 20000 + N*32 + Address as shown in table, where N is unit address. Unit address as set in CSNET WEB BMS configuration dialog. Be careful because we are using address 0 as first register and in Mobdus could be used number 1 as first value. In that case, it will be necessary to add 1 to the address calculation.*
2. *These numbers refer to signed 16-bit value using 2-complement format for negative values.*
3. *In case that the installation will use more than one CSNET WEB, it will use different device Ids, using Virtual Ids. Refer to the configuration of your BMS to Ethernet adapter to know how it works.*
4. *Register number 10 is used for general alarm status.*

BMS Monitor

Pressing **Monitor** button, it will be open the following windows, where the user could select which CSNET WEB will be monitored. After select it, must be started the logging.

During the logging process, CSNET WEB will register all the Modbus communications that it will receive, and it will be showed on the table.

The following table shows when the message have been received, if it is transmitted (Tx) or received (Rx), the data bytes of the message, and a translation for a best understanding of the user.



Time	Flow	Data	Translation
16:05:08:099	Rx	E2 01 00 00 00 06 01 03 4E 20 00 20	Function: 3 (Read Holding Register) Request. Register
16:05:08:099	Tx	E2 01 00 00 00 43 01 03 40 00 01 00 02 00 00 00 00 0...	Function: 3 (Read Holding Register) Reply.
16:05:09:355	Rx	E3 01 00 00 00 06 01 03 4E 20 00 20	Function: 3 (Read Holding Register) Request. Register
16:05:09:355	Tx	E3 01 00 00 00 43 01 03 40 00 01 00 02 00 00 00 00 0...	Function: 3 (Read Holding Register) Reply.
16:05:10:178	Rx	E4 01 00 00 00 06 01 03 4E 20 00 20	Function: 3 (Read Holding Register) Request. Register
16:05:10:178	Tx	E4 01 00 00 00 43 01 03 40 00 01 00 02 00 00 00 00 0...	Function: 3 (Read Holding Register) Reply.
16:05:11:168	Rx	E5 01 00 00 00 06 01 03 4E 20 00 20	Function: 3 (Read Holding Register) Request. Register
16:05:11:184	Tx	E5 01 00 00 00 43 01 03 40 00 01 00 02 00 00 00 00 0...	Function: 3 (Read Holding Register) Reply.
16:05:12:159	Rx	E6 01 00 00 00 06 01 03 4E 20 00 20	Function: 3 (Read Holding Register) Request. Register
16:05:12:175	Tx	E6 01 00 00 00 43 01 03 40 00 01 00 02 00 00 00 00 0...	Function: 3 (Read Holding Register) Reply.
16:05:13:233	Rx	E7 01 00 00 00 06 01 03 4E 20 00 20	Function: 3 (Read Holding Register) Request. Register
16:05:13:233	Tx	E7 01 00 00 00 43 01 03 40 00 01 00 02 00 00 00 00 0...	Function: 3 (Read Holding Register) Reply.
16:05:14:266	Rx	E8 01 00 00 00 06 01 03 4E 20 00 20	Function: 3 (Read Holding Register) Request. Register
16:05:14:297	Tx	E8 01 00 00 00 43 01 03 40 00 01 00 02 00 00 00 00 0...	Function: 3 (Read Holding Register) Reply.
16:05:15:236	Rx	E9 01 00 00 00 06 01 03 4E 20 00 20	Function: 3 (Read Holding Register) Request. Register
16:05:15:236	Tx	E9 01 00 00 00 43 01 03 40 00 01 00 02 00 00 00 00 0...	Function: 3 (Read Holding Register) Reply.
16:05:16:331	Rx	EA 01 00 00 00 06 01 03 4E 20 00 20	Function: 3 (Read Holding Register) Request. Register
16:05:16:331	Tx	EA 01 00 00 00 43 01 03 40 00 01 00 02 00 00 00 00 0...	Function: 3 (Read Holding Register) Reply.
16:05:17:314	Rx	EB 01 00 00 00 06 01 03 4E 20 00 20	Function: 3 (Read Holding Register) Request. Register
16:05:17:314	Tx	EB 01 00 00 00 43 01 03 40 00 01 00 02 00 00 00 00 0...	Function: 3 (Read Holding Register) Reply.

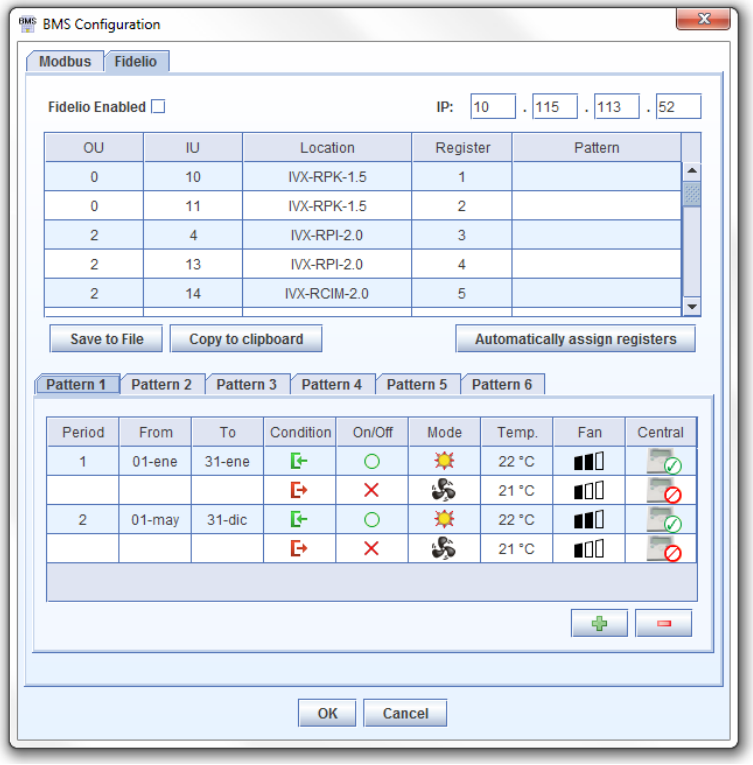
Fidelio Configuration

CSNET WEB is compatible with a Hitachi H-LINK to Fidelio Gateway.

Each unit can be linked to a Fidelio register to know if there is a check in or check out condition on that room.

For each unit can be assigned a pattern similar to the timer one that describes a condition for check in and another for check out. It also can be specified the data period where that patterns applies.

To activate the Fidelio compatibility it must be selected the check box and specified an accessible IP for the Hitachi Fidelio gateway.



CAUTION

Actions configured on the Fidelio dialogue are managed from the CSNET WEB client software, so it is necessary to have the computer program running to use the Fidelio compatibility.

NOTE

The compatibility with Fidelio protocol was tested with IBOX-MBS-FIDELIO_IP of INTESIS. Hitachi ensures the compatibility with this and others devices working exactly as the same. To use others devices please contact Hitachi to ensure compatibility.

◆ Alarm notification

CSNET WEB is ready to notify alarms to the users. These alarms are notified by e-mail. To configure these notifications you must open the alarm notification dialogue.

Clicking on the **Change** button the dialog will be open and you could start to set the configuration. The configuration is divided in different parts:

- **Alarm notification**: allows enable or disable alarm notification function and select between execute this server on the CSNET WEB HARC or in the computer.
- **Account details**: settings about the SMTP server.
- **Notify settings**: configuration about the receivers and the period of the notifications.

The selection between CSNET WEB Interface and Computer identifies which element will execute the mail alarm function, and in each case it will have different specifications.

The differences between the configurations are:

- Computer

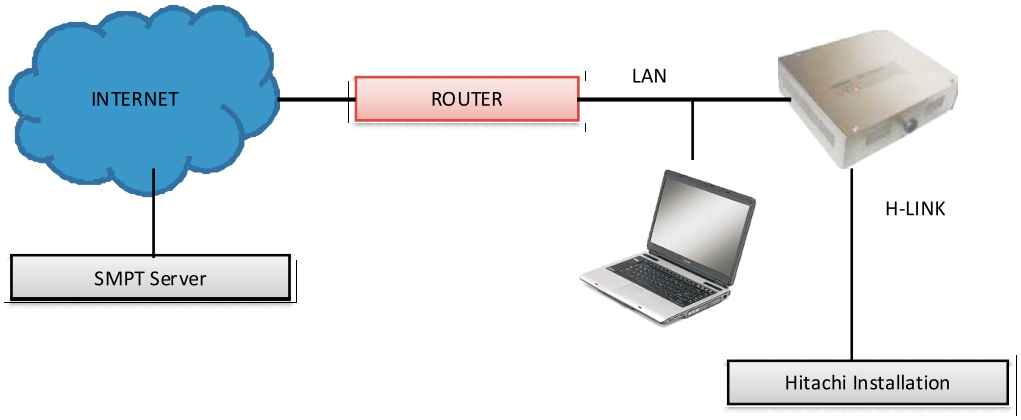
a. Configuring the mail alarms on the computer is used when CSNET WEB is on a LAN net that does not pass through a proxy to connect to Internet.

b. The mail alarms are being sent from the computer when CSNET WEB software is running, so that the software cannot be closed.

c. That connection allows the use of already existing SMTP servers on the Internet, such as Gmail, Yahoo or others. These are encrypted connections, so they can be used.

d. The e-mail sent has the location information column as it is managed from the computer and it is powerful than CSNET WEB interface.

e. SMTP server can be encrypted. Gmail, Yahoo or similar.



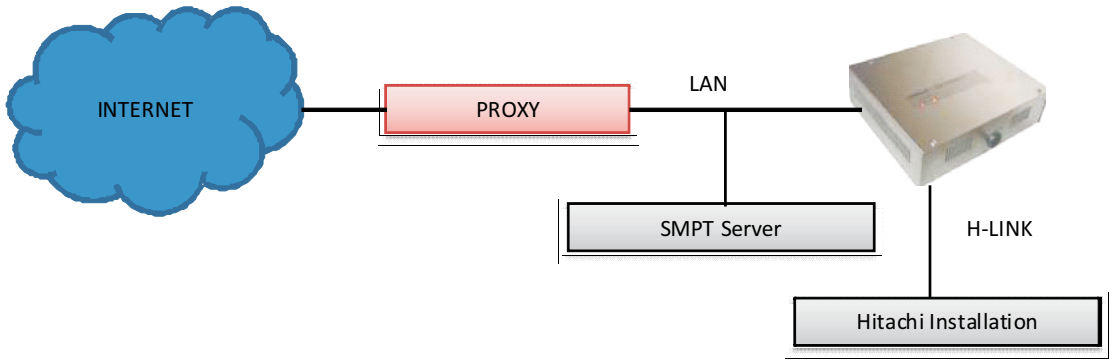
- CSNET WEB Interface:

a. Configuring the mail alarms on the CSNET WEB Interface is used when CSNET WEB is on a LAN that uses proxy to connect to Internet.

b. CSNET WEB device will send the alarm mails using this SMPT server.

c. It is required to have a SMPT server on the same LAN than CSNET WEB.

d. CSNET WEB Interface cannot connect to a SMTP encrypted server.

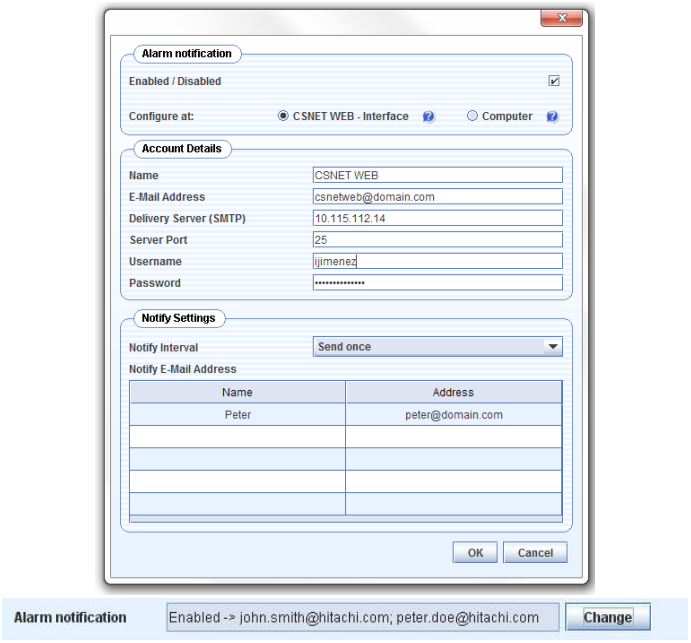


The account details need to specify the next fields:

- **Name**: installation name.
- **E-mail**: account installation mail.
- **Delivery Server address**: mail server address.
- **Server Port**: mail server port.
- **User name**: mail user name.
- **Password**: mail password.

Notify settings configures who will receive the notifications and what will be the interval of these notifications.

- **Notify interval**: you can set a notification interval of 1, 2, 6, 12 hours or 1 day.
- **Notify E-Mail address**: sets the name and the e-mail address of the different receivers.



On **OK** button the configuration will be saved and sent to the CSNET WEB, this operation is not immediately. When CSNET WEB will receive and process this information you could see this on the alarm configuration field.

In case of alarm, CSNET WEB will send an e-mail with the following contents:

From CSNET WEB Interface:

CSNET WEB Alarm detected
(x,y) Alarm: #
(x,y) Alarm: #
(x,y) Alarm: #
(x,y) Alarm: #

From Computer:

OU	IU	Location	Alarm
X	Y	L	#
X	Y	L	#

In both cases, each parameter is:

X: Outdoor unit number

Y: Indoor unit number

#: Alarm code

L: Location (just from client)

◆ Backup copy

This option lets you make a backup copy of the CSNET WEB parameters. The **Backup** button saves the configuration in the file you choose of the computer from which you accessed the system.

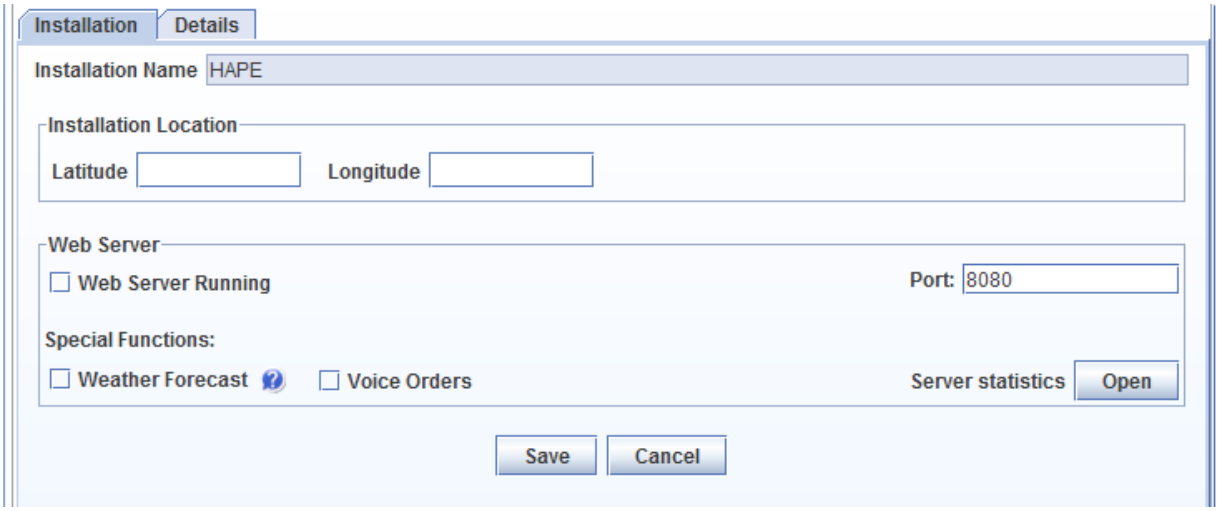
The **Restore** button re-establishes the configuration stored in the file you have specified.

◆ Configuration report

Configuration report prints on a text file all the settings that CSNET WEB has.

The purpose of that is in case of wrong behaviour of the functions, report the state and help to understand if there is something not well configured.

◆ Web server



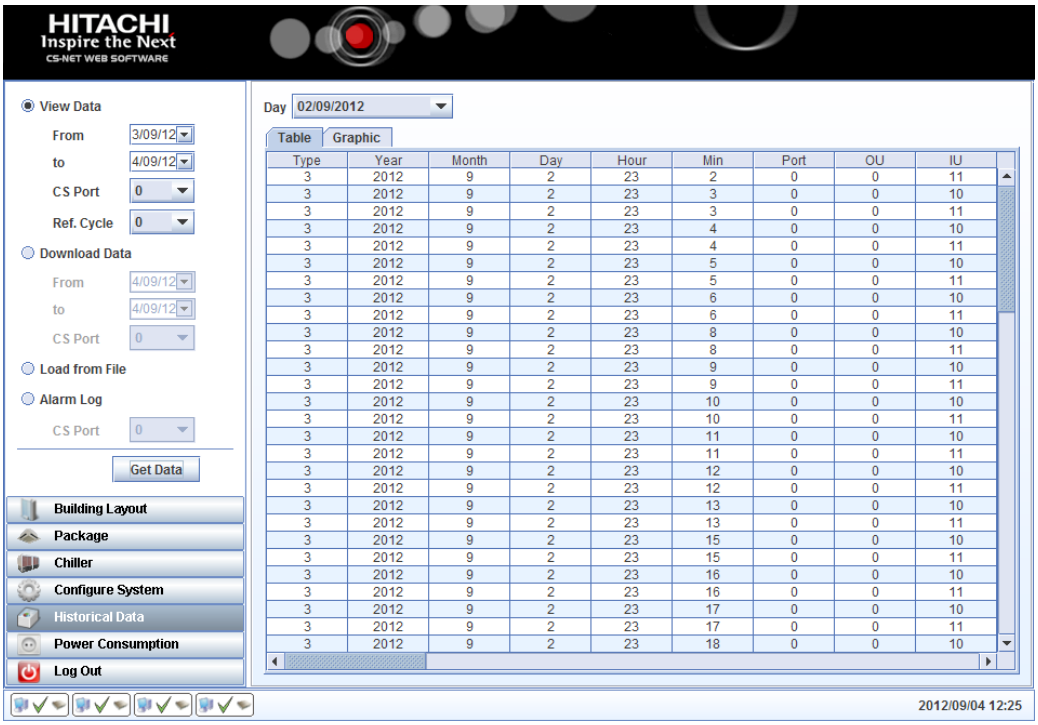
Installation menu refers to the data related to the general installation.

- Installation Location is used by web server functions. The location indicates where in the world is the Hitachi air conditioning installation.
- Web Server configuration activates the software as a web server that lets the user to configure the units through a web.
  User can be connected to the software by using a web browser just by typing the IP of the computer that has the CSNET WEB Software running.
  CSNET WEB Software should keep running in order to be able to connect.
  Check Web connection chapter for further information.

6.1.5.6 Historical data

CSNET WEB automatically stores an operating record for all the units in the system. These data can be downloaded locally or displayed (both from the data previously stored locally and the data obtained from the system).

- Displaying historical data
- Downloading historical data



◆ Displaying historical data

CSNET WEB allows you to save a history of data from all the machines connected to the H-Link.

It also displays the information in two different formats:

- Data in the form of a table, which can be exported in text format; and
- Data in graph format, which can be used to generate graphics for display.

To obtain historical data:

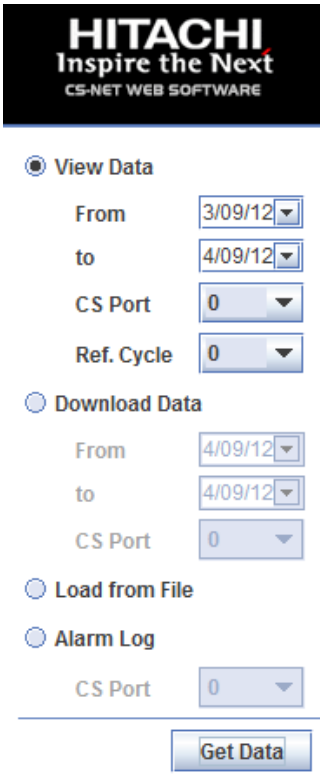
1 Select **View data.**
2 Select starting date (from).
3 Select end date (to).
4 Select unit to display.
5 Press the **Get data** button.

To download data to disk:

1 Select **Download data.**
2 Select starting date (from).
3 Select end date (to).
4 Press the **Get data** button.

To get data from file:

1 Select **Load from file.**
2 Press the **Get data** button.

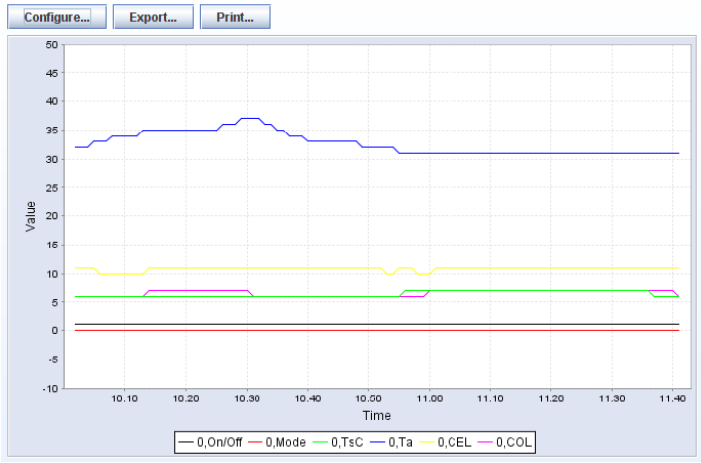


Data can only be displayed in periods of one day, although they may be downloaded for greater time ranges. Select the day to be displayed in the “Day” field.

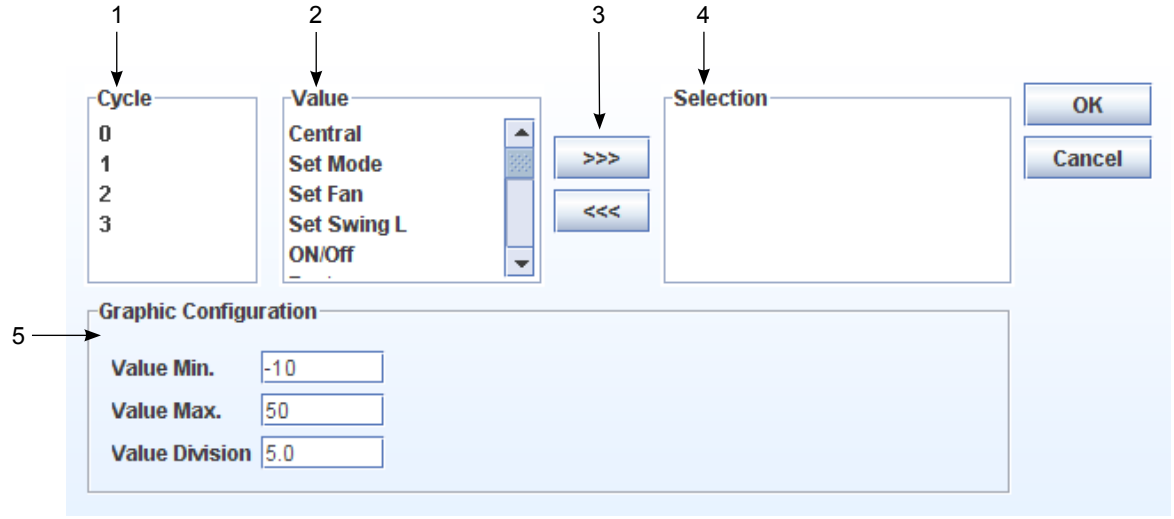
Operation of the graph

To change the display to graph mode, select the **Graph** tab on the display panel.

Select the configuration of the graph pressing on **Configure...**.



The graph configuration window has several fields:



1 **Selecting the unit**: Select the indoor unit address to be displayed.
2 **Value**: Contains the different values that can be displayed for the unit or cycle. See section on *Values table* for an explanation of each parameter.
3 **Selection buttons**: Permit the addition or the elimination of a series (unit + value) of the display.
4 **Selection**: Series to display.
5 **Graph configuration**: Permits the configuration of the graph display. The “Value min” field permits the selection of the minimum on the Y axis and the “Value max” field permits the selection of the maximum on the Y axis.

To generate a graph:

- Select the unit (indoor unit or cycle) you wish to add to the series.
- Select the value for the unit you wish to add.
- Press the “>>>” button to add the selection to the series list.
- Repeat steps 1 to 3 to add the different series required on the list. To delete a selected series, select the series list and press the “>>>” button.
- Configure the graph as required.
- Press “OK” to update and return to CSNET WEB.

Use the lower scroll bar to select the day. Change the day in the **Day** field.

The **Export** button permits the capture of a graphic in JPG format. The **Print** button permits the graph to be printed.

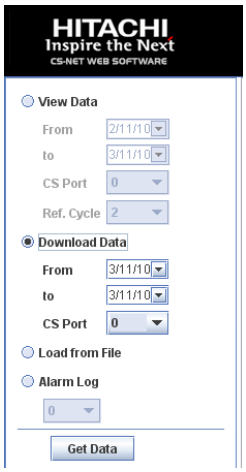
◆ Values table

Identifier of the type of file:		
		<Type=Version; 3 or 2>
Temporary identification and module:		
		<Year> <Month> <Day> <Hour> <Minutes>
		<CS Port> <OU Number> <IU Number>
Adjustment of the indoor unit (CSNET WEB):		
	Central:	<Central=1>,Local=0>
	Set Mode:	<Adjust the fan speed (not Utopia): LOW=0, MEDIUM=1, HIGH=2, HIGH-H=3, AUTO=4>
	Set Fan:	<Adjust the fan speed (not Utopia): LOW=2, MEDIUM=3, HIGH=4>
	Set Swing L:	(Swing Louver)<Adjust swing louver: Position = 0-6, AUTO=7>
	ON/OFF:	<On=1/off=0 adjustment>
	Tset:	<Setting temperature in ºC>
Communication:		
	Alarm:	<Error code>
	Comp.Stopped:	<Cause of compressor stop>
	Valid:	<Valid data>
		Bit 0=1 (value 1): The data read from the indoor unit are valid except for the opening of the expansion valve and operating state
		Bit 1=1 (value 2): (not Utopia): The data of the expansion valve opening of the indoor unit are valid
		Bit 2=1 (value 4): (not Utopia): The data on the operating condition of the indoor unit are valid
		Bit 3=1 (value 8): (not Utopia): The data on the outdoor unit are valid, the total should be 15 for SET FREE and 1 for UTOPIA
Readings for the indoor unit:		
	Mode:	<IU: Reading of the operating mode (not Utopia): : FAN=0, COOL=1, DRY=2, HEAT=3>
	Fan:	<IU: Reading of the fan speed (not Utopia): : STOP=0, SLOW=1, LOW=2, MEDIUM=3, HIGH=4>
	Status:	<IU: Reading of the operating condition: STOP=0, THERMO ON=1. THERMO OFF=2, ALARM=3>
	Swing L:	<IU: Reading of the swing louver: POSITION=0-6, AUTO=7, NOT AVAILABLE=8>
	IU Hz:	<IU: Reading of the required frequency>
	Ti:	<IU: Reading of air inlet temperature in ºC>
	To:	<IU: Reading of air outlet temperature in ºC>
	DT ºC:	<IU: Reading of the absolute value of the inlet-outlet temperature in ºC>
	Tg:	<IU: Reading of gas piping temperature in ºC>
	TL:	<IU: Reading of liquid piping temperature in ºC>
	Trem:	<IU: Reading of the thermistor temperature in ºC>
	Tset Read:	<IU: Reading of setting temperature in ºC>
	iE:	<IU: Reading of % opening of the expansion valve > (% x 1000 in version 2)
Readings for the outdoor unit:		
	Pulse:	<OU: Impulses of the expansion valve of the IU requested>
	Ou Mode:	<OU: Operation mode: HEAT=0, COOL=1, DRY=2, STOP=3>
	Ta:	<OU: Ambient temperature in ºC>
	Td:	<OU: Discharge gas temperature in ºC>
	Te:	<OU: Evaporation temperature in ºC>
	Nº Comp:	<OU: Number of compressors in operation>
	Pd:	<OU: Pressure of discharge gas (not Utopia) x 10>
	Ps:	<OU: Suction pressure (not Utopia) x 100)>
	Amps:	<OU: Value of total compressor consumption, a stepped series is used for FX units>
	Hz:	<OU: Frequency of compressor in Hz (not Utopia)>
	oE1:	<OU: % opening of the expansion valve 1 (not Utopia)> (% x 1000 in version 2)
	oE2:	<OU: % opening of the expansion valve 2 (not Utopia)> (% x 1000 in version 2)
	oE3/oEb:	<OU: % opening of the expansion valve 3 or b (only set-free 3 tubes)> (% x 1000 in version 2)

◆ Download of historical data

Download the historical data as follows:

- Select **Download Data** in the left part of the screen.
- Select the date from which you want to download the historical data.
- Press the **Get Data** button.



A window will appear letting you select the folder in which to save the files.

File format

When the historical data are downloaded, one file is written per outdoor unit. The file name will be **hvv00nn,** where:

- **vv** is the version selected:

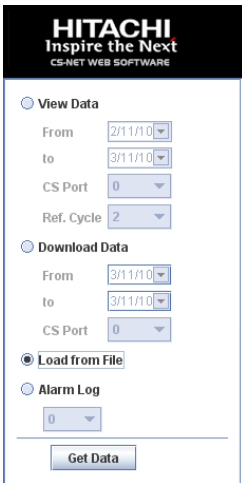
  02 earlier version (CSNET v8)

  03 new version (CSNET WEB)

- **nn** is the number of the outdoor unit.

◆ Load from file

CSNET WEB allows to display data from a previously saved file. Load data is done by clicking **Get Data** button and selecting the corresponding file. When data loading is finished, this data are normally displayed.



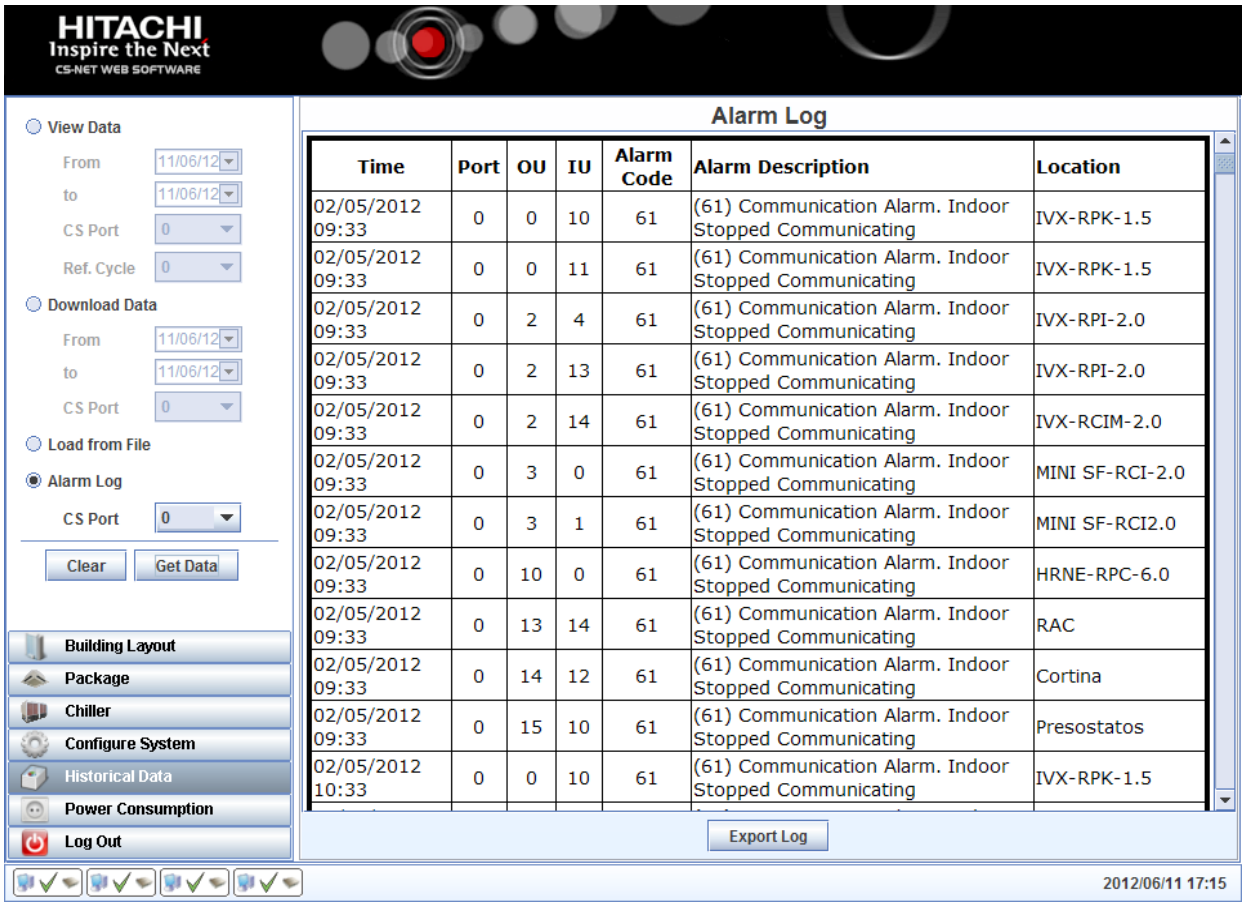
◆ Visualization of alarms

CSNET WEB also saves the most important alarm events occurred during the lifetime of the installation.

Clear button erase the alarm history.

To visualize the alarms, click on the **Alarm Log** tab, and next press the **Export log** button, which is in the centre bottom of the window. This may take several seconds. When the operation is over, a table as in the example will appear.

The format of the table is the same as the format of the file which is described below.



Time	Port	OU	IU	Alarm Code	Alarm Description	Location
02/05/2012 09:33	0	0	10	61	(61) Communication Alarm. Indoor Stopped Communicating	IVX-RPK-1.5
02/05/2012 09:33	0	0	11	61	(61) Communication Alarm. Indoor Stopped Communicating	IVX-RPK-1.5
02/05/2012 09:33	0	2	4	61	(61) Communication Alarm. Indoor Stopped Communicating	IVX-RPI-2.0
02/05/2012 09:33	0	2	13	61	(61) Communication Alarm. Indoor Stopped Communicating	IVX-RPI-2.0
02/05/2012 09:33	0	2	14	61	(61) Communication Alarm. Indoor Stopped Communicating	IVX-RCIM-2.0
02/05/2012 09:33	0	3	0	61	(61) Communication Alarm. Indoor Stopped Communicating	MINI SF-RCI-2.0
02/05/2012 09:33	0	3	1	61	(61) Communication Alarm. Indoor Stopped Communicating	MINI SF-RCI2.0
02/05/2012 09:33	0	10	0	61	(61) Communication Alarm. Indoor Stopped Communicating	HRNE-RPC-6.0
02/05/2012 09:33	0	13	14	61	(61) Communication Alarm. Indoor Stopped Communicating	RAC
02/05/2012 09:33	0	14	12	61	(61) Communication Alarm. Indoor Stopped Communicating	Cortina
02/05/2012 09:33	0	15	10	61	(61) Communication Alarm. Indoor Stopped Communicating	Presostatos
02/05/2012 10:33	0	0	10	61	(61) Communication Alarm. Indoor Stopped Communicating	IVX-RPK-1.5

Autosave configuration

The chapter *Local software configuration* shows how to access the software settings. The alarm log function also allows you to keep an updated copy of the log in your computer.

To activate this option:

- Mark the selection box.
- Indicate the folder in which you want to save the file. The button to the right of the text window opens the navigation window so that you can select the folder.
- Select the file version (see the next point *File format*).

The resulting file (errYY.txt, where YY are the two figures indicating the year) is updated every minute.

File format

The CSNET and CSNET WEB versions contain the same data. An option to choose the version has been added to ensure future compatibility.

The alarm file format is as follows:

	Port	OU	IU	Alarm code	Description	Alarm
1.9.2006 14:20	0	10	2	11	(11) IU Sensor: Inlet air thermistor	FSN 2
1.9.2006 14:31	0	10	2	11	(11) IU Sensor: Inlet air thermistor	FSN 2
1.9.2006 14:45	0	10	2	11	(11) IU Sensor: Inlet air thermistor	FSN 2
1.9.2006 14:53	0	10	2	11	(11) IU Sensor: Inlet air thermistor	FSN 2
5.9.2006 8:39	0	10	2	11	(11) IU Sensor: Inlet air thermistor	FSN 2
5.9.2006 9:0	0	10	2	11	(11) IU Sensor: Inlet air thermistor	FSN 2
5.9.2006 9:51	0	2	0	61	(61) Communication error. Indoor unit no longer communicates	Utopia Big 1
5.9.2006 9:51	0	2	1	61	(61) Communication error. Indoor unit no longer communicates	Utopia Big 2
5.9.2006 9:51	0	2	2	61	(61) Communication error. Indoor unit no longer communicates	Utopia Big 3

6.1.5.7 Power consumption

CSNET WEB saves and calculates the percentage of energy consumption of each indoor unit compared to the outdoor units, so that the user can consult the level of consumption at any time.

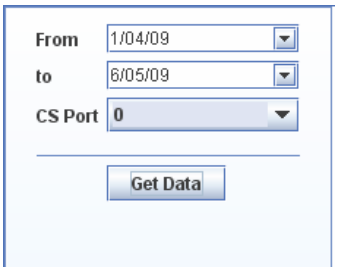
The window is divided into three parts:

1 The upper part allows you to choose the options you want to consult.
2 The central part shows the results of the consultation.
3 The bottom part offers options of saving the results and exiting.

To carry out a consultation:

1 Indicate the starting and finishing dates for which CSNET WEB will carry out the calculations. These dates can be chosen in the timer which appears by clicking on the arrow to the right of the date.
2 Click on the **Get data** button.
3 The results of the consultation will appear in the central part as a table.
4 To save the results of the consultation click on the **Save to File** button.

To get the data of power consumption for Packaged units, enter the date interval and click the **Get Data** button.



A table will appear with different information.

OU	IU	Location	% OU	% System	Energy	Cost
0	1	Room 3	15,65	1,64	81,76 kW	6,06 €
0	2	Room 1	14,45	1,51	75,48 kW	5,57 €
0	3	Room 2	6,86	0,72	35,81 kW	2,48 €
0	4	IT office	7,14	0,75	37,29 kW	2,59 €
0	6	RRHH	49,11	5,13	256,5 kW	19,69 €
5	1	President	100	24,5	1225,22 kW	93,34 €
13	0	PUR 1	27,93	6,14	307 kW	23,44 €
13	1	PUR 2	33,41	7,35	367,34 kW	28,15 €
13	2	Finance 2	38,66	8,5	424,99 kW	32,65 €
14	0	DOC 1	8,45	1,28	63,9 kW	4,4 €
14	1	DOC 2	50,4	7,63	381,25 kW	29,15 €
14	2	Design 2	41,16	6,23	311,37 kW	23,7 €
15	0	Finance 1	49,86	1,91	95,46 kW	6,99 €
15	1	Design 1	50,14	1,92	96,01 kW	7,03 €
16	0	Sala 7	48,07	3,71	185,58 kW	13,57 €
16	1	D. Secretaria	51,93	4,01	200,5 kW	14,91 €
17	0	Sala Vip	46,23	4,14	207,01 kW	14,66 €
17	1	Sala Vip	53,77	4,82	240,75 kW	17,12 €
18	0	Sala Juntas	51,95	3,86	192,9 kW	14,24 €

Meaning of the table fields:

OU: number of the outdoor unit. Number between parenthesis indicates that booth outdoors are the same and we are using the virtual address to differentiate it.

IU: number of the indoor unit.

Location: description of the machine. This value corresponds to the description field of the configuration of indoor unit.

%OU: indoor unit consumption percentage in relation to its outdoor unit power consumption.

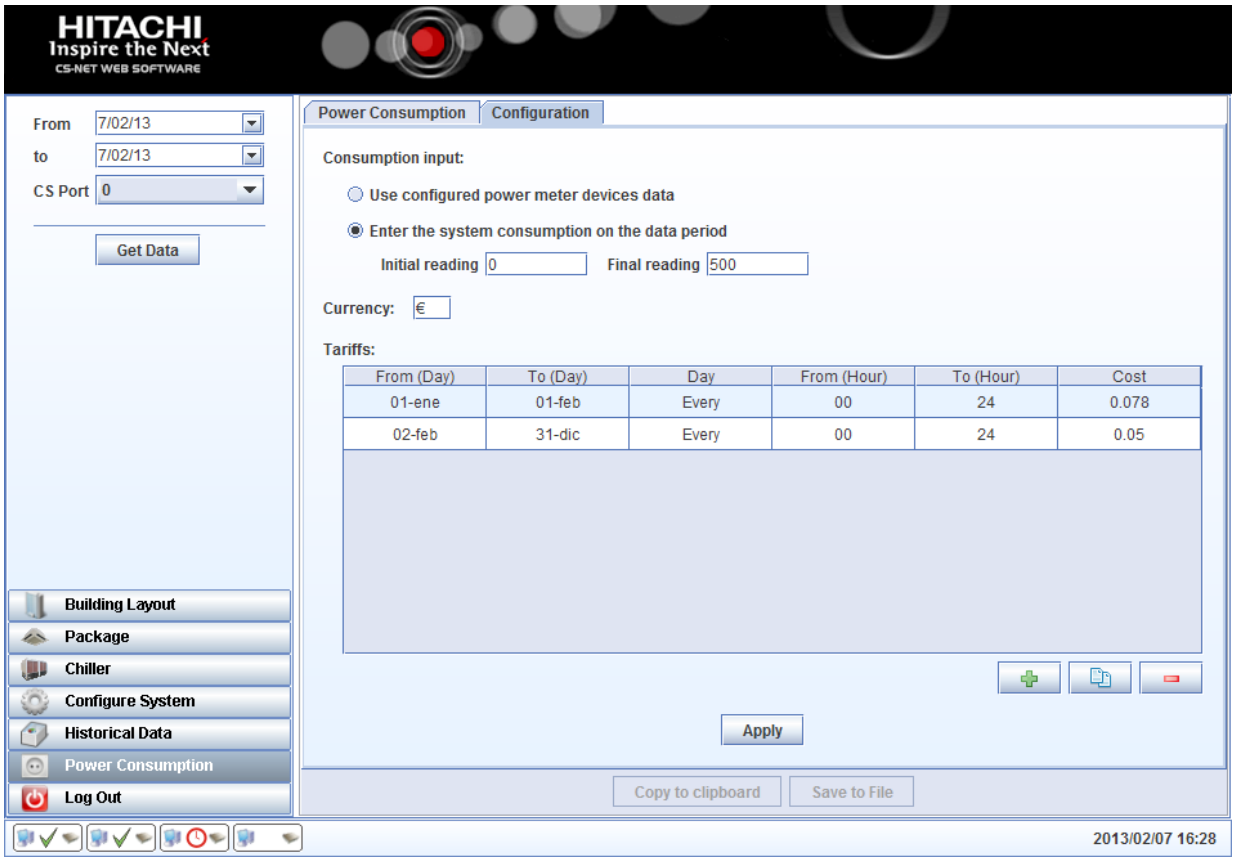
%System: indoor unit consumption percentage in relation to all the installation power consumption.

Energy: When power meter devices are connected, CSNET WEB is able to show the energy consumed by the unit.

Cost: cost related to the energy consumed based on configured tariffs prices.

◆ Configuration

The cost calculated for each indoor unit is based on tariffs specified on the CSNET WEB.



There are two different systems to define the source of the consumed energy:

- **Use configured power meter devices data:** in case of having power meter devices related to the units, the energy consumed per each indoor unit will be calculated based on the information provided by these devices.
- **Enter the system consumption on the data period:** in case of entering manually the consumption of the system in the desired period, user enters the input reading data at the beginning and at the end of the period.

Current currency can also be specified.

The tariff table lets the user to set different time periods within a day with a related cost.

NOTE

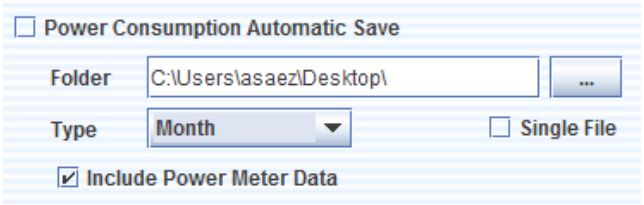
The unit of measurement of the cost of a tariff period is the same than the input data reading. In case of using power meter device, the unit of measurement should be the same than the specified on the power meter device configuration.

◆ Autosave configuration

The chapter *Local software configuration* shows how to access the software settings. The power consumption function allows you to generate automatically a detailed report of the daily consumption of the installation.

To activate this option:

- Mark the selection box.
- Indicate the folder in which you want to save the file. The button to the right of the text window opens the navigation window so that you can select the folder.
- Select the type of power consumption:
  - **Month:** Each day stores on a monthly file the values accumulated for the units since the first day of the month.
  - **Day:** Each day stores on a monthly file the values of the power consumption of the current day.



- Selecting single file option it will also store in the folder a unique file with the power consumption. This file will have the power consumption of each day registered.
- Including power meter data adds a column with energy values.

The autosave operates every day at 00:00. It stores a monthly file with the monthly accumulated or the daily power consumption.

If the single day option is activated, it will also store the daily power consumption in the single file.

File name is m1_YYYYMM.txt. YYYY means the year and MM the month.

For the single file, the name is **power_log.tx.**

◆ File format

The file format saved has different columns separated by the tab character. The meaning of those columns for the packaged file is:

Year	Month	Day	CS Port	OU	IU	Location	%OU	%System

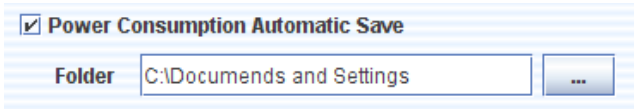
In case of including power meter data, the file format is:

Year	Month	Day	CS Port	OU	IU	Location	%OU	%System	Energy

In the case of manual saving, a row is added at the beginning with the meaning of each field, but this does not occur when automatically saving.

The automatic save must be selected from the *Local software configuration* section as explained earlier.

The **Save to file** button permits the data to be manually saved.



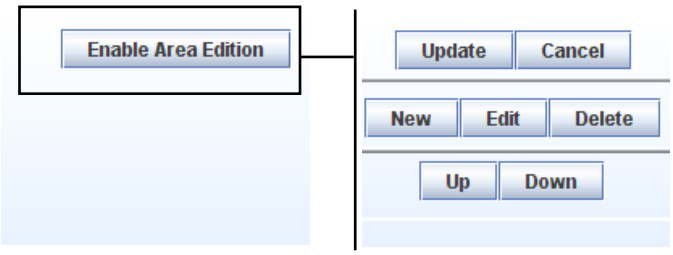
6.1.5.8 Operation and configuration of packaged units

The following chapter will apply when the system has Packaged units. Remember that it is not possible to connect water chillers and Packaged units in the same H-LINK communication line.

1 **Area tree**: Installation tree with the different areas defined by the user.
2 **Units zone**: Lists of all the indoor units with a basic state information.
3 **Main options**: Gives access to the installation data view (Package), the configuration of CSNET WEB, the Historical Data and the Power Consumption.
4 **HARC-WEB Status**: Shows the current state of four HARCWEB connections, software functions enabled and if there are automatic updates available.

◆ Area tree

Enable Area Edition activates an area tree for this installation.



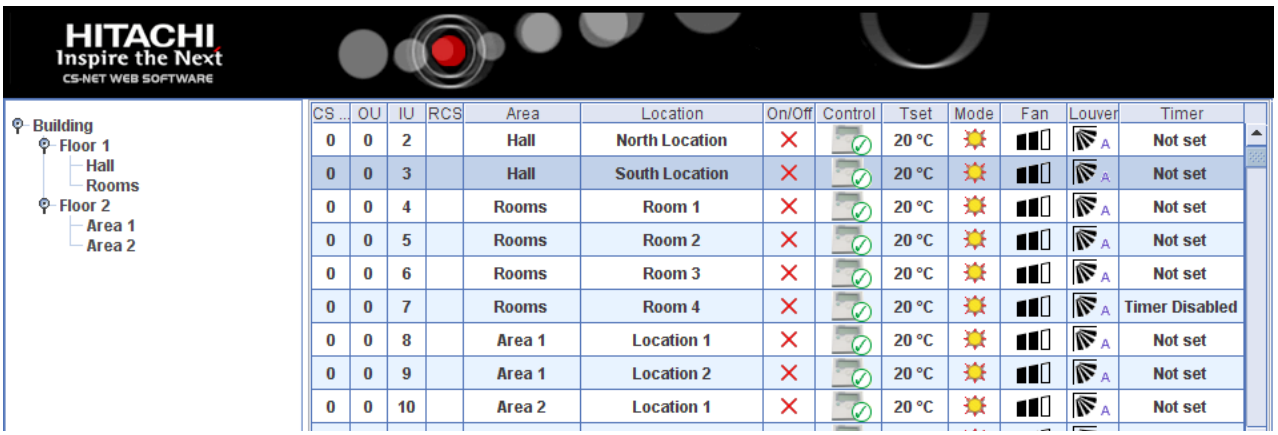
- **New**: Creates a new area.
- **Edit**: Edits the selected area in the area tree.
- **Delete**: Deletes the selected area.
- **Up**: Moves the selected area up, respecting its level.
- **Down**: Moves the selected area down, respecting its level.
- **Update**: Saves all the areas created and closes the Area Edition.
- **Cancel**: Closes the Area Edition without saving changes made.

NOTE

The areas created contain indoor units. See the following chapter if you want to select to which area each of the units belongs.

◆ Table of indoor units

The Table of indoor units is composed of a row for each indoor unit.



CS ...	OU	IU	RCS	Area	Location	On/Off	Control	Tset	Mode	Fan	Louver	Timer
0	0	2		Hall	North Location	✕		20 °C			A	Not set
0	0	3		Hall	South Location	✕		20 °C			A	Not set
0	0	4		Rooms	Room 1	✕		20 °C			A	Not set
0	0	5		Rooms	Room 2	✕		20 °C			A	Not set
0	0	6		Rooms	Room 3	✕		20 °C			A	Not set
0	0	7		Rooms	Room 4	✕		20 °C			A	Timer Disabled
0	0	8		Area 1	Location 1	✕		20 °C			A	Not set
0	0	9		Area 1	Location 2	✕		20 °C			A	Not set
0	0	10		Area 2	Location 1	✕		20 °C			A	Not set

The meaning of each column is as follows:

Column	Location	Content / Symbol				
OU	Address of the outdoor unit or cooling circuit to which the indoor unit belongs	<number>				
IU	Address of the indoor unit	<number>				
RCS	Remote control number	<number>				
Area	Area to which the selected unit belongs	+<descriptive text>				
Location	Name of the room conditioned by the selected unit	<descriptive text>				
On/Off	Indicates the ON/OFF situation of each indoor unit	ON		OFF		
						
Control	Indicates whether the indoor unit has a locked control parameter which cannot be changed from the remote control	Parameter locked	No parameter locked	Configured without RC	RC not found	
						
Tset	Setting temperature	<number>				
Mode	Operation mode of indoor unit	Cool	Heat	Dry	Fan	Automatic
						
Fan	Indoor unit fan level	Low	Medium	High	High-H	Auto
						
Louver	Position of the baffle plate	On		Not available		
						
Timer	Timer used by the indoor unit	<descriptive text>				

◆ Operation panel

The Operation Panel has the following access fields offering complete control of the units:

- Setting
- Timer
- Unit configuration
- System Status
- Auto Cool/Heat
- Cold Draft
- Power meter

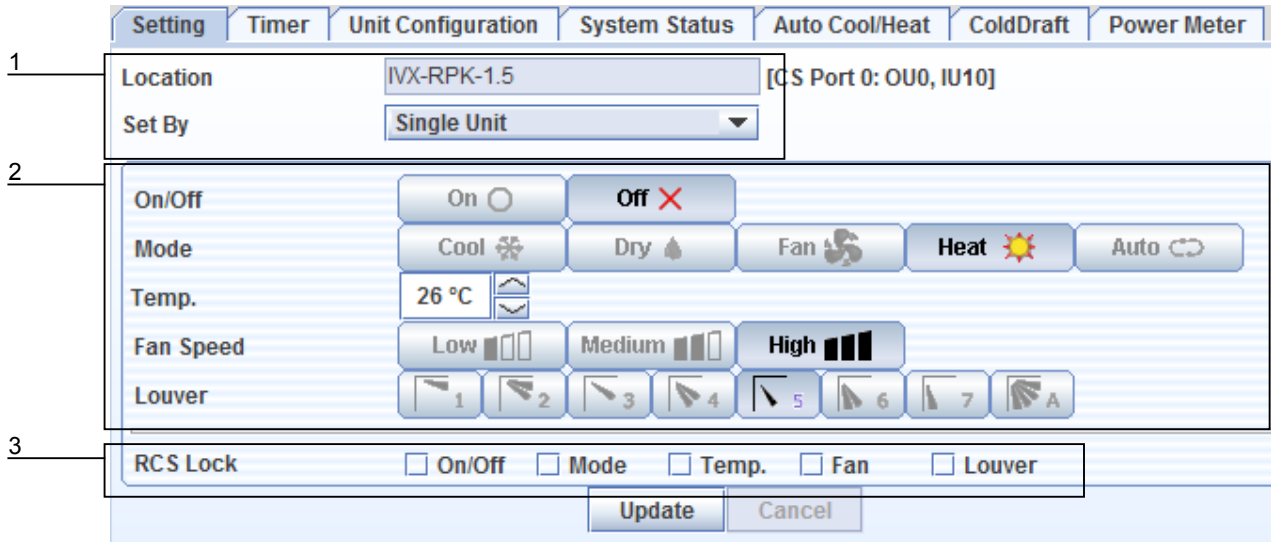
Each of these fields is explained below.

NOTE

Visibility of these fields depends on privilege level of the user.

Setting

This option shows the parameters which can be selected for each indoor unit.



After selecting the parameters to be adjusted, press **Update** to send the order to the units selected or **Cancel** to cancel the operation.

1 Select the unit. The unit selected in the table of indoor units is identified by the **Location** field. Using the **Set by** field, select the group of units whose parameters you want to adjust:
- **Unit**: The unit selected.
- **Outdoor**: All the indoor units which belong to the same cooling circuit.
- **Area**: All the units which are in the same area.
- **All units**: All the units controlled by CSNET WEB.

2 Adjust parameters. Click with the mouse on the parameter you want to select. Select the temperature with the buttons "∧" or "∨". The temperature margin is:
- From 19ºC to 30ºC for cooling.
- From 17ºC to 30ºC for heating.

Select the fan speed and the position of the baffle plate by pushing the **Fan speed** and **Louver** buttons.

NOTE

Automatic mode cannot be set for units with the RAC adapter PSC-6RAD so that the option will not appear on screen when this type of units is selected.

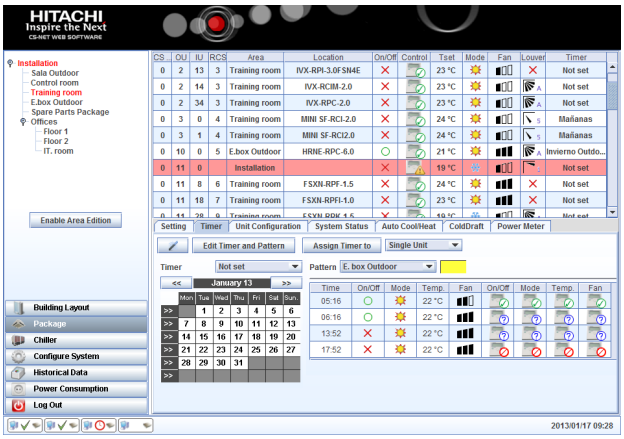
3 Parameter lock. The parameters selected in RCS Lock will remain locked in the previous position when the option was activated. This means that they cannot be modified from the remote control.

NOTE

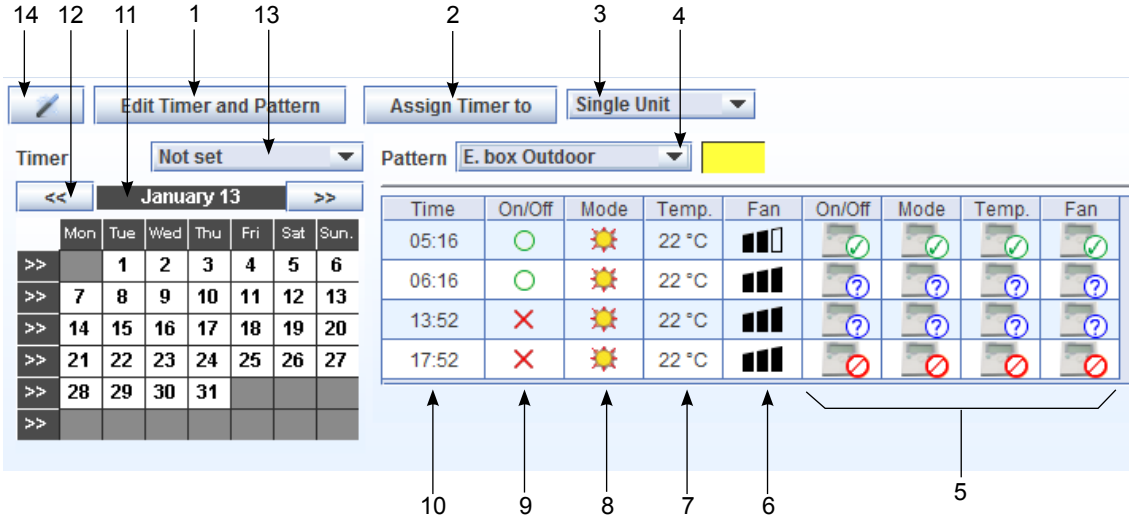
ON/Off lock only locks in OFF. Unit always can be stopped from the remote control.

Timer

This option shows the operation times which can be chosen for each indoor unit.
The Timer shown corresponds to the unit chosen in the table of indoor units, as shown in the example.



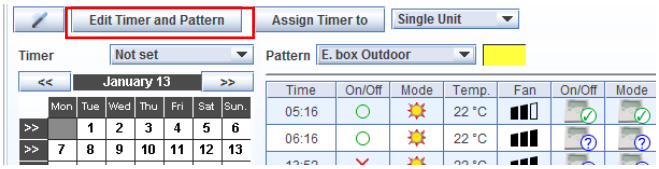
The Timer is composed of:



Edition and assignation	1	Button for editing the pattern and timer
	2	Button for assigning the timer to the units selected
	3	Field for selecting the units to which you want to assign the timer
Pattern	4	Selection of programmed pattern
	5	Parameter lock Lock  Unlock  Unchanged ?
	6	Programmed fan speed Lo  Me  Hi  Unchanged ?
	7	Setting temperature: ºC / Unchanged
	8	Programmed operation mode Cool  Heat  Dry  Fan  Automatic  Unchanged ?
	9	On/Off selection Off  On  Unchanged ?
	10	Programmed time
Timer	11	Information from selected month
	12	Field for selecting month and year you want to visualize
	13	Field to select programmed timer
Wizard	14	Open Wizard dialogue for managing timers from a centralized and faster way

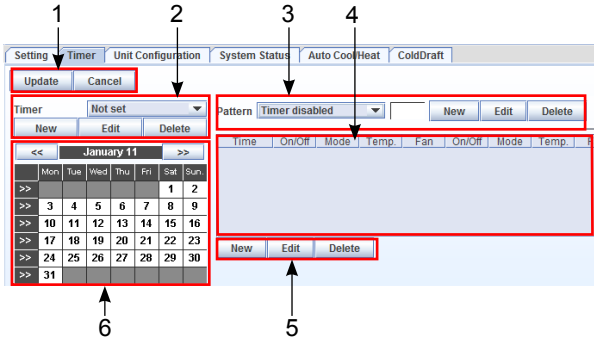
Access to programming

To create the pattern and timer push the **Edit Timer and Pattern** button:



With the following functions:

1 Area to update and close programming.
2 Area to create New, Edit and/or Delete programmed timer.
3 Area to create New, Edit and/or Delete pattern to be programmed**.**
4 Entries for the Daily Pattern you program.
5 Area to create New, Edit and/or Delete an entry of the programmed pattern.
6 Programmed annual timer.

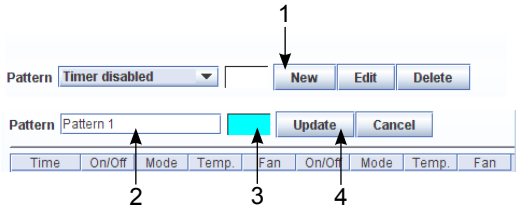


Programming of daily pattern

After accessing the Timer program zone, follow the instructions below. For more details of the programmable parameters, see the previous page.

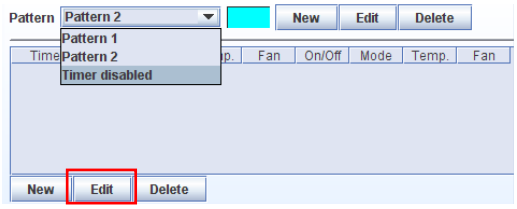
- Creating a new pattern

1 Press the **New** button.
2 Enter the name of the new pattern in the box indicated: e.g. “**Pattern 1**”.
3 Select the colour using the palette selection by double clicking on it.
4 After completing this stage, press **Update** to program the time of the new pattern.



NOTE

After updating the pattern, the first pattern you programmed is shown. For the following steps, select once more the pattern you have just created.



- Edition of an existing pattern

- Select an existing pattern using the field in the drop-down menu.
- Press the **Edit** button.
- Modify the colour of the selected pattern as indicated for creating a new pattern.
- Modify the daily program as indicated for daily programming.

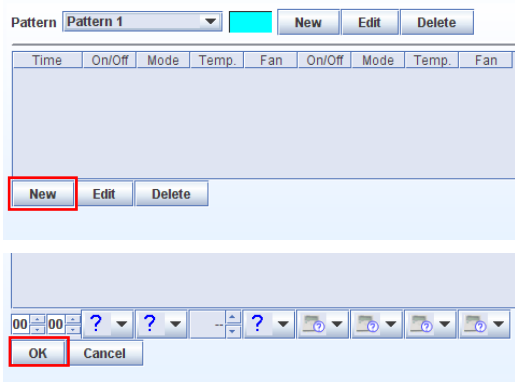
- Deleting an existing pattern

- Select an existing pattern using the field in the drop-down menu.
- Press the **Delete** button**.**

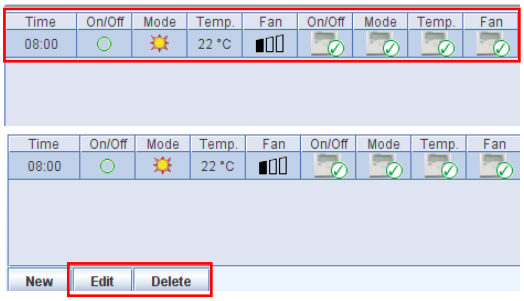
Daily programming

After creating and selecting the pattern you can begin to program each of the entries, indicating the conditions of work at each time of day.

- Press the button **New** to create an entry of the programmed pattern.
- Select the option you want to program in each field. Find the “Timer” sub-field.
- Select it, and press the **OK** button. The entry program which appears depends on the pattern selected.



- Press the **Edit** button to modify an entry which has been created and selected previously.
- Press the **Delete** button to delete an entry which has been created and selected previously.

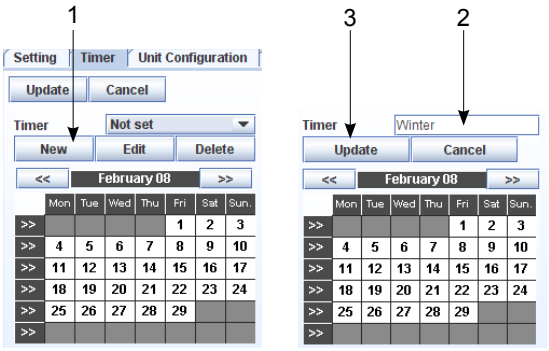


Timer programming

After accessing the Timer program zone, follow the instructions below.

- **Creating a new timer**

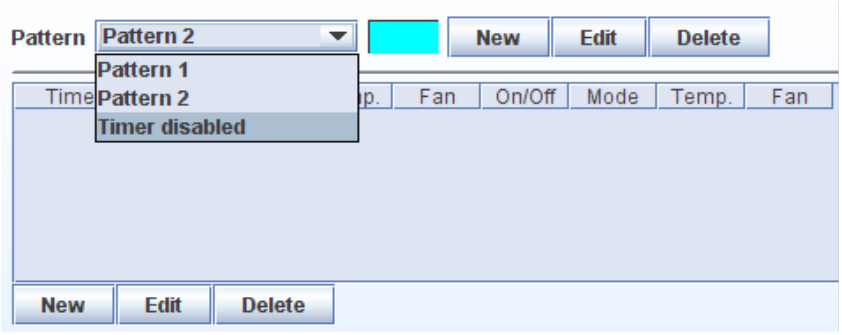
1. Press the **New** button.
2. Enter the name of the new timer in the box indicated: e.g. “**Winter**”.
3. Press **Update** to move to the program of the selected month.



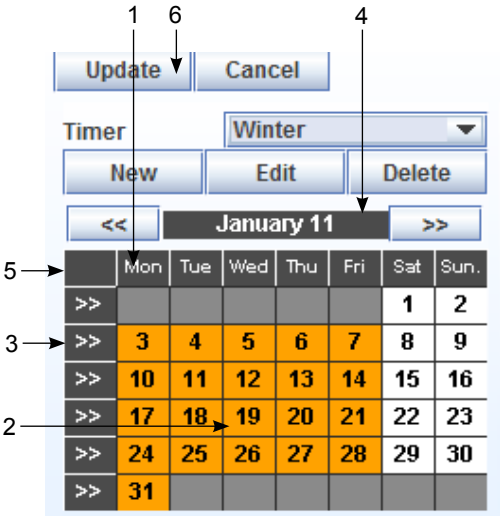
Monthly programming

Allots the daily pattern selected previously for each day of the month, as indicated below:

Select the daily patron using the drop-down menu.



1 By pressing the day of the week, the pattern selected previously is assigned to all the days of the month corresponding to the day of the week selected.
2 Pressing a particular day assigns the selected pattern only to this day.
3 Pressing the arrow >> assigns the selected pattern to all the days of the week.
4 Pressing the name of the month assigns the selected pattern to it.
5 Pressing the upper left button it will select all the working days of the month. This means all days excluding Saturdays and Sundays. Note that this button will only appear when it will be on timer edition mode.
6 After setting the timer, press the **Update** button to confirm the programming.



NOTE

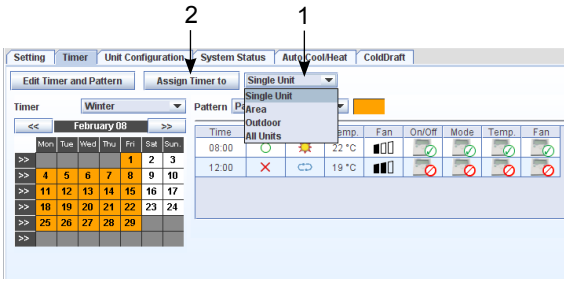
Timer update will take few minutes, during this time, the edition of timer and pattern will be block and it will appear a waiting for timer update message.

Assigning the timer

After the Timer has been created, you can assign it to all the units which have to use it. Do this as follows:

Press the (1) field button from the drop-down menu to select the units to which you want to assign the timer. The list includes the following options:

- **Single Unit**: Select the unit marked in the table of indoor units.
- **Area**: Select all the units found in the same group as the unit marked in the table of indoor units.
- **Outdoor**: Select all the indoor units connected to the same outdoor unit as the unit marked in the table of indoor units.
- **All Units**: Select all the indoor units.



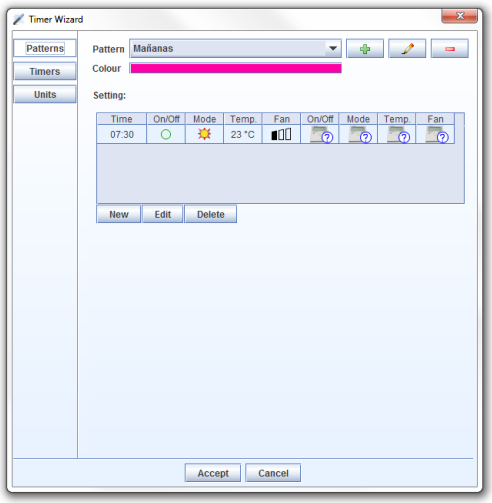
Press button (2) **Assign Timer to**: to assign the timer to the units selected.

Timer wizard

Timer Wizard divides the configuration process in 3 parts:

- Patterns

  Create all the different patterns that will be application in a certain hour of a day.

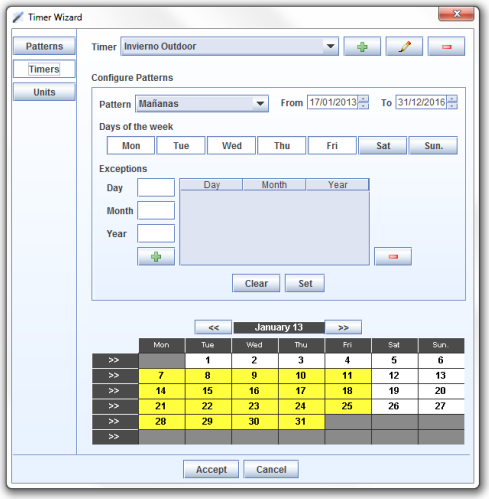


- Timers

  Create different timers and assign to its days the selected pattern.

  Assignation is done by selecting the desired pattern; specify the days of the week where it should be configured, which dates should apply and exception days.

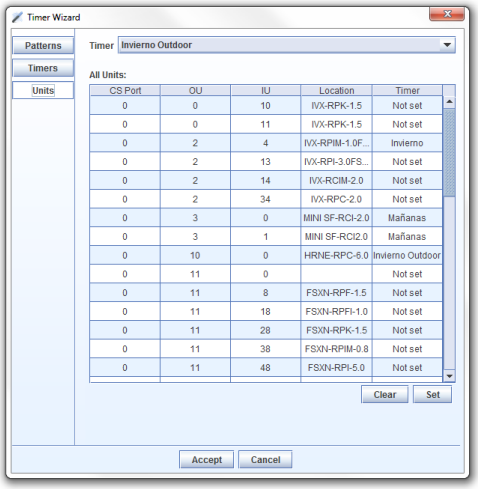
  Exceptions can be done by day, month, year or any combination of them. If some field of an exception is not set, it applies the exception for any value of this parameter.



- Units

  Assign the selected timer to the units on the table.

  Multiple selection by using mouse drag or control button can be used.



Unit configuration

The unit settings show all the data of each of the units controlled by CSNET WEB.

The Timer shown corresponds to the unit chosen in the table of indoor units, as in the example.

The information given is as follows:

Location: Name of the room conditioned by this unit.

Area: Zone to which this unit belongs.

IU Type: Model of indoor unit (recognized by the system) (see Note 1).

IU Model: Exact model of the indoor unit (see Note 2).

Type: Model of the outdoor unit connected to this indoor unit (recognized by the system) (see note 3).

OU Model: Exact model of the outdoor unit connected to this indoor unit (see Note 2).

Is FX: If you mark the check box, this unit corresponds to a 3-tube unit (FXG or FXN).

Is R410A: If you mark the check box, the cooling system used is R410; if you do not mark it, the cooler is R407C (see Note 6).

Sec.Address: in set free of H-LINK (I) with more than 16 indoor units, we use a virtual address to indicate that this unit is a secondary unit of the previous unit.

OU Serial No: Serial number of the outdoor unit to which the indoor unit is connected (see Note 2).

IU Serial No: Serial Number of the indoor unit (see Note 2).

RCS Group: Remote control number used by more than one indoor unit including this one, for example 1. A second group should have a different number, etc. If any of the parameters within a group changes, all the groups which form it will adopt the specified value at the same time. This process is automatic and there is no need to select the unit group to change (see Note 4).

RCS Control: Sets the RCS control as master, slave or RCS not installed.

CH Box: Number of the CH (Cool/Heat) distribution box used by more than one indoor unit including this one. When the automatic cooling/heating operation has been chosen, a common number in this field has to be chosen to ensure that all these units change their operating mode simultaneously.

If the operation mode of one of the units in this group is changed, CSNET WEB will also change the mode of operation of the other units of the same group which no longer have a compatible operation mode (see Note 5).

Timer Disabled: Deactivate the timer setting option.

Cool Range: Sets the maximum and the minimum temperature values in cool mode.

Heat Range: Sets the maximum and the minimum temperature values in heat mode.

Is OU Group: Sets the cool and heat range for all the indoors of this outdoor unit

NOTE

1. If the indoor unit is RPC or RPK, CSNET WEB will display RPC(RPK), as they cannot be identified correctly.

2. The precise model should be entered to make necessary maintenance and repair work easier.

3. There following are possible types of outdoor units:

- *RAS-#.# (UTO): Utopia and Utopia Big.*
- *RAS-#.# (INV): Utopia Inverter.*
- *RAS-#.# (SF): Set-Free and Mini Set-Free.*

4. It is not possible for two or more units with a remote controller to function in different conditions. Only use the remote control Group within the same cooling system or CH Box. Do not use a single controller to control indoor units connected to different outdoor units or CH boxes.

5. The compatibility of the operation modes is as follows:

Operation mode	Compatible modes in the other units of the same group
Cool	Cool, Dry, Fan
Heat	Heat, Fan
Dry	Cool, Dry, Fan
Fan	Cool, Dry, Heat, Fan
Automatic cooling / heating	Automatic cooling / heating

6. This information will be used by CSNET WEB to calculate the control parameters of the cooling system, like TdSH.

System status

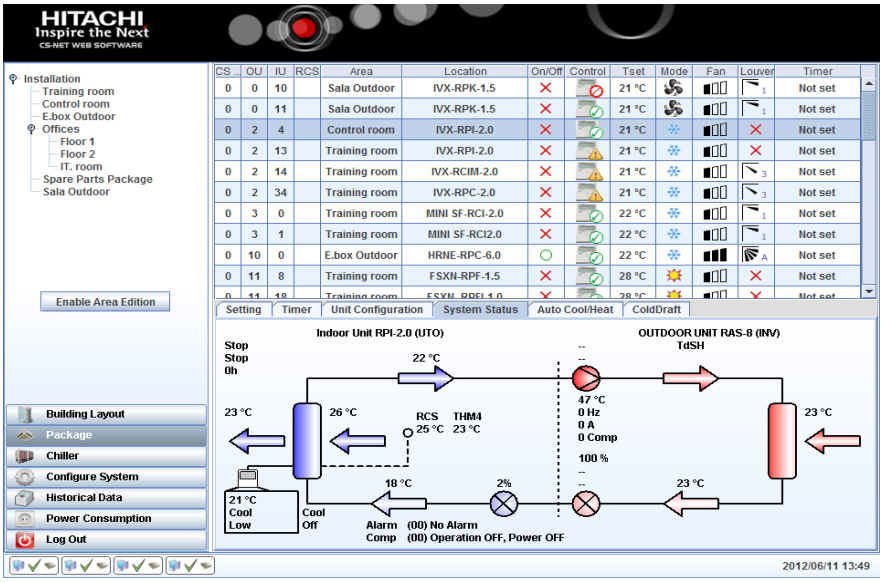
The system status field shows the operating conditions of each of the units controlled by CSNET WEB.

The system status shown corresponds to the same unit selected in the indoor unit table, as shown in the adjoining example.

Description

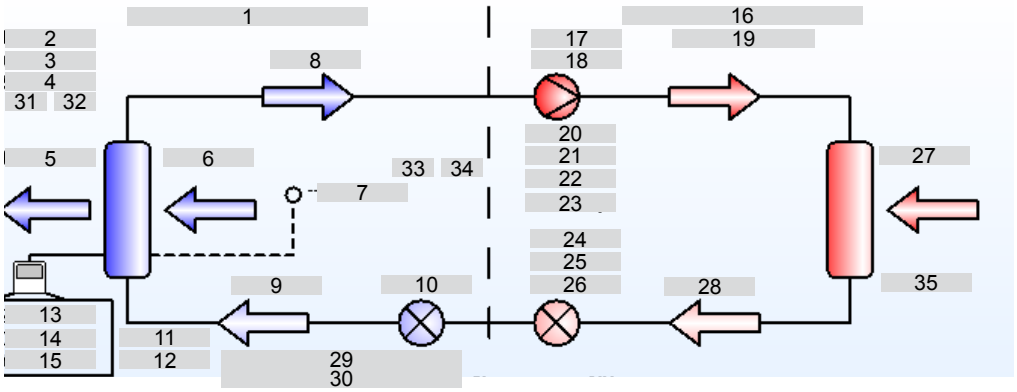
The information display is divided into 4 parts:

- Data of the indoor unit.
- Setting data of the remote control and/or the configuration field.
- Data of the outdoor unit.
- Alarm produced and reason for the compressor status.



Explanation of the fields

Although all these parameters are available in the 3-tube systems (Set-Free FX), some are not in other systems. These are indicated in the table.



No.	Group	Description	Units	Utopia G	Utopia N	DC-Inverter	Mini Set-Free	Set-Free FS	Set-Free FX	DX-Kit	RAS units	KPI Active	KPI Passive
1	Indoor unit	Model of the indoor unit and its power	—	O	O	O	O	O	O	O	O	O	O
2		Thermo ON/OFF	—	O	O	O	O	O	O	O	O	O	—
3		OFF/ON	—	O	O	O	O	O	O	O	O	O	O
4		Filter time	h	O	O	O	O	O	O	O	—	O	O
5		Air outlet temperature	ºC	O	O	O	O	O	O	O	—	O	—
6		Air inlet temperature	ºC	O	O	O	O	O	O	O	O	O	—
7		Optional remote thermistor (RCS / THM4) (4)	ºC	O	O	O	O	O	O	O	O	O	—
8		Gas piping temperature	ºC	—	O	O	O	O	O	O	—	O	—
9		Liquid piping temperature	ºC	O	O	O	O	O	O	O	—	O	—
10		Expansion valve opening	%	—	O	O	O	O	O	O	—	O	—
11		Real operation mode	ºC		O	O	O	O	O	O	O	O	O
12		Real vent speed	—	O	O	O	O	O	O	O	O	O	O
13	Remote control	Setting temperature	—	O	O	O	O	O	O	O	O	O	O
14		Selected operation mode	—	O	O	O	O	O	O	O	O	O	O
15		Selected fan speed	—	O	O	O	O	O	O	O	O	O	O
16	Outdoor unit	Model of outdoor unit and its power	—	O	O	O	O	O	O	O	—	O	—
17		Discharge pressure	MPa	—	—	—	O	O	O	O	—	O	—
18		Suction pressure	MPa	—	—	—	O	O	O	O	—	O	—
19		Discharge gas overheating (TdSH)	ºC	—	—	—	O	O	O	O	—	O	—
20		Discharge gas temperature	ºC	O	O	O	O	O	O	O	—	O	—
21		Compressor frequency	Hz	—	—	O	O	O	O	O	—	O	—
22		Total consumption of compressors	A	O	O	O	O	O	O	O	—	O	—
23		Number of compressors operating	—	O	O	—	O	O	O	O	—	O	—
24		MV1 expansion valve opening	%	—	—	O	O	O	O	O	—	O	—
25		MV2 expansion valve opening	%	—	—	—	—	(1)	O	—	—	—	—
26		MV3 expansion valve opening/MVB	%	—	—	—	—	(2)	O	—	—	—	—
27		Ambient temperature	ºC	O	O	O	O	O	O	O	—	O	—
28		Evaporating temperature (Heating)	ºC	O	O	O	O	O	O	O	—	O	—
29	Alarms	Number and description of alarm	—	O	O	O	O	O	O	O	O	O	O
30		Last cause of compressor stop (3)	—	—	O	O	O	O	O	O	—	O	O
31	Others	THM1	ºC	—	—	—	—	—	—	O	—	—	—
32		THM2	ºC	—	—	—	—	—	—	O	—	—	—
33		PCB1 THM1 (RA)	ºC	—	—	—	—	—	—	—	—	O	O
34		PCB1 THM2 (OA)	ºC	—	—	—	—	—	—	—	—	O	O
35	Power Meter	Power Meter values	—	O	O	O	O	O	O	—	—	—	—

O = Available

— = Not available

NOTE

(1): Not for FS units of up to 10 HP.

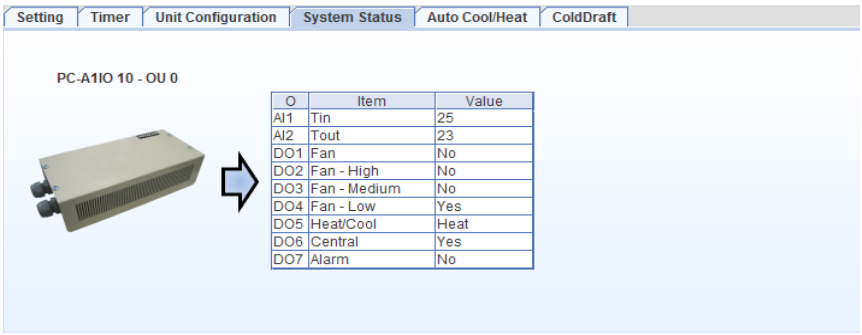
(2): Not for FS units of up to 20 HP.

(3): The value shown does not disappear until the cause of the compressor stop does not change.

(4): THM4 is the remote thermistor.

PC-A1IO System status

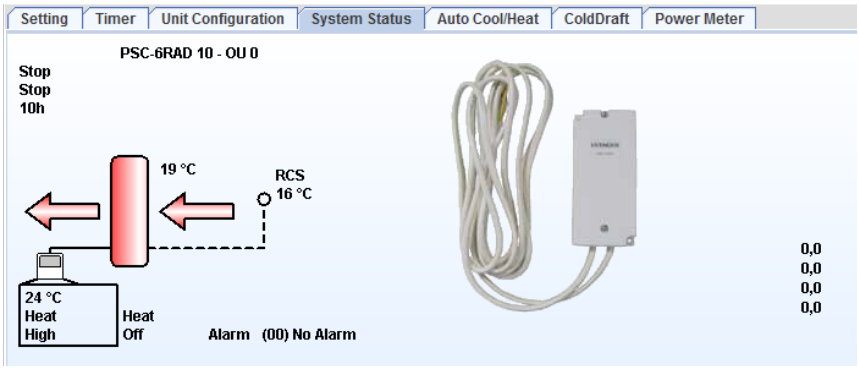
PC-A1IO has an special system status layout, it shows the value of all the digital outputs and two analog inputs.



O	Item	Value
AI1	Tin	25
AI2	Tout	23
DO1	Fan	No
DO2	Fan - High	No
DO3	Fan - Medium	No
DO4	Fan - Low	Yes
DO5	Heat/Cool	Heat
DO6	Central	Yes
DO7	Alarm	No

RAD Units System Status

Its special view only shows the values that can be read when a PSC-6RAD adapter is connected.



Alarms

The alarms shown in CSNET WEB are the same that can be found in the service manual of the outdoor unit in question.

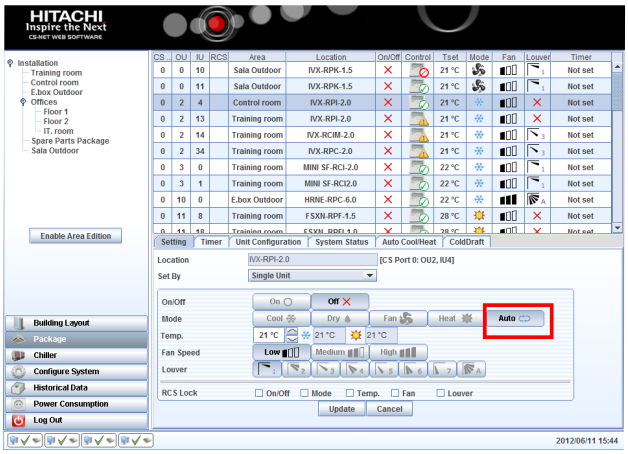
Cause of compressor stop

The cause of the compressor stop shown in CSNET WEB is the same that can be found in the service manual of the outdoor unit in question.

Auto cool/heat

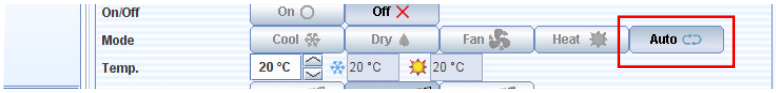
The outdoor units of 2-tube systems are not designed to operate in the **automatic Cool/Heat** mode when more than one indoor unit is connected to the same outdoor unit, but only in the **cool** or **heat** mode. Thus all indoor units connected to the same outdoor unit should be changed from one mode to another at the same time. The same is applicable to the 3-tube outdoor unit systems, for all indoor units connected to the same CH Box.

However, operation in the **automatic Cool/Heat** mode is available through CSNET WEB.



In temperate seasons, CSNET WEB calculates the main need of the indoor units for each of the outdoor units in the systems mentioned above, selects the mode needed for most of the units in the system and adjusts the remote controller accordingly.

With the aim of giving the system time to be established in a particular mode, its requirements are checked for at least 20 minutes after the last change carried out. This process is continuous for as long as the indoor units are set to **Auto**.



If the systems are correctly designed, i.e. if all the indoor units of the same outdoor 2-tube unit have similar cooling and heating demands, then it is possible to completely automate heating in the morning (for example), cooling in the afternoon and heating once more at night.

Users maintain local control over the temperature in the room by the remote control.

There are two ways in which **CSNET** can decide whether the operation mode should be established in AUTO.

Description of the operation mode

In the automatic (Auto) Cool/Heat mode requested by the indoor units, CSNET WEB will check first whether the cooling circuit to which the unit is connected is 2 tube or 3 tube before deciding to change the operating mode.

Next, CSNET WEB will calculate the difference to decide the best operation mode at that moment.

The temperature difference is calculated as follows:

- 2 Tubes:

CSNET WEB takes into account all the indoor units which depend on the same cooling circuit. CSNET WEB then calculates in the following way:

Temp diff. (1) = Air inlet temperature (1) - corrected temperature (1)

Temp diff. (2) = Air inlet temperature (2) - corrected temperature (2)

….

Temp diff. (n) = Air inlet temperature (n) - corrected temperature (n)

Temp diff. = (Temp diff. (1) + Temp diff. (2) + ... + Temp diff. (n)) / n

Where:

Air inlet temp (i) = Air inlet temperature selected (consult the section *Description of Parameters* for more information).

Corrected temp (i) = Temperature shown in the remote control or selected by CSNET WEB (if the indoor unit does not have a remote control) (see the section *Description of Parameters* for more information).

Temp diff. (i) = Temperature difference between the air inlet temperature and the setting temperature of the indoor unit number “i”.

n = Number of indoor units connected to the same outdoor unit.

Temp diff. = Average of the temperature differences of all the indoor units.

- 3 Tubes

CSNET will only make this calculation for the indoor units in Auto mode. Thus CSNET makes independent calculations for each indoor unit:

Temp diff. = Air inlet temp. - Corrected temp.

Where:

Air inlet temp = Air inlet temperature selected (consult the section *Description of Parameters* for more information).

Corrected temp = Temperature shown in the remote control or selected by CSNET WEB (if the indoor unit does not have a remote control) (see the section *Description of Parameters* for more information).

Temp diff. = Temperature difference between the air inlet temperature and the setting temperature of the indoor unit.

After calculating the operation mode which the units should use, and taking into account the conditions established as indicated in *Description of Parameters*, CSNET WEB will send the order to all the affected units.

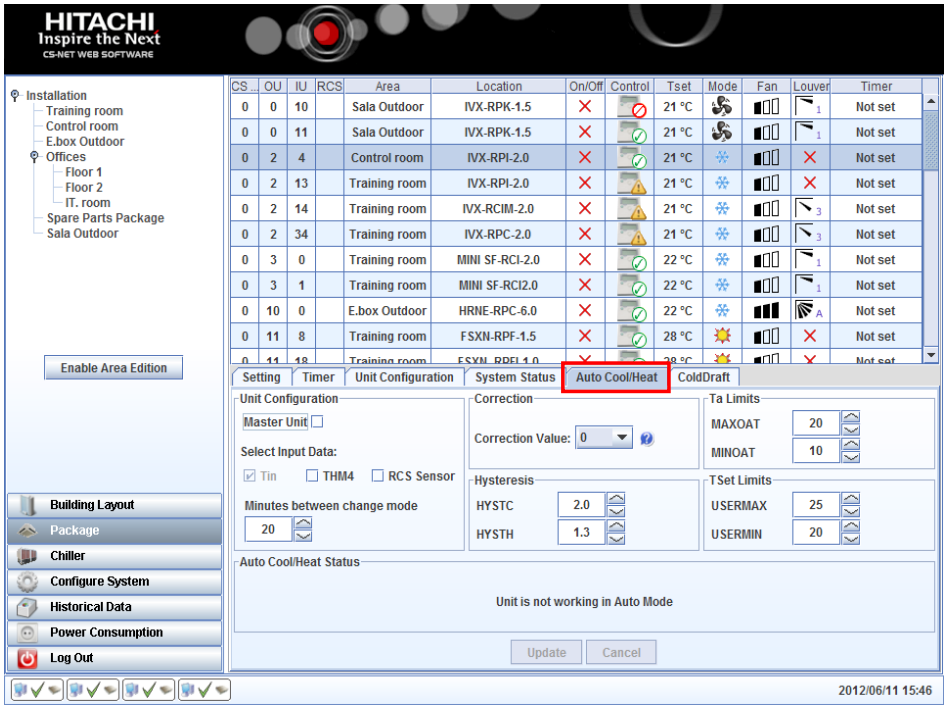
NOTE

If more than one indoor unit is connected to the same CH Box, CSNET treats this box as an outdoor 2-tube unit.

Description of parameters

To use this option, you have to set the parameters shown in the **Auto Cool/Heat** operation panel. After that, if unit is working in **Auto Cool/Heat** mode, you can see the status of this operation on the status zone of the panel.

The **Auto Cool/Heat** panel shown corresponds to the cooling circuit of the indoor unit selected in the table of indoor units, as shown in the example.



You should adjust the following parameters:

Master unit: Field for selecting the method CSNET WEB will use to calculate the temperature difference.

- ☑ (Marked): CSNET WEB will only use this unit to calculate the temperature difference and decide the change, not taking into account the other units connected to the same 2-tube cooling circuit.
- ☐ (Not marked): CSNET WEB will use the average temperature difference of all the indoor units connected to the same 2-tube cooling circuit.

⚠ CAUTION

When this method is used (marked), the following outdoor unit option cannot be used: "control of indoor unit fan speed" (during operation with the thermostat deactivated in heat mode, the indoor fan stops for 6 minutes and operates for 2 minutes). If it is used, the decision of when to change will not always be correct (if it is measured during the deactivation cycle of 6 minutes).

Select input data: field for selecting what inlet temperature CSNET WEB should use to calculate the temperature difference if an optional remote temperature sensor is connected in THM4 of the PCB of the indoor unit or if there is RCS remote sensor.

When there are selected a combination of different sensor it will calculate the average between them.

When nothing is selected, it is forced to use the Tin value.

MINOAT: Minimum outdoor ambient temperature for cool operation.

- Preset adjustment: +10°C.
- 1°C steps.
- 0°C... 40 °C margin.

MAXOAT: Maximum outdoor ambient temperature for heat operation.

- Preset adjustment: +20°C.
- 1°C steps.
- 0°C... 40°C margin.
- MAXOAT should be higher than MINOAT.
- MAXOAT should be lower than the dry bulb (DB) temperature equivalent to the margin of maximum outdoor ambient temperature for the heat mode:

  The margin of maximum outdoor ambient temperature for heat mode of the outdoor unit is 15.5 WB

  Equivalent dry bulb temperature:

  Relative humidity of 95% = 16 DB

  Relative humidity of 77% = 18 DB

  Relative humidity of 62% = 20 DB

  Relative humidity of 50% = 22 DB, etc.

USERMIN: Minimum Setting temperature. If the selected temperature is lower, CSNET WEB will use USERMIN as the value for the Setting temperature, changing this value as soon as the operation mode changes.

- Preset adjustment: +20°C.
- 1°C steps.
- 17°C... 30°C margin.

USERMAX: Maximum Setting temperature. If the selected temperature is higher, CSNET WEB will use USERMAX as the value for the Setting temperature, changing this value as soon as the operation mode changes.

- Preset adjustment: +25°C.
- 1°C steps.
- 17°C... 30°C margin.

HYSTC: Value of the temperature difference calculated to pass from heat to cool mode.

- Preset adjustment: + 2°C.
- 0.1°C steps.
- 1°C... 2°C margin.

HYSTH: Value of the temperature difference calculated to pass from cool to heat mode.

- Preset adjustment: 1.3°C.
- 0.1°C steps.
- 1°C... 2°C margin.

DELAY: The time which must elapse between the last change of operation mode to the next change.

- Preset adjustment: 20 min.
- 10 min steps.
- 20 min... 60 min margin.

CORRECTION: Temperature corrected on changing the operation mode, to ensure greater comfort..

- Preset adjustment: 0.
- 1ºC steps.
- Margin: 0, 1, 2.

The Setting temperature is adjusted using the following formula when the operation mode is changed, depending on the DIFF option selected:

Correction value	Change from cool to heat	Change from heat to cool
0	Corrected temp = Setting temp	Corrected temp = Setting temp
1	Corrected temp = Setting temp + 0	Corrected temp = Setting temp + 1
2	Corrected temp = Setting temp - 1	Corrected temp = Setting temp + 1

Where:

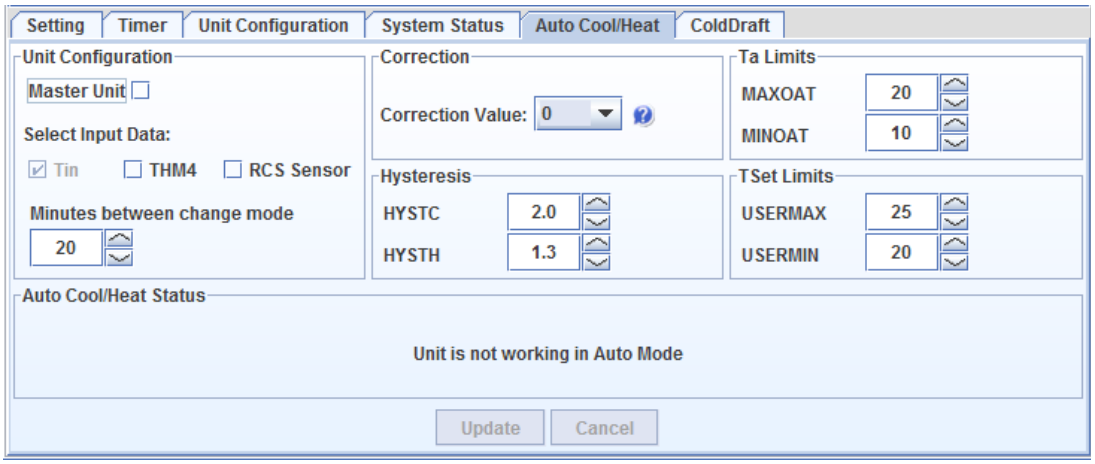
Corrected temperature: Temperature used to calculate the change of operation mode.

Setting temperature: Temperature selected by CSNET WEB or by the remote control of the indoor unit.

NOTE

The remote control and the CSNET WEB always show the corrected temperature (the result is the setting temperature).

After adjust previously parameters, if unit is working in Auto Cool/Heat mode, it will be displayed on the status zone which option is currently doing.



Considerations for the use of the Auto Cool/Heat mode

When the **Auto Cool/Heat** is used, the difference of 4°C programmed in the heating mode of each indoor unit should be cancelled in all of them. Otherwise, there may be a conflict between the system program and the **CSNET WEB** program. (See the Service Manual of the indoor unit for details about cancelling this misadjustment using the optional function b1). However, if an optional remote sensor has been fitted in the rooms (one per indoor unit), the misadjustment is cancelled automatically (not available in the FSGM RPK series).

If an indoor unit is defined by **CSNET WEB** in **Auto Cool/Heat** mode, all the indoor units connected to the same outdoor Set-Free FS (or to the same CH Box in Set-Free FX systems) will change to the **Auto Cool/Heat** mode. This means that, for example if one of the indoor units was adjusted for heating at 17ºC and the outdoor Set-Free FS or Set-Free FX CH Box changes to cooling mode, according to the calculation of CSNET WEB, this indoor unit will begin to cool when it reaches 17°C. To prevent this kind of situation from occurring, take care when programming the **timer**.

For all the indoor units connected to a single outdoor Set-Free FS or Set-Free FX CH Box, the starting time in the morning for the first unit (see *Timer*) should serve as the reference time and conditions for all the other units in the same system. At night, the last indoor unit to change will be the reference point for all the other units of the system in question.

If a user selects a different **mode** with the individual remote control when the local mode is being used, it will later return to the **mode** calculated by **CSNET WEB**. Thus it is not recommended to use the mode selector of the remote controls during the **Auto Cool/Heat** operation of **CSNET WEB** in local mode. The temperature should only be regulated, if necessary, with the ⌃ (up) or ⌄ (down) buttons. CSNET WEB will then select and adjust the necessary (and possible) mode by outdoor unit (also in the LCD screen of the individual remote control).

Cold draft

In VRF systems, when load is very low and only few units are working in a system, it is possible that discharge air temperature is reduced below comfort value. With this new option HITACHI improves comfort for these situations by setting unit to Fan Mode when discharge air temperature is below comfort temperature and set unit again to Cooling Mode when temperature will be again inside comfort range.

⚠ CAUTION

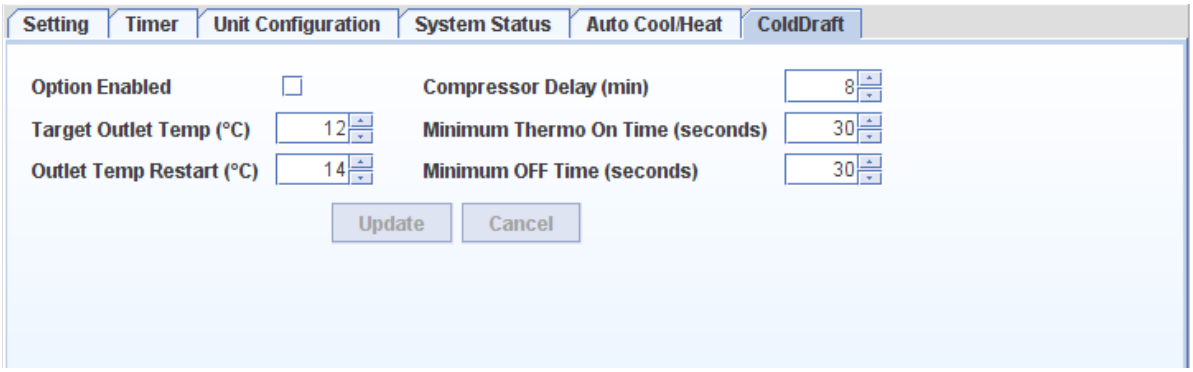
If one unit is configured to use cold draft function it should never be set in fan mode is considered the same as cooling mode Thermo-OFF and unit will be automatically changed to cooling mode.

Configurable parameters

- Option Enabled: Activate/not activate cold draft option in the selected indoor unit.
- Target Outlet Temp (ºC): Minimum outlet temperature that we accept in this room in order to force the Thermo OFF.
- Outlet temp Restart: Temperature that unit is finishing the forced Thermo OFF.
- Compressor Delay (min): Minimum enforced time between two compressor start up when start required by Cold Draft option.
- Minimum Thermo ON Time (seconds): Minimum time that should be in Thermo ON before accepting a new Thermo OFF.
- Minimum OFF time (seconds): Minimum time that unit should be Thermo OFF before accepting a new Thermo ON.

Considerations of cold draft

Cold draft option only can be visible for user if this has request privilege. This function should only be used in system where there are comfort problems and after problem study.



Power meter

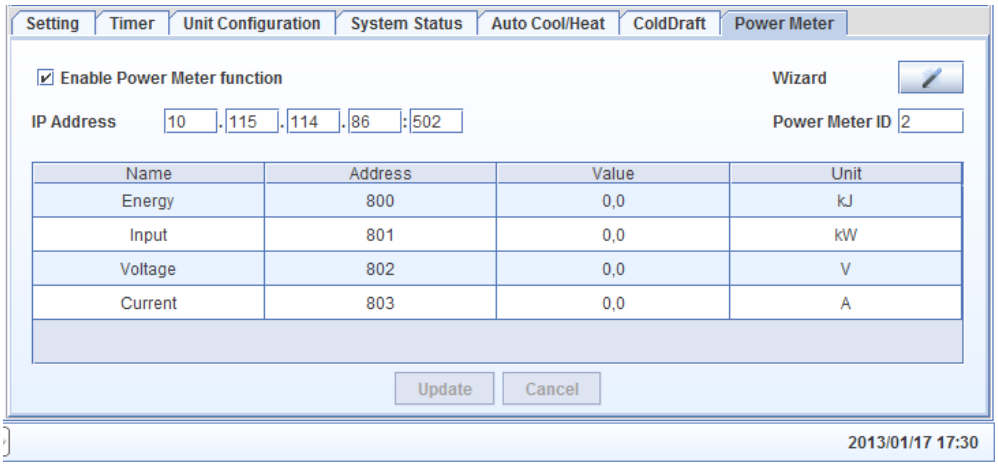
Power Meter tab lets the user configure a TCP-MODBUS power meter for each outdoor unit.

For each power meter device there should be entered the following parameters:

- IP Address: LAN address of the power meter.
- Power Meter ID: identifier to know which of the power meters is used.
- Registers: The Modbus Address and the measurement unit of each of the four variables available on the table should be configured by the user according to the specific power meter information.

⚠ CAUTION

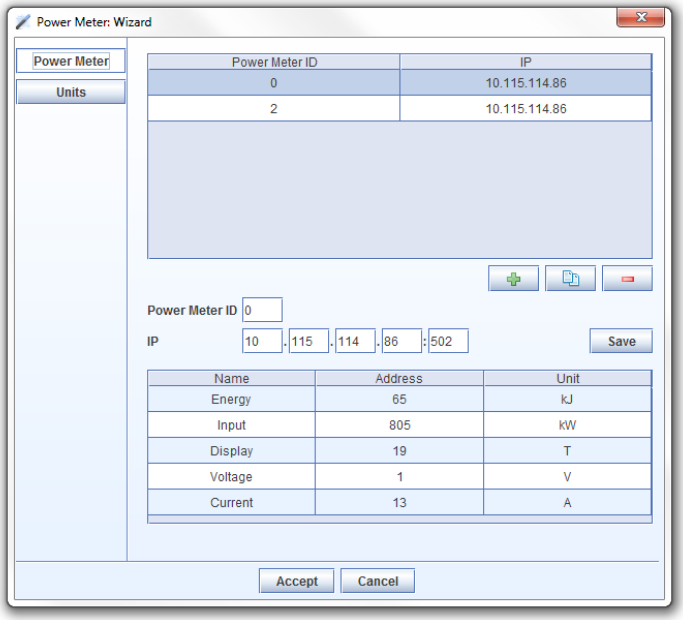
- *Suggested device tested by Hitachi is 7KM PAC3200 by Siemens.*
- *Ensure that your Modbus-TCP power meter register starts at 0. CSNET WEB considers it like this, so if it starts at 1, subtract 1 to each register address.*
- *If CSNET WEB software is off it will not get power data.*
- *7KM PAC3200 by Siemens only accepts one simultaneous connection for checking the data, is 2 CSNET WEB software are connected; one of them will not receive data. In case of use a different power meter, please check if it supports multiple connections.*



Wizard button lets the user make this configuration for all the units from one place.

Power Meter Wizard

On the first Screen user can add all the power meter devices. To ease the data entering, clone one with the copy button.

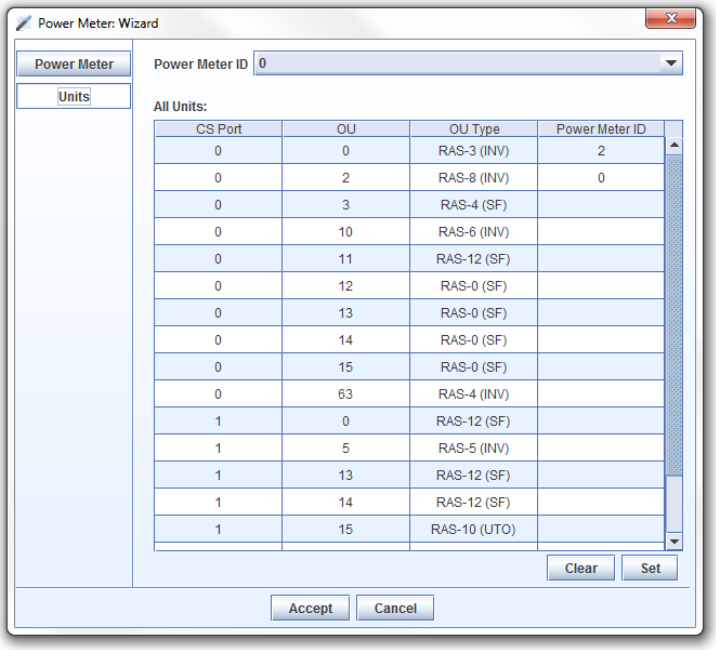


Select a power meter device on the table and configure its data.

- Power Meter ID: identifies the power meter.
- IP: Net address to communicate with the power meter device.
- Registers: The Modbus Address and the measurement unit of each of the four variables available on the table should be configured by the user according to the specific power meter information.

Units screen is used to set the power meter devices to each of the available outdoors.

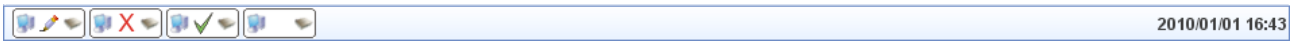
Select the Power meter ID on the combo box, select the units on the table and press button “Set”. The device will be linked to the outdoor unit.



6.1.6 Interface utilities

◆ HARC Web status bar

HARC Web status bar indicates the date & time of current HARC on the right side, and on the left it has one icon for each HARC. That icon will show us the current state of each HARC. At the left of the date & time, it could appear a notification of new software updates.



ICON	HARC STATUS
	Not configured
	Connected and synchronised
	Communication error
	Sending information to the HARC
	Time and date are not synchronised
	Asking for synchronisation
	Synchronising data
	Doing autoconfiguration
	There are software updates for that HARC
	Wrong user name or password

Setting the mouse over the icon it will give more information about the HARC.

NOTE

Autoconfiguration indication will grow following the percentage of autoconfiguration task that is currently done.

Status bar informs about general functions that are currently being executed by the software.

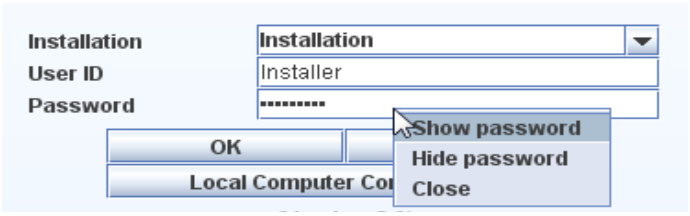
Those icons meaning is explained on the following table.

ICON	NOTIFICATION
	Auto power consumption file storage is currently activated.
	Web server is running without problems
	Web server is running but it has some communication problems.
	Fidelio data is configured and working.
	Fidelio data is configured but it is not working.
	Mail alarm is running.
	Mail alarm error sending.
	Mail alarm is sending an email.
	Power meters are configured and enabled.
	Problem communicating with Power Meters.
	There are updates available for CSNET WEB software

◆ Password visualisation

On each password field it could exist the option to enter this password viewing the keys typed.

By default password will be hide, but if user does not know what is typing wrong, he can click with right button of the mouse and it will appear a popup menu that will give the option to show or hide the password data.



In case that user presses “show password” option, the current password will be deleted due to keep a strong security, and from that moment password typing will be visible.

Next times that user will enter to these windows, the password will be always hidden to the user.

6.1.7 Other features

◆ Adjustment of optional functions

The use of a 7-segment display on the PSC-A160WEB1 interface makes installation and maintenance easy.

PSC-A160WEB1 includes optional functions which can be configured using the DSW switches:

- Alarm notification: This is the selected by default. It shows when there is an alarm and indicates the code in a 7-segment display.
- IP notification: This function shows the current IP address in the 7-segment display, allowing the installer to make a connection when the IP configuration is different from the default.
- Unit notification: The number of units detected will be indicated.
- Detailed alarm notification: This functions shows the installer the alarm code for each unit in the 7-segment display.

◆ Configuration of the backup copy

Maintenance of CSNET WEB has improved, and allows a backup copy to be made of the current configuration. If CSNET WEB has to be replaced, the backup copy of the configuration file would restore the configuration of the new CSNET WEB.

NOTE

The passwords are not stored in the backup copy. They have to introduced again manually.

◆ Register of alarms

Maintenance of the installation has been improved with the introduction of a register of alarms. The data show a detailed description of what happened for each alarm which has been produced. The information can be analysed from CSNET WEB or exported to a text file for later analysis.

◆ Download of historical data

CSNET WEB lets you download the historical data starting with a particular date.

The historical data can be stored in the new CSNET WEB format or in a format compatible with previous versions of CSNET.

CSNET WEB stores up to 50 MB of compressed historical data. Depending on the installation and connection this option may take a few minutes.

50 MB of compressed data can store approximately the data of an installation of 128 indoor units for 3 months.

◆ Autosave of the error registry

From the software adjustment window, you can configure the error registry to be saved automatically in the remote computer when there is an error.

◆ Autosave of the power consumption

From the software adjustment window, you can configure the power consumption file to be saved daily in the remote computer.

◆ Installation list

With the installation list, it is easier to manage different CSNET WEB installations from a remote PC. The installation list lets you select a list of the latest connections. The user's name and password can also be remembered by the software if required.

This feature makes the management of the installation easier for users who connect regularly with different CSNET WEB setups.

◆ Automatic updates

The CSNET WEB software and the interface software can be updated online after configuring the internet connection. That option allows latest updates without having the last version of the CD-ROM.

Otherwise, the CSNET WEB interface can be updated using the latest version of the CD-ROM CSNET WEB, and the CS-NET WEB customer software must be reinstalled for each remote computer using the installation software in the CD-ROM.

◆ Cold draft

In VRF systems, when load is very low and only few units are working in a system, it is possible that discharge air temperature is reduced below comfort value. With this option, HITACHI improves comfort for these situations by setting unit to Thermo OFF when discharge air temperature is below comfort temperature and set unit again to Thermo ON when temperature will be again inside comfort range.

◆ H-LINK II

CSNET WEB is compatible with new version of the Hitachi communication protocol H-LINK II. The software still operates with old protocol version.

◆ RCS Web

RCS Web is a reduced CSNET WEB for Packaged that allows controlling only the remote control functions. It is user friendly and easy to use due to its virtual remote controller appearance.

◆ Automatic Building Layout

CSNET WEB is supplied with a Building Layout editor that let the user to customize their Building Layout view. Although if the Building Layout file is not created, CSNET WEB automatically creates a layout view following the tree organization created on the HARC.

◆ Compatibility with Central Stations

PSC-A160WEB1 is compatible with PSC-A64GT & PSC-A64S Central Stations but with some restrictions with RCS sensor and liquid and gas temperature variables.

◆ Web Server

CSNET WEB software can run as a web server that lets users to configure setting for the user allowed units.

With that, users can send orders without installing CSNET WEB software

◆ Compatibility with Power Meters

Modbus-TCP Power Meter devices can be connected to the CSNET WEB. The data extracted from those devices will be showed and used for power consumption calculation.

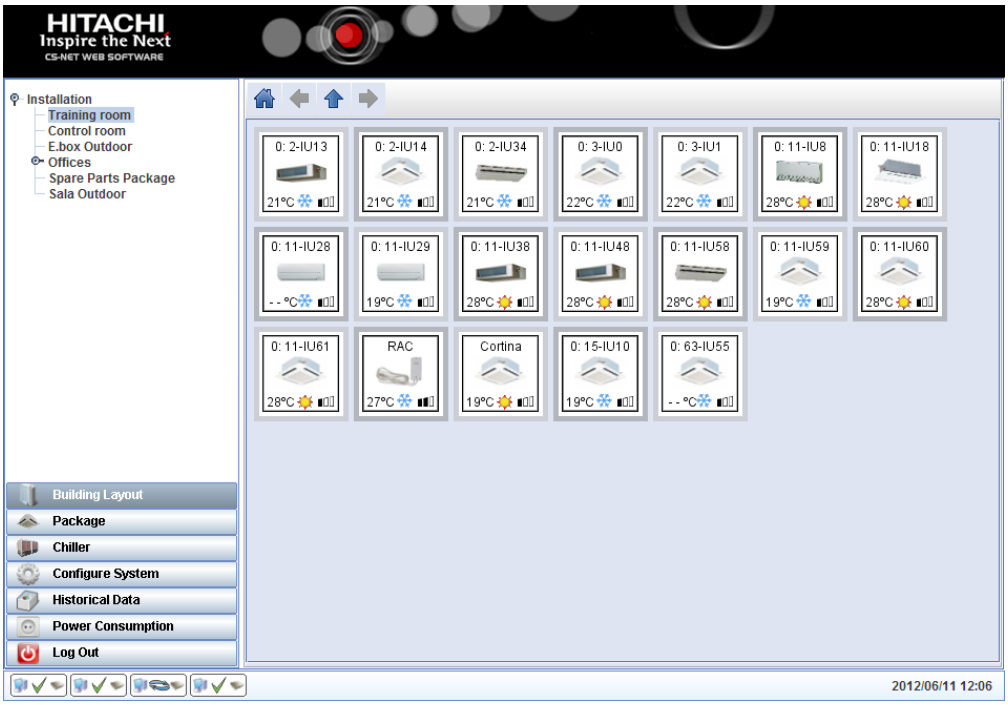
◆ Power consumption costs inputs

Power Consumption lets to configure the energy cost within different time periods. With this defined energy costs, CSNET WEB shows an estimated cost per indoor unit.

6.1.8 Extras

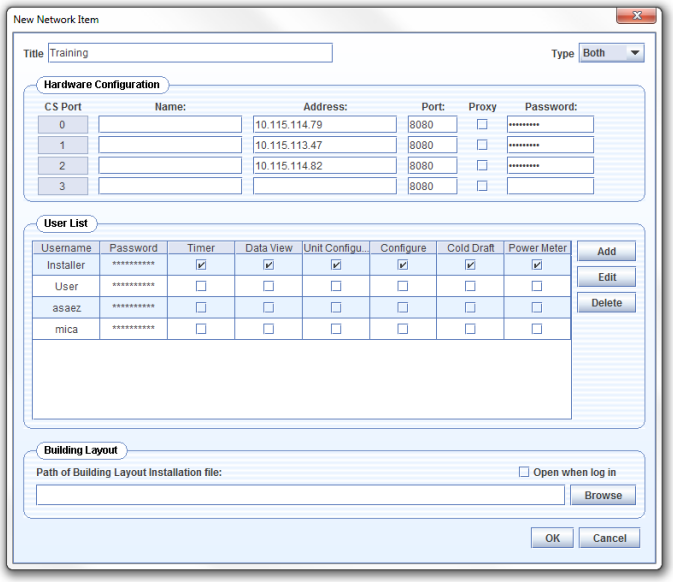
6.1.8.1 Customization and configuration of Building Layout

CSNET WEB automatically provides an intelligent layout created following the HARC tree distribution.



Otherwise, if there is an existing Building Layout file, that must be created using the editor, should be configured as the layout of our installation.

Inside the “local computer configuration” option when creating or editing an installation you can set the path of the building layout file.

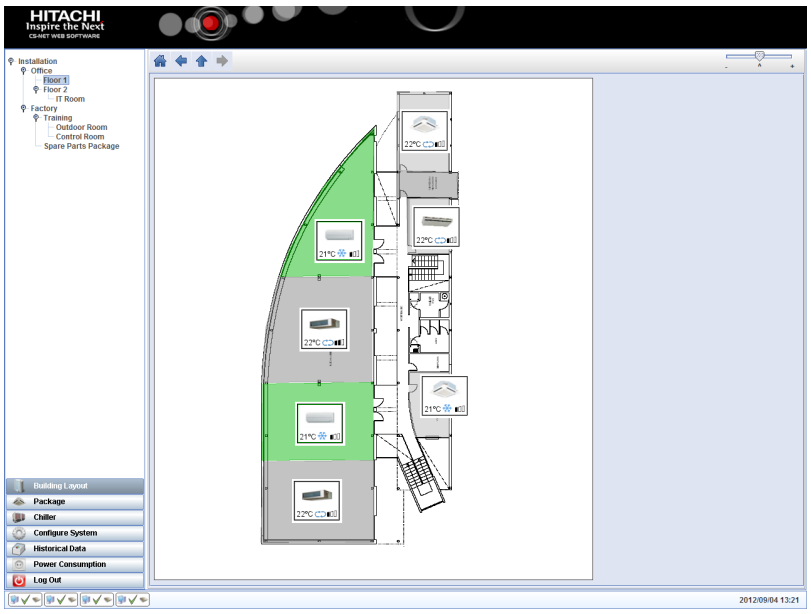


Building layout can be configured as the default view by selecting the option “Open when log in”

The shape colour shows the state of the unit. This colour was set previously on the editor. Unit Icons has a little frame that indicates the same.

Icons give information of the Unit.

The border has an interior shadow made that has the state colour.



To control a unit just click on its area or unit icon and start working with the virtual remote controller.

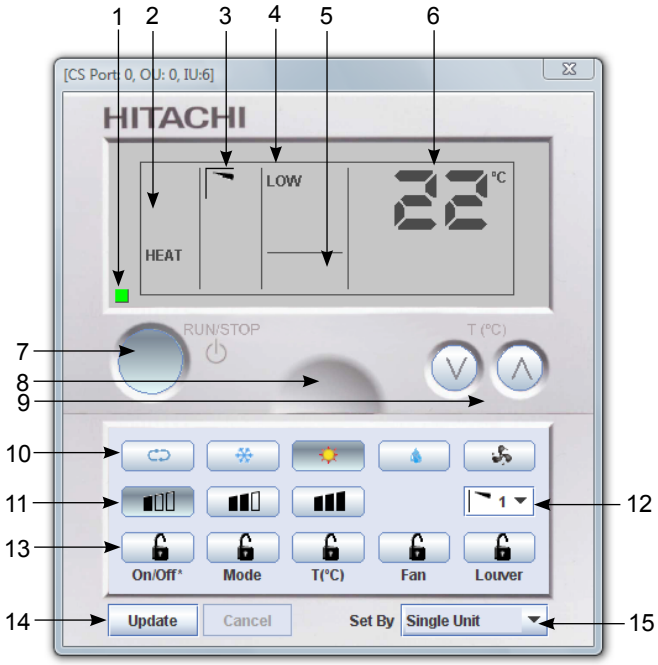
The remote controller is divided in two parts, the first one is the display zone that shows you the current values of the unit and the second one is the buttons zone.

Display zones are described next:

1 Indicates the Run / Stop situation and if the unit has an alarm.
2 Shows the unit operation mode.
3 Indicates the position of the baffle plate.
4 Shows the fan speed.
5 Display central is enabled if some central value is activated.
6 Display the unit temperature.

Button zones are described next:

7 Changes the value of Run/Stop.
8 Show or hide the remote controller cover.
9 Set the temperature value.
10 Changes the unit mode. From left to right: Auto, Cool, Heat, Dry and Fan.
11 Set fan speed.
12 Set the position of louver.
13 Parameter lock. These parameters will be locked on the remote controller.
14 Update will send the current state of the remote controller to the unit. Cancel will restore previously setting.
15 “Set by” options configure the current remote controller order to be sent to a single unit, an outdoor unit, a zone, a zone and its sub zones or to all units.



◆ Customization and configuration of Building Layout

Building Layout option allows to use a schema of your installation, showing you the installation information in a more friendly view. It will make easy to manage your installation.

To create a Building layout file you must to start the Building Layout editor application. This application is provided in your CSNET WEB installation CD-ROM.

There are two concepts that you must know before start the Building layout creation:

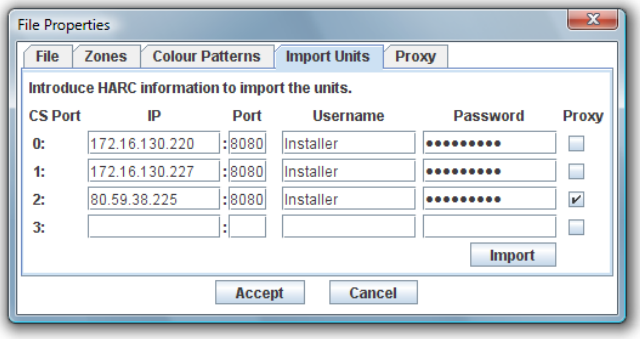
- Shape: marks the area of a unit or a zone.
- Zone: is a slide that contains different shapes.

Building Layout Editor has five zones:

1 Tree: shows you the installation topology and allow the fast movement of zones.
2 Menu Bar: has general options of actions that you can do.
3 Tool Bar: has navigation and zoom buttons.
4 Edition zone: interface to create the shapes inside a zone.
5 Status Bar: has information of state of program.

◆ Import units from CSNET WEB

In order to make easy your layout creation you can import the current units of the CSNET WEB. To do this, you have to open the option file properties and select the units tab



On this tab you must enter the IP, port, user and password from one CSNET WEB to get the units existing on the data files.

If you need to pass through a proxy to connect with one CSNET WEB you must set the check box of column proxy and after go to the proxy tab and set the proxy configuration:

⚠ CAUTION

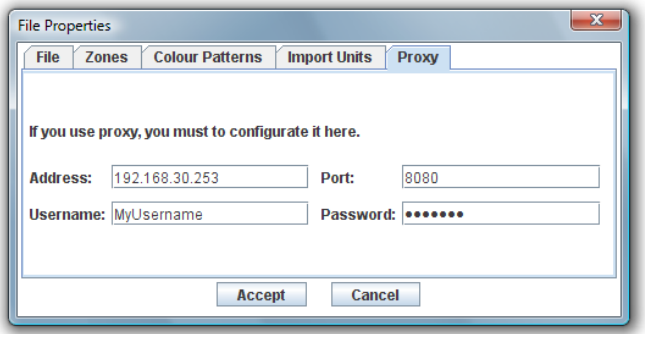
When you configure your installation on CSNET WEB you must use the same order of HARCS than here. If you change this order the port number of the units will be different and layout will consider these units as other ones

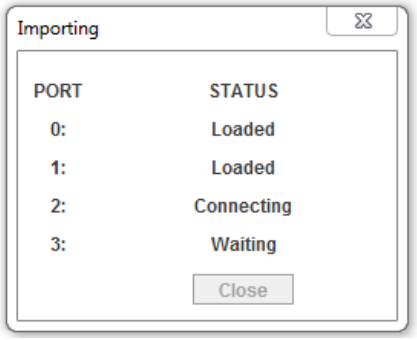
When you click import, Building Layout will use these files to load the unit's information and next window will appear

This dialog will show you the state of each import action.

After end the importation process, you can find the units on the shape dialog clicking on option load.

Making this you can forget to write manually the information of each unit, and you only have to select which unit is on a list.





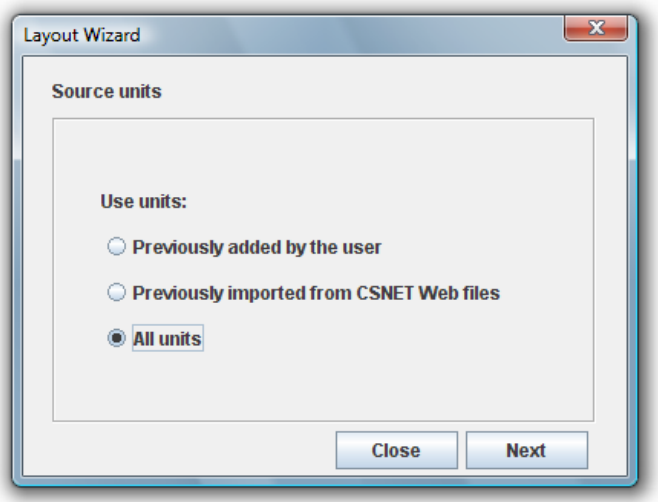
◆ Create Building Layout file using wizard option

In order to make easy your layout creation you can import the current units of the CSNET WEB. To do this, you have to open the option file properties and select the units tab.

Before creating your layout you must select the units used by the wizard function.

Units added by the user means all units that user add entering values in shape edition.

Imported units are units that you can automatically import from CSNET WEB explained on the last point.

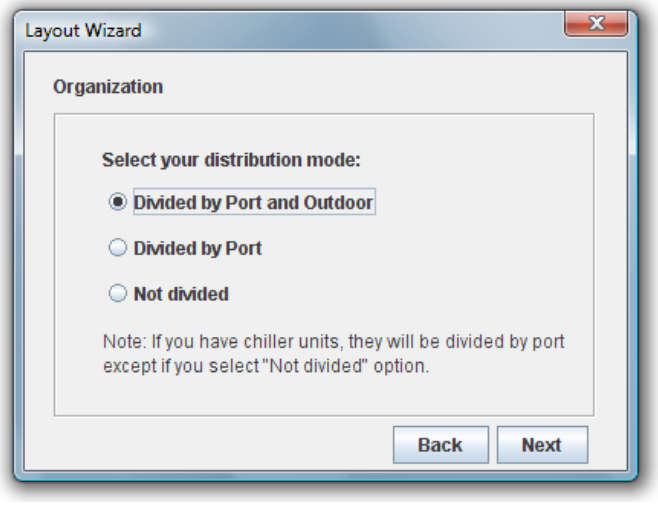


Next, you must to select how the wizard application will distribute your units.

It will create a zone for each port or port and outdoor that exists, entering inside a shape for each unit.

Not divided option will enter all the units in the root zone.

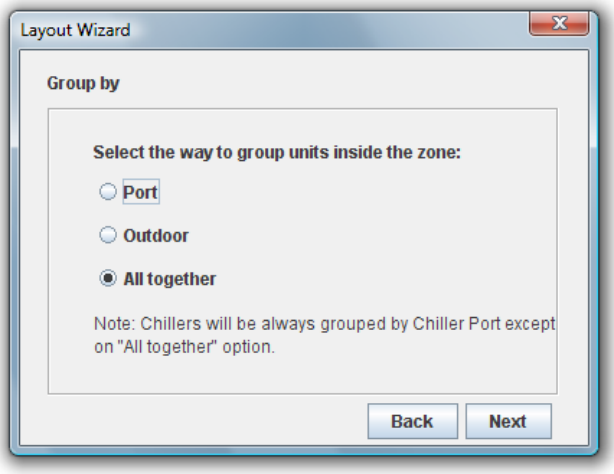
On next step you can specify the organisation of the units inside the zone.



You can group the units by port, by outdoor units or all in a same group.

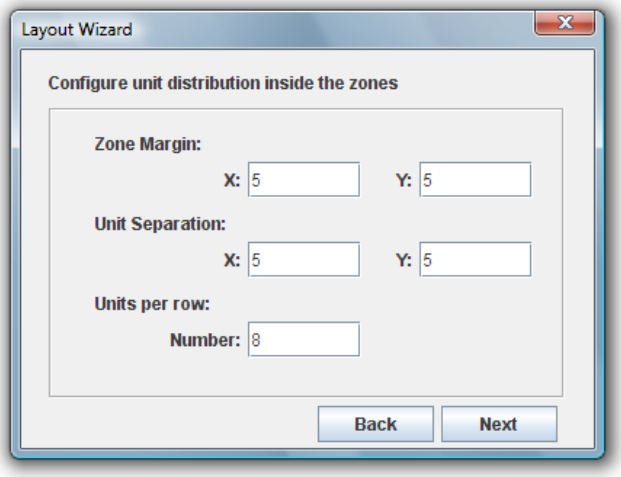
NOTE

If you distribute and group units by same option, on each zone will be only a unit.



You can choose the distribution of your units and shapes inside the zones:

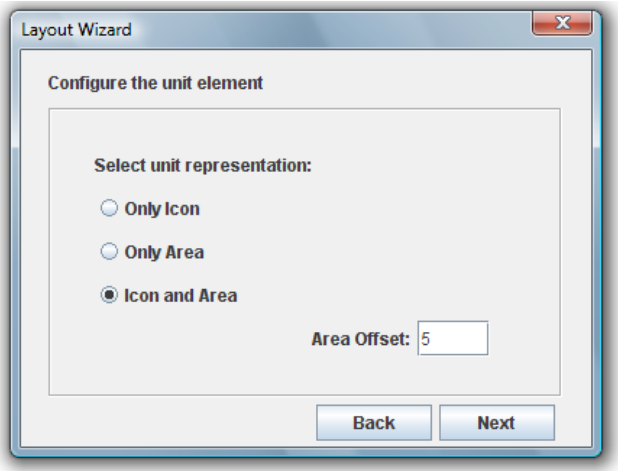
You can specify the margins with the zone, the separation between units and the number of units that you want to have on each row.



On next step you can decide how will be the units element:

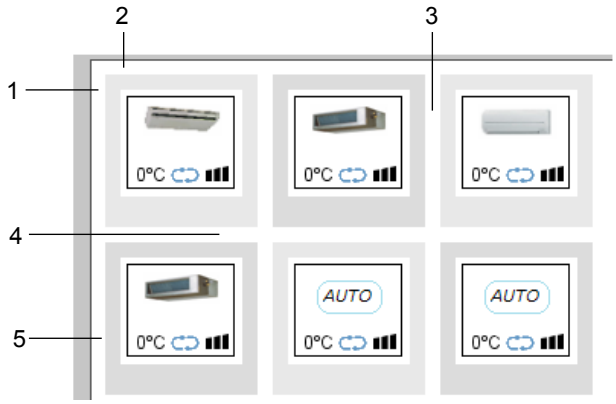
Units can be only the area as a square, only the unit icon or both.

Both modes will have an area with the icon over this area. You must specify an area offset.



On next image you can see an example, applying the entered values:

1 Zone Margin X
2 Zone Margin Y
3 Unit Separation Y
4 Unit Separation X
5 Area Offset



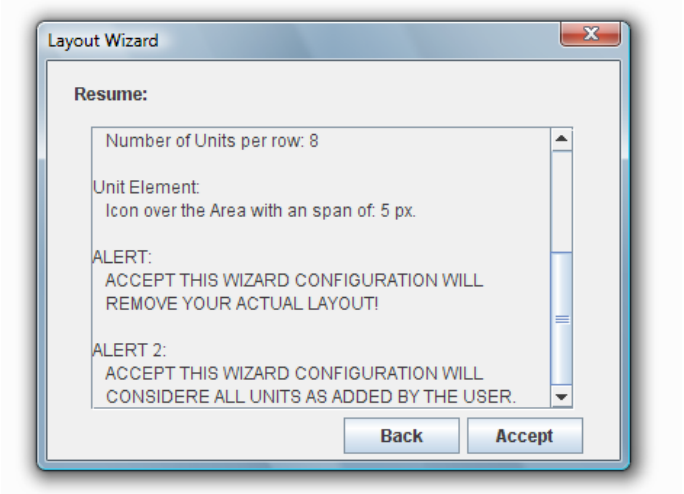
Finally, wizard dialogue will show you a resume panel with a summary of your selected options and with two alerts.

ALERT 1:

Accept this wizard configuration will remove your actual layout.

ALERT 2:

Accept this wizard configuration will consider all units as added by the user.



◆ Create Building Layout file

You can create your layout file without the wizard dialogue, but it will take more time. There are 3 important steps:

- File configuration
- Create zones
- Create shapes

This points will be explained next.

File configuration

You can configure different properties of your layout file. These properties are:

- Zones size
- Background colour
- Colour patterns
- Units source

File tab shows you different information of the building layout file.

This information shows the path of your Building Layout file, the size in MB and the date of last modifications.

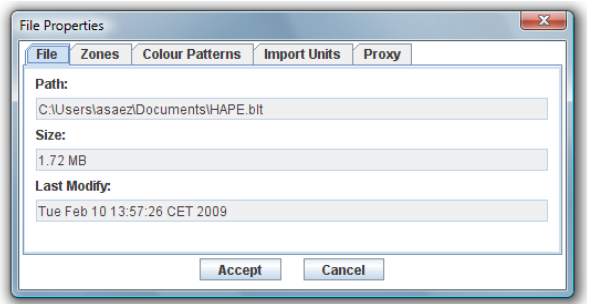
Zones size and background colour can be modified on zones tab inside the file properties dialogue.

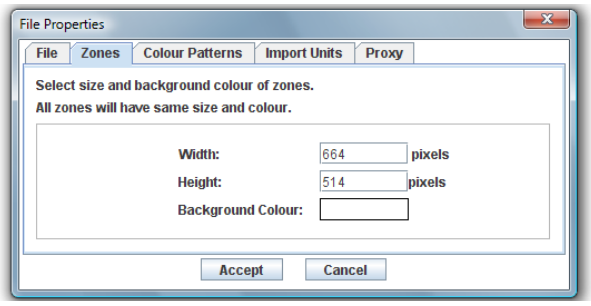
All zones will have same sizes to ban the possibility of irregular navigation on the viewer.

Minimum zone size is 400x400 pixels and maximum zone size is 2500x2500.

Background colour will be also the same in all zones.

Background colour could be useful if your background image has transparency or if you do not use background images.





Colour Patterns tab, allows you to modify the colours of the patterns.

The number of patterns is fixed by the application.

To change the colour of one pattern, you have to choose this pattern on combo box.

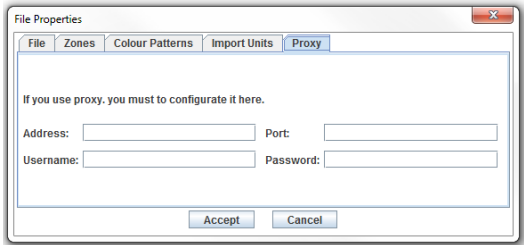
After this you will see current colours states (Inactive, Working and Alarm), to change one of them you must to click on the colour and a colour chooser dialogue will appear.

Set this colour patterns is important to the finally view of the installation because it each installation will have the colour of his state and pattern set now in the edition process.

Import units tab allows you to import units.

Proxy tab let the user to type the proxy configurations in order to be able to connect to a CSNET WEB through the proxy.

Proxy connection is useful when Building Layout Software is importing the units from a CSNET WEB that is not directly connected on same LAN than the computer.



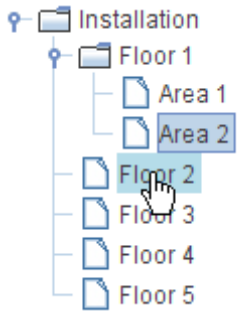
Layout tree

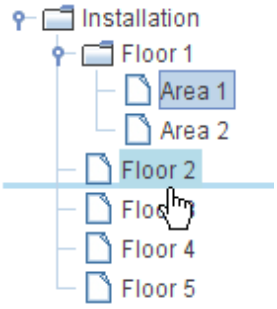
The layout tree shows you the topology of your installation. It is helpfully to find the zones of your installation and it is easy a very good tool to organise your installation.

Using the tree you can select which zone you want to see on the display zone.

Dragging a zone to another one this will be moved as a child of destination zone.

To specify concrete order we move zone to bottom of destination zone, a line will appear. On release mouse button original zone will go after destination zone.





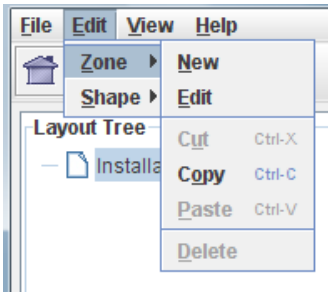
Create zones

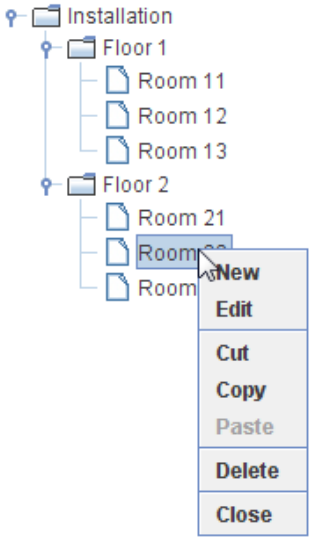
You can find **Zone** in **Edit** menu. Zone options can also be found using the right button on a zone inside the installation tree.

A zone is a slide where we can add all shapes that we want. On a zone we can choose a background image and edit this.

Zone has different options:

- **New:** create new zone. This zone will be child of selected zone on tree.
- **Edit:** modify selected zone.
- **Cut:** copy to clipboard selected zone. When we paste this zone will disappear from original parent.
- **Copy:** clone the zone to allow you to paste where you want.
- **Paste:** copy the zone stored on clipboard as a child of the selected zone. Remember that root zone is not allowed to be deleted.
- **Delete:** delete current zone. When you choose this option a dialogue will appear where you can choose between delete all children from selected zone or move children to parent of the selected zone.

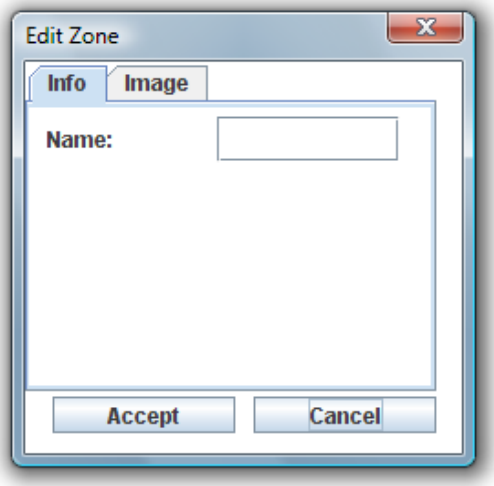


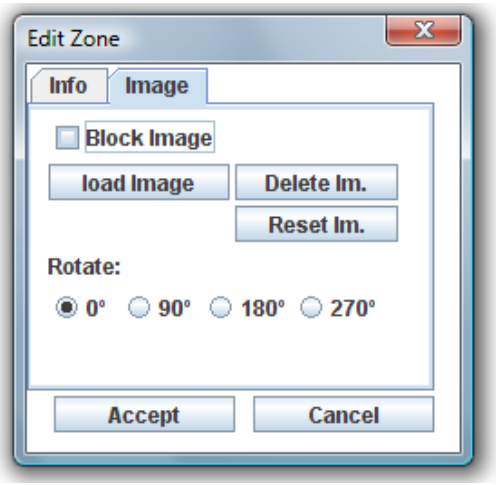


Creating new zone or editing an existing one will appear the zone dialogue to set the information of the zone. Each zone must to have a specific information to identify the zone. The name of the zone must to be unique.

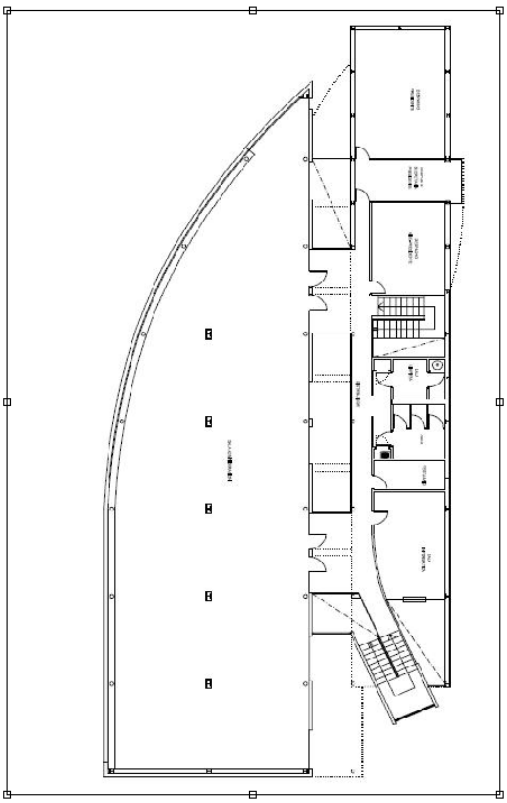
In each zone you can insert one background image. In the image tab are different buttons that allows you to modify the background image:

- **Block image**: block transformations to your image to ban the possibility of transform without want it.
- **Load image**: open file dialogue to choose an image.
- **Delete image**: delete current background image.
- **Reset image**: restart all the transformations of the image.
- **Rotate**: rotate the current image.





When transforming an image, you will see transformation squares around the image. Each square transforms the image fixing the opposite one. Central square will shift the image.



Create shapes

A shape is a form that you can create in a zone. Each shape could link to a zone, a unit or nothing. The shape options are on shape in menu, inside edit.

You can also find shape options clicking over a shape.

On shape Menu you can find different options:

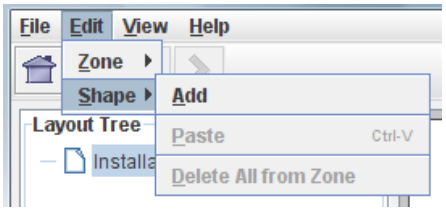
- **Add**: create new shape.
- **Paste**: paste a shape if there is one on the clipboard. You can also paste a shape clicking on one shape and selecting paste option in the popup menu or clicking on the destination point of your shape and selecting the paste option.
- **Delete All from Zone**: this option will delete all the shapes from selected zone.

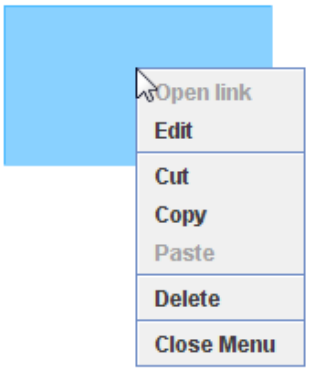
On the popup menu we have different options:

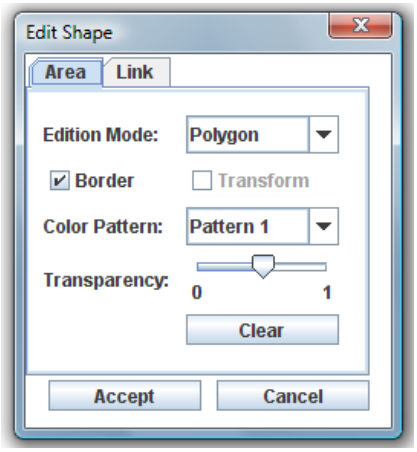
- **Open link**: open the linked zone of this shape.
- **Edit**: open the shape dialogue to “Edit Shape” the select shape information.
- **Cut**: cut the selected shape that will be move when you paste it.
- **Copy**: copy the selected shape.
- **Paste**: paste the copied shape.
- **Delete**: erase the selected shape.

When you create or edit a shape will appear the next dialogue where you can introduce the shape properties.

- **Edition Mode**: allows you to choose between Polygonal and rectangular mode. Each case has its edition properties explained next.
- **Border**: Activate or deactivate a border around your shape.
- **Transform**: if transform button is enabled you can not continue with the edition in normal way. You now can move the polygon or work with points. Note that icon will follow the shape only if they are in contact.
- **Colour Pattern**: select the colour pattern of current shape.
- **Transparency**: set transparency value for your current shape.
- **Clear**: this button will erase current shape.



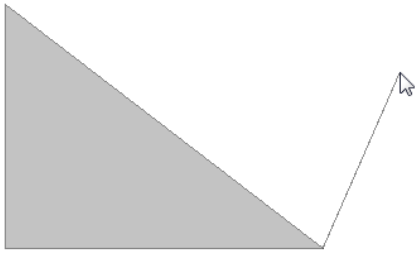




The two different edition modes have different behaviour during the shape creation.

Polygon Creation:

Adding a polygon consist on clicking in each limiting point of the desired shape. A line will indicate you where the next point will be add.



Rectangle creation:

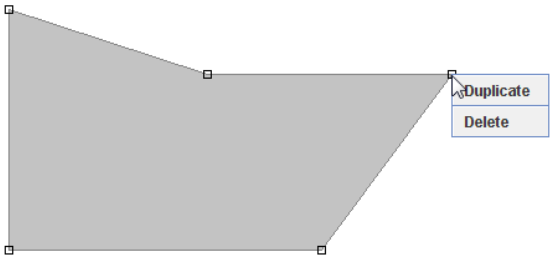
Rectangular shapes creation is easy, you only have to click with the mouse and drag selecting the area you are creating.

The two different edition modes have different behaviour during the shape edition.

Polygon Edition:

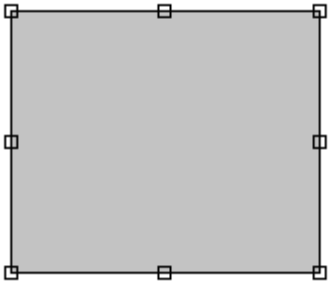
Editing a polygon can be done in two different ways:

- You can move the polygon by clicking inside the area of your shape and dragging it to the new position.
- You can edit a single point. You can drag one point and also, if you make double click on square that marks this point, a new popup menu will appear. In this popup menu you can choose between delete or duplicate the point.



Rectangle Edition:

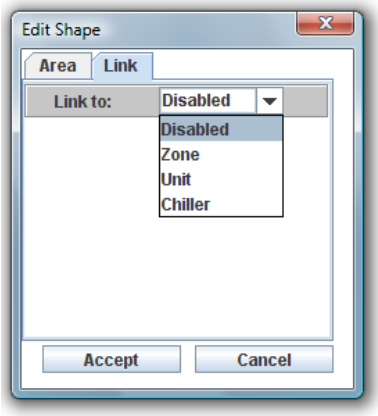
- Central squares will move the rectangle.
- Corner squares will expand or reduce rectangle fixing opposite corner square.
- Between corner squares will move contiguous corners fixing the opposites ones.
- Using shift button you transform keeping previous proportions of the image.

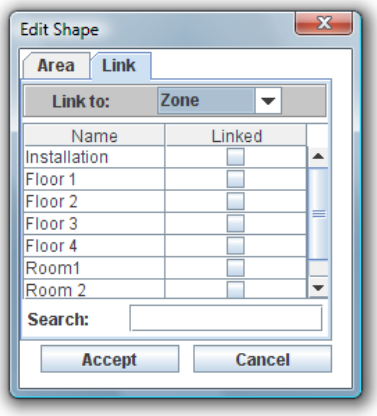


To link a shape you must select the tab link on the shape dialogue and chose the link type.

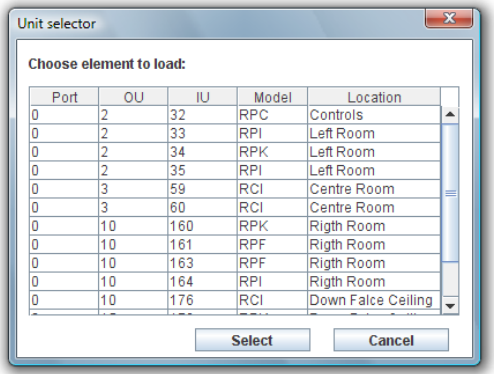
If you want to link to a zone you must select which will be the destination zone. To do this, you must o use the zones table.

You can search for a zone using search file.





To make easier your work, if you have imported configuration files of CSNET WEB as previously explained, you can load the fields selecting load button. Unit selector dialogue will appear:



6.1.8.2 Web connections

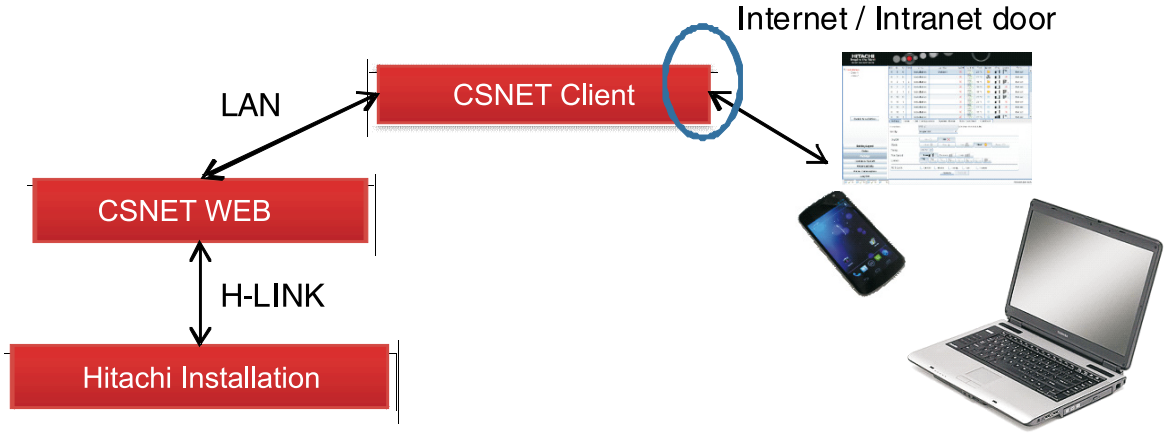
◆ Connection Security

Web connection was requested several times to be able to:

- To use CSNET WEB without installing the software
- To connect from a smartphone

PC software must be running as the server job is done by the software.

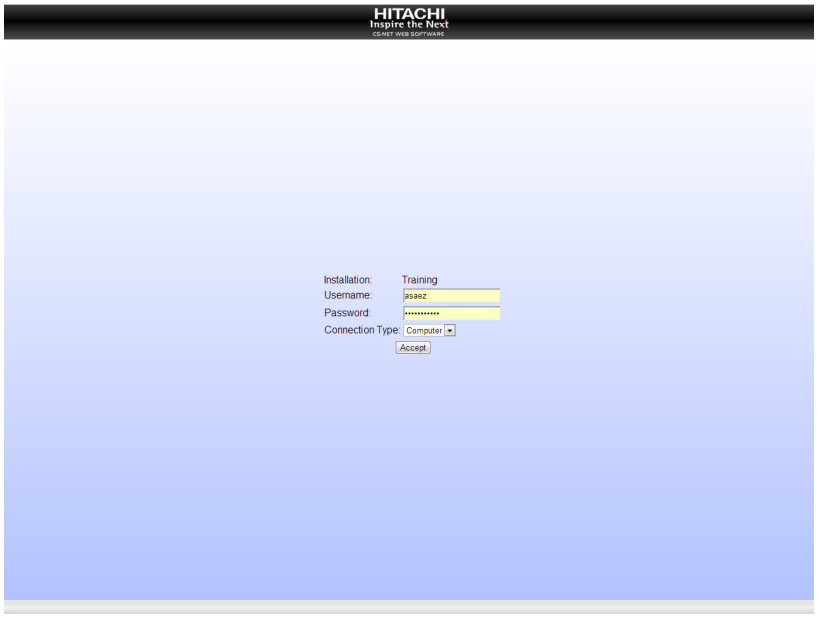
The web server is the door to the Hitachi installation so it has been prepared to keep that door completely safe.



Level		Explanation
1	User Password	The connection done by the user requires a password. The password is stored on the server from the user list dialog, so it is never sent by the client and this means that it cannot be copied. The connection done by the user is also protected.
2	Units allowed	Any user will have a list of allowed / banned units to manage. This means that if one user loses its password, the accessible units will be only the ones that appear on the list.
3	Server activation	To be able to connect to the server it is strictly necessary to have the server option activated. The option is not activated by default and all the software that does not use the new function, will be completely unreachable from outside. In case of suspicious behaviour, the option can be deactivated and the system will become again closed to external connections.

◆ Web Access

Once the client software has been activated as web server, user can connect to the IP of the computer. The Login screen will be showed:



Connection can be done as mobile or desktop. It changes few things, but it tries to fit better to the browser.

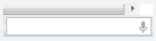
NOTE

- *Web Access is optimised for Google Chrome.*
- *Voice orders will only appear if the browser support this option.*

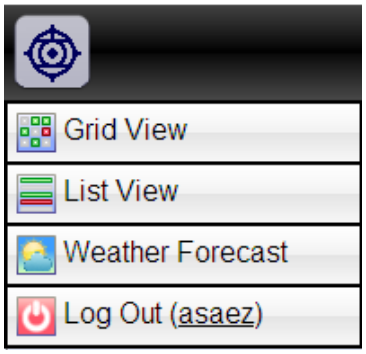
◆ Interface structure

After user login, only the available units will be showed.

Screen has 3 common points:

	Item	Icon
1	Menu Button	
2	Status bar: show info from the HARCS connected.	
3	Smart orders: let the user introduce orders. If browser allow voice input, the orders can be spoked	

The menu contains the following items:

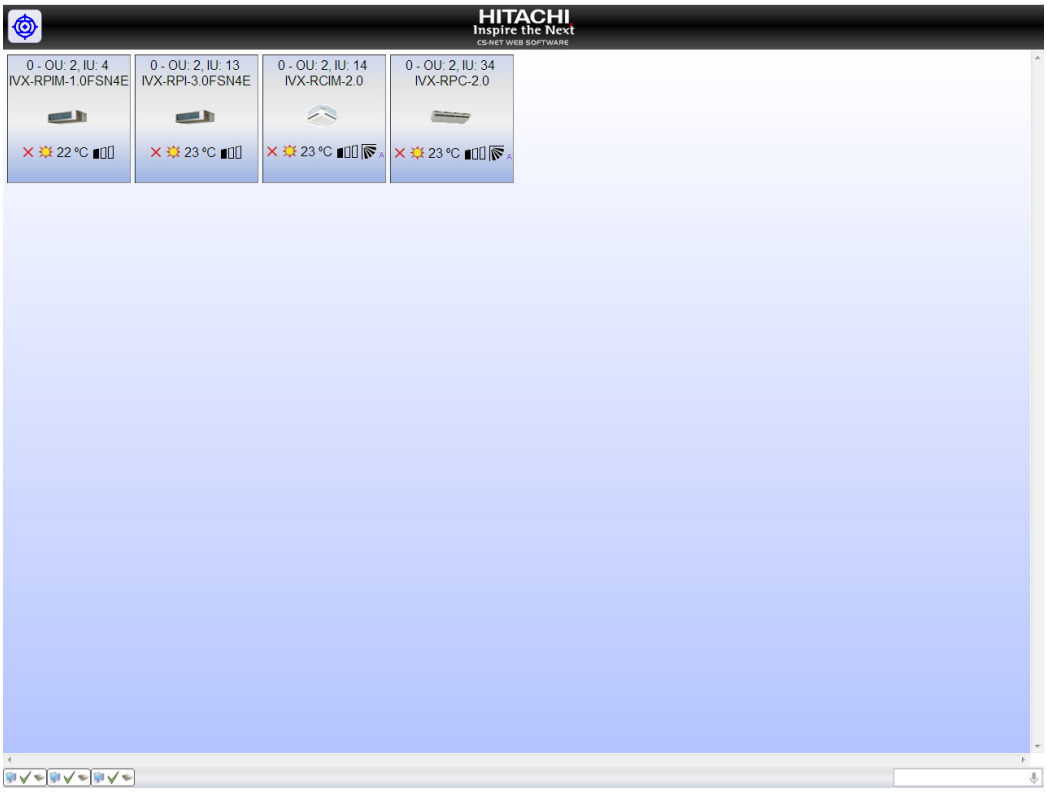


◆ Views

There are two type of views to display the units:

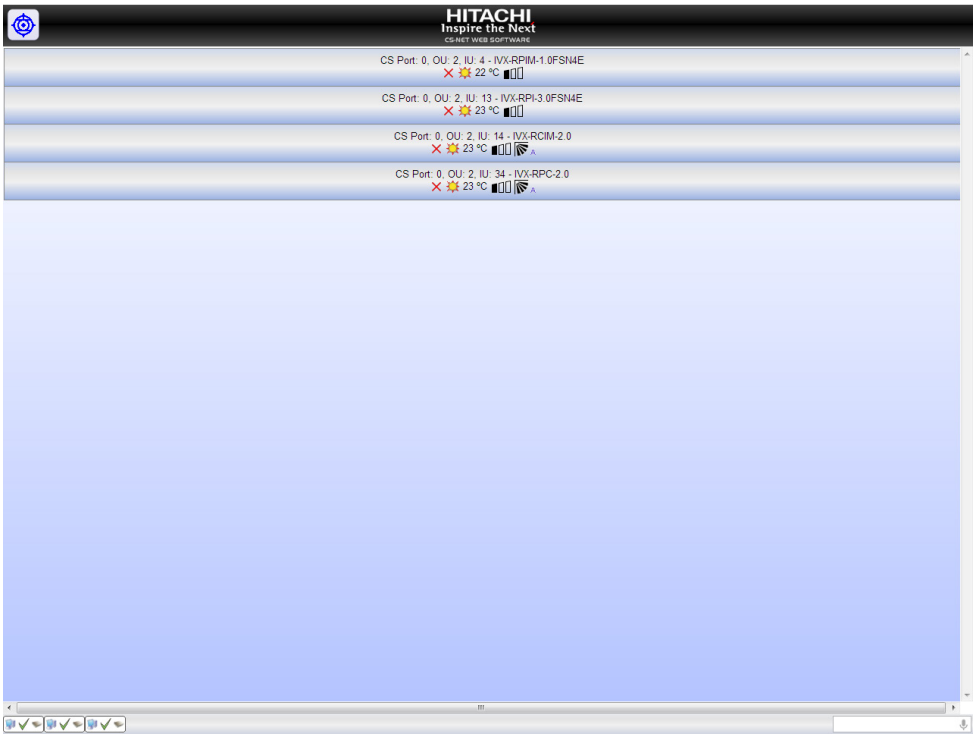
1 Grid View

Grid view looks like auto building layout view.



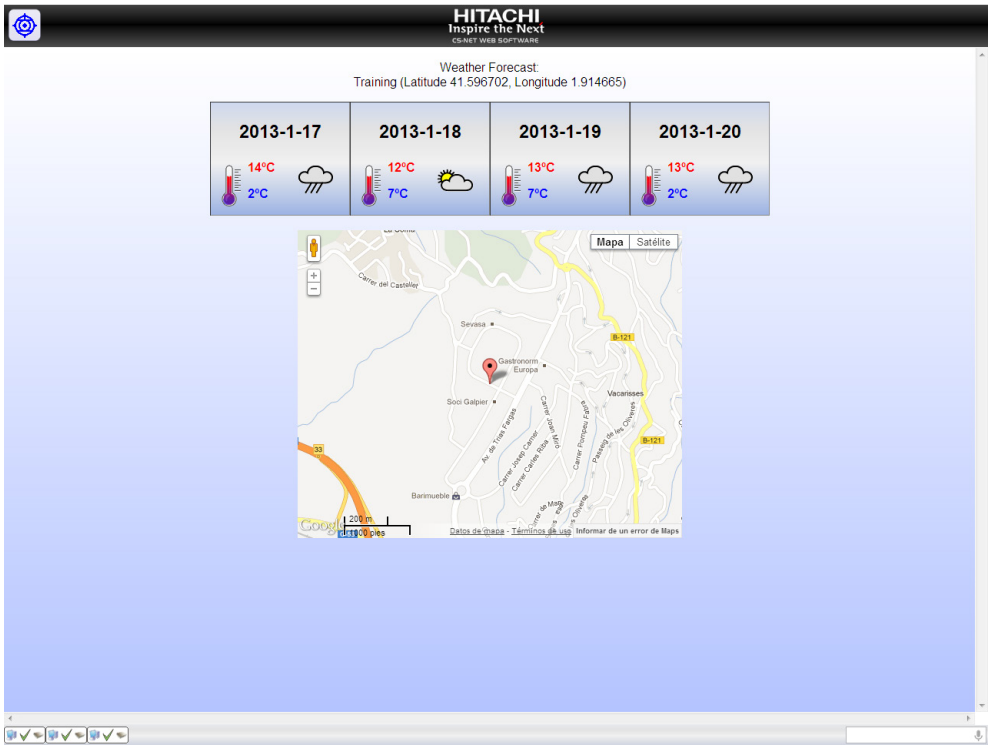
2 List View

List view shows units on a list to use better the screen space.



◆ Weather Forecast

Weather forecast shows the forecast of the following 3 days and the current one.

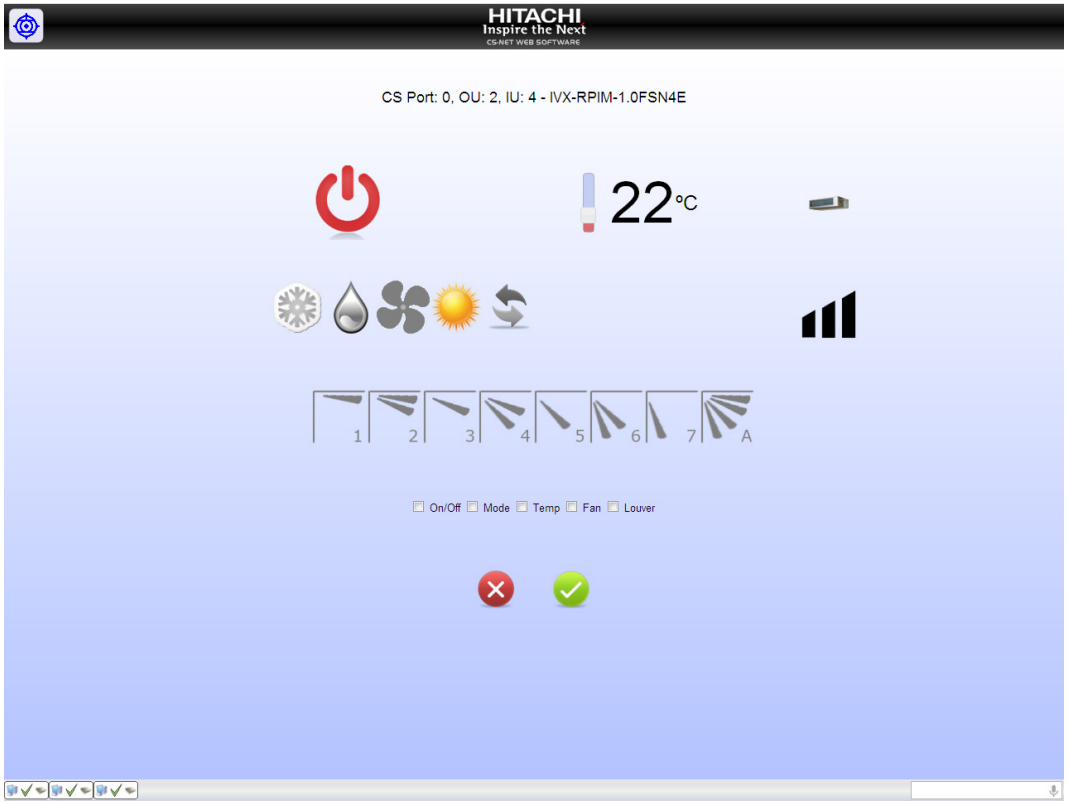


NOTE

- *It requires internet connection.*
- *Weather forecast can be activated if user requires the information.*

◆ Unit Setting

Unit setting order is set from the following screen.



It works like CSNET WEB setting panel.

The configurable items are:

- On/Off
- Temperature
- Mode
- Fan
- Louver
- Central lock items

◆ Smart Orders

Smart orders lets user say or type what its orders and CSNET WEB will apply them.

Those are the available orders:

- Smart Orders

Action	Destination	Example
I want	cold heat air	I want heat
I have	cold heat air	I have cold

- Navigation actions

Action	Destination	Example
open	Location Port OU IU	open Location 2
see	Location Port OU IU	see 0 2 4
matrix	-	see matrix
list	-	list
weather	-	Weather Forecast
go back	-	go back
exit	-	exit
help	-	help

- Setting actions

Action	Value	Destination	Example
turn on	-	Location Port OU IU all (just the action applies to current opened unit)	turn on all
turn off	-	Location Port OU IU all (just the action applies to current opened unit)	turn off 0 2 4
temperature	-	Location Port OU IU all (just the action applies to current opened unit)	temperature 25 Location 2
mode	cold dry fan heat auto	Location Port OU IU all (just the action applies to current opened unit)	mode cold
fan	low medium high	Location Port OU IU all (just the action applies to current opened unit)	fan medium Location 2

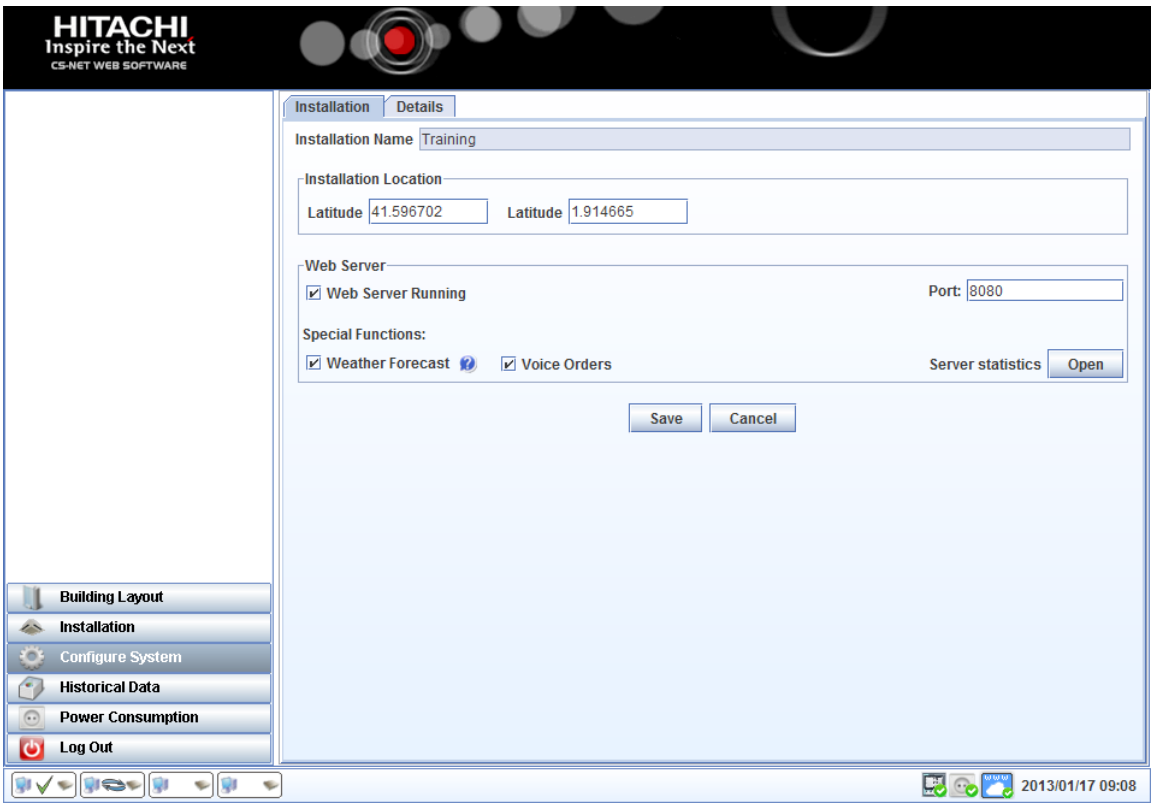
NOTE

Orders are sent as text but in case that your web browser allows voice inputs, those orders can be entered by saying this orders in the CSNET WEB server language.

◆ Web server configuration

Web server is configured on the “configure system” panel.

A tab has been added to have the whole installation data that affects to the 4 harcs.

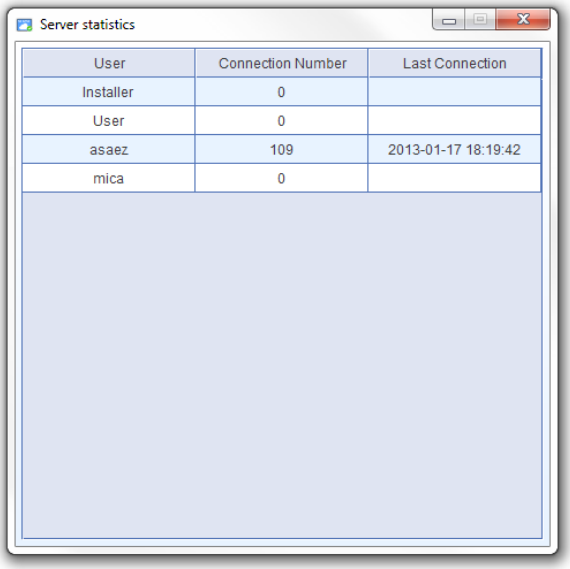


User can set if server is running or not and also the connection port.

It can be also configured if weather forecast and voice orders will appear on the menu or not.

Latitude and Longitude are used for weather.

The user stats of connections are shown by opening the Server statics. Then, the connection number and the last connection time can be checked.

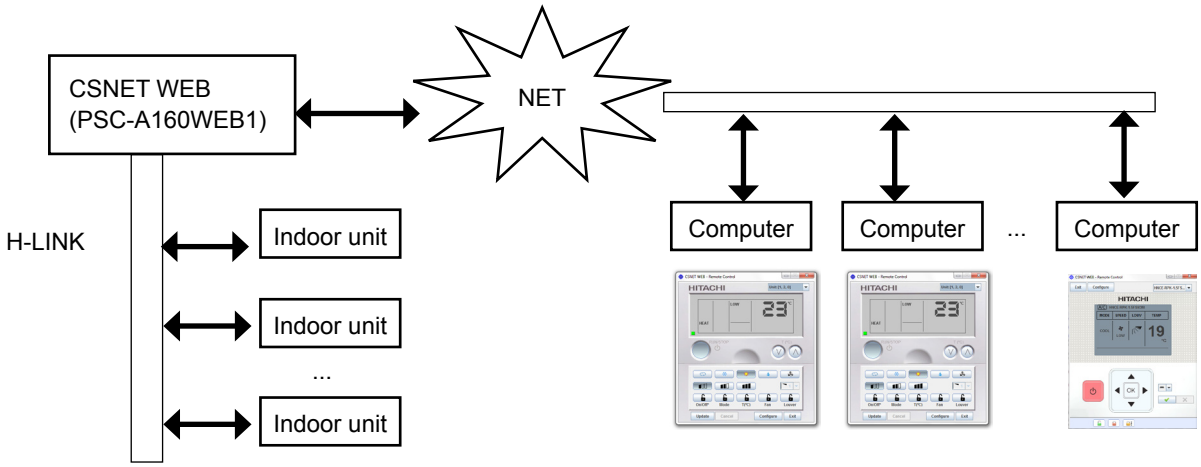


6.1.8.3 RCS Web

◆ Introduction

RCS Web software takes the idea to simplify CSNET WEB, and use only the remote controller created for the Building Layout.

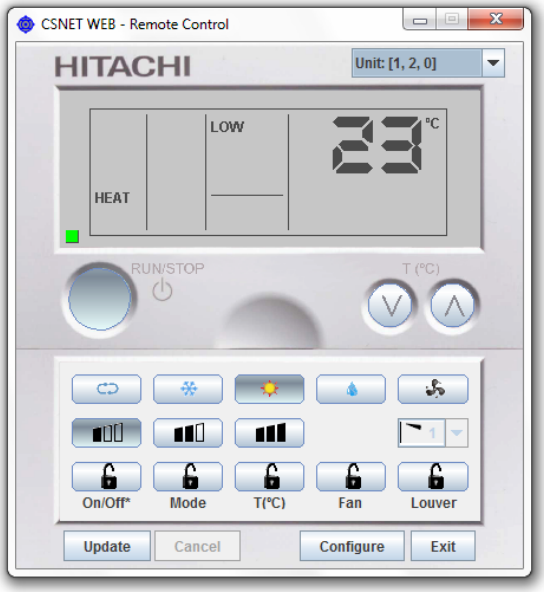
The main idea is install that software on the computers of users who no need to manage all the CNET WEB options. They will have only the same access that using the remote controller but from their computer.



NOTE

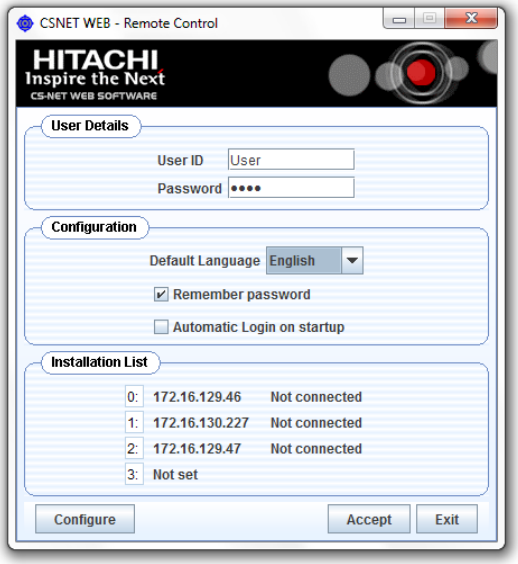
- *It is available only for Packaged.*
- *User will manage with this interface only the indoor units that Installer allows him to manage.*

RCS Web interface looks like a virtual remote controller that wants to simplify and improve the user experience controlling the units.

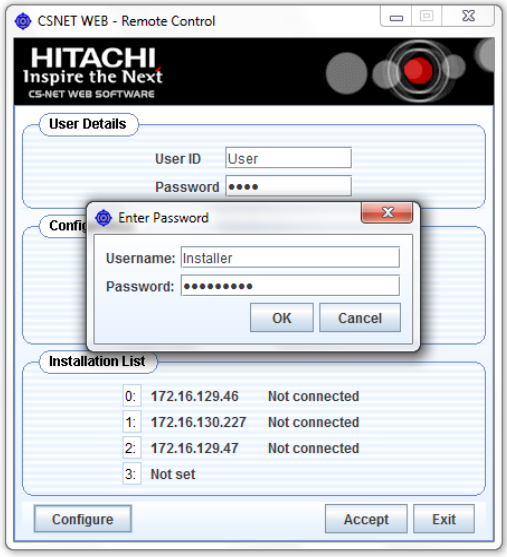


◆ Local software configuration

After start the software it will appear the main window. There, due to configure the software it must to be selected the configure button.



To configure the installation will be needed the Installer password, by default “Installer” as the user name and password.



NOTE

If installer set to white text its user name and password it will be not asked.

Installer configuration allows to configure the following items:

- Installation: set HARCS where RCS Web will connect.
- Unit filter: configure units that user could see.
- User: set user name, password and privileges of the user.
- Proxy: configure proxy data if needed.
- Installer password: change the password to connect to the configuration.

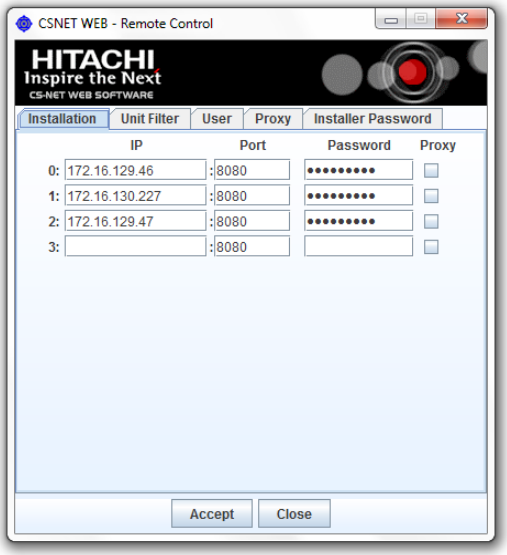
Installation

On the installation panel it will be able to configure 4 HARCs. Exactly as the CSNET WEB.

Each of these 4 HARCS will be specified using the IP and port.

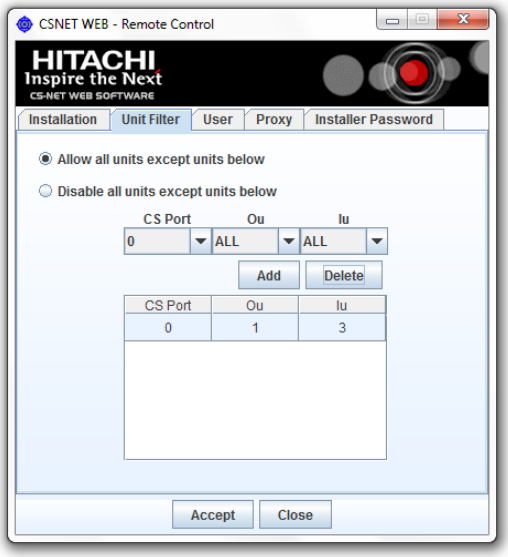
User name and password of these HARCS will be configured from CSNET WEB. By default they will be “Installer” as user name and password.

Marking the proxy check box it will use the proxy to connect with this HARC.



Unit filter

Unit filter is the screen where the Installer can configure the units that user could control.



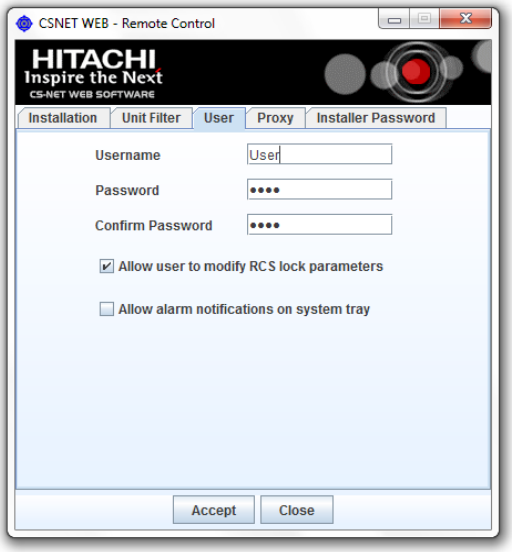
The list of units will be defined setting the allowed units or the list of banned units.

NOTE

If it is introduced on the login window the installer password, it will log on the RCS Web in having all the units available, not only the configured here.

User settings

User window let configure the user name and password of the user profile.



There are 2 check boxes due to manage the privileges of the user.

One will allow user to change central settings, and the other allow to appear the alarm message on the system tray.

Proxy settings

Proxy window is used to configure a proxy connection. Just like on the CSNET WEB software.

Proxy server will be specified using address and port.

To authenticate the connection to the proxy it will be necessary the user name and password to access to the proxy server.

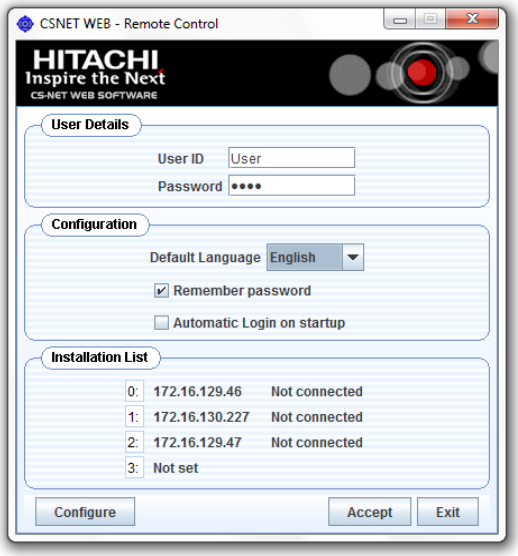
Changing installer password

Installer Password window allow changing or erasing the installer user name and password.

Setting fields without texts will not ask for the Installer password acceding to the local software configuration.

◆ Operation with RCS Web software

The main window opened is the login window. On that window, user could introduce his user name and password to log into the system.



On that window there are small user configurations that are:

- **Default Language**: it allows switching the language that the software will use when it will be started. Available languages are English, Español, Català, Italiano, Français, Deutsch, Nederlan, Portugues, Czech and Russian.
- **Remember password**: systems remember the last user name and password configured due to avoid the retyping of these items.
- **Automatic login on startup**: if system reminds the password, it will automatically connect when software is started.

NOTE

- *If software is moved into the start-up menu of windows it will be started when computer will be switched on.*
- *Marking automatic login on start-up, this window will not be shown.*

The installation lists shows the configured CSNET WEBS and if there are connected or not. The state of connection will switch only when user will start login in.

Virtual remote control

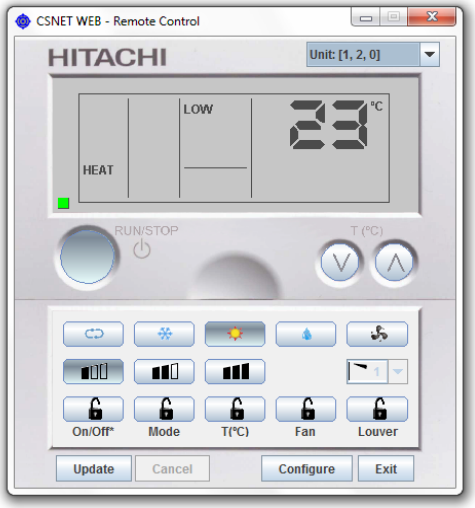
Once the user is connected, it will appear an interface that looks like a remote control.

This interface is equivalent to the building layout one with few improvements that helps to be a central control.

The controllable things will be Run/Stop, setting temperature, mode, fan, louver and central. They are exactly as the Building layout remote control. It is possible to find more information on *Building Layout* chapter.

In case of central it will be enabled only if installer gives privileges to the user to control this, and when one central value is activated the buttons corresponding to that lockage will be disabled.

Log out will return to the login window, and exit will close the application.



Units list and state

The combo box on the upper part will be used to select between units if there are more than one. The displayed text will be the location field stored on the HARC. If this text does not exist, it will write “Unit: [X,Y,Z]” knowing that values as the slot, outdoor address and indoor address of the unit.

Different colours on the combo box will give information about if unit is running or not, and if there is a unit with an alarm.

The colours meaning is explained on the following table:

Colour	Meaning
Green	Running
Black	Stopped
Red	Alarm

◆ Use of system tray

If user close the window using the cross button, application will still run setting an icon on the system tray.

Clicking twice over the system tray icon will open the application. Using right button of the mouse over it will open a little menu that will allow to the user between close completely the application or open it.

◆ Troubleshooting

User will normally have the application closed on the system tray, because it will not be always managing things. But having that icon there will be so useful due to the alarm notification.

When an alarm occurs system tray icon will switch to red colour and it will be like this until alarm will be disappeared. Alarm displaying message should be activated on the user configuration.

First time than alarm occurs it will appear a system notification showing that this alarm has been appeared with the alarm code and unit address.

Alarms could also be watched on the alarm led of the virtual remote control or on the units list.

6.1.9 Alarm signals

When at least one unit is in a situation of alarm this will be indicated physically in the interface by a flashing ERROR on the LED.

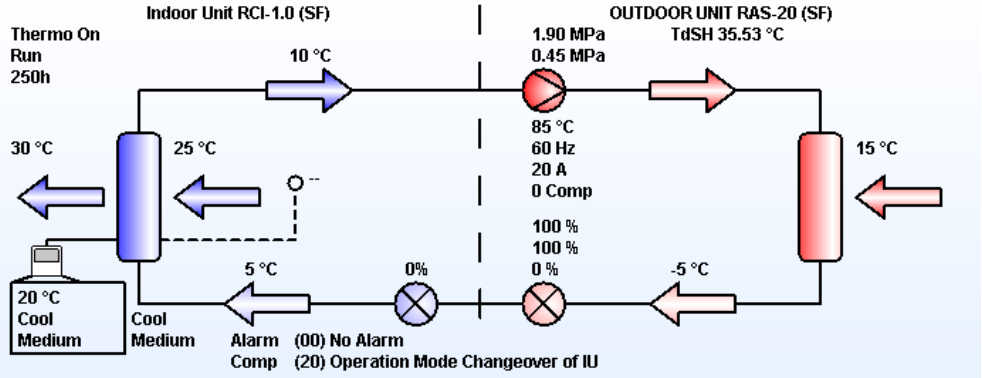
If all the units are in a situation of alarm this represents a serious error of communications and the flashing will be more rapid.

The CSNET WEB software lets you detect which units are in a situation of alarm, as these units will be marked in red in the main window. At the same time, each of the areas which contains units in a situation of alarm will be marked in red.

6.1.9.1 Unit alarms

The CSNET WEB software lets you identify the error code of the units. This code appears in the System Status window and corresponds to the error code indicated in the service manual of the unit in question.

New alarm codes have been added specifically for CSNET WEB to indicate that communication with one of the units has been broken.



The error codes of communication with CSNET WEB are as follows:

Code	Description
60	The outdoor unit has not communicated with CSNET WEB for more than 10 minutes
61	The indoor unit has not communicated with CSNET WEB for more than 10 minutes
62	The outdoor unit has not communicated with CSNET WEB since it was last started
63	The indoor unit has not communicated with CSNET WEB since it was last started

6.1.9.2 System options

CSNET WEB offers a variety of options letting you know its status at all times. These options are only accessible from the hardware itself.

To activate a function:

- Remove the four screws in the upper part of the hardware.
- Locate the “**Option**” Dip-Switch.
- Make sure that all the pins are “**OFF**”.
- Put the pin of the function required into the **ON** position.
- Put the pin 1 to **ON** to activate the function.

When you have configured the Dip-Switch, the seven-segment display shows different characters according to the function established. The values appear as rolling text.

To deactivate the function and return to rest mode:

In the “**Option**” Dip-Switch put all the pins to **OFF**, leaving the 1 pin until last.

The table with all the functions and their description is shown below.

◆ Table of functions

Pins	Function	Description
All OFF	Rest	Indicates the type of installation (PA Packaged) If there is an alarm it shows the alarm code and the units with this alarm.
2	Restore the network configuration	Restore the IP address Mask and Gateway to the initial values of: IP: 192.168.0.3 Mask: 255.255.255.0 Gateway: 192.168.0.1
3	Restore passwords	Set the “User” password to “User” and the “Installer” password to “Installer”.
4	Restore configuration	Deletes the configuration of the installation and restores the passwords as in the previous point.
5	Notification of the IP address	Shows the IP address and the CSNET WEB port.
6	Information on units	Shows the number of indoor and outdoor units recognized by CSNET WEB.
7	Central Station compatibility	It enables the compatibility with central stations. CSNET WEB has always priority so if a unit is set as central, Central Station will not be able to modify the state of the unit. The same happens with remote sensor not configured option. ⚠ **CAUTION** *All units should be controlled by a Central Station, otherwise it will appear a communication alarm.*
8	Set Packaged units	Set units as Packaged. Value 0 means that units are Packaged.

6.2 CSNET Manager LT/XT

6.2.1 Safety summary

HITACHI cannot anticipate every possible circumstance that might involve a potential hazard.

IMPORTANT NOTE

Read carefully the document PMML0303A inside the USB Pen Drive Memory before performing the installation work.

DANGER

- ***Do not install CSNET Manager unit outdoors.***
- ***Do not install this device in places accessible to the general public. Install it in enclosures or other places which are accessible only by the usage of a tool.***
- ***Do not connect power supply before the device installation is correctly done. Always disconnect power supply from the device before any maintenance or servicing action.***

CAUTION

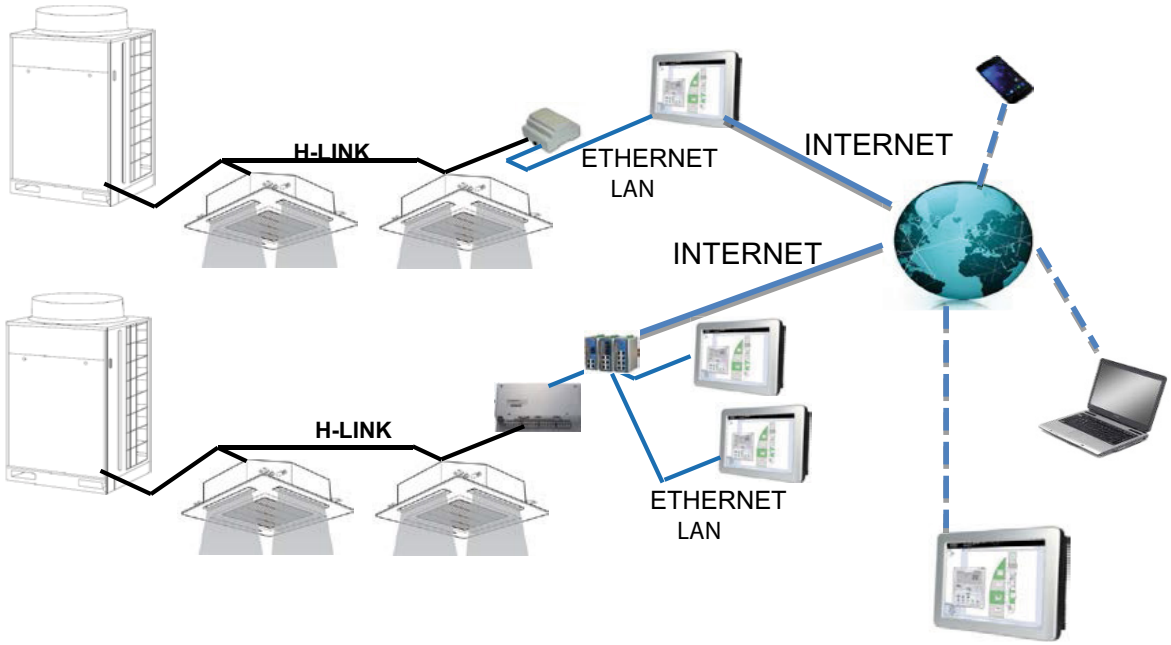
- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle properly and safely this appliance.*
- *Children should be supervised to ensure that they do not play with the appliance.*

6.2.2 System description

CSNET Manager is a composed centralized control system.

CSNET Manager connects through the LAN to an HC-A64NET, which can control an H-LINK communication line.

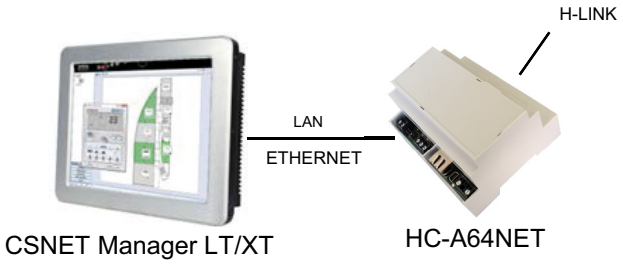
CSNET Manager connects to a Local Area Network (using a DSL Router) by means of its Ethernet port, allowing remote adjustment and monitoring of parameters. The internet access parameters of CSNET Manager shall be set up through the Network Settings screen of CSNET Manager.



6.2.2.1 Connectable devices

CSNET Manager Screen can connect up to 8 different devices. The following devices are suitable for connection:

◆ **HC-A64NET**

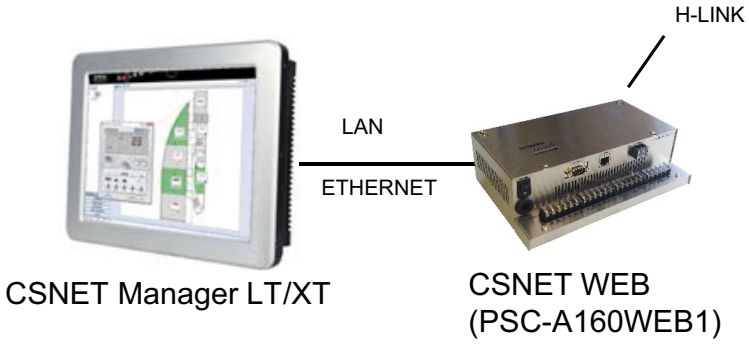


CSNET Manager is connected to an H-Link installation through an HC-A64NET gateway. CSNET Manager is used to transmit orders, to store historical data and for time and power consumption management.

NOTE

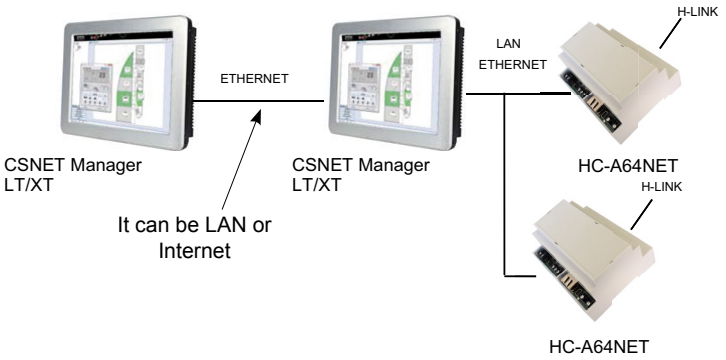
Do not connect more than one HC-A64NET per H-LINK bus.

◆ **CSNET WEB (PSC-A160WEB1)**



CSNET Manager is connected to an H-Link installation through CSNET WEB hardware. Its control functions are those in CSNET WEB, and CSNET manager operates as a graphical interface for the user, like the current TS002

◆ CSNET MANAGER



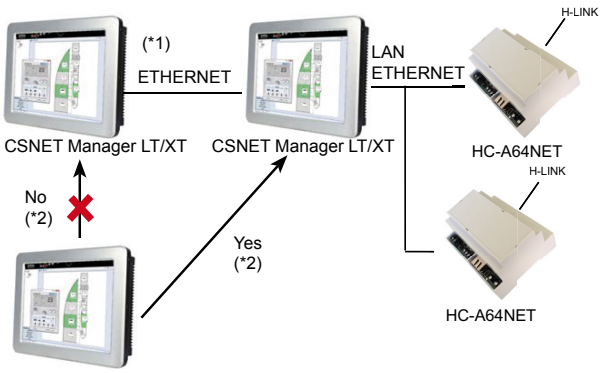
CSNET Manager is connected to another CSNET Manager that it is connected to the H-Link installation through the HC-A64NET.

Two CSNET Managers can be interconnected, allowing each of them to monitor and control the H-Link installation connected to the other one.

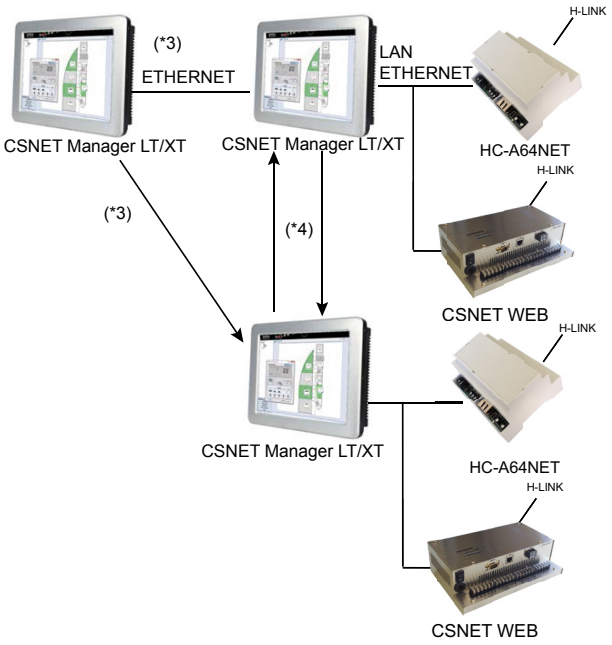
NOTE

- *HC-A64NET can be connected only to one CSNET Manager.*
- *(*1): One CSNET Manager only sends the units from its HC-A64NET and CSNET WEB to all the CSNET Managers that are monitoring it.*
- *(*2):CSNET Manager monitoring devices shall be connected only to a CSNET Manager with linked H-LINK devices configured; otherwise, these devices will not be shown on the monitoring screen.*
- *(*3): Each CSNET Manager can only share with other CSNET Manager devices the control of those indoor units that are connected directly to it through HC-A64NET or CSNET WEB interfaces.*
- *(*4): CSNET MANAGER devices can monitor each other reciprocally.*

Example 1:



Example 2:



6.2.2.2 Based on Java technology

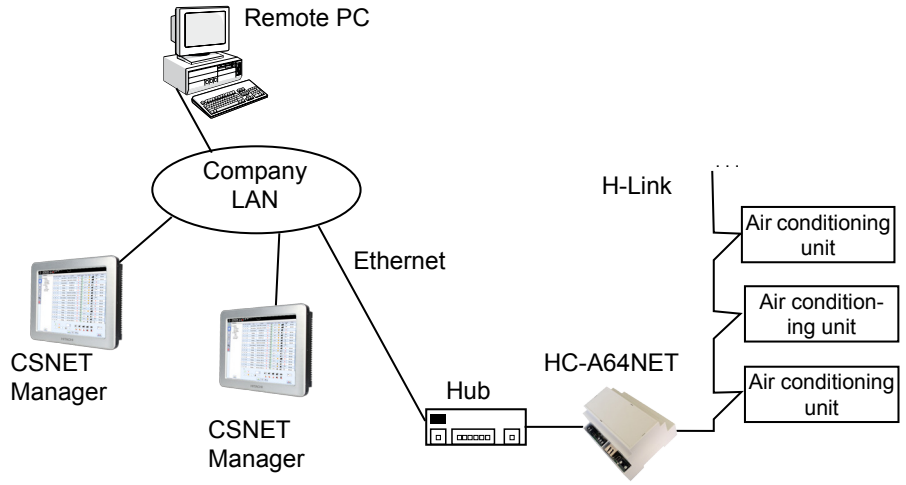
CSNET Manager, RCS Web Net configurator and building layout use JAVA.

JAVA J2SE Runtime Environment must be installed in order to run RCS Web, Net configurator or building layout. CSNET Manager is supplied in a USB drive to simplify installation.

6.2.2.3 CSNET Manager connection

CSNET Manager is connected to a Local Area Network through its Ethernet port. After configuring the network, the system will be accessible from any site in the company's network.

Some adjustments are required for the LAN connection, and the network administrator's assistance is needed.



6.2.2.4 Internet connection

CSNET Manager has been designed to be accessible via Internet. This means that maintenance is quick and effective, which satisfies the needs of the final user.

NOTE

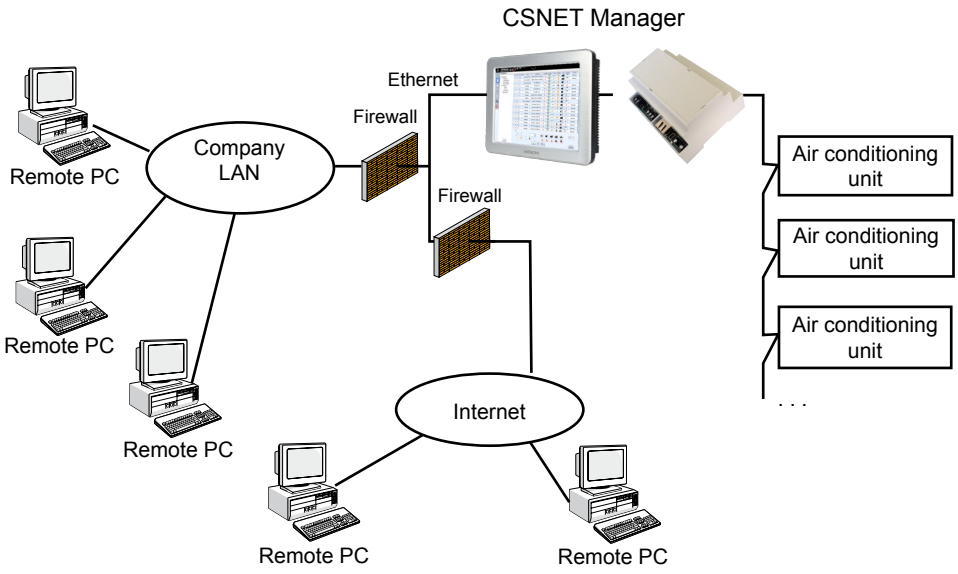
It is recommended to set up a dedicated DSL line, in order to reduce the burden on the existing data network of the building.

◆ Via LAN

CSNET Manager can be connected to the Internet and to the company's LAN using a router.

The LAN has to be specially configured to guarantee security, using firewalls and anti-virus software.

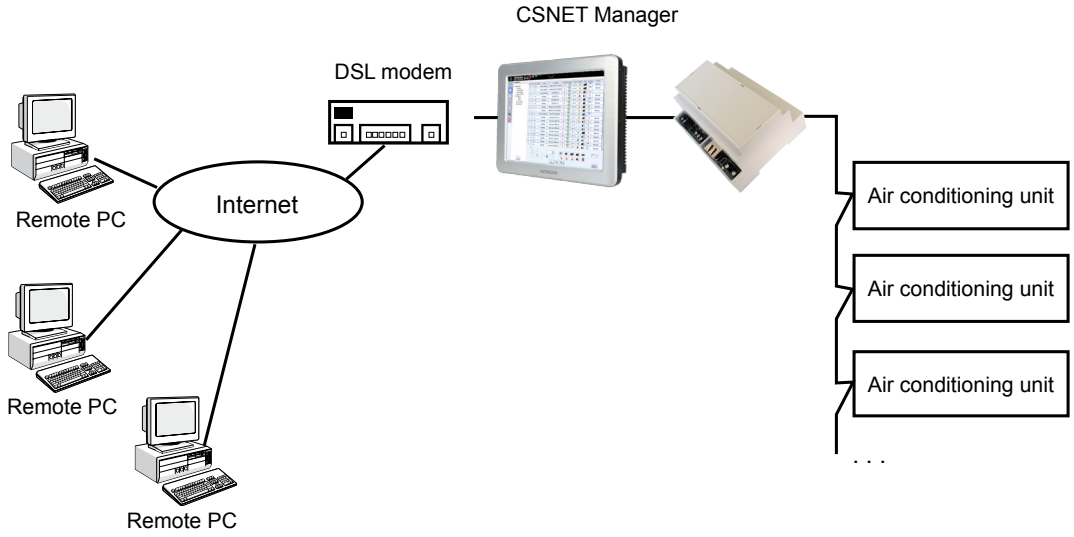
This requires the assistance of the company's LAN administrator.



◆ Direct

Using the Ethernet port, CSNET Manager can be connected directly to the Internet via a suitably configured DSL modem. This makes possible to monitor the system from any computer with Internet access.

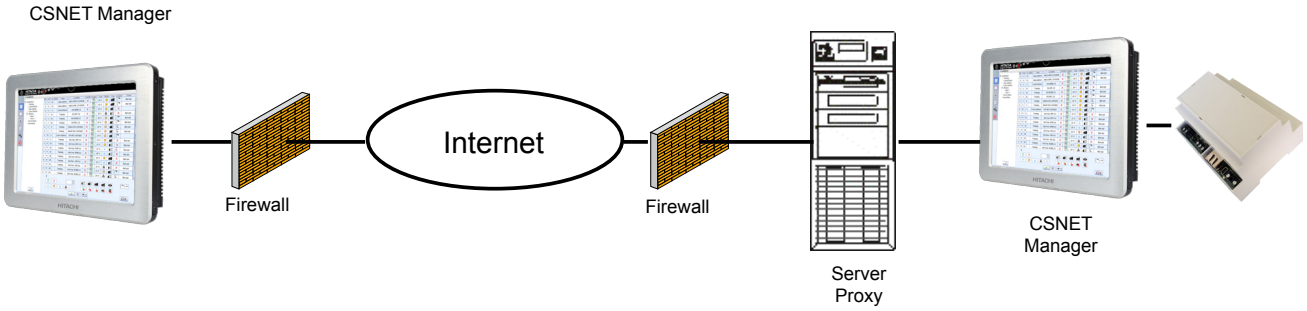
Assistance from an IT expert is required. Security should also be ensured by external means such as firewalls and anti-virus software.



◆ Proxy

A proxy is a network server which generally only allows access to WEB content.

It is configured in the new proxy adjustment window which has been added to the Local software configuration, as shown later.



NOTE

- *Proxy uses NTLM1, Kerberos, Basic or Digest authentication. NTLM2 authentication is not permitted. Your network administrator should provide you the information about authentication. The operation through a proxy is not guaranteed as the network configuration and the anti virus software may hinder the correct communication between the client computer and the HC-A64ANET.*
- *The proxy and firewalls allow communication through port 8080.*

6.2.2.5 H-LINK

HC-A64NET is compatible with the H-LINK 2 and the old version called H-LINK (H-LINK 1) units.

Connection of both H-LINK 1 and H-LINK 2 units in the same H-LINK unit is possible considering the unit limitations and addressing.

H-LINK 2 number of connectable devices is up to a maximum of 200 devices in the H-LINK 2 line. A CSNET WEB, an Indoor Unit, an Outdoor Unit, a HC-A64NET or other devices with H-LINK address are considered as a device.

NOTE

- *CSNET Manager is not considered as an H-LINK device.*
- *PC-A1IO, KPI or DX-Kit count as a normal indoor unit.*

When there is a central control device like CSNET Manager, the maximum number of total units (indoor and outdoor units) for only 1000 meters of H-LINK line is shown on the following table:

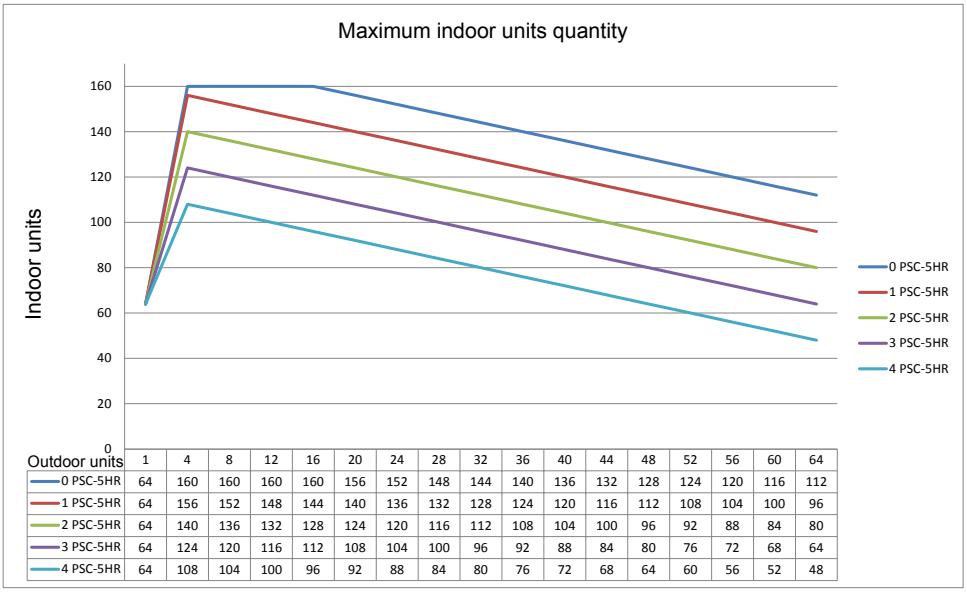
	Maximum number
Outdoor units	64
Indoor units	160
Units (outdoor and indoor)	176
H-LINK devices	200

H-LINK line length could be up to 1000 meters, they could be increased to 5000 meters using up to 4 PSC-5HR. Each of them adds 1000 meters to the line, affecting the quantity of indoor unit that can be connected to the same H-LINK.

Each H-LINK line repeater (PSC-5HR) counts as 16 indoor units. The following table summarize the affection of the PSC-5HR to the indoor and outdoor unit maximum number.

Number of PSC-5HR	Maximum length of H-LINK	Maximum number of indoor and outdoor units
0	1000 meters	176
1	2000 meters	160
2	3000 meters	144
3	4000 meters	128
4	5000 meters	112

Therefore, considering the previous maximums and the number of PSC-5HR, the maximum number of indoor units with one central control, on that case CSNET WEB, is shown on the following table and graphic.



Outdoor units	1	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64
0 PSC-5HR	64	160	160	160	160	156	152	148	144	140	136	132	128	124	120	116	112
1 PSC-5HR	64	156	152	148	144	140	136	132	128	124	120	116	112	108	104	100	96
2 PSC-5HR	64	140	136	132	128	124	120	116	112	108	104	100	96	92	88	84	80
3 PSC-5HR	64	124	120	116	112	108	104	100	96	92	88	84	80	76	72	68	64
4 PSC-5HR	64	108	104	100	96	92	88	84	80	76	72	68	64	60	56	52	48

The maximum number of Indoor units connectable to a HC-A64NET is 64, and for the outdoor units are 64.

Note that CSNET Manager connected to a PSC-A160WEB1 can control up to 160 units. Connecting 8 PSC-A160WEB1 to one CSNET Manager we can get the maximum number of connectable units of 1280.

6.2.3 Installation

6.2.3.1 Installation site selection

Take note of the maximum admissible cable length between units and the control as well as between the units themselves, as shown in the following table:

Cable section	0.3 mm^2	≥ 0.75 mm^2
Cable length	30 m	500 m

6.2.3.2 Components list

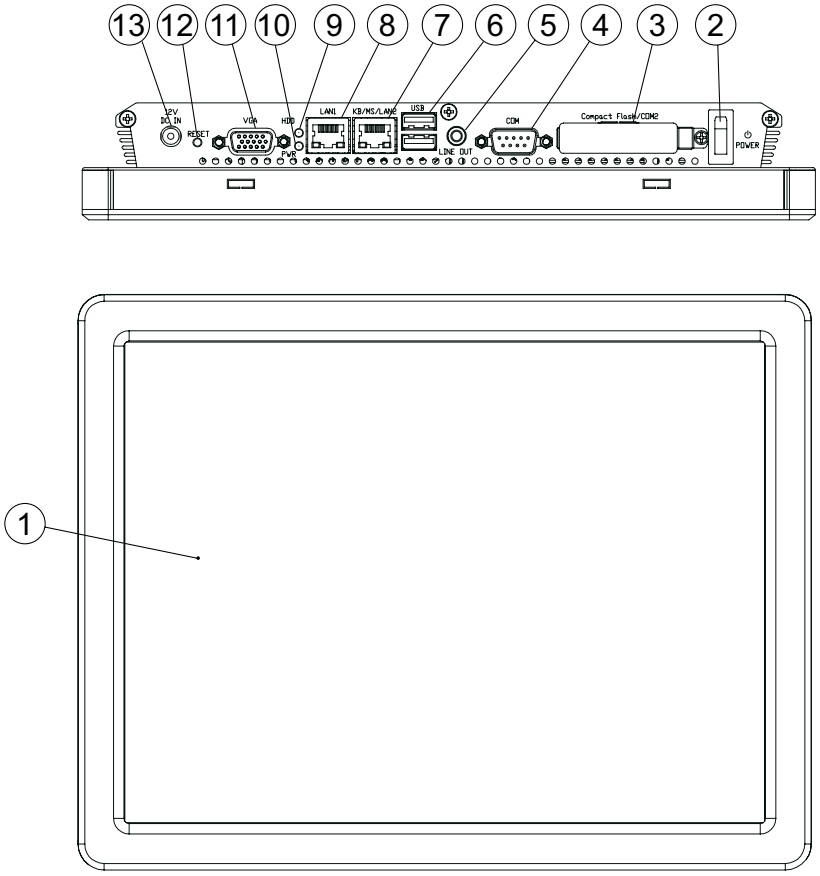
Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quant.	Comments
Touch computer (LT: 5.0” ; XT: 8.5”)		1	Touch interface which runs CSNET Manager software to control the indoor units.
Power adaptor		1	12 VDC, 5.0 A (maximum)
Ethernet cable			For PC connection
USB stick memory		1	To configure the gateway device.
Installation manual		1	Installation unit instructions.

6.2.3.3 Description of the parts

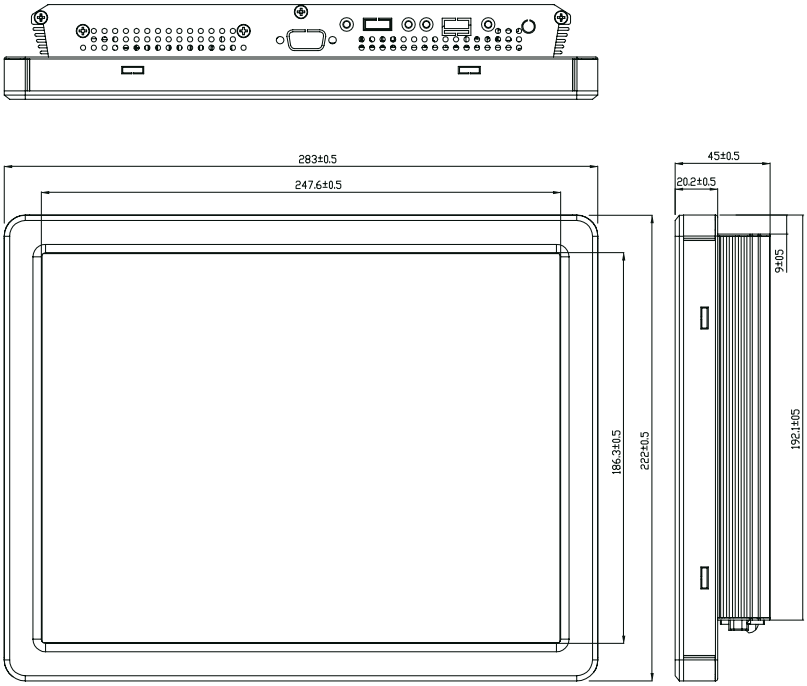


No.	Name	Function	Remarks
①	Screen	Touch screen for selecting all the functions	-
②	POWER	Power on button	-
③	Compact Flash/COM2	CF Type I/II Socket with Ejector	Optional for 2nd COM port
④	COM	Serial port 1 connector	DB-9 male connector
⑤	LINE OUT	Line-out audio jack	-
⑥	USB	2 x USB 2.0 connector	Dock USB
⑦	LAN1	RJ-45 Ethernet connector 1	-
⑧	KB/MS (LAN2)	LPC-1705/1707 -- PS/2 connector LPC-17A4 -- LAN2	For CSNET Manager XT it is a LAN2 (RJ-45 Ethernet connector)
⑨	HDD	HDD indicator	-
⑩	PWR	System power indicator	-
⑪	VGA/HDMI	CRT connector/HDMI connector	-
⑫	RESET	Reset button	-
⑬	DC-IN	DC Power-in connector	-

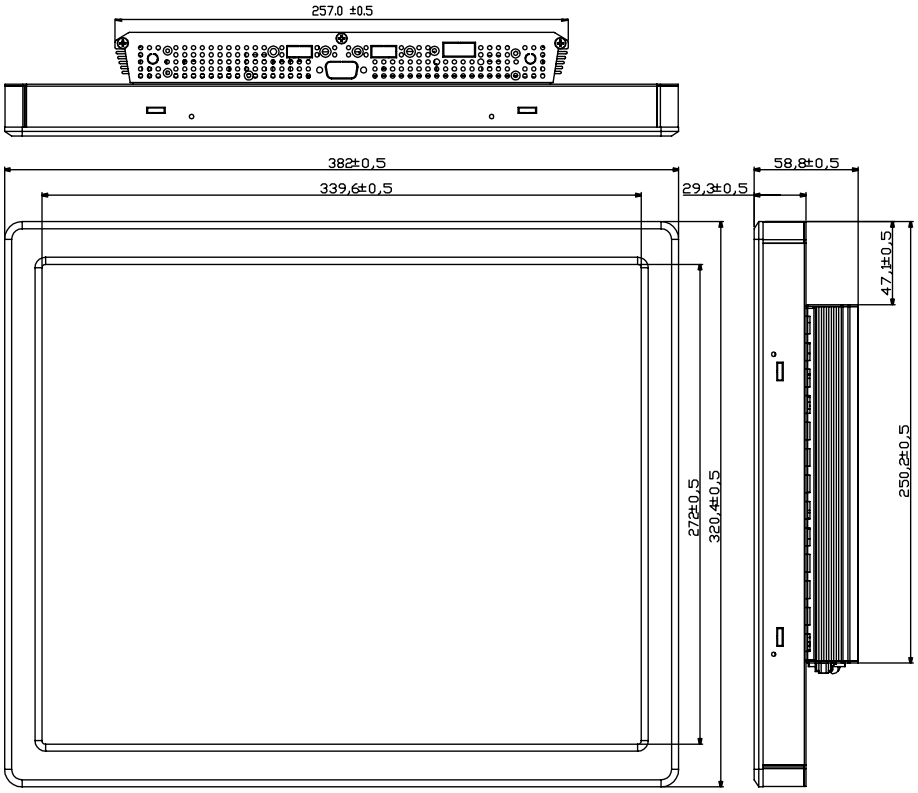
6.2.3.4 Dimensional data

Units in mm.

◆ **CSNET Manager LT**

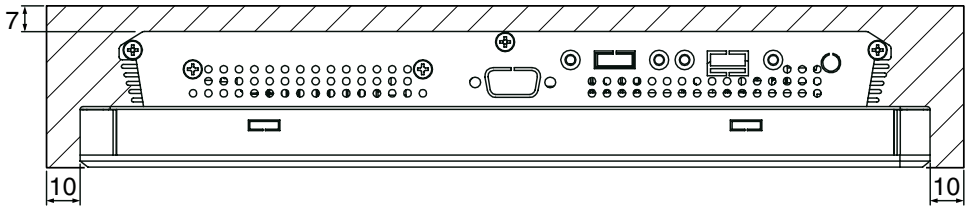


◆ **CSNET Manager XT**



6.2.3.5 Installation space

Units in mm.



6.2.3.6 Installation procedure

CAUTION

- *Disregarding the safety and assembly instructions may result in the falling of and / or damage to your electrical appliance. Opening the package represents your undertaking to closely read and follow the instructions. This mount is not intended for use in public places.*
- *This mount is intended for use only with HITACHI CSNET Manager LT/XT.*
- *Never install CSNET Manager in horizontal position neither cover the ventilation holes located in the bottom and top of device. It may damage the device due to lack of ventilation.*

NOTE

It is normal that the CSNET Manager LT/XT reaches high temperature.

◆ HC-A64NET

Please refer to the section *"6.3 HC-A64NET"*

◆ CSNET Manager

CSNET Manager has standard VESA mounting dimensions commonly available in the market. However, Hitachi offers these 2 accessories for the CSNET Manager (LT/XT) assembly:

Stand mounted support

(Image to be informed later)

Wall mounted support

NOTE

The item may differ from the image shown.

Wall Mounted (Optional)

⚠ CAUTION

- *This device cannot built in neither installed without providing ventilation to the aluminium sink behind.*
- *Place the support on a resistant wall.*

CSNET Manager can be wall mounted by using any standard VESA 75 mm wall mounted support for LT & XT and VESA 100 mm for XT only. HITACHI offers the following wall mounted accessory, model code 7E512300.

(To be informed later)

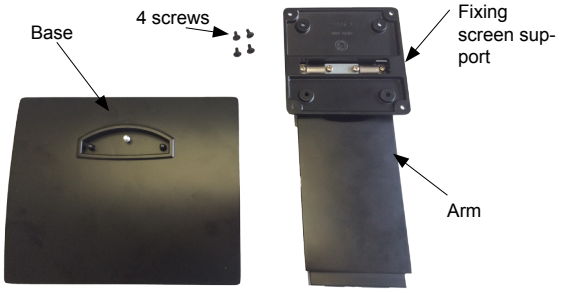
Stand Mounted (Optional)

⚠ CAUTION

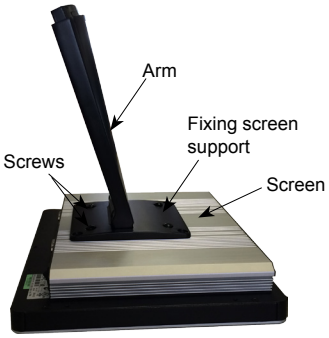
This device cannot built in neither installed without providing ventilation to the aluminium sink behind.

CSNET Manager can be stand mounted by using any standard VESA 75 mm stand mounted support for LT & XT and VESA 100 mm for XT only. HITACHI offers the following stand mounted accessory VESA 75, model code 7E512301.

The stand comes disassembled in 2 parts:



1 Place the fixing screen support 90 degrees with respect to its arm.
2 Put the screen upside down and insert the 4 stand screws on the rear of the screen (the power source connector will be at the bottom of the screen). There are 8 holes on the support, 4 for the LT screen and the other 4 for the XT screen.



⚠ CAUTION

In order to avoid damage to the screen, protect it before setting it upside down.

3 Screw the rear support screw to the arm and the stand will be completely mounted.

4 Finally, connect the power supply and LAN cable to the CSNET Manager.
5 Press down the power switch.
6 CSNET Manager program starts automatically.

6.2.4 Operation

6.2.4.1 USB memory connection

1 Plug in the USB memory in the USB port of the CSNET Manager.
2 Program starts up automatically.
3 Please wait until a window pops up.
4 This windows allows browsing the contents of the USB memory (instruction manuals in PDF files, system recovery, etc.).

6.2.4.2 Start up process

1 Connect the power cable.
2 Connect the LAN1 cable.
3 Switch ON the CSNET Manager.
4 Wait until the screen is started and CSNET Manager software is launched automatically.

6.2.4.3 Configuration and display options

Through the *"Configuration panel"*, *"Network settings"* is possible to configure the following updates for the HARC and CSNET WEB.

◆ Version and updates

Version and updates gives the information to the user about which software is installed on the CSNET WEB device.

If the internet connection is properly configured, it can download updates for the HARC and install them just by clicking the button.

⚠ CAUTION

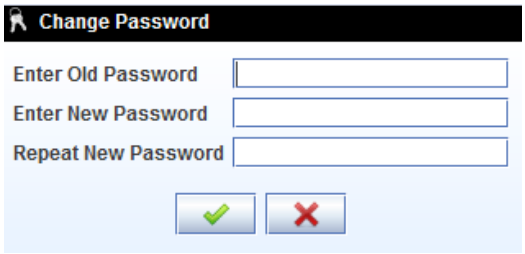
HARC cannot be updated through a proxy.

◆ Change password

The **Change** button beside Password setting opens the Change password panel.

To change your password:

- Enter the installer password. (The default factory password is "**Installer**").
- Enter the new password.
- Repeat the new password to confirm it.
- Click the "**OK**" button to validate the changes and return to system configuration window.



NOTE

Only Installer password may be changed for CSNET Manager Server. User password will no longer be used for CSNET Manager Server.

◆ Installation name

The name of the installation is the title of the main window. This lets you identify where CSNET WEB is connected.

To change the name of the installation first enter the name you want and then click on the **Change** button by the "Installation Name" line.

This takes you to the main window, where you can see that the title of the main page has changed.

◆ Auto configuration

When the system is started for the first time, it recognizes all the machines connected to H-Link. With time, the air conditioning installation may undergo changes which have certain repercussions on CSNET Manager. If the system detects machines which have been added after CSNET Manager was installed, or that machines have been removed from the H-Link, the Auto Configuration function lets you recognize all the machines again.

There are three Auto Configuration options:

- **Keep All**: Only the machines found are added. The other machines in the table of indoor units are kept as they were.
- **Delete Not Found**: If there are machines in the table of indoor units which are not present in the H-Link, HC-A64NET will delete these machines. All the machines which were not present in the table of indoor units but in the H-Link will be added.
- **Delete all**: All the machines in the table of indoor units will be deleted, and HC-A64NET will again detect all the machines connected to H-Link. Once they are added, you have to remember that the configuration has to be carried out again.

To carry out Auto Configuration:

- Select the option required in the **Auto Configuration** selection table.
- Press the **Start** button at the right of the menu.
- If you return to the main window, you will see the progress as a percentage (%) in the bottom left of the screen.

◆ Time configuration

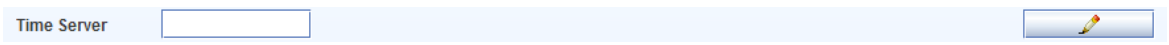
The time configuration is used to synchronize CSNET WEB with your time zone. It is very important that this configuration is correct for the timer to work correctly.

To carry out time configuration:

1. Enter the date and time. It is very important to follow the yyyy/mm/dd hh:mm format, as follows: four figures for the year, a slash "/", two figures for the month, a slash "/", two figures for the day, a space " ", two figures for the hour in 24-hour format, a colon ":" and two figures for the minutes.
2. Select the time zone. This is very important as CSNET WEB needs to know precisely the time zone in order to identify time changes and how many hours to change.
3. When you have finished, click the **Change** button, which is in the bottom right of the window. When you press the button a message appears and the application closes.
4. Wait for a couple of minutes and restart CSNET WEB.

CSNET WEB allow to set a time server that will automatically set the correct date and time.

If you have a server with time and date SNTP service enable, you must set the IP of that server on the Time Server field.



◆ BMS configuration

Modbus Configuration

CSNET Manager allows to configure the BMS system in CSNET WEB devices by setting the ID for each indoor unit. This configuration will link the BMS with the H-LINK.

To open the BMS configuration click on the change button. After clicking the button a dialogue will appear and you could start to set the configuration.

BMS Configuration for Packaged

In this dialogue you can enable the BMS to activate this option, and after this, set in each row the unit information.

- OU is the outdoor unit number.
- IU is the indoor unit number.
- Location is the location field of the unit. This field is only editable from the unit setting tab.
- ID field is automatically set and is not modifiable.

CSNET Manager automatically assigns an ID for each found unit. You can change this ID on the table.

The ID field can not be repeated, if it will occurs, CSNET WEB will ask you to change the repeated ID.

In case of Packaged, “Auto Set Id” button will be available. This button open a new window when user could automatically assign the ID to the units. This assignation could be done in two ways:

- H-LINK I: BMS ID = OU x 16 + IU.
- H-LINK II: BMS ID is assigned following the order of OU & IU.

Export buttons

Save to file button writes in a selected comma-separated values file the content of the table.

Copy to clipboard button will set in your clipboard the content of the table, separating the information by tabs.

In both cases the information of the table is ready to create an easy view of the information and an easier exportation to other programs like Excel.

Available data for Packaged

The available data for CSNET WEB can be checked on the CSNET WEB document.

◆ Backup copy

This option lets you make a backup copy of the CSNET Manager parameters. The **Backup** button saves the configuration in the file you choose of the computer from which you accessed the system.

The **Restore** button re-establishes the configuration stored in the file you have specified.

◆ Configuration report

Configuration report prints on a text file all the settings that CSNET Manager has.

The purpose of that is in case of wrong behaviour of the functions, report the state and help to understand if there is something not well configured. There are two different systems to define the source of the consumed energy:

- **Use configured power meter devices data:** in case of having power meter devices related to the units, the energy consumed per each indoor unit will be calculated based on the information provided by these devices.
- **Enter the system consumption on the data period:** in case of entering manually the consumption of the system in the desired period, user enters the input reading data at the beginning and at the end of the period.

Current currency can also be specified.

The tariff table lets the user to set different time periods within a day with a related cost.

NOTE

The unit of measurement of the cost of a tariff period is the same than the input data reading. In case of using power meter device, the unit of measurement should be the same than the specified on the power meter device configuration.

6.2.4.4 Graphic interface

CSNET Manager has two ways of presenting information and the available program options:

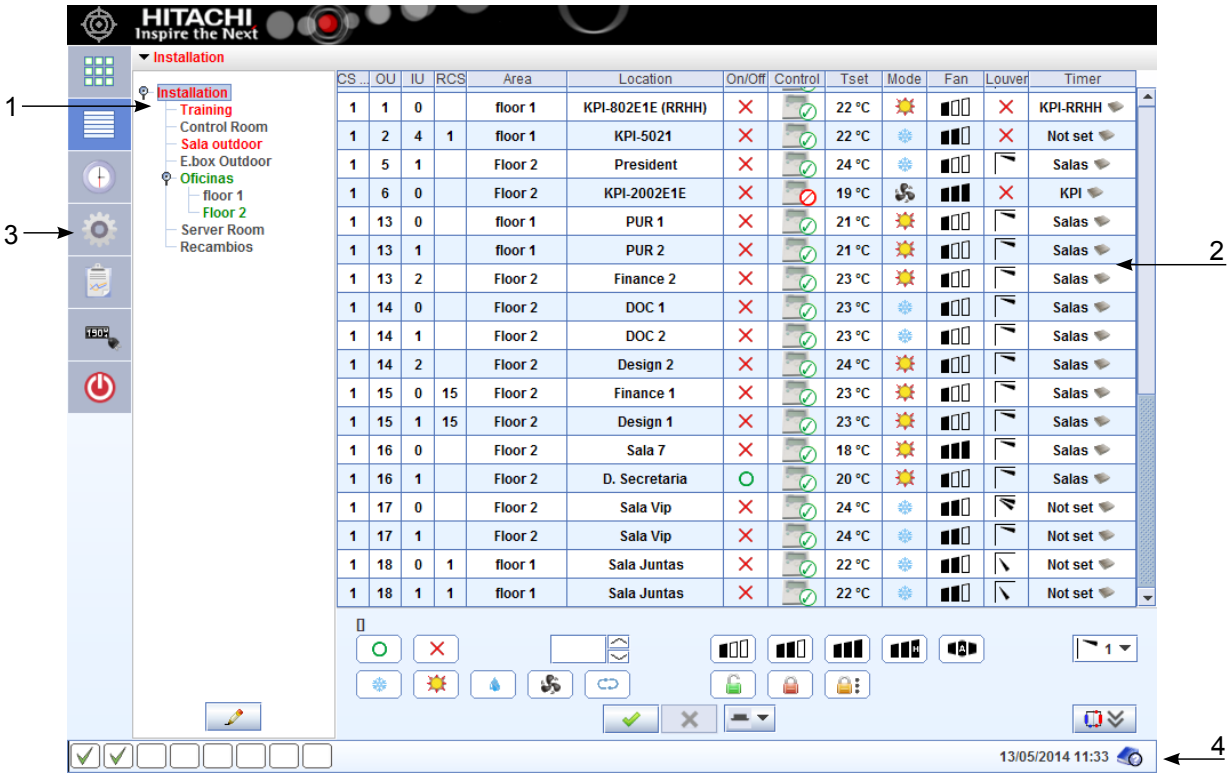
- Overall view: A tree scheme is used to organize the installation units and a table to show the units information.
- Building Layout view: A tree scheme is used to organize the installation units and a zone layout to show the units information.

These two interfaces make usage easier and allow access to the system in a clearer, more streamlined way.

◆ Overall view

CSNET Manager has an initial screen that shows a virtual layout with the detected units.

By clicking on the unit icon a virtual remote controller is displayed giving to the user the option of managing the units.



1 **Area tree**: Installation tree with the different areas defined by the user. Area tree can be hidden by clicking again on the list view button.
Alarm signals: The CSNET Manager software lets you detect which units are in a situation of alarm, as these units will be marked in red in the main window. At the same time, each of the areas which contains units in a situation of alarm will be marked in red.

2 **Units zone**: Lists of all the indoor units with a basic state information.

3 **Main options**: Gives access to the installation data view, the configuration of CSNET Manager, the Historical Data and the Power Consumption.

4 **HARC-WEB Status**: Shows the current state of HARCWEB connections, software functions enabled and if there are automatic updates available.

6.2.4.5 Local software configuration

After configuring the CSNET Manager interface you should begin the configuration of the system. To install the RCS Web instead of CSNET Manager read the chapter *"6.2.5.4 RCS Web"*. Remember that RCS Web is a reduced version of CSNET Manager with only remote control functions but more user-friendly for a non-expert user.

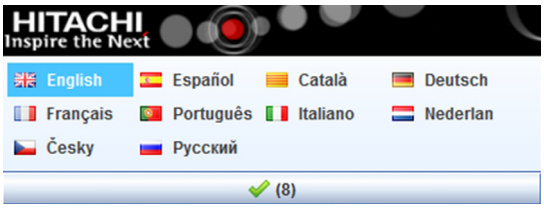
NOTE

CSNET Manager needs at least the following to be configured:

- *Local software configuration (see next page)*
- *Area tree (see chapter "Area tree")*
- *Configuration of the unit (see chapter "Unit Setting")*
- *Auto Cool/Heat (see chapter "Auto cool/heat")*
- *Fan stop heating during thermo-off (see chapter "Fan stop heating during thermo-off")*

We recommend configuring the other points indicated in the manual at the same time, although this can be done later.

After switch ON the CSNET Manager, a page appears in which must be specified the language you want to use. The same screen shows a timer (this can be configured later), which runs down to zero and then runs the software in the selected language.



Wait 10 seconds or press the OK button, CSNET Manager will show the Initial Page.

NOTE

Please be aware that pressing the ON/OFF button of CSNET Manager forces a complete shut down

◆ Initial page

The initial page is divided into two parts:

1 Access to the installation required

Local Software Configuration: The user name and password are case-sensitive.

When you try to access to the required installation, the initial screen shows three text fields which have to be completed to access the installation:

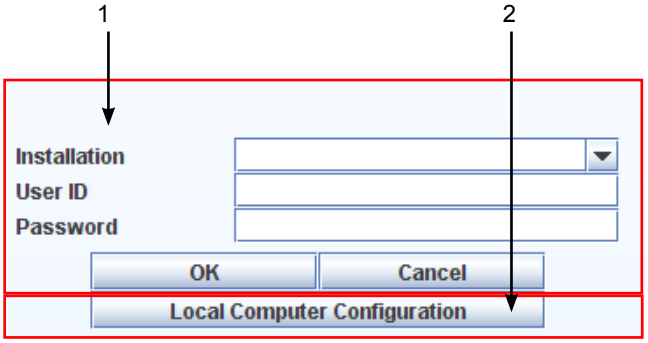
- **Installation:** Select the installation previously created on the “local computer configuration” to which you want to connect**.**
- **User ID**: Enter the name of the type of user who will access the installation.
- There are two types of user:
  - **“Installer”**: Has access to all the options. We recommend that only authorized people who know the program have access to this option.
  - **“User”**: Only has access to the Configuration of the units and visualization of the Timer.

NOTE

The User ID is case-sensitive.

- **Password**: Write the password of the user you have entered.
  - The default password for the “Installer” is: **Installer**
  - The default password for the “User” is: **User**

2 Using a proxy: As can be seen in the *“Local computer configuration”* section, if you select this option, the connection will be made through a proxy (if one is configured).



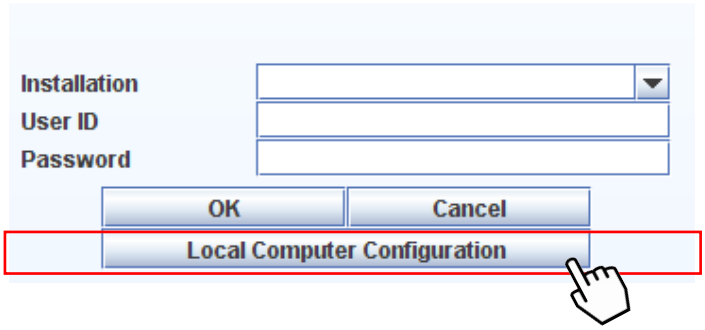
NOTE

The first time an installation must be added.

◆ Local computer configuration

This option allows the different client computer configuration parameters to be modified, such as the Internet connection configuration, default language, local data storage or list of rapid access to installations.

If you click this button the following screen appears:

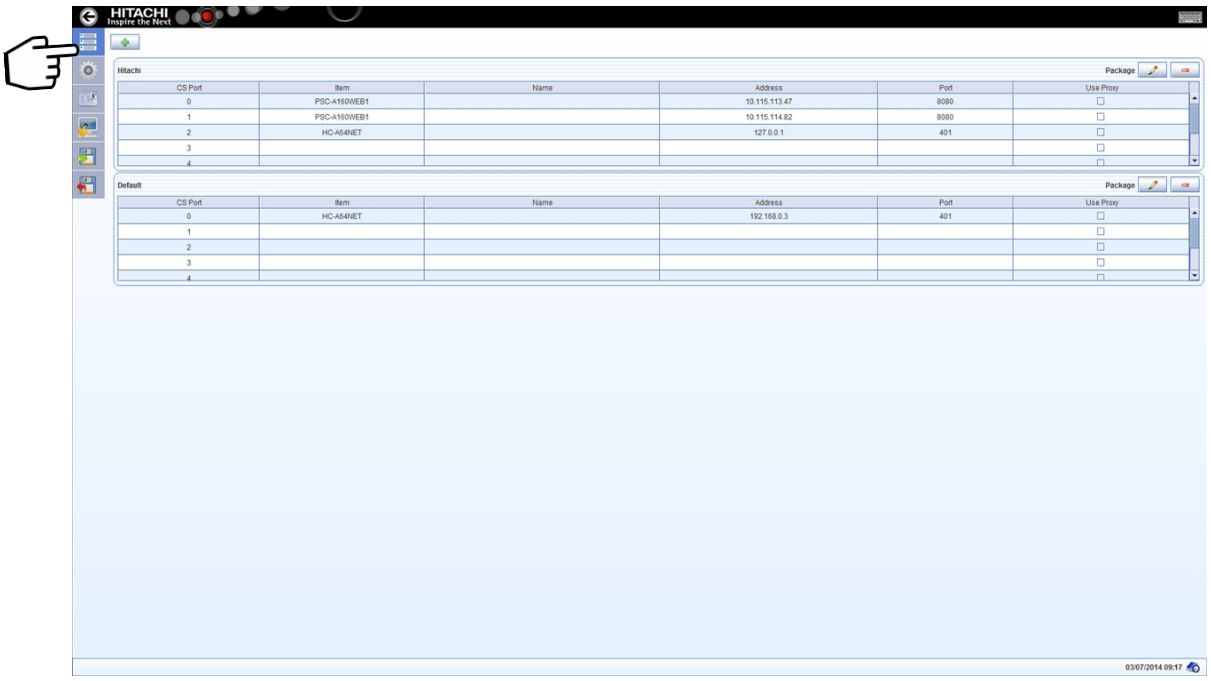


This screen lets you configure the operation of the software in your computer in terms of:

- Installation list.
- Proxy settings.
- Software settings.
- Software register.
- Touch computer settings

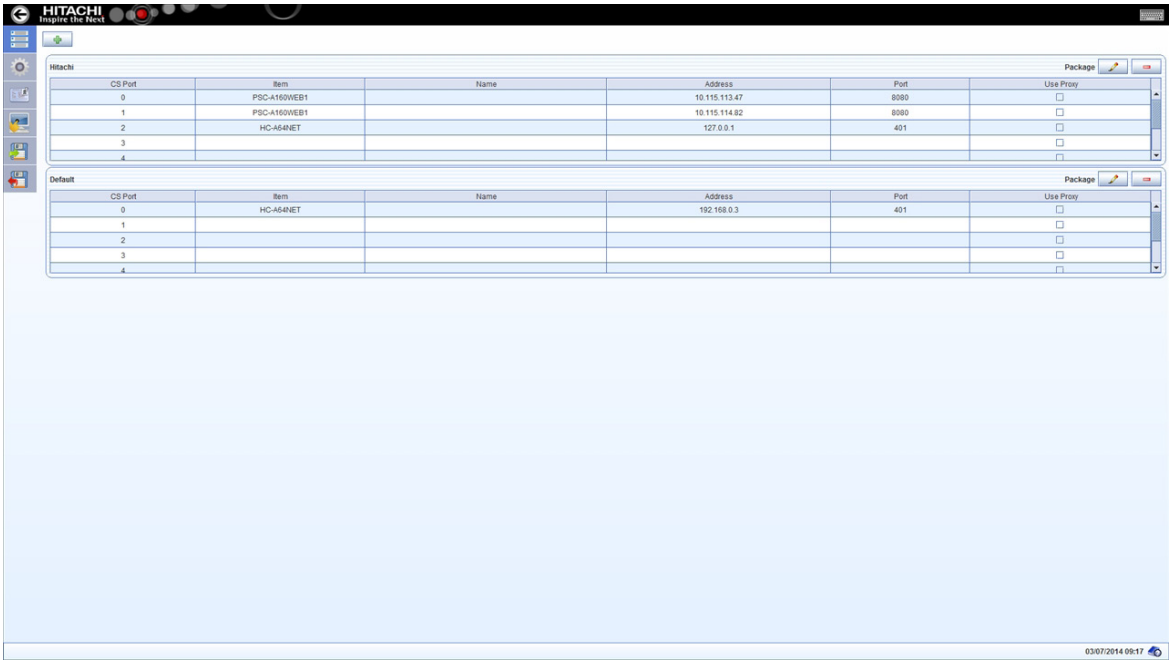
NOTE

Settings will be locally stored when user exit from that menus to be again on the login screen.



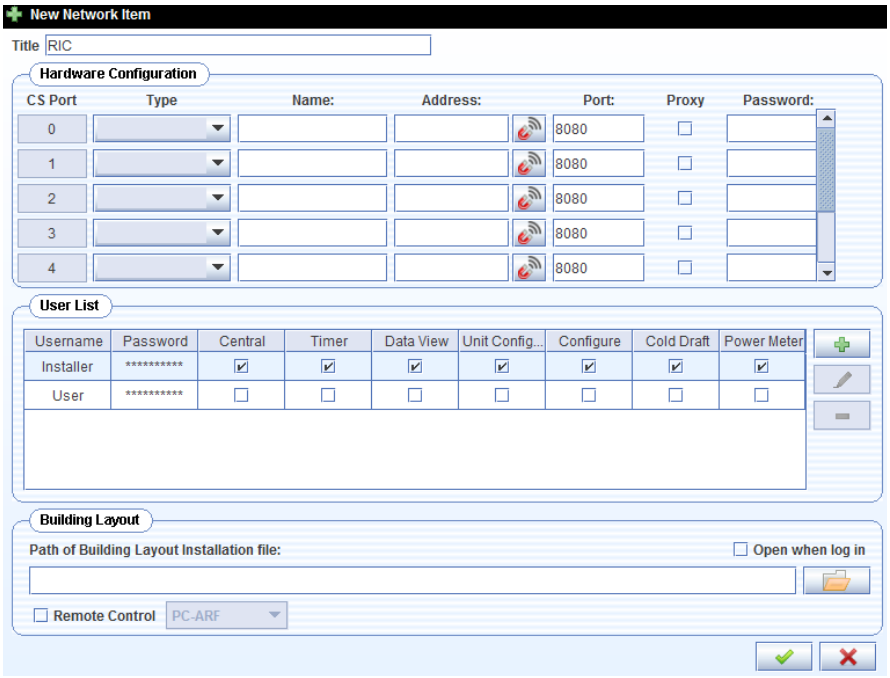
Installation list

Installation list let the user configure the devices on the installation. Installation may also be edited or deleted by pressing in the Installation  (**Edit**) and  (**Delete**) buttons respectively.



Press  (**New)** to create a new installation.

"**New Network Item**" window will appear.



Enter details for the installation as follows:

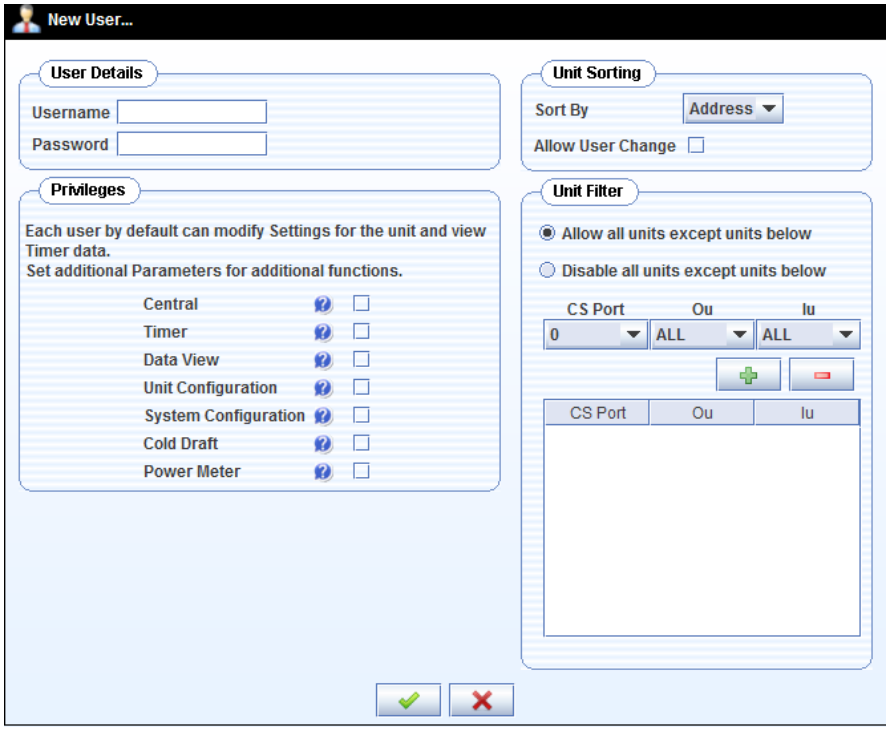
- **Title**: Identification name for installation.
- **Building Layout:** Folder of the building layout file that represents this installation. This file must to be created previously using the building layout editor. Adding this file will appear a building layout button automatically when you log in your installation.
- **Open when Log In:** Open Building Layout as a default view after log in CSNET Manager.

For each CS Port (available CSNET Manager server to connect):

- **Name**: Identification name for CSNET Manager server.
- **Address**: IP Address for CSNET Manager server.
- **Port**: Connection port where CSNET Manager server is listening.
- **Proxy**: Determine if communication with CSNET Manager server shall pass a proxy server.
- **Password**: Password for CSNET Manager. By default it is Installer.

Press  (**Add)** button in User List area to create a new user. At least a user needs to be created in order to connect to an installation. "**Edit User…**" window will appear. Users may also be edited or deleted using  (**Edit)** or  (**Delete)** buttons respectively.

Enter desired user name and password. Also select the different privileges for the user. Note that user name may not be repeated.



On unit selection, all the available units on CSNET Manager can be assigned to the current user. By click on configure, it will appear a dialogue to specify which pattern describe the units for this user.

Unit sorting can also be configured.

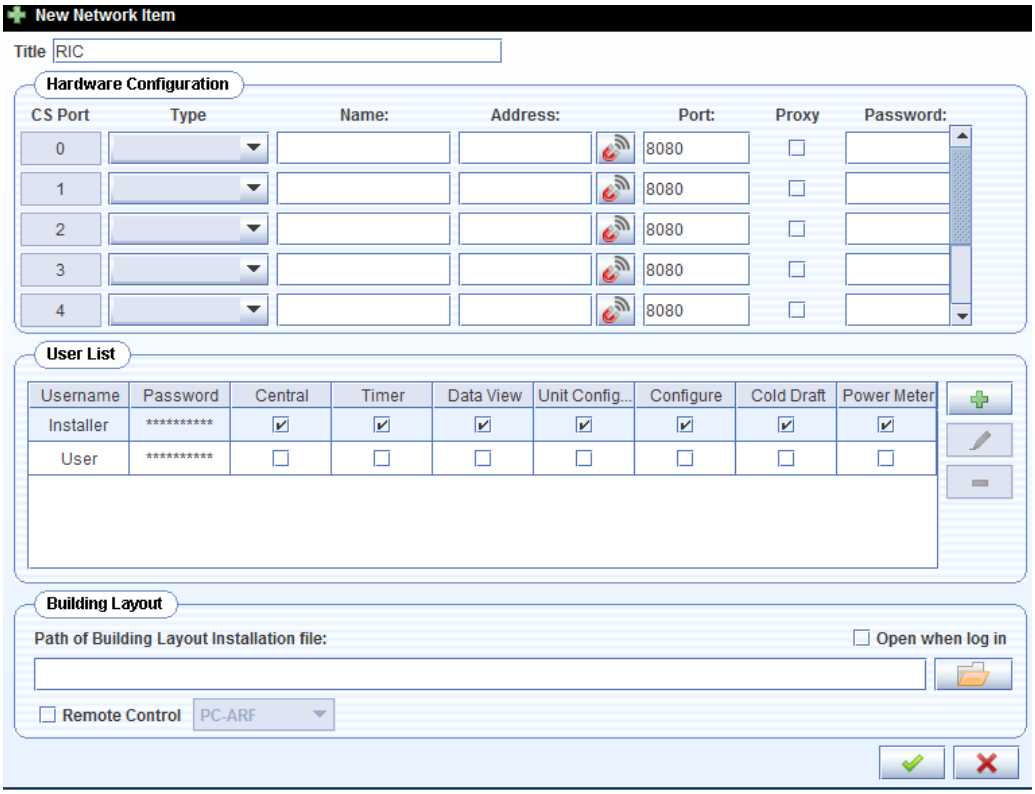
NOTE

Unit filtering when there is a slave CSNET Manager is done on the slave CSNET Manager.

HC-A64NET Search

CSNET Manager includes a new system to make faster configuration of HC-A64NET.

IP address of the different devices can be written as in CSNET WEB, but it exist a new search mode where CSNET Manager look for connected HC-A64NET on the LAN.

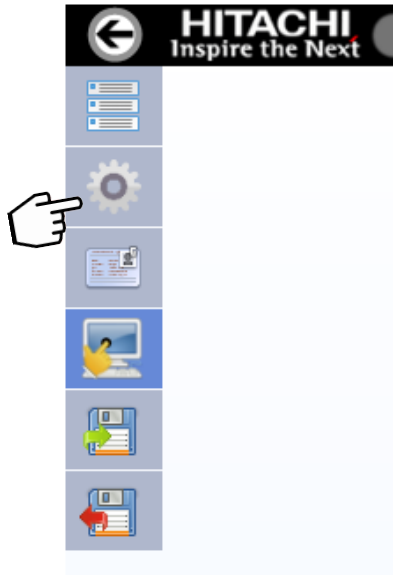


By clicking on the magnet icon  , it is opened a window where appears all the previous configured devices just to pick up and added on the list.

In the same list, user can search in broadcast mode for existing HC-A64NET on the LAN.

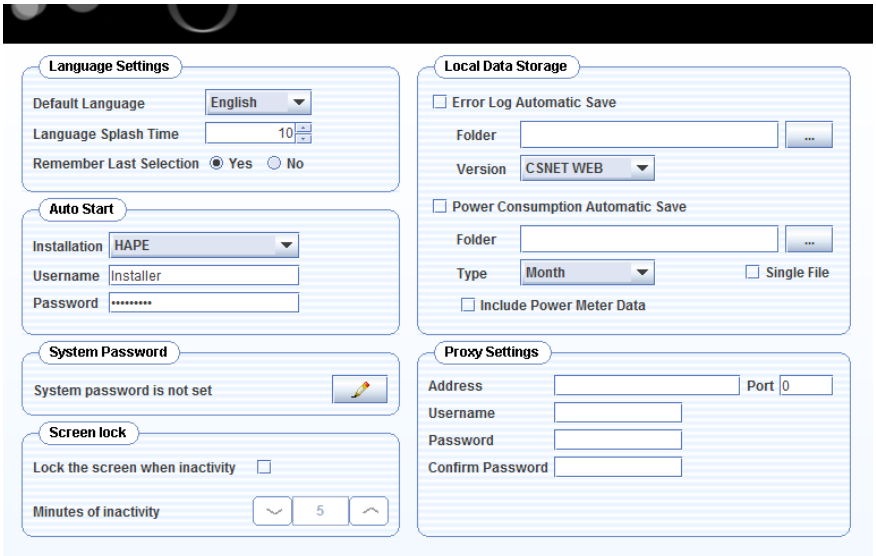
All found devices can be copied at the same time.

Software settings

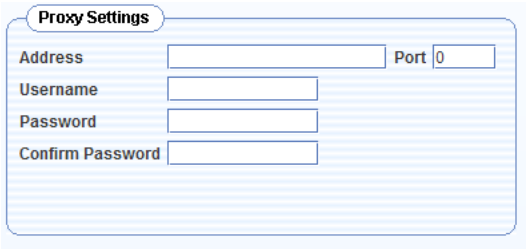


This tab lets you configure four kinds of data:

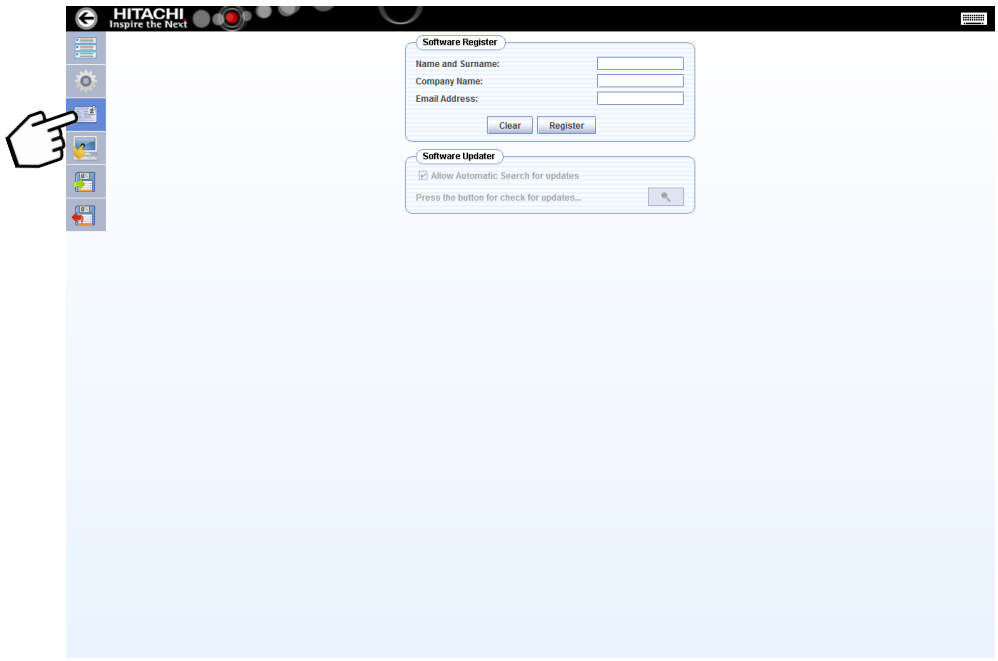
- **Language settings**: You can choose the default language to be used in the main screen. You can set the countdown time (in seconds) and make the program remembers the changes.
- **Auto Start**: Select desired installation, user name and password that should automatically start when CSNET Manager client software is started.
- **Local data storage**: The chapter *"Power consumption"* will give more details about these settings.
- **System password**: By setting this password when any user wants to open Local computer configuration will be queried for password.
- **Screen lock:** This option locks the software after a specified time period, requiring password to unlock.



- **Proxy settings:** The "Proxy Settings" tab lets you configure the connection through a proxy if necessary. If you have any doubts about the data you need consult your network administrator.



Software register

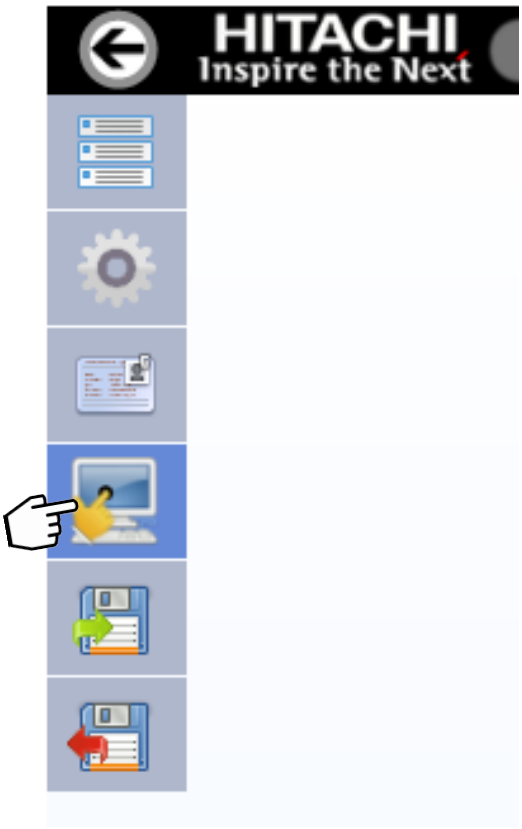


Software register tab let the user register its software due to be able of having access to the updates server.

After register the software, automatic search for updates can be activated and it can be checked for new client versions just by clicking the check button.

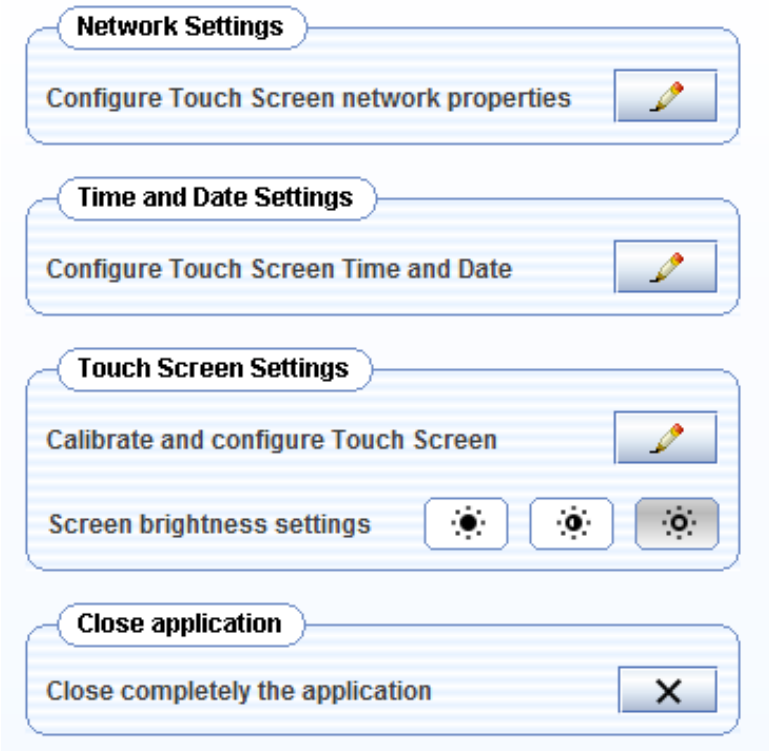
If there is an update it can be downloaded using same button, and after updates will be downloaded, CSNET Manager will ask for install and restart the software.

Touch computer settings

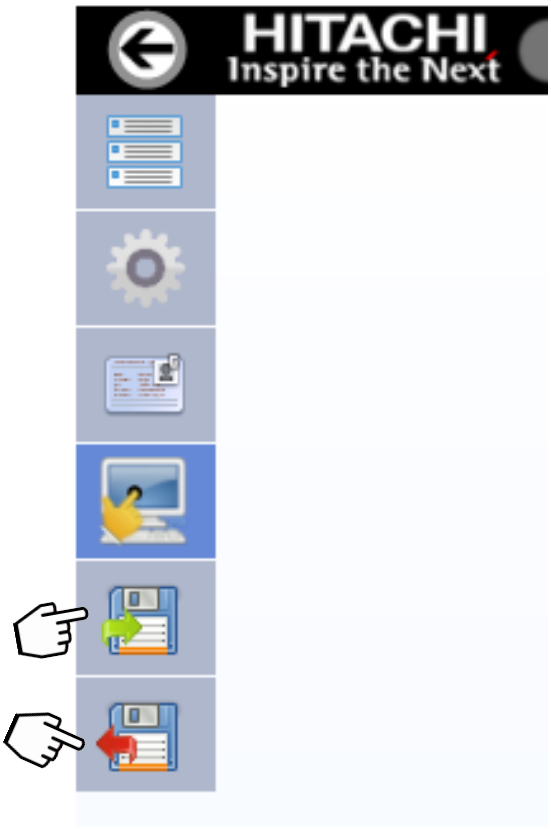


On “Touch computer settings” tab, we can find the following options to configure:

- **Network Settings**: allows you to configure your LAN settings.
- **Time and Date Settings**: set time and date of your Touch Screen to synchronize it with your CSNET WEB.
- T**ouch Screen settings**: Calibrate touch screen and set up to 3 different brightness levels.
- **Close application**: it closes the application without restarting it.



Back up and restore

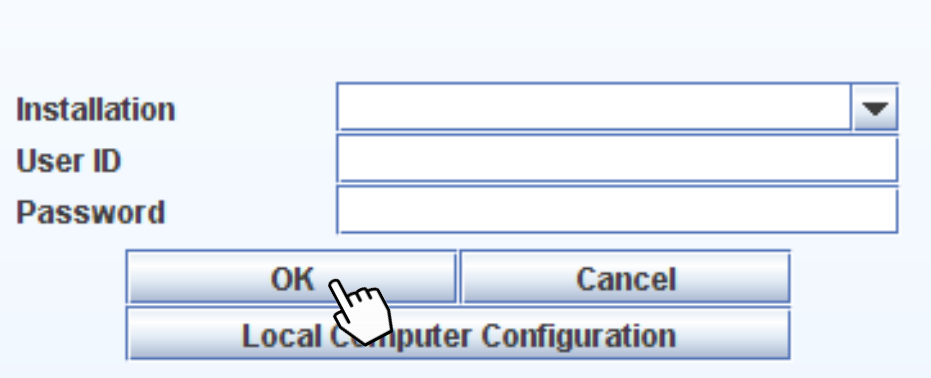


CSNET Manager creates a back up of the current status of the software that can be restored at any time.

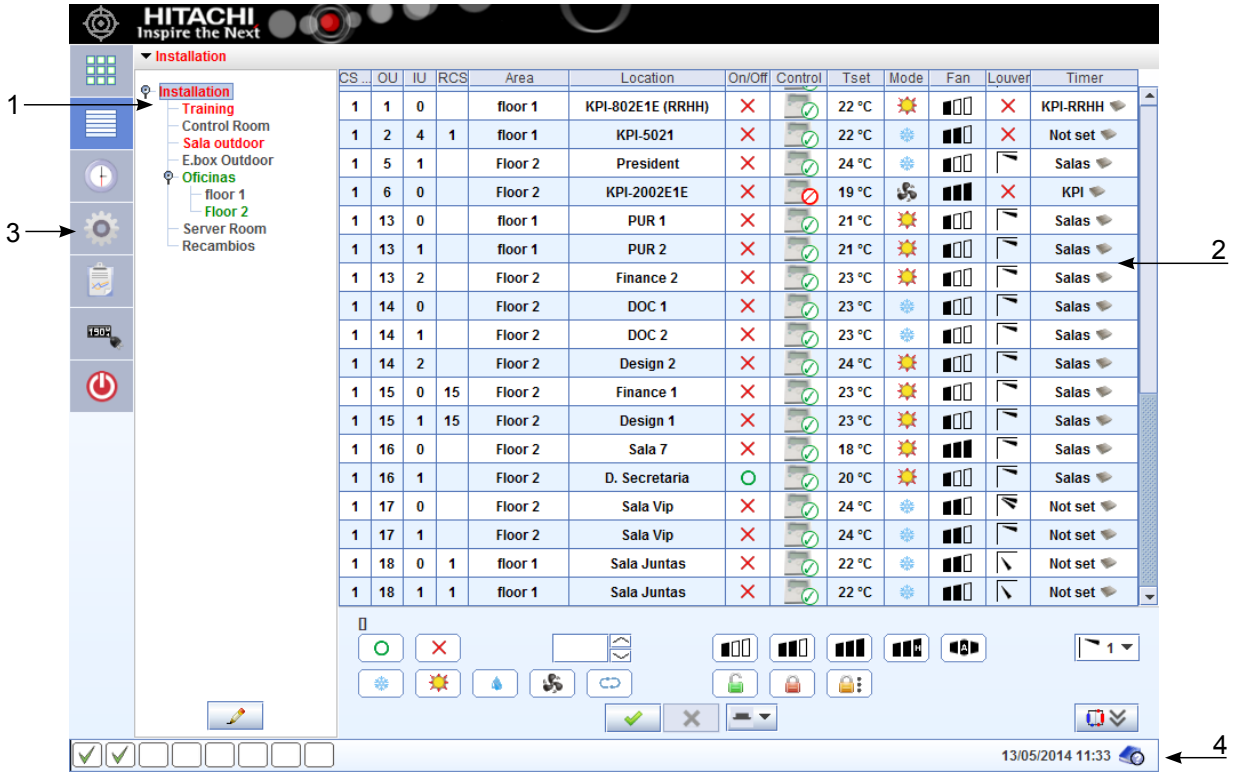
This backup includes all CSNET Manager data:

- Installations
- Software settings
- Units data (alarm logs, historical data, power consumption,..)
- Installation data (tree, functions activated,...)

6.2.4.6 Configuration of packaged units



This chapter will apply when the system has Packaged units. Remember that it is not possible to connect water chillers and Packaged units in the same H-LINK communication line.



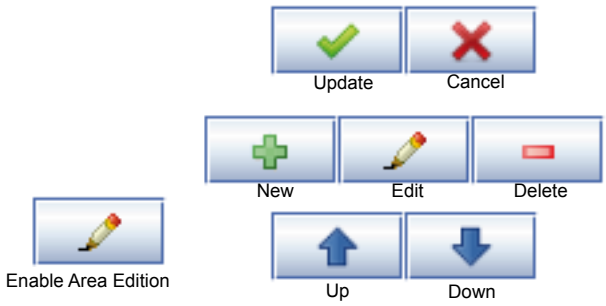
1 **Area tree**: Installation tree with the different areas defined by the user.
2 **Units zone**: Lists of all the indoor units with a basic state information.
3 **Main options**: Gives access to the installation data view (Package), the configuration of CSNET Manager, the Historical Data and the Power Consumption.
4 **Devices Status**: Shows the current state of HARCWEB connections, software functions enabled and if there are automatic updates available.

◆ Area tree

Area tree can be shown or hidden by clicking on button  . If area tree is not shown, you can change the installation area clicking over “installation” menu, all areas will showed without need to expand the area tree.

Enable Area Edition activates an area tree for this installation.

- **New**: Creates a new area.
- **Edit**: Edits the selected area in the area tree.
- **Delete**: Deletes the selected area.
- **Up**: Moves the selected area up, respecting its level.
- **Down**: Moves the selected area down, respecting its level.
- **Update**: Saves all the areas created and closes the Area Edition.
- **Cancel**: Closes the Area Edition without saving changes made.

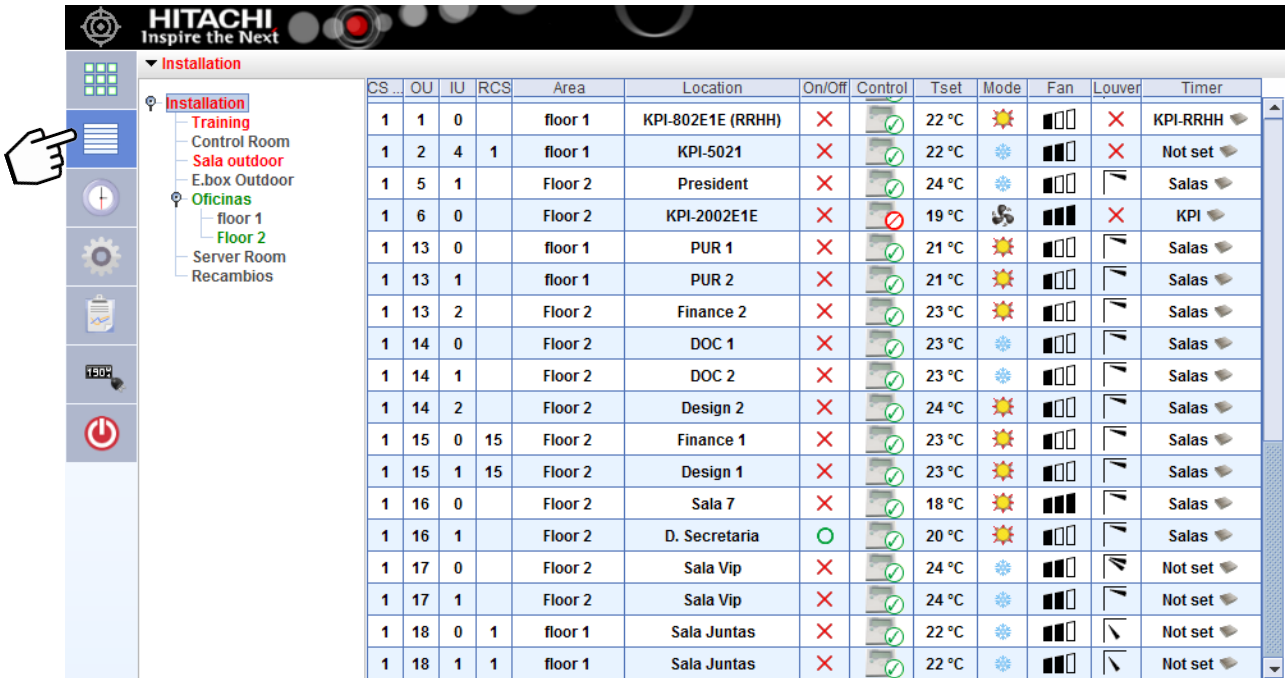


NOTE

The areas created contain indoor units. See the following chapter if you want to select to which area each of the units belongs.

◆ Table of indoor units

The Table of indoor units is composed of a row for each indoor unit.



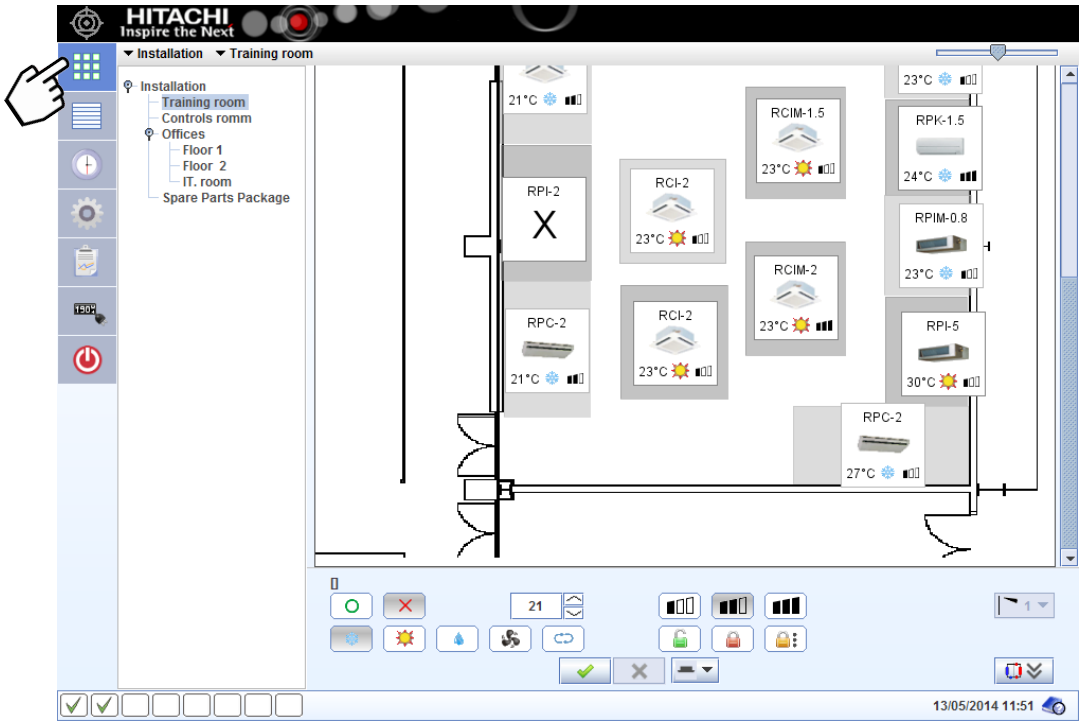
CS ...	OU	IU	RCS	Area	Location	On/Off	Control	Tset	Mode	Fan	Louver	Timer
1	1	0		floor 1	KPI-802E1E (RRHH)			22 °C				KPI-RRHH
1	2	4	1	floor 1	KPI-5021			22 °C				Not set
1	5	1		Floor 2	President			24 °C				Salas
1	6	0		Floor 2	KPI-2002E1E			19 °C				KPI
1	13	0		floor 1	PUR 1			21 °C				Salas
1	13	1		floor 1	PUR 2			21 °C				Salas
1	13	2		Floor 2	Finance 2			23 °C				Salas
1	14	0		Floor 2	DOC 1			23 °C				Salas
1	14	1		Floor 2	DOC 2			23 °C				Salas
1	14	2		Floor 2	Design 2			24 °C				Salas
1	15	0	15	Floor 2	Finance 1			23 °C				Salas
1	15	1	15	Floor 2	Design 1			23 °C				Salas
1	16	0		Floor 2	Sala 7			18 °C				Salas
1	16	1		Floor 2	D. Secretaria			20 °C				Salas
1	17	0		Floor 2	Sala Vip			24 °C				Not set
1	17	1		Floor 2	Sala Vip			24 °C				Not set
1	18	0	1	floor 1	Sala Juntas			22 °C				Not set
1	18	1	1	floor 1	Sala Juntas			22 °C				Not set

The meaning of each column is as follows:

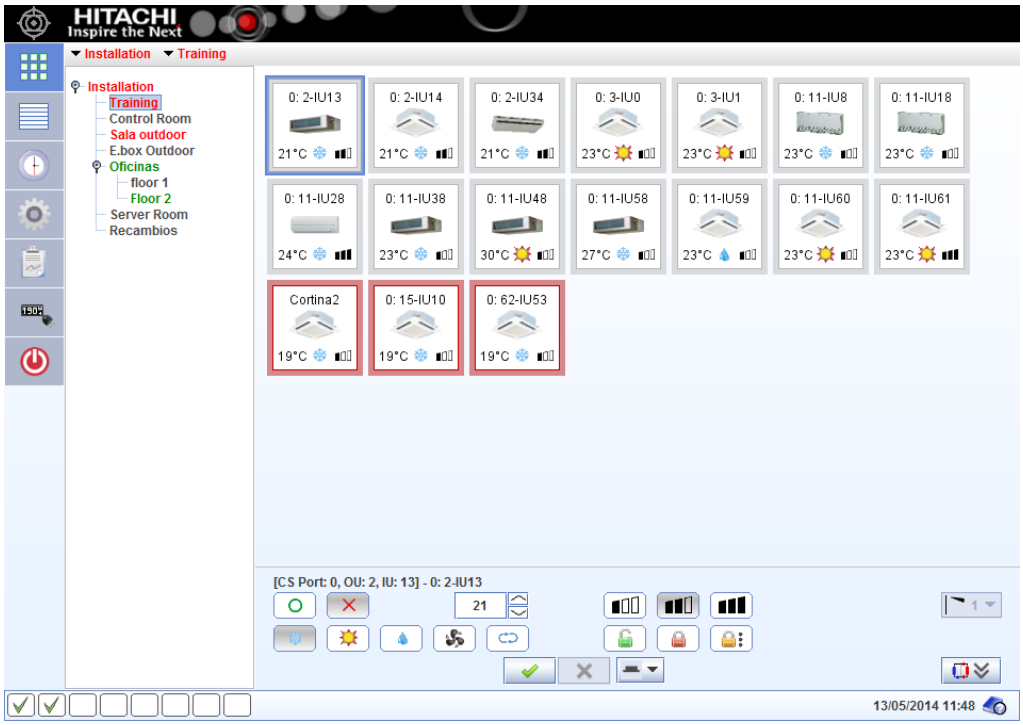
Column	Location	Content / Symbol				
OU	Address of the outdoor unit or cooling circuit to which the indoor unit belongs	<number>				
IU	Address of the indoor unit	<number>				
RCS	Remote control number	<number>				
Area	Area to which the selected unit belongs	<descriptive text>				
Location	Name of the room conditioned by the selected unit	<descriptive text>				
On/Off	Indicates the ON/OFF situation of each indoor unit	ON		OFF		
						
Control	Indicates whether the indoor unit has a locked control parameter which cannot be changed from the remote control	Parameter locked	No parameter locked	Configured without RC	RC not found	
						
Tset	Setting temperature	<number>				
Mode	Operation mode of indoor unit	Cool	Heat	Dry	Fan	Automatic
						
Fan	Indoor unit fan level	Low	Medium	High	High-H	Auto
						
Louver	Position of the baffle plate	On		Not available		
						
Timer	Timer used by the indoor unit	<descriptive text>				

◆ Building Layout view

On “Building layout” view, software charge the building layout files and navigate through them.



In case of do not configure any building layout file, CSNET Manager automatically generate a matrix view, where it display the units along the installation tree.



◆ Operation panel

Operation panel is the interface available in table of indoor units and building layout view, that is shown by default and it is used to send orders to the units. In case of using a virtual remote controller, the panel is hidden.

The Operation Panel has the following access fields offering complete control of the units:

- Setting
- System Status

Each of these fields is explained below.

NOTE

Visibility of these fields depends on privilege level of the user.

Setting

This option shows the parameters which can be selected for each indoor unit.

After selecting the parameters to be adjusted, press  (**Update)** to send the order to the units selected or  (**Cancel)** to cancel the operation.

1 Select the unit. The unit selected in the table of indoor units is identified by the **Location** field. Using the **Set by** field, select the group of units whose parameters you want to adjust:

	Name	Send the order to
	Indoor unit	The selected indoor unit
	Outdoor unit	All the indoor units belonging to the same outdoor unit than the selected one.
	Area	All the indoor units belonging to the same tree area unit than the selected one.
	Zone	All the indoor units on the same building layout zone than the selected unit.
	Zone and subzones	All the indoor units on the same building layout zone and zones below the same zone where the selected unit belong.
	CS Port	All the units connected to the device on the same CS Port than the selected units
	All	All the units
	Selection	The selected units on the table or layout.

2 Adjust parameters. Click with the mouse on the parameter you want to select. Select the temperature with the buttons "∧" or "∨". The temperature margin is:

- From 19ºC to 30ºC for cooling.
- From 17ºC to 30ºC for heating.

Select the fan speed and the position of the baffle plate by pushing the **Fan speed** and **Louver** buttons.

NOTE

Automatic mode cannot be set for units with the RAC adapter PSC-6RAD so that the option will not appear on screen when this type of units is selected.

3 Parameter lock. The parameters selected in RCS Lock will remain locked in the previous position when the option was activated. This means that they cannot be modified from the remote control.

NOTE

ON/Off lock only locks in OFF. Unit always can be stopped from the remote control.

System status

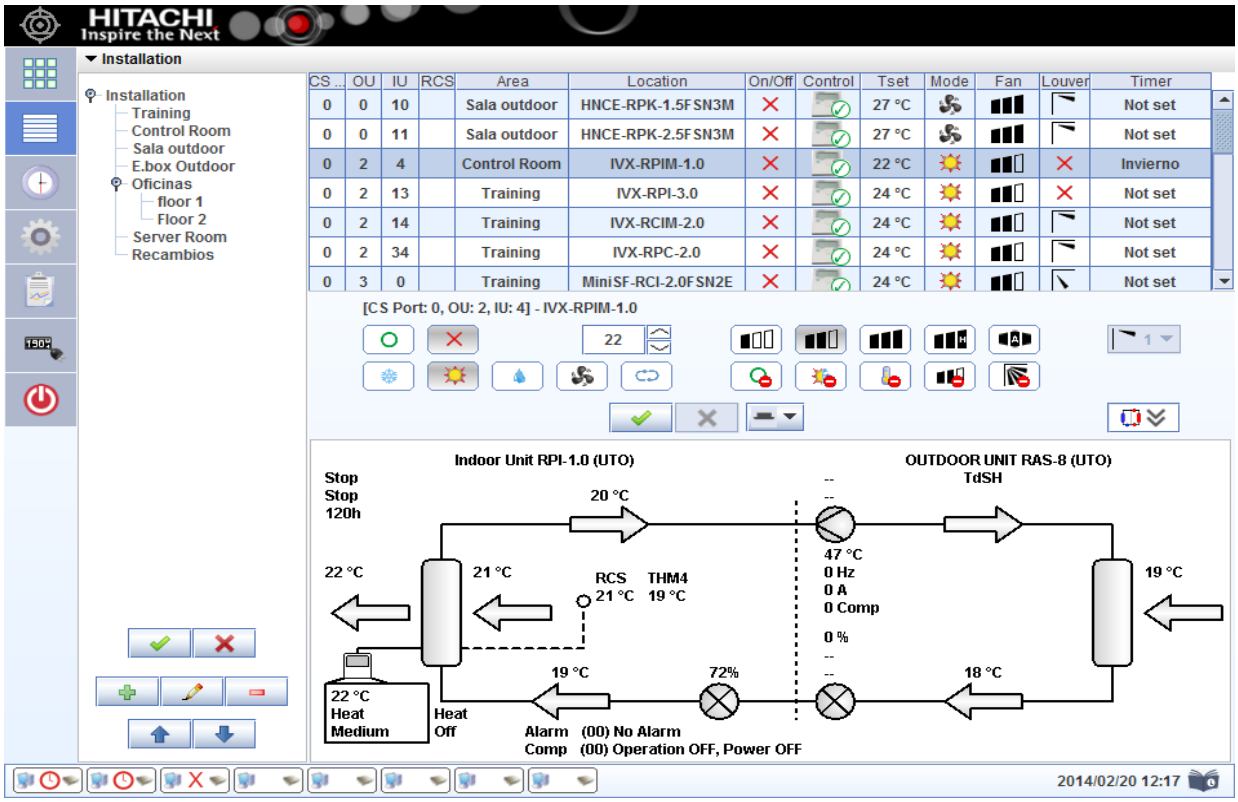
The system status field shows the operating conditions of each of the units controlled by CSNET Manager (by clicking)

The system status shown corresponds to the same unit selected in the indoor unit table, as shown in the adjoining example.

Description

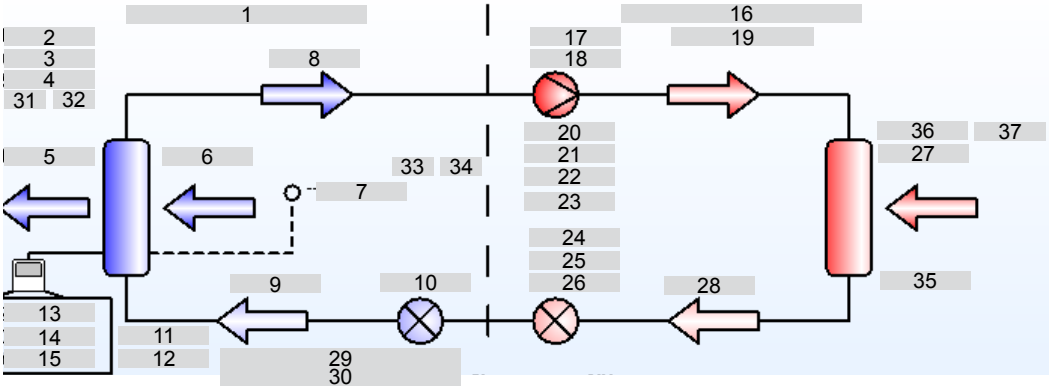
The information display is divided into 4 parts:

- Data of the indoor unit.
- Setting data of the remote control and/or the configuration field.
- Data of the outdoor unit.
- Alarm produced and reason for the compressor status.



Explanation of the fields

Although all these parameters are available in the 3-tube systems (Set-Free FX), some are not in other systems. These are indicated in the table.



No.	Group	Description	Units	Utopia G	Utopia N	DC-Inverter	Mini Set-Free	Set-Free FS	Set-Free FX	DX-Kit	RAS units	KPI Active	KPI Passive
1	Indoor unit	Model of the indoor unit and its power	—	O	O	O	O	O	O	O	O	O	O
2		Thermo ON/OFF	—	O	O	O	O	O	O	O	O	O	—
3		OFF/ON	—	O	O	O	O	O	O	O	O	O	O
4		Filter time	h	O	O	O	O	O	O	O	—	O	O
5		Air outlet temperature	ºC	O	O	O	O	O	O	O	—	O	—
6		Air inlet temperature	ºC	O	O	O	O	O	O	O	O	O	—
7		Optional remote thermistor (RCS / THM4) (4)	ºC	O	O	O	O	O	O	O	O	O	—
8		Gas piping temperature	ºC	—	O	O	O	O	O	O	—	O	—
9		Liquid piping temperature	ºC	O	O	O	O	O	O	O	—	O	—
10		Expansion valve opening	%	—	O	O	O	O	O	O	—	O	—
11		Real operation mode	ºC		O	O	O	O	O	O	O	O	O
12		Real vent speed	—	O	O	O	O	O	O	O	O	O	O
13	Remote control	Setting temperature	—	O	O	O	O	O	O	O	O	O	O
14		Selected operation mode	—	O	O	O	O	O	O	O	O	O	O
15		Selected fan speed	—	O	O	O	O	O	O	O	O	O	O
16	Outdoor unit	Model of outdoor unit and its power	—	O	O	O	O	O	O	O	—	O	—
17		Discharge pressure	MPa	—	—	—	O	O	O	O	—	O	—
18		Suction pressure	MPa	—	—	—	O	O	O	O	—	O	—
19		Discharge gas overheating (TdSH)	ºC	—	—	—	O	O	O	O	—	O	—
20		Discharge gas temperature	ºC	O	O	O	O	O	O	O	—	O	—
21		Compressor frequency	Hz	—	—	O	O	O	O	O	—	O	—
22		Total consumption of compressors	A	O	O	O	O	O	O	O	—	O	—
23		Number of compressors operating	—	O	O	—	O	O	O	O	—	O	—
24		MV1 expansion valve opening	%	—	—	O	O	O	O	O	—	O	—
25		MV2 expansion valve opening	%	—	—	—	—	(1)	O	—	—	—	—
26		MV3 expansion valve opening/MVB	%	—	—	—	—	(2)	O	—	—	—	—
27		Ambient temperature	ºC	O	O	O	O	O	O	O	—	O	—
28		Evaporating temperature (Heating)	ºC	O	O	O	O	O	O	O	—	O	—
29	Alarms	Number and description of alarm	—	O	O	O	O	O	O	O	O	O	O
30		Last cause of compressor stop (3)	—	—	O	O	O	O	O	O	—	O	O
31	Others	THM1	ºC	—	—	—	—	—	—	O	—	—	—
32		THM2	ºC	—	—	—	—	—	—	O	—	—	—
33		PCB1 THM1 (RA)	ºC	—	—	—	—	—	—	—	—	O	O
34		PCB1 THM2 (OA)	ºC	—	—	—	—	—	—	—	—	O	O
35	Power Meter	Power Meter values	—	O	O	O	O	O	O	—	—	—	—
36	OU Control	Power control activated	—										
37		Night mode activated	—										

O = Available — = Not available

NOTE

(1): Not for FS units of up to 10 HP.

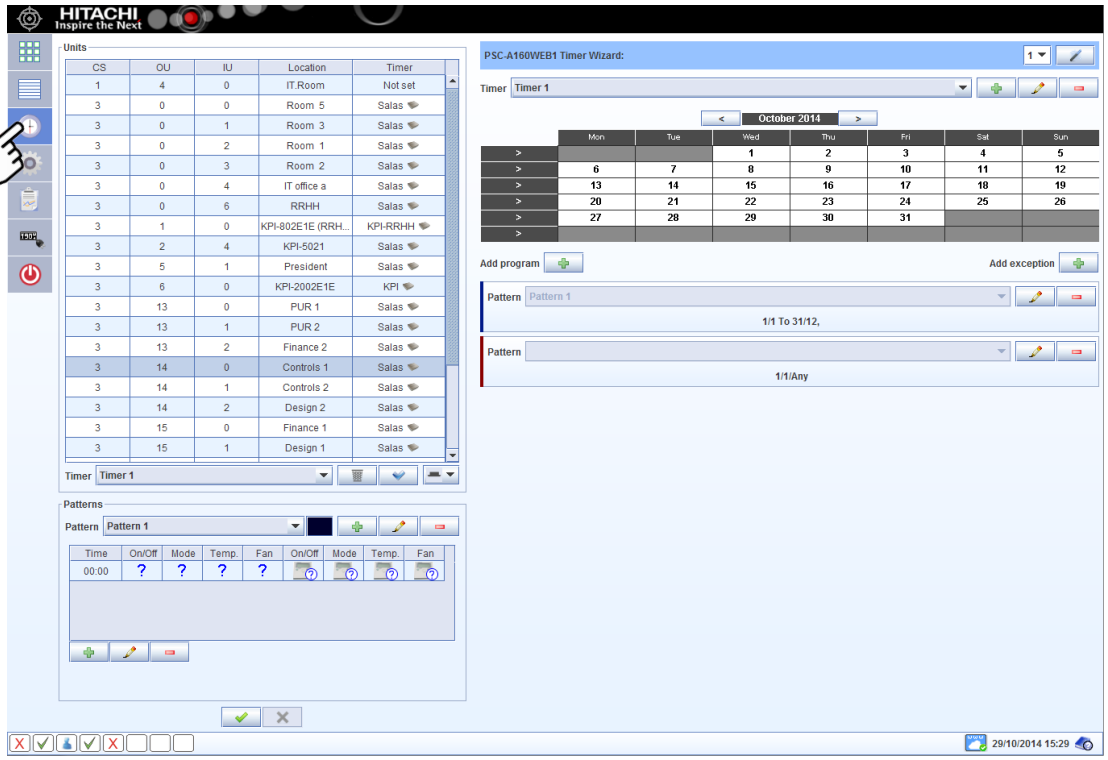
(2): Not for FS units of up to 20 HP.

(3): The value shown does not disappear until the cause of the compressor stop does not change.

(4): THM4 is the remote thermistor. More information on the indoor unit documentation.

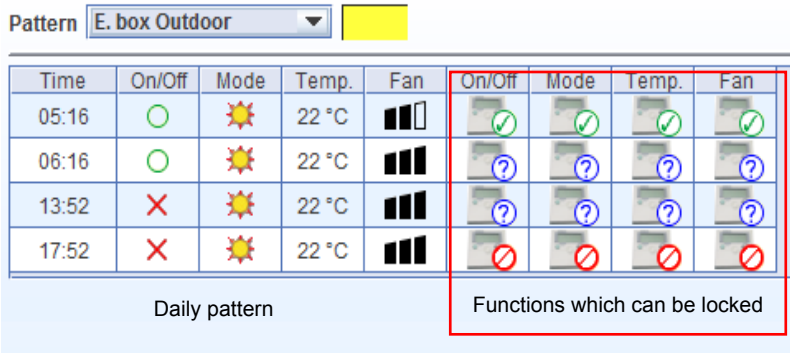
◆ Timer

CSNET Manager has a timer which is easy to program.



A timer is composed by patterns and exceptions, which define which is the daily pattern to be used on a day.

- Pattern: defines the operations to apply in a period (day/month) for the selected days of the week.
- Exception: applies defined operations for a specific day, month and/or year.
- The daily Pattern you time the lock/unlock remote control functions as required, so you can control the system perfectly with greater comfort

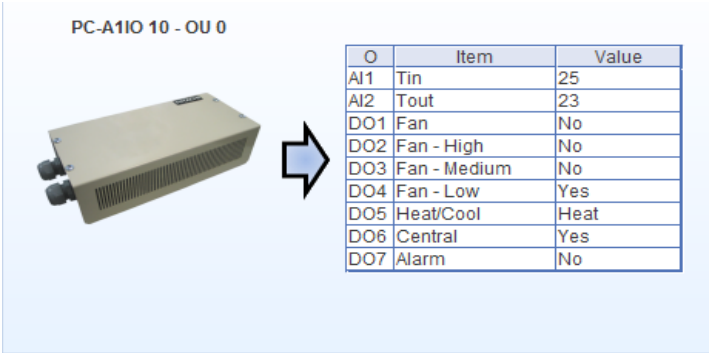


NOTE

- *When CSNET Manager is connected to a CSNET WEB, CSNET Manager lets configure the CSNET WEB timer on its hardware by using a specific dialogue.*
- *CSNET Manager is the one executing the timer, if CSNET Manager is stopped, the timer will not be executed.*
- *In case that multiple CSNET Managers are sharing their information, each of them can manage its own timer over certain units. Be aware that orders will be sent to the units normally, so the indoor unit will take into account the last order received from one of those CSNET Managers.*

PC-A1IO System status

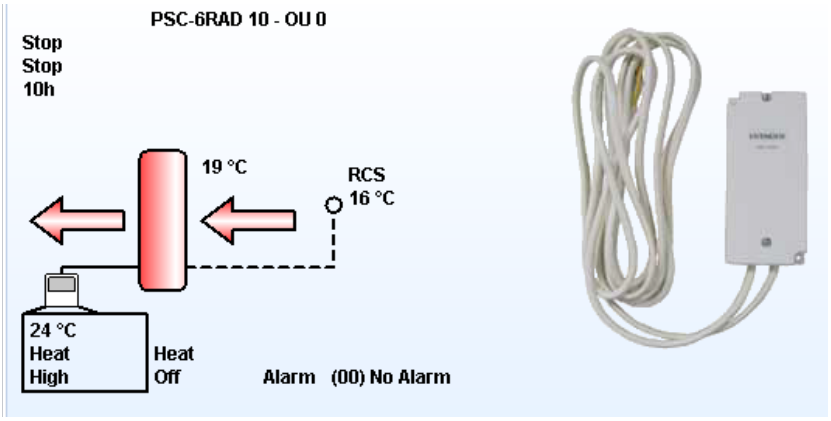
PC-A1IO has an special system status layout, it shows the value of all the digital outputs and two analog inputs.



O	Item	Value
AI1	Tin	25
AI2	Tout	23
DO1	Fan	No
DO2	Fan - High	No
DO3	Fan - Medium	No
DO4	Fan - Low	Yes
DO5	Heat/Cool	Heat
DO6	Central	Yes
DO7	Alarm	No

RAD Units System Status

Its special view only shows the values that can be read when a PSC-6RAD adapter is connected.



Alarms

The alarms shown in CSNET Manager are the same that can be found in the service manual of the outdoor unit in question.

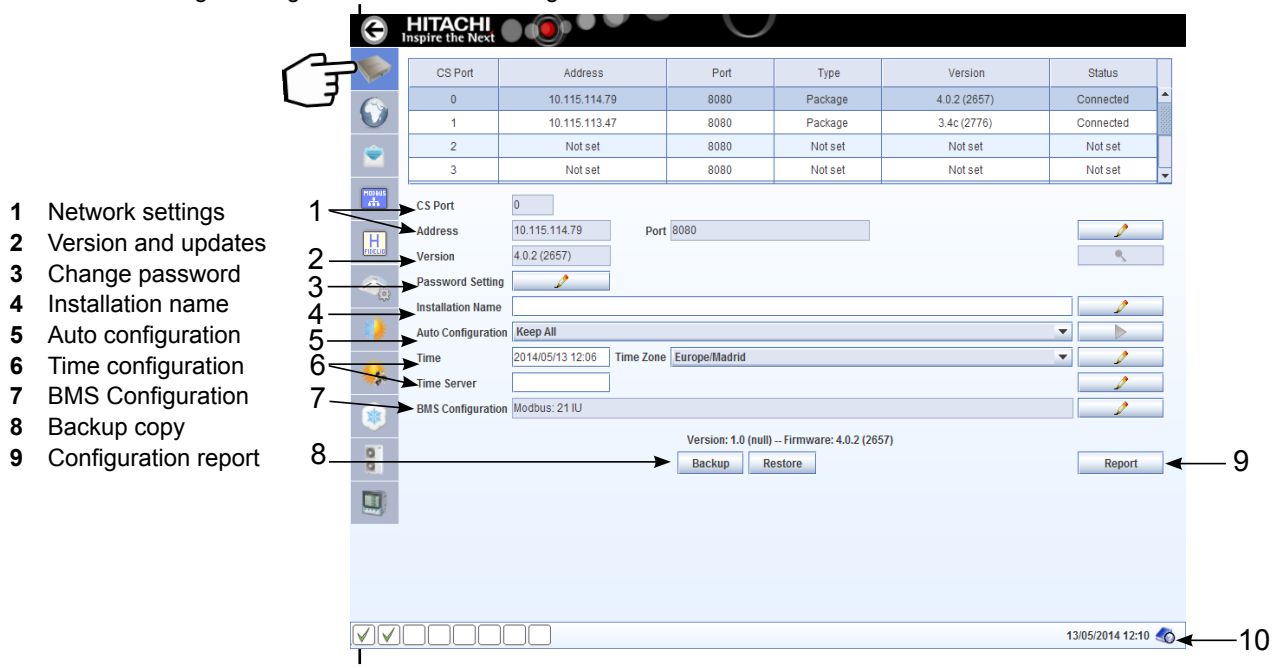
Cause of compressor stop

The cause of the compressor stop shown in CSNET Manager is the same that can be found in the service manual of the outdoor unit in question.

◆ Configuration panel

Network settings

The CSNET Manager configuration has the following sections:



Each section works on a different way depending on the device selected:

ITEM	HC-A64NET	PSC-A160WEB1/ CSNET WEB v3	CSNET Manager (Slave)
Network settings	O	O	R
Version and updates	R	O	R
Change password	X	O	O
Installation name	X	O	O
Auto configuration	O	O	O
Time configuration	X	O	O
BMS configuration	X	O	O
Backup copy	X	O	X(*)
Configuration report	O	O	O

R-Read only, X-Not available, O-Available

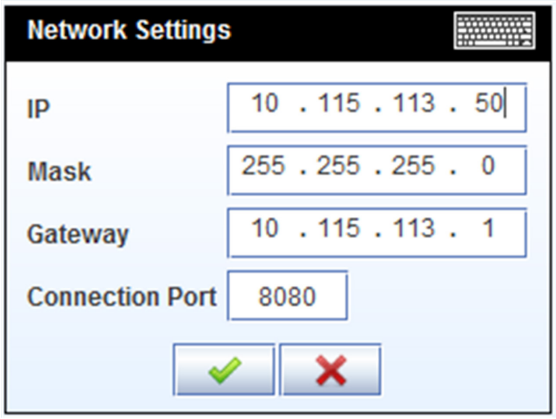
(*) To save/restore data from HC-A64NET, it must to be done from "local computer configuration" where CSNET Manager saves all the data from all the installations (including tree, timer, historical data,...)

⚠ CAUTION

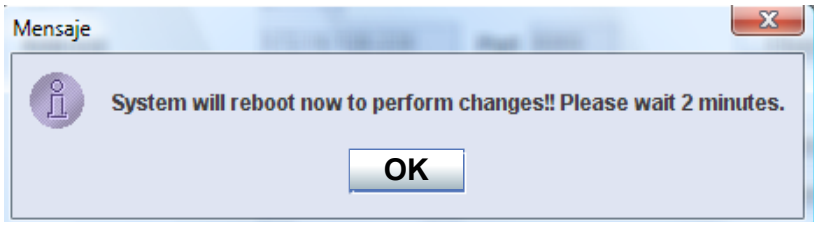
The network settings specify the parameters for configuring CSNET Manager to be able to communicate with the rest of the network. These parameters are essential, and a bad configuration may cause conflicts in the local area network. This is why we recommend that for making these settings you get in touch with the network administrator where CSNET Manager will be installed.

To enter and/or modify the network configuration click on  button (**Change)** in **Network settings** section and follow these steps:

1 Enter the IP address. The IP address consists of four numbers which must be between 0 and 255.
2 Enter the Mask. As in the case of the IP address, the four numbers must be between 0 and 255.
3 Enter the IP address of the Gateway. Again, the numbers for these four fields follow the same rule as the IP address and Mask. If you do not have a Gateway, the field should contain an IP address within the margins of the specified network.



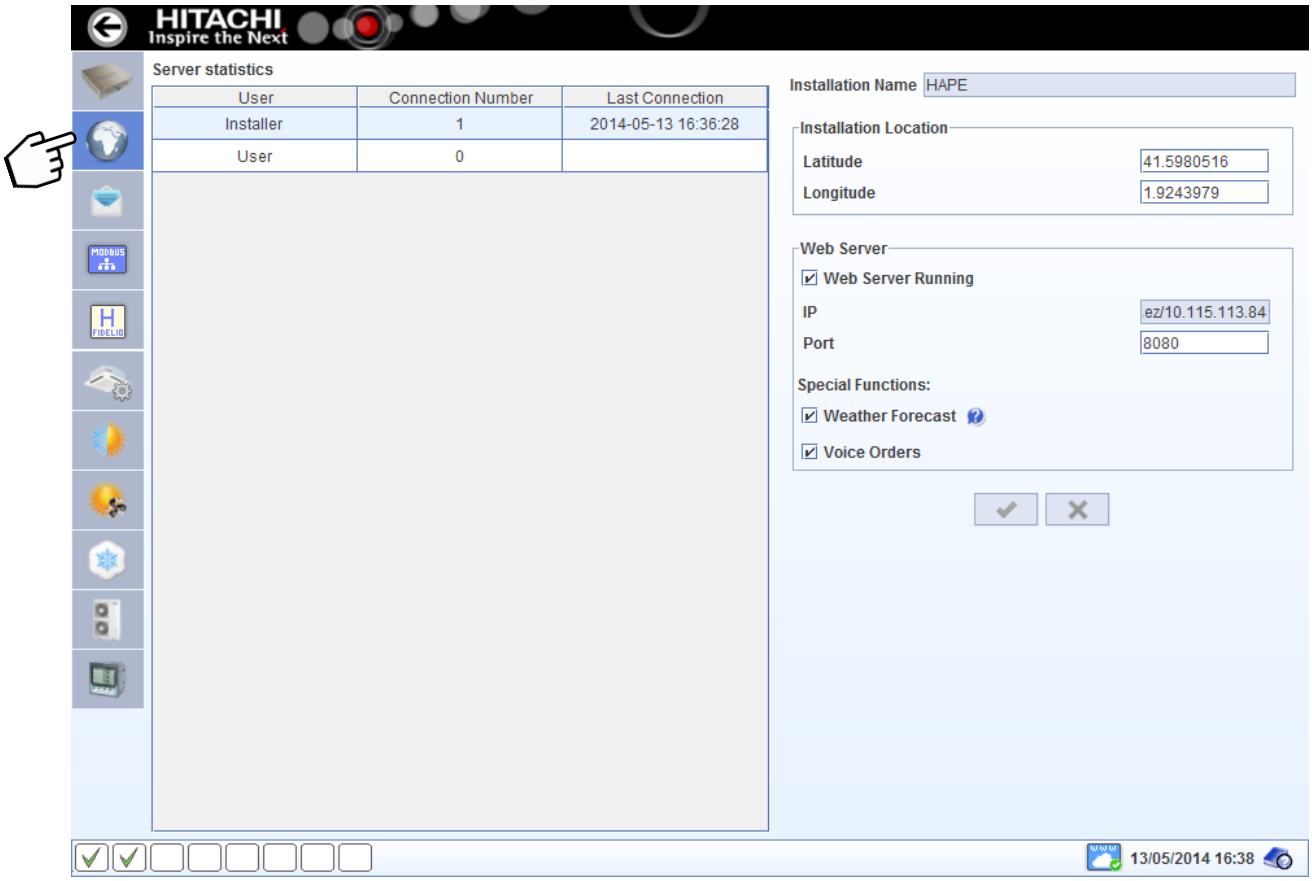
4 Click on the  (**OK)** button situated in the upper right (by the IP line). A message will appear as in the example:



5 When you press the **OK** button, the system will ask for confirmation of setting update. CSNET Manager will restart and therefore communication with it will be lost by approximately 2 minutes.

If harc is doing auto-configuration, it will not be able to modify settings from that pane. User must wait for the end of auto-configuration.

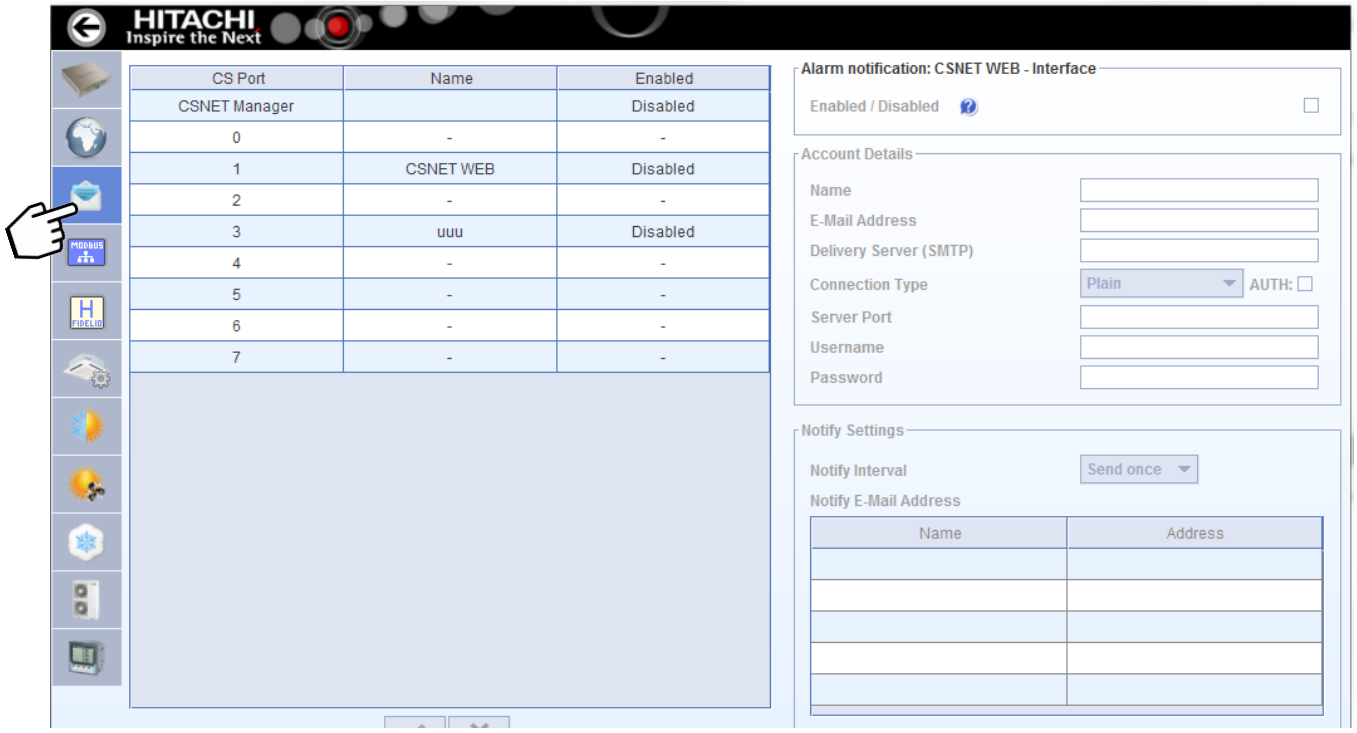
Web server



Installation menu refers to the data related to the general installation.

- Installation Location is used by web server functions. The location indicates where in the world is the Hitachi air conditioning installation.
- Web Server configuration activates the software as a web server that lets the user to configure the units through a web. User can be connected to the software by using a web browser just by typing the IP of the computer that has the CSNET Manager Software running.
  CSNET Manager Software should keep running in order to be able to connect.
  Check *"6.2.5.2 Web connections"* chapter for further information.

Alarm notification



CSNET Manager is ready to notify alarms to the users. These alarms are notified by e-mail. To configure these notifications you must open the alarm notification panel.

The configuration is divided in different parts:

- **Alarm notification**: allows enable or disable alarm notification function and select between execute this server on the CSNET Manager HARC or in the computer.
- **Account details**: settings about the SMTP server.
- **Notify settings**: configuration about the receivers and the period of the notifications.

The table shows the different slots. In case of CSNET WEB the function can works on the device, otherwise it can't be configured in other place that on CSNET Manager.

The selection between CSNET WEB Interface and CSNET Manager identifies which element will execute the mail alarm function, and in each case it will have different specifications.

The differences between the configurations are:

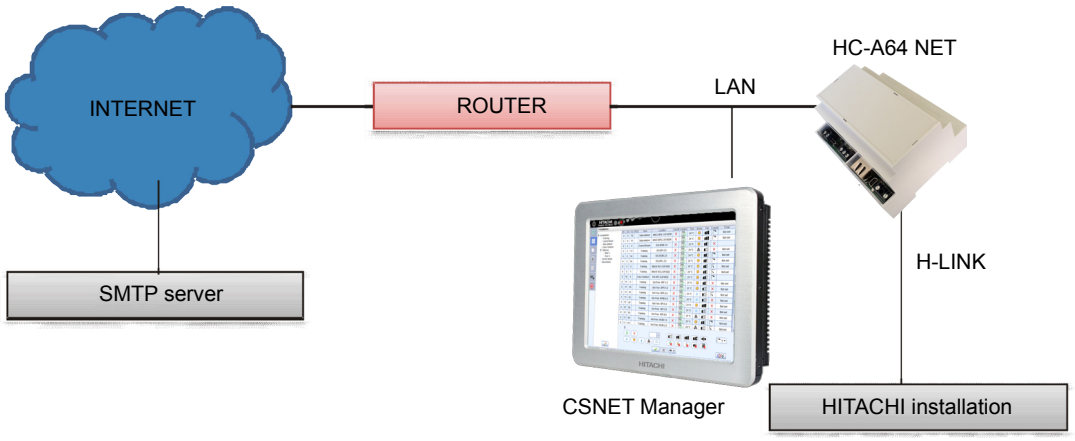
- **CSNET Manager**

a. Configuring the mail alarms on the CSNET Manager is used when CSNET Manager is on a LAN net that does not pass through a proxy to connect to Internet.

b. The mail alarms are being sent from the CSNET Manager when CSNET Manager software is running, so that the device cannot be switched-off.

c. That connection allows the use of already existing SMTP servers on the Internet, such as Gmail, Yahoo or others. These are encrypted connections, so they can be used.

d. The e-mail sent has the location information column as it is managed from the computer and it is powerful than CSNET WEB interface.



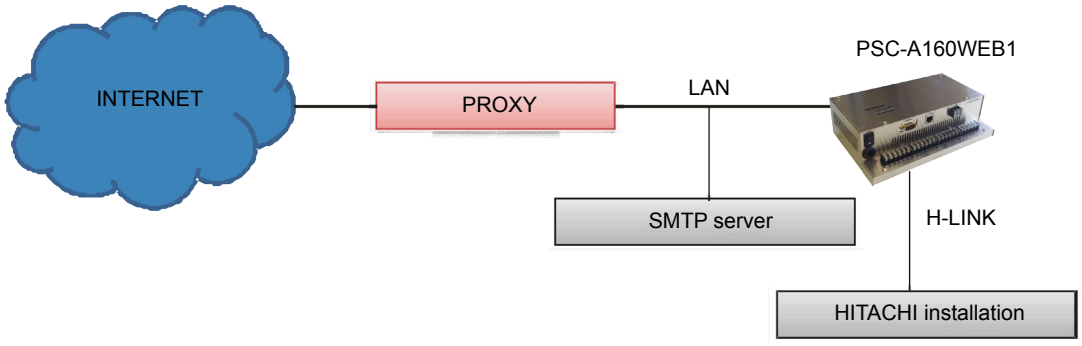
- **CSNET WEB Interface**:

a. Configuring the mail alarms on the CSNET WEB Interface is used when CSNET WEB is on a LAN that uses proxy to connect to Internet.

b. CSNET WEB device will send the alarm mails using this SMTP server.

c. It is required to have a SMTP server on the same LAN than CSNET WEB.

d. CSNET WEB Interface cannot connect to a SMTP encrypted server.



Account details

The account details need to specify the next fields:

- **Name**: installation name.
- **E-mail**: account installation mail.
- **Delivery Server address**: mail server address.
- **Server Port**: mail server port.
- **User name**: mail user name.
- **Password**: mail password.

Notify settings

Notify settings configures who will receive the notifications and what will be the interval of these notifications.

- **Notify interval**: you can set a notification interval of 1, 2, 6, 12 hours or 1 day.
- **Notify E-Mail address**: sets the name and the e-mail address of the different receivers.

On **SAVE** button the configuration will be saved and sent to the CSNET Manager, this operation is not immediately. When CSNET Manager will receive and process this information you could see this on the alarm configuration field.

In case of alarm, CSNET Manager will send an e-mail with the following contents:

From CSNET WEB Interface:

CSNET Manager Alarm detected
(x,y) Alarm: #
(x,y) Alarm: #
(x,y) Alarm: #
(x,y) Alarm: #

From CSNET Manager:

OU	IU	Location	Alarm
X	Y	L	#
X	Y	L	#

In both cases, each parameter is:

X: Outdoor unit number

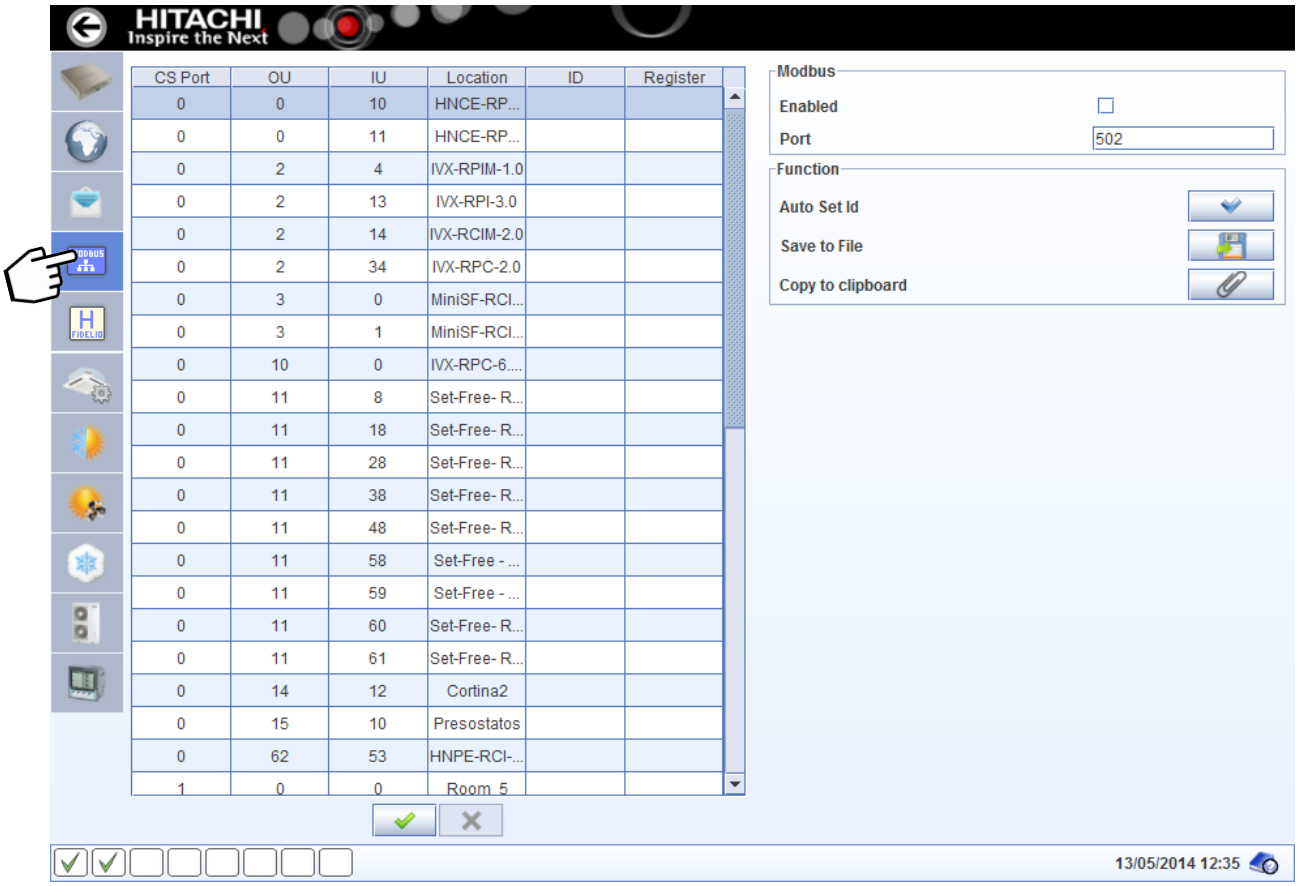
Y: Indoor unit number

#: Alarm code

L: Location (just from client)

Modbus server

CSNET Manager can work as a Modbus server. This configuration is done on the “Modbus” panel.



On this panel it can be configured if the function is enabled or not, and the listening port of the CSNET Manager.

The table displays the different units, where it can be modified the Modbus ID. This Modbus ID modifies the register address for read the data of this unit. It will automatically displayed on the column “register” the number of the register where the unit begin.

The extra options let the user save the table data to a file or copy to the clipboard. Auto set Id option put correlative ids to the different units.

Address (Note 1)	Name	Description	Read/Write
0	EXIST	0: Not exist 1: Exist	Read
1	SYSTEM_ADDRESS	H-LINK 1: 0~15 H-LINK 2: 0~63	Read
2	UNIT_ADDRESS		
3	SET_ONOFF	ON/OFF setting order: 0: Stop 1: Run	Read/Write
4	SET_MODE	Mode setting order: 0: Cool 1: Dry 2: Fan 3: Heat 4: Auto	Read/Write
5	SET_FAN	Fan setting order: 0: Low 1: Medium 2: High	Read/Write

Address (Note 1)	Name	Description	Read/Write
6	SET_TSET	Setting temperature 17ºC ~ 30ºC	Read/Write
7	SET_LOUVER	Louver setting 0 ~ 8 (8 is Auto)	Read/Write
8	SET_CENTRAL	Central Setting: Bit 0: ON/OFF (always can be stopped) Bit 1: Mode Bit 2: Setting temperature Bit 3: Fan	Read/Write
9	READ_ONOFF	ON/OFF read: 0: OFF 1: ON	Read
10	READ_MODE	Mode read: 0: Cool 1: Dry 2: Fan 3: Heat 4: Auto	Read
11	READ_FAN	Fan read 0: Low 1: Medium 2: High	Read
12	READ_TSET	Setting temperature read (17ºC to 30ºC)	Read
13	READ_LOUVER	Louver read 0 ~ 8 (8 is Auto)	Read
14	RCS_GROUP	Remote controller group 0 ~ 255	Read
15	TIN	Inlet temperature (Note 2)	Read
16	TOUT	Outlet temperature (Note 2)	Read
17	TGAS	Gas pipe temperature (Note 2)	Read
18	TLIQUID	Liquid pipe temperature (Note 2)	Read
19	ERROR_CODE	Alarm code	Read
20	STOP_CAUSE	Compressor stop cause	Read
21	VALVE_OPEN	Indoor unit expansion valve opening	Read
22	OPER_CONDITION	Unit operation condition 0: OFF 1: Thermo OFF 2: Thermo ON 3: Alarm	Read
23	DEFROST	Defrost	Read
24	AMBIENT_TEMP	Ambient temperature (Note 2)	Read
25	RCS_TEMP	Remote control switch temperature (Only when available in unit) (Note 2)	Read
26	TIMER_DISABLED	Timer disabled 0: Disabled 1: Enabled	Read/Write
27	OPTIONS	Options setting	Read
28	POWER	Calculated power consumption	Read
29	COMP_QTY	Running compressor quantity (Note 5)	Read
30	COMP_FREQ	Inverter compressor frequency	Read
31	REM_TEMP	Remote sensor temperature (Only when accessory is installed) (Note 2)	Read

*1. Offset position is: 20000 + N*32 + Address as shown in table, where N is unit address. Unit address as set in CSNET Manager BMS configuration dialogue. Be careful because we are using address 0 as first register and in Mobdus could be used number 1 as first value. In that case, it will be necessary to add 1 to the address calculation.*
2. These numbers refer to signed 16-bit value using 2-complement format for negative values.
3. In case that the installation will use more than one CSNET Manager, it will use different device Ids, using Virtual Ids. Refer to the configuration of your BMS to Ethernet adapter to know how it works.
4. Register number 10 is used for general alarm status.
5. Running compressor quantity is only valid for units with more than one compressor.

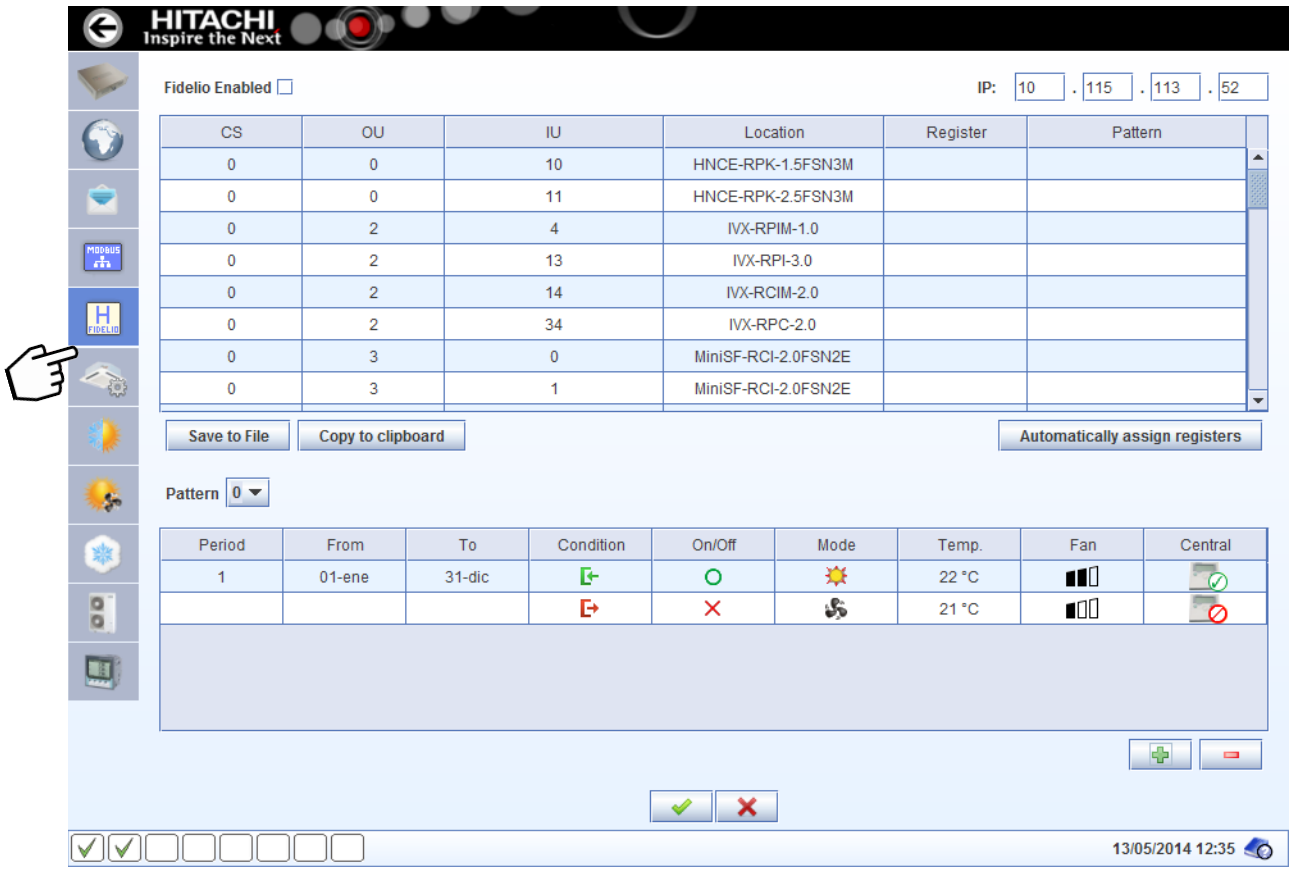
Fidelio

CSNET Manager is compatible with a TCP/FIDELIO Gateway.

Each unit can be linked to a Fidelio register to know if there is a check in or check out condition on that room.

For each unit can be assigned a pattern similar to the timer one that describes a condition for check in and another for check out. It also can be specified the data period where that patterns applies.

To activate the Fidelio compatibility it must be selected the check box and specified an accessible IP for the Hitachi Fidelio gateway.



CAUTION

Actions configured on the Fidelio dialogue are managed from the CSNET Manager client software, so it is necessary to have the device program running to use the Fidelio compatibility.

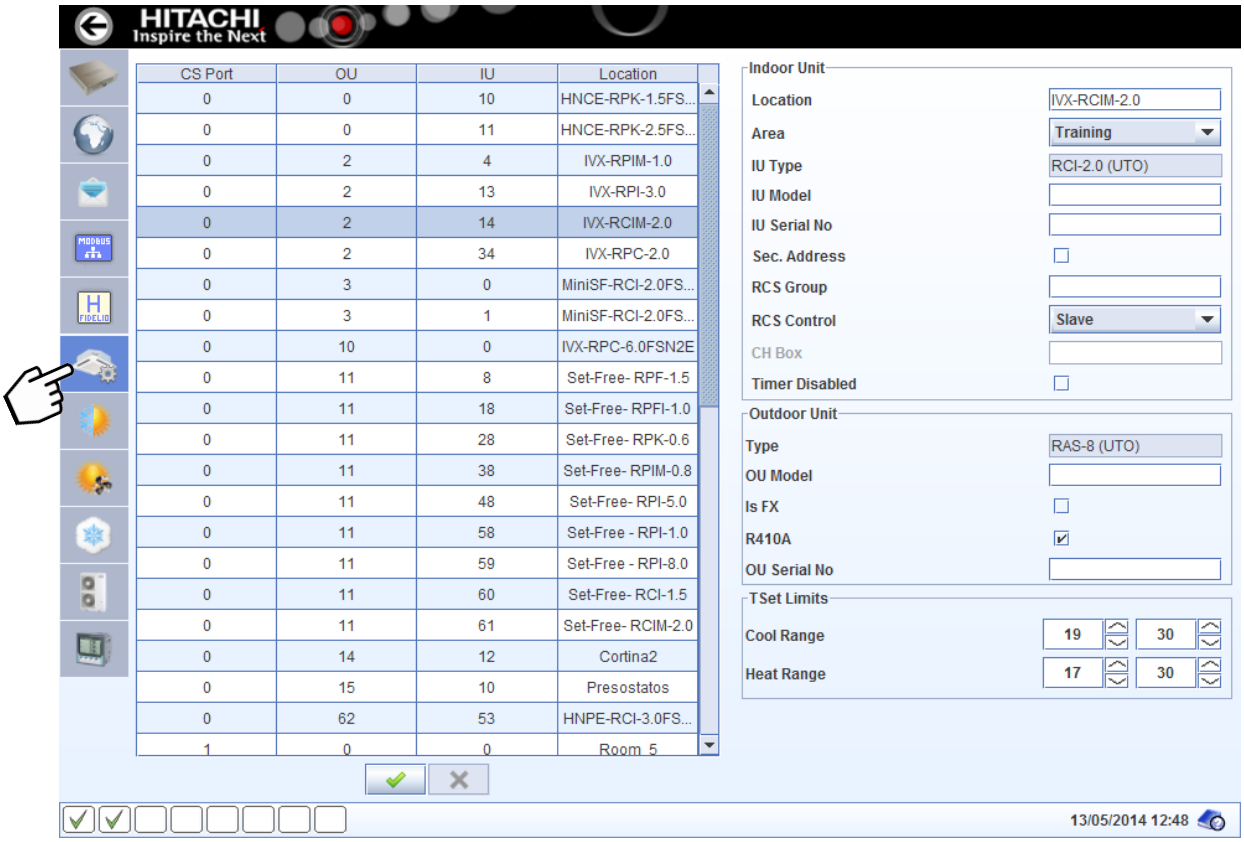
NOTE

The compatibility with Fidelio protocol was tested with IBOX-MBS-FIDELIO_IP of INTESIS. Hitachi ensures the compatibility with this and others devices working exactly as the same. To use others devices please contact Hitachi to ensure compatibility.

Unit configuration

The unit settings show all the data of each of the units controlled by CSNET Manager.

The information given is as follows:



- **Indoor Unit**
  - **Location**: Name of the room conditioned by this unit.
  - **Area**: Zone to which this unit belongs.
  - **IU Type**: Model of indoor unit (recognized by the system) (see Note 1).
  - **IU Model**: Exact model of the indoor unit (see Note 2).
  - **IU Serial No**: Serial Number of the indoor unit (see Note 2).
  - **Sec.Address:** in set free of H-LINK (I) with more than 16 indoor units, we use a virtual address to indicate that this unit is a secondary unit of the previous unit.
  - **RCS Group**: Remote control number used by more than one indoor unit including this one, for example 1. A second group should have a different number, etc. If any of the parameters within a group changes, all the groups which form it will adopt the specified value at the same time. This process is automatic and there is no need to select the unit group to change (see Note 4).
  - **RCS Control**: Sets the RCS control as master, slave or RCS not installed.
  - **CH Box**: Number of the CH (Cool/Heat) distribution box used by more than one indoor unit including this one. When the automatic cooling/heating operation has been chosen, a common number in this field has to be chosen to ensure that all these units change their operating mode simultaneously.
    If the operation mode of one of the units in this group is changed, CSNET Manager will also change the mode of operation of the other units of the same group which no longer have a compatible operation mode (see Note 5).
  - **Timer Disabled**: Deactivate the timer setting option.
- **Outdoor Unit**
  - **Type**: Model of the outdoor unit connected to this indoor unit (recognized by the system) (see note 3).
  - **OU Model**: Exact model of the outdoor unit connected to this indoor unit (see Note 2).
  - **Is FX**: If you mark the check box, this unit corresponds to a 3-tube unit (FXG or FXN).
  - **R410A**: If you mark the check box, the cooling system used is R410; if you do not mark it, the cooler is R407C (see Note 6).

- **OU Serial No**: Serial number of the outdoor unit to which the indoor unit is connected (see Note 2).

- **TSet Limits**
  - **Cool Range**: Sets the maximum and the minimum temperature values in cool mode.
  - **Heat Range**: Sets the maximum and the minimum temperature values in heat mode.

NOTE

1. If the indoor unit is RPC or RPK, CSNET WEB will display RPC(RPK), as they cannot be identified properly.

2. The precise model should be entered to make necessary maintenance and repair work easier.

3. There following are possible types of outdoor units:

- *RAS-#.# (UTO): Utopia and Utopia Big.*
- *RAS-#.# (INV): Utopia Inverter.*
- *RAS-#.# (SF): Set-Free and Mini Set-Free.*

4. It is not possible for two or more units with a remote controller to function in different conditions. Only use the remote control Group within the same cooling system or CH Box. Do not use a single controller to control indoor units connected to different outdoor units or CH boxes.

5. The compatibility of the operation modes is as follows:

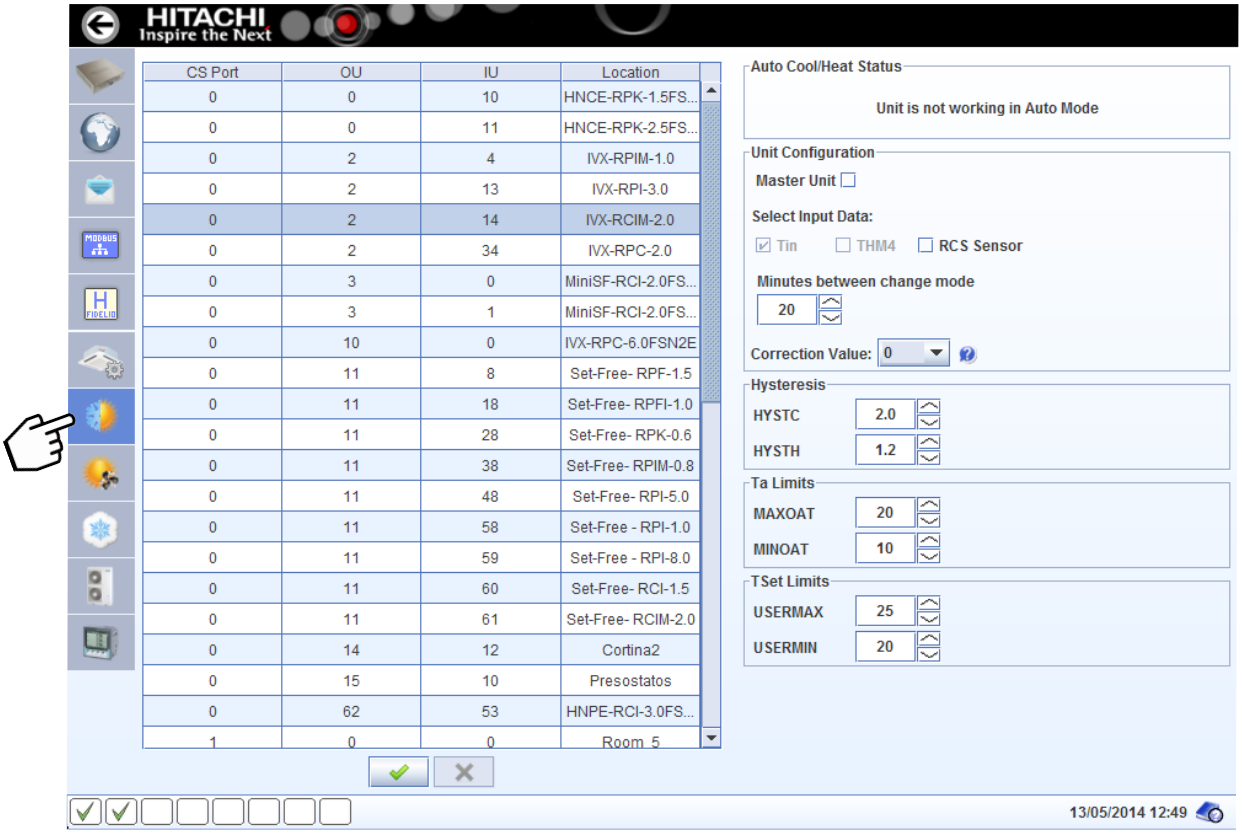
Operation mode	Compatible modes in the other units of the same group
Cool	Cool, Dry, Fan
Heat	Heat, Fan
Dry	Cool, Dry, Fan
Fan	Cool, Dry, Heat, Fan
Automatic cooling / heating	Automatic cooling / heating

6. This information will be used by CSNET Manager to calculate the control parameters of the cooling system, like TdSH.

Auto cool/heat

The outdoor units of 2-tube systems and are not designed to operate in the **automatic Cool/Heat** mode when more than one indoor unit is connected to the same outdoor unit, but only in the **cool** or **heat** mode. Thus all indoor units connected to the same outdoor unit should be changed from one mode to another at the same time. The same is applicable to the 3-tube outdoor unit systems, for all indoor units connected to the same CH Box.

However, operation in the **automatic Cool/Heat** mode is available through CSNET Manager.



In temperate seasons, CSNET Manager calculates the main need of the indoor units for each of the outdoor units in the systems mentioned above, selects the mode needed for most of the units in the system and adjusts the remote controller accordingly.

With the aim of giving the system time to be established in a particular mode, its requirements are checked for at least 20 minutes after the last change carried out. This process is continuous for as long as the indoor units are set to **Auto**.

If the systems are correctly designed, i.e. if all the indoor units of the same outdoor 2-tube unit have similar cooling and heating demands, then it is possible to completely automate heating in the morning (for example), cooling in the afternoon and heating once more at night.

Users maintain local control over the temperature in the room by the remote control.

There are two ways in which **CSNET** can decide whether the operation mode should be established in AUTO.

Description of the operation mode

In the automatic (Auto) Cool/Heat mode requested by the indoor units, CSNET will check first whether the cooling circuit to which the unit is connected is 2 tube or 3 tube before deciding to change the operating mode.

Then, CSNET WEB calculates the difference to decide the best operation mode at that moment.

The temperature difference is calculated as follows:

- **2 Tubes:**

CSNET WEB takes into account all the indoor units which depend on the same cooling circuit. CSNET then calculates in the following way:

Temp diff. (1) = Air inlet temperature (1) - corrected temperature (1)

Temp diff. (2) = Air inlet temperature (2) - corrected temperature (2)

….

Temp diff. (n) = Air inlet temperature (n) - corrected temperature (n)

Temp diff. = (Temp diff. (1) + Temp diff. (2) + ... + Temp diff. (n)) / n

Where:

Air inlet temp (i) = Air inlet temperature selected (consult the section *"Description of parameters"* for more information).

Corrected temp (i) = Temperature shown in the remote control or selected by CSNET (if the indoor unit does not have a remote control) (see the section *"Description of parameters"* for more information).

Temp diff. (i) = Temperature difference between the air inlet temperature and the setting temperature of the indoor unit number "i".

n = Number of indoor units connected to the same outdoor unit.

Temp diff. = Average of the temperature differences of all the indoor units.

- **3 Tubes**

CSNET will only make this calculation for the indoor units in Auto mode. Thus CSNET makes independent calculations for each indoor unit:

Temp diff. = Air inlet temp. - Corrected temp.

Where:

Air inlet temp = Air inlet temperature selected (consult the section *"Description of parameters"* for more information).

Corrected temp = Temperature shown in the remote control or selected by CSNET WEB (if the indoor unit does not have a remote control) (see the section *"Description of parameters"* for more information).

Temp diff. = Temperature difference between the air inlet temperature and the setting temperature of the indoor unit.

After calculating the operation mode which the units should use, and taking into account the conditions established as indicated in *"Description of parameters"*, CSNET will send the order to all the affected units.

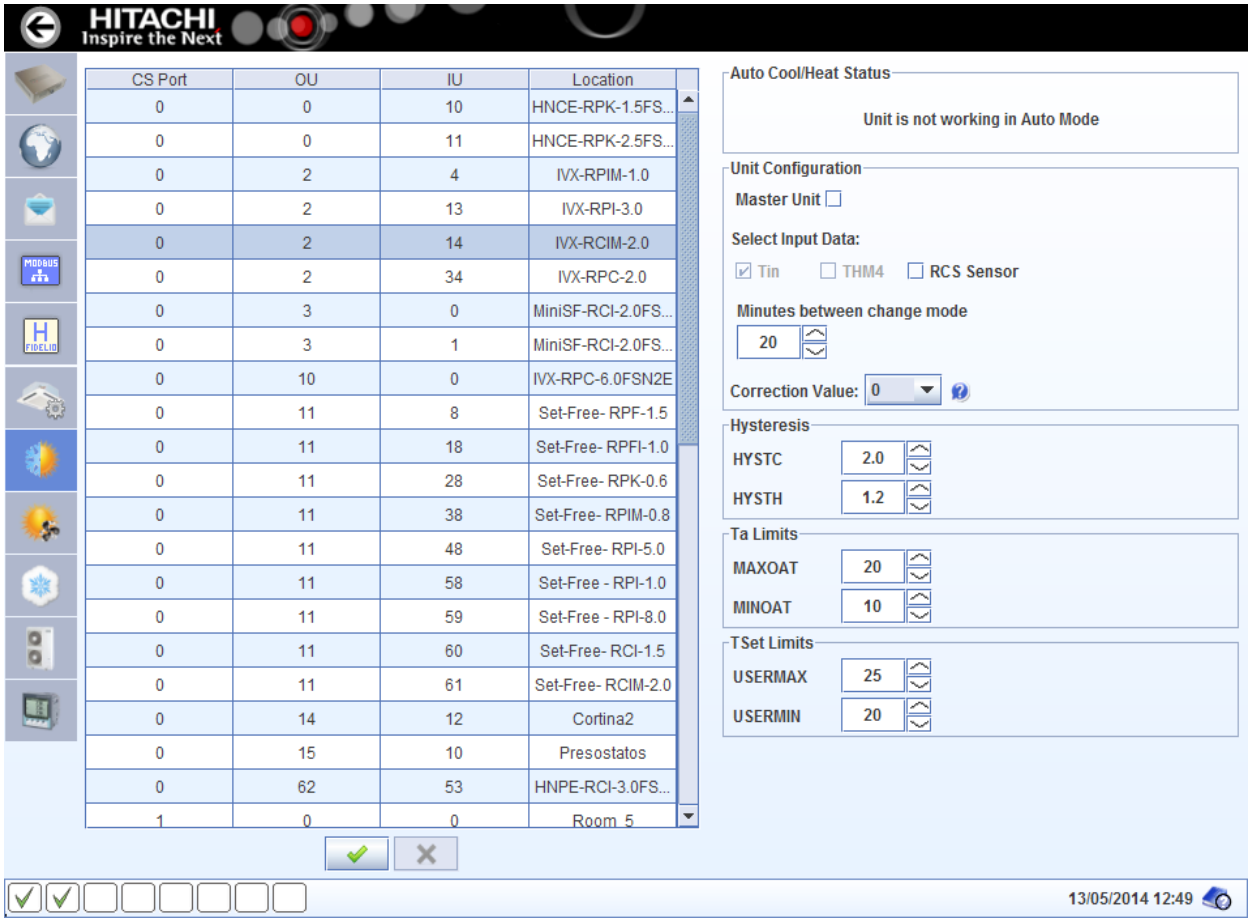
NOTE

If more than one indoor unit is connected to the same CH Box, CSNET treats this box as an outdoor 2-tube unit.

Description of parameters

To use this option, you have to set the parameters shown in the **Auto Cool/Heat** operation panel. After that, if unit is working in **Auto Cool/Heat** mode, you can see the status of this operation on the status zone of the panel.

The **Auto Cool/Heat** panel shown corresponds to the cooling circuit of the indoor unit selected in the table of indoor units, as shown in the example.



You should adjust the following parameters:

- **Unit configuration**
  - **Master unit:** Field for selecting the method CSNET will use to calculate the temperature difference.
    - ☑ (Marked): CSNET will only use this unit to calculate the temperature difference and decide the change, not taking into account the other units connected to the same 2-tube cooling circuit.
    - ☐ (Not marked): CSNET will use the average temperature difference of all the indoor units connected to the same 2-tube cooling circuit.

⚠ CAUTION

When this method is used (marked), the following outdoor unit option cannot be used: "control of indoor unit fan speed" (during operation with the thermostat deactivated in heat mode, the indoor fan stops for 6 minutes and operates for 2 minutes). If it is used, the decision of when to change will not always be correct (if it is measured during the deactivation cycle of 6 minutes).

- **Select input data**: field for selecting what inlet temperature CSNET should use to calculate the temperature difference if an optional remote temperature sensor is connected in THM4 of the PCB of the indoor unit or if there is RCS remote sensor. When there are selected a combination of different sensor it will calculate the average between them. When nothing is selected, it is forced to use the Tin value.

- **Minutes between change mode**: The time which must elapse between the last change of operation mode to the next change.
  - Pre set adjustment: 20 min.
  - 10 min steps.
  - 20 min... 60 min margin.

- **Correction value**: Temperature corrected on changing the operation mode, to ensure greater comfort..
  - Pre set adjustment: 0.
  - 1ºC steps.
  - Margin: 0, 1, 2.

  The Setting temperature is adjusted using the following formula when the operation mode is changed, depending on the DIFF option selected:

Correction value	Change from cool to heat	Change from heat to cool
0	Corrected temp = Setting temp	Corrected temp = Setting temp
1	Corrected temp = Setting temp + 0	Corrected temp = Setting temp + 1
2	Corrected temp = Setting temp - 1	Corrected temp = Setting temp + 1

  Where:

  Corrected temperature: Temperature used to calculate the change of operation mode.

  Setting temperature: Temperature selected by CSNET or by the remote control of the indoor unit.

  NOTE

  The remote control and the CSNET always show the corrected temperature (the result is the setting temperature).

- **Hysteresis:**
  - **HYSTC**: Value of the temperature difference calculated to pass from heat to cool mode.
    - Pre set adjustment: + 2°C.
    - 0.1°C steps.
    - 1°C... 2°C margin.
  - **HYSTH**: Value of the temperature difference calculated to pass from cool to heat mode.
    - Preset adjustment: 1.3°C.
    - 0.1°C steps.
    - 1°C... 2°C margin.
- **Ta Limits:**

  - **MAXOAT: Maximum outdoor ambient temperature for heat operation.**
    - Pre set adjustment: +20°C.
    - 1°C steps.
    - 0°C... 40°C margin.
    - MAXOAT should be higher than MINOAT.
    - MAXOAT should be lower than the dry bulb (DB) temperature equivalent to the margin of maximum outdoor ambient temperature for the heat mode:
    - The margin of maximum outdoor ambient temperature for heat mode of the outdoor unit is 15.5 WB
    - Equivalent dry bulb temperature:

      Relative humidity of 95% = 16 DB

      Relative humidity of 77% = 18 DB

      Relative humidity of 62% = 20 DB

      Relative humidity of 50% = 22 DB, etc.
  - **MINOAT: Minimum outdoor ambient temperature for cool operation.**
    - Pre set adjustment: +10°C.
    - 1°C steps.
    - 0°C... 40 °C margin.

- **TSet Limits:**
  - **USERMAX: Maximum Setting temperature. If the selected temperature is higher, CSNET will use USERMAX as the value for the Setting temperature, changing this value as soon as the operation mode changes.**
    - Pre set adjustment: +25°C.
    - 1°C steps.
    - 17°C... 30°C margin.
  - **USERMIN: Minimum Setting temperature. If the selected temperature is lower, CSNET will use USERMIN as the value for the Setting temperature, changing this value as soon as the operation mode changes.**
    - Pre set adjustment: +20°C.
    - 1°C steps.
    - 17°C... 30°C margin.

After adjust previously parameters, if unit is working in Auto Cool/Heat mode, it will be displayed on the status zone which option is currently doing.

Considerations for the use of the Auto Cool/Heat mode

When the **Auto Cool/Heat** is used, the difference of 4°C programmed in the heating mode of each indoor unit should be cancelled in all of them. Otherwise, there may be a conflict between the system program and the **CSNET** program. (See the Service Manual of the indoor unit for details about cancelling this misadjustment using the optional function b1). However, if an optional remote sensor has been fitted in the rooms (one per indoor unit), the misadjustment is cancelled automatically (not available in the FSGM RPK series).

If an indoor unit is defined by **CSNET** in **Auto Cool/Heat** mode, all the indoor units connected to the same outdoor Set-Free FS (or to the same CH Box in Set-Free FX systems) will change to the **Auto Cool/Heat** mode. This means that, for example if one of the indoor units was adjusted for heating at 17ºC and the outdoor Set-Free FS or Set-Free FX CH Box changes to cooling mode, according to the calculation of CSNET, this indoor unit will begin to cool when it reaches 17°C. To prevent this kind of situation from occurring, take care when programming the **timer**.

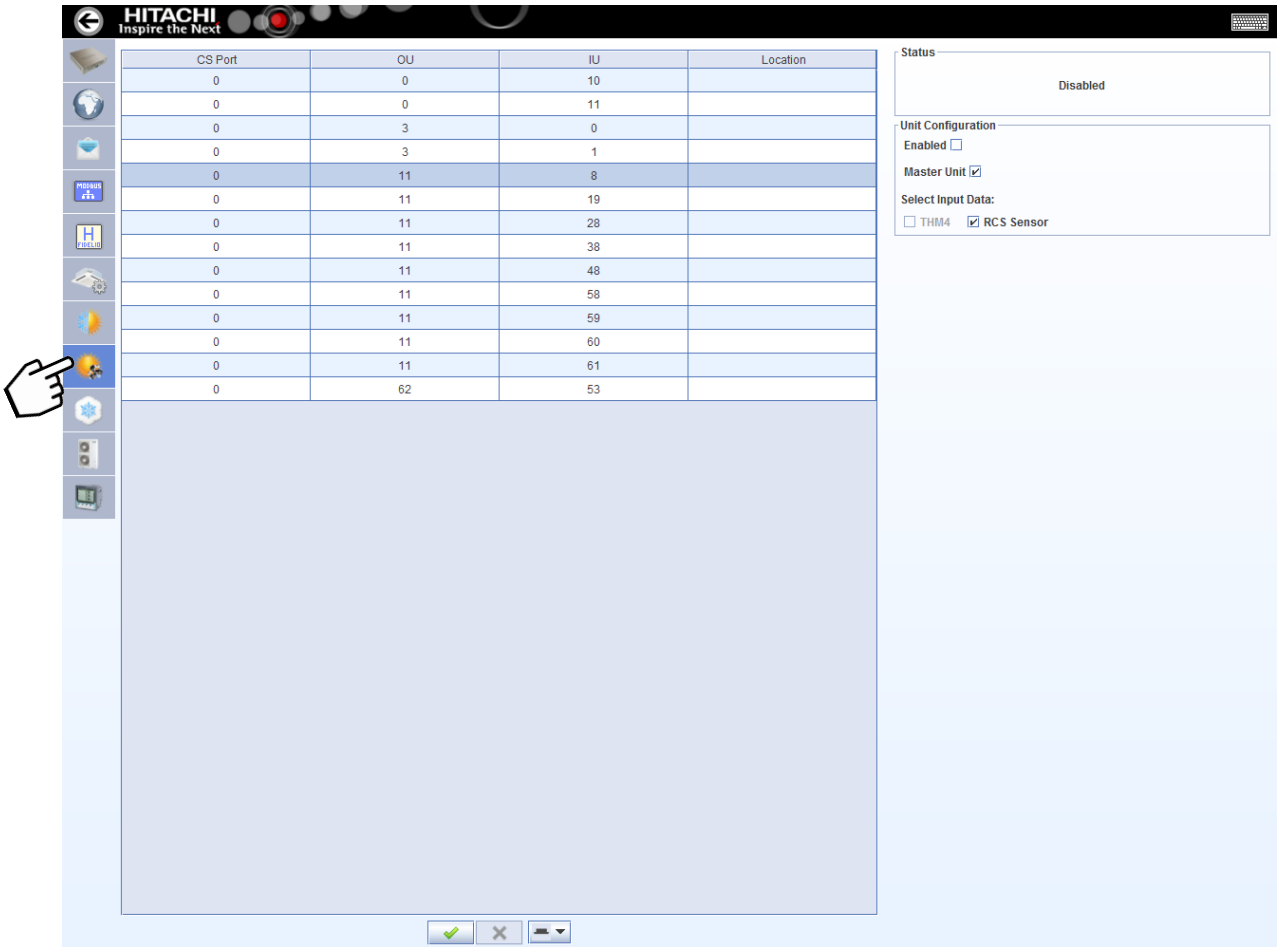
For all the indoor units connected to a single outdoor Set-Free FS or Set-Free FX CH Box, the starting time in the morning for the first unit (see *"Timer"*) should serve as the reference time and conditions for all the other units in the same system. At night, the last indoor unit to change will be the reference point for all the other units of the system in question.

If a user selects a different **mode** with the individual remote control when the local mode is being used, it will later return to the **mode** calculated by **CSNET**. Thus it is not recommended to use the mode selector of the remote controls during the **Auto Cool/Heat** operation of **CSNET** in local mode. The temperature should only be regulated, if necessary, with the ⌃ (up) or ⌄ (down) buttons. CSNET will then select and adjust the necessary (and possible) mode by outdoor unit (also in the LCD screen of the individual remote control).

⚠ CAUTION

In case of configuring Auto Cool/Heat and Fan stop heating during thermo off functions, it should be ensured that only one input data THM4 or RCS Sensor has been configured on both functions.

Fan stop heating during thermo-off



NOTE

This function is only available for HC-A64NET units.

In VRF systems, when unit is heating thermo-off CSNET Manager can stop the fan.

Configurable parameters:

- Enabled: enables the fan stop function
- Master unit: field for selecting the method CSNET Manager will use to calculate the temperature difference.
- (Selected): CSNET Manager will only use this unit to calculate the temperature difference and decide the change, not taking into account the other units connected to the same 2-tube cooling circuit.
- (Not Selected): CSNET Manager will use the average temperature difference of all the indoor units connected to the same 2-tube cooling circuit.
- Input data: field for selecting what inlet temperature CSNET WEB should use to calculate the temperature difference if an optional remote temperature sensor is connected in THM4 of the PCB of the indoor unit or if there is RCS remote sensor.

Status panel explain what is this function doing.

CAUTION

- *In case of configuring Auto Cool/Heat and Fan stop heating during thermo off functions, it should be ensured that only one input data THM4 or RCS Sensor has been configured on both functions.*
- *Fan stop heating during thermo off function is not compatible with CSNET WEB unit.*

Cold draft

In VRF systems, when load is very low and only few units are working in a system, it is possible that discharge air temperature is reduced below comfort value. With this new option HITACHI improves comfort for these situations by setting unit to Fan Mode when discharge air temperature is below comfort temperature and set unit again to Cooling Mode when temperature will be again inside comfort range.

⚠ CAUTION

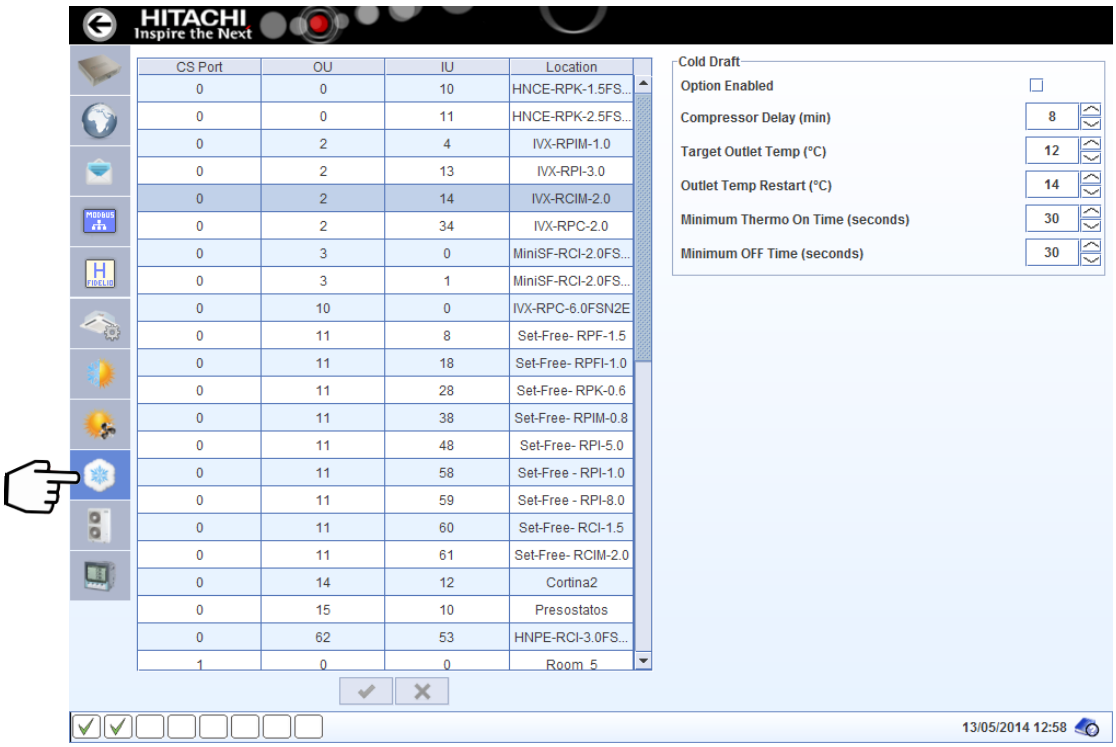
If one unit is configured to use cold draft function it should never be set in fan mode is considered the same as cooling mode Thermo-OFF and unit will be automatically changed to cooling mode.

Configurable parameters

- Option Enabled: Activate/not activate cold draft option in the selected indoor unit.
- Target Outlet Temp (ºC): Minimum outlet temperature that we accept in this room in order to force the Thermo OFF.
- Outlet temp Restart: Temperature that unit is finishing the forced Thermo OFF.
- Compressor Delay (min): Minimum enforced time between two compressor start up when start required by Cold Draft option.
- Minimum Thermo ON Time (seconds): Minimum time that should be in Thermo ON before accepting a new Thermo OFF.
- Minimum OFF time (seconds): Minimum time that unit should be Thermo OFF before accepting a new Thermo ON.

Considerations of cold draft

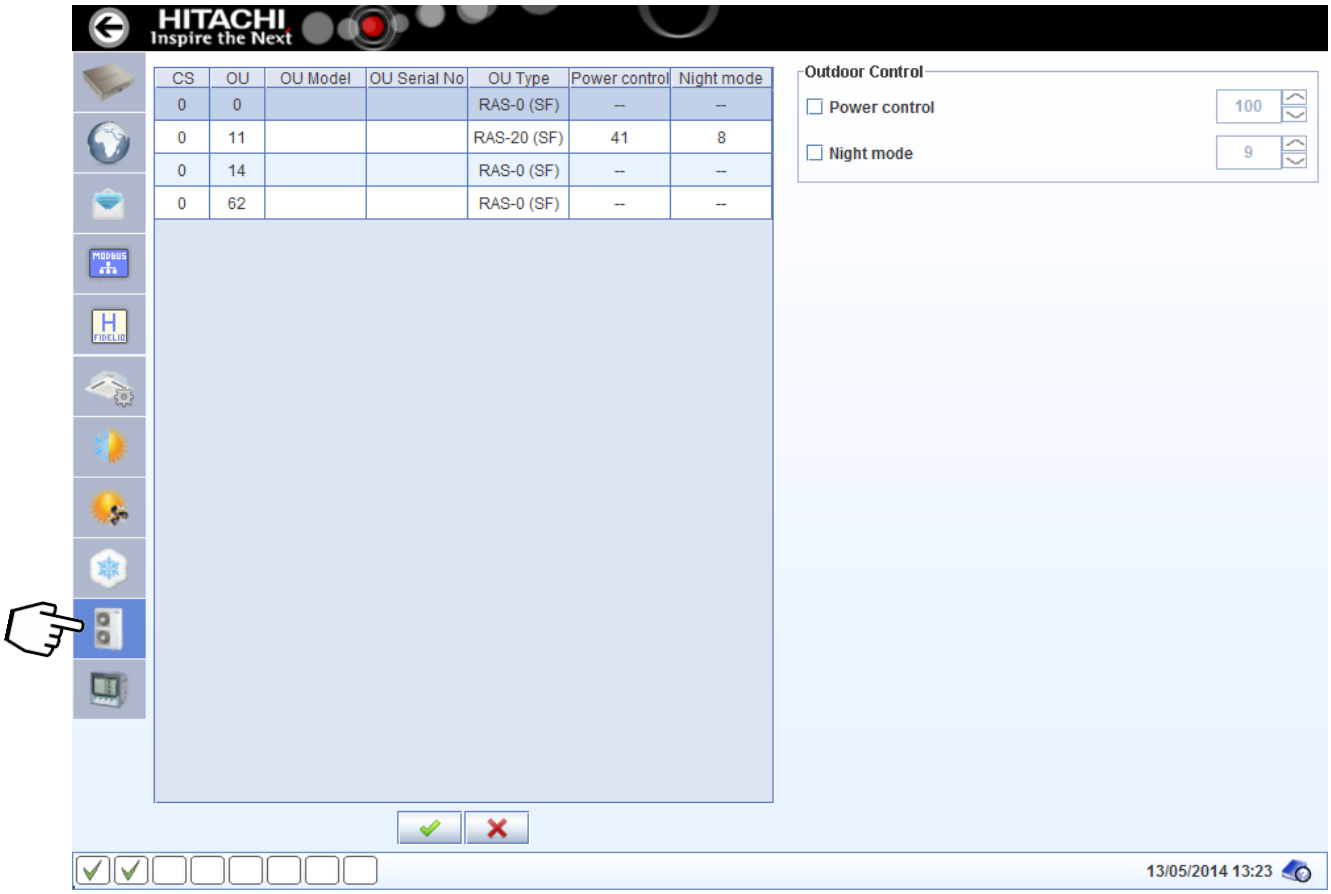
Cold draft option only can be visible for user if this has request privilege. This function should only be used in system where there are comfort problems and after problem study.



Outdoor control

Outdoor control panel let user set up the following outdoor functions:

- Power control: limit the power consumption of the outdoor unit.
- Night mode: reduce the unit sound. It is useful during the night.



NOTE

The list of outdoor units only shows the outdoor units that supports this type of control.

Power meter

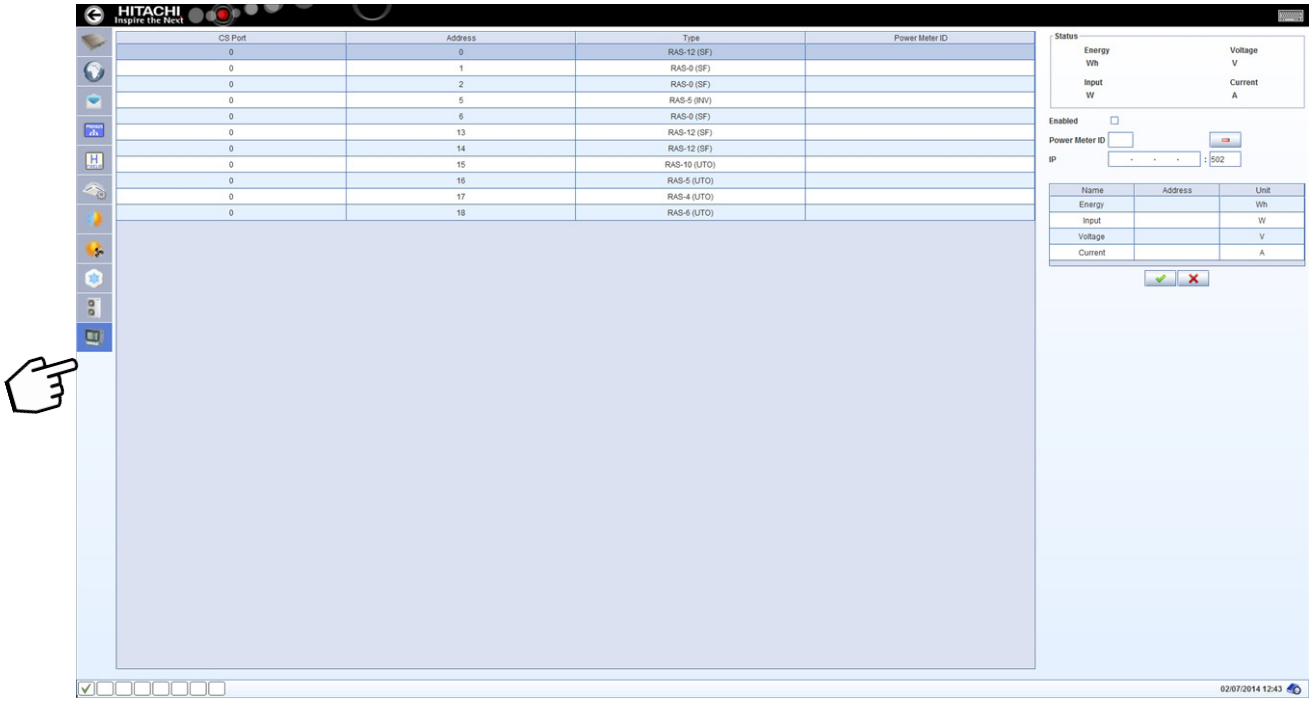
Power Meter tab lets the user configure a TCP-MODBUS power meter for each outdoor unit.

For each power meter device there should be entered the following parameters:

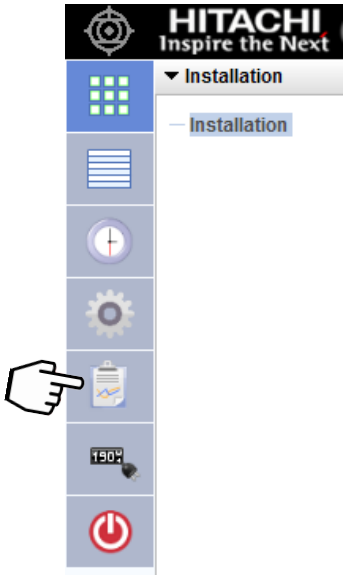
- IP Address: LAN address of the power meter.
- Power Meter ID: identifier to know which of the power meters is used.
- Registers: The Modbus Address and the measurement unit of each of the four variables available on the table should be configured by the user according to the specific power meter information.

⚠ CAUTION

- *Suggested device tested by Hitachi is 7KM PAC3200 by Siemens.*
- *Ensure that your Modbus-TCP power meter register starts at 0. CSNET Manager considers it like this, so if it starts at 1, subtract 1 to each register address.*
- *If CSNET Manager device is off it will not get power data.*

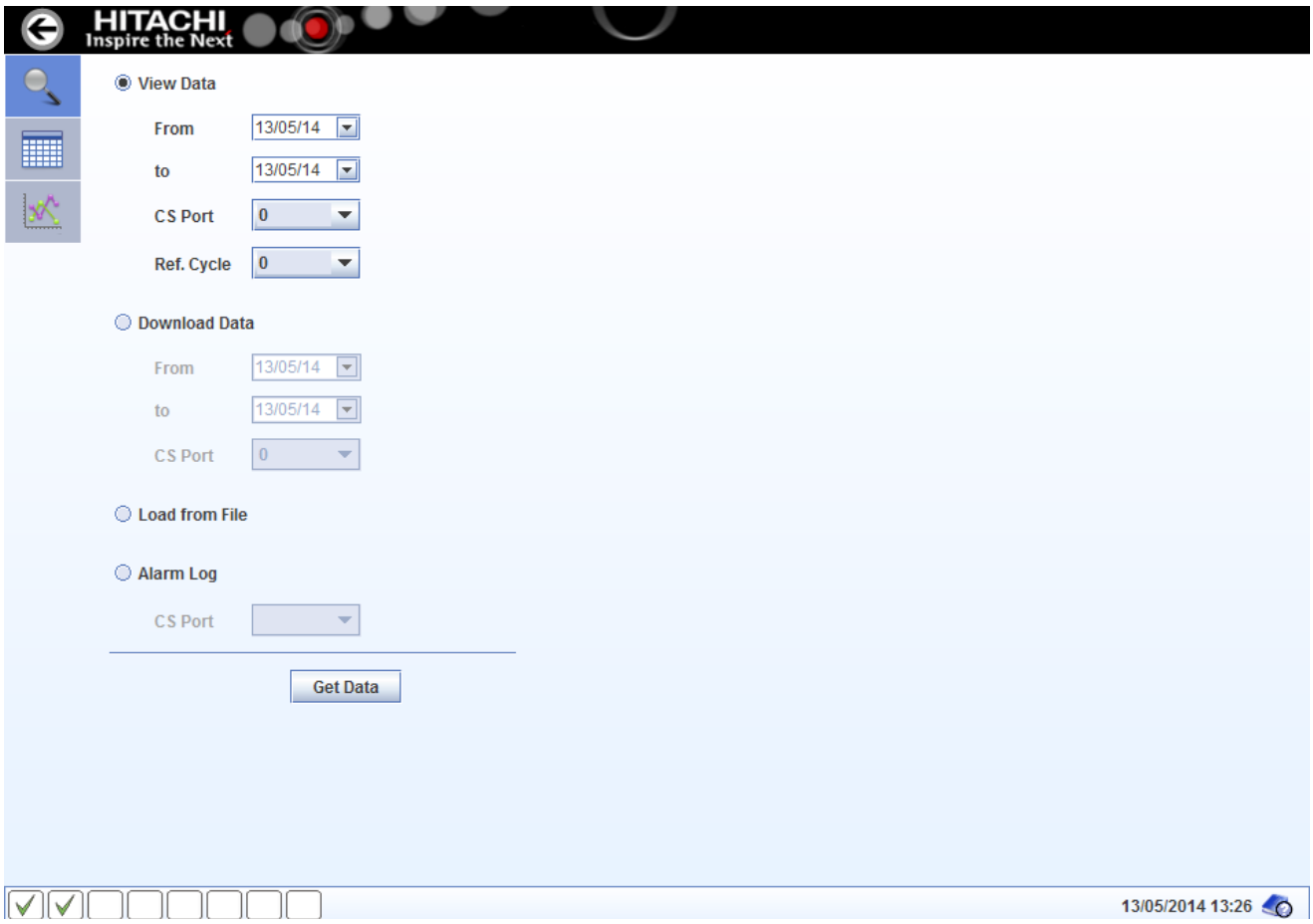


◆ Historical data



CSNET Manager automatically stores an operating record for all the units in the system. These data can be downloaded locally or displayed (both from the data previously stored locally and the data obtained from the system).

- Displaying historical data
- Downloading historical data



Displaying historical data

CSNET Manager allows you to save a history of data from all the machines connected to the H-Link.

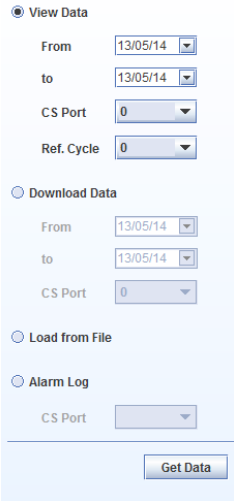
It also displays the information in two different formats:

- Data in the form of a table, which can be exported in text format; and
- Data in graph format, which can be used to generate graphics for display.

To obtain historical data:

1 Select **View data.**
2 Select starting date (from).
3 Select end date (to).
4 Select unit to display:
- CS Port and Ref Cycle

5 Press the **Get data** button.



To download data to disk:

1 Select **Download data.**
2 Select starting date (from).
3 Select end date (to).
4 Select CS Port.
5 Press the **Get data** button.

A window will appear letting you select the folder in which to save the files.

- File format

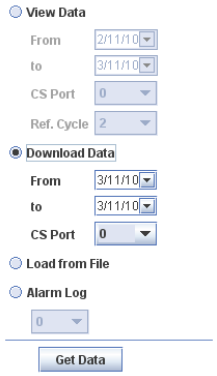
When the historical data are downloaded, one file is written per outdoor unit. The file name will be **hvv00nn,** where:

- **vv** is the version selected:

  02 earlier version (CSNET v8)

  03 new version (CSNET Manager/CSNET WEB)

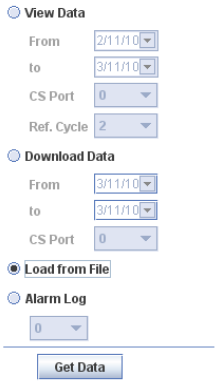
- **nn** is the number of the outdoor unit.



To get data from file:

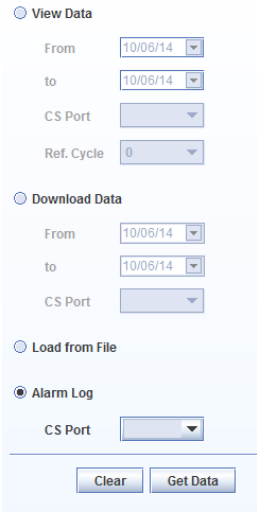
CSNET Manager allows to display data from a previously saved file. Load data is done by clicking **Get Data** button and selecting the corresponding file. When data loading is finished, this data are normally displayed.

1 Select **Load from file.**
2 Press the **Get data** button.
3 Windows screen will open in order to select the path and file. Select open (or cancel) according to your needs.



Alarm log

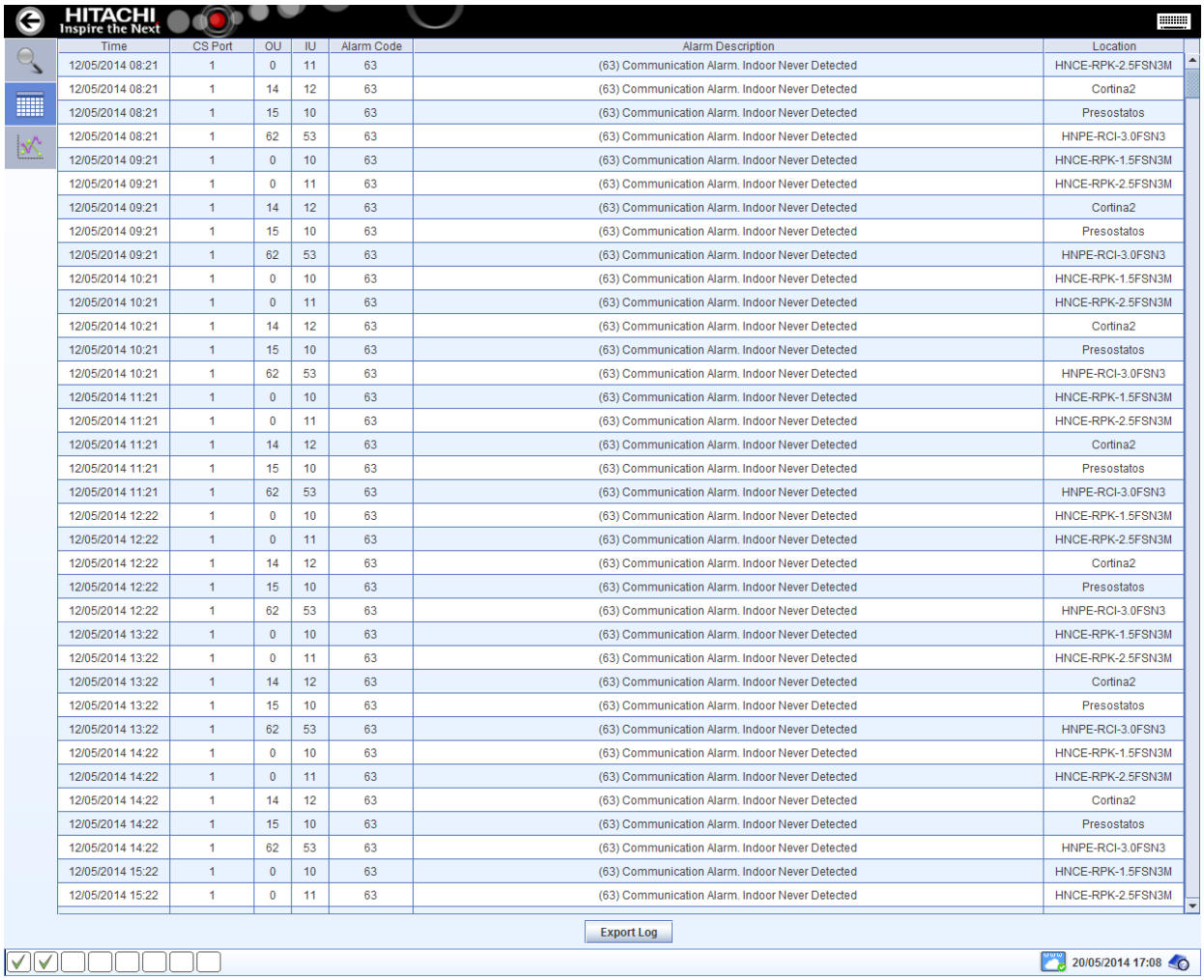
CSNET Manager also saves the most important alarm events occurred during the lifetime of the installation.



Clear button erase the alarm history.

To visualize the alarms, click on the **Alarm Log** tab, and next press the **Export log** button, which is in the centre bottom of the window. This may take several seconds. When the operation is over, a table as in the example will appear.

The format of the table is the same as the format of the file which is described below.



Time	CS Port	OU	IU	Alarm Code	Alarm Description	Location
12/05/2014 08:21	1	0	11	63	(63) Communication Alarm. Indoor Never Detected	HNCE-RPK-2.5FSN3M
12/05/2014 08:21	1	14	12	63	(63) Communication Alarm. Indoor Never Detected	Cortina2
12/05/2014 08:21	1	15	10	63	(63) Communication Alarm. Indoor Never Detected	Presostatos
12/05/2014 08:21	1	62	53	63	(63) Communication Alarm. Indoor Never Detected	HNPE-RCI-3.0FSN3
12/05/2014 09:21	1	0	10	63	(63) Communication Alarm. Indoor Never Detected	HNCE-RPK-1.5FSN3M
12/05/2014 09:21	1	0	11	63	(63) Communication Alarm. Indoor Never Detected	HNCE-RPK-2.5FSN3M
12/05/2014 09:21	1	14	12	63	(63) Communication Alarm. Indoor Never Detected	Cortina2
12/05/2014 09:21	1	15	10	63	(63) Communication Alarm. Indoor Never Detected	Presostatos
12/05/2014 09:21	1	62	53	63	(63) Communication Alarm. Indoor Never Detected	HNPE-RCI-3.0FSN3
12/05/2014 10:21	1	0	10	63	(63) Communication Alarm. Indoor Never Detected	HNCE-RPK-1.5FSN3M
12/05/2014 10:21	1	0	11	63	(63) Communication Alarm. Indoor Never Detected	HNCE-RPK-2.5FSN3M
12/05/2014 10:21	1	14	12	63	(63) Communication Alarm. Indoor Never Detected	Cortina2
12/05/2014 10:21	1	15	10	63	(63) Communication Alarm. Indoor Never Detected	Presostatos
12/05/2014 10:21	1	62	53	63	(63) Communication Alarm. Indoor Never Detected	HNPE-RCI-3.0FSN3
12/05/2014 11:21	1	0	10	63	(63) Communication Alarm. Indoor Never Detected	HNCE-RPK-1.5FSN3M
12/05/2014 11:21	1	0	11	63	(63) Communication Alarm. Indoor Never Detected	HNCE-RPK-2.5FSN3M
12/05/2014 11:21	1	14	12	63	(63) Communication Alarm. Indoor Never Detected	Cortina2
12/05/2014 11:21	1	15	10	63	(63) Communication Alarm. Indoor Never Detected	Presostatos
12/05/2014 11:21	1	62	53	63	(63) Communication Alarm. Indoor Never Detected	HNPE-RCI-3.0FSN3
12/05/2014 12:22	1	0	10	63	(63) Communication Alarm. Indoor Never Detected	HNCE-RPK-1.5FSN3M
12/05/2014 12:22	1	0	11	63	(63) Communication Alarm. Indoor Never Detected	HNCE-RPK-2.5FSN3M
12/05/2014 12:22	1	14	12	63	(63) Communication Alarm. Indoor Never Detected	Cortina2
12/05/2014 12:22	1	15	10	63	(63) Communication Alarm. Indoor Never Detected	Presostatos
12/05/2014 12:22	1	62	53	63	(63) Communication Alarm. Indoor Never Detected	HNPE-RCI-3.0FSN3
12/05/2014 13:22	1	0	10	63	(63) Communication Alarm. Indoor Never Detected	HNCE-RPK-1.5FSN3M
12/05/2014 13:22	1	0	11	63	(63) Communication Alarm. Indoor Never Detected	HNCE-RPK-2.5FSN3M
12/05/2014 13:22	1	14	12	63	(63) Communication Alarm. Indoor Never Detected	Cortina2
12/05/2014 13:22	1	15	10	63	(63) Communication Alarm. Indoor Never Detected	Presostatos
12/05/2014 13:22	1	62	53	63	(63) Communication Alarm. Indoor Never Detected	HNPE-RCI-3.0FSN3
12/05/2014 14:22	1	0	10	63	(63) Communication Alarm. Indoor Never Detected	HNCE-RPK-1.5FSN3M
12/05/2014 14:22	1	0	11	63	(63) Communication Alarm. Indoor Never Detected	HNCE-RPK-2.5FSN3M
12/05/2014 14:22	1	14	12	63	(63) Communication Alarm. Indoor Never Detected	Cortina2
12/05/2014 14:22	1	15	10	63	(63) Communication Alarm. Indoor Never Detected	Presostatos
12/05/2014 14:22	1	62	53	63	(63) Communication Alarm. Indoor Never Detected	HNPE-RCI-3.0FSN3
12/05/2014 15:22	1	0	10	63	(63) Communication Alarm. Indoor Never Detected	HNCE-RPK-1.5FSN3M
12/05/2014 15:22	1	0	11	63	(63) Communication Alarm. Indoor Never Detected	HNCE-RPK-2.5FSN3M

Auto save configuration

The chapter *"6.2.4.5 Local software configuration"* shows how to access the software settings. The alarm log function also allows you to keep an updated copy of the log in your computer.

To activate this option:

- Mark the selection box.
- Indicate the folder in which you want to save the file. The button to the right of the text window opens the navigation window so that you can select the folder.
- Select the file version (see the next point *"File format"*).

The resulting file (errYY.txt, where YY are the two figures indicating the year) is updated every minute.

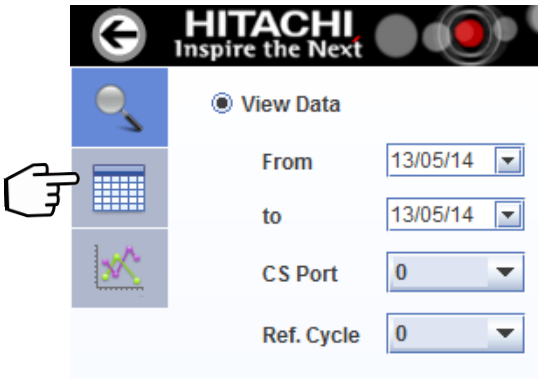
- File format

The CSNET and CSNET Manager/WEB versions contain the same data. An option to choose the version has been added to ensure future compatibility.

The alarm file format is as follows:

	Port	OU	IU	Alarm code	Description	Alarm
1.9.2006 14:20	0	10	2	11	(11) IU Sensor: Inlet air thermistor	FSN 2
1.9.2006 14:31	0	10	2	11	(11) IU Sensor: Inlet air thermistor	FSN 2
1.9.2006 14:45	0	10	2	11	(11) IU Sensor: Inlet air thermistor	FSN 2
1.9.2006 14:53	0	10	2	11	(11) IU Sensor: Inlet air thermistor	FSN 2
5.9.2006 8:39	0	10	2	11	(11) IU Sensor: Inlet air thermistor	FSN 2
5.9.2006 9:0	0	10	2	11	(11) IU Sensor: Inlet air thermistor	FSN 2
5.9.2006 9:51	0	2	0	61	(61) Communication error. Indoor unit no longer communicates	Utopia Big 1
5.9.2006 9:51	0	2	1	61	(61) Communication error. Indoor unit no longer communicates	Utopia Big 2
5.9.2006 9:51	0	2	2	61	(61) Communication error. Indoor unit no longer communicates	Utopia Big 3

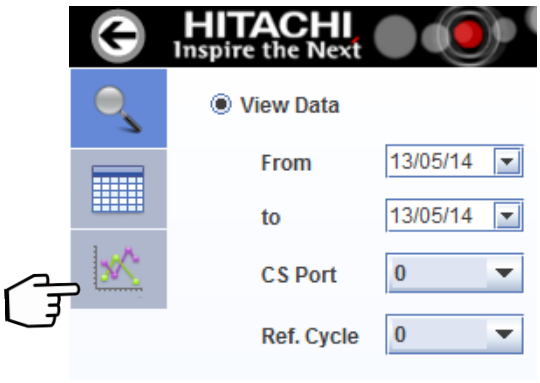
Values table for packaged units



Identifier of the type of file:		
		<Type=Version; 3 or 2>
Temporary identification and module:		
		<Year> <Month> <Day> <Hour> <Minutes>
		<CS Port> <OU Number> <IU Number>
Adjustment of the indoor unit (CSNET Manager):		
	Central:	<Central=1/Local=0>
	Set Mode:	<Adjustment of the operation mode: FAN=0, COOL=1, DRY.=2, HEAT=3, AUTO=4>
	Set Fan:	<Adjust the fan speed (not Utopia): LOW=2, MEDIUM=3, HIGH=4>
	Set Swing L:	(Swing Louver)<Adjust swing louver: Position = 0-6, AUTO=7>
	ON/OFF:	<On=1/off=0 adjustment>
	Tset:	<Setting temperature in ºC>
Communication:		
	Alarm:	<Error code>
	Comp.Stopped:	<Cause of compressor stop>
	Valid:	<Valid data>
		Bit 0=1 (value 1): The data read from the indoor unit are valid except for the opening of the expansion valve and operating state
		Bit 0=1 (value 2): (not Utopia): The data of the expansion valve opening of the indoor unit are valid
		Bit 0=1 (value 4): (not Utopia): The data on the operating condition of the indoor unit are valid
		Bit 3=1 (value 8): (not Utopia): The data on the outdoor unit are valid, the total should be 15 for SET FREE and 1 for UTOPIA
Readings for the indoor unit:		
	Mode:	<IU: Reading of the operating mode (not Utopia): FAN=0, COOL=1, DRY=2, HEAT=3>
	Fan:	<IU: Reading of the fan speed (not Utopia): STOP=0, SLOW=1, LOW=2, MEDIUM=3, HIGH=4>
	Status:	<IU: Reading of the operating condition: STOP=0, THERMO ON=1. THERMO OFF=2, ALARM=3>
	Swing L:	<IU: Reading of the swing louver: POSITION=0-6, AUTO=7, NOT AVAILABLE=8>
	IU Hz:	<IU: Reading of the required frequency>
	Ti:	<IU: Reading of air inlet temperature in ºC>
	To:	<IU: Reading of air outlet temperature in ºC>
	IncT:	<IU: Reading of the absolute value of the inlet-outlet temperature in ºC>
	Tg:	<IU: Reading of gas piping temperature in ºC>
	Tl:	<IU: Reading of liquid piping temperature in ºC>
	TRem:	<IU: Reading of the thermistor temperature in ºC> *1
	Tset Read:	<IU: Reading of setting temperature in ºC>
	iE:	<IU: Reading of % opening of the expansion valve > (% x 1000 in version 2)

Readings for the outdoor unit:		
	Puls (Pulse):	<OU: Impulses of the expansion valve of the IU requested>
	Ou Mode:	<OU: Operation mode: HEAT=0, COOL=1, DRY=2, STOP=3>
	Ta:	<OU: Ambient temperature in ºC>
	Td:	<OU: Discharge gas temperature in ºC>
	Te:	<OU: Evaporation temperature in ºC>
	Nº Comp:	<OU: Number of compressors in operation>
	Pd:	<OU: Pressure of discharge gas (not Utopia)>
	Ps:	<OU: Suction pressure (not Utopia)>
	Amps:	<OU: Value of total compressor consumption, a stepped series is used for FX units>
	Hz:	<OU: Frequency of compressor in Hz (not Utopia)>
	OE1:	<OU: % opening of the expansion valve 1 (not Utopia)> (% x 1000 in version 2)
	OE2:	<OU: % opening of the expansion valve 2 (not Utopia)> (% x 1000 in version 2)
	OE3/oEb:	<OU: % opening of the expansion valve 3 or b (only set-free 3 tubes)> (% x 1000 in version 2)

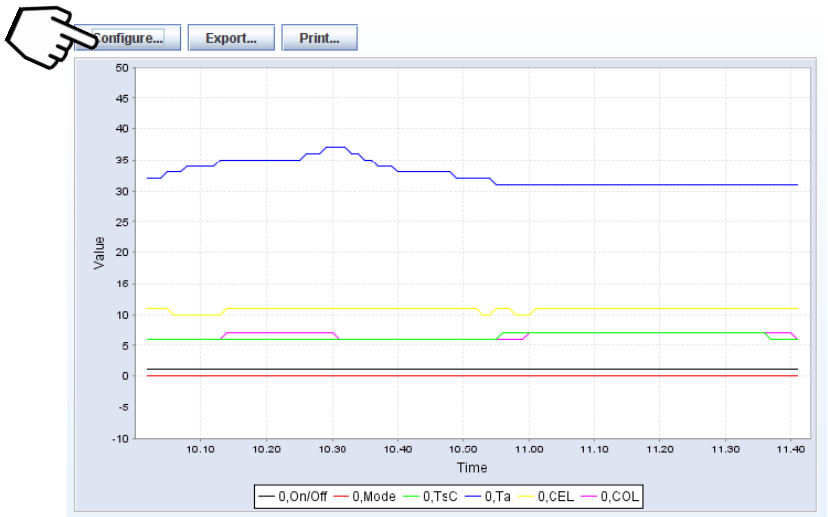
Operation of the graph



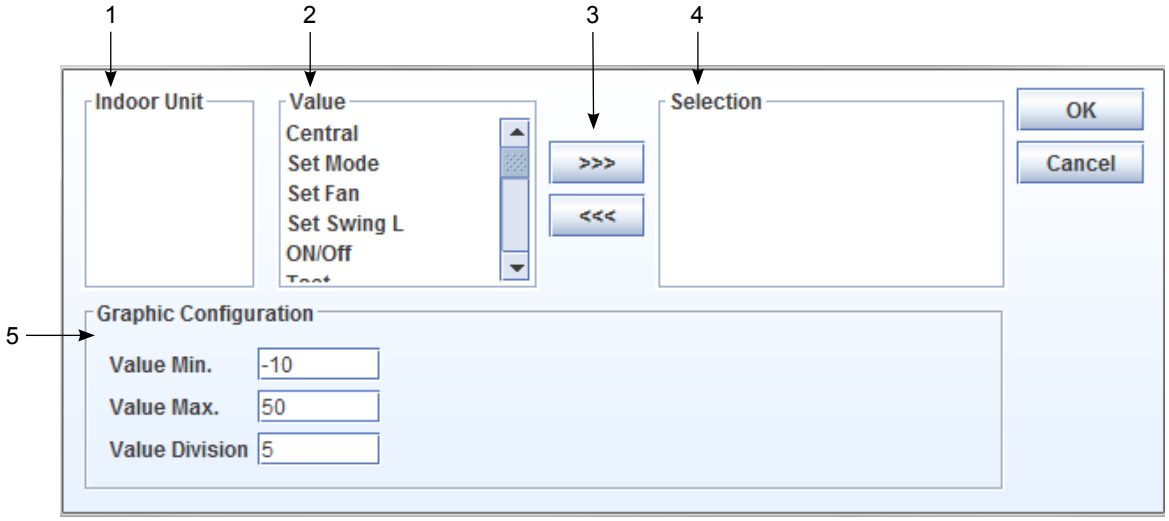
Data can only be displayed in periods of one day, although they may be downloaded for greater time ranges. Select the day to be displayed in the “Day” field.

To change the display to graph mode, select the **Graph** tab on the display panel.

Select the configuration of the graph pressing on **Configure...**.



The graph configuration window has several fields:



1 **Indoor unit**: Select the address of the indoor unit to be displayed.
2 **Value**: Contains the different values that can be displayed for the unit or cycle. See section on *"Values table for packaged units"* for an explanation of each parameter.
3 **Selection buttons**: Permit the addition or the elimination of a series (unit + value) of the display.
4 **Selection**: Series to display.
5 **Graph configuration**: Permits the configuration of the graph display. The "Value min" field permits the selection of the minimum on the Y axis and the "Value max" field permits the selection of the maximum on the Y axis. "Value division" establish the intervals between lines.

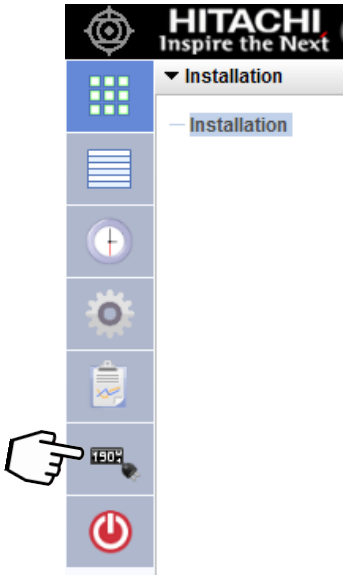
To generate a graph:

- Select the unit (indoor unit or cycle) you wish to add to the series.
- Select the value for the unit you wish to add.
- Press the ">>>" button to add the selection to the series list.
- Repeat steps 1 to 3 to add the different series required on the list. To delete a selected series, select the series list and press the ">>>" button.
- Configure the graph as required.
- Press "OK" to update and return to CSNET Manager.

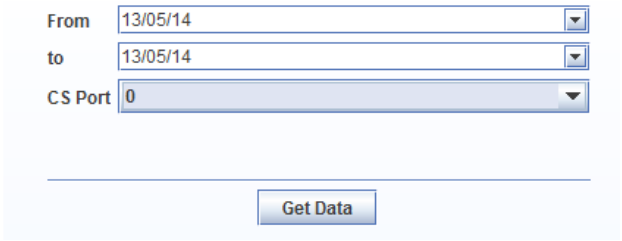
Use the lower scroll bar to select the day. Change the day in the **Day** field.

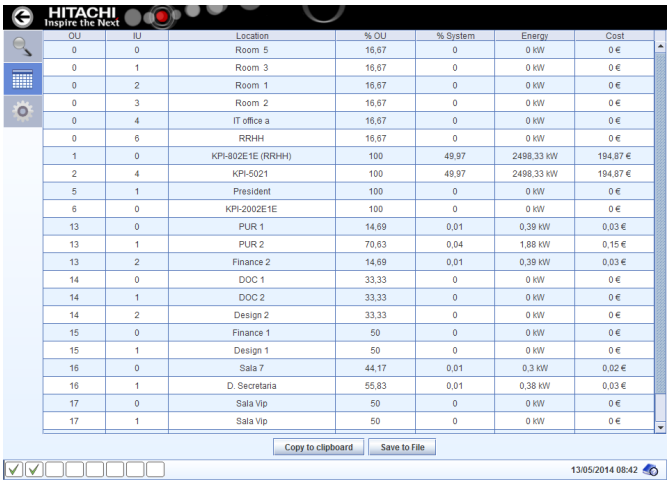
The **Export** button permits the capture of a graphic in JPG format. The **Print** button permits the graph to be printed.

◆ Power consumption



CSNET Manager saves and calculates the percentage of energy consumption of each indoor unit compared to the outdoor units, so that the user can consult the level of consumption at any time.





The window is divided into three parts:

1 The upper part allows you to choose the options you want to consult.
2 The central part shows the results of the consultation.
3 The bottom part offers options of saving the results and exiting.

To carry out a consultation:

1 Indicate the starting and finishing dates for which CSNET Manager will carry out the calculations. These dates can be chosen in the timer which appears by clicking on the arrow to the right of the date.
2 Click on the **Get data** button.
3 The results of the consultation will appear in the central part as a table.
4 To save the results of the consultation click on the **Save to File** button.

Packaged

To get the data of power consumption for Packaged units, enter the date interval and click the **Get Data** button.

Select on the table the outdoor units to be included on the calculation

A table will appear with different information.

OU	IU	Location	% OU	% System	Energy	Cost
0	0	Room 5	16,67	0	0 kW	0 €
0	1	Room 3	16,67	0	0 kW	0 €
0	2	Room 1	16,67	0	0 kW	0 €
0	3	Room 2	16,67	0	0 kW	0 €
0	4	IT office a	16,67	0	0 kW	0 €
0	6	RRHH	16,67	0	0 kW	0 €
1	0	KPI-802E1E (RRHH)	100	49,97	2498,33 kW	194,87 €
2	4	KPI-5021	100	49,97	2498,33 kW	194,87 €
5	1	President	100	0	0 kW	0 €
6	0	KPI-2002E1E	100	0	0 kW	0 €
13	0	PUR 1	14,69	0,01	0,39 kW	0,03 €
13	1	PUR 2	70,63	0,04	1,88 kW	0,15 €
13	2	Finance 2	14,69	0,01	0,39 kW	0,03 €
14	0	DOC 1	33,33	0	0 kW	0 €
14	1	DOC 2	33,33	0	0 kW	0 €
14	2	Design 2	33,33	0	0 kW	0 €
15	0	Finance 1	50	0	0 kW	0 €
15	1	Design 1	50	0	0 kW	0 €
16	0	Sala 7	44,17	0,01	0,3 kW	0,02 €
16	1	D. Secretaria	55,83	0,01	0,38 kW	0,03 €
17	0	Sala Vip	50	0	0 kW	0 €
17	1	Sala Vip	50	0	0 kW	0 €

Meaning of the table fields:

OU: number of the outdoor unit. Number between parenthesis indicates that booth outdoors are the same and we are using the virtual address to differentiate it.

IU: number of the indoor unit.

Location: description of the machine. This value corresponds to the description field of the configuration of indoor unit.

%OU: indoor unit consumption percentage in relation to its outdoor unit power consumption.

%System: indoor unit consumption percentage in relation to all the installation power consumption.

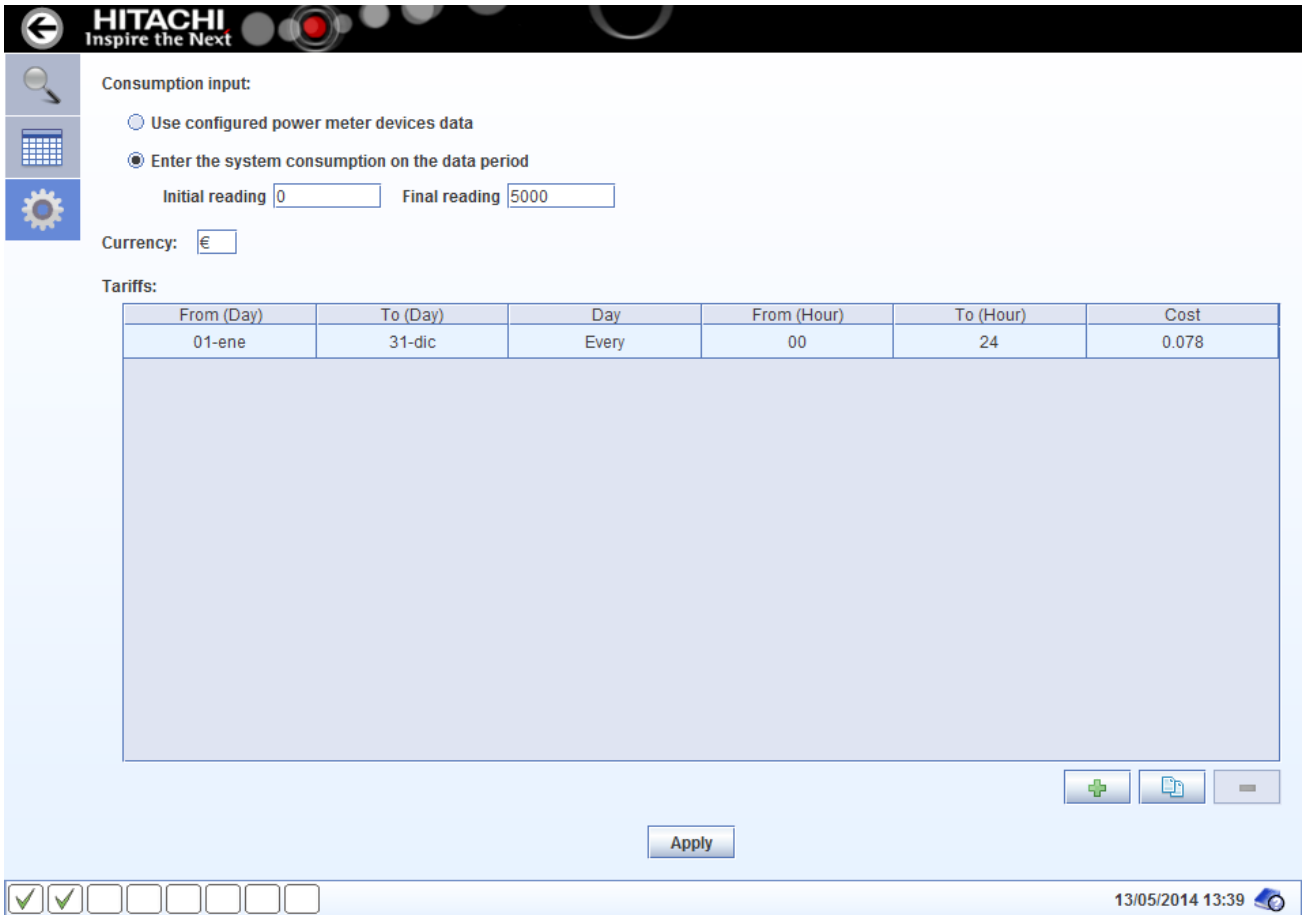
Energy: When power meter devices are connected, CSNET Manager is able to show the energy consumed by the unit.

Cost: cost related to the energy consumed based on configured tariffs prices.

Save to file button permits the data to be normally saved. The path folder and file name will be requested.

Configuration

The cost calculated for each indoor unit is based on tariffs specified on the CSNET Manager.



There are two different systems to define the source of the consumed energy:

- **Use configured power meter devices data:** in case of having power meter devices related to the units, the energy consumed per each indoor unit will be calculated based on the information provided by these devices.
- **Enter the system consumption on the data period:** in case of entering manually the consumption of the system in the desired period, user enters the input reading data at the beginning and at the end of the period.

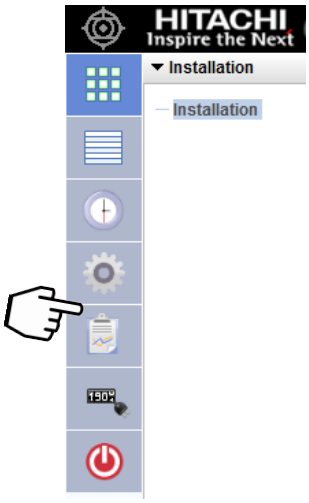
Current currency can also be specified.

The tariff table lets the user to set different time periods within a day with a related cost.

NOTE

The unit of measurement of the cost of a tariff period is the same than the input data reading. In case of using power meter device, the unit of measurement should be the same than the specified on the power meter device configuration.

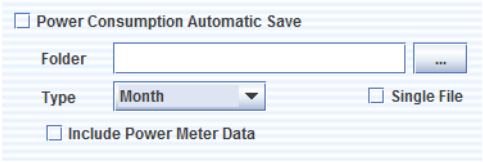
Auto save configuration



The chapter *"6.2.4.5 Local software configuration"* shows how to access the software settings. The power consumption function allows you to generate automatically a detailed report of the daily consumption of the installation.

To activate this option:

- Mark the selection box.
- Indicate the folder in which you want to save the file. The button to the right of the text window opens the navigation window so that you can select the folder.
- Select the type of power consumption:
  - **Month:** Each day stores on a monthly file the values accumulated for the units since the first day of the month.
  - **Day:** Each day stores on a monthly file the values of the power consumption of the current day.



- Selecting single file option it will also store in the folder a unique file with the power consumption. This file will have the power consumption of each day registered.
- Including power meter data adds a column with energy values.

The auto save operates every day at 00:00. It stores a monthly file with the monthly accumulated or the daily power consumption.

If the Single file option is activated, it will also store the daily power consumption in the single file.

File name is m1_YYYYMM.txt. YYYY means the year and MM the month.

For the single file, the name is **power_log.txt** for Package.

- File format

The file format saved has different columns separated by the tab character. The meaning of those columns for the packaged file is:

Year	Month	Day	CS Port	OU	IU	Location	%OU	%System

In case of including power meter data, the file format is:

Year	Month	Day	CS Port	OU	IU	Location	%OU	%System	Energy

In the case of manual saving, a row is added at the beginning with the meaning of each field, but this does not occur when automatically saving.

The automatic save must be selected from the *"6.2.4.5 Local software configuration"* section as explained earlier.

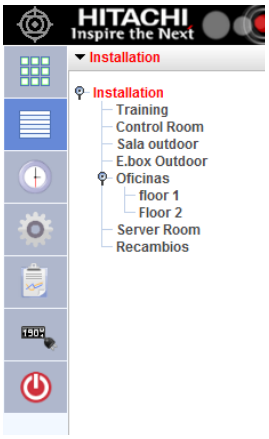
The **Save to file** button permits the data to be manually saved.

6.2.4.7 Operation with slave CSNET Managers

One CSNET Manager can read units from another CSNET Manager. This second CSNET Manager could have more than one devices configured, this means that to keep an unique identifier of the units, CSNET Manager show the CS Port as follow:

[Slot on the current CSNET Manager].[Slot inside the remote CSNET Manager]

On the following image we can see an example of that:



This addressing is used along the screens to make easy to identify the remote units.

Not all the functions can be managed through a remote CSNET Manager, the following table shows which ones can be done:

	Display data from remote CSNET Manager	Modified to remote CSNET Manager	Work locally with CSNET Manager remote units
IU Table/ IU Matrix – send orders	O	O	O
Building Layout with File	X	X	X
Timer	X	X	O
Historical data	O	-	-
Power consumption	O	-	-
Web	O	O	-
Mail alarm	X	X	O
Fidelio	X	X	O
Modbus Server	X	X	O
Unit configuration	O	O	X
Auto C/H	O	O	X
Fan stop heating	O	O	X
Cold Draft	O	O	X
OU options	O	O	X
Power meter	X	X	X

O = available, X = not available, - = do not apply

NOTE

A combination of one CSNET Manager and one HC-A64NET is who controls the units. In case of a remote CSNET Manager viewing another one, it never should be stopped the CSNET Manager – HC-A64NET that owns the Indoor units.

6.2.4.8 Interface utilities

◆ Status bar

The status bar is on the bottom of the screen and indicates the date & time of the CSNET Manager on the right side, and on the left it has one icon for each slot devices that shows the current state of each device. At the left of the date & time, it could appear a notification of new software updates, on the right we can found an icon that opens the software documentation.

ICON	HARC STATUS
	Not configured
	Connected and synchronized
	Communication error
	Sending information
	Time and date are not synchronized
	Asking for synchronization
	Synchronizing data
	Doing auto configuration
	There are software updates for that HARC
	Device version error
	User/password error when connecting

Setting the mouse over the icon it will give more information about the HARC.

NOTE

Auto-configuration indication will grow following the percentage of auto-configuration task that is currently done.

Status bar informs about general functions that are currently being executed by the software.

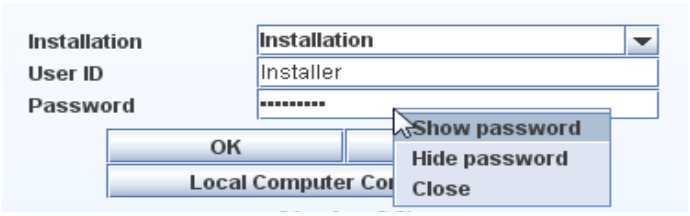
Those icons meaning is explained on the following table.

ICON	NOTIFICATION	ICON	NOTIFICATION
	Auto power consumption file storage is currently activated.		Mail alarm error sending.
	Web server is running without problems		Mail alarm is sending an email.
	Web server is running but it has some communication problems.		Power meters are configured and enabled.
	Fidelio data is configured and working.		Problem communicating with Power Meters.
	Fidelio data is configured but it is not working.		There are updates available for CSNET Manager software
	Mail alarm is running.		Open the operation documentation file for helping the user to find extended information about the product.

◆ Password visualisation

On each password field it could exist the option to enter this password viewing the keys typed.

By default password will be hide, but if user does not know what is typing wrong, he can click with right button of the mouse and it will appear a pop-up menu that will give the option to show or hide the password data.



In case that user presses “show password” option, the current password will be deleted due to keep a strong security, and from that moment password typing will be visible.

Next times that user will enter to these windows, the password will be always hidden to the user.

◆ Configuration of the backup copy

Maintenance of CSNET Manager has improved, and allows a backup copy to be made of the current configuration. If CSNET Manager has to be replaced, the backup copy of the configuration file would restore the configuration of the new CSNET Manager.

NOTE

The passwords are not stored in the backup copy. They have to introduced again manually.

◆ Register of alarms

Maintenance of the installation has been improved with the introduction of a register of alarms. The data show a detailed description of what happened for each alarm which has been produced. The information can be analysed from CSNET Manager or exported to a text file for later analysis.

◆ Download of historical data

CSNET Manager lets you download the historical data starting with a particular date.

The historical data can be stored in the new CSNET Manager format or in a format compatible with previous versions of CSNET.

CSNET Manager stores up to 50 MB of compressed historical data. Depending on the installation and connection this option may take a few minutes.

50 MB of compressed data can store approximately the data of an installation of 128 indoor units for 3 months.

◆ Auto save of the error registry

From the software adjustment window, you can configure the error registry to be saved automatically in the remote computer when there is an error.

◆ Auto save of the power consumption

From the software adjustment window, you can configure the power consumption file to be saved daily in the remote computer.

◆ Automatic updates

The CSNET Manager software and the interface software can be updated online after configuring the internet connection. That option allows latest updates without having the last version of the USB.

Otherwise, the CSNET Manager interface can be updated using the latest version of the USB CSNET Manager.

◆ Cold draft

In VRF systems, when load is very low and only few units are working in a system, it is possible that discharge air temperature is reduced below comfort value. With this option, HITACHI improves comfort for these situations by setting unit to Thermo OFF when discharge air temperature is below comfort temperature and set unit again to Thermo ON when

temperature will be again inside comfort range.

◆ H-LINK II

CSNET Manager is compatible with new version of the Hitachi communication protocol H-LINK II. The software still operates with old protocol version.

◆ RCS Web

RCS Web is a reduced CSNET Manager for Packaged that allows controlling only the remote control functions. It is user friendly and easy to use due to its virtual remote controller appearance.

◆ Automatic Building Layout

CSNET Manager is supplied with a Building Layout editor that let the user to customize their Building Layout view. Although if the Building Layout file is not created, CSNET Manager automatically creates a layout view following the tree organization created on the HARC.

◆ Compatibility with Central Stations

PSC-A160WEB1 is compatible with PSC-A64GT & PSC-A64S Central Stations but with some restrictions with RCS sensor and liquid and gas temperature variables.

◆ Web Server

CSNET Manager software can run as a web server that lets users to configure setting for the user allowed units.

With that, users can send orders without installing CSNET Manager software, from their computer or smartphone.

◆ Power consumption costs inputs

Power Consumption lets to configure the energy cost within different time periods. With this defined energy costs, CSNET Manager shows an estimated cost per indoor unit.

◆ Optimised interface

CSNET Manager graphical interface has been designed to use better the available space on the screen. Panels like area tree or system status can be shown/hide to make bigger the units data table.

◆ Outdoor control

CSNET Manager let user set up “Night mode” and “power control” options on the outdoor.

◆ HC-A64NET Search

CSNET Manager can found existing HC-A64NET devices on the same LAN by broadcast message.

◆ New Timer

CSNET Manager includes a new timer that beats the old CSNET WEB limitation of 4 years.

New timer system is using a new smart system of patterns and exceptions.

- Pattern: defines the operations to apply in a period for the selected days of the week.
- Exception: applies defined operations for a specific day, month and/or year.

NOTE

When CSNET Manager is connected to a CSNET WEB, CSNET Manager transfers only the information of the following 4 years to the CSNET WEB.

6.2.5 Extras

6.2.5.1 Customization and configuration of Building Layout

Building Layout option allows to use a schema of your installation, showing you the installation information in a more friendly view. It will make easy to manage your installation.

To create a Building layout file you must to start the Building Layout editor application. This application is provided in your CSNET Manager installation CD-ROM.

There are two concepts that you must know before start the Building layout creation:

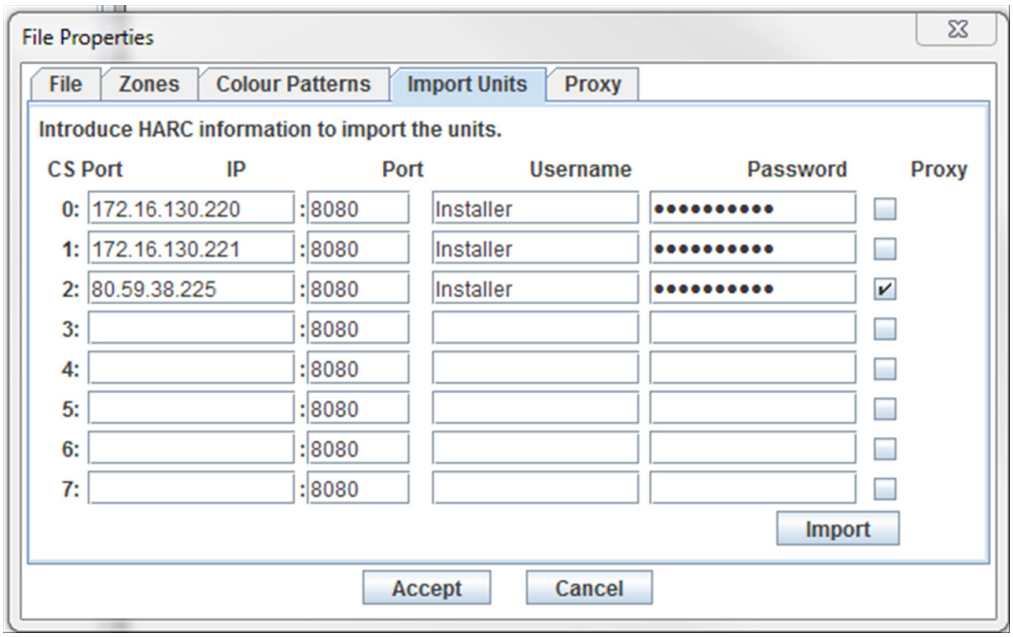
- Shape: marks the area of a unit or a zone.
- Zone: is a slide that contains different shapes.

Building Layout Editor has five zones:

1 Tree: shows you the installation topology and allow the fast movement of zones.
2 Menu Bar: has general options of actions that you can do.
3 Tool Bar: has navigation and zoom buttons.
4 Edition zone: interface to create the shapes inside a zone.
5 Status Bar: has information of state of program.

◆ Import units from CSNET Manager

In order to make easy your layout creation you can import the current units of the CSNET Manager. To do this, you have to open the option file properties and select the Import units tab



On this tab you must enter the IP, port, user and password from one CSNET Manager to get the units existing on the data files.

If you need to pass through a proxy to connect with one CSNET Manager you must set the check box of column proxy and after go to the proxy tab and set the proxy configuration:

⚠ CAUTION

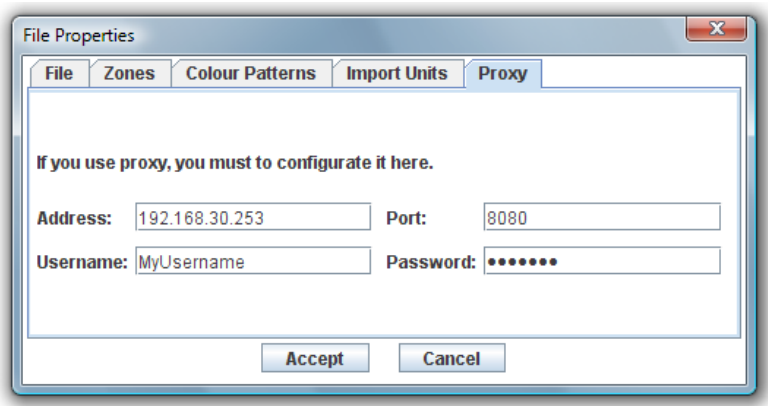
When you configure your installation on CSNET Manager you must use the same order of HARCS than here. If you change this order the port number of the units will be different and layout will consider these units as other ones

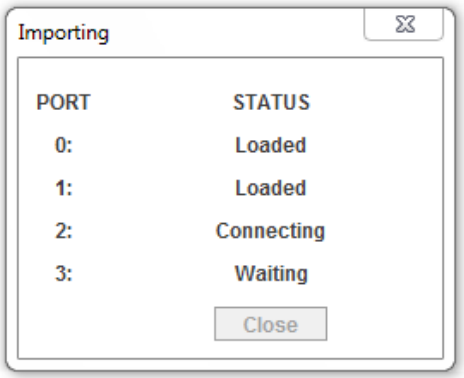
When you click import, Building Layout will use these files to load the unit's information and next window will appear

This dialog will show you the state of each import action.

After end the importation process, you can find the units on the shape dialogue clicking on option load.

Making this you can forget to write manually the information of each unit, and you only have to select which unit is on a list.





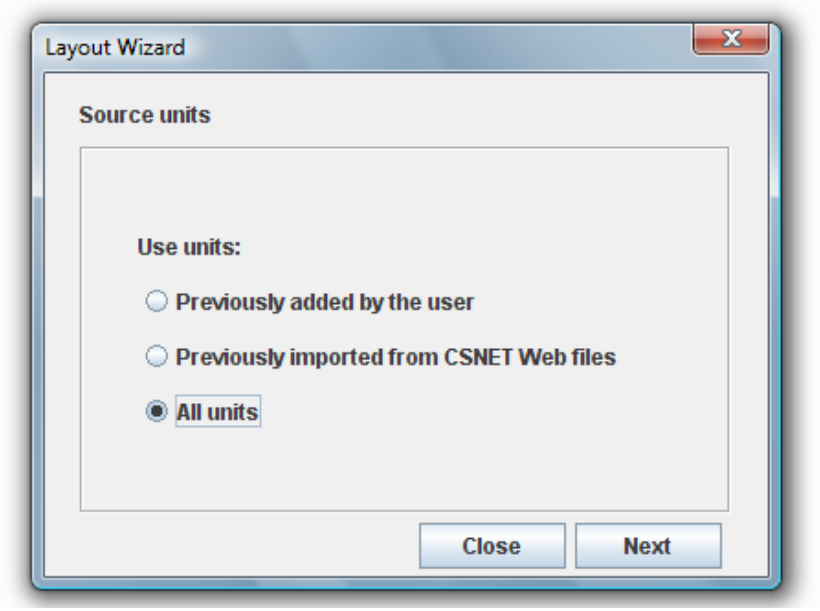
◆ Create Building Layout file using wizard option

In order to make easy your layout creation you can import the current units of the CSNET Manager. To do this, you have to open the option file properties and select the Import units tab.

Before creating your layout you must select the units used by the wizard function.

“Previously added by the user” means all units that user add entering values in shape edition.

Imported units are units that you can automatically import from CSNET Manager explained on the last point.

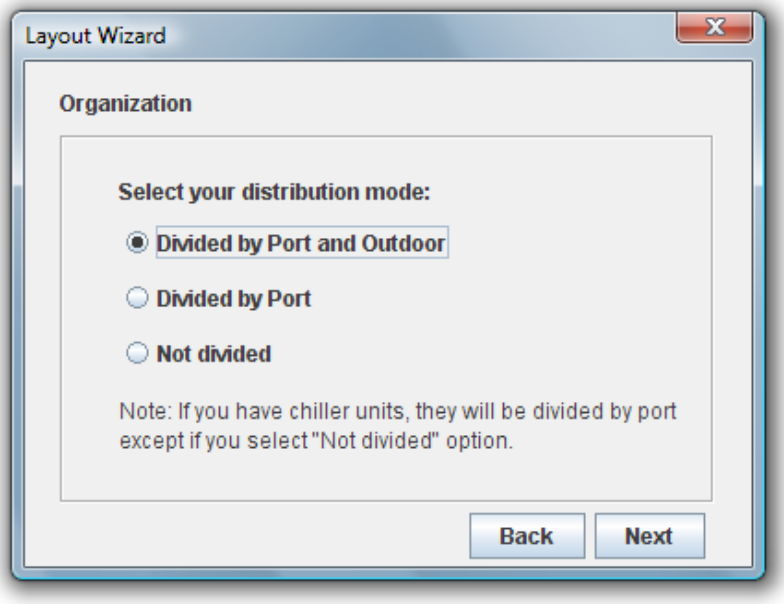


Next, you must to select how the wizard application will distribute your units.

It will create a zone for each port or port and outdoor that exists, entering inside a shape for each unit.

“Not divided” option will enter all the units in the root zone.

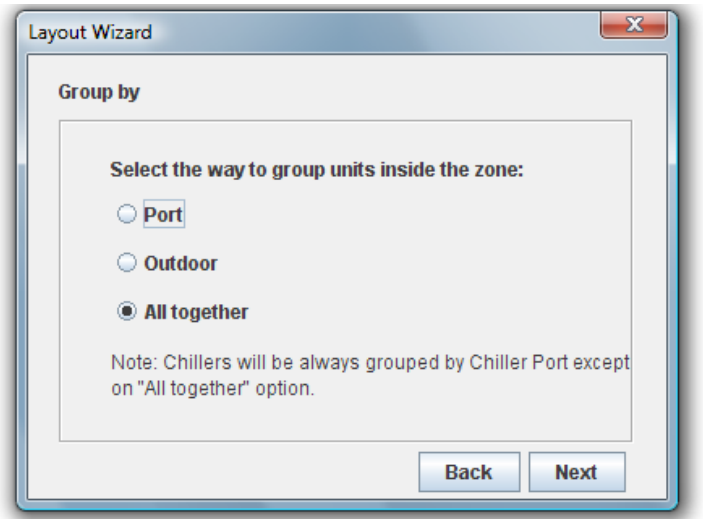
On next step you can specify the organisation of the units inside the zone.



You can group the units by port, by outdoor units or all in a same group.

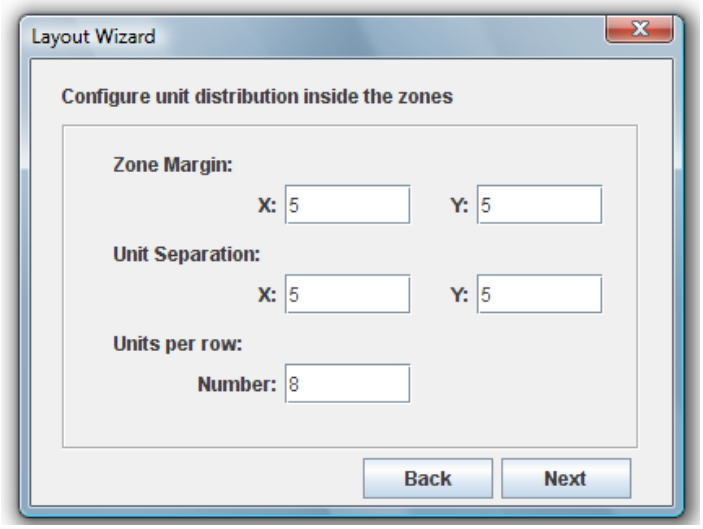
NOTE

If you distribute and group units by same option, on each zone will be only a unit.



You can choose the distribution of your units and shapes inside the zones:

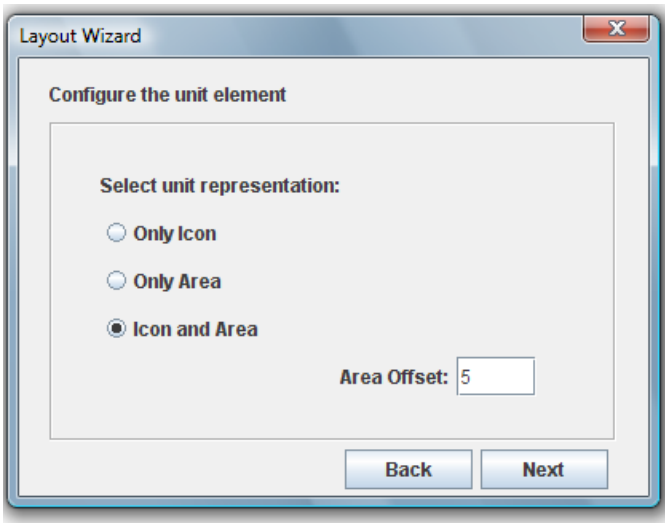
You can specify the margins with the zone, the separation between units and the number of units that you want to have on each row.



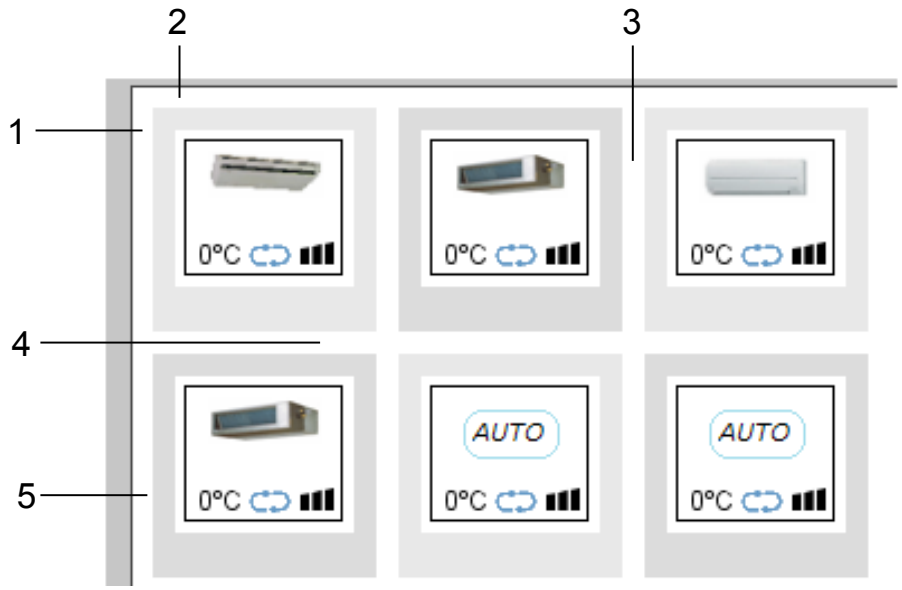
On next step you can decide how will be the units element:

Units can be only the area as a square, only the unit icon or both.

Both modes will have an area with the icon over this area. You must specify an area offset.



On next image you can see an example, applying the entered values:



1 Zone Margin X
2 Zone Margin Y
3 Unit Separation Y
4 Unit Separation X
5 Area Offset

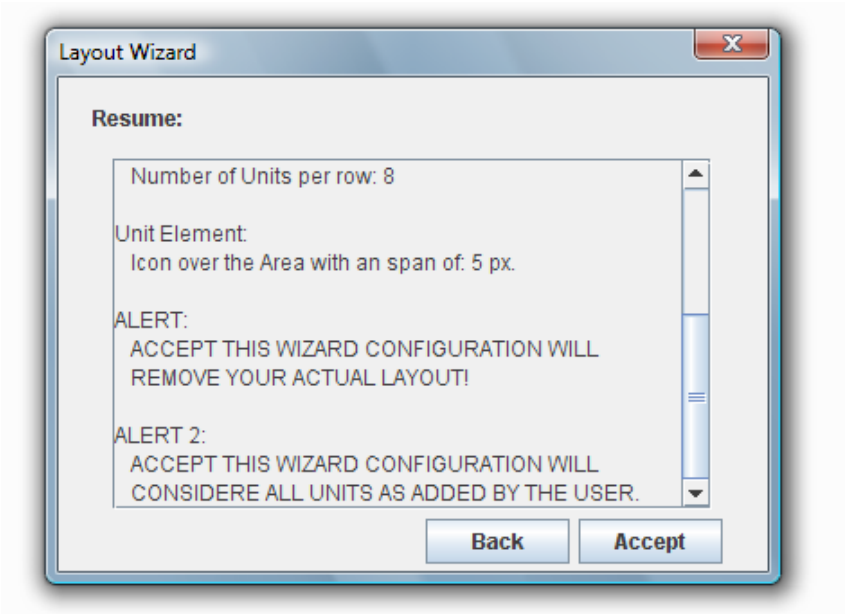
Finally, wizard dialogue will show you a resume panel with a summary of your selected options and with two alerts.

ALERT 1:

Accept this wizard configuration will remove your actual layout.

ALERT 2:

Accept this wizard configuration will consider all units as added by the user.



◆ Create Building Layout file

You can create your layout file without the wizard dialogue, but it will take more time. There are 3 important steps:

- File configuration
- Create zones
- Create shapes

This points will be explained next.

File configuration

You can configure different properties of your layout file. These properties are:

- Zones size
- Background colour
- Colour patterns
- Units source

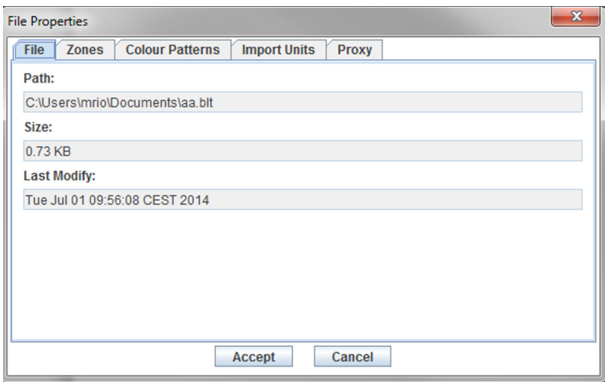
File tab shows you different information of the building layout file. This information shows the path of your Building Layout file, the size in MB and the date of last modifications.

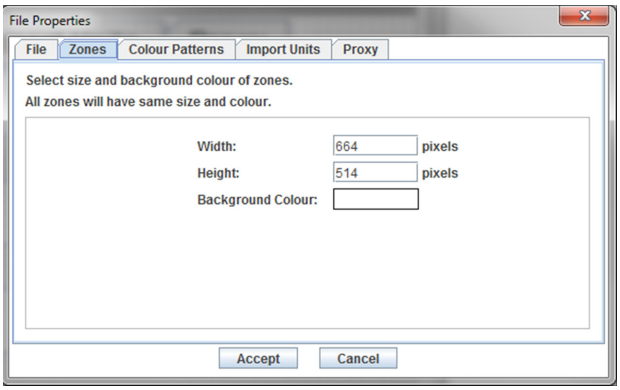
Zones size and background colour can be modified on zones tab inside the file properties dialogue.

All zones will have same sizes to ban the possibility of irregular navigation on the viewer.

Minimum zone size is 400x400 pixels and maximum zone size is 2500x2500.

Background colour will be also the same in all zones. Background colour could be useful if your background image has transparency or if you do not use background images.





Colour Patterns tab, allows you to modify the colours of the patterns. The number of patterns is fixed by the application. To change the colour of one pattern, you have to choose this pattern on combo box.

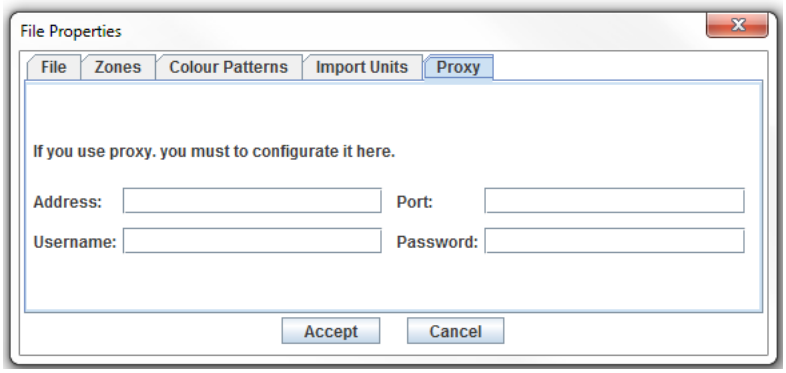
After this you will see current colours states (Inactive, Working and Alarm), to change one of them you must to click on the colour and a colour chooser dialogue will appear.

Set this colour patterns is important to the finally view of the installation because it each installation will have the colour of his state and pattern set now in the edition process.

Import units tab allows you to import units.

Proxy tab let the user to type the proxy configurations in order to be able to connect to a CSNET Manager through the proxy.

Proxy connection is useful when Building Layout Software is importing the units from a CSNET Manager that is not directly connected on same LAN than the computer.



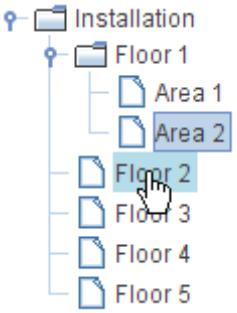
Layout tree

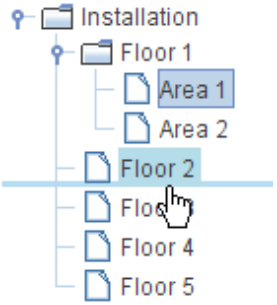
The layout tree shows you the topology of your installation. It is helpfully to find the zones of your installation and it is easy a very good tool to organise your installation.

Using the tree you can select which zone you want to see on the display zone.

Dragging a zone to another one this will be moved as a child of destination zone.

To specify concrete order we move zone to bottom of destination zone, a line will appear. On release mouse button original zone will go after destination zone.





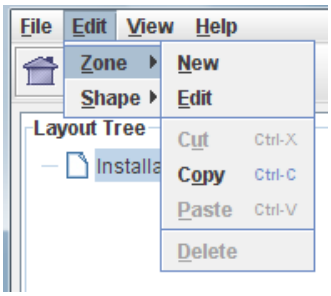
Create zones

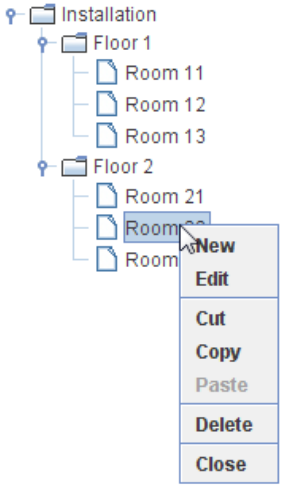
You can find **Zone** in **Edit** menu. Zone options can also be found using the right button on a zone inside the installation tree.

A zone is a slide where we can add all shapes that we want. On a zone we can choose a background image and edit this.

Zone has different options:

- **New:** create new zone. This zone will be child of selected zone on tree.
- **Edit:** modify selected zone.
- **Cut:** copy to clipboard selected zone. When we paste this zone will disappear from original parent.
- **Copy:** clone the zone to allow you to paste where you want.
- **Paste:** copy the zone stored on clipboard as a child of the selected zone. Remember that root zone is not allowed to be deleted.
- **Delete:** delete current zone. When you choose this option a dialogue will appear where you can choose between delete all children from selected zone or move children to parent of the selected zone.

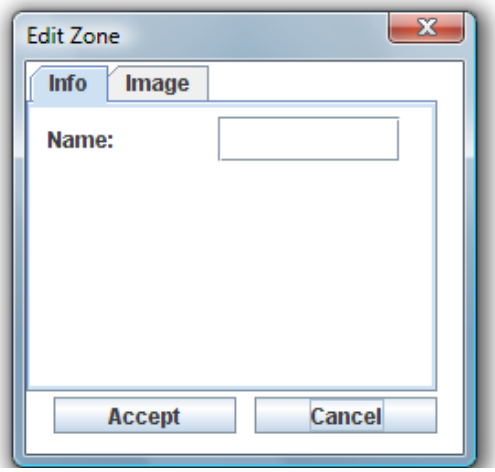


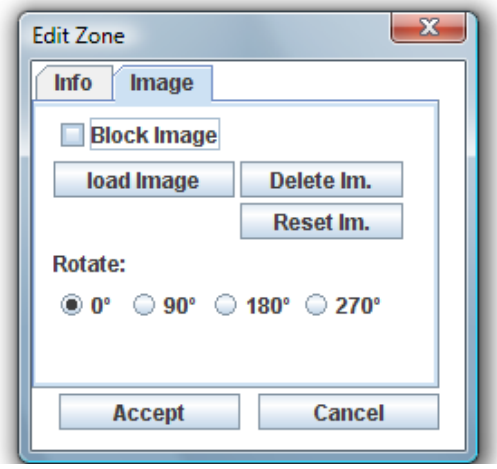


Creating new zone or editing an existing one will appear the zone dialogue to set the information of the zone. Each zone must to have a specific information to identify the zone. The name of the zone must to be unique.

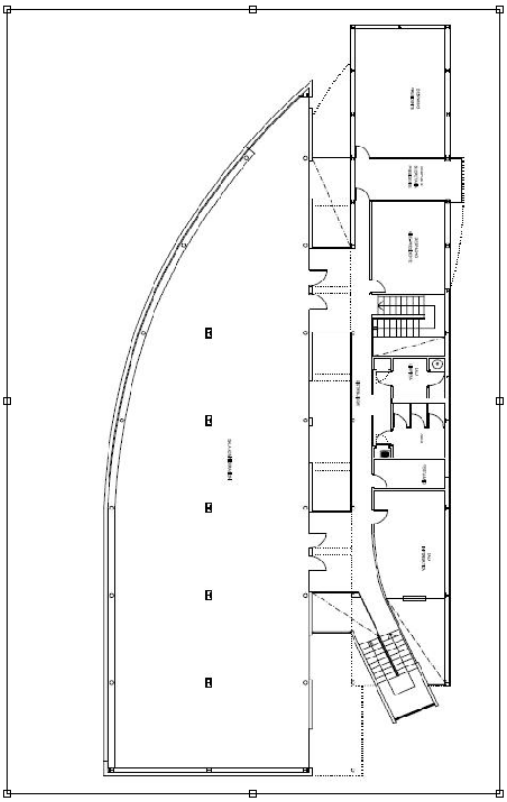
In each zone you can insert one background image. In the image tab are different buttons that allows you to modify the background image:

- **Block image**: block transformations to your image to ban the possibility of transform without want it.
- **Load image**: open file dialogue to choose an image.
- **Delete image**: delete current background image.
- **Reset image**: restart all the transformations of the image.
- **Rotate**: rotate the current image.





When transforming an image, you will see transformation squares around the image. Each square transforms the image fixing the opposite one. Central square will shift the image.



Create shapes

A shape is a form that you can create in a zone. Each shape could link to a zone, a unit or nothing. The shape options are on shape in menu, inside edit.

You can also find shape options clicking over a shape.

On shape Menu you can find different options:

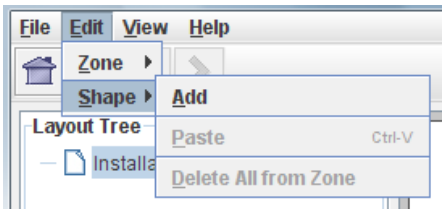
- **Add**: create new shape.
- **Paste**: paste a shape if there is one on the clipboard. You can also paste a shape clicking on one shape and selecting paste option in the pop-up menu or clicking on the destination point of your shape and selecting the paste option.
- **Delete All from Zone**: this option will delete all the shapes from selected zone.

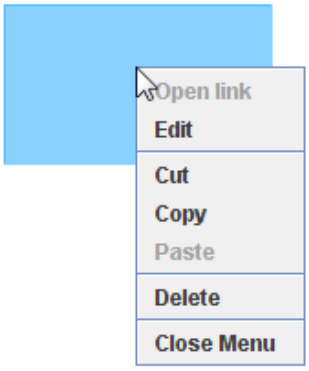
On the pop-up menu we have different options:

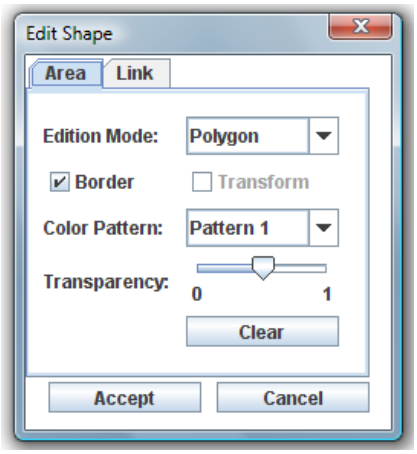
- **Open link**: open the linked zone of this shape.
- **Edit**: open the shape dialogue to “Edit Shape” the select shape information.
- **Cut**: cut the selected shape that will be move when you paste it.
- **Copy**: copy the selected shape.
- **Paste**: paste the copied shape.
- **Delete**: erase the selected shape.

When you create or edit a shape will appear the next dialogue where you can introduce the shape properties.

- **Edition Mode**: allows you to choose between Polygonal and rectangular mode. Each case has its edition properties explained next.
- **Border**: Activate or deactivate a border around your shape.
- **Transform**: if transform button is enabled you can not continue with the edition in normal way. You now can move the polygon or work with points. Note that icon will follow the shape only if they are in contact.
- **Colour Pattern**: select the colour pattern of current shape.
- **Transparency**: set transparency value for your current shape.
- **Clear**: this button will erase current shape.



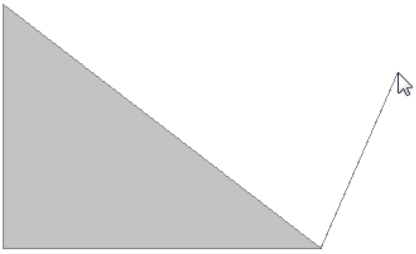




The two different edition modes have different behaviour during the shape creation.

Polygon Creation:

Adding a polygon consist on clicking in each limiting point of the desired shape. A line will indicate you where the next point will be add.



Rectangle creation:

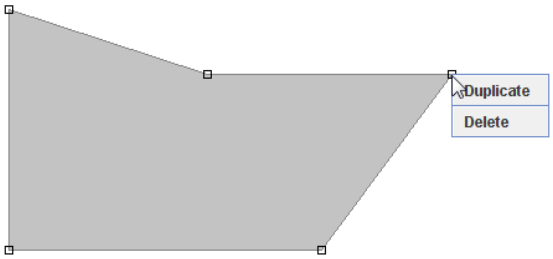
Rectangular shapes creation is easy, you only have to click with the mouse and drag selecting the area you are creating.

The two different edition modes have different behaviour during the shape edition.

Polygon Edition:

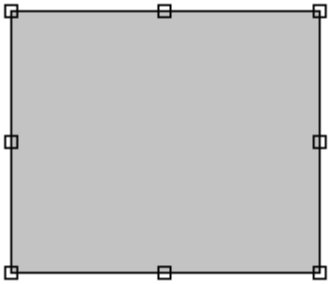
Editing a polygon can be done in two different ways:

- You can move the polygon by clicking inside the area of your shape and dragging it to the new position.
- You can edit a single point. You can drag one point and also, if you make double click on square that marks this point, a new pop-up menu will appear. In this pop-up menu you can choose between delete or duplicate the point.



Rectangle Edition:

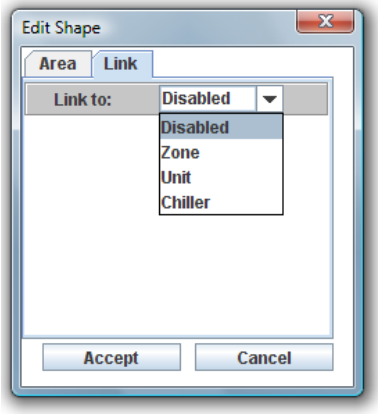
- Central squares will move the rectangle.
- Corner squares will expand or reduce rectangle fixing opposite corner square.
- Between corner squares will move contiguous corners fixing the opposites ones.
- Using shift button you transform keeping previous proportions of the image.

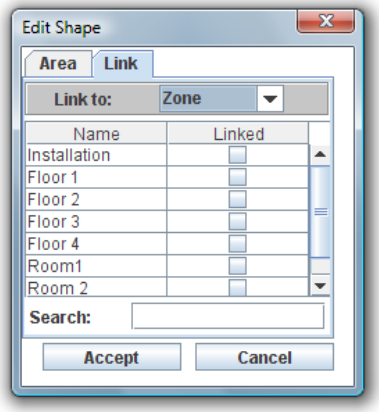


To link a shape you must select the tab link on the shape dialogue and chose the link type.

If you want to link to a zone you must select which will be the destination zone. To do this, you must use the zones table.

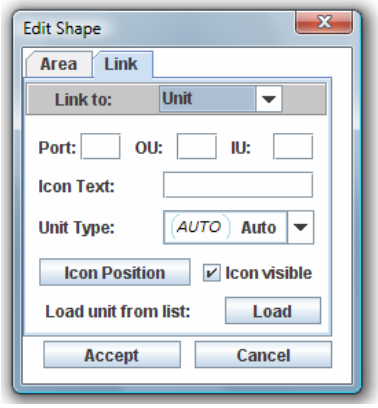
You can search for a zone using search file.





If you want to link to a Unit, you must complete all the information fields.

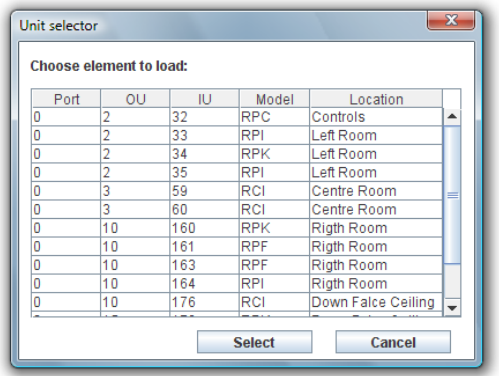
In both links you can select what kind of Unit is it. If you select Auto option CSNET Manager will automatically set the kind of Unit.



During the edition you will see:

Icon for Packaged units


To make easier your work, if you have imported configuration files of CSNET Manager as previously explained, you can load the fields selecting load button. Unit selector dialogue will appear:



Select the unit you want to load and press select button.

6.2.5.2 Web connections

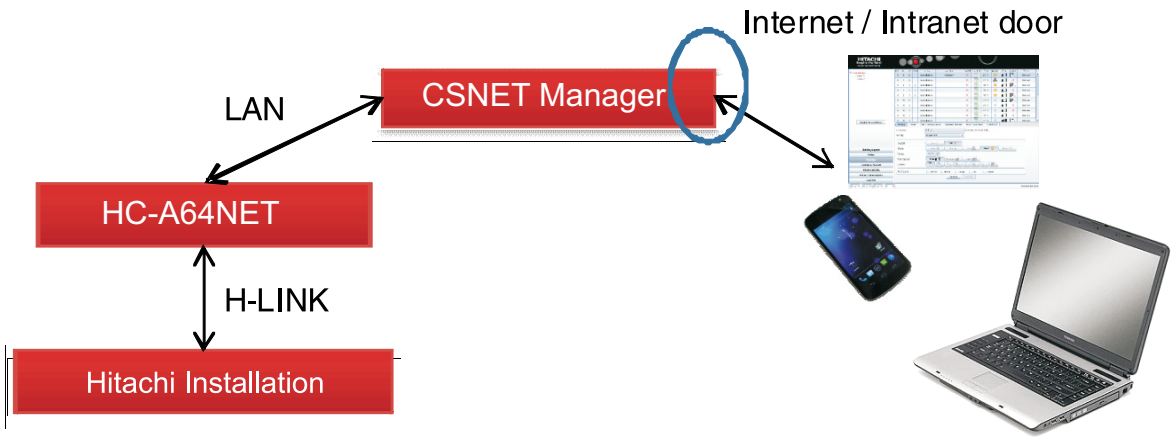
◆ Connection Security

Web connection let user to:

- Send orders without installing the software
- Connect from a smart-phone

CSNET Manager must be running as the server job is done by the software.

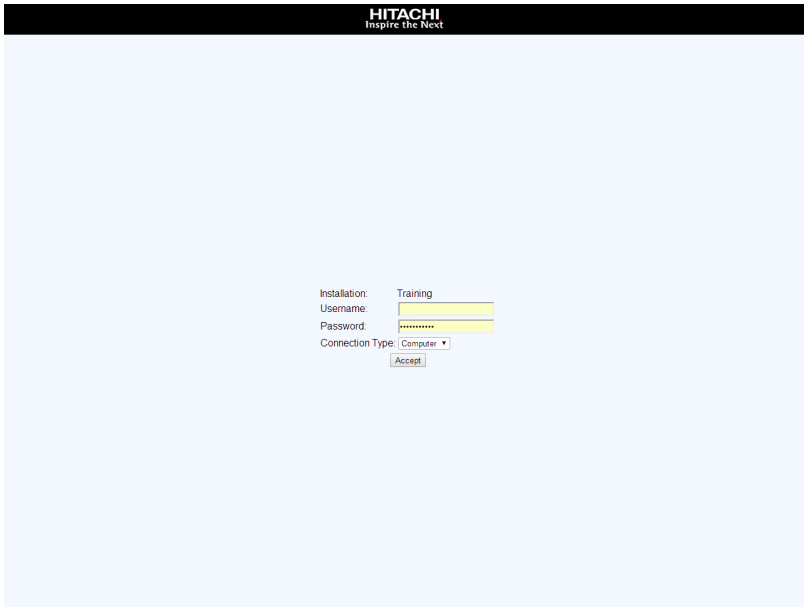
The web server is the door to the Hitachi installation so it has been prepared to keep that door completely safe.



Level		Explanation
1	User Password	The connection done by the user requires a password. The password is stored on the server from the user list dialog, so it is never sent by the client and this means that it cannot be copied. The connection done by the user is also protected.
2	Units allowed	Any user will have a list of allowed / banned units to manage. This means that if one user loses its password, the accessible units will be only the ones that appear on the list.
3	Server activation	To be able to connect to the server it is strictly necessary to have the server option activated. The option is not activated by default and all the software that does not use the new function, will be completely unreachable from outside. In case of suspicious behavior, the option can be deactivated and the system will become again closed to external connections.

◆ Web Access

Once the client software has been activated as web server, user can connect to the IP of the computer. The Login screen will be showed:

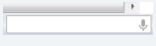


Connection can be done as mobile or desktop. It changes few things, but it tries to fit better to the browser.

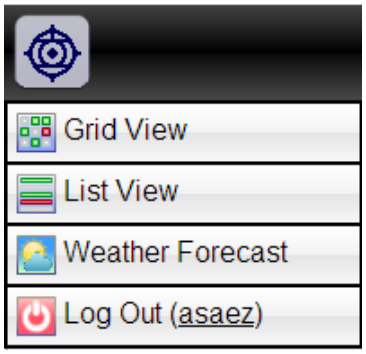
◆ Interface structure

After user login, only the available units will be showed.

Screen has 3 common points:

	Item	Icon
1	Menu Button	
2	Status bar: show info from the harcs connected.	
3	Smart orders: let the user introduce orders. If browser allow voice input, the orders can be speaked	

The menu contains the following items:



◆ Views

There are two type of views to display the units:

1 Grid View

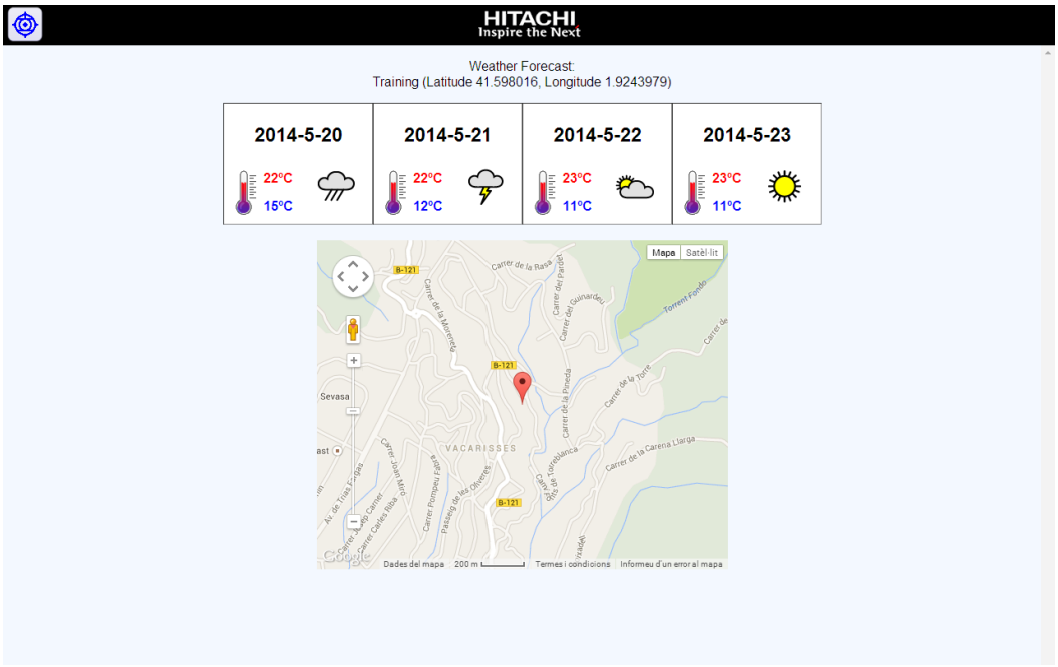
Grid view looks like auto building layout view.

2 List View

List view shows units on a list to use better the screen space.

◆ Weather Forecast

Weather forecast shows the forecast of the following 3 days and the current one.

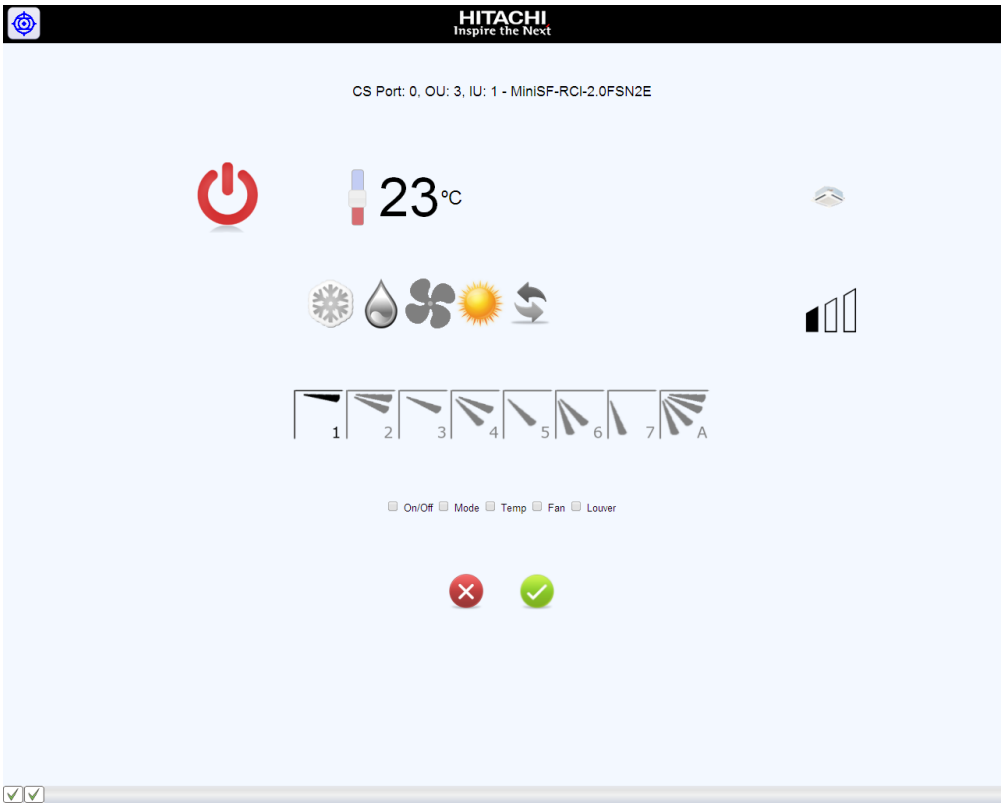


NOTE

- *It requires internet connection.*
- *Weather forecast can be activated if user requires the information.*

◆ Unit Setting

Unit setting order is set from the following screen.



It works like CSNET Manager setting panel.

The configurable items are:

- On/Off
- Temperature
- Mode
- Fan
- Louver
- Central lock items

◆ Smart Orders

Smart orders lets user say or type what its orders and CSNET Manager will apply them.

Those are the available orders:

- Smart Orders

Action	Destination	Example
I want	cold heat air	I want heat
I have	cold heat air	I have cold

- Navigation actions

Action	Destination	Example
open	Location Port OU IU	open Location 2
see	Location Port OU IU	see 0 2 4
matrix	-	see matrix
list	-	list
weather	-	Weather Forecast
go back	-	go back
exit	-	exit
help	-	help

- Setting actions

Action	Value	Destination	Example
turn on	-	Location Port OU IU all (just the action applies to current opened unit)	turn on all
turn off	-	Location Port OU IU all (just the action applies to current opened unit)	turn off 0 2 4
temperature	-	Location Port OU IU all (just the action applies to current opened unit)	temperature 25 Location 2
mode	cold dry fan heat auto	Location Port OU IU all (just the action applies to current opened unit)	mode cold
fan	low medium high	Location Port OU IU all (just the action applies to current opened unit)	fan medium Location 2

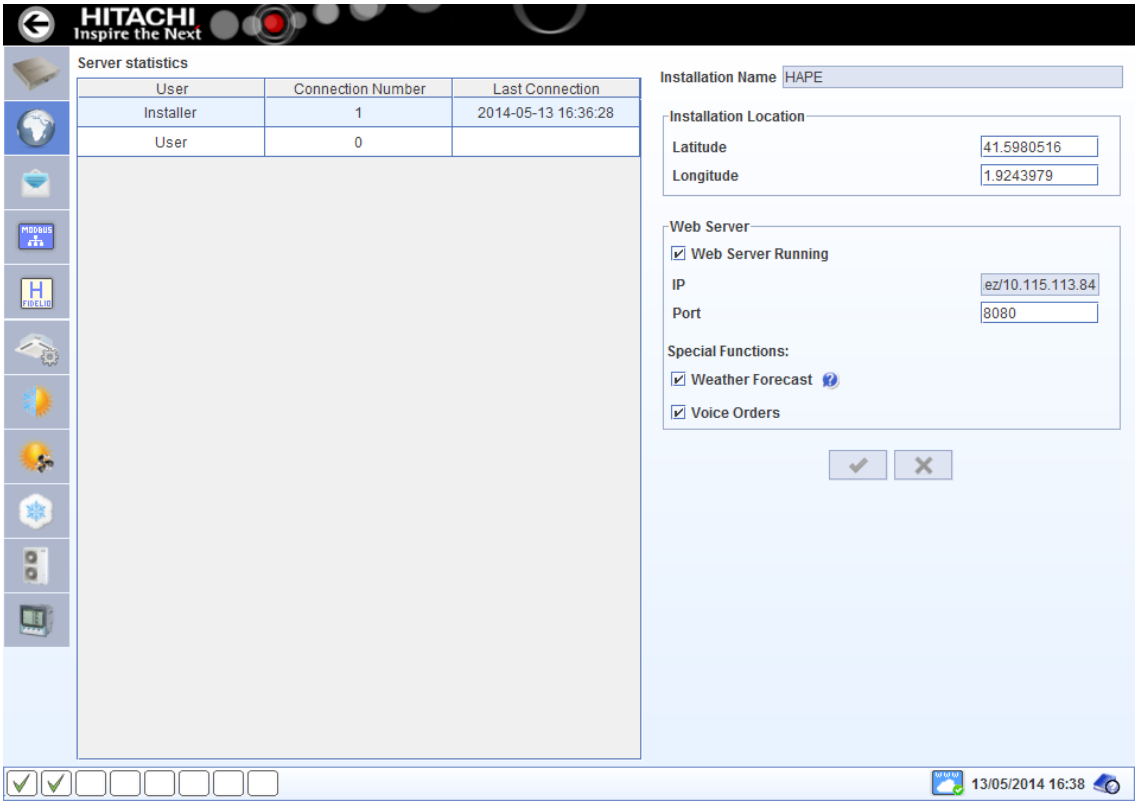
NOTE

Orders are sent as text but in case that your web browser allows voice inputs, those orders can be entered by saying this orders in the CSNET Manager server language.

6.2.5.3 Web server configuration

Web server is configured on the “configure system” panel.

A tab has been added to have the whole installation data that affects to the 4 harcs.



User can set if server is running or not and also the connection port.

It can be also configured if weather forecast and voice orders will appear on the menu or not.

Latitude and Longitude are used for weather.

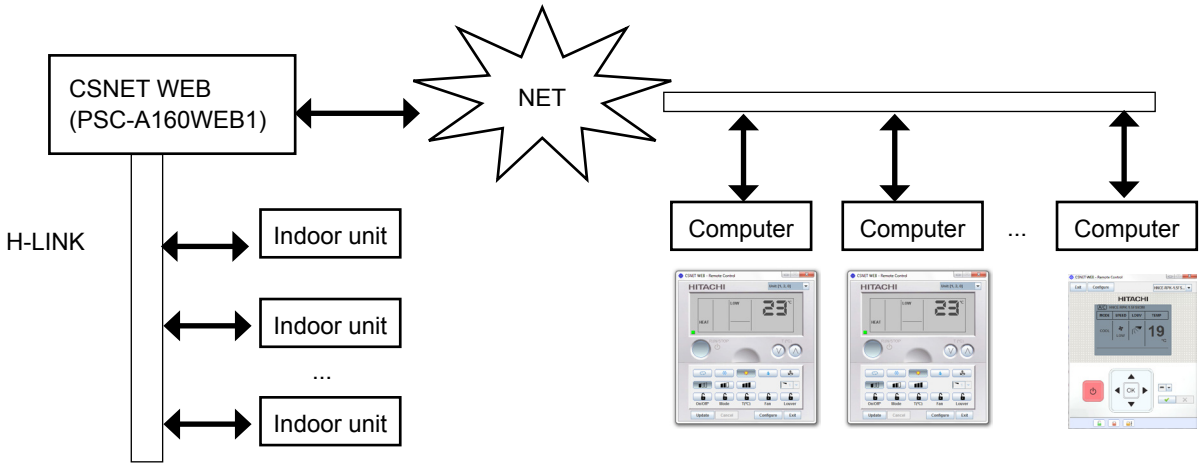
The user stats of connections are shown by opening the Server statics. Then, the connection number and the last connection time can be checked.

6.2.5.4 RCS Web

◆ Introduction

RCS Web software takes the idea to simplify CSNET WEB, and use only the remote controller created for the Building Layout.

The main idea is install that software on the computers of users who no need to manage all the CSNET WEB options. They will have only the same access that using the remote controller but from their computer.

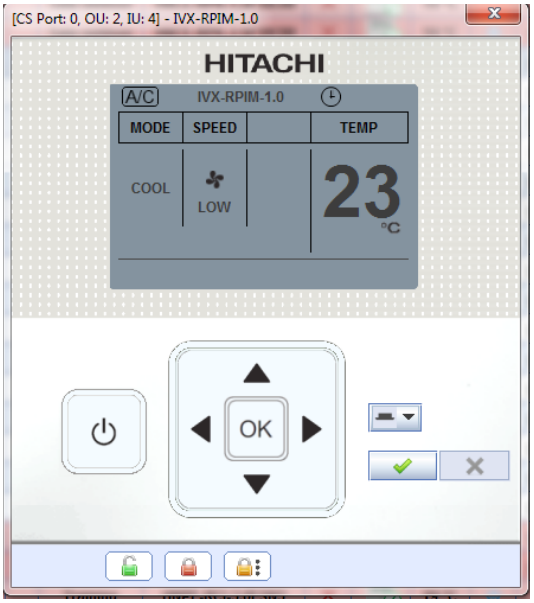


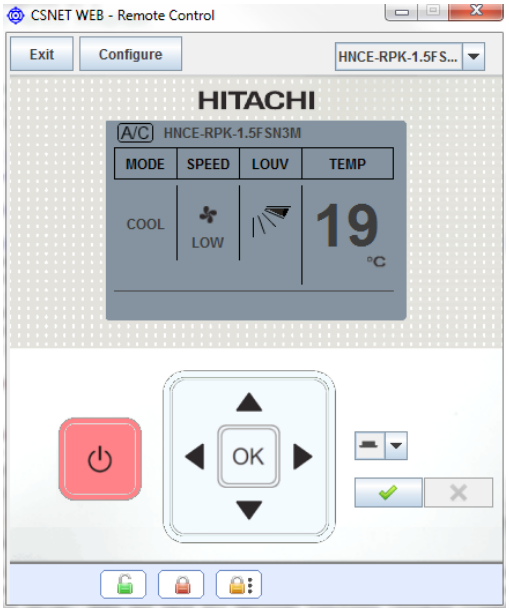
NOTE

User will manage with this interface only the indoor units that Installer allows him to manage.

RCS Web interface looks like a virtual remote controller that wants to simplify and improve the user experience controlling the units.

There are two remote control models





CAUTION

- *RCSWEB connect to CSNET WEB through the defined IP and port. In case of CSNET Manager, please set the port fixed to 8000.*
- *RCSWEB cannot be connected to a HC-A64NET.*

◆ Virtual PC-ART

Sending orders to the units can be done by enabling the Virtual PC-ART on local computer configuration. After selecting a unit, the remote controller will appear on the screen.

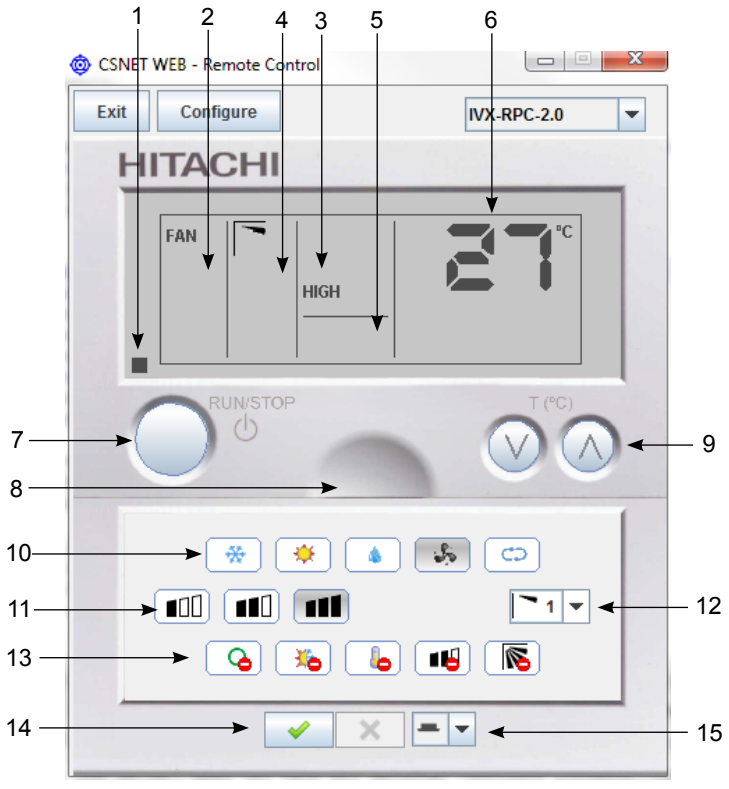
The remote controller is divided in two parts, the first one is the display zone that shows you the current values of the unit and the second one is the buttons zone.

Display zones are described next:

1 Indicates the Run / Stop situation and if the unit has an alarm.
2 Shows the unit operation mode.
3 Indicates the position of the baffle plate.
4 Shows the fan speed.
5 Display central is enabled if some central value is activated.
6 Display the unit temperature.

Button zones are described next:

7 Changes the value of Run/Stop.
8 Show or hide the remote controller cover.
9 Set the temperature value.
10 Changes the unit mode. From left to right: Auto, Cool, Heat, Dry and Fan.
11 Set fan speed.
12 Set the position of louver.
13 Parameter lock. These parameters will be locked on the remote controller.
14 Update will send the current state of the remote controller to the unit. Cancel will restore previously setting.
15 “Set by” options configure the current remote controller order to be sent to a single unit, an outdoor unit, a zone, a zone and its sub zones or to all units.



◆ Virtual PC-ARF

Sending orders to the units can be done by enabling the Virtual PC-ARF on local computer configuration. After selecting a unit, the remote controller will appear on the screen.

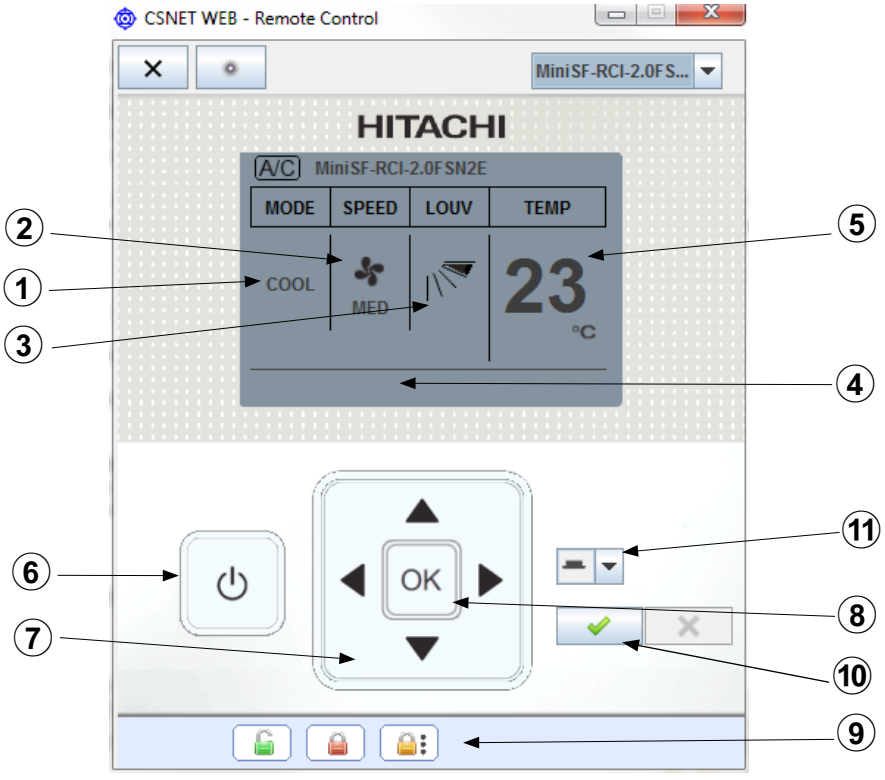
The remote controller is divided in two parts, the first on is the display zone that shows current values of the unit and the buttons zones that let move through the menus.

Display zone describes next:

1 Shows the unit operation mode.
2 Shows the fan speed.
3 Indicates the position of the baffle plate.
4 Display central is enabled if some central value is activated.
5 Display the unit temperature.

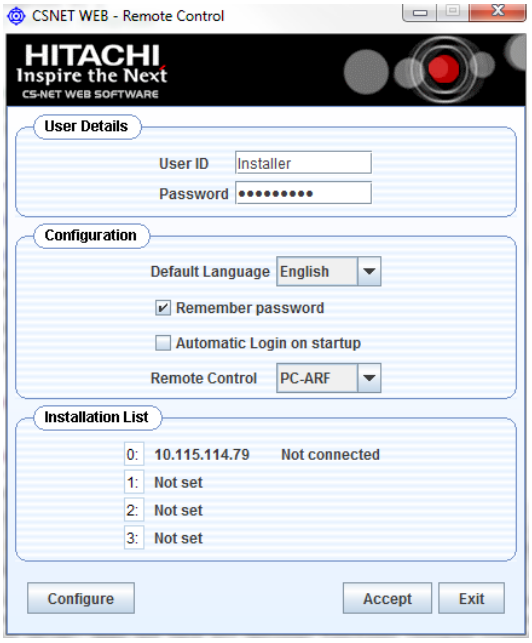
Buttons describes the next:

6 Indicates and change the Run / Stop situation and if the unit has an alarm.
7 Arrows let select the item on the screen and adjust its value.
8 OK button lets select a parameter to be modified.
9 Parameter lock. These parameters will be locked on the remote controller.
10 Update will send the current state of the remote controller to the unit. Cancel will restore previously setting.
11 “Set by” options configure the current remote controller order to be sent to a single unit, an outdoor unit, a zone, a zone and its sub zones or to all units.



◆ Local software configuration

After start the software it will appear the main window. There, due to configure the software it must to be selected the configure button.



To configure the installation will be needed the Installer password, by default “Installer” as the user name and password.

NOTE

If installer set to white text its user name and password it will be not asked.

Installer configuration allows to configure the following items:

- Installation: set HARCS where RCS Web will connect.
- Unit filter: configure units that user could see.
- User: set user name, password and privileges of the user.
- Proxy: configure proxy data if needed.
- Installer password: change the password to connect to the configuration.

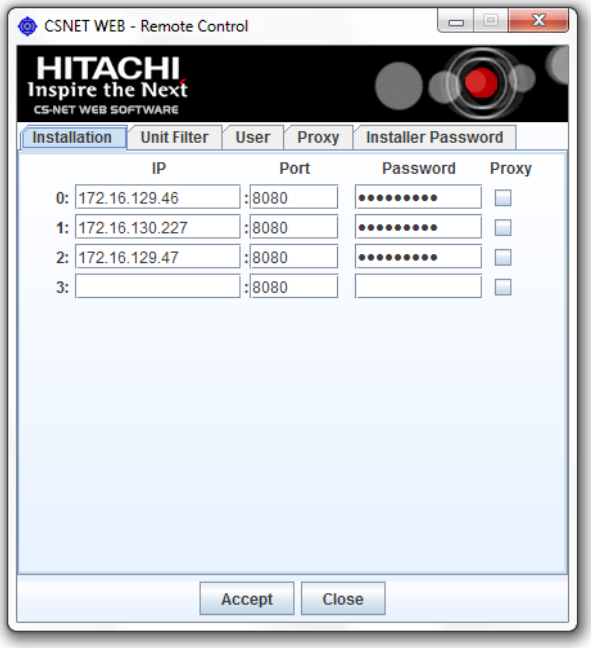
◆ Installation

On the installation panel it will be able to configure 4 HARCs. Exactly as the CSNET WEB.

Each of these 4 HARCS will be specified using the IP and port.

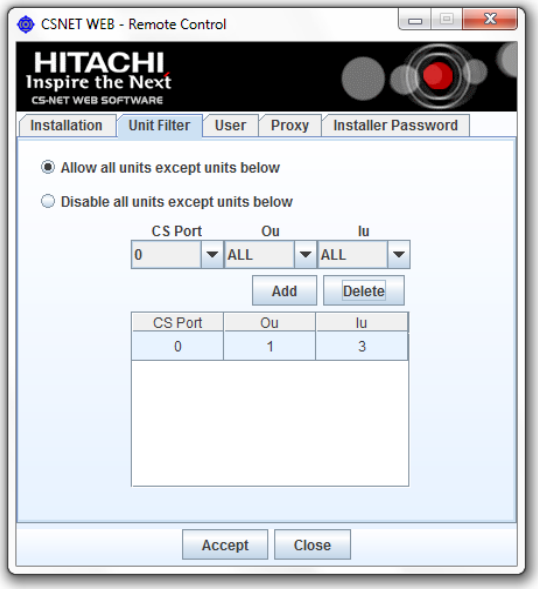
User name and password of these HARCS will be configured from CSNET WEB. By default they will be “Installer” as user name and password.

Marking the proxy check box it will use the proxy to connect with this HARC.



◆ Unit filter

Unit filter is the screen where the Installer can configure the units that user could control.



The list of units will be defined setting the allowed units or the list of banned units.

NOTE

If it is introduced on the login window the installer password, it will log on the RCS Web in having all the units available, not only the configured here.

◆ User settings

User window let configure the user name and password of the user profile.

There are 2 check boxes due to manage the privileges of the user.

One will allow user to change central settings, and the other allow to appear the alarm message on the system tray.

◆ Proxy settings

Proxy window is used to configure a proxy connection. Just like on the CSNET WEB software.

Proxy server will be specified using address and port.

To authenticate the connection to the proxy it will be necessary the user name and password to accede to the proxy server.

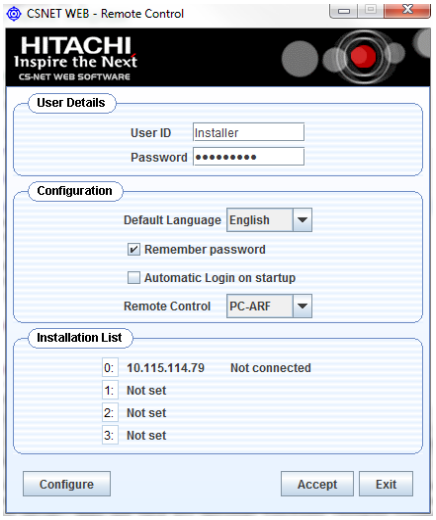
◆ Changing installer password

Installer Password window allow changing or erasing the installer user name and password.

Setting fields without texts will not ask for the Installer password acceding to the local software configuration.

◆ Operation with RCS Web software

The main window opened is the login window. On that window, user could introduce his user name and password to log into the system.



On that window there are small user configurations that are:

- **Default Language**: it allows switching the language that the software will use when it will be started. Available languages are English, Español, Català, Italiano, Français, Deutsch, Nederlan, Portugues, Czech and Russian.
- **Remember password**: systems remember the last user name and password configured due to avoid the retyping of these items.
- **Automatic login on startup**: if system reminds the password, it will automatically connect when software is started.
- **Remote control**: selection of the virtual remote control between PC-ARF and PC-ART.

NOTE

- *If software is moved into the start-up menu of windows it will be started when computer will be switched on.*
- *Marking automatic login on start-up, this window will not be shown.*

The installation lists shows the configured CSNET WEB and if there are connected or not. The state of connection will switch only when user will start login in.

Virtual remote control

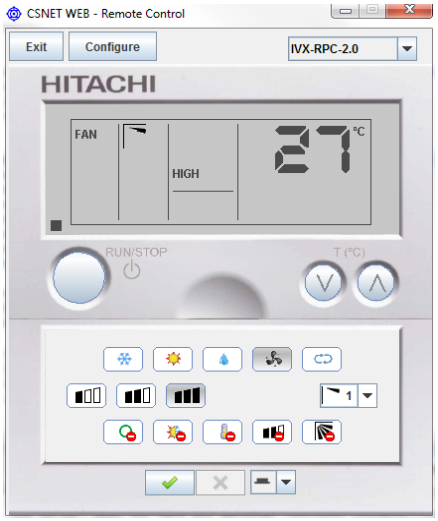
Once the user is connected, it will appear an interface that looks like a remote control.

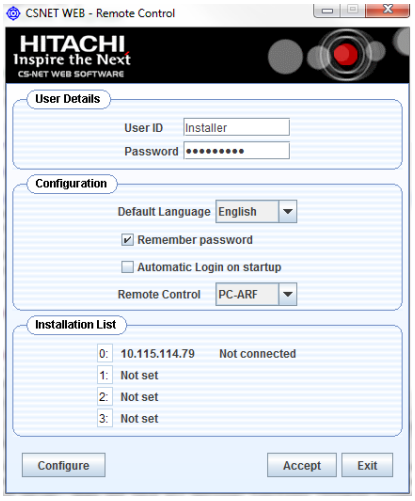
This interface is equivalent to the building layout one with few improvements that helps to be a central control.

The controllable things will be Run/Stop, setting temperature, mode, fan, louver and central. They are exactly as the Building layout remote control. It is possible to find more information on *"6.2.5 Extras"* chapter.

In case of central it will be enabled only if installer gives privileges to the user to control this, and when one central value is activated the buttons corresponding to that lockage will be disabled.

Log out will return to the login window, and exit will close the application.

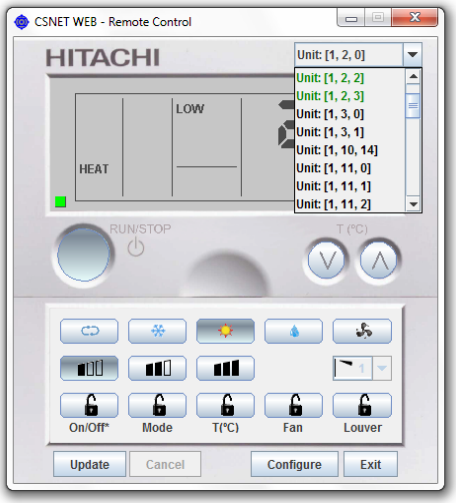




Units list and state

The combo box on the upper part will be used to select between units if there are more than one. The displayed text will be the location field stored on the HARC. If this text does not exist, it will write "Unit: [X,Y,Z]" knowing that values as the slot, outdoor address and indoor address of the unit. This is common for both remote controllers.

Different colours on the combo box will give information about if unit is running or not, and if there is a unit with an alarm.



The colours meaning is explained on the following table:

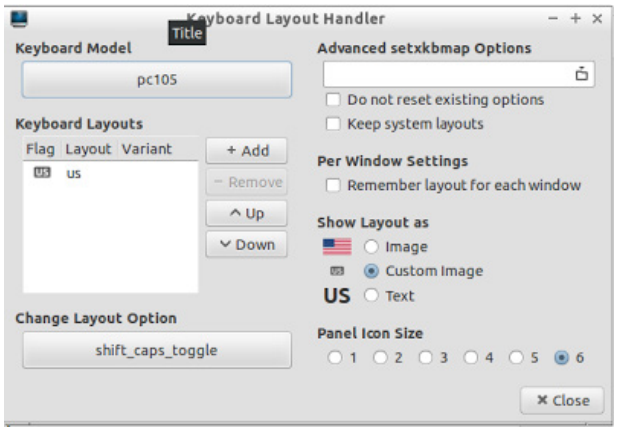
Color	Meaning
Green	Running
Black	Stopped
Red	Alarm

6.2.6 Troubleshooting

6.2.6.1 Physical keyboard does not type proper characters

In case that want to connect a USB keyboard and it does not fit to the keys maps of the system, change the keyboard layout by following that instructions:

1 Connect a USB mouse
2 Close the program (Local computer configuration -> touch screen settings -> close)
3 Right click on the “GB” icon on the top of the desktop and select “Keyboard layout handler settings” option.



4 Inside the keyboard layout handler, find your language flag on the list. If it does not exist, add it.
5 Move your flag to the top of the list with the button “up”. This will make your keyboard layout the default option each time that you will connect a new one.

6.2.6.2 Use of system tray

If user close the window using the cross button, application will still run setting an icon on the system tray.

Clicking twice over the system tray icon will open the application. Using right button of the mouse over it will open a little menu that will allow to the user between close completely the application or open it.

User will normally have the application closed on the system tray, because it will not be always managing things. But having that icon there will be so useful due to the alarm notification.

When an alarm occurs system tray icon will switch to red colour and it will be like this until alarm will be disappeared. Alarm displaying message should be activated on the user configuration.

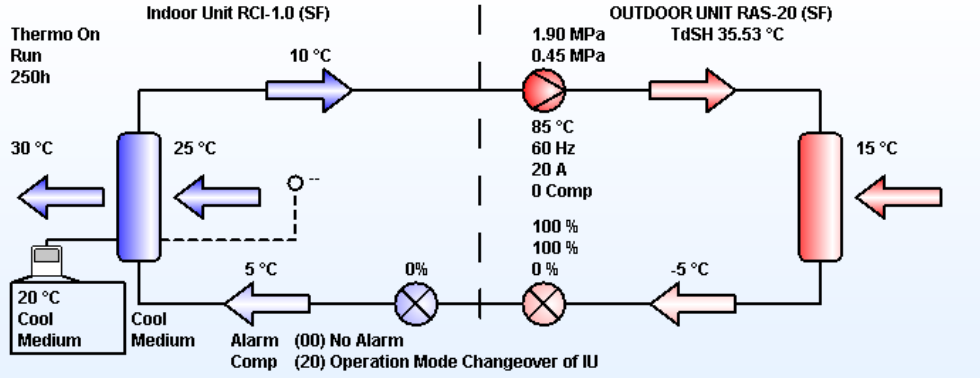
First time than alarm occurs it will appear a system notification showing that this alarm has been appeared with the alarm code and unit address.

Alarms could also be watched on the alarm led of the virtual remote control or on the units list.

6.2.6.3 Unit alarms

The CSNET Manager software lets you identify the error code of the units. This code appears in the System Status window and corresponds to the error code indicated in the service manual of the unit in question.

New alarm codes have been added specifically for CSNET Manager to indicate that communication with one of the units has been broken.



The error codes of communication with CSNET Manager are as follows:

Code	Description
60	The outdoor unit has not communicated with HC-A64NET for more than 10 minutes
61	The indoor unit has not communicated with HC-A64NET for more than 10 minutes
62	The outdoor unit has not communicated with HC-A64NET since it was last started
63	The indoor unit has not communicated with HC-A64NET since it was last started

6.3 HC-A64NET

6.3.1 Safety summary

DANGER

- ***Read carefully this manual before performing the installation work.***
- ***Do not install this device in places accessible to the general public. Install it in electrical enclosures, which are only accessible by the usage of a tool and also provide protection to eventual electromagnetic disturbances.***
- ***Do not connect power supply before the device installation is correctly done. Always disconnect power supply from the device before any maintenance or servicing action.***

CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle properly and safely this appliance.*
- *Children should be supervised to ensure that they do not play with the appliance.*
- *This is a Class A product. In a domestic environment this product may cause radio interferences in which case the user may be required to take adequate measures.*
- *Check to ensure that the field supplied electrical components (mains power switches, circuit breakers, wires, connectors and wire terminals) have been properly selected according to the electrical data indicated on this document and they comply with national and local codes. If it is necessary, contact with your local authority in regards to standards, rules, regulations, etc.*
- *Do not install Network / Modbus gateways in places:*
  - *Where any vapour, oil or other dispersed liquids could affect the device.*
  - *Where accumulation, generation or leaks of inflammable gases has been detected.*
  - *Near to any heat sources or electromagnetic noise sources.*
  - *That they are near to the sea, in saline, acid or alkaline surroundings.*

6.3.2 Installation

6.3.2.1 Installation site selection

Take note of the maximum admissible cable length between units and the control as well as between the units themselves, as shown in the following table:

Cable section	0.3 mm^2	≥ 0.75 mm^2
Cable length	30 m	500 m

6.3.2.2 Components list

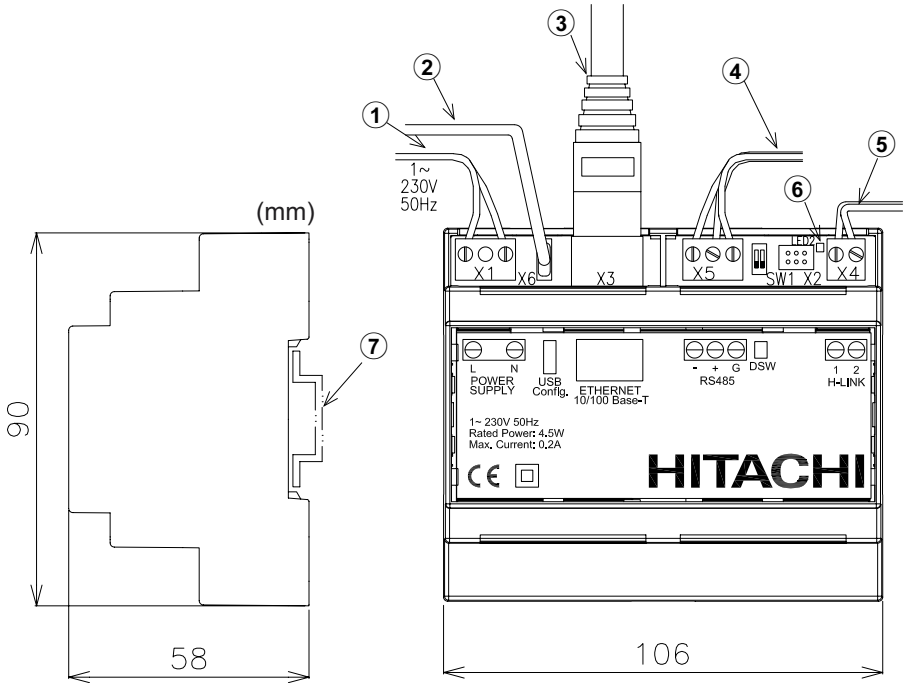
Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quant.	Comments
Gateway device		1	To control the system operation
USB Pen Drive Memory		1	To configure the gateway device
Installation and operation manual		1	Installation and operation unit instructions.

6.3.2.3 Description of the parts



No.	Description
①	External power supply
②	USB cable at configuration time only
③	RJ45 Ethernet: TCP/IP connection
④	RS485: Not available
⑤	H-LINK Communication bus with HITACHI units
⑥	Operation led indicator
⑦	Rail DIN 35 mm for assembly inside the electrical box

6.3.2.4 General data

◆ Hardware Specifications

Item	Specifications
Power supply	1~ 230 V ±10% 50 Hz
Consumption	4.5W (maximum)
Outer dimensions	Width: 106 mm, Depth: 90 mm, Height: 58 mm
Weight	165 g
Assembling conditions	Indoors (installation inside an enclosure with restricted access by a tool)
Ambient temperature	0~60 ºC
Humidity	20~85% (Without condensation)

◆ Communication

Ethernet

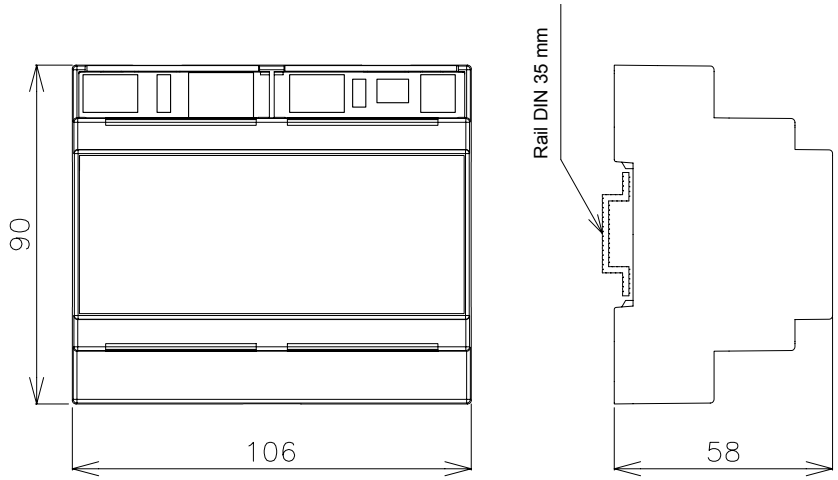
Item	Specifications
Type	TCP/IP communication
Connector	Ethernet (RJ45)
Communication line	Two twisted pair cable CAT5 or better (T-568A/T-568B)
Communication system	Full-duplex
Length	Max. 100 m according IEEE 802.3

H-LINK

Item	Specifications
Communication with	Hitachi Air Conditioning series: SET-FREE, UTOPIA and CENTRIFUGAL systems
Communication line	Twisted pair shielded cable, non-polarity
Communication system	Half-duplex
Communication method	Asynchronous
Speed of transmission	9600 Bauds
Length of wiring	1000 m maximum (total length of H-LINK I/O bus)
Maximum number of gateways	1 Gateway / H-LINK SYSTEM
Maximum number of indoor units	HC-A64NET → up to 64 indoor units

6.3.2.5 Dimensional data

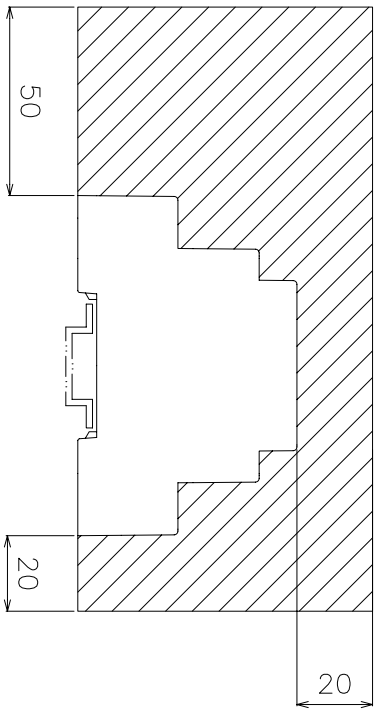
(mm)



6.3.2.6 Installation space

Keep free the grey area for the correct operation of the device.

(mm)



6.3.2.7 Installation procedure

DANGER

- ***Do not install this device in places accessible to the general public. Install it in enclosures or other places which are accessible only by the usage of a tool.***
- ***Do not connect power supply before the device installation is correctly done. Always disconnect power supply from the device before any maintenance or servicing action.***

CAUTION

- *Check to ensure that the field supplied electrical components (mains power switches, circuit breakers, wires, connectors and wire terminals) have been properly selected according to the electrical data indicated on this document and they comply with national and local codes*
- *Any unit that is not connected or is not under power when turning on Network / Modbus gateways, will not be recognized and will have to be configured later.*
- *Before power supply and turning on the Network / Modbus gateways, you must ensure that:*
  - *1. All circuits to be connected are correctly applied.*
  - *2. All H-Link connections have been set up.*
  - *3. Modbus connection has been properly done.*
- *The signals' cables should be as short as possible. Keep a distance of more than 150 mm from other power cables. Do not wire them together (although they may intersect). If they must necessarily be installed together, take the following measures to avoid noise disturbances:*
  - *For communications, use shielded wire which is earthed at one side.*

6.3.2.8 Network configuration

A computer software tool, Net configuration Tool, is supplied inside the USB stick memory for an easy and friendly configuration.

NOTE

The installation of this device requires an USB cable and Ethernet cable. HITACHI offers the accessory "Net configuration kit" which includes USB cable, Ethernet cable and an USB memory stick with the same software tool. Refer to its specific section for more information.

◆ Computer requirements

It is required to use a personal computer with Microsoft Windows 7 or higher, a free USB port and Java.

◆ Parameters under configuration

- Parity: Odd/Even/Disabled
- Communication speed: 9600/19200 Bps
- Modbus address
- Modbus TCP IP

◆ Configuration procedure

Configuration through USB port

This method is required when the device IP is unknown.

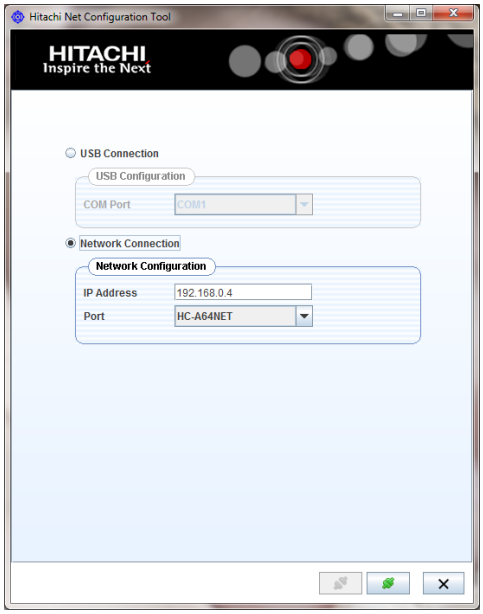
1 Connect the network device to a computer by a USB cable (field supplied or available with the Net Configuration Kit).
2 Select the communication port of the computer.
3 Press the button at screen

Configuration through Ethernet port

1 Connect the Network device to a computer by a ethernet cable (field supplied, or factory supplied with CSNET Manager or available with the Net Configuration Kit).
2 Input the following parameters:

- IP Address: 192.168.0.4
- Port: Modbus Gateway / HC-A64NET

3 Press the button at screen



Configuration of device and communication

Device information

Check that the network device is correctly displayed at the “Device information” table. Press refresh button if necessary.

Configuration of Network configuration

When the network device is integrated to the LAN / Modbus net by Ethernet, configure the following parameters:

- IP Address: Allow to modify the IP of the Network device port (“192.168.0.4” by default).
- Mask: Ask to your IT technician for the proper value (“255.255.255.0” by default).
- Gateway: LAN gateway address (“192.168.0.1” by default).

6.3.3 Electrical wiring

Name	Connection	Cable specification
X1	Power supply (1)	Use 0.75 mm² wires which are not lighter than the polychloroprene sheathed flexible cord (code designation 60245 IEC 57)
X3	Ethernet (1)	Category 5 or higher LAN cables PC connection: Use a crossed cable (1 cable set available in Net configuration Kit, model code 7E513206) for direct connection. LAN connection: Use a direct cable (field-supplied) for connection to a commercial distributor (Hub).
X4	H-LINK (1)	Twisted pair shielded cable 0.75 mm². Shield must be grounded in one side only.
X5	RS485 (1)	3 cores cable harness 0.75 mm² grounded in one side only. Use different colour for each cable.
X6	USB (1)	USB Mini-B plug cable (1 cable set available in Net configuration Kit, model code 7E513206)

NOTE

(1): These cables must be field supplied.

◆ **DIP switch setting**

Name	Function	Factory setting	Description
SW1	Configuration		SW1-1: Not used. SW1-2: Not used (keep always “ON”)

6.3.4 Compatibility

The new HC-A64NET is compatible with all SET-FREE, UTOPIA and CENTRIFUGAL units using H-LINK communication protocol.

This device is not compatible with any of the following HITACHI controllers:

- Centralised remote controls
- Building air conditioning controls
- Other HITACHI BMS gateways (LONWORKS, BACNET, KNX, FIDELIO)
- Other units of the same model

NOTE

(*): HC-A64NET is compatible with CSNET Manager LT & XT.

6.3.5 Alarm code

Address 19 indicates alarm code as shown in indoor unit. Refer to Service Manual for the alarm explanation and repair procedure in case of Indoor Unit or Outdoor Unit alarm.

6.3.6 Troubleshooting

ALARM CODE	DESCRIPTION	COUNTERMEASURE
LED2 is flickering	Abnormal operation	Shut down the device power supply and restore it after 5 s. If LED2 is still flickering contact to the Hitachi customer service

7. Gateways for building management systems

Index

7.1 HC-A(8/64)MB

7.1.1 Safety summary

DANGER

- ***Read carefully this manual before performing the installation work.***
- ***Do not install this device in places accessible to the general public. Install it in electrical enclosures, which are only accessible by the usage of a tool and also provide protection to eventual electromagnetic disturbances.***
- ***Do not connect power supply before the device installation is correctly done. Always disconnect power supply from the device before any maintenance or servicing action.***

CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle properly and safely this appliance.*
- *Children should be supervised to ensure that they do not play with the appliance.*
- *This is a Class A product. In a domestic environment this product may cause radio interferences in which case the user may be required to take adequate measures.*
- *Check to ensure that the field supplied electrical components (mains power switches, circuit breakers, wires, connectors and wire terminals) have been properly selected according to the electrical data indicated on this document and they comply with national and local codes. If it is necessary, contact with your local authority in regards to standards, rules, regulations, etc.*
- *Do not install Network / Modbus gateways in places:*
  - *Where any vapour, oil or other dispersed liquids could affect the device.*
  - *Where accumulation, generation or leaks of inflammable gases has been detected.*
  - *Near to any heat sources or electromagnetic noise sources.*
  - *That they are near to the sea, in saline, acid or alkaline surroundings.*

7.1.2 Installation

7.1.2.1 Installation site selection

Take note of the maximum admissible cable length between units and the control as well as between the units themselves, as shown in the following table:

Cable section	0.3 mm²	≥ 0.75 mm²
Cable length	30 m	500 m

7.1.2.2 Components list

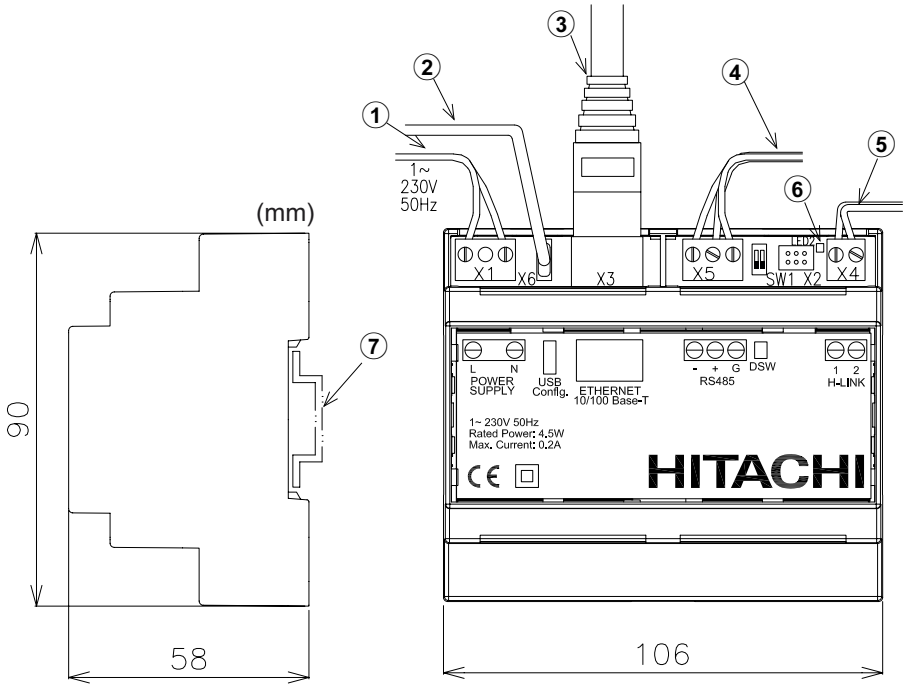
Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quant.	Comments
Gateway device		1	To control the system operation
USB stick memory		1	To configure the gateway device
Installation and operation manual		1	Installation and operation unit instructions.

7.1.2.3 Description of the parts



No.	Description
①	External power supply
②	USB cable at configuration time only
③	RJ45 Ethernet: Modbus TCP
④	RS485: Modbus RTU
⑤	H-LINK Communication bus with HITACHI units
⑥	Operation led indicator
⑦	Rail DIN 35 mm for assembly inside the electrical box

7.1.2.4 General data

◆ Hardware Specifications

Item	Specifications
Power supply	1~ 230 V ±10% 50 Hz
Consumption	4.5W (maximum)
Outer dimensions	Width: 106 mm, Depth: 90 mm, Height: 58 mm
Weight	165 g
Assembling conditions	Indoors (installation inside an enclosure with restricted access by a tool)
Ambient temperature	0~60 ºC
Humidity	20~85% (Without condensation)

◆ Communication

RS485

Item	Specifications
Type	Modbus RTU
Connector	Serial Port RS485 (3 screw terminals)
Communication line	Shielded twisted pair cable, with third wire (for the common), with polarity.
Communication system	Half-duplex, multipoint serial connection
Communication method	Non parity or odd/even parity selection. Data length: 8 bits – 1 stop bit
Baud rate transmission	19200/9600 Baud
Length	Max. 1200 m according EIA-485

Ethernet

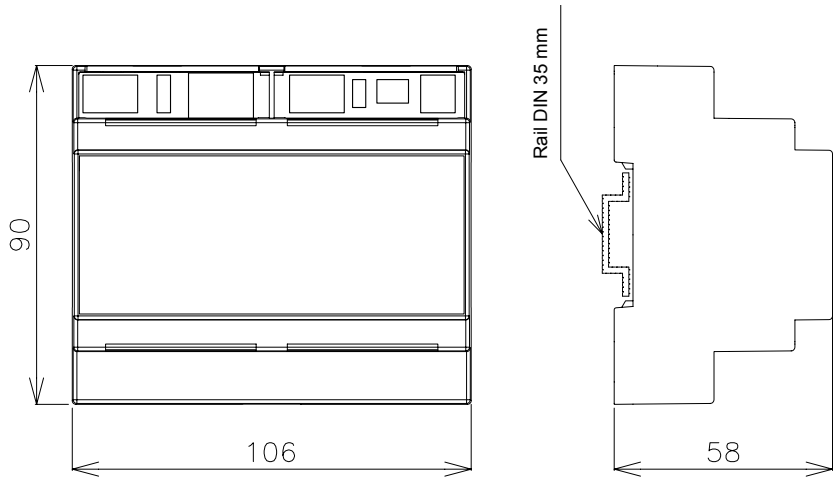
Item	Specifications
Type	Modbus TCP
Connector	Ethernet (RJ45)
Communication line	Two twisted pair cable CAT5 or better (T-568A/T-568B)
Communication system	Full-duplex
Length	Max. 100 m according IEEE 802.3

H-LINK

Item	Specifications
Communication with	Hitachi Air Conditioning series: SET-FREE, UTOPIA and CENTRIFUGAL systems
Communication line	Twisted pair shielded cable, non-polarity
Communication system	Half-duplex
Communication method	Asynchronous
Speed of transmission	9600 Bauds
Length of wiring	1000 m maximum (total length of H-LINK I/O bus)
Maximum number of gateways	1 Gateway (HC-A8MB,HC-A64MB)/H-LINK SYSTEM
Maximum number of indoor units	HC-A64MB → up to 64 indoor units
	HC-A8MB → up to 8 indoor units

7.1.2.5 Dimensional data

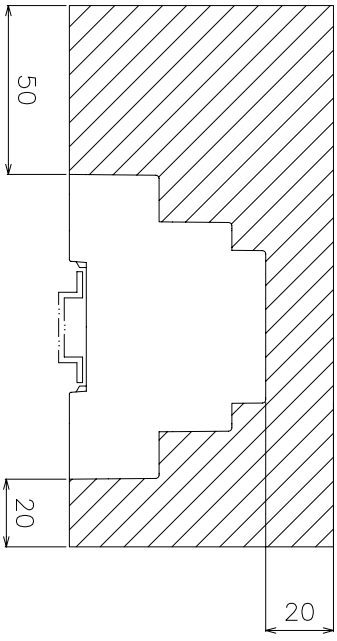
(mm)



7.1.2.6 Installation space

Keep free the grey area for the correct operation of the device.

(mm)



7.1.2.7 Installation procedure

DANGER

- ***Do not install this device in places accessible to the general public. Install it in enclosures or other places which are accessible only by the usage of a tool.***
- ***Do not connect power supply before the device installation is correctly done. Always disconnect power supply from the device before any maintenance or servicing action***

CAUTION

- *Check to ensure that the field supplied electrical components (mains power switches, circuit breakers, wires, connectors and wire terminals) have been properly selected according to the electrical data indicated on this document and they comply with national and local codes*
- *Any unit that is not connected or is not under power when turning on Network / Modbus gateways, will not be recognized and will have to be configured later.*
  - *Before power supply and turning on the Network / Modbus gateways, you must ensure that:*
    - *1. All circuits to be connected are correctly applied.*
    - *2. All H-Link connections have been set up.*
    - *3. Modbus connection has been properly done.*
- *The signals' cables should be as short as possible. Keep a distance of more than 150 mm from other power cables. Do not wire them together (although they may intersect). If they must necessarily be installed together, take the following measures to avoid noise disturbances:*
  - *For communications, use shielded wire which is earthed at one side.*

7.1.2.8 Network configuration

A computer software tool, Net configuration Tool, is supplied inside the USB stick memory for an easy and friendly configuration.

NOTE

The installation of this device requires an USB cable and Ethernet cable. HITACHI offers the accessory "Net configuration kit" which includes USB cable, Ethernet cable and an USB memory stick with the same software tool. Refer to its specific section for more information.

◆ Computer requirements

It is required to use a personal computer with Microsoft Windows 7 or higher, a free USB port and Java.

◆ Parameters under configuration

- Parity: Odd/Even/Disabled
- Communication speed: 9600/19200 Bps
- Modbus address
- Modbus TCP IP

◆ Configuration procedure

Configuration through USB port

This method is required when the device IP is unknown.

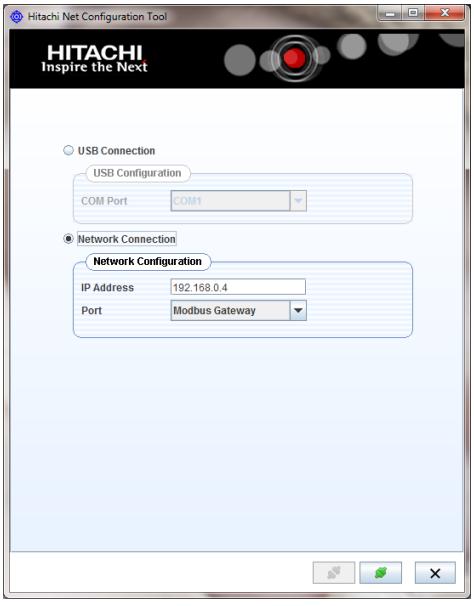
1 Connect the network device to a computer by a USB cable (field supplied or available with the Net Configuration Kit).
2 Select the communication port of the computer.
3 Press the button at screen

Configuration through Ethernet port

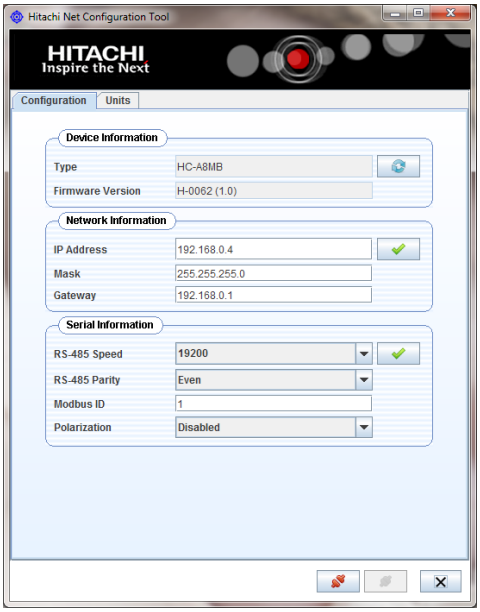
1 Connect the Network device to a computer by a ethernet cable (field supplied, or factory supplied with CSNET Manager or available with the Net Configuration Kit).
2 Input the following parameters:

- IP Address: 192.168.0.4
- Port: Modbus Gateway / HC-A64NET

3 Press the button at screen



Configuration of device and communication



Device information

Check that the network device is correctly displayed at the “Device information” table. Press refresh button if necessary.

Configuration of Network configuration

When the network device is integrated to the LAN / Modbus net by Ethernet, configure the following parameters:

- IP Address: Allow to modify the IP of the Network device port (“192.168.0.4” by default).
- Mask: Ask to your IT technician for the proper value (“255.255.255.0” by default).
- Gateway: LAN gateway address (“192.168.0.1” by default).

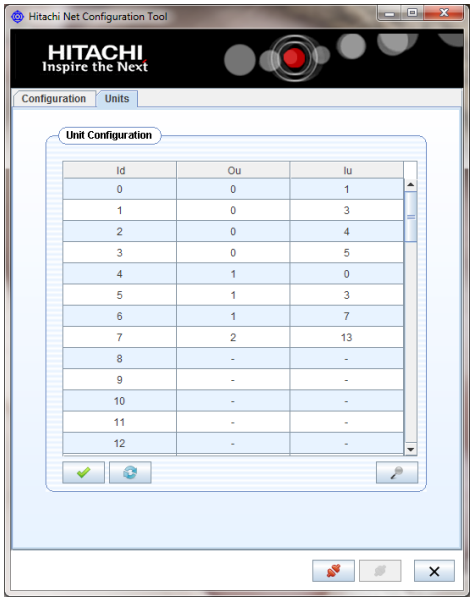
Configuration of Serial Information

When the network device is integrated to the Modbus net by serial port RS485, configure the following parameters:

- RS-485 Speed: 9600 / 19200 Bps (“19200” Bps by default)
- RS-485 Parity: None / Even / Odd parity (“Even” by default)
- Modbus Id: 1~128 (“1” by default)
- Polarization: Communication polarization (“Disabled” by default)

Units Id Configuration

- Automatic address can be done by pushing 
- Manual address configuration can be done by the assignation of each Id to a specific H-LINK address
  - Outdoor unit address (Ou) and Indoor unit address (Iu)



- Confirm the configuration by pressing 
- Refresh button shall be pressed when modify the units connected to the net 

7.1.3 Electrical wiring

Name	Connection	Cable specification
X1	Power supply (1)	Use 0.75 mm² wires which are not lighter than the polychloroprene sheathed flexible cord (code designation 60245 IEC 57)
X3	Ethernet (1)	Category 5 or higher LAN cables PC connection: Use a crossed cable (1 cable set available in Net configuration Kit, model code 7E513206) for direct connection. LAN connection: Use a direct cable (field-supplied) for connection to a commercial distributor (Hub).
X4	H-LINK (1)	Twisted pair shielded cable 0.75 mm². Shield must be grounded in one side only.
X5	RS485 (1)	3 cores cable harness 0.75 mm² grounded in one side only. Use different colour for each cable.
X6	USB (1)	USB Mini-B plug cable (1 cable set available in Net configuration Kit, model code 7E513206)

NOTE

(1): These cables must be field supplied.

◆ DIP switch setting

Name	Function	Factory setting	Description
SW1	Configuration		SW1-1: Modbus end resistance. SW1-2: Not used (keep always “ON”)

7.1.4 Operation

7.1.4.1 Compatibility

The new HC-A(8/64)MB is compatible with all SET-FREE, UTOPIA and CENTRIFUGAL units using H-LINK communication protocol.

This device is not compatible with any of the following HITACHI controllers:

- Centralised remote controls
- Building air conditioning controls
- Other HITACHI BMS gateways (LONWORKS, BACNET, KNX, FIDELIO)
- Other units of the same model

7.1.4.2 Available data

Offset (1)	Name	Description	Values	Read/Write
0	EXIST	Exist	0: No exist 1: Exist	Read
1	SYSTEM_ADDRESS	System address	0~63	Read
2	UNIT_ADDRESS	Unit address		
3	SET_ONOFF	On/Off setting order	0: Stop 1: Run	Read/Write
4	SET_MODE	Mode setting order	0: Cool 1: Dry 2: Fan 3: Heat 4: Auto	Read/Write
5	SET_FAN	Fan setting order	0: Low 1: Medium 2: High 3: High2 4: Auto	Read/Write
6	SET_TSET	Setting temperature	17ºC ~ 30ºC	Read/Write
7	SET_LOUVER	Louver setting	0 ~ 7 (7 is Auto)	Read/Write
8	SET_CENTRAL	Central setting (3)	Bit 0: On/Off (always can be stopped) Bit 1: Mode Bit 2: Setting Temp Bit 3: Fan Bit 4: Louver	Read/Write
9	READ_ONOFF	On/Off status	0: Off 1: On	Read
10	READ_MODE	Mode status	0: Cool 1: Dry 2: Fan 3: Heat 4: Auto	Read
11	READ_FAN	Fan status	0: Low 1: Medium 2: High 3: High2 4: Auto	Read

Offset (1)	Name	Description	Values	Read/Write
12	READ_TSET	Setting temperature status	17ºC ~ 30ºC	Read
13	READ_LOUVER	Louver status	0 ~ 7 (7 is Auto)	Read
14	(Not used)	(Not used)	(Not used)	(Not used)
15	TIN	Inlet temperature reading (2)	-63ºC ~ 63ºC	Read
16	TOUT	Outlet temperature reading (2)	-63ºC ~ 63ºC	Read
17	TGAS	Gas pipe temperature reading (2)	-63ºC ~ 63ºC	Read
18	TLIQUID	Liquid pipe temperature reading (2)	-63ºC ~ 63ºC	Read
19	ERROR_CODE	Alarm code	Alarm unit from 7-segment	Read
20	STOP_CAUSE	Compressor stop cause	(Read unit service manual)	Read
21	VALVE_OPEN	Indoor unit expansion valve opening	0~100	(Not used)
22	OPER_CONDITION	Unit operation condition	0: OFF 1: Thermo OFF 2: Thermo ON 3: Alarm	Read
23	(Not used)	(Not used)	(Not used)	(Not used)
24	AMBIENT TEMPERATURE	Ambient temperature (2)	-63ºC ~ 63ºC	Read
25	RCS_TEM	Remote control switch temperature (only when available in the unit) (2)	-63ºC ~ 63ºC	Read
26	RCS_CONFIG	Remote control switch configuration	b0: 0 Master / 1 Slave b1: 0 wih RCS / 1 Without RCS	Read/Write
27	RCS_GROUP	Remote control switch group	0: No group 1~255	Read/Write
28~30	(Not used)	(Not used)	(Not used)	(Not used)
31	REM_TEM	Remote sensor temperature (2)	-63ºC ~ 63ºC	Read

NOTE

- *(1): Register address is calculated as: "N + (Address * 32) + Offset" where:*
  - *N: Data table position is 2000, position 20000 is also available to maintain compatibility with old Modbus gateway.*
  - *Address: Indoor unit address as configured by configuration software.*
- *(2): These numbers refer to signed 16-bit value using 2-complement format for negative values.*
- *(3): Bit 0 (ON/OFF) and Bit 4 (Louver) selectable only when all centrals are activated. In order to full lock setting from RCS (Central shown in RCS) set this register to 31.*

7.1.5 Alarm code

Address 19 indicates alarm code as shown in indoor unit. Refer to Service Manual for the alarm explanation and repair procedure in case of Indoor Unit or Outdoor Unit alarm.

7.1.6 Troubleshooting

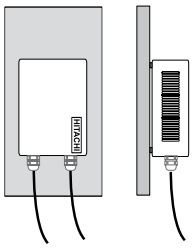
ALARM CODE	DESCRIPTION	COUNTERMEASURE
LED2 is flickering	Abnormal operation	Shut down the device power supply and restore it after 5 s. If LED2 is still flickering contact to the HITACHI customer service

7.2 HC-A16KNX

7.2.1 Safety summary

⚠CAUTION

- *Do not connect voltage input to the control system before preparation for test run has been correctly completed.*
- *Read this manual carefully before performing installation work.*
- *Read this manual in order to configure the HC-A16KNX.*
- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle properly and safely this appliance.*
- *Children should be supervised to ensure that they do not play with the appliance.*
- *Do not install HC-A16KNX in places :*
  - *With vapour, oil or dispersed liquids.*
  - *With heat sources nearby (sulphuric surroundings).*
  - *Where accumulation, generation or leaks of inflammable gases has been detected.*
  - *That are near the sea, in saline, acid or alkaline surroundings.*
- *Install HC-A16KNX away from possible sources of electromagnetic waves.*
- *Respect local electrical standards.*
- *Use a power circuit that is not subject to peak demands.*
- *Ensure that there is enough free space around the HC-A16KNX so that the heat may dissipate adequately (refer to "Installation Work").*
- *If you install the HC-A16KNX in vertical position, install the power supply in the lower part and the temperature control outputs in the upper part.*



7.2.2 Installation

7.2.2.1 Installation site selection

Take note of the maximum admissible cable length between units and the control as well as between the units themselves, as shown in the following table:

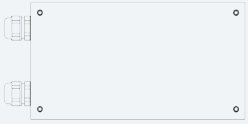
Cable section	0.3 mm²	≥ 0.75 mm²
Cable length	30 m	500 m

7.2.2.2 Components list

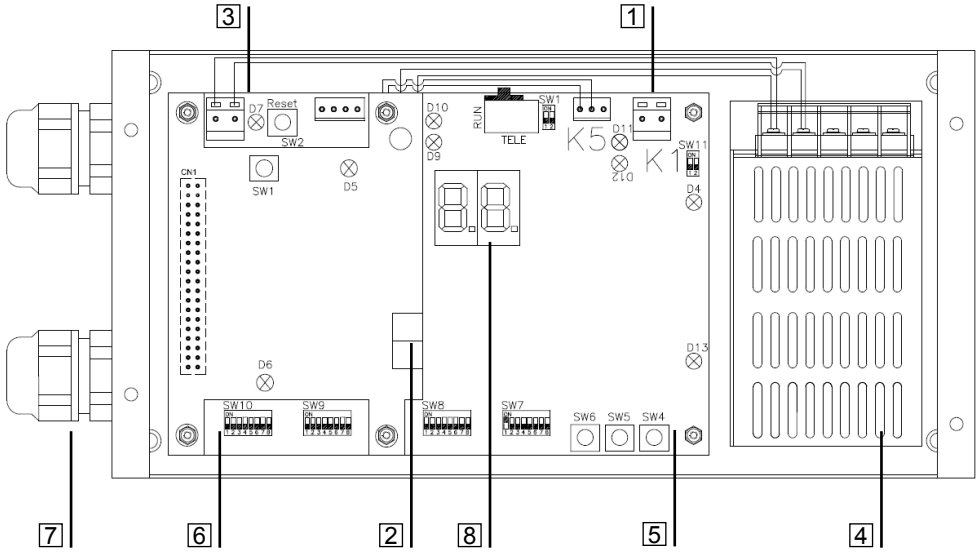
Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quant.	Comments
HC-A16KNX		1	To control the system operation using this KNX gateway.
Installation and operation manual		1	Installation and operation unit instructions.

7.2.2.3 Description of the parts



1 K1: H-LINK Connector

2 KNX port

3 K3: +5V DC Power connection

4 Power source: 230V AC / 5V DC

5 H-LINK PCB

6 KNX PCB

7 Packing glands (x2)

8 7-segments

7.2.2.4 General data

◆ Hardware Specifications

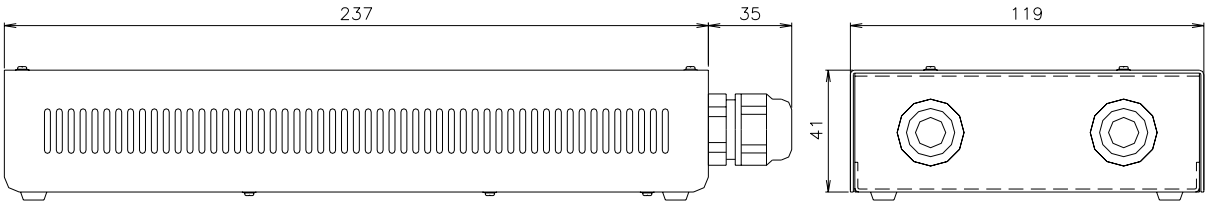
Item	Specifications
Power supply	1~230 V ±10% 50Hz
Consumption	25 W (maximum)
Outer dimensions	Width: 143 mm, Depth: 302 mm, Height: 76 mm
Weight	1.75 kg
Assembling conditions	Indoors (in a control panel or desktop)
Ambient temperature	0~40°C
Humidity	20~85% (Without condensation)

H-LINK

Item	Specifications
Communication with	HITACHI PACKAGED
Communication line	Twisted pair shielded cable, non polarity
Communications system	Half-duplex
Communication method	Asynchronous
Speed of transmission	9600 Bauds
Length of wiring	1000 m maximum (total length of HLINK I/O bus)
Maximum number of HC-A16KNX	8 HC-A16KNX/H-LINK SYSTEM (PACKAGED)

7.2.2.5 Dimensional data

(mm)



7.2.2.6 Installation space

Keep free grated area for ventilation and cable connection.

(mm)

7.2.2.7 Installation procedure

Perform the following procedure:

1 Remove the rubber supports
2 Unscrew the 4 screws from the top cover and remove it
3 Attach the box to the rear vertical board from the inside with M4 screws (not provided) and place 3 mm washers on the outside to separate the box from the wall.
4 Reinstall the top cover. Be careful to position it correctly.

DANGER

- ***Always disconnect the power supply for HC-A16KNX when handling the machine, in order to avoid electrical discharges.***
- ***Do not connect the interface to the power supply until the installation has been completed.***
- ***Comply strictly with local security codes and regulations when connecting the machine to the electric network.***
- ***You will need a three-wire cable (two cores and earth) with a suitable plug at one end.***

CAUTION

- *The signals' cables should be as short as possible. Keep a distance of more than 150 mm from other power cables. Don't wire them together (although they may intersect). If they must necessarily be installed together, take the following measures to avoid noise:*
- *Protect the signal cable with a metal tube which is earthed at one end.*
- *For communications, use shielded wire which is earthed at one end.*

NOTE

Before applying power and turning on HC-A16KNX you must ensure that:

- *All circuits to be connected are correctly applied.*
- *All H-Link connections have been set up.*
- *Follow the local regulations for the electrical installation of HC-A16KNX and associated circuits.*

Any unit that is not connected or is not under power when turning on HC-A16KNX, will not be recognised and will have to be configured later.

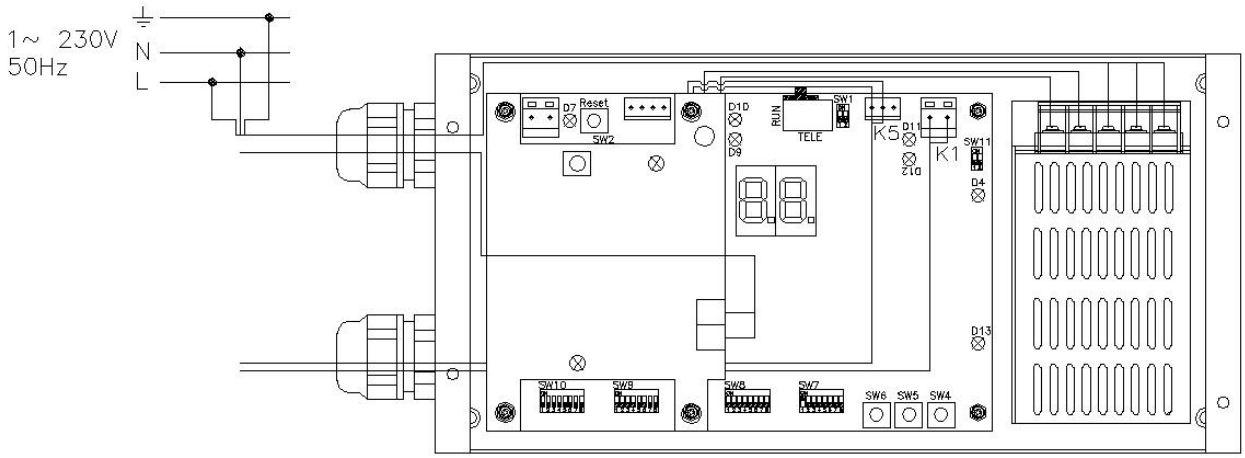
7.2.3 Electrical wiring

In order to run, HC-A16KNX must be connected to the corresponding input and output signals, power supply cables and H-LINK.

No.	Connection	Cable Specifications
1	Power supply circuit 1~ 230V 50Hz 25W (With protection circuit)	Select wires according local regulations (Recommended minimum 1.5 mm² H05RN-F)
2	KNX	2 cables harness 0.75 mm² (H05RN-F type). Use different colour for each cable. (KNX Port)
3	H-LINK	Communication cables for the connection of HC-A16KNX to an Hitachi installation, via CSNET WEB or any Hitachi unit using same H-LINK terminals. Twisted pair shielded cable 0.75 mm² (H05RN-F TYPE). Shield must be grounded in one side only.
4	PCBs Power supply +5V DC. Imax.= 5 A DC	Pair cable 0.75 mm² (H05RN-F TYPE)

NOTE

All cables, except 4 are field supplied



Field supplied Protections:

CB/EF: 5A

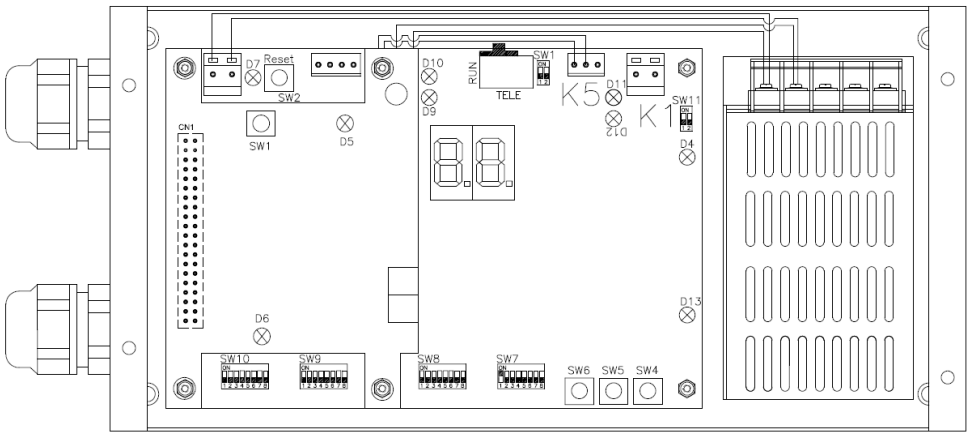
ELB: 2/40A/30mA

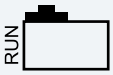
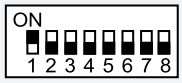
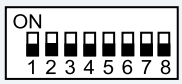
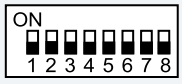
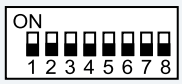
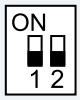
CB: Circuit Breaker

EF: Electric Fuse

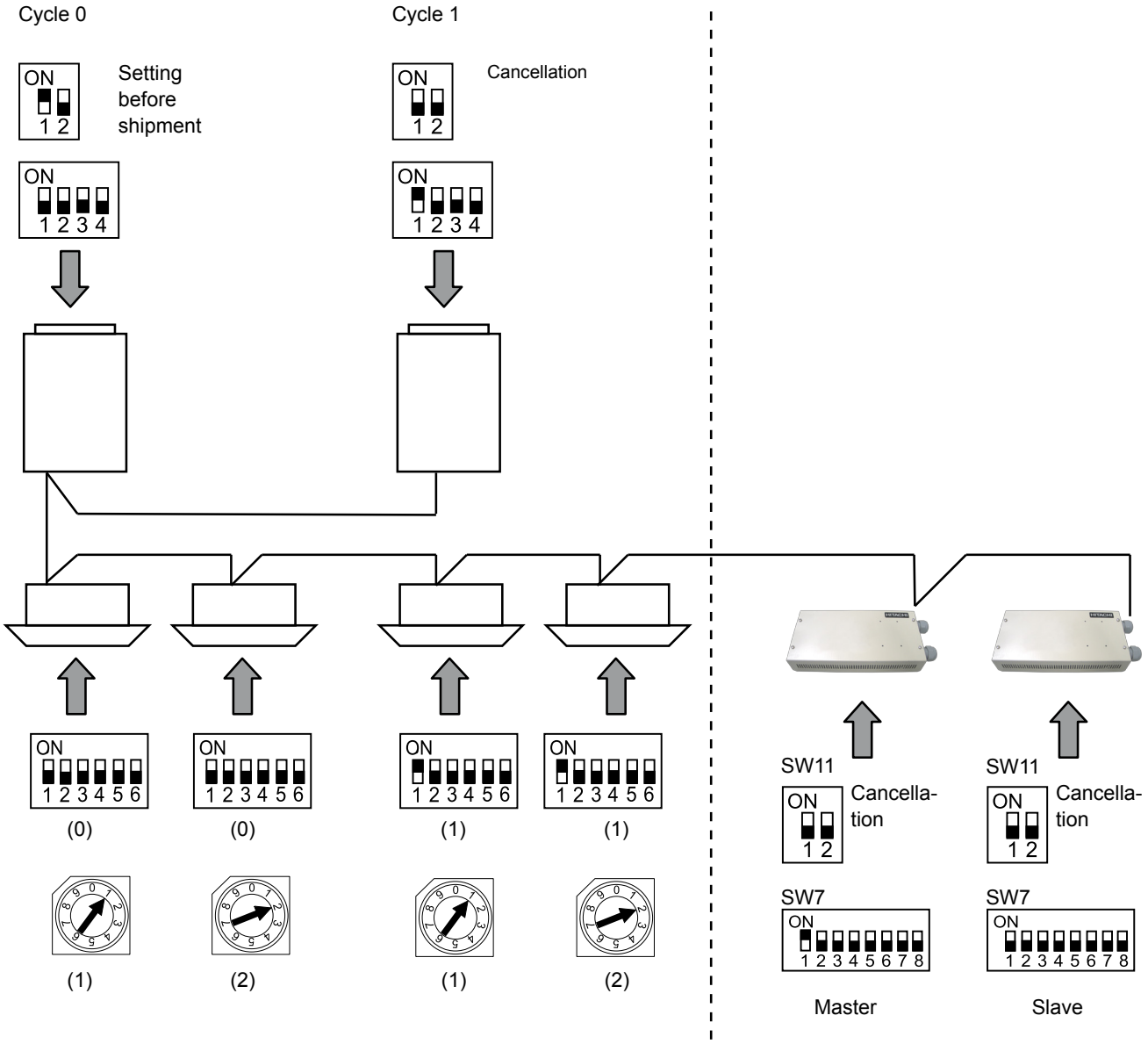
ELB: Earth Leakage Breaker

◆ DIP switch setting



Name	Function	Factory setting	Description
SW1	Reset KNX PCB	–	Reset button. To be used in case of KNX communication has been locked.)
SW2	Reset	–	Reset button. To be used in case of program has been locked
SW3 (TELE)	Not available		Factory purposes. Never change it
SW4	Configuration	–	Setting functions
SW5	Configuration	–	Setting functions
SW6	Configuration	–	Setting functions
SW7	Options 2		Configuration as MASTER HC-A16KNX: SW7-1=ON. Only one HC-A16KNX can be set as a MASTER HC-A16KNX. Setting by default. Configuration as SLAVE HC-A16KNX: SW7-1= OFF. It should be 1 HC-A16KNX configured as MASTER, all the rest of HC-A16KNX must be configured as SLAVE
SW8	Options 1 (Application type)		All in off (no function)
SW9	Not available		All in off (no function)
SW10	Not available		All in off (no function. Do not change)
SW11	H-LINK DSW		SW11-1: H-LINK end resistance SW11-2: Not used
D4, D11	H-LINK	–	H-LINK transmission
D5	Not used	-	
D6	Units configuration alarm	–	ON- No alarms OFF- Units not configured
D7	Power	–	Power supply ON/OFF
D9/D10	Not used	-	-
D12	KNX	-	Internal communication between the KNX PCB and the H-LINK PCB.
D13	Operation	-	Normal software operation

◆ Example



Checking procedure

Checking of HC-A16KNX consist in disconnect and connect the HC-A16KNX and check that in the 7-segments display appears the current software value.

NOTE

Ask your Hitachi distributor what check value has the last version of firmware

7.2.4 Operation

7.2.4.1 KNX Address

KNX Default address for this device is 1.1.1, it can later be modify using ETS software from KNX Association.

7.2.4.2 Available data

The maximum numbers of units that can be controlled using HC-A16KNX are 16. Each unit has 15 communication objects. These objects are explained as follows:

Address	Name	Length	Description	Values	Read/Write
0	Unit-N On/Off	1 bit	ON / OFF order.	0-On 1-Off	Read/Write
1	Unit-N Mode	1 byte	Mode setting order.	0 = Auto 1 = Heat 2 = Dry 3 = Fan 4 = Cool	Read
2	Unit-N Fan	1 byte	Fan setting order.	0~30%= Low 31~60%= Medium 61~100%= High	Read/Write
3	Unit-N Louver Scale	1 byte	Louver position setting.	0~15% = Pos0 16~30% = Pos1 31~45% =Pos2 46~60% = Pos3 61~75% =Pos4 76~90% = Pos5 91~100% = Pos6	Read/Write
4	Unit-N Louver Auto	1 bit	Automatic Louver Setting.	1 = Louver Automatic active	Read/Write
5	Unit-N Set Temperature	2 bytes	Setting temperature.	17~30ºC	Read/Write
6	Unit-N Ambient Temperature	2 bytes	Ambient Temperature.	17~30ºC	Read
7	Unit-N Alarm	1 bit	Alarm notification.	1 = alarm on unit N	Read
8	Unit-N Alarm Code	1 byte	Alarm code.	See errors table from HC-A16KNX	Read
9	Unit-N Mode Cool	1 bit	Cool mode order.	1 = Mode Cool Active	Read/Write
10	Unit-N Mode Dry	1 bit	Dry mode order.	1 = Mode Dry Active	Read/Write
11	Unit-N Mode Fan	1 bit	Fan mode order.	1 = Mode Fan Active	Read/Write
12	Unit-N Mode Heat	1 bit	Heat mode order.	1 = Mode Heat Active	Read/Write
13	Unit-N Mode Auto	1 bit	Auto mode order.	1 = Mode Auto Active	Read/Write
14	Unit-N Prohibit	1 bit	On Yes works only with KNX orders, on No, the unit could receive local orders and from KNX too.	0 = No 1 = Yes	Read/Write

NOTE

Address from 9 to 13 will work together. They are used to set the function mode. Only one of them could be activated at the same time. When one of these bits will be set as 1, the rest will be changed at 0.

◆ **Global objects:**

Address	Name	Length	Description	Values
1~16	Unit-1~16	1 bit per unit	Shows if HC-A16KNX used the communication with the H-LINK PCB for unit N where N is the address to read.	1=Communication works
240	Communication Alarm	1 bit	With value is 1 means that is not possible to communicate with the H-LINK PCB. On 0, communication is working properly.	1=Communication Alarm.

◆ **Error code list:**

Code (in Hexadecimal)	Description
0	No Error
1~98	See Hitachi documentation
99	Unit not configured

7.2.4.3 Configuration method

Every HC-A16KNX can control up to 16 indoor units, considering that in the same H-LINK can be connected up to 160 indoor units, it must be set which indoor units are selected for each HC-A16KNX.

Setting concept consist in an “Id” table listing up to 16 numbers for the assignation of each OU+IU addresses as shows the following example.

Id	Refrigerant cycle address	Indoor unit address
00	00	00
01	00	01
02	00	02
03	00	03
04	00	04
05	00	05
06	00	06
07	00	07
08	00	08
09	00	09
10	00	10
11	00	11
12	00	12
13	00	13
14	12	02
15	25	61

NOTE:

- *KNX software (ETS) is using indoor units from 1 to 16, corresponding to the ID from 0 to 15, so BMS is using indoor unit Id+1. For example, in case you have 6 indoor units, declared as unit 1 to 6 on ETS, Ids have to be set from 0 (unit 1) to 5 (unit 6).*
- *It can be selected for 1 HC-A16KNX up to 16 indoor units from 16 different refrigerant cycles or 16 indoor units from the same refrigerant cycle.*

CAUTION:

Be sure not to set same Indoor Unit to more than one HC-A16KNX. This error is undetectable and can cause undesired operations.

Switch configuration for the previous example

Step number	Action	7 segments (display)	Remarks
For "id" 14:			
1	Press SW4 for 3 seconds	id	Configuration mode selected
2	Press SW4	00	Id selection (IU No.) From 0 to 15 (By pushing SW5 ▲ & SW6 ▼)
3	Press SW4	aU	Refrigerant cycle address
4	Press SW4	--→00	Refrigerant cycle address selection from 0 to 63 (By pushing SW5 ▲ & SW6 ▼)
5	Press SW4	iU	Indoor unit address
6	Press SW4	--→00	Indoor unit address selection from 0 to 63 (By pushing SW5 ▲ & SW6 ▼)
For "id" from 01 to 13 repeat steps 1 to 6			
7	Press SW4 for 3 seconds	id	Configuration mode selected
8	Press SW4	00→01	Id selection (IU No.) from 0 to 15 (By pushing SW5 ▲ & SW6 ▼)
9	Press SW4	aU	Refrigerant cycle address
10	Press SW4	--→00	Refrigerant cycle address selection from 0 to 63 (By pushing SW5 ▲ & SW6 ▼)
11	Press SW4	iU	Indoor unit address
12	Press SW4	--→01	Indoor unit address selection from 0 to 63 (By pushing SW5 ▲ & SW6 ▼)
For "id" 14:			
85	Press SW4 for 3 seconds	id	Configuration mode selected
86	Press SW4	00→ 14	Id selection (IU No.) from 0 to 15 (By pushing SW5 ▲ & SW6 ▼)
87	Press SW4	aU	Refrigerant cycle address
88	Press SW4	--→ 12	Refrigerant cycle address selection from 0 to 63 (By pushing SW5 ▲ & SW6 ▼)
89	Press SW4	iU	Indoor unit address
90	Press SW4	--→02	Indoor unit address selection from 0 to 63 (By pushing SW5 ▲ & SW6 ▼)
For "id" 15:			
91	Press SW4 for 3 seconds	id	Configuration mode selected
92	Press SW4	00→ 15	Id selection (IU No.) from 0 to 15 by pushing SW5 ▲ or SW6 ▼
93	Press SW4	aU	Refrigerant cycle address
94	Press SW4	--→25	Refrigerant cycle address selection from 0 to 63 (By pushing SW5 ▲ & SW6 ▼)
95	Press SW4	iU	Indoor unit address
96	Press SW4	--→51	Indoor unit address selection from 0 to 63 (By pushing SW5 ▲ & SW6 ▼)

7.2.5 Troubleshooting

Nº	ALARM CODE	DESCRIPTION	COUNTERMEASURE
1	EE→61	Indoor Units have not communicated with HC-A16KNX for more than 10 min.	**1** Ensure that H-LINK connection is correctly done in HARC (K1) and also Indoor Units **2** Ensure that Power are supplied to Air Conditioners
2	EE→63	Indoor Units have never communicated with HC-A16KNX	**1** Ensure that H-LINK connection is correctly done in HARC (K1) and also in Indoor Units **2** Ensure that Power are supplied to Air Conditioners
3	D7 is always OFF	No LED is flickering on PCB and 7 segments are OFF	**1** Ensure that 230 are supplied to Power Source **2** Ensure that +5V DC is supplied to K3 **NOTE** • *Power source output DC signal has a rotary switch that must be correctly set to get +5V DC.* • *D7 must be in ON*
4	D12 is never flickering	HC-A16KNX is not reading/sending data (D12 is never flickering)	Check connection between MODBUS devices and K5
5	D12 is not flickering	HC-A16KNX is not operating (D13 flickering means normal communication)	Check that KNX is connected and KNX power supply is ON.
6	D4 & D11 are not flickering	There is no H-LINK communication from HC-A16KNX	**1** D4 is flickering but D11 is not flickering. → See line Nº1, countermeasure 1 **2** D4 neither D11 are not flickering. → See line Nº1, countermeasure 2

7.3 KNX001

7.3.1 Safety summary

⚠ CAUTION

- *This interface KNX001 must be installed by skilled personal (electrician, EIB installer or other skilled technician).*
- *Do not connect voltage input to the control system before installation has been correctly completed.*
- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle properly and safely this appliance.*
- *Children should be supervised to ensure that they do not play with the appliance.*
- *Install KNX001 away from possible sources of electromagnetic waves.*
- *Respect local electrical standards.*
- *Use a power circuit that is not subject to peak demands.*
- *Ensure that there is enough free space around the KNX001 so that the heat may dissipate adequately (refer to "Installation Work").*
- *If you install the KNX001 in vertical position, install the power supply in the lower part and the temperature control outputs in the upper part.*

Do not install KNX001 in places... :

- *outdoor.*
- *with vapour, oil or dispersed liquids.*
- *exposed to sun radiation.*
- *with heat sources nearby (sulphuric surroundings).*
- *where accumulation, generation or leaks of inflammable gases has been detected.*
- *that are near the sea, in saline, acid or alkaline surroundings.*
- *with wet environment.*

NOTE:

- *Read this manual carefully before performing installation and configuration works.*
- *For additional information concerning programming and software operation, please refer to the CSNET WEB information.*

7.3.2 Installation

7.3.2.1 Installation site selection

Take note of the maximum admissible cable length between units and the control as well as between the units themselves, as shown in the following table:

Cable section	0.3 mm²	≥ 0.75 mm²
Cable length	30 m	500 m

7.3.2.2 Components list

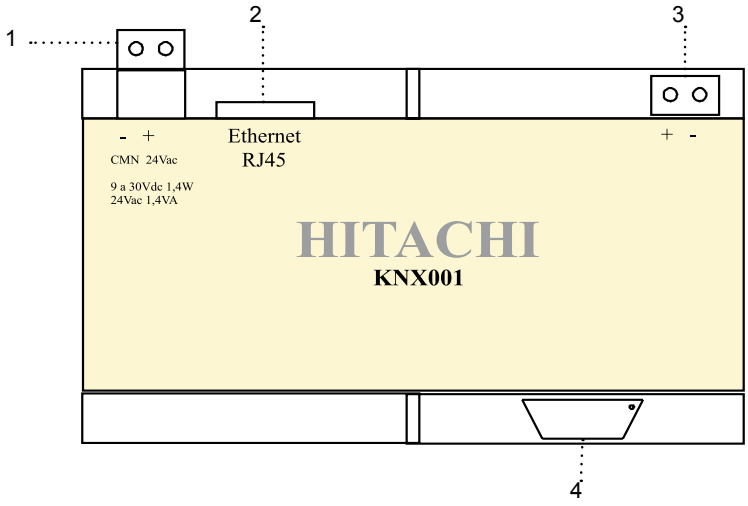
Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quant.	Comments
KNX001 device		1	To control the system operation using this KNX gateway.
Console cable		1	DB9 male - DB9 female (1,8 m length).
CD ROM		1	Software configuration, compatible with OS Windows® and user manual.
Power adaptor		1	12 V DC, 300 mA
Installation and operation manual		1	Installation and operation unit instructions.

7.3.2.3 Description of the parts



1. Power Supply Terminals
2. CSNET WEB Port
3. KNX TP-1 Port
4. PC-Console

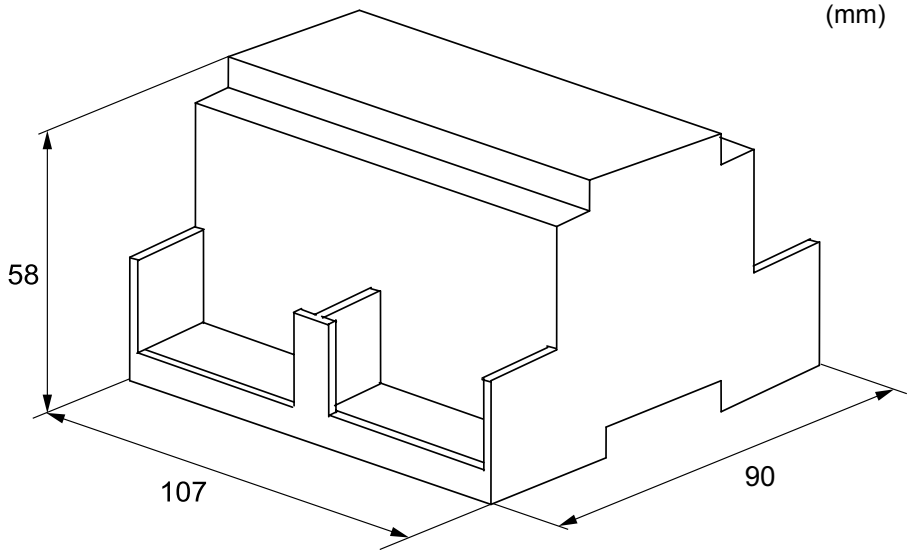
7.3.2.4 General data

Cover	PC plastic type (UL 94 V-0). Grey. RAL 7035.	
Dimensions	Width 107mm - Height 90 mm - Depth 58 mm	
Weight	2 kg	
Power Supply	9 a 30 VDC ±10% 1.4W. 24 VAC ±10% 1.4VA. Terminal: Screw type removable (2 poles) for 2.5 mm2 (12 AWG) cable.	
Assembly	Surface, Wall an over rail DIN EN60715 TH35.	
CSNET WEB Port	1 x Ethernet 10BT RJ45. - (TCP/IP Modbus protocol)	
KNX Port	1 x KNX TP1 (EIB) Opto insulated. Screw type removable (2 poles) for 2.5 mm2 (12 AWG) cable	
Indicators LED	1 x Power Supply. 2 x Ethernet Port activity (LNK, ACT).	2 x KNX Port activity (Tx, Rx) 1 x programming/bus KNX.[1]
Push button	1 x programming KNX.[1]	
Port type	RS232. DB9 female (DCE) connector DB9.	
Configuration	By RS232 port.	
Firmware	Updates allowed by RS232 port	
Temperature range	-40°C a +70°C	
Relative Humidity	5% a 95%, without condensation	
Protection	IP20 (IEC60529).	
RoHS Conformity	RoHS compliance according, directive 2002/95/EC.	
Certification	CE	

[1] For servicing purposes. Not avalaible.

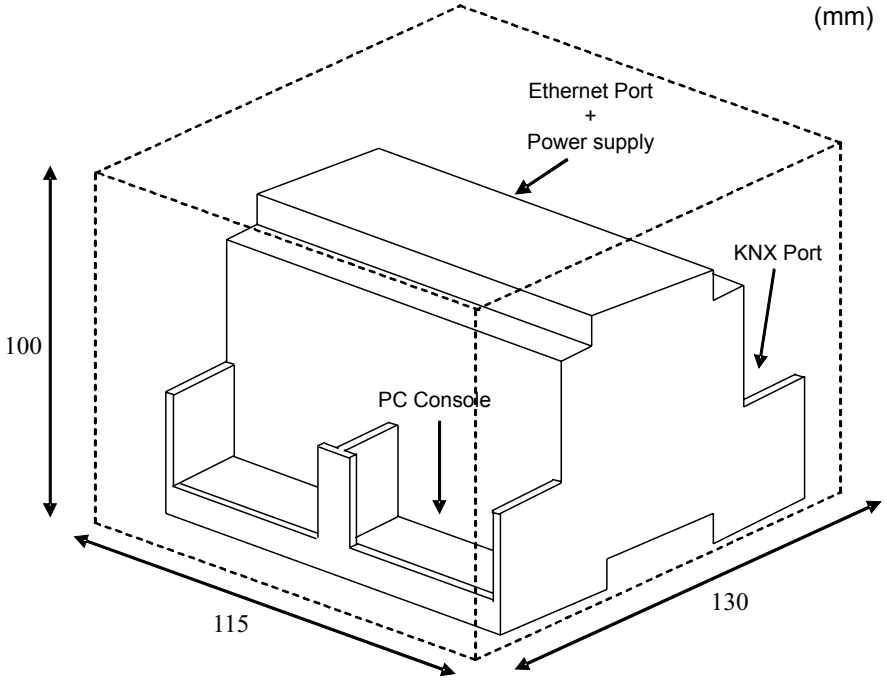
7.3.2.5 Dimensional data

(mm)



7.3.2.6 Installation space

Minimum space recommended for the interface and its external connections.



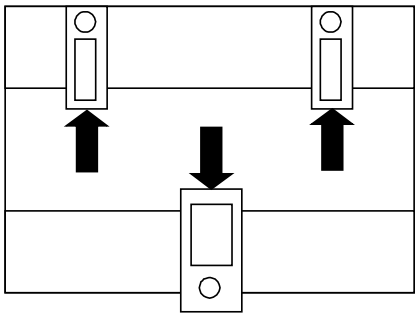
7.3.2.7 Installation procedure

1 Ensure that there is no power supply connected to any part of KNX001 (power terminals and EIB bus).
2 Install the device following the detailed explanations in 4.2.1 and 4.2.2. It is recommended to install KNX001 inside an electrical box.
3 Connect current adaptor to the KNX001 keeping right polarity (see technical characteristics for power supply connections).
4 Connect CSNET WEB to KNX001 by ETH connector. CSNET WEB connection can be done directly by ethernet crossed cable CAT5 or directly from LAN installation of the building. In the last case used non crossed ethernet CAT5 cable in order to connect KNX001. Consult to computer net administrators for TCP connection. KNX001 is connected to CSNET WEB by port 502.
5 Connect EIB bus to KNX TP1 (EIB) and keep correctly polarity.
6 Connect current adaptor to the power net.
7 Provide power to EIB bus.
8 Follow the instructions in TCXX0055_rev0 attached inside of CD ROM for KNX001 configuration and start up.

◆ Wall Assembly

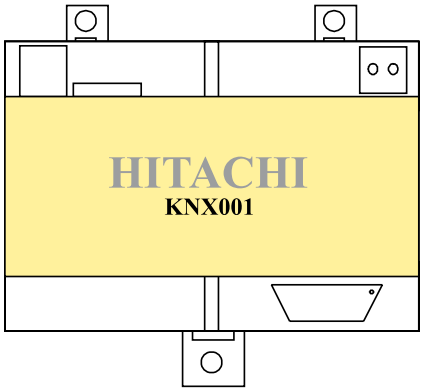
Pull the upper plastic parts and lower plastic part outside until fixing holes are visible from front side and a ‘click’ is heard (see right figure below).

Back side view



Plastic parts positioned for rail DIN assembly

Front side view



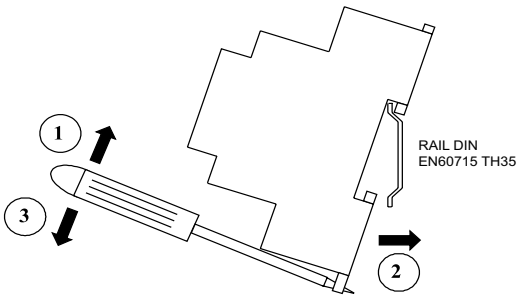
Plastic parts ready for wall assembly

Use the holes of the plastic parts for wall mounting.

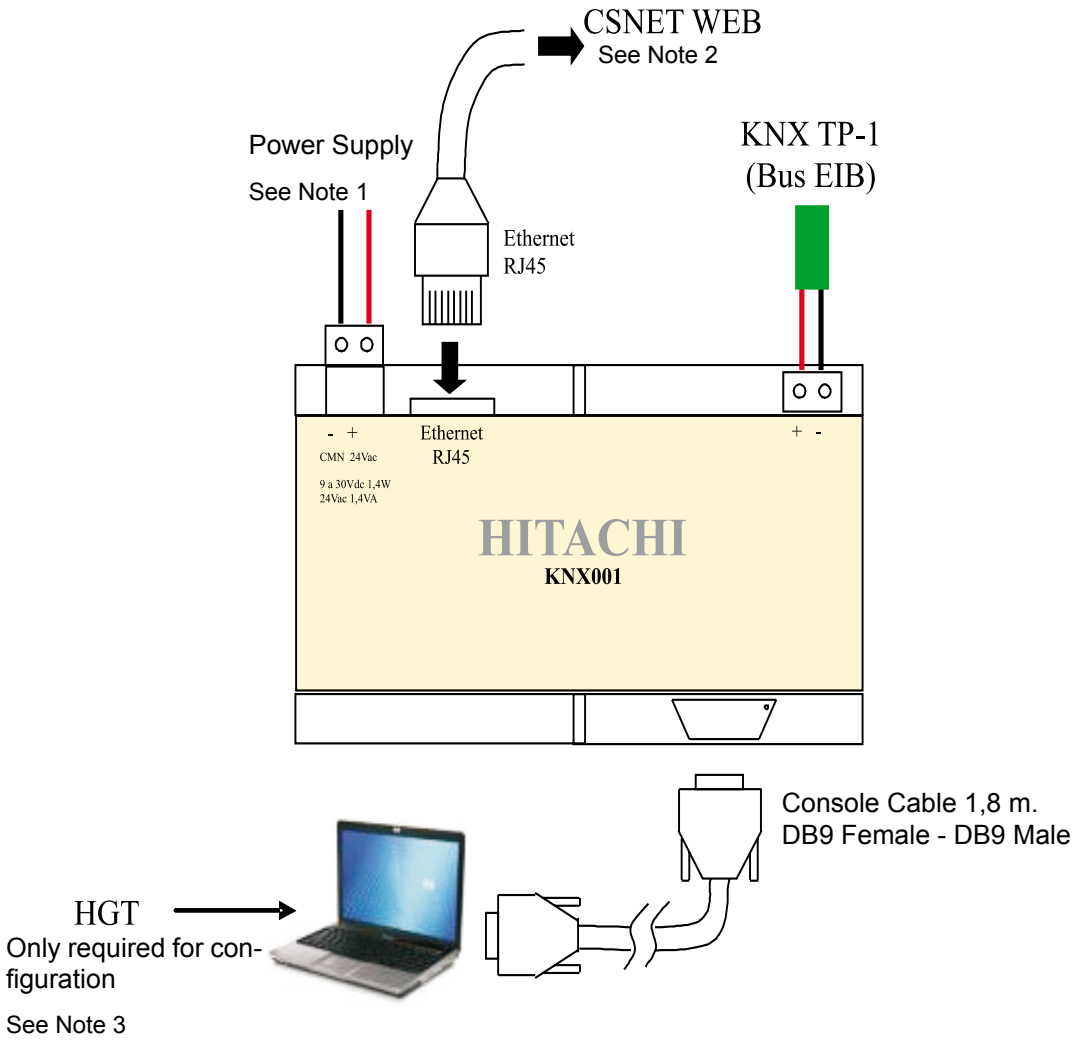
◆ Rail DIN Assembly

Hang upper side of the device from the upper side of DIN profile. Using a screwdriver pull the lower plastic part (see drawing) and push the lower side of the device against the profile.

Side view



7.3.3 Electrical wiring



NOTE

1 *Use always a DC Power Supply:*

- *Keep correctly polarity in terminals + & -. Ensure that supplied voltage are between allowed limits (9 a 30 VDC). If power source is grounded, connect - terminal only to ground circuit, never + terminal.*

If a AC Current is used:

- *Ensure that power supply is 24 VAC. Do not connect any terminal to ground circuit and do not connect any other device that could suffer any earth leakage current in their terminals.*

2 *CSNET WEB connection can be done directly by ethernet crossed cable CAT5 or directly from LAN installation of the building. In the last case used non crossed ethernet CAT5 cable in order to connect KNX001. Consult to computer net administrators for TCP connection. KNX001 is connected to CSNET WEB by port 502.*

3 *Use HGT software for KNX001 configuration. Check HGT user manual for details.*

7.3.4 Operation

7.3.4.1 Introduction

A Hitachi Air-Conditioning system is integrated with a KNX system using CSNET WEB and the KNX001 device. The types of machines to connect are Packaged, and up to 128 units are supported. This interface has different signals. The signals available fare presented below:

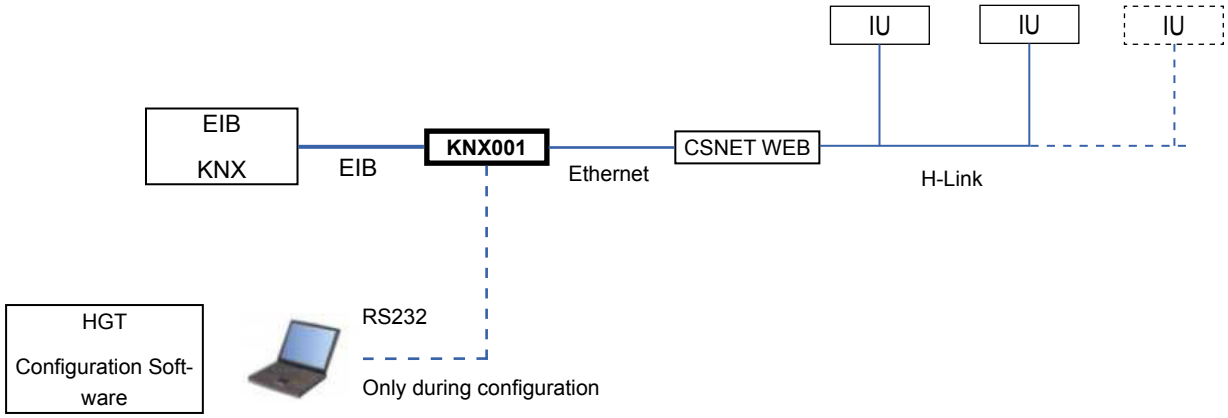
Name	Description/State
OnOff	On/Off setting order Read/Write: ON,OFF
Mode	Mode Setting order Read/Write: COOL, DRY, FAN, HEAT, AUTO
Fan	**Fan Setting order** Read/Write: LOW, MED, HIGH
TempSet	**Setting Temperature** Read/Write: 17ºC ~ 30ºC
Louver	**Louver Setting** Read/Write: 8 positions: 0 ~ 7 and AUTO
Central	**Central Setting** Read/Write: OnOff, Mode, TempSet, Fan
TIn	**Inlet Temperature** Read: ºC
TOut	**Outlet Temperature** Read: ºC
TGas	**Gas Pipe Temperature** Read: ºC
TLiquid	**Liquid Pipe Temperature** Read: ºC
ErrorCode	**Alarm Code** Read: 0 ~ 100
StopCause	**Compressor Stop Cause** Read: 0 ~ 200
ValveOpen	**Indoor Unit Expansion Valve Opening** Read: 0 ~ 100
OperCondition	**Unit Operation Condition** Read: OFF, THERMO-ON, THERMO-OFF, ALARM
Defrost	**Defrost** Read: On, Off
ExtAmbTemp	**Ambient Temperature** Read: ºC
Timer	**Timer disabled** Read/Write: Enabled/Disabled
Error Comunicación	**Error Comunication Unit** It's a signal generated to indicate that the machine is not set into CSNET WEB.

CSNET WEB is a device that acts as an interface or gateway between the H-Link bus and an Ethernet connection.

The H-Link bus interconnects Packaged units with CSNET WEB. The Ethernet connection is used by the KNX001 gateway to access the machines. As a previous step to the configuration of KNX001, CSNET WEB must be configured, along with the machines or A/C units themselves.

For more information refer to the CSNET WEB documentation.

Each of the previous signals must be associated with an address of *Group* KNX, so that the whole set behaves as one more part of the KNX system with the same configuration and operation characteristics.



KNX001 performs continuous *polling* (reading) of all the signals configured in CSNET WEB and keeps their status updated in order to serve as information to the KNX system.

When a change of status is detected in a signal, a written message is sent to the KNX bus of the associated KNX *Group*.

When a written message is received from the KNX bus to a KNX *Group* that is associated with the signal, the corresponding message is sent immediately to CSNET WEB so that is can perform the appropriate action.

In the initial process after start-up of KNX001, a search is performed for the configured units (machines). If no unit is detected, this is indicated by the communication error signal associated with each unit.

7.3.4.2 Limitations

Element	Maximum	Notes
No. Packaged	128	No. IU A/C
No. KNX Groups	5920	Total no. of KNX Groups that can be used in KNX001
No. Listening addresses	1000	No of KNX groups that can be used as listening addresses
No. Listening addresses per KNX Group	255	No. listening addresses that can be associated with a KNX group

7.3.4.3 The KNX System

This section gives a general description of the KNX perspective.

◆ Description

KNX001 is connected directly to the KNX bus, and behaves as one more part of the KNX system with the same configuration and operation characteristics.

Internally, the electronic circuit that is connected to the KNX bus is optoisolated from the power supply and from the rest of the equipment's electronics.

KNX001 receives, manages and sends all the messages from the KNX bus that refer to its configuration and operation.

On receiving messages sent to addresses of the KNX group, it sends the corresponding messages to CS-NET-WEB, in order to keep both systems synchronized.

When a change in the signal from CSNET WEB is detected, the message is sent to the KNX bus of the associated KNX group address, in order to keep both systems synchronized.

The status of the KNX bus is checked continuously. If loss of bus is detected, due for example to a power failure in the KNX bus, when the KNX bus is restored KNX001 will detect it and will perform the *Updates* of the groups marked with this property, i.e. it will make read requests for the group addresses. This behaviour can be disabled.

◆ Definition of signals

Each signal from the external system uses the following KNX properties:

Property	Description
Signal	Signal description Only for information. Permits a signal to be identified easily.
EIS (DataPoint)	The type of KNX data item used to express the value of the signal. Depends on the type of external system signal in each case. In some integrations it can be selected, while in others it is fixed, given the intrinsic nature of signals.
Group	The KNX group with which the signal is associated. It is also the group to which reading (R), writing (W), transmission (T) and updating (U) are applied. It is the sending group.
Listening addresses	Addresses that will act on the signal apart from the Group.
R	Read If enabled, it will permit read messages from this Group.
W	Write. If enabled, it will permit write messages from this Group.
T	Transmission. If enabled, when the value of the signal changes due to a change in the value of the external system, a write message will be sent from the Group to the KNX bus.
U	Update. If enabled, on starting KNX001 or after the KNX bus falls over, read messages will be sent to the KNX bus of the sending group. The value received will be sent to the external system as if it had been received by written message. If U2 is selected, instead of using the address of the sending group, the first listening address will be used.
Enable	If enabled, the signal is enabled in IntesiBox, otherwise it behaves as if the signal has not been defined or does not exist. Permits signals to be disabled, without having to delete them.

7.3.4.4 Configuration

◆ Introduction

HGT software is a tool for configuring and monitoring operation of KNX001 equipment via a serial cable an RS232 port of the PC. It works in any Microsoft Windows® operating system.

KNX001 configuration is divided in 2 parts: Connection and Signals. This information is stored in 2 or more text files. Once the desired configuration is completed, a binary file is generated and sent to the KNX001.

It is not necessary to be connected to the KNX001 in order to configure the integration. Instead this can be done in the office and later downloaded to the KNX001 in the installation.

Once KNX001 has a power supply and is connected with a serial cable to the PC where HGT is run, enable the On Line check box. Information about the equipment will appear in the viewfinder of the Communication Console. Once the configuration is completed, press the Send File button and the configuration will be downloaded. After a few seconds KNX001 will restart and will use the new configuration.

The HGT software has a user interface in a number of languages. Select the most suitable language from the Configuration menu – Languages.

◆ Projects

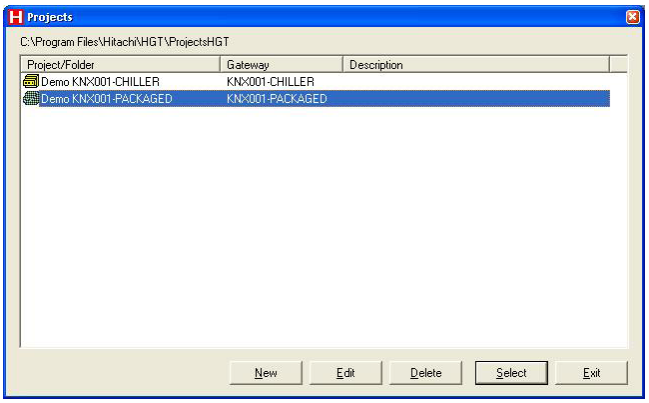
The first step in making a new installation is to create a new project. A new project consists of a project name, project description (optional) and the type of Hitachi machines to be used.

When a new project is created, a new directory is created with the name of the project. It contains the configuration files necessary for the KNX001.

In order to avoid overwriting the configuration of other existing projects, it is highly recommended that a new project be created for each new installation. If a KNX001 configuration is lost, there is no way of recovering it from inside the KNX001.

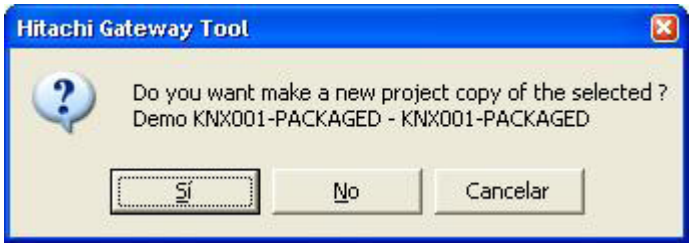
The folder where the projects are created is FolderApplication\ProjectsHGT, where FolderApplication is the folder in which HGT is installed (by default C:\Program Files\Hitachi\HGT). Within the projects folder, a new folder is created for each new project with the files that contain the project configuration.

When HGT is opened the project selection window appears, permitting a project to be selected or created. Two Demo projects appear, one for each type of machine. A new project can be created empty, or a new project can be created based on an existing one. In this case, the new project will be a copy of the original, which in certain cases may save configuration work.

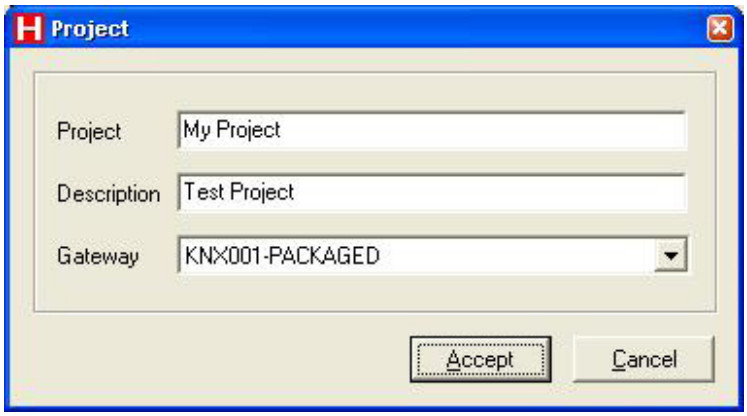


Project selection window

To create a new project, select a project with the same external protocol as the one you want to use and press New. You will be asked whether a copy of a selected project or a new one is to be created.



If you select Yes, you will be able to specify the name and description of the new project, based on the same external protocol selected. If you select No, you will also be able to select the type of machines to use in the new project.



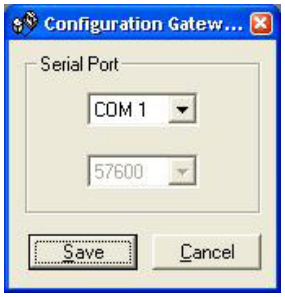
When you accept, a new folder will be created within the project folder, with the name of the project. If you select new project without copying from another, the configuration by default will be that defined in the template files. Otherwise, it will be the same as that of the copied project.

◆ Connection with KNX001

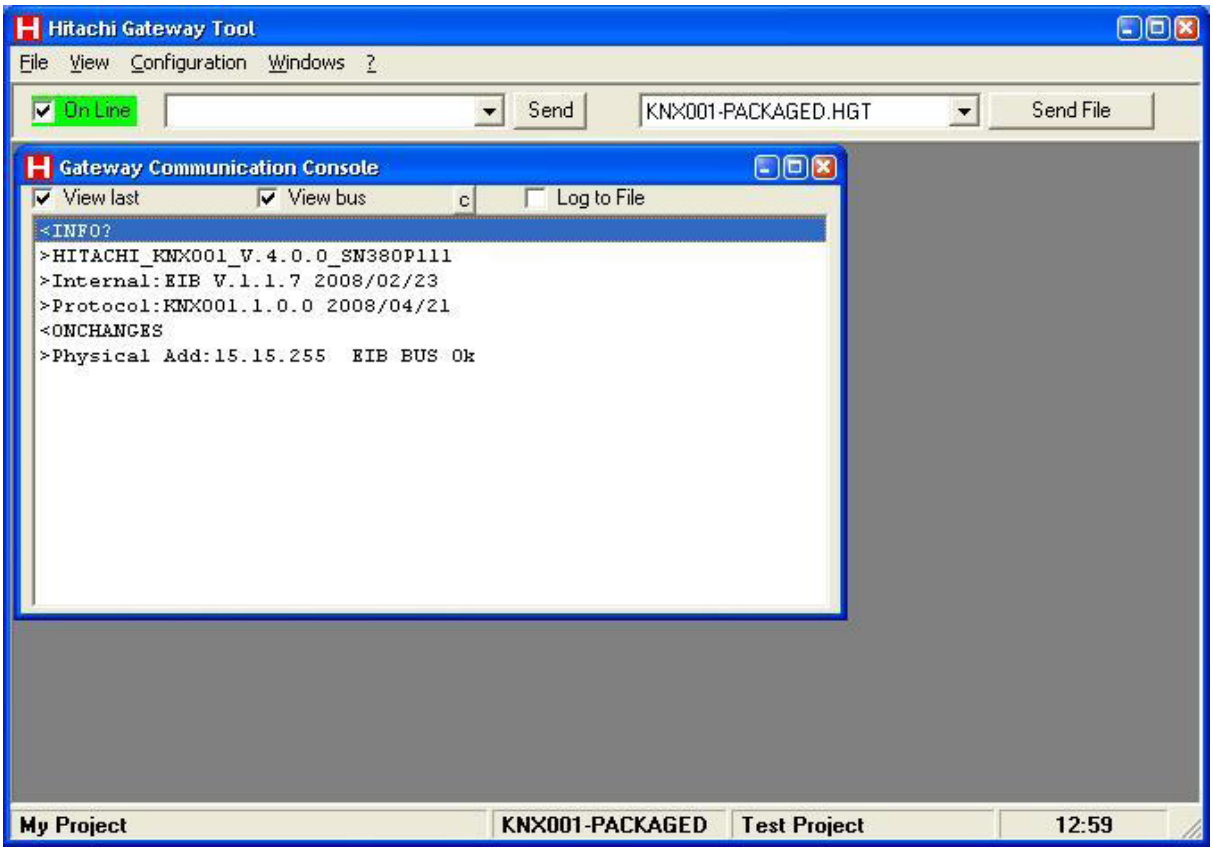
Even if there is no connection with con KNX001 (Off-line), it is possible configure KNX001 easily in the office.

Before you can download the configuration and monitor KNX001, connection must be established between HGT and KNX001 (On-line). This is done with the following steps:

1 Ensure that KNX001 is powered and correctly connected to the KNX bus and the external system.
2 Connect HGT, using the connector marked PC, to a serial port of the PC. USB-RS232 adaptors can be used.
3 In HGT select the serial port to be used for the connection, via Configuration Menu -> Connection.

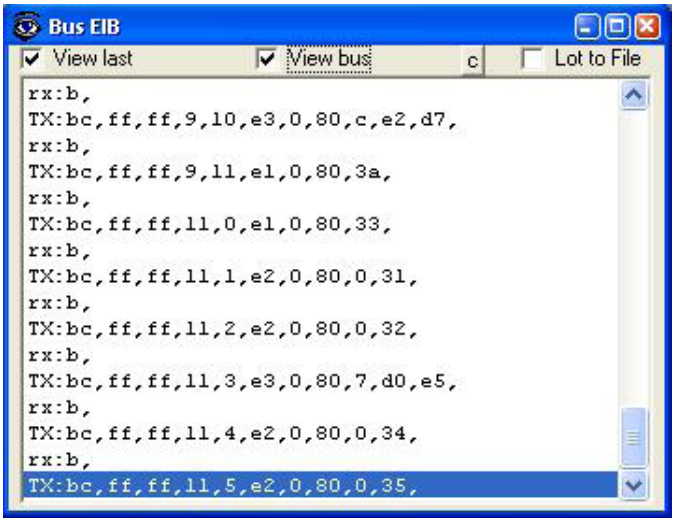


4 Enable the check box *off-line* under the menu bar (it will change to *on-line*) and HGT will ask for INFO from KNX001. If the connection is correct, KNX001 will respond with its identification (this can be supervised via the console window of communication with KNX001, as shown in the image). This window shows information messages where the KNX groups appear with their value when changes in their status occur.

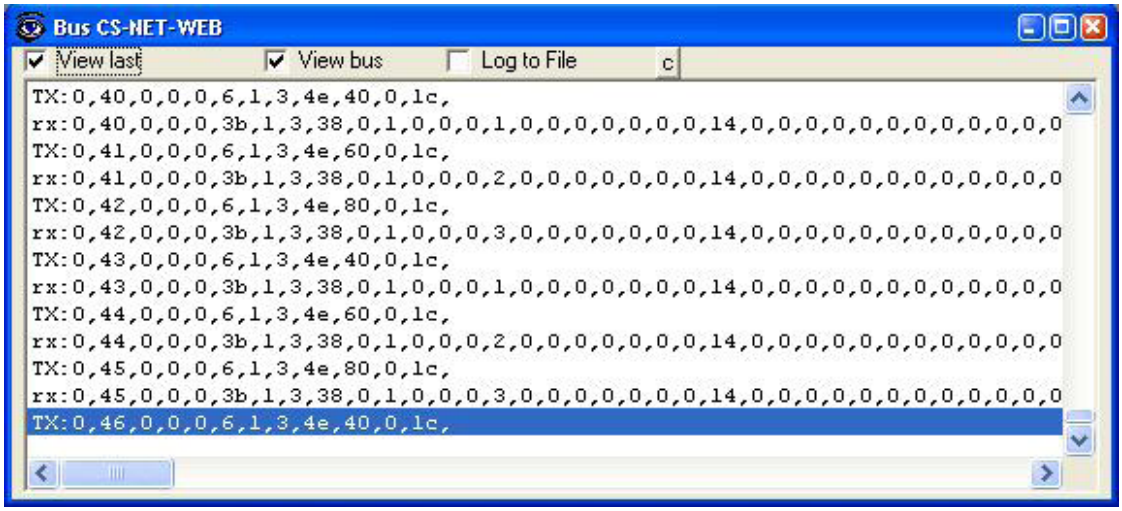


Once connected, all HGT's supervision and monitoring options are available.

To monitor communication between KNX001 and the KNX Bus, select the menu *See -> Bus -> EIB*. The window of *the Communication viewfinder* of KNX will be opened. This window shows in real time the communication links with the KNX bus, along with information messages.



To monitor communication between KNX001 and CSNET WEB, select the menu *See -> Bus -> CSNET WEB*. The window of *the Communication viewfinder of the external system* will be opened. This window shows in real time the communication links with the external system, along with information messages.



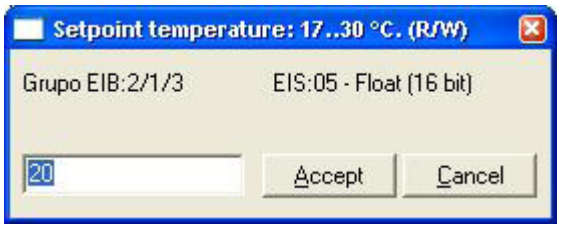
Both windows permit communications to be recorded in a text file with extension ".log". This function will only be used for the resolution of problems for technical service. To use it, enable the check box *Log to File*.

To supervise the status of the signals configured, select the menu *See -> Signals*. The window of *the Signals viewfinder* will be opened. This window shows in real time the status of the signals configured. After a reset of KNX001, or after sending a configuration file, all the signals are updated automatically. If connecting to a KNX001 that is already in operation, you must press the button, *Refresh*, once only to update the status of all signals. While you maintain the connection the signals will be kept updated.

	Dev.	Ident.	Signal	EIS	Group	Listening adc	R	W	T	U	Value
30	1	11 - ErrorCode	Error Code: 0..100. (R)	14 - Counter (8 bit)	1/1/11		R		T		0
31	1	12 - StopCause	Stop Cause: 0..200. (R)	14 - Counter (8 bit)	1/1/12		R		T		0
32	1	13 - Valve	Indoor Unit Expansion Valve Opening: 0..100%. (R)	06 - Scaling (8 bit)	1/1/13		R		T		0
33	1	14 - Operation	Unit Operation Condition: 0-Off, 1-Thermo-On, 2-ThermoOff, 3-	14 - Counter (8 bit)	1/1/14		R		T		0
34	1	33 - OFF (0)	Unit Operation Condition:OFF. (R)	01 - Switching (1 bit)	1/6/1		R		T		1
35	1	34 - THERMO-OFF (1)	Unit Operation Condition:THERMO OFF. (R)	01 - Switching (1 bit)	1/6/2		R		T		0
36	1	35 - THERMO-ON (2)	Unit Operation Condition:THERMO ON. (R)	01 - Switching (1 bit)	1/6/3		R		T		0
37	1	36 - ALARM (3)	Unit Operation Condition:ALARM. (R)	01 - Switching (1 bit)	1/6/4		R		T		0
38	1	15 - Defrost	Defrost: 0-No, 1-Yes. (R)	01 - Switching (1 bit)	1/1/15		R		T		0
39	1	16 - TAmbient	External Ambient Temperature: ºC. (R)	05 - Float (16 bit)	1/1/16		R		T		25
40	1	17 - TimerDis	Timer Enabled: 0-Disabled, 1-Enabled. (R/W)	01 - Switching (1 bit)	1/1/17		R	W	T		0
41	2	101-Not Exist	Communication Error Unit: 0-Ok, 1-Error. (R)	01 - Switching (1 bit)	2/0/1		R		T		0
42	2	00 - OnOff	On/Off: 0-Off, 1-On. (R/W)	01 - Switching (1 bit)	2/1/0		R	W	T		1
43	2	01 - Mode	Mode: 0-Cool, 1-Dry, 2-Fan, 3-Heat, 4-Auto. (R/W)	14 - Counter (8 bit)	2/1/1		R	W	T		3
44	2	02 - Fan	Fan speed: 0-Low, 1-Med, 2-High. (R/W)	14 - Counter (8 bit)	2/1/2		R	W	T		0
45	2	03 - TSet	Setpoint temperature: 17..30 ºC. (R/W)	05 - Float (16 bit)	2/1/3		R	W	T		20
46	2	04 - Louver	Louver: 0..7, 8-Auto. (R/W)	14 - Counter (8 bit)	2/1/4		R	W	T		0
47	2	05 - Central	Prohibition of local control: bit0-On/Off, bit1-Mode, bit2-SetTer	14 - Counter (8 bit)	2/1/5		R	W	T		0
48	2	06 - Group	Remote group controller: 0..255. (R)	14 - Counter (8 bit)	2/1/6		R		T		0

The signals viewfinder can be used even if only one of the two systems is connected, KNX or *CSNET WEB*. It is very useful for supervision and tests.

Double-clicking on any cell of a row, allows the status of a signal to be modified. If the signal has T enabled, its value will be updated and a message will be sent to KNX with this value, in the same way as if it had been written from CSNET WEB. If the signal has W enabled, its value will also be sent to CSNET WEB, in the same way as if it had been written from KNX.

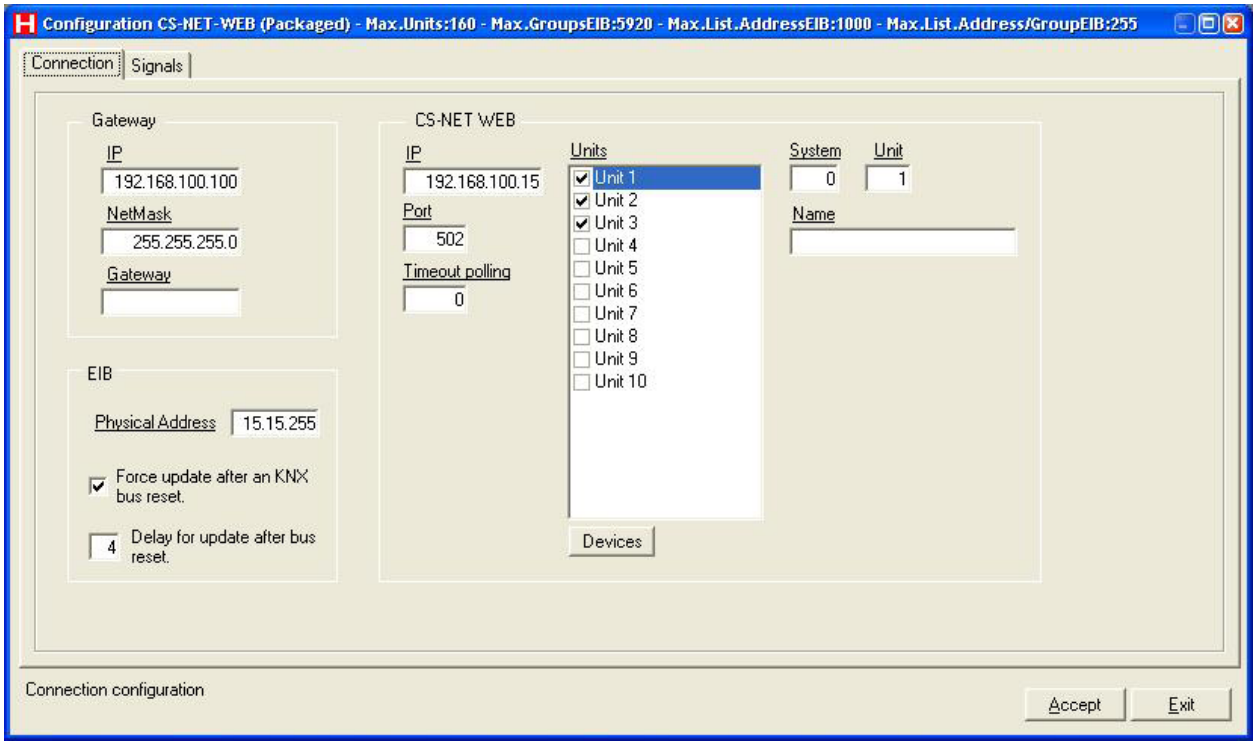


This functionality is very useful for testing both the KNX system and CSNET WEB, without having to act on the real signals of the machines.

The window has a button to copy all the content of the window, in text format separated by tabs, to the Windows clipboard.

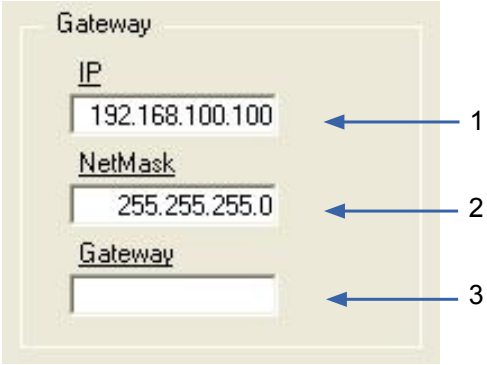
◆ Configuration of KNX001

To configure KNX001, select the menu Configuration -> Hitachi Gateway. The configuration window will be opened. This window has two tabs: Connection and Signals, which are explained below.



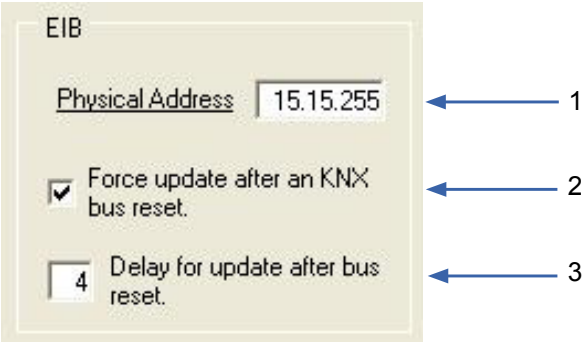
◆ Connection settings

In this window 3 types of information are configured, the KNX001 TCP/IP configuration, the KNX connection configuration and the CSNET WEB connection configuration.



KNX001 TCP/IP configuration

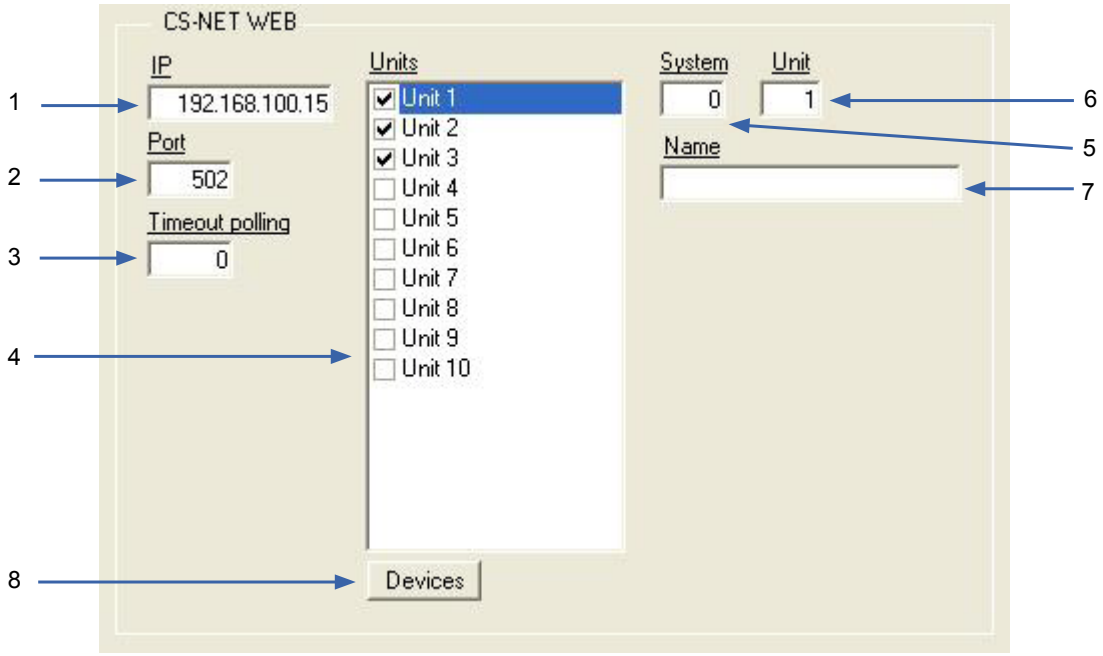
1 KNX001 IP address. It must be in the same network segment as CSNET WEB if it does not use the IP gateway.
2 Network mask. Determine the network segment.
3 If KNX001 is in another network segment different from CSNET WEB, enter the IP address of the router, without leaving it blank.



KNX configuration

1 Selection of the physical address of the KNX device that KNX001 will have.
2 Indicates whether, after a reset of KNX001 or recovery of the KNX bus, read requests will be made to the KNX bus for the group addresses with flag U or U2 enabled.

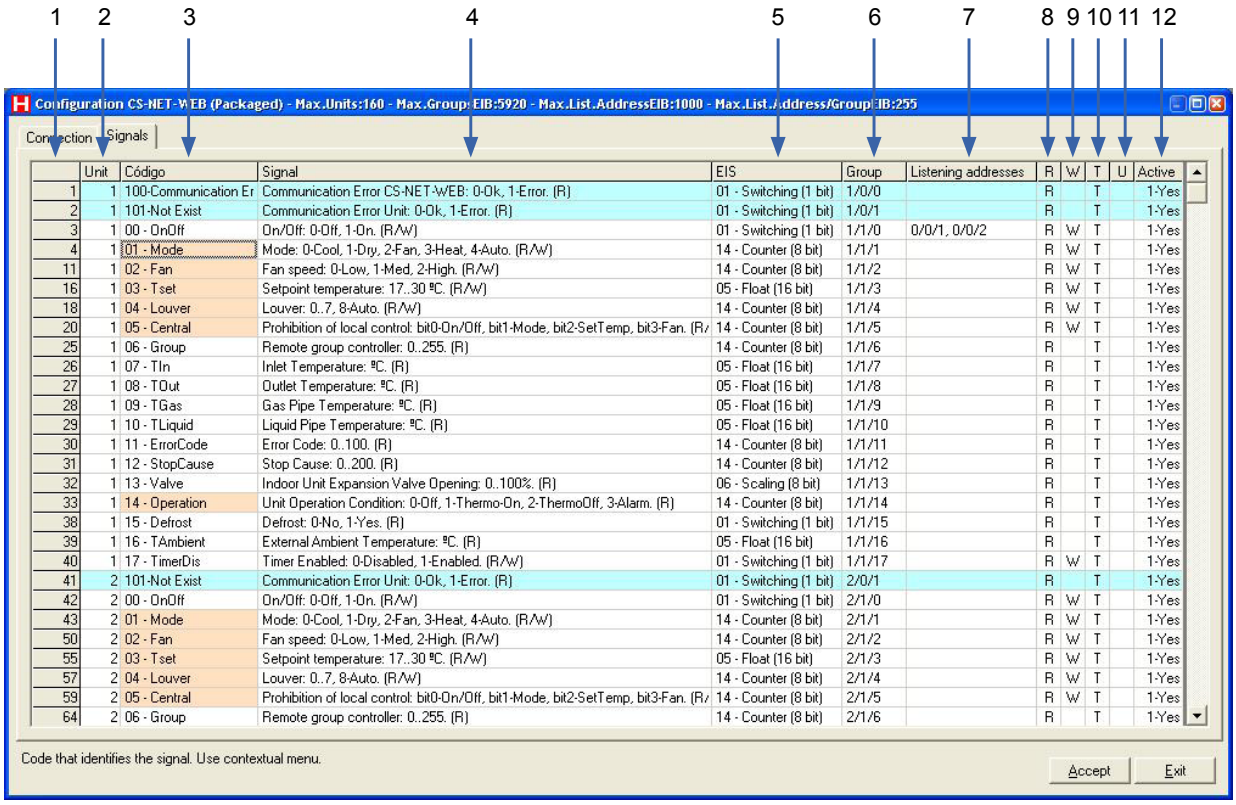
3 Indicates the time in seconds that these requests will be delayed to prevent overload in the KNX bus, due to other KNX devices behaving in the same way.



CSNET WEB settings

1 CSNET WEB IP address.
2 CSNET WEB TCP port, normally 502.
3 Timeout between data requests to CSNET WEB.
4 List of devices to use. For a device to be used in the KNX, it must be selected in the check box in the list. Each device has the following properties:
5 System No., identifies each Hitachi refrigeration system.
6 Unit No., identifies each Hitachi unit.
7 Descriptive name of the device. An optional field.
8 Permits selection of the number of devices to be used in the installation. On changing this parameter the configuration window closes. When it is opened again, the number of devices selected will appear in the list. Up to 128 devices are allowed.

◆ Configuration of the signals



	Unit	Código	Signal	EIS	Group	Listening addresses	R	W	T	U	Active
1	1	100-Communication Er	Communication Error CS-NET-WEB: 0-Ok, 1-Error. (R)	01 - Switching (1 bit)	1/0/0		R		T		1-Yes
2	1	101-Not Exist	Communication Error Unit: 0-Ok, 1-Error. (R)	01 - Switching (1 bit)	1/0/1		R		T		1-Yes
3	1	00 - OnOff	On/Off: 0-Off, 1-On. (R/W)	01 - Switching (1 bit)	1/1/0	0/0/1, 0/0/2	R	W	T		1-Yes
4	1	01 - Mode	Mode: 0-Cool, 1-Dry, 2-Fan, 3-Heat, 4-Auto. (R/W)	14 - Counter (8 bit)	1/1/1		R	W	T		1-Yes
11	1	02 - Fan	Fan speed: 0-Low, 1-Med, 2-High. (R/W)	14 - Counter (8 bit)	1/1/2		R	W	T		1-Yes
16	1	03 - Tset	Setpoint temperature: 17..30 ºC. (R/W)	05 - Float (16 bit)	1/1/3		R	W	T		1-Yes
18	1	04 - Louver	Louver: 0..7, 8-Auto. (R/W)	14 - Counter (8 bit)	1/1/4		R	W	T		1-Yes
20	1	05 - Central	Prohibition of local control: bit0-On/Off, bit1-Mode, bit2-SetTemp, bit3-Fan. (R/	14 - Counter (8 bit)	1/1/5		R	W	T		1-Yes
25	1	06 - Group	Remote group controller: 0..255. (R)	14 - Counter (8 bit)	1/1/6		R		T		1-Yes
26	1	07 - TIn	Inlet Temperature: ºC. (R)	05 - Float (16 bit)	1/1/7		R		T		1-Yes
27	1	08 - TOut	Outlet Temperature: ºC. (R)	05 - Float (16 bit)	1/1/8		R		T		1-Yes
28	1	09 - TGas	Gas Pipe Temperature: ºC. (R)	05 - Float (16 bit)	1/1/9		R		T		1-Yes
29	1	10 - TLiquid	Liquid Pipe Temperature: ºC. (R)	05 - Float (16 bit)	1/1/10		R		T		1-Yes
30	1	11 - ErrorCode	Error Code: 0..100. (R)	14 - Counter (8 bit)	1/1/11		R		T		1-Yes
31	1	12 - StopCause	Stop Cause: 0..200. (R)	14 - Counter (8 bit)	1/1/12		R		T		1-Yes
32	1	13 - Valve	Indoor Unit Expansion Valve Opening: 0..100%. (R)	06 - Scaling (8 bit)	1/1/13		R		T		1-Yes
33	1	14 - Operation	Unit Operation Condition: 0-Off, 1-Thermo-On, 2-ThermoOff, 3-Alarm. (R)	14 - Counter (8 bit)	1/1/14		R		T		1-Yes
38	1	15 - Defrost	Defrost: 0-No, 1-Yes. (R)	01 - Switching (1 bit)	1/1/15		R		T		1-Yes
39	1	16 - TAmbient	External Ambient Temperature: ºC. (R)	05 - Float (16 bit)	1/1/16		R		T		1-Yes
40	1	17 - TimerDis	Timer Enabled: 0-Disabled, 1-Enabled. (R/W)	01 - Switching (1 bit)	1/1/17		R	W	T		1-Yes
41	2	101-Not Exist	Communication Error Unit: 0-Ok, 1-Error. (R)	01 - Switching (1 bit)	2/0/1		R		T		1-Yes
42	2	00 - OnOff	On/Off: 0-Off, 1-On. (R/W)	01 - Switching (1 bit)	2/1/0		R	W	T		1-Yes
43	2	01 - Mode	Mode: 0-Cool, 1-Dry, 2-Fan, 3-Heat, 4-Auto. (R/W)	14 - Counter (8 bit)	2/1/1		R	W	T		1-Yes
50	2	02 - Fan	Fan speed: 0-Low, 1-Med, 2-High. (R/W)	14 - Counter (8 bit)	2/1/2		R	W	T		1-Yes
55	2	03 - Tset	Setpoint temperature: 17..30 ºC. (R/W)	05 - Float (16 bit)	2/1/3		R	W	T		1-Yes
57	2	04 - Louver	Louver: 0..7, 8-Auto. (R/W)	14 - Counter (8 bit)	2/1/4		R	W	T		1-Yes
59	2	05 - Central	Prohibition of local control: bit0-On/Off, bit1-Mode, bit2-SetTemp, bit3-Fan. (R/	14 - Counter (8 bit)	2/1/5		R	W	T		1-Yes
64	2	06 - Group	Remote group controller: 0..255. (R)	14 - Counter (8 bit)	2/1/6		R		T		1-Yes

Table listing signals

1 Signal number. Each line of the table corresponds to a signal. Signals cannot be added or deleted, because the signals available are fixed and can only be enabled or disabled. Serves only to number the rows.

2 Device no. in the list of devices of the Connection tab to which the signal belongs. Not editable.

3 Code. Identifies each signal. A code appears beside each name to identify it. Section 1.1 gives the meaning of each signal. The right button makes a contextual menu appear showing all the possible codes. Not editable.

4 Long description of the signal. This description corresponds to the Code. It indicates if the signal is read R and/or write W.

5 EIS The KNX EIS type (Data point), the format in which the signal value is transmitted. The right button makes a contextual menu appear showing all the possible types. Not editable.

6 Group. It is the KNX group with which the signal is associated and to which reading (R), writing (W), transmission (T) and updating (U) are applied. It is the sending group. Editable.

7 Listening addresses. KNX group addresses that will act on the signal, apart from the Group.

8 R. Read. If enabled, it will permit read messages from this Group.

9 W. Write. If enabled, it will permit write messages from this Group.

10 T. Transmission. If enabled, when the value of the signal changes due to a change in the value of the external system, a write message will be sent from the Group to the KNX bus.

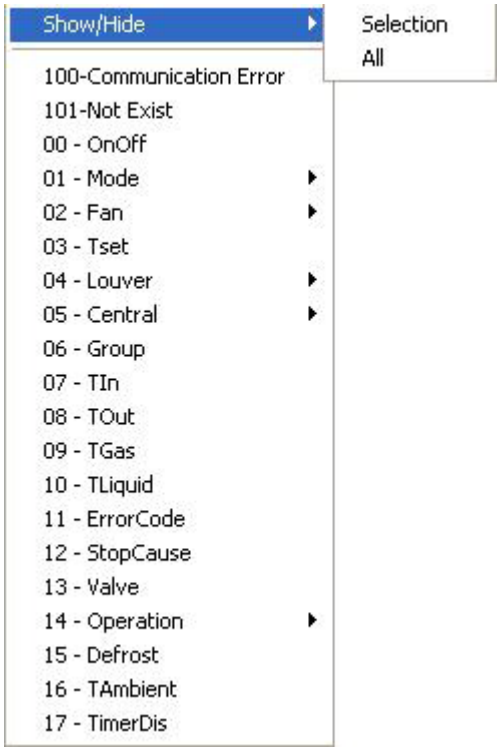
11 U. Update. If enabled, on starting KNX001 or after the KNX bus falls over, read messages will be sent to the KNX bus of the sending group. The value received will be sent to the external system as if it had been received by written message. If U2 is selected, instead of using the address of the sending group, the first listening address will be used.

12 Enable. Permits the use of each signal to be enabled or not. Enabled signals must have a valid KNX configuration. Only signals that are going to be used from KNX should be enabled.

The R, W, T, U and Enable columns can be modified by double-clicking on the cell, marking one or more cells of the same column and using the contextual menu with the right button, or pressing the key of the first letter of the word.

The R, W, T, U columns appear by default with a correct selection. Do not modify the selection if you are not sure how it will affect the integration.

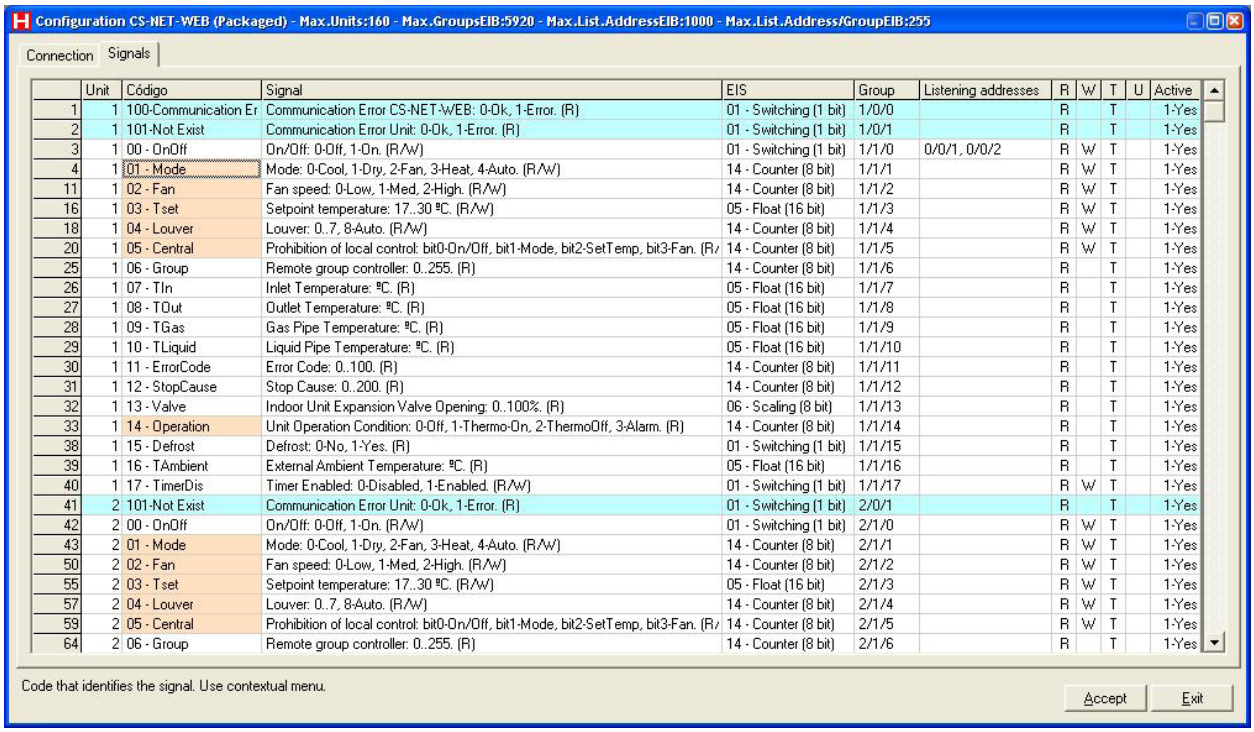
Some cells of column *Code* appear in an orange color. Using the right button of the mouse pointer to make the contextual menu appear, permits *Show/Hide* the *Selection* or *All*.



If Show/Hide is selected Selection, the new signals appear or disappear. These signals are the ones called Multibit, and have the following use. There are signals that have a limited number of possible values, for example, 0-1-2-3-4, which can be used with EIS6 (8 bits value). However, it may be necessary or helpful to act on this from simpler objects, such as an EIS1 switch (switching). The new signals that appear marked in yellow allow a specific value of the signal to be acted via an EIS1.
Show/Hide Selection this can also be done by double-clicking on the orange cells.

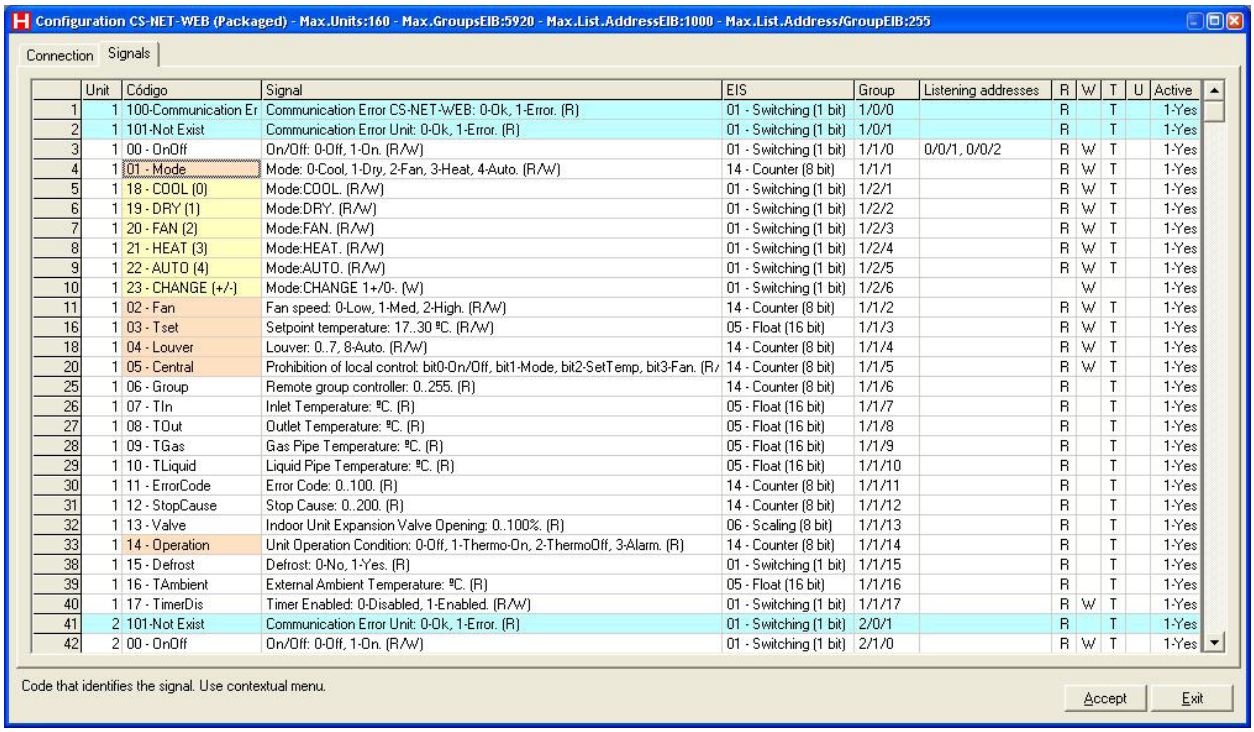
Show/Hide All affects all the orange colored cells in the table. Although the multibit signals are shown, they will not be used until they are enabled in the column Enable.

The following image shows the table without pulling down to view the multibit signals.



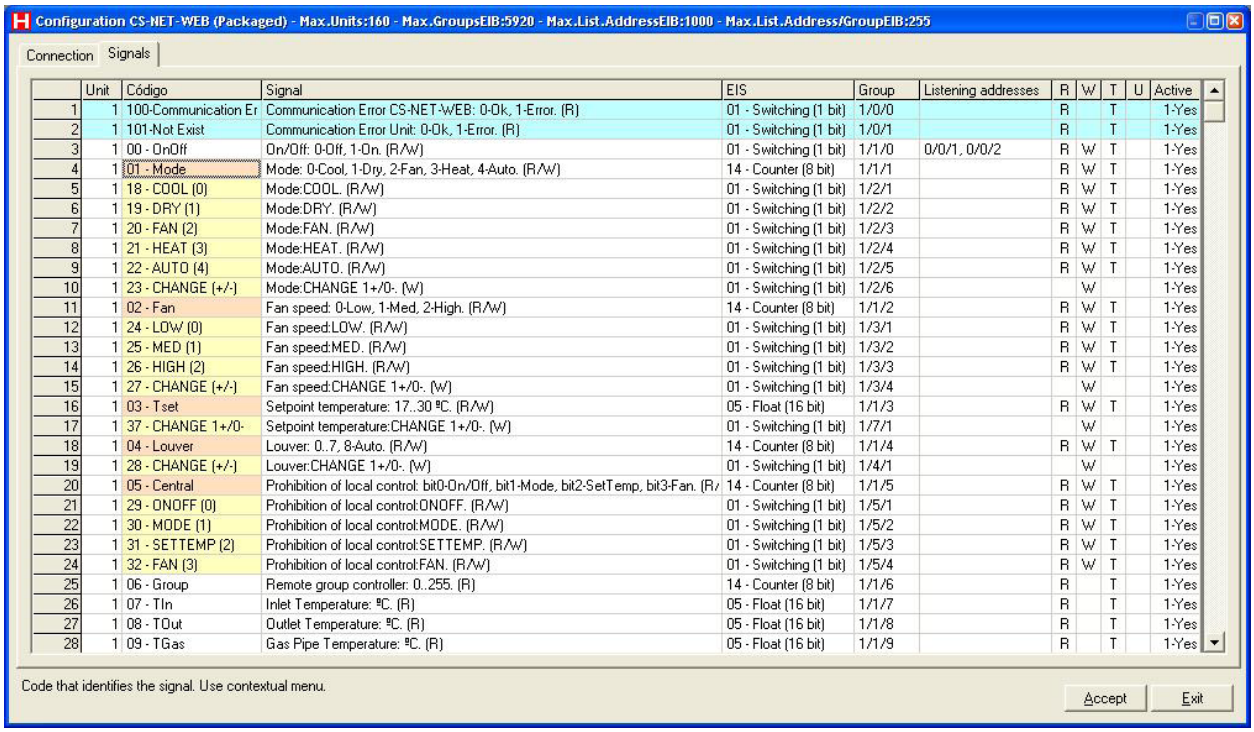
	Unit	Código	Signal	EIS	Group	Listening addresses	R	W	T	U	Active
1	1	100-Communication Er	Communication Error CS-NET-WEB: 0-Ok, 1-Error. (R)	01 - Switching (1 bit)	1/0/0		R		T		1-Yes
2	1	101-Not Exist	Communication Error Unit: 0-Ok, 1-Error. (R)	01 - Switching (1 bit)	1/0/1		R		T		1-Yes
3	1	00 - OnOff	On/Off: 0-Off, 1-On. (R/W)	01 - Switching (1 bit)	1/1/0	0/0/1, 0/0/2	R	W	T		1-Yes
4	1	01 - Mode	Mode: 0-Cool, 1-Dry, 2-Fan, 3-Heat, 4-Auto. (R/W)	14 - Counter (8 bit)	1/1/1		R	W	T		1-Yes
11	1	02 - Fan	Fan speed: 0-Low, 1-Med, 2-High. (R/W)	14 - Counter (8 bit)	1/1/2		R	W	T		1-Yes
16	1	03 - Tset	Setpoint temperature: 17..30 ºC. (R/W)	05 - Float (16 bit)	1/1/3		R	W	T		1-Yes
18	1	04 - Louver	Louver: 0..7, 8-Auto. (R/W)	14 - Counter (8 bit)	1/1/4		R	W	T		1-Yes
20	1	05 - Central	Prohibition of local control: bit0-On/Off, bit1-Mode, bit2-SetTemp, bit3-Fan. (R/	14 - Counter (8 bit)	1/1/5		R	W	T		1-Yes
25	1	06 - Group	Remote group controller: 0..255. (R)	14 - Counter (8 bit)	1/1/6		R		T		1-Yes
26	1	07 - TIn	Inlet Temperature: ºC. (R)	05 - Float (16 bit)	1/1/7		R		T		1-Yes
27	1	08 - TOut	Outlet Temperature: ºC. (R)	05 - Float (16 bit)	1/1/8		R		T		1-Yes
28	1	09 - TGas	Gas Pipe Temperature: ºC. (R)	05 - Float (16 bit)	1/1/9		R		T		1-Yes
29	1	10 - TLiquid	Liquid Pipe Temperature: ºC. (R)	05 - Float (16 bit)	1/1/10		R		T		1-Yes
30	1	11 - ErrorCode	Error Code: 0..100. (R)	14 - Counter (8 bit)	1/1/11		R		T		1-Yes
31	1	12 - StopCause	Stop Cause: 0..200. (R)	14 - Counter (8 bit)	1/1/12		R		T		1-Yes
32	1	13 - Valve	Indoor Unit Expansion Valve Opening: 0..100%. (R)	06 - Scaling (8 bit)	1/1/13		R		T		1-Yes
33	1	14 - Operation	Unit Operation Condition: 0-Off, 1-Thermo-On, 2-ThermoOff, 3-Alarm. (R)	14 - Counter (8 bit)	1/1/14		R		T		1-Yes
38	1	15 - Defrost	Defrost: 0-No, 1-Yes. (R)	01 - Switching (1 bit)	1/1/15		R		T		1-Yes
39	1	16 - TAmbient	External Ambient Temperature: ºC. (R)	05 - Float (16 bit)	1/1/16		R		T		1-Yes
40	1	17 - TimerDis	Timer Enabled: 0-Disabled, 1-Enabled. (R/W)	01 - Switching (1 bit)	1/1/17		R	W	T		1-Yes
41	2	101-Not Exist	Communication Error Unit: 0-Ok, 1-Error. (R)	01 - Switching (1 bit)	2/0/1		R		T		1-Yes
42	2	00 - OnOff	On/Off: 0-Off, 1-On. (R/W)	01 - Switching (1 bit)	2/1/0		R	W	T		1-Yes
43	2	01 - Mode	Mode: 0-Cool, 1-Dry, 2-Fan, 3-Heat, 4-Auto. (R/W)	14 - Counter (8 bit)	2/1/1		R	W	T		1-Yes
50	2	02 - Fan	Fan speed: 0-Low, 1-Med, 2-High. (R/W)	14 - Counter (8 bit)	2/1/2		R	W	T		1-Yes
55	2	03 - Tset	Setpoint temperature: 17..30 ºC. (R/W)	05 - Float (16 bit)	2/1/3		R	W	T		1-Yes
57	2	04 - Louver	Louver: 0..7, 8-Auto. (R/W)	14 - Counter (8 bit)	2/1/4		R	W	T		1-Yes
59	2	05 - Central	Prohibition of local control: bit0-On/Off, bit1-Mode, bit2-SetTemp, bit3-Fan. (R/	14 - Counter (8 bit)	2/1/5		R	W	T		1-Yes
64	2	06 - Group	Remote group controller: 0..255. (R)	14 - Counter (8 bit)	2/1/6		R		T		1-Yes

The following image shows the table with a signal with the multibit signals option pulled down.



	Unit	Código	Signal	EIS	Group	Listening addresses	R	W	T	U	Active
1	1	100-Communication Er	Communication Error CS-NET-WEB: 0-Ok, 1-Error. (R)	01 - Switching (1 bit)	1/0/0		R		T		1-Yes
2	1	101-Not Exist	Communication Error Unit: 0-Ok, 1-Error. (R)	01 - Switching (1 bit)	1/0/1		R		T		1-Yes
3	1	00 - OnOff	On/Off: 0-Off, 1-On. (R/W)	01 - Switching (1 bit)	1/1/0	0/0/1, 0/0/2	R	W	T		1-Yes
4	1	01 - Mode	Mode: 0-Cool, 1-Dry, 2-Fan, 3-Heat, 4-Auto. (R/W)	14 - Counter (8 bit)	1/1/1		R	W	T		1-Yes
5	1	18 - COOL (0)	Mode:COOL. (R/W)	01 - Switching (1 bit)	1/2/1		R	W	T		1-Yes
6	1	19 - DRY (1)	Mode:DRY. (R/W)	01 - Switching (1 bit)	1/2/2		R	W	T		1-Yes
7	1	20 - FAN (2)	Mode:FAN. (R/W)	01 - Switching (1 bit)	1/2/3		R	W	T		1-Yes
8	1	21 - HEAT (3)	Mode:HEAT. (R/W)	01 - Switching (1 bit)	1/2/4		R	W	T		1-Yes
9	1	22 - AUTO (4)	Mode:AUTO. (R/W)	01 - Switching (1 bit)	1/2/5		R	W	T		1-Yes
10	1	23 - CHANGE (+/-)	Mode:CHANGE 1+/0-. (W)	01 - Switching (1 bit)	1/2/6			W			1-Yes
11	1	02 - Fan	Fan speed: 0-Low, 1-Med, 2-High. (R/W)	14 - Counter (8 bit)	1/1/2		R	W	T		1-Yes
16	1	03 - Tset	Setpoint temperature: 17..30 ºC. (R/W)	05 - Float (16 bit)	1/1/3		R	W	T		1-Yes
18	1	04 - Louver	Louver: 0..7, 8-Auto. (R/W)	14 - Counter (8 bit)	1/1/4		R	W	T		1-Yes
20	1	05 - Central	Prohibition of local control: bit0-On/Off, bit1-Mode, bit2-SetTemp, bit3-Fan. (R/	14 - Counter (8 bit)	1/1/5		R	W	T		1-Yes
25	1	06 - Group	Remote group controller: 0..255. (R)	14 - Counter (8 bit)	1/1/6		R		T		1-Yes
26	1	07 - TIn	Inlet Temperature: ºC. (R)	05 - Float (16 bit)	1/1/7		R		T		1-Yes
27	1	08 - TOut	Outlet Temperature: ºC. (R)	05 - Float (16 bit)	1/1/8		R		T		1-Yes
28	1	09 - TGas	Gas Pipe Temperature: ºC. (R)	05 - Float (16 bit)	1/1/9		R		T		1-Yes
29	1	10 - TLiquid	Liquid Pipe Temperature: ºC. (R)	05 - Float (16 bit)	1/1/10		R		T		1-Yes
30	1	11 - ErrorCode	Error Code: 0..100. (R)	14 - Counter (8 bit)	1/1/11		R		T		1-Yes
31	1	12 - StopCause	Stop Cause: 0..200. (R)	14 - Counter (8 bit)	1/1/12		R		T		1-Yes
32	1	13 - Valve	Indoor Unit Expansion Valve Opening: 0..100%. (R)	06 - Scaling (8 bit)	1/1/13		R		T		1-Yes
33	1	14 - Operation	Unit Operation Condition: 0-Off, 1-Thermo-On, 2-ThermoOff, 3-Alarm. (R)	14 - Counter (8 bit)	1/1/14		R		T		1-Yes
38	1	15 - Defrost	Defrost: 0-No, 1-Yes. (R)	01 - Switching (1 bit)	1/1/15		R		T		1-Yes
39	1	16 - TAmbient	External Ambient Temperature: ºC. (R)	05 - Float (16 bit)	1/1/16		R		T		1-Yes
40	1	17 - TimerDis	Timer Enabled: 0-Disabled, 1-Enabled. (R/W)	01 - Switching (1 bit)	1/1/17		R	W	T		1-Yes
41	2	101-Not Exist	Communication Error Unit: 0-Ok, 1-Error. (R)	01 - Switching (1 bit)	2/0/1		R		T		1-Yes
42	2	00 - OnOff	On/Off: 0-Off, 1-On. (R/W)	01 - Switching (1 bit)	2/1/0		R	W	T		1-Yes

The following image shows all the multibit signals pulled down.



	Unit	Código	Signal	EIS	Group	Listening addresses	R	W	T	U	Active
1	1	100-Communication Er	Communication Error CS-NET-WEB: 0-Ok, 1-Error. (R)	01 - Switching (1 bit)	1/0/0		R		T		1-Yes
2	1	101-Not Exist	Communication Error Unit: 0-Ok, 1-Error. (R)	01 - Switching (1 bit)	1/0/1		R		T		1-Yes
3	1	00 - OnOff	On/Off: 0-Off, 1-On. (R/W)	01 - Switching (1 bit)	1/1/0	0/0/1, 0/0/2	R	W	T		1-Yes
4	1	01 - Mode	Mode: 0-Cool, 1-Dry, 2-Fan, 3-Heat, 4-Auto. (R/W)	14 - Counter (8 bit)	1/1/1		R	W	T		1-Yes
5	1	18 - COOL (0)	Mode:COOL. (R/W)	01 - Switching (1 bit)	1/2/1		R	W	T		1-Yes
6	1	19 - DRY (1)	Mode:DRY. (R/W)	01 - Switching (1 bit)	1/2/2		R	W	T		1-Yes
7	1	20 - FAN (2)	Mode:FAN. (R/W)	01 - Switching (1 bit)	1/2/3		R	W	T		1-Yes
8	1	21 - HEAT (3)	Mode:HEAT. (R/W)	01 - Switching (1 bit)	1/2/4		R	W	T		1-Yes
9	1	22 - AUTO (4)	Mode:AUTO. (R/W)	01 - Switching (1 bit)	1/2/5		R	W	T		1-Yes
10	1	23 - CHANGE (+/-)	Mode:CHANGE 1+/0-. (W)	01 - Switching (1 bit)	1/2/6			W			1-Yes
11	1	02 - Fan	Fan speed: 0-Low, 1-Med, 2-High. (R/W)	14 - Counter (8 bit)	1/1/2		R	W	T		1-Yes
12	1	24 - LOW (0)	Fan speed:LOW. (R/W)	01 - Switching (1 bit)	1/3/1		R	W	T		1-Yes
13	1	25 - MED (1)	Fan speed:MED. (R/W)	01 - Switching (1 bit)	1/3/2		R	W	T		1-Yes
14	1	26 - HIGH (2)	Fan speed:HIGH. (R/W)	01 - Switching (1 bit)	1/3/3		R	W	T		1-Yes
15	1	27 - CHANGE (+/-)	Fan speed:CHANGE 1+/0-. (W)	01 - Switching (1 bit)	1/3/4			W			1-Yes
16	1	03 - Tset	Setpoint temperature: 17..30 ºC. (R/W)	05 - Float (16 bit)	1/1/3		R	W	T		1-Yes
17	1	37 - CHANGE 1+/0-	Setpoint temperature:CHANGE 1+/0-. (W)	01 - Switching (1 bit)	1/7/1			W			1-Yes
18	1	04 - Louver	Louver: 0..7, 8-Auto. (R/W)	14 - Counter (8 bit)	1/1/4		R	W	T		1-Yes
19	1	28 - CHANGE (+/-)	Louver:CHANGE 1+/0-. (W)	01 - Switching (1 bit)	1/4/1			W			1-Yes
20	1	05 - Central	Prohibition of local control: bit0-On/Off, bit1-Mode, bit2-SetTemp, bit3-Fan. (R/	14 - Counter (8 bit)	1/1/5		R	W	T		1-Yes
21	1	29 - ONOFF (0)	Prohibition of local control:ONOFF. (R/W)	01 - Switching (1 bit)	1/5/1		R	W	T		1-Yes
22	1	30 - MODE (1)	Prohibition of local control:MODE. (R/W)	01 - Switching (1 bit)	1/5/2		R	W	T		1-Yes
23	1	31 - SETTEMP (2)	Prohibition of local control:SETTEMP. (R/W)	01 - Switching (1 bit)	1/5/3		R	W	T		1-Yes
24	1	32 - FAN (3)	Prohibition of local control:FAN. (R/W)	01 - Switching (1 bit)	1/5/4		R	W	T		1-Yes
25	1	06 - Group	Remote group controller: 0..255. (R)	14 - Counter (8 bit)	1/1/6		R		T		1-Yes
26	1	07 - TIn	Inlet Temperature: ºC. (R)	05 - Float (16 bit)	1/1/7		R		T		1-Yes
27	1	08 - TOut	Outlet Temperature: ºC. (R)	05 - Float (16 bit)	1/1/8		R		T		1-Yes
28	1	09 - TGas	Gas Pipe Temperature: ºC. (R)	05 - Float (16 bit)	1/1/9		R		T		1-Yes

By default, all multibit signals are shown pulled down. If they are not going to be used you can do *Hide-All* to have a table with fewer signals in order to work more comfortably.

It is permitted to enable byte and multibit signals simultaneously. The bits will be updated according to the status they represent. Only one of the multibit signals will be enabled at any time, except in the case of the ***Central*** signal, since in this case various bits can be enabled simultaneously.

◆ Reminder

- If T is not enabled, changes in the external system will not be transmitted to KNX nor to its links.
- If R is not enabled, signals cannot be read via Read requests from KNX.
- If W is not enabled, it will not be possible to act on the signal, nor the external system, nor group links.
- If U is enabled, on starting up KNX001, READ requests will be made to the KNX of the sending group.
- If U2 is enabled, on starting KNX001, READ requests will be made to the KNX of the first listening address.
- Groups that are defined only as links will take the EIS type from the first linked group.
- The group data read from KNX as a result of READ requests between other KNX devices will be treated as Writes on groups (standard BCU1 behavior).
- Signals marked as read R must be configured: Fixed:T, Optional:R
- Signals marked as write W must be configured: Fixed:W, Optional:U o U2
- Signals marked as read/write RW must be configured: Fixed:W-T, Optional:R or U or U2
- Types are converted automatically, i.e. if an EIS5 arrives at an EIS1 group, an EIS1=(EIS5<>0) is made, or EIS5=EIS9 and EIS9=EIS5, EIS6=EIS5(0..255), etc.
- It is recommendable that the listening addresses associated with different groups maintain the same EIS type in all groups, otherwise unwanted conversions may occur.
- A write from KNX is propagated to the external system via the group address and the listening addresses.
- A write from the external system DOES NOT propagate to KNX via the listening addresses, but DOES update the status of the local send groups that are used as listening addresses.
- If a send group is used as the listening address with other local send groups, a write from the external system will update these groups but not their listening addresses.
- In case of Resetting the KNX bus, if this behavior is enabled, updating of groups marked as U or U2 is forced.

◆ Restrictions

- P/I/S, P/S group numbers are permitted, or the coded group no. directly
- Repeated send groups are not permitted (Group column).
- Group 0 is not permitted, This is used for signals without a send group.
- Signals are not permitted if R-W-T-U is not enabled.
- Empty Groups are not permitted if only W is enabled and it has listening addresses.
- Repeated groups are not permitted in the same listening addresses field.
- It is not permitted for a send group to be in the listening addresses (circular reference).
- Listening addresses are not permitted if W is not enabled, otherwise the listening addresses will not function.

◆ Preliminary specifications

- Multibit properties are executed only with a write of 1. The 0 stays in the send Group but does not perform any function, except for the ***Central*** signal, which permits bits to be enabled and disabled without distinction.
- Multibit properties of type CHANGE 1+/0-, permit the status of a byte signal with only one bit to be changed. On writing a 1 on this signal, the byte value will increase by one unit. On writing a 0 it will decrease by one unit. On reaching the maximum or minimum value limits of the signal, this will be adjusted to the correct value at the other extreme; for example, in the Mode signal, it will go from 4 to 0 on increasing by 1, and from 0 to 4 on decreasing by 1. In the case of the SetPoint signal, this behaviour does not occur, i.e. on reaching the top or bottom limits the extreme value is kept without being turned around.

◆ Files

KNX001 saves the configuration of each project in the following files:

<TYPE>.INI	A text file that saves information regarding the connection and other special adjustments.
<TYPE>.DAT	A text file with values separated by tabs, with information corresponding to the signals.
<TYPE>.HGT	A binary file created from the files mentioned above. It is the one really sent to KNX001.

These files, once installation is completed, must be backed-up for future modifications. It is not permitted to obtain the KNX001 configuration, only Upload is permitted, not Download.

In the file <TYPE>.INI the following adjustment variables are found:

[<TYPE>]

TmConnectCSNET_s=10, Timeout for connection with CSNET WEB (seconds)

TmResponseCSNET_s=2, Timeout for CSNET WEB response (seconds)

[EIB]

tS_ChekEIB=60, Rate of EIB electronic supervision (seconds)

tMS_WaitUpdate=2000, Timeout for Read request responses (milisec)

tMS_WaitInConect=6000, Timeout in Connect status (milisec)

NOTE

Do not touch these variables if you are not sure how they work. Their maladjustment may cause KNX001 not to operate or to operate incorrectly.

7.4 HARC-BX E

7.4.1 Safety summary

⚠ DANGER

ELECTRIC SHOCK

- ***DO NOT handle the remote control with wet hands.***
- ***DO NOT spill water on the remote control. This may cause an electric shock.***
- ***If the safety devices should be activated too often or the buttons do not work properly, turn off the unit at the mains and contact your HITACHI service provider.***
- ***In the event of other incidents of an electrical nature, turn off the system, switch it off at the mains and contact your HITACHI service provider.***

⚠ CAUTION

DO NOT install the indoor unit, outdoor unit, remote control or any wiring in the following locations:

- *Where there are oil vapours and the oil is dispersed.*
- *In the proximity of hot water or heat sources or in sulphuric environments.*
- *In locations prone to the generation, accumulation, leakage or flow of flammable gas.*
- *Close to the sea (saline atmospheres).*
- *In acidic or alkaline environments.*
- *Within the reach of children.*
- *Directly in front of the air-conditioning system outlet.*

To avoid electromagnetic compatibility problems, DO NOT install the indoor unit, outdoor unit, remote control or any wiring within 3m of strong sources of electromagnetic radiation (e.g. waves generated by medical equipment). If the system should be installed in a location where electromagnetic waves are produced, protect the remote control and wiring by covering them with the steel casing and passing the cable through the metal duct.

If electrical noise should be generated at the indoor unit power source, install a noise filter.

This appliance must be used only by adult and capable people, having received the technical information or instructions to handle properly and safely this appliance.

Children should be supervised to ensure that they do not play with the appliance.

7.4.2 Installation

7.4.2.1 Installation site selection

Take note of the maximum admissible cable length between units and the control as well as between the units themselves, as shown in the following table:

Cable section	0.3 mm^2	≥ 0.75 mm^2
Cable length	30 m	500 m

7.4.2.2 Components list

Unpack the unit and check that:

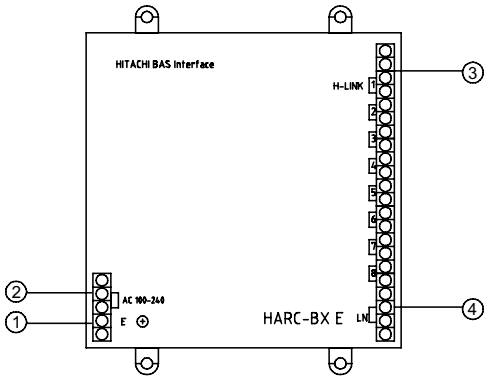
- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quant.	Comments
HARC-BX E (A/B)		1	To control the system operation
Installation and operation manual		1	Installation and operation unit instructions.

7.4.2.3 Description of the parts

◆ HARC-BX E unit components



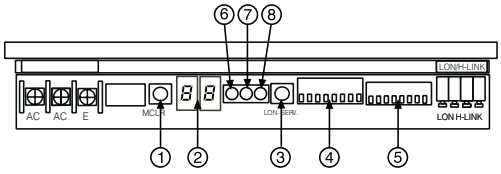
① Power supply terminal to connect a AC220~240V power supply

② Earthing terminal.

③ Terminal board for the transmission of the unit to connect the H-Link

④ Terminal board for the upper system, to connect the transmission cable for the upper monitoring system

◆ Control panel components



① PSW (Push Switch) No. 1 (M.CLR): Press the button to check the quantity of connected units.

② 7-segment display (1*): This indicates the current HARC-BX E status.

③ PSW No. 2 (LON-SERV): Press the button (PSW) to transmit the Neuron ID. (Service pin)

④ 8P DSW (DIP Switch) No. 1 (S201) (2*): Setting the system of HARC-BX E DIP switches.

⑤ 8P DSW No. 2 (S202) (3*): DIP switch (DSW) for setting the functions of the HARC-BX E.

⑥ Power supply LED (PWR): The light is ON when electricity is supplied.

⑦ Transmission LED (H-L): Transmission status with H-LINK

⑧ Upper monitoring system transmission LED (LON): Transmission status with the upper monitoring equipment

(1) 7-segment display: Read the "Check mode" and "Indication of abnormal conditions" sections for details on the 7-segment display.*

(2) 8P DSW No. 1 S201: Read the "DIP switch adjustment" section for further information and for HARC-BX E functions.*

(3) 8P DSW No. 2.S202: Read the "DIP switch adjustment" section. 8P DSW No. 1 and No. 2 are used for the self-check. For further details, refer to the "HARC-BX E self-check" section.*

7.4.2.4 General data

◆ HARC-BX E specifications

Hardware specifications

Element	Specification
Power supply	AC240V±10% (50/60Hz)
Energy consumption	30 W (max)
External dimensions	Width: 240 mm, height: 285 mm, depth: 128.5 mm (Installed inside the box)
Weight	2.3 kg
Installation conditions	Indoor
Temperature conditions	0~45°C
Humidity conditions	10~80% (No dew)

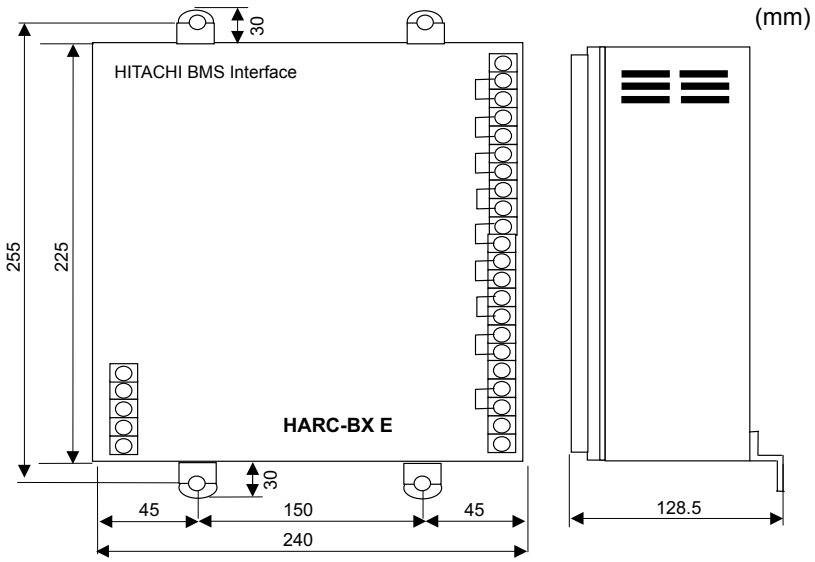
Telecommunication specifications for monobloc air conditioning

Element	Specification
Communication unit	Monobloc air conditioning
Communications cable	Non-polar, 2 wire system
Telecommunications system	Half-duplex telecommunications
Synchronous system	Asynchronous communication system
Telecommunications speed	9,600 bps
Cable length	1,000 m (total length)
Connection quantity	Option Type A: Max. amount of units: 64 Option Type A: Max. amount of units: 32

Telecommunication specifications for the upper system

Element	Specification
Communication unit	Upper monitoring equipment
Transmission protocol	LonTalk (*) protocol
Access method	Persistent CSMA/CD system planned
Coding system	Differential Manchester Code
Telecommunications speed	78,000 bps
Maximum cable length	500 m (total bus length)
(*) “LonTalk” is an “Echelon Corporation” trademark in the USA and other countries.	

7.4.2.5 Dimensional data



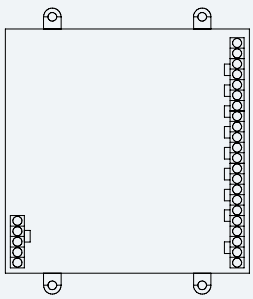
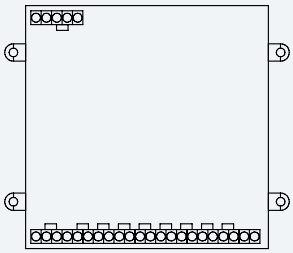
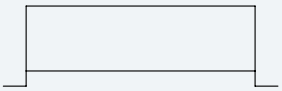
7.4.2.6 Installation space

NOTE

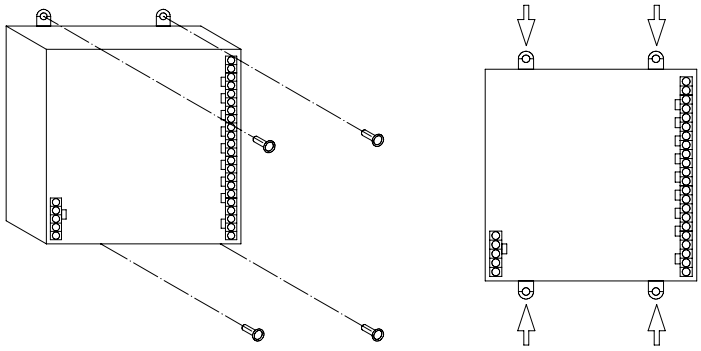
- *Bear in mind the safety summary warnings when selecting the installation site.*
- *The installation site should be located in a place with an earthing connection.*

7.4.2.7 Installation procedure

1 Install the HARC-BX E, placing the screwed terminal board on the right-hand side.

Upper view		Side view
		
Lower		Horizontal installation
OK	X	OK
Correct	Incorrect	Correct

2 Fix the HARC-BX E to the wall with 4 M4 field supply screws.



7.4.3 Electrical wiring

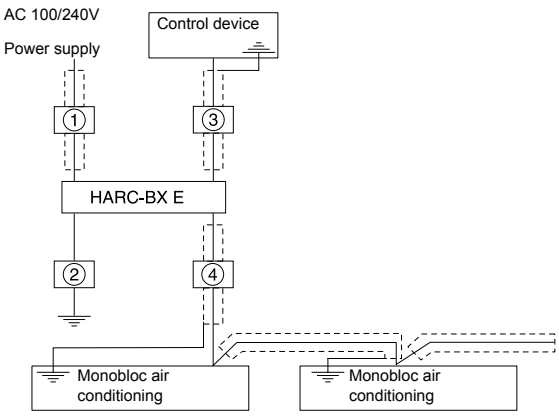
⚠CAUTION

- *All wiring work must be done in accordance with local regulations and the instructions of the electricity company.*
- *A qualified electrician should carry out the electrical wiring.*
- *Adjust the electrical leakage detector switch in accordance with local regulations.*

7.4.3.1 Type of wiring

1 The wiring for the HARC-BX E depends on the components connected. The HARC-BX E should be installed between the power supply, the monitoring equipment, the mono bloc air conditioning and the earthing connection.

2 Wiring method



No.	Connection equipment	Wiring specifications
①	Power supply wiring	AC 100/240V 2 mm² shielded with 2 cores
②	Earthing cable	According to local regulations
③	Monitoring equipment wiring	LonWork* network cable
④	Signal cable between units	1P-0.75 mm² shielded pair or twisted and shielded pair cable

NOTE

** LonWork network cable: Use the cable recommended by Echelon Co., Ltd. and follow the monitoring equipment manufacturer's instructions. For further information, consult the manual supplied by Echelon Co., Ltd. "FTT·10A transceiver user guide".*

By way of a reference for the user, the following table describes the types of signal cables and their characteristics.

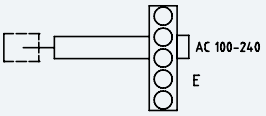
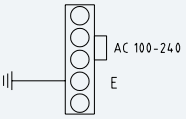
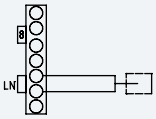
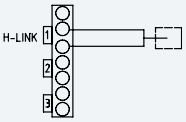
Cable	Cable diameter/ AWG	Electrical resistance Ω/Km	Capacitance µF/Km	% Vprop of the speed of light
Belden 85102, one/twisted pair, number of cores 19/29, without shielding, 150 ºC	1.3 mm/16	28	56	62
Belden 8471, one/twisted pair, number of cores 19/29, without shielding, 60 ºC	1.3 mm/16	28	72	55
Level VI 22AWG, twisted pair, one core, without shielding	0.65 mm/22	106	49	67
JY(St)Y2×2×0.8, one core, shielded, spiral 4 cable twisted	0.8 mm/20.4	73	98	41
TIA568A Category 5, 24AWQ, twisted pair	0.51 mm/24	168	46	58

NOTE

If a shielded cable is used, it should be connected via a metal film resistor, with a rating of 470 kΩ 1/4 W, and a tolerance of less than 10% to prevent the generation of static charges.

7.4.3.2 Electrical wiring connection

1 Turn off the main electric switch connected to the cable of the HARC-BX E in order to connect the cable.
2 Wire in accordance with the following table.

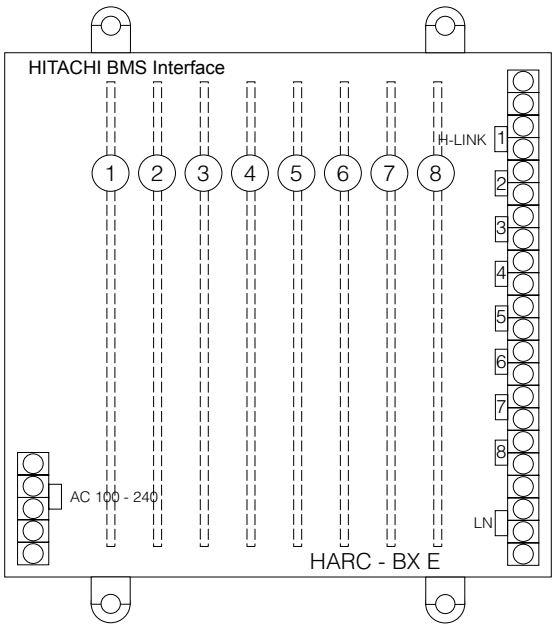
Section		No. *	Wiring method	Comments
Electric power line	100/240V HARC-BX E power supply	①		-
	Earthing wire	②		-
Control circuit	HARC-BX E upper monitoring equipment	③		Non polar
	HARC-BX E Monobloc air conditioning	④		Non polar

* “No.” indicates the cable for the "Wiring type”.

7.4.3.3 Installation of the PCB plates and the H-LINK terminals

There are 8 PCBs in each HARC-BX E that correspond to the unit’s H-LINK terminals as shown in the following figure.

So that the PCBs can communicate and control the assigned units, they should be connected to the H-LINK corresponding to the circuit where the unit is.



7.4.3.4 DIP switch adjustment

The DIP switches are inside the central HARC-BX E control between the terminal board and the PCBs. The first column of DIP switches (S201) are used to programme the numbers of the outdoor units and indoor units, and the second column of DIP switches (S202) are used to programme the master and slave controls.

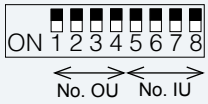
There are two group of 8 DIP switches, which relate to the PCBs, the first line of DIPs with the first PCB and so on.

NOTE

The DIP switches are all deactivated before they are sent from the factory.

1. Configure the DIP switches before turning the power supply on.
2. Remove the front board to the configure the DIP switches.
3. Each board's DIP switch configuration is different.
4. Set the 8 pin DIP switch (S201). The first four pins of the 8 pin DIP switch (S201) are used to set the outdoor unit and the second four pins are used to set the indoor units controlled by the PCB.

The setting procedure for the outdoor unit number and indoor unit number can be seen in the following table.

8 pin DIP switch setting (S201)	Description
	The 8 pin DIP switch (S201) setting is determined by the numbers of the outdoor units (OU) and the numbers of the corresponding indoor units (IU) controlled by the PCB.

The following table explains how to programme the outdoor unit numbers. Up to 16 numbers can be programmed:

OU No.	Pin setting	OU No.	Pin setting	OU No.	Pin setting	OU No.	Pin setting
0		4		8		12	
1		5		9		13	
2		6		10		14	
3		7		11		15	

All DIP switch images: ON 1 2 3 4 5 6 7 8

The following table explains how to programme the numbers of the indoor units controlled for each board:

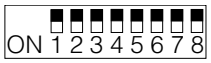
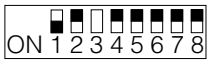
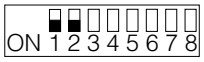
HARC-BX (A)		HARC-BX (B)	
Indoor units	Pin setting	Indoor units	Pin setting
from 0 to 7 (8 IU)		from 0 to 3 (4 IU)	
		from 4 to 7 (4 IU)	
from 8 to 15 (8 IU)		from 8 to 11 (4 IU)	
		from 12 to 15 (4 IU)	

All DIP switch images: ON 1 2 3 4 5 6 7 8

The position of the switch indicates the address of the first indoor unit for this group of 8 units in the case of the HARC-BX(A) or the first indoor unit for the group of 4 units in the case of the HARC-BX(B).

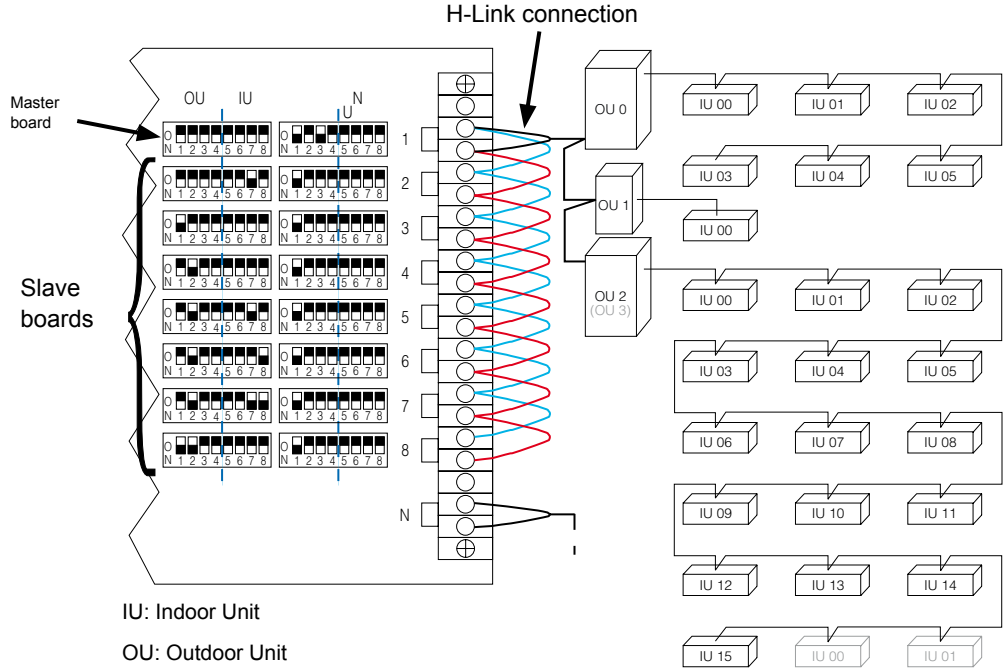
Only the address indicated in the table above can be used for each group.

5 Set the 8 pin DIP switch (S202). The 8 pin DIP switch (S202) is used as follows:

Board not activated	
Activate the board to control a given number of indoor units based on S201	
Board active as slave	
Board active master (only one board can be a master board on each H-Link line)	
Test Mode for the activated board (see section Test Mode for further details)	

DIP programming example:

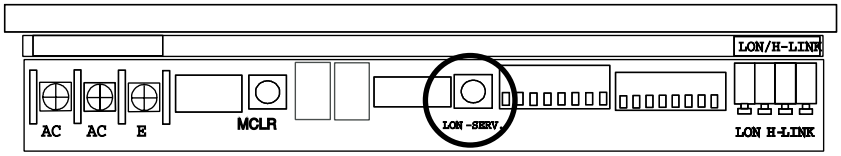
The following diagram shows an example for connecting a HARC-BX(B) on an installation:



7.4.3.5 BMS connection

Take the following points into account for the correct connection of the BMS:

- The correct electric wiring as indicated in previous sections.
- The BMS protocol:
- The BMS should update its hardware via LonWorks as shown previously.
- BMS start up:
- Press the LON.SERV button:



- When this button is pressed, the HARC-BX E sends the “Neuron Chip ID” identification.
- The communication starts at that moment and the BMS can read and receive orders.
- BMS troubleshooting is the responsibility of the BMS itself.

7.4.4 Test run

1 Check that all the “Wiring connection” and “DIP switch adjustment” procedures have been carried out.
2 Turn the power supply by following the procedure below:

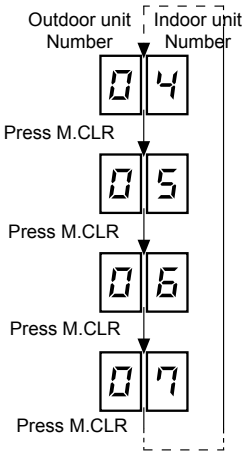
- Plug in the mono bloc air conditioning.
- Plug the HARC-BX E in.

3 Check the HARC-BX E connection.

The 7-segment display will change, as shown in the following table, when the HARC-BX E has been plugged in. Check the 7-segment display.

Step	7-segment display	Status
1	-	Off
2	88	End of system initialization
3	22	Checking the monobloc air conditioning, number of connected remote controls
4	00	Normal transmission between the HARC-BX E and the monobloc air conditioning.

4 Check the number of identified Indoor Units. The number of Indoor Units identified by the HARC-BX E will be shown on the 7-segment display after pressing the (PSW [M.CLR]) button on the HARC-BX E. With the 7-segment display indicating ”00”. (Check if this number is the same as the actual number of Indoor Units).
5 When the recognisable indoor units have been located, check the Indoor Unit system numbers and the unit numbers that the HARC-BX E has identified. Only put the 8 pin DIP switch (201) pin no. 1 in the ON position. All the system and unit numbers of the recognisable Indoor Units will be shown in the 7-segment display after pressing the (PSW[M.CLR] button on the HARC-BX E. If multiple Indoor Units are identified, the system and unit numbers for the identified Indoor Units will be shown sequentially every time the (PSW[CLR]) button is pressed. The system numbers will appear on the left-hand side of the 7-segment display and the unit numbers on the right-hand side. (Check if this number is the same as the actual number of Indoor Units).



8 pin DIP switch setting (S202)


7-segment display	Description	7-segment display	Description	7-segment display	Description	7-segment display	Description
0	OU no. 01 or IU no. 01	4	OU no. 05 or IU no. 05	8	OU no. 09 or IU no. 09	C	OU no. 13 or IU no. 13
1	OU no. 02 or IU no. 02	5	OU no. 06 or IU no. 06	9	OU no. 10 or IU no. 10	d	OU no. 14 or IU no. 14
2	OU no. 03 or IU no. 03	6	OU no. 07 or IU no. 07	A	OU no. 11 or IU no. 11	E	OU no. 15 or IU no. 15
3	OU no. 04 or IU no. 04	7	OU no. 08 or IU no. 08	b	OU no. 12 or IU no. 12	F	OU no. 16 or IU no. 16

6 Put pin no. 2 of the 8 pin DIP switch (S202) in the OFF position when all the checks are completed.

The test mode is complete.

8 pin DIP switch setting (S202)


7.4.5 Operation

7.4.5.1 Variables list

◆ Communication with LonWorks interface

HARC-BX(A)

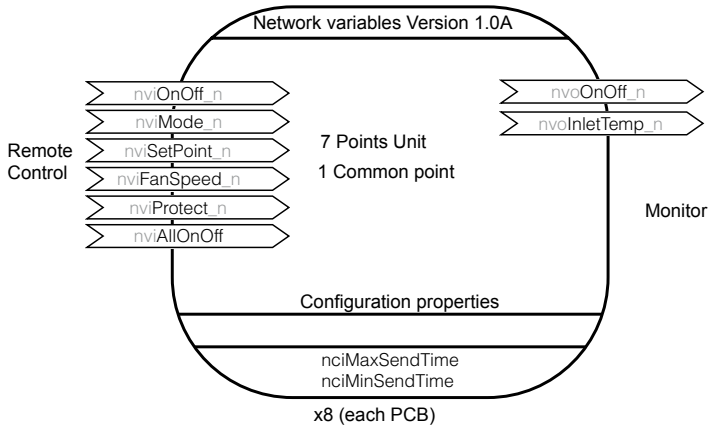
The HARC-BX(A) is a LonWorks interface designed for cases where only the control of the units is required and there is no need for unit operation monitoring.

This interface allows the control of:

- Up to 64 indoor units and 8 outdoor units
- Up to 8 interfaces per H-Link

a. HARC-BX(A) communication mode:

The following variables can be controlled and monitored in each of the interface's 8 PCBs:



b. XIF file variables

SVNT number	Unit number	Variable number	Type	LONMARK SNVT No.	Description	Condition	Note
0	0	nviOnOff_0	SNVT_switch	95	On/Off order	Byte 1: Value 0 (Fixed) Byte 2: State 0 = STOP State 1 = RUN	Allow an interval of at least 5 sec. between 2 consecutive orders to any unit on a H-Link
1	0	nviMode_0	SNVT_hvac_mode	108	Operation mode setting	1 byte: 1 = HVAC_HEAT (Heating) 3 = HVAC_COOL (Cooling) 5 = HVAC_PRE_COOL (Dehumidification) 9 = HVAC_FAN_ONLY (Ventilation)	
2	0	nviSetPoint_0	SNVT_temp_p	105	Temperature setting	2 Bytes: 1700 ~ 3000 = 17 ~ 30 ºC	
3	0	nviFanSpeed_0	SNVT_switch	95	Fan speed setting	Byte 1: Value 1: Low, Value 2: Middle, Value 3: High Byte 2: State 0 (Fixed)	
4	0	nviProtect_0	SNVT_switch	95	Remote control order enabled	Byte 1: Value 0 (Fixed) Byte 2: State 0: RCS enabled State 1: RCS disabled	
5	0	nvoOnOff_0	SNVT_state	83	ON/OFF state and alarm notification	32 bits: bit 0: 0 (STOP)/1 (RUN) bit 1: 0 (Normal) /1 (Alarm)	Approximate update time of 80 sec.
6	0	nvoInletTemp_0	SNVT_temp_p	105	Indoor temperature reading	2 Bytes: -6200 ~ 12700 = -62 ~ 127 ºC	
7	1	nviOnOff_1	SNVT_switch	95	On/Off order	Byte 1: Value 0 (Fixed) Byte 2: State 0 = STOP State 1 = RUN	Allow an interval of at least 5 sec. between 2 consecutive orders to any unit on a H-Link
8	1	nviMode_1	SNVT_hvac_mode	108	Operation mode setting	1 byte: 1 = HVAC_HEAT (Heating) 3 = HVAC_COOL (Cooling) 5 = HVAC_PRE_COOL (Dehumidification) 9 = HVAC_FAN_ONLY (Ventilation)	
9	1	nviSetPoint_1	SNVT_temp_p	105	Temperature setting	2 Bytes: 1700 ~ 3000 = 17 ~ 30 ºC	
10	1	nviFanSpeed_1	SNVT_switch	95	Fan speed setting	Byte 1: Value 1: Low, Value 2: Middle, Value 3: High Byte 2: State 0 (Fixed)	
11	1	nviProtect_1	SNVT_switch	95	Remote control order enabled	Byte 1: Value 0 (Fixed) Byte 2: State 0: RCS enabled State 1: RCS disabled	
12	1	nvoOnOff_1	SNVT_state	83	ON/OFF state and alarm notification	32 bits: bit 0: 0 (STOP)/1 (RUN) bit 1: 0 (Normal) /1 (Alarm)	Approximate update time of 80 sec.
13	1	nvoInletTemp_1	SNVT_temp_p	105	Indoor temperature reading	2 Bytes: -6200 ~ 12700 = -62 ~ 127 ºC	

SVNT number	Unit number	Variable number	Type	LONMARK SNVT No.	Description	Condition	Note
14	2	nviOnOff_2	SNVT_switch	95	On/Off order	Byte 1: Value 0 (Fixed) Byte 2: State 0 = STOP State 1 = RUN	Allow an interval of at least 5 sec. between 2 consecutive orders to any unit on a H-Link
15	2	nviMode_2	SNVT_hvac_mode	108	Operation mode setting	1 byte: 1 = HVAC_HEAT (Heating 3 = HVAC_COOL (Cooling) 5 = HVAC_PRE_COOL (Dehumidification) 9 = HVAC_FAN_ONLY (Ventilation)	
16	2	nviSetPoint_2	SNVT_temp_p	105	Temperature setting	2 Bytes: 1700 ~ 3000 = 17 ~ 30 ºC	
17	2	nviFanSpeed_2	SNVT_switch	95	Fan speed setting	Byte 1: Value 1: Low, Value 2: Middle, Value 3: High Byte 2: State 0 (Fixed)	
18	2	nviProtect_2	SNVT_switch	95	Remote control order enabled	Byte 1: Value 0 (Fixed) Byte 2: State 0: RCS enabled State 1: RCS disabled	
19	2	nvoOnOff_2	SNVT_state	83	ON/OFF state and alarm notification	32 bits: bit 0: 0 (STOP)/1 (RUN) bit 1: 0 (Normal) /1 (Alarm)	Approximate update time of 80 sec.
20	2	nvoInletTemp_2	SNVT_temp_p	105	Indoor temperature reading	2 Bytes: -6200 ~ 12700 = -62 ~ 127 ºC	
21	3	nviOnOff_3	SNVT_switch	95	On/Off order	Byte 1: Value 0 (Fixed) Byte 2: State 0 = STOP State 1 = RUN	Allow an interval of at least 5 sec. between 2 consecutive orders to any unit on a H-Link
22	3	nviMode_3	SNVT_hvac_mode	108	Operation mode setting	1 byte: 1 = HVAC_HEAT (Heating) 3 = HVAC_COOL (Cooling) 5 = HVAC_PRE_COOL (Dehumidification) 9 = HVAC_FAN_ONLY (Ventilation)	
23	3	nviSetPoint_3	SNVT_temp_p	105	Temperature setting	2 Bytes: 1700 ~ 3000 = 17 ~ 30 ºC	
24	3	nviFanSpeed_3	SNVT_switch	95	Fan speed setting	Byte 1: Value 1: Low, Value 2: Middle, Value 3: High Byte 2: State 0 (Fixed)	
25	3	nviProtect_3	SNVT_switch	95	Remote control order enabled	Byte 1: Value 0 (Fixed) Byte 2: State 0: RCS enabled State 1: RCS disabled	
26	3	nvoOnOff_3	SNVT_state	83	ON/OFF state and alarm notification	32 bits: bit 0: 0 (STOP)/1 (RUN) bit 1: 0 (Normal) /1 (Alarm)	Approximate update time of 80 sec.
27	3	nvoInletTemp_3	SNVT_temp_p	105	Indoor temperature reading	2 Bytes: -6200 ~ 12700 = -62 ~ 127 ºC	

SVNT number	Unit number	Variable number	Type	LONMARK SNVT No.	Description	Condition	Note
28	4	nviOnOff_4	SNVT_switch	95	On/Off order	Byte 1: Value 0 (Fixed) Byte 2: State 0 = STOP State 1 = RUN	Allow an interval of at least 5 sec. between 2 consecutive orders to any unit on a H-Link
29	4	nviMode_4	SNVT_hvac_mode	108	Operation mode setting	1 byte: 1 = HVAC_HEAT (Heating) 3 = HVAC_COOL (Cooling) 5 = HVAC_PRE_COOL (Dehumidification) 9 = HVAC_FAN_ONLY (Ventilation)	
30	4	nviSetPoint_4	SNVT_temp_p	105	Temperature setting	2 Bytes: 1700 ~ 3000 = 17 ~ 30 ºC	
31	4	nviFanSpeed_4	SNVT_switch	95	Fan speed setting	Byte 1: Value 1: Low, Value 2: Middle, Value 3: High Byte 2: State 0 (Fixed)	
32	4	nviProtect_4	SNVT_switch	95	Remote control order enabled	Byte 1: Value 0 (Fixed) Byte 2: State 0: RCS enabled State 1: RCS disabled	
33	4	nvoOnOff_4	SNVT_state	83	ON/OFF state and alarm notification	32 bits: bit 0: 0 (STOP)/1 (RUN) bit 1: 0 (Normal) /1 (Alarm)	Approximate update time of 80 sec.
34	4	nvoInletTemp_4	SNVT_temp_p	105	Indoor temperature reading	2 Bytes: -6200 ~ 12700 = -62 ~ 127 ºC	
35	5	nviOnOff_5	SNVT_switch	95	On/Off order	Byte 1: Value 0 (Fixed) Byte 2: State 0 = STOP State 1 = RUN	Allow an interval of at least 5 sec. between 2 consecutive orders to any unit on a H-Link
36	5	nviMode_5	SNVT_hvac_mode	108	Operation mode setting	1 byte: 1 = HVAC_HEAT (Heating) 3 = HVAC_COOL (Cooling) 5 = HVAC_PRE_COOL (Dehumidification) 9 = HVAC_FAN_ONLY (Ventilation)	
37	5	nviSetPoint_5	SNVT_temp_p	105	Temperature setting	2 Bytes: 1700 ~ 3000 = 17 ~ 30 ºC	
38	5	nviFanSpeed_5	SNVT_switch	95	Fan speed setting	Byte 1: Value 1: Low, Value 2: Middle,Value 3: HighByte 2: State 0 (Fixed)	
39	5	nviProtect_5	SNVT_switch	95	Remote control order enabled	Byte 1: Value 0 (Fixed) Byte 2: State 0: RCS enabled State 1: RCS disabled	
40	5	nvoOnOff_5	SNVT_state	83	ON/OFF state and alarm notification	32 bits: bit 0: 0 (STOP)/1 (RUN) bit 1: 0 (Normal) /1 (Alarm)	Approximate update time of 80 sec.
41	5	nvoInletTemp_5	SNVT_temp_p	105	Indoor temperature reading	2 Bytes: -6200 ~ 12700 = -62 ~ 127 ºC	

SVNT number	Unit number	Variable number	Type	LONMARK SNVT No.	Description	Condition	Note
43	6	nviMode_6	SNVT_hvac_mode	108	Operation mode setting	1 byte: 1 = HVAC_HEAT (Heating) 3 = HVAC_COOL (Cooling) 5 = HVAC_PRE_COOL (Dehumidification) 9 = HVAC_FAN_ONLY (Ventilation)	
44	6	nviSetPoint_6	SNVT_temp_p	105	Temperature setting	2 Bytes: 1700 ~ 3000 = 17 ~ 30 ºC	
45	6	nviFanSpeed_6	SNVT_switch	95	Fan speed setting	Byte 1: Value 1: Low, Value 2: Middle, Value 3: High Byte 2: State 0 (Fixed)	
46	6	nviProtect_6	SNVT_switch	95	Remote control order enabled	Byte 1: Value 0 (Fixed) Byte 2: State 0: RCS enabled State 1: RCS disabled	
47	6	nvoOnOff_6	SNVT_state	83	ON/OFF state and alarm notification	32 bits: bit 0: 0 (STOP)/1 (RUN) bit 1: 0 (Normal) /1 (Alarm)	Approximate update time of 80 sec.
48	6	nvoInletTemp_6	SNVT_temp_p	105	Indoor temperature reading	2 Bytes: -6200 ~ 12700 = -62 ~ 127 ºC	
49	7	nviOnOff_7	SNVT_switch	95	On/Off order	Byte 1: Value 0 (Fixed) Byte 2: State 0 = STOP State 1 = RUN	Allow an interval of at least 5 sec. between 2 consecutive orders to any unit on a H-Link
50	7	nviMode_7	SNVT_hvac_mode	108	Operation mode setting	1 byte: 1 = HVAC_HEAT (Heating) 3 = HVAC_COOL (Cooling) 5 = HVAC_PRE_COOL (Dehumidification) 9 = HVAC_FAN_ONLY (Ventilation)	
51	7	nviSetPoint_7	SNVT_temp_p	105	Temperature setting	2 Bytes: 1700 ~ 3000 = 17 ~ 30 ºC	
52	7	nviFanSpeed_7	SNVT_switch	95	Fan speed setting	Byte 1: Value 1: Low, Value 2: Middle, Value 3: High Byte 2: State 0 (Fixed)	
53	7	nviProtect_7	SNVT_switch	95	Remote control order enabled	Byte 1: Value 0 (Fixed) Byte 2: State 0: RCS enabled State 1: RCS disabled	
54	7	nvoOnOff_7	SNVT_state	83	ON/OFF state and alarm notification	32 bits: bit 0: 0 (STOP)/1 (RUN) bit 1: 0 (Normal) /1 (Alarm)	Approximate update time of 80 sec.
55	7	nvoInletTemp_7	SNVT_temp_p	105	Indoor temperature reading	2 Bytes: -6200 ~ 12700 = -62 ~ 127 ºC	
56	Outdoor	nviAllOnOff	SNVT_switch	95	On/Off order	Byte 1: Value 0 (Fixed) Byte 2: State 0 = STOP State 1 = RUN	
57		nciMaxSendTime		107			The use of standard values is recommended (do not change)
58		nciMinSendTime		107			
59		nciPwrUp		107			
HARC-BX(A) XIF file variables list							

◆ HARC-BX(B)

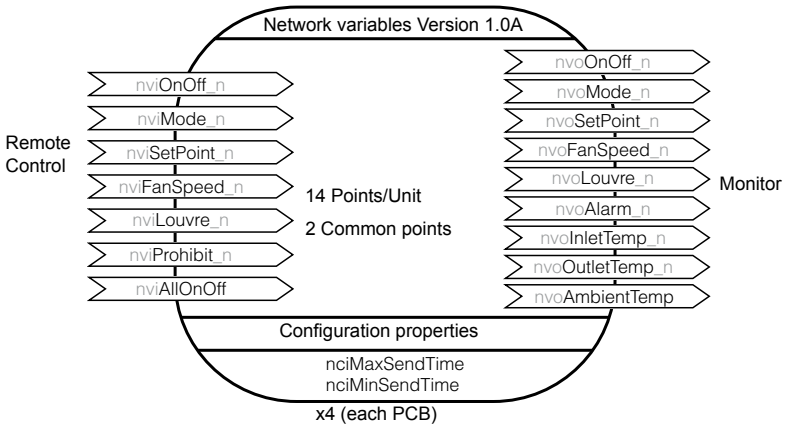
The HARC-BX(B) is a LonWorks interface designed for cases that require a more detailed control of the units, in addition to complete unit operation monitoring functions.

This interface allows us to:

- Control up to 32 indoor units and 8 outdoor units
- Connect up to 8 interfaces per H-Link

a. HARC-BX(B) communication mode:

The following variables can be controlled and monitored in each of the interface's 8 PCBs:



b. XIF file variables

SVNT number	Unit number	Variable name	Type	LONMARK SNVT No.	Description	Condition	Note
0	0	nviOnOff_0	SNVT_ switch	95	On/Off order	Byte 1: Value 0 (Fixed) Byte 2: State 0 = STOP State 1 = RUN	Allow an interval of at least 5 sec. between 2 consecutive orders to any unit on a H-Link
1	0	nviMode_0	SNVT_ hvac_mode	108	Operation mode setting	1 byte: 1 = HVAC_HEAT (Heating) 3 = HVAC_COOL (Cooling) 5 = HVAC_PRE_COOL (Dehumidification) 9 = HVAC_FAN_ONLY (Ventilation)	
2	0	nviSet-Point_0	SNVT_ temp_p	105	Temperature setting	2 Bytes: 1700 ~ 3000 = 17 ~ 30 ºC	
3	0	nvi-FanSpeed_0	SNVT_ switch	95	Fan speed setting	Byte 1: Value 1: Low, Value 2: Middle, Value 3: High Byte 2: State 0 (Fixed)	
4	0	nviLouver_0	SNVT_ switch	95	Louver setting	Byte 1: Value 0: 20, 1: 25, 2: 30, 3: 35, 4: 45, 5: 55, 6: 70, 7: Auto Byte 2: State 0 (Fixed)	
5	0	nviProtect_0	SNVT_ switch	95	Remote control order enabled	Byte 1: Value 0 (Fixed) Byte 2: State 0: RCS enabled State 1: RCS disabled	

SVNT number	Unit number	Variable name	Type	LONMARK SNVT No.	Description	Condition	Note
6	0	nvoOnOff_0	SNVT_state	83	ON/OFF state and alarm notification	32 bits: bit 0: 0 (STOP)/1 (RUN) bit 1: 0 (Normal) /1 (Alarm)	Approximate update time of 80 sec.
7	0	nvoMode_0	SNVT_ hvac_mode	108	Operation mode setting	1 byte: 1 = HVAC_HEAT (Heating) 3 = HVAC_COOL (Cooling) 5 = HVAC_PRE_COOL (Dehumidification) 9 = HVAC_FAN_ONLY (Ventilation)	
8	0	nvoSetPoint_0	SNVT_ temp_p	105	Temperature reading setting	2 Bytes: 1700 ~ 3000 = 17 ~ 30 ºC	
9	0	nvoFanSpeed_0	SNVT_ switch	95	Fan speed setting	Byte 1: Value 1: Low, Value 2: Middle, Value 3: High Byte 2: State 0 (Fixed)	
10	0	nvoLouver_0	SNVT_ switch	95	Louver setting	Byte 1: Value 0: 20, 1: 25, 2: 30, 3: 35, 4: 45, 5: 55, 6: 70, 7: Auto Byte 2: State 0 (Fixed)	
11	0	nvoAlarmDescr_0	SNVT_str_ asc	36	Alarm description	31 Bytes: First 2 byte alarm description. 3rd byte 0.	
12	0	nvoInletTemp_0	SNVT_ temp_p	105	Indoor temperature reading	2 Bytes: -6200 ~ 12700 = -62 ~ 127 ºC	
13	0	nvoOutletTemp_0	SNVT_ temp_p	105	Outdoor temperature reading	2 Bytes: -6200 ~ 12700 = -62 ~ 127 ºC	
14	1	nviOnOff_1	SNVT_ switch	95	On/Off order	Byte 1: Value 0 (Fixed) Byte 2: State 0 = STOP State 1 = RUN	Allow an interval of at least 5 sec. between 2 consecutive orders to any unit on a H-Link
15	1	nviMode_1	SNVT_ hvac_mode	108	Operation mode setting	1 byte: 1 = HVAC_HEAT (Heating) 3 = HVAC_COOL (Cooling) 5 = HVAC_PRE_COOL (Dehumidification) 9 = HVAC_FAN_ONLY (Ventilation)	
16	1	nviSetPoint_1	SNVT_ temp_p	105	Temperature setting	2 Bytes: 1700 ~ 3000 = 17 ~ 30 ºC	
17	1	nviFanSpeed_1	SNVT_ switch	95	Fan speed setting	Byte 1: Value 1: Low, Value 2: Middle, Value 3: HighByte 2: State 0 (Fixed)	
18	1	nviLouver_1	SNVT_ switch	95	Louver setting	Byte 1: Value 0: 20, 1: 25, 2: 30, 3: 35, 4: 45, 5: 55, 6: 70, 7: Auto Byte 2: State 0 (Fixed)	
19	1	nviProtect_1	SNVT_ switch	95	Remote control order enabled	Byte 1: Value 0 (Fixed) Byte 2: State 0: RCS enabled State 1: RCS disabled	

SVNT number	Unit number	Variable name	Type	LONMARK SNVT No.	Description	Condition	Note
20	1	nvoOnOff_1	SNVT_state	83	ON/OFF state and alarm notification	32 bits: bit 0: 0 (STOP)/1 (RUN) bit 1: 0 (Normal) /1 (Alarm)	Approximate update time of 80 sec.
21	1	nvoMode_1	SNVT_ hvac_mode	108	Operation mode setting	1 byte: 1 = HVAC_HEAT (Heating) 3 = HVAC_COOL (Cooling) 5 = HVAC_PRE_COOL (Dehumidification) 9 = HVAC_FAN_ONLY (Ventilation)	
22	1	nvoSet-Point_1	SNVT_ temp_p	105	Temperature reading setting	2 Bytes: 1700 ~ 3000 = 17 ~ 30 ºC	
23	1	nvo-FanSpeed_1	SNVT_ switch	95	Fan speed setting	Byte 1: Value 1: Low, Value 2: Middle, Value 3: High Byte 2: State 0 (Fixed)	
24	1	nvoLouver_1	SNVT_ switch	95	Louver setting	Byte 1: Value 0: 20, 1: 25, 2: 30, 3: 35, 4: 45, 5: 55, 6: 70, 7: Auto Byte 2: State 0 (Fixed)	
25	1	nvoAlarmDe-scr_1	SNVT_str_ asc	36	Alarm description	31 Bytes: First 2 byte alarm description. 3rd byte 0.	
26	1	nvoIn-letTemp_1	SNVT_ temp_p	105	Indoor temperature reading	2 Bytes: -6200 ~ 12700 = -62 ~ 127 ºC	
27	1	nvoOut-letTemp_1	SNVT_ temp_p	105	Outdoor temperature reading	2 Bytes: -6200 ~ 12700 = -62 ~ 127 ºC	
28	2	nviOnOff_2	SNVT_ switch	95	On/Off order	Byte 1: Value 0 (Fixed) Byte 2: State 0 = STOP State 1 = RUN	Allow an interval of at least 5 sec. between 2 consecutive orders to any unit on a H-Link
29	2	nviMode_2	SNVT_ hvac_mode	108	Operation mode setting	1 byte: 1 = HVAC_HEAT (Heating) 3 = HVAC_COOL (Cooling) 5 = HVAC_PRE_COOL (Dehumidification) 9 = HVAC_FAN_ONLY (Ventilation)	
30	2	nviSet-Point_2	SNVT_ temp_p	105	Temperature setting	2 Bytes: 1700 ~ 3000 = 17 ~ 30 ºC	
31	2	nvi-FanSpeed_2	SNVT_ switch	95	Fan speed setting	Byte 1: Value 1: Low, Value 2: Middle, Value 3: High Byte 2: State 0 (Fixed)	
32	2	nviLouver_2	SNVT_ switch	95	Louver setting	Byte 1: Value 0: 20, 1: 25, 2: 30, 3: 35, 4: 45, 5: 55, 6: 70, 7: Auto Byte 2: State 0 (Fixed)	
33	2	nviProtect_2	SNVT_ switch	95	Remote control order enabled	Byte 1: Value 0 (Fixed) Byte 2: State 0: RCS enabled State 1: RCS disabled	

SVNT number	Unit number	Variable name	Type	LONMARK SNVT No.	Description	Condition	Note
34	2	nvoOnOff_2	SNVT_state	83	ON/OFF state and alarm notification	32 bits: bit 0: 0 (STOP)/1 (RUN) bit 1: 0 (Normal) /1 (Alarm)	Approximate update time of 80 sec.
35	2	nvoMode_2	SNVT_ hvac_mode	108	Operation mode setting	1 byte: 1 = HVAC_HEAT (Heating) 3 = HVAC_COOL (Cooling) 5 = HVAC_PRE_COOL (Dehumidification) 9 = HVAC_FAN_ONLY (Ventilation)	
36	2	nvoSetPoint_2	SNVT_ temp_p	105	Temperature reading setting	2 Bytes: 1700 ~ 3000 = 17 ~ 30 ºC	
37	2	nvoFanSpeed_2	SNVT_ switch	95	Fan speed setting	Byte 1: Value 1: Low, Value 2: Middle, Value 3: High Byte 2: State 0 (Fixed)	
38	2	nvoLouver_2	SNVT_ switch	95	Louver setting	Byte 1: Value 0: 20, 1: 25, 2: 30, 3: 35, 4: 45, 5: 55, 6: 70, 7: Auto Byte 2: State 0 (Fixed)	
39	2	nvoAlarmDescr_2	SNVT_str_ asc	36	Alarm description	31 Bytes: First 2 byte alarm description. 3rd byte 0.	
40	2	nvoInletTemp_2	SNVT_ temp_p	105	Indoor temperature reading	2 Bytes: -6200 ~ 12700 = -62 ~ 127 ºC	
41	2	nvoOutletTemp_2	SNVT_ temp_p	105	Outdoor temperature reading	2 Bytes: -6200 ~ 12700 = -62 ~ 127 ºC	
42	3	nviOnOff_3	SNVT_ switch	95	On/Off order	Byte 1: Value 0 (Fixed) Byte 2: State 0 = STOP State 1 = RUN	Allow an interval of at least 5 sec. between 2 consecutive orders to any unit on a H-Link
43	3	nviMode_3	SNVT_ hvac_mode	108	Operation mode setting	1 byte: 1 = HVAC_HEAT (Heating) 3 = HVAC_COOL (Cooling) 5 = HVAC_PRE_COOL (Dehumidification) 9 = HVAC_FAN_ONLY (Ventilation)	
44	3	nviSetPoint_3	SNVT_ temp_p	105	Temperature setting	2 Bytes: 1700 ~ 3000 = 17 ~ 30 ºC	
45	3	nviFanSpeed_3	SNVT_ switch	95	Fan speed setting	Byte 1: Value 1: Low, Value 2: Middle, Value 3: High Byte 2: State 0 (Fixed)	
46	3	nviLouver_3	SNVT_ switch	95	Louver setting	Byte 1: Value 0: 20, 1: 25, 2: 30, 3: 35, 4: 45, 5: 55, 6: 70, 7: Auto Byte 2: State 0 (Fixed)	
47	3	nviProtect_3	SNVT_ switch	95	Remote control order enabled	Byte 1: Value 0 (Fixed) Byte 2: State 0: RCS enabled State 1: RCS disabled	

SVNT number	Unit number	Variable name	Type	LONMARK SNVT No.	Description	Condition	Note
48	3	nvoOnOff_3	SNVT_state	83	ON/OFF state and alarm notification	32 bits: bit 0: 0 (STOP)/1 (RUN) bit 1: 0 (Normal) /1 (Alarm)	Approximate update time of 80 sec.
49	3	nvoMode_3	SNVT_ hvac_mode	108	Operation mode setting	1 byte: 1 = HVAC_HEAT (Heating) 3 = HVAC_COOL (Cooling) 5 = HVAC_PRE_COOL (Dehumidification) 9 = HVAC_FAN_ONLY (Ventilation)	
50	3	nvoSetPoint_3	SNVT_ temp_p	105	Temperature reading setting	2 Bytes: 1700 ~ 3000 = 17 ~ 30 ºC	
51	3	nvoFanSpeed_3	SNVT_ switch	95	Fan speed setting	Byte 1: Value 1: Low, Value 2: Middle, Value 3: High Byte 2: State 0 (Fixed)	
52	3	nvoLouver_3	SNVT_ switch	95	Louver setting	Byte 1: Value 0: 20, 1: 25, 2: 30, 3: 35, 4: 45, 5: 55, 6: 70, 7: Auto Byte 2: State 0 (Fixed)	
53	3	nvoAlarmDescr_3	SNVT_str_ asc	36	Alarm description	31 Bytes: First 2 byte alarm description 3rd byte 0.	
54	3	nvoInletTemp_3	SNVT_ temp_p	105	Indoor temperature reading	2 Bytes: -6200 ~ 12700 = -62 ~ 127 ºC	
55	3	nvoOutletTemp_3	SNVT_ temp_p	105	Outdoor temperature reading	2 Bytes: -6200 ~ 12700 = -62 ~ 127 ºC	
56	Outdoor	nvoAmbientTemp	SNVT_ temp_p	105	Temperature reading setting	2 Bytes: -6200 ~ 12700 = -62 ~ 127 ºC	
57	Outdoor	nviAllOnOff	SNVT_ switch	95	On/Off order	Byte 1: Value 0 (Fixed) Byte 2: State 0 = STOP State 1 = RUN	
58		nciMaxSendTime		107			The use of standard values is recommended (do not change)
59		nciMinSendTime		107			
60		nciPwrUp		107			
HARC-BX(B) XIF file variables list							

7.4.5.2 HARC-BX E self-check

The self-check, used to identify any abnormal conditions which may occur in the HARC-BX E, can be carried out with the following procedures:

1 Connect the power supply leaving the 8 pin DIP switch (S202) in the OFF position. "88" appears on the 7-segment display and turns off).

8 pin DSW (S202)

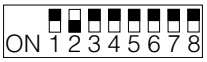
2 Only put the 8 pin DIP switch (201) pin no. 1 in the ON position.

8 pin DSW (S201)

7-segment display

Normal Abnormal

3 Put 8 pin DIP switch (201) pin no. 1 in the OFF position and then place only pin no. 2 in the ON position. (This action should be carried out whilst also configuring the termination resistance of the terminal on the H-Link).



8 pin DSW (S201)

7-segment display

Normal Abnormal

4 Put 8 pin DIP switch (201) pin no. 2 in the OFF position and then place only pin no. 3 in the ON position.

8 pin DSW (S201)

7-segment display

* The total number of pins in the ON position out of pin numbers 1 to 5 of the 8 pin DIP switch (S202) will be shown on the right-hand side of the display, and a number "3" will appear on the left-hand side of the display.

5 Put 8 pin DIP switch (201) pin no. 3 in the OFF position and then place only pin no. 4 in the ON position.

8 pin DSW (S201)

7-segment display

Normal Abnormal

7.4.5.3 Indication of abnormal conditions

1 Abnormal conditions will be displayed on the 7-segment display of the HARC-BX E.

7-segment display	Phenomenon	Type of abnormal condition
11	Abnormal initial connection.	No remote control has been found (connection fault).
44	Abnormal transmission on the remote control.	There has been no response 70 seconds after the attempted transmission to the remote control.
61	Abnormal transmission on the remote control.	There has been no response 180 seconds after the attempted transmission to the remote control.

7.4.6 Troubleshooting

The following table shows the possible troubleshooting actions to be carried out in the event of unit malfunction.

Make sure that the power supply is disconnected before starting any check.

No.	Phenomenon	Check points	Action
1	The HARC-BX E does not start up although the power supply is turned on. (No indication in the 7-segment display).	Check that the electricity cable is connected.	Connect the electricity cable.
		Check that it supplies electricity.	Measure the power supply voltage. If the voltage measurement exceeds the normal range of 100~240±10%[V], the wiring systems and procedures should be inspected and examined.
		Check if the power supply is turned on (PWRs ON).	If the pilot light is off there may be a fault in the internal power supply. Contact your nearest service centre.
		Check whether the screws on the power supply are loose.	Tighten them.
		Check if the LED (PWR or transmission display) is on.	Check the transmission circuit of the air conditioning systems with the self-check function. Then check if the monobloc air conditioning transmission circuit is operating normally.
		Check if the LED (LON or transmission display) is on.	Check the upper transmission circuit with the self-check function. Then check if the upper transmission circuit is operating normally.
		Check if the LED (LON or transmission display) is flashing at regular intervals (from 1 to 2 sec.).	The flashing indicates that there could be a fault in the internal power supply. Contact your nearest service centre.
2	The HARC-BX E does not identify the air conditioning even though the power supply is on. (“ ” appears on the 7-segment display). After the “00” indication on the 7-segment screen with test mode, the actual amount of air conditioning units does not match with these addresses.	Check if the HARC-BX E (OP) DIP switches are correctly configured.	The DIP switch must be configured again following the installation and maintenance manual and operation manual on how to configure the HARC-BX E DIP switch.
		Check if the air conditioning system and address are correctly configured.	The address should be configured again as indicated in the installation and maintenance manual and the operation manual.
		Check if the transmission cable to the air conditioning units is disconnected.	Examine the cable connection.
		Check if the transmission cable specified by the manufacturer has been used to connect to the air conditioning units.	Use a shielded cable or twisted and shielded pair cable (0.75 mm^2).
		Check if the transmission cable connected to the air conditioning is connected to the power supply cable.	Leave a minimum space of 150 mm between cables.
		Check if the termination resistance of the terminal and the number of the transmission cable to the air conditioning unit is correctly configured.	Only one termination resistance should only be configured on one system. (The resistance between cables is approx. 150 Ω).
		Check if the transmission circuit operates normally with the self-check function.	The termination resistance should be configured in relation to the air conditioning transmission cable.
		Check if the air conditioning's power supply is ON.	The air conditioning should be in the ON position.
		Check if the transmission cable between the air conditioning units is disconnected.	Examine the cable connection.
		Check if the LED (H-L) of the transmission display is on.	Check the transmission circuit of the air conditioning system with the self-check function. Then check if the air conditioning transmission circuit is operating normally.
		Check if the LED (H-L) of the transmission display is off.	Check the transmission circuit of the air conditioning system with the self-check function. Then check if the air conditioning transmission circuit is operating normally.

3	The 7-segment display shows "44".	Check if the transmission cable specified by the manufacturer has been used to connect to the air conditioning units.	Use a shielded cable or twisted and shielded pair cable (0.75 mm^2).
		Check if the transmission cable connected to the air conditioning is connected to the power supply cable.	Leave a minimum space of 150 mm between cables.
		Check if the termination resistance of the terminal and the number of the transmission cable between the air conditioning units is correctly configured.	Only one termination resistance should only be configured on one system. (The resistance between cables is approx. 150 Ω).
		Check if the transmission circuit operates normally with the self-check function.	The termination resistance should be configured in relation to the air conditioning transmission cable.
		Check if the air conditioning's power supply is ON.	The air conditioning unit should be set to the ON position.

7.4.7 Maintenance

The unit should be periodically inspected with the aim of guaranteeing a reliable performance and long-lasting operation.

1 Ambient conditions:
- Make sure that the internal temperature of the housing panel is not too high.
- Make sure that the temperature of the unit housing is not too high.
- Check if there is any dust or fine metal powder and, if so, remove it. Check the lubrication.

2 Displays:
- Check if the run indicator LED of the power supply (PWR) is on.
- Check that the run indicator for the transmission display (H-L, LON) indicates ON/OFF.
- Check if the 7-segment display shows digits other than "00".

3 Assembly and connection parts:
- Check that the screws for the assembly, power supply, transmission cable and all other screws are correctly tightened.

⚠CAUTION

Do not use acidic cleaning agents, such as solvents, to clean the units. They could remove the colour from the coating surfaces and melt the plastic box.

8. Control support devices

Index

8.1 PSC-A1T

8.1.1 Safety summary

⚠DANGER

ELECTRIC SHOCK

- ***DO NOT handle the remote control with wet hands.***
- ***DO NOT spill water on the remote control. This may cause an electric shock.***
- ***If the safety devices should be activated too often or the buttons do not work properly, turn off the unit at the mains and contact your HITACHI service provider.***
- ***In the event of other incidents of an electrical nature, turn off the system, switch it off at the mains and contact your HITACHI service provider.***

⚠CAUTION

DO NOT install the indoor unit, outdoor unit, remote control or any wiring in the following locations:

- *Where there are oil vapours and the oil is dispersed.*
- *In the proximity of hot water or heat sources or in sulphuric environments.*
- *In locations prone to the generation, accumulation, leakage or flow of flammable gas.*
- *Close to the sea (saline atmospheres).*
- *In acidic or alkaline environments.*
- *Within the reach of children.*
- *Directly in front of the air-conditioning system outlet.*

To avoid electromagnetic compatibility problems, DO NOT install the indoor unit, outdoor unit, remote control or any wiring within 3m of strong sources of electromagnetic radiation (e.g. waves generated by medical equipment). If the system should be installed in a location where electromagnetic waves are produced, protect the remote control and wiring by covering them with the steel casing and passing the cable through the metal duct.

If electrical noise should be generated at the indoor unit power source, install a noise filter.

This appliance must be used only by adult and capable people, having received the technical information or instructions to handle properly and safely this appliance.

Children should be supervised to ensure that they do not play with the appliance.

8.1.2 Installation

8.1.2.1 Installation site selection

Take note of the maximum admissible cable length between units and the control as well as between the units themselves, as shown in the following table:

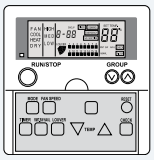
Cable section	0.3 mm^2	≥ 0.75 mm^2
Cable length	30 m	500 m

8.1.2.2 Components list

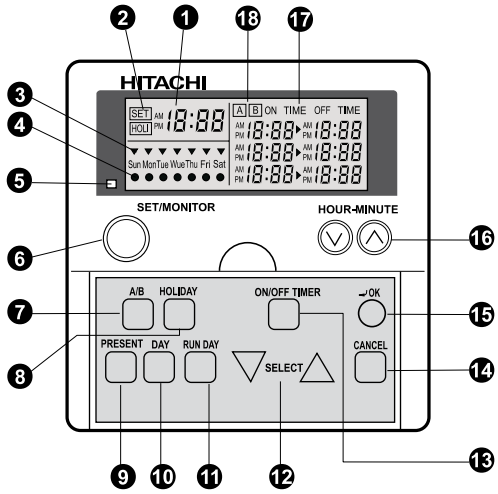
Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quant.	Comments
Control timer		1	For controlling system operation.
M4x16L screws		2	For fixing the bracket to the wall
Cable (1 m)		1	For remote control-timer connection.
Installation and operation manual		1	Installation and operation unit instructions.

8.1.2.3 Description of the parts



Model: PSC-A1T

❶ Current time indicator.

❷ Time setting and holiday indication
Indicates the “SET” or “MONITOR” operation mode and the holiday.

❸ Current day indications.

❹ Run day indication.

This indicator appears when a day is set.

❺ Run indicator (green pilot light).

❻ “SET/MONITOR” operation mode selection button

When this button is pressed, the remote control timer switches to setting mode, the "SET" indication will appear and the ▼ symbol will flash. If pressed again, "SET" mode will switch off and the system will change from setting mode to monitor mode.

❼ A/B setting mode selection button.

Press this button to select the mode you wish to switch on (A or B).There are two (2) modes (A and B) set for the weekly schedule. Each mode can be set to “ON”/“OFF” three (3) times a day, seven days a week.

❽ Holiday setting button.

By pressing this button, with the timer in setting mode ("SET"), the "HOLI" indication will appear and the selected day will be set as a holiday. Pressing the button again cancels the holiday setting.

❾ Current time setting button.

By pressing this button, the "SET" indicator and ▼ symbol will flash, allowing the user to set the current time.

❿ Weekday setting button.

With the timer in setting mode ("SET"), use this button to select the weekday. By pressing this button, the ▼ symbol moves in the order “Sun > Moon > ... > Sat”. Pressing "DAY" after "Sat" will select all ▼ marks. If pressed again, the ▼ symbol will return to Sun.

⓫ "RUN DAY" setting button.

Pressing “RUN DAY”, will set the selected day as the run day and the ● symbol will appear.

If pressed again, it will switch off and cancel the selected day.

⓬ “SELECT” setting selection button.

By pressing “SELECT”, the user can select element 1, 2 or 3 for both "ON TIME" and "OFF TIME".

⓭ “ON/OFF TIMER” setting selection button.

When the timer is in "SET" mode, pressing "ON/OFF TIMER", will switch the timer to the "ON/OFF" setting mode and the "ON TIME" indication will flash.

⓮ Setting time “CANCEL” button.

By pressing this button when the timer is set, the "ON TIME" or "OFF TIME" indication will disappear.

⓯ “OK” button.

Pressing this button accepts the selected setting process.

⓰ “HOUR-MINUTE” setting button.

Pressing ⌃ or ⌄ with the timer in setting mode ("SET") adjusts the hours and minutes.

⓱ “ON TIME” and “OFF TIME” setting indication.

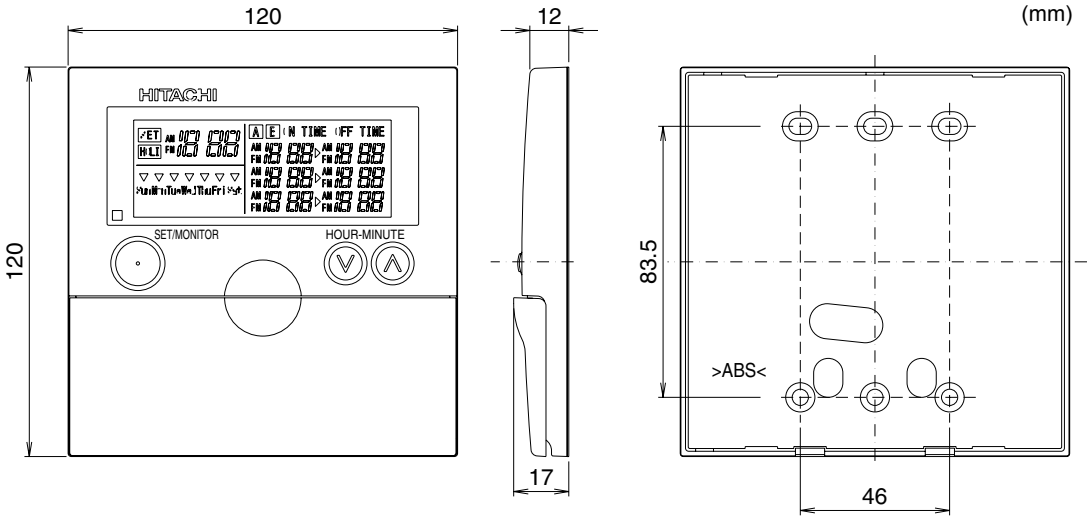
Indicates the setting conditions for the selected day.

⓲ Indication of weekly schedule mode (A or B).

NOTE

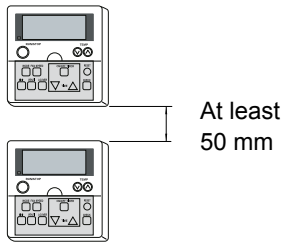
The present time and the ON/OFF setting time are indicated by 12 hours units (AM 0:00 – 11:59 /PM 0:00 – 11:59)

8.1.2.4 Dimensional data



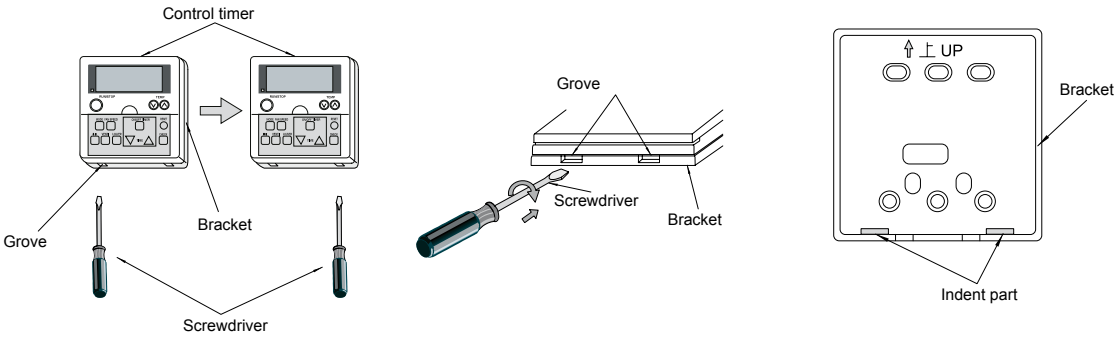
8.1.2.5 Installation space

If several control units are to be installed in a vertical position, leave a distance of at least 50 mm between them to allow the front cover to be opened and to insert the tool for removing the control from its housing.



8.1.2.6 Installation procedure

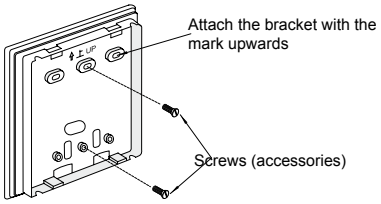
1 Using a flat-head screwdriver, separate the control unit bracket from the front section, as indicated below:



2 Secure the timer to the bracket and connect the cable as illustrated below.

◆ In cases where the remote control cable is exposed.

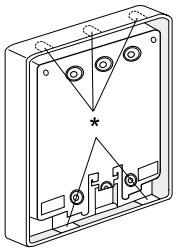
1 Fix the bracket to the wall using the screws supplied



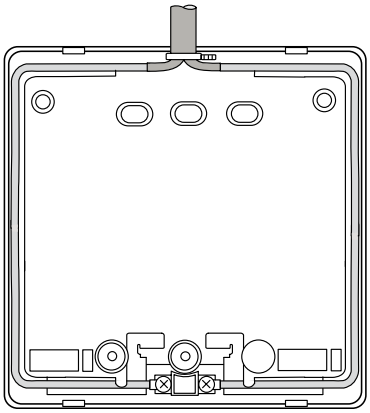
2 Select and cut the knockout hole through which to pass the cable.

Determine the position of the wiring and drill one of the holes marked with * in the diagram.

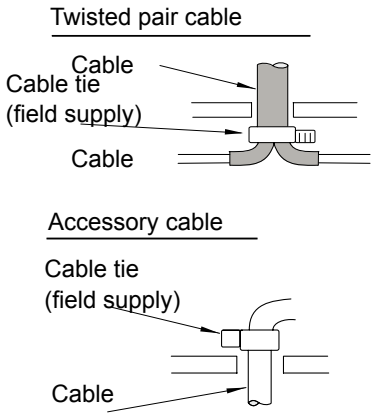
If using an accessory cable, drill a hole on the bottom.



3 Insert the cable through the hole/s.



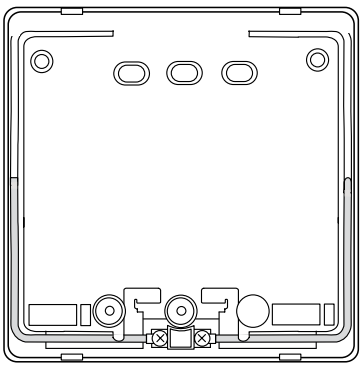
Attach the band to the cable inside the knockout hole

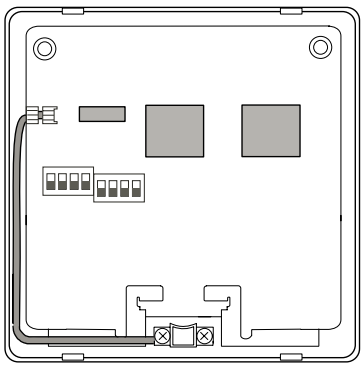


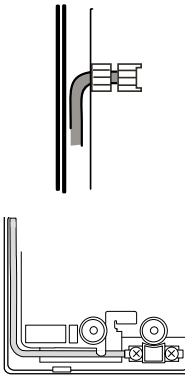
NOTE

Strip the protective insulation from the accessory cable supplied, if used.

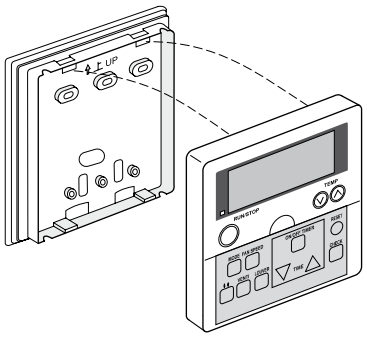
4 Connect the cable to the PCB plate connector or to the terminal.







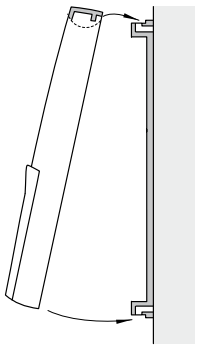
5 Fix the timer to the bracket.



a. Insert the hooks of the timer into the holes on the top of the bracket.

b. Push the bottom part of the timer towards the bracket.

c. The timer will click when it is secured in place. Check that the four hooks are correctly inserted.



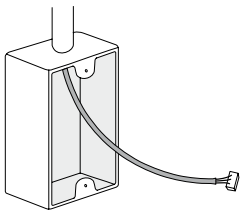
◆ If using an electrical box

There are different types of electrical boxes available on the market that can be used for this installation, for example:

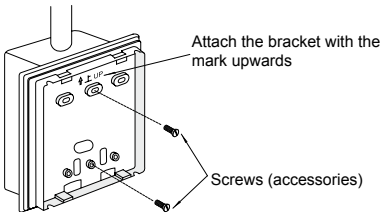
- Electrical box for one remote control unit (without cover).
- Electrical box for 2 remote control units (without cover).
- Electrical box for one remote control unit (with cover).
- Electrical box for 2 remote control units (with cover).
- Output box (with cover).

1 Prepare the electrical box.

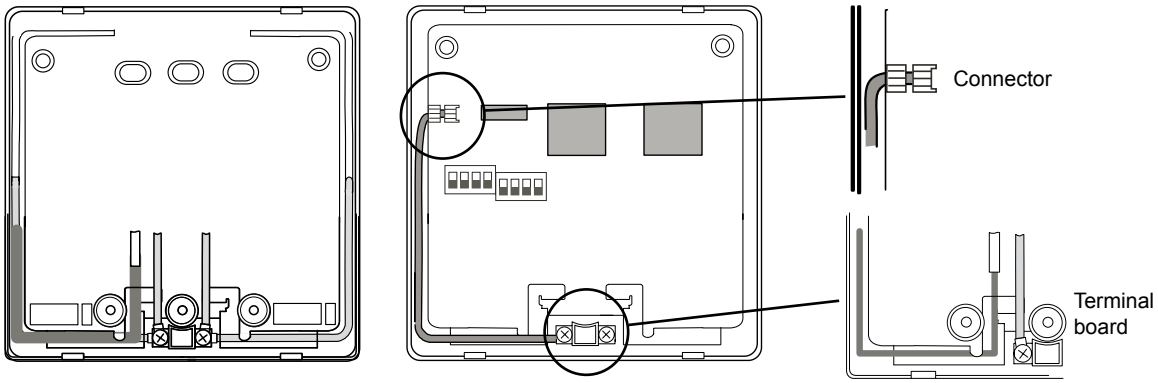
2 Pass the cable through the wall duct.



3 Attach the bracket to the electrical box.



4 Connect the cable to the PCB connector or to the terminals.

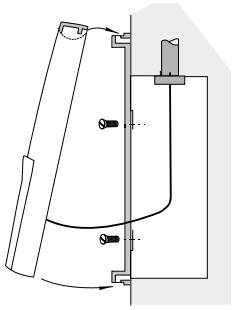


5 Fix the timer to the bracket

a. Insert the hooks of the timer into the holes on the top of the bracket.

b. Push the bottom part of the timer towards the bracket.

c. The timer will click when it is secured in place. Check that the four hooks are correctly inserted.



8.1.3 Electrical wiring

8.1.3.1 Electrical connection of PSC-A1T timer combined with individual or central controllers

This section explains how to electrically connect the timer to another remote controls or central stations.

⚠CAUTION

Use a twisted pair cable (1P - 0.75 mm²) as a transmission cable to avoid possible communication errors. If the cable exceeds 30 m in length, use:

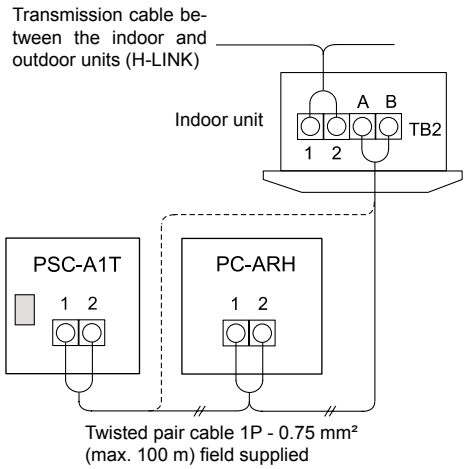
- *Shielded pair cable (connected to earth protection on one side).*
- *Normal pair cable.*

The transmission cable and the remote control cable must be kept at least 30 cm apart.

When installing the timer on an RPK unit, first disable the wireless remote control and then connect a different remote control. The timer can then be connected to the other remote.

◆ PSC-A1T timer combined with PC-ARH or wireless remote control receivers

Set DSW1-4 pin and DSW2-2 pin to ON position on the PSC-A1T.

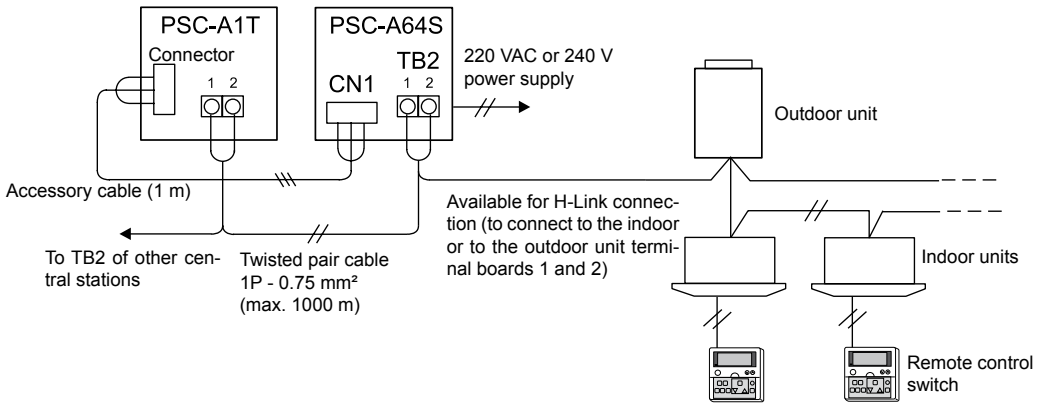


◆ PSC-A1T timer combined with PSC-A64S central control

Set DSW1-4 and DSW2-2 pins to OFF position on the PSC-A1T.

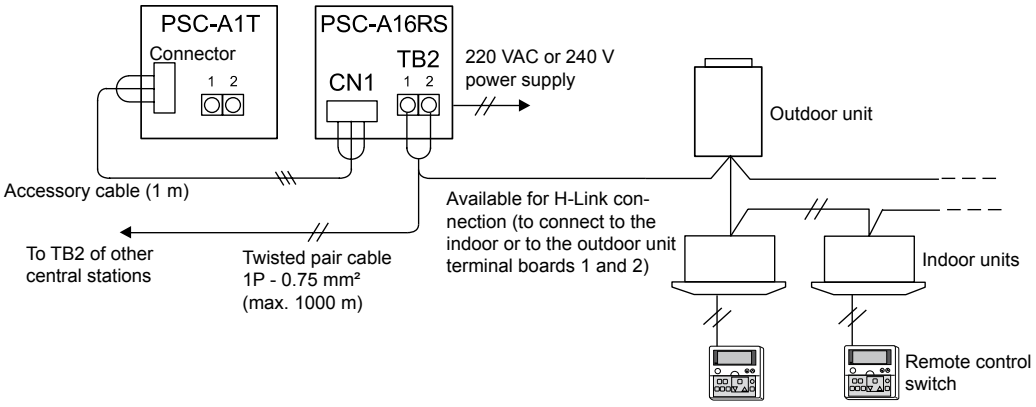
NOTE

Up to 8 PSC-A64S central control units and one PSC-A1T timer can be connected to one H-Link.



◆ PSC-A1T timer combined with PSC-A16RS centralised ON/OFF controller

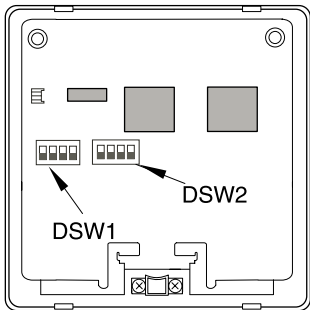
Set DSW1-4 pin OFF and DSW2-2 pin to ON position on the PSC-A1T.



8.1.3.2 DIP switch setting

NOTE

The switches settings are all in OFF position before shipment.



Pin no.		Setting content	DSW setting		Comments
			OFF	ON	
DSW1	1	Set address	Consult the following table		The setting needs only be made when the central station (PSC-A64S) is used in combination. Set the address of the central station that you wish to control.
	2				
	3				
	4	For use in conjunction with another remote control	PSC-A64S and PSC-A16RS	PC-ARH and Wireless receivers	Set pin no. 4 to ON if using the PC-ARH remote control or the wireless receiver kits in combination.
DSW2	1	Set the remote control functional limit after the scheduled stoppage time	Setting unavailable	Setting available	This setting is only available when used in conjunction with PSC-A64S, PC-ARH or wireless receiver kit. The remote controls will not run after the scheduled stoppage time is set, and will only become available after the start-up command.
	2	For use in conjunction with another remote control	PSC-A64S	PC-ARH, Wireless receivers and PSC-A16RS	Set pin no. 2 according to the remote control used together.
	3	No function	-	-	Do not change the “OFF” setting.
	4	No function	-	-	Do not change the “OFF” setting.

◆ Address setting with DSW1

Address 1	Address 2	Address 3	Address 4	Address 5	Address 6	Address 7	Address 8
							

8.1.4 Test run

Perform the test running according to the procedure described below.

Preparation:

Set the operation schedule according to the section “Operation”.

1 In the case where the present time indication is ON TIME (The “RUN” lamp of the control timer is ON).

a. Set the present time at the time one minute before the OFF time.

b. One minute later, check to ensure that the target indoor unit is stopped.

c. After checking, set the present time at the time one minute before the ON time.

d. One minute later, check to ensure that the target indoor unit is operated.

2 In the case where the present time indication is OFF time (The “RUN” lamp of the control timer is OFF)

a. Set the present time at the time one minute before the ON time.

b. One minute later, check to ensure that the target indoor unit is operated.

c. After checking, set the present time at the time one minute before the OFF time.

d. One minute later, check to ensure that target indoor unit is stopped.

NOTE

After the test run, set the present time at the correct time again.

When using the PSC-A16RS centralised ON/OFF controller together, the first setting after the test running is not available in the following cases.

- *When the first setting after the test running (1) is ON time*
- *When the first setting after the test running (2) is OFF time*

When the “RUN” lamp of the control timer flickers, and there is a failure in transmission. In this case, check for the condition of wiring and the setting of the dip switch.

8.1.5 Operation

◆ Setting the current date and time

NOTE

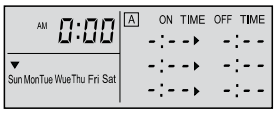
- *During the setting mode or the timer pause mode, the setting of the present time is not available when depressing the "PRESENT" switch more than 3 seconds.*
- *The control timer contains the battery, therefore, the clock keeps on working for 2 weeks after the power failure. If the power failure continues for more than 2 weeks, set the present time again.*

<Example> Condition / Present Day: Friday, Present Time: 5:15PM

Supplying power to the unit.

CAUTION

- *The unit should be powered for at least 12 hours before starting it up to protect the compressor.*
- *Do not interrupt the electrical current while the air conditioning system is in use.*

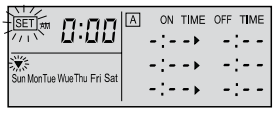


The diagram on the right shows the current time set to 0:00 AM on "Sunday". (When the power is switched on, the current time is not set).

Press and hold the "PRESENT" button for at least 3 seconds.

The screen will switch to the current hour setting mode, and the SET indicator and ▼ symbol will flash.

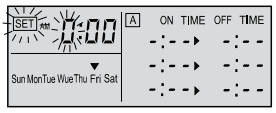
The diagram on the right shows a case in which neither the "ON" time nor "OFF" time are set.



Set the current day by pressing the "DAY" button.

Press the "OK" button after setting the current day; the ▼ sign will switch on and the time indication will flash.

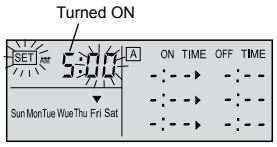
The diagram on the right will show the day setting as Friday.



Set the current time by pressing "HOUR/MINUTE" ⌃ or ⌄.

Press the "OK" button after setting the current time; the minute indication will flash.

The diagram on the right shows the hour set to 5 PM.



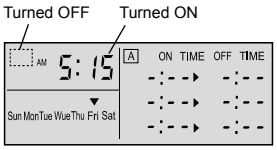
NOTE

12:00 AM is shown as 00:00 PM

Set the current minutes by pressing "HOUR/MINUTE" ⌃ or ⌄.

Press "OK" after setting the current minutes; the current day and time will be set and the time setting mode will switch to monitor mode. The minute indication will switch on and "SET" will go off.

The diagram on the right shows the minute setting at 15.



◆ Changing weekly schedule mode (A or B)

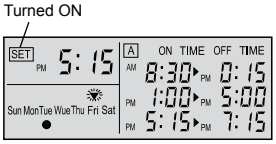
There are 2 modes (A and B) set for the weekly schedule. For each mode, three run times and three stoppage times can be set per day.

They are used for selecting the mode to be set and used.

Modes A and B can be used to set weekly or seasonal operating schedules.

Press the "SET/MONITOR" button.

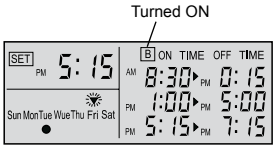
The remote control timer will switch to setting mode and the "SET" indication will appear.



Press the "A/B" button.

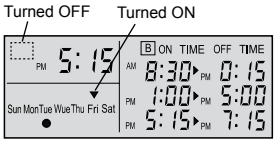
Setting mode is changed (from A to B) by pressing A/B button.

The diagram on the right shows the selection of setting mode B.



Press the “SET/MONITOR” button.

"SET" mode is switched off and setting mode switches to monitor mode.



NOTE

- *In the case where the ON TIME or OFF TIME comes during the setting mode, there is no operation or stoppage. After setting, ensure to change the mode of the control timer to the monitor mode. (For more than 3 minutes without setting operation at the setting mode, the mode of the control timer is automatically changed to the monitor mode.)*
- *During the timer pause mode, the mode is not changed to the setting mode by depressing the “SET/ MONITOR” switch.*

◆ Time settings for: ON/OFF

NOTE

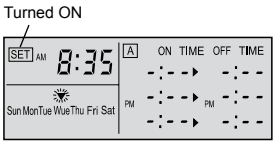
- *In case that the centralised ON/OFF controller (PSC-A16RS) is used together, both setting of ON TIME and OFF TIME are required for setting 1, 2 and 3. (The setting of ON TIME (or OFF TIME) only is not available).*
- *In case that the other controller is used together, the setting of ON TIME (or OFF TIME) only is available.*
- *During the timer pause mode, the mode is not changed to the setting mode by depressing the “SET/MONITOR” switch.*

<Example> “A” pattern, Friday, Setting 2, PM 1:00 (ON) / PM 5:00 (OFF)

Press the “SET/MONITOR” button.

The remote control timer switches to setting mode, the "SET" indication will appear and the ▼ symbol will flash.

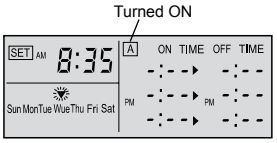
The diagram on the right shows an example of the switch to setting mode.



Select schedule mode A or B by pressing "A/B".

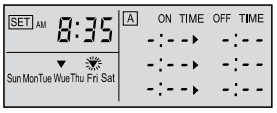
Refer to the previous point “Changing weekly schedule mode (A or B)” for changing the pattern.

The diagram on the right shows the case of selecting the set pattern “A”.



Select the day of the week on which to set the “ON/OFF” control

When "DAY" is pressed, the flashing symbol ▼ will move in the following sequence:
“Sun > Moon > ... > Sat”
By pressing "DAY" after "Sat", all ▼ symbols will flash (from Sun to Sat). In this case, the setting is the same for all days of the week. By pressing the "DAY" button once more, the flashing symbol ▼ will return to “Sun”.

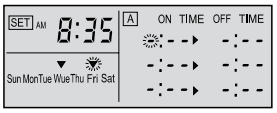


The diagram on the right shows the case of selecting the day “Friday”. The flashing “▼” mark of the present day is turned ON. (In case of selecting the present day, the “▼” mark flashes.)

Press the "ON/OFF TIME" button.

The timer will switch to "ON/OFF" time setting mode and the "ON TIME" indication will flash.

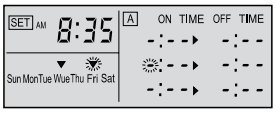
The diagram on the right shows the switch to "ON/OFF" time setting mode.



Select setting 1, 2 or 3 by pressing "SELECT".

When "SELECT" is pressed, the time indication will flash.

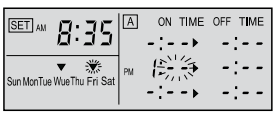
The diagram on the right shows the selection of setting 2.



Set the "ON TIME" hour by pressing the "HOUR/MINUTE" button ⌃ or ⌄.

After setting the time indication, press "OK"; the "ON TIME" minute indication will flash.

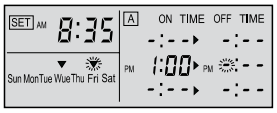
The diagram on the right shows the time set to 1 PM:--



Set the "ON TIME" minutes by pressing "HOUR/MINUTE" ⌃ or ⌄.

After setting the minute indication, press "OK"; the "OFF TIME" time indication will flash.

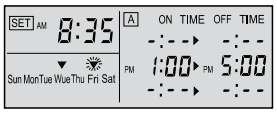
The diagram on the right shows the time set to 1:00 PM.



Set the "OFF TIME".

Follow the same procedure as that used to set the ON time.

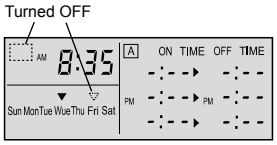
The diagram on the right shows the time set to 5:00 PM.



Press the "SET/MONITOR" button.

The "SET" indication will go off and the remote control timer will switch to monitor mode.

The diagram on the right shows the current day setting condition.



NOTE

- *Depressing the "CANCEL" switch when setting ON time (procedure 6) or OFF time (procedure 8), the indication of ON TIME or OFF TIME is changed to "- : - -". Depressing the "OK" switch in this condition, the setting is cancelled.*
- *In case of using the Timer together with other controller than the remote control switch PC-ARH and the central station PSC-A64S, the setting of ON time and OFF time is required.*
- *Depending on the controller to be used with, it may take approximately 15 seconds that the air conditioner starts (or stops) operation after the ON time (or OFF time).*

◆ Setting the Run day

To set the day for actual operation of the running schedule set before. (Though the ON time and OFF time are set, the schedule operation is not available unless the running day is set.)

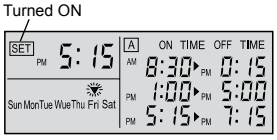
NOTE

- *In case where the central station (PSC-A64S) is used together, the group setting for schedule operation is required by the central station. Refer to the manual of the central station for details.*
- *During the timer pause mode, the mode is not changed to the setting mode by depressing the "SET/ MONITOR" switch.*

<Example> "B" pattern, Tuesday

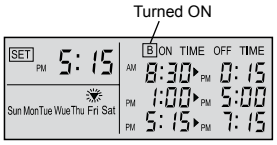
Press the "SET/MONITOR" button.

The timer switches to setting mode, the "SET" indication will appear and the ▼ symbol will flash.



Select mode A or B by pressing "A/B".

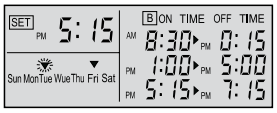
The diagram on the right shows the selection of setting mode B.



Set the run day by pressing the "DAY" button.

Refer to the previous "Time settings for: ON/OFF" for the indication of the "▼" mark.

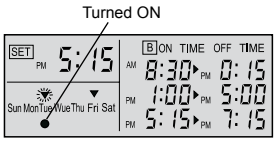
In the diagram on the right, the selection is set to "Tuesday".



Press the "RUN DAY" button

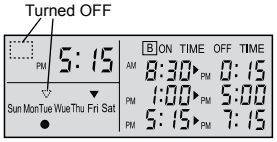
The selected day will be set as the run day and the ● symbol will switch on for the selected day. By pressing "RUN DAY" again, the run day setting will be cancelled and the ● symbol will switch off.

In the diagram on the right, the selection is set to "Tuesday".



Press the "SET/MONITOR" button.

The "SET" indication will go off and the remote control timer will switch to monitor mode.



◆ Holiday setting

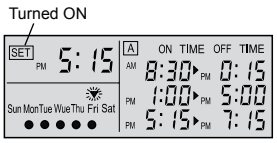
<Example> “B” pattern, Tuesday

NOTE

- *This setting temporarily cancels the operating schedule.*
- *The scheduled operation will be cancelled only for the day set as a holiday, afterwards the scheduled operation will once again be available. This function is used in the event of an irregular holiday.*

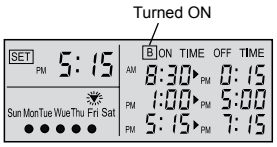
Press the "SET/MONITOR" button.

The timer switches to setting mode, the "SET" indication will appear and the ▼ symbol will flash.



Select schedule mode A or B by pressing "A/B".

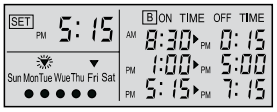
The diagram on the right shows the selection of setting mode B.



Select the day to be set as a holiday by pressing the "DAY" button.

Refer to the previous “Time settings for: ON/OFF” for the indication of the “▼” mark.

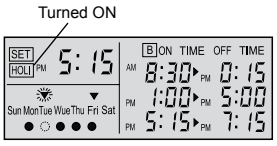
In the diagram on the right, the selection is set to "Tuesday".



Press the "HOLIDAY" button.

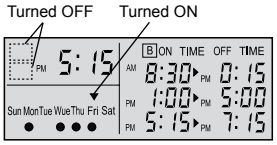
The "HOLI" indication will switch on and the selected day will be set as a holiday. In the case that the selected day is not set as running day the “▼” mark is turned off. The holiday setting is not available for the day. (In case that all days of a week are selected, only the running day is set as “holiday”).

By pressing "HOLIDAY" again, the holiday setting is cancelled.



Press "SET/MONITOR".

The "SET" indication will go off and the remote control timer will switch to monitor mode.



CAUTION

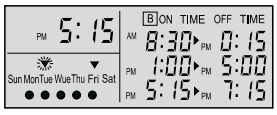
- *If the current day is set as a holiday, the holiday setting will be active from that moment on and the programmed mode is cancelled until the following day. In this case, the same day of the subsequent week will not be a holiday.*
- *During the timer pause mode, the mode is not changed to the setting mode by depressing the “SET/ MONITOR” switch.*

◆ Checking the setting content

Press the "DAY" button in monitor mode

The ▼ symbol moves and the day setting content is indicated with the ▼ symbol.

In the diagram on the right, the selection is set to "Tuesday".



NOTE

During the timer pause mode, checking the contents of setting cannot be performed.

◆ Setting timer pause

<Function>

This function is for cancelling the running schedule.

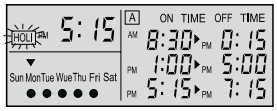
During the timer pause setting, the ON time setting is invalid and the schedule operation is cancelled.

This function is used in case that there are any long-term holidays.

Press the "HOLIDAY" switch for 3 seconds during the monitor mode.

The mode of the control timer is changed to the timer pause mode, the "HOLI" indication is flickered.

The diagram on the right shows the selection of the timer pause mode.



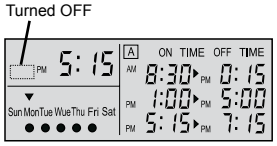
⚠CAUTION

- *The timer pause function is not available for the day when the setting is performed. This function is available from the next day and continued until the cancellation of this setting. In this mode, the unit operation is stopped according to OFF time setting.*
- *During the setting mode, the timer pause setting is not available by depressing "HOLIDAY" switch for more than 3 seconds.*
- *During the timer pause mode, the input of only the "HOLIDAY" switch is valid. To input from other switches for setting, the timer pause mode is required to be cancelled.*
- *When the timer pause mode and the holiday setting day is overlapped, the priority is given to the holiday setting.*

Cancellation for Timer Pause Mode.

Press the "HOLIDAY" switch for 3 seconds during the timer pause mode. The control timer is changed to the monitor mode, the "HOLI" indication turns OFF.

The diagram on the right shows the case of returning to the monitor mode.



NOTE

- *After cancellation of the timer pause mode, the schedule running is performed by judging ON/OFF time setting.*
- *In the case where the day, when the timer pause mode is cancelled, is set as holiday, the state of "HOLI" indication is changed from flickering to turning ON.*

⚠CAUTION

- *The remote control has a built-in backup battery, making the clock function available for 2 weeks in the event of power failure. If the power failure should last for more than 2 weeks, the current time will need to be reset.*
- *The "RUN" indicator will switch on at the "ON" time and switch off at the "OFF" time. If the indoor unit is switched on or off from the control station or remote control used in conjunction with the timer, the "RUN" indicator will not change.*
- *If the "RUN" indicator is flashing, this indicates an abnormal condition on the timer. Check that the cable connections and DIP switch settings are correct. If the "RUN" indicator continues to flash after the check, contact your dealer or HITACHI supplier.*

NOTE

- *When an on or off order is sent from the timer, it may take around 15 seconds for the order to take effect.*
- *During setting mode, on/off orders cannot be sent to the units.*
- *Once the setting is complete, activate the timer monitor mode. (After remaining in setting mode for 3 minutes, the timer will switch automatically to monitor mode).*
- *When using the central station timer (PSC-A64S), the settings made through the central station are required.*

8.2 PSC-6RAD

8.2.1 Safety summary

⚠DANGER

- ***DO NOT pour water into the remote control switch (hereafter called "controller"). This product is equipped with electrical parts.***
- ***If poured, it will cause a serious electrical shock.***

⚠CAUTION

- *DO NOT perform installation work and electrical wiring connection by yourself. Contact your distributor or dealer of HITACHI and ask them for installation work and electrical wiring by service person.*
- *The specified cable should be used to connect room air-conditioner and adapter, and controller and adapter. If not it may result in an electrical shock or a fire.*

DO NOT install the indoor unit, outdoor unit, controller and cable at such places as;

- *Where there is oil vapour and the oil is dispersed*
- *Where the hot springs are near (in a sulphuric environment)*
- *Where generation, flowing, staying or leaking of flammable gas is detected*
- *Where the sea is near (in the salty environment)*
- *An acid or alkaline environment*

DO NOT install the indoor unit, outdoor unit, controller and cable within approximately 3 meters from strong electromagnetic wave radiators such as medical equipment. In case that the controller is installed in a place where there is electromagnetic wave direct-radiation, shield the controller and cables by covering with the steel box and running the cable through the metal conduit tube.

In case that there is electric noise at the power source for the indoor unit, provide a noise filter.

This appliance must be used only by adult and capable people, having received the technical information or instructions to handle properly and safely this appliance.

Children should be supervised to ensure that they do not play with the appliance.

8.2.2 Installation

8.2.2.1 Installation site selection

Take note of the maximum admissible cable length between units and the control as well as between the units themselves, as shown in the following table:

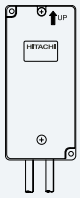
Cable section	0.3 mm²	≥ 0.75 mm²
Cable length	30 m	500 m

8.2.2.2 Components list

Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

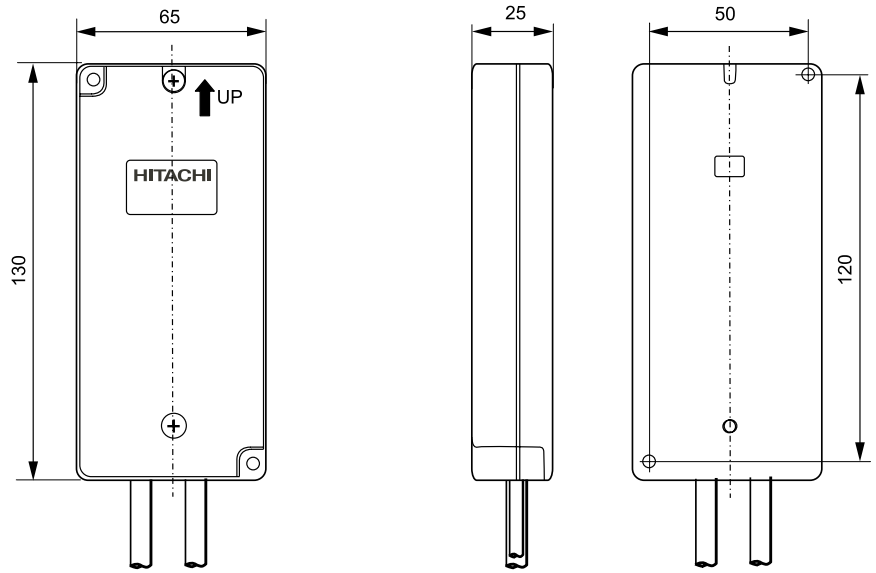
Otherwise, contact the manufacturer.

Name		Quant.	Comments
Adapter		1	With 1.8 m cable
Wiring cover		1	For hiding the wiring
Double face tape		1	110 x 40 x 3 mm For attaching to the adapter
Connector		2	For H-LINK connection
Tapping screw		2	Ø3.0 x 10mm For attaching to the wall
Screw		2	Ø3.1 x 16mm For attaching to the wooden wall
Installation and operation manual		1	Installation and operation unit instructions.

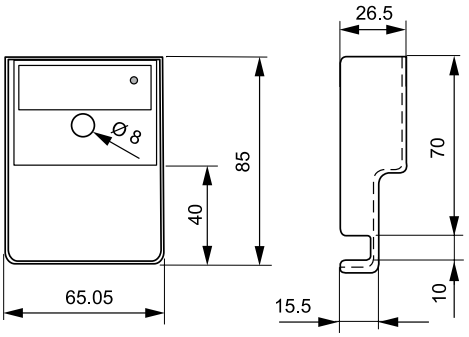
8.2.2.3 Dimensional data

All dimensions are in mm.

◆ **Adaptor**

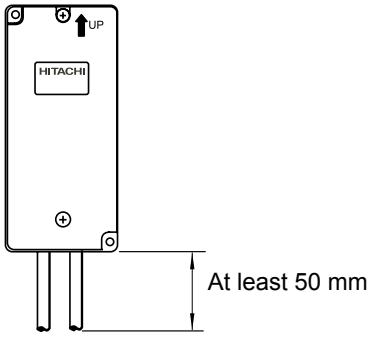


◆ **Wiring cover**



8.2.2.4 Installation space

Keep a distance of at least 50 mm under the lower side of PSC-6RAD to enable bending the cables easily.

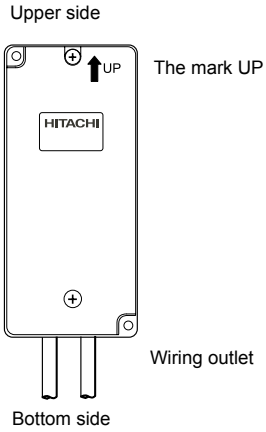


8.2.2.5 Installation procedure

⚠CAUTION

- *Read carefully "Installation Manual" attached with the RAC adaptor and follow the information provided for installation and maintenance.*
- *If a wiring is performed when the power is ON, the equipment may be damaged. Ensure that the power is turned OFF before a wiring.*
- *Do not install all the transmission cables or signal cables along with the power line or other signal cables. It may cause of malfunction by the noise. If it is required to run the cable along with, keep a distance more than 15cm for H-LINK (more than 30cm for other cables), or insert the cables for each transmission system into the conduit tube and earth one end of the conduit tube. Ensure that the case must be earthed.*

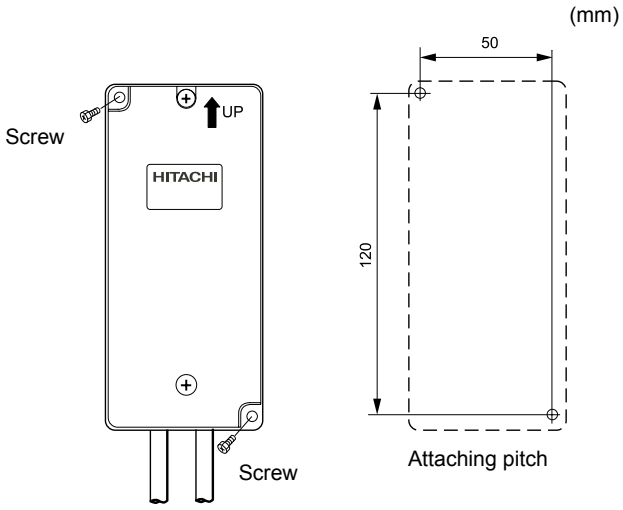
1 RAC adapter can be installed to the wall as well as on the air-conditioner itself.
2 Install RAC adapter in the vertical surface as shown below.



3 Installation procedure

a. When installing to the wall.

i. Fix the adapter with 2 screws. Tapping screw is for metal surface, and other screw is for wooden surface.



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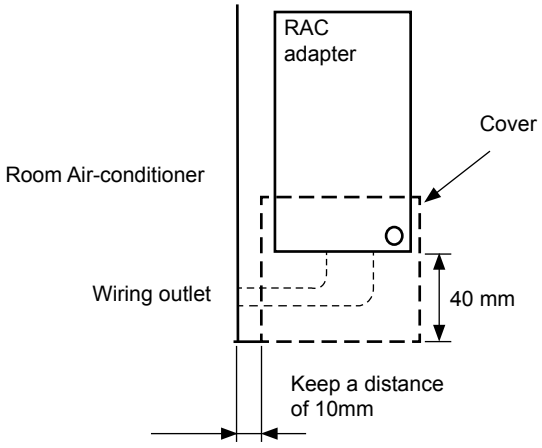
ii. When using the cover. It can be installed at the right and left side of room air-conditioner. Double-face tape fixes the cover and RAC adapter.

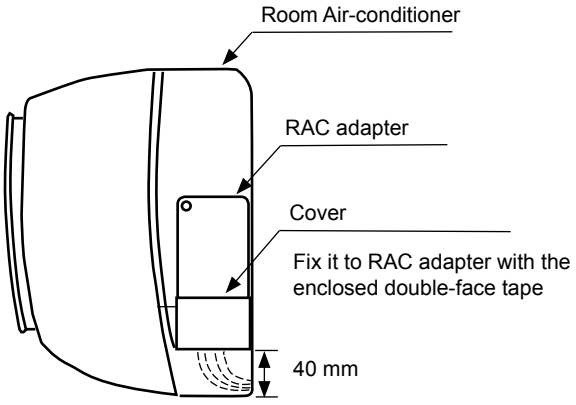
Example of installation:



b. In case that it cannot be installed to the wall due to the space or material problem, double-face tape is used for installation on the room air-conditioner.

i. Confirm if the piping cover of the Unit can be removed when performing the service maintenance, and then fix RAC adapter in the side of room air-conditioner with double-face tape. (Available at the right as well as left side)

ii. Clean with a dry cloth the surface to be installed.



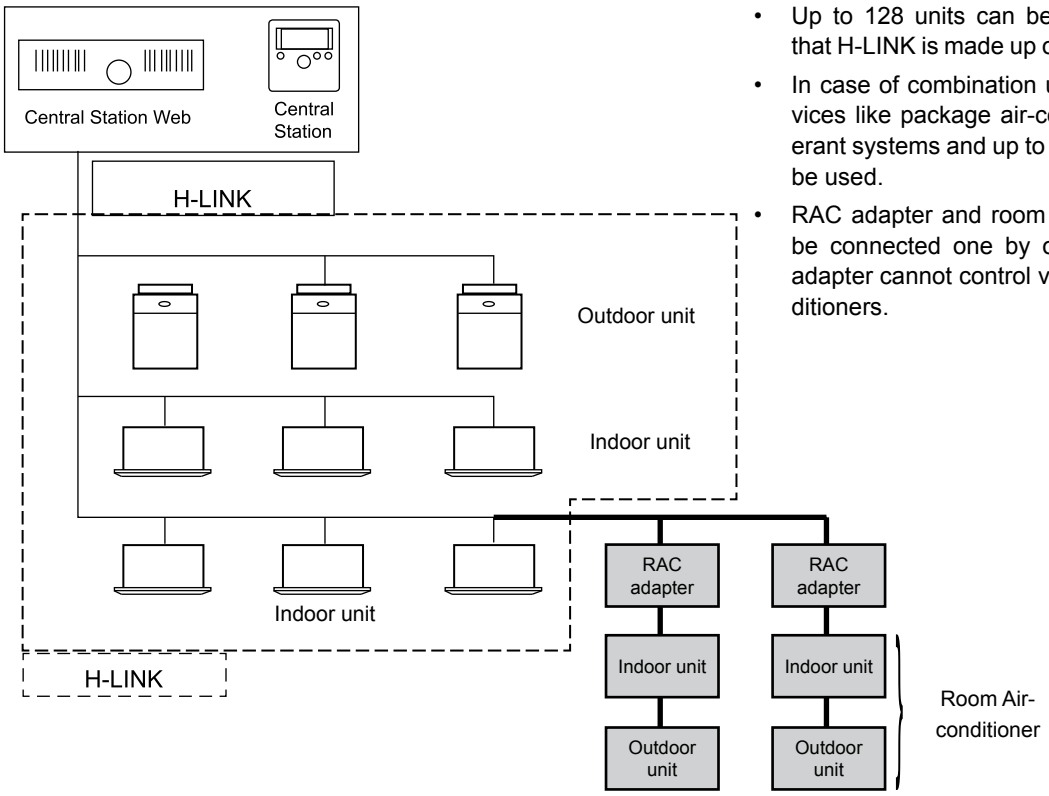
NOTE

Consider the following points since the adhesivity changes according to the environmental conditions (temperature, humidity etc).

- *The adhesivity is decreased in the humidity or oil.*
- *Warm the adhesive part and installation place of Double-face tape to avoid the decrease of the adhesivity in case that ambient temperature is low.*
- *Do not touch the adhesive part by fingers nor re-use it many times.*
- *Any forced power shall not be added in 24 hours after the installation.*

8.2.3 Electrical wiring

8.2.3.1 System composition



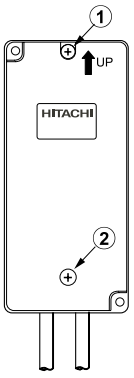
- Up to 128 units can be connected in case that H-LINK is made up only by RAC adapter.
- In case of combination use with H-LINK devices like package air-conditioner, 16 refrigerant systems and up to 128 indoor units can be used.
- RAC adapter and room air-conditioner shall be connected one by one. Only one RAC adapter cannot control various room air-conditioners.

⚠CAUTION

- *Turn OFF the power supply of the room air-conditioner or the central control device when performing the wiring work.- DO NOT run all the H-LINK cable or power supply cable along the other signal cable, or malfunction may occur due to the noise, etc. If it is required to run along the other transmission cable, separate the cable more than 30cm, or run the cable through the metal tube and earth the tube.*
- *Follow local codes and regulations when performing electrical wiring and earth wiring.*
- *Transmission cable used in H-LINK shall be 2 cores cable (0.75mm² to 1.25mm²) (Model: VCTF, VCT, CVV, MVVS, CVVS, VVR, VVF) or 2 cores twist pair cable (Model: KPEV, KPEV-Spec). Total length of cable shall be below 1000m.*
- *Do not use wire with more than 3 cores*

8.2.3.2 Access to internal components

Open the cover by removing the ① and ② screws



8.2.3.3 Connection with room air-conditioner.

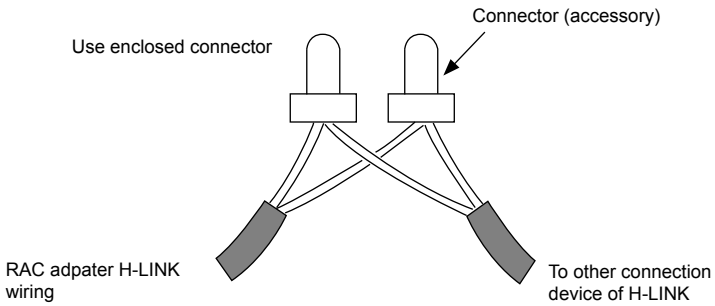
1 Remove the front cover of room air-conditioner and the cover of electrical box.
2 The cable attached with the connector of RAC adapter shall be connected with the connector of indoor PCB.
3 Install the electrical box cover paying attention not to clamp the cable. See an installation manual of each room air-conditioner for confirming how to connect and how to assemble the cable of RAC adapter.

⚠CAUTION

- *Disconnect the power plug before performing this work.*
- *Turn OFF a breaker power source in case that the power comes from outdoor unit.*

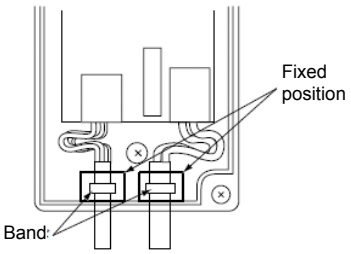
8.2.3.4 Connection of transmission cable

H-LINK transmission cable connecting to RAC adapter shall be connected to H-LINK.



⚠CAUTION

- *Incorrect wiring may cause a failure of RAC adapter. Especially pay attention not to apply the high voltage like AC400/230V.*
- *Do not perform the wiring work with power of the central station or RAC adapter being supplied. It may cause the malfunction. Turn OFF devices when performing the wiring work.*
- *The RAC adapter side cable should not overload to the connector.*
- *Do not clamp the cable when attaching the RAC adapter cover.*
- *Band should be in the fixed position.*

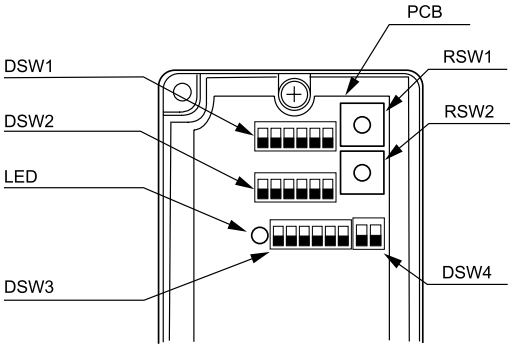


8.2.3.5 DIP Switch setting

1 Dip Switch setting should be performed with the power of room air-conditioner OFF. The setting contents are invalid if it is performed with the power ON.

2 Installation position of Dip Switch is as below.

DSW1	Refrigerant cycle No. setting
DSW2	Unit No. setting
LED	H-LINK transmission
DSW3	Sub setting
DSW4	Fuse recovery, terminal resistance setting
RSW1	Refrigerant cycle No. setting
RSW2	Unit No. setting

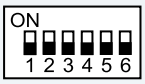
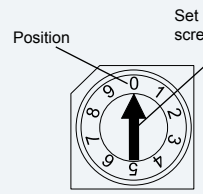
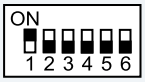


CAUTION

Do not turn ON various pins of DSW1 and DSW2.

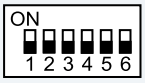
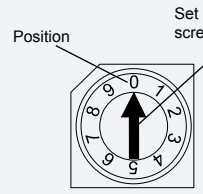
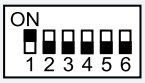
3 Refrigerant cycle No. is set by RSW1 and DSW1.

Refrigerant Cycle number Setting

DSW1 (ten digit)	RSW1 (one digit)	Example: Setting cycle number to 15	
		DSW1	RSW1
			
DSW1 and RSW1 are set to 0 before shipment. Up to 15 cycle numbers can be set		Pin number 1 is ON	The set position is 5

4 Unit No. is set by RSW2 and DSW2.

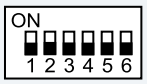
Unit No. Setting

DSW2 (ten digit)	RSW2 (one digit)	Example: Setting unit to 15	
		DSW1	RSW1
			
DSW2 and RSW2 are set to 0 before shipment. Up to 15 units number can be set		Pin number 1 is ON	The set position is 5

5 Sub Setting

In case of setting various RAC adapters in the same refrigerant cycle, set the RAC adapter with smallest Unit No. as a main.

In case of only one RAC adapter in a refrigerant system, this adapter should be a main. Set by changing DSW3.

Main setting	Setting before shipping (Sub setting)
DSW3	DSW3
	

● : Main setting

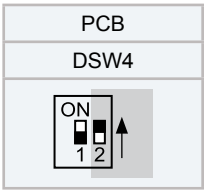
○ : Setting before shipping

	0	1	2	3	4	5	6	7		
0	●	○	○	○	○					
1			●	○	○					
2				●	○	○	○	○		
3		●								
4										

⚠CAUTION

Do not set various main adapters in the same refrigerant cycle.

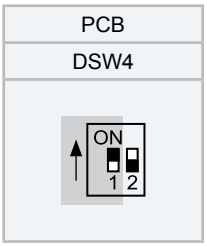
6 In case of wrongly applying high voltage to H-LINK wiring, fuse installed in a transmission circuit on PCB is cut. In this case, after wiring correctly, turn ON No.2 pin of DSW4 on PCB and then transmission circuit is recovered. (If you make this error again, the transmission circuit is not recovered.)



7 Terminal resistance is set in whole H-LINK.

a. If H-LINK connection devices like package air-conditioner is connected besides RAC adapter, set the terminal resistance by package air-conditioner. The terminal resistance should be ON in only one position in whole H-LINK.

b. In case that H-LINK is made up only by RAC adapter, set the terminal resistance by RAC adapter. The terminal resistance should be ON in only one position in whole H-LINK.



8.2.4 Test run

Test run should be performed in the following way after finishing the installation, wiring and setting.

See installation manual enclosed with each central control devices for the detail.

1 Connection State Confirmation

- Confirm if RAC adapter connection is recognised in the central control device. In case that it is not confirmed, check the transmission cable, refrigerant cycle No. indoor unit No., terminal resistance setting etc.

2 Registration

- Confirm if RAC adapter connection is recognised.

3 Confirmation of Run/Stop Order

- Confirm if room air-conditioners work correctly by run/stop operation from the central control devices. Check also if air-conditioner state changes correctly by each setting.

8.2.5 Maintenance and repair

◆ **Alarm code table**

Code No.	Content of Abnormality
1A	RAC I.U. Alarm Code (0010) Ventilation Fan Failure
1B	RAC I.U. Alarm Code (0011) Smutch Sensor Failure
1C	RAC I.U. Alarm Code (0012) Cleaning Unit Failure
71	RAC I.U. Alarm Code (0001) Reversing Valve Malfunction
73	RAC I.U. Alarm Code (0003) Indoor Transmission Circuit Failure
75	RAC I.U. Alarm Code (0005) Power Relay Contact Depositing
76	RAC I.U. Alarm Code (0006) Abnormal Water Level
79	RAC I.U. Alarm Code (0009) Thermistor Failure
7A	RAC I.U. Alarm Code (000A) Indoor Fan Failure
7B	RAC I.U. Alarm Code (000B) Ion Generator Failure
7C	RAC I.U. Alarm Code (000C) Outdoor Transmission Circuit Failure
7D	RAC I.U. Alarm Code (000D) EEPROM Read Error
7E	RAC I.U. Alarm Code (000E) Heat Exchanger Thermistor Failure
7F	RAC I.U. Alarm Code (000F) Room Temperature Thermistor Failure
82	RAC O.U. Alarm Code (0102) Stoppage by Peak Current Control
83	RAC O.U. Alarm Code (0103) Abnormal Low Speed of the Compressor
84	RAC O.U. Alarm Code (0104) Compressor Changeover Failure
85	RAC O.U. Alarm Code (0105) Lower Limit of Compressor Overload
86	RAC O.U. Alarm Code (0106) Stoppage by OH Thermistor High Temperature
87	RAC O.U. Alarm Code (0107) Thermistor Failure
88	RAC O.U. Alarm Code (0108) Failure of Compressor Speed Increasing Control
89	RAC O.U. Alarm Code (0109) Stoppage by Transmission Error
8A	RAC O.U. Alarm Code (010A) Power Supply Voltage Error
8B	RAC O.U. Alarm Code (010B) Fin Stoppage
8C	RAC O.U. Alarm Code (010C) Fan Lock Stoppage
8D	RAC O.U. Alarm Code (0010) EEPROM Read Error
8E	RAC O.U. Alarm Code (010E) ACT Abnormal Stoppage
8F	RAC O.U. Alarm Code (010F) Discharge Error

8.3 PC-A1IO

8.3.1 Safety summary

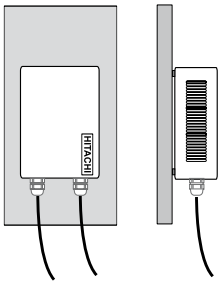
CAUTION

- *Do not connect voltage input to the control system before installation is correctly done.*
- *Read this manual carefully before performing installation work.*
- *Read this manual in order to configure the PC-A1IO*
- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle properly and safely this appliance.*
- *Children should be supervised to ensure that they do not play with the appliance.*

NOTE

Do not install PC-A1IO in places... :

- *with vapour, oil or dispersed liquids.*
- *with heat sources nearby (sulphuric surroundings).*
- *where accumulation, generation or leaks of inflammable gases has been detected.*
- *that are near the sea, in saline, acid or alkaline surroundings.*
- *Install PC-A1IO away from possible sources of electromagnetic waves.*
- *Respect local electrical standards.*
- *Use a power circuit that is not subject to peak demands.*
- *Ensure that there is enough free space around the PC-A1IO (see figure) so that the heat may dissipate adequately (refer to "Installation Work").*
- *If you install the PC-A1IO in vertical position, install the power supply in the lower part and the temperature control outputs in the upper part.*



8.3.2 Installation

8.3.2.1 Installation site selection

Take note of the maximum admissible cable length between units and the control as well as between the units themselves, as shown in the following table:

Cable section	0.3 mm²	≥ 0.75 mm²
Cable length	30 m	500 m

8.3.2.2 Components list

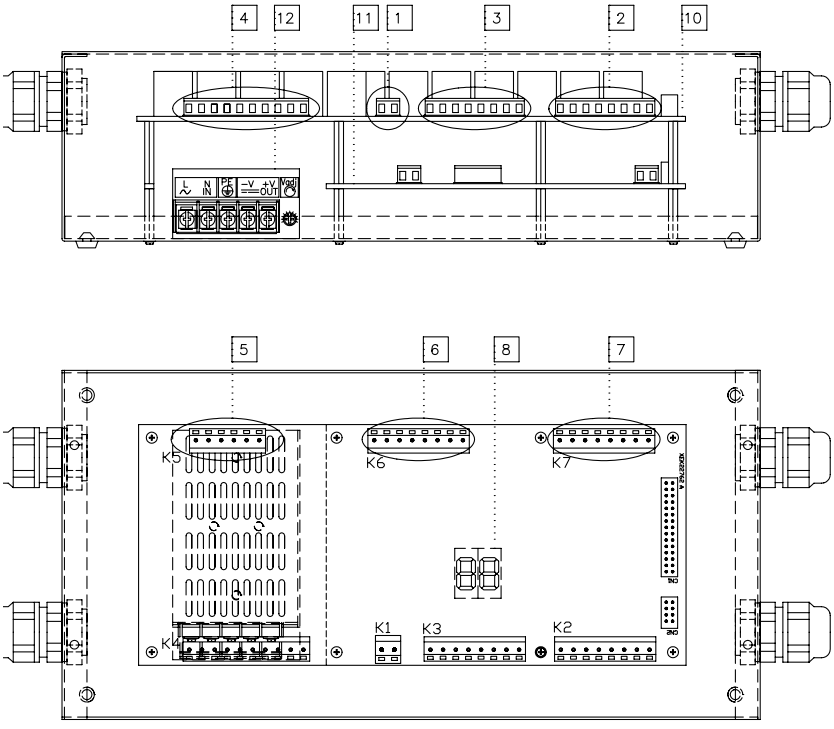
Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name	Figure	Quantity	Comments
PC-A1IO		1	PC-A1IO to control the system operation using this I/O gateway
Installation and operation manual		1	Installation and operation unit instructions.

8.3.2.3 Description of the parts



1 K1: H-LINK Connector: Connected to CSNET WEB
2 K2: AI1~AI4: Analog input signals 1 to 4
3 K3: AI5~AI8: Analog input signals 5 to 8
4 K4: DI1~DI5: Digital input signals 1 to 5
5 K5: DI6~DI8: Digital input signals 6 to 8
6 K6: O1~O4: Output signals 1 to 4
7 K7: O5~O8: Output signals 5 to 8
8 7 segments display
9 Packing glands (4)
10 Relays PCB
11 H-LINK PCB
12 Power source: 230V AC / 5V DC

8.3.2.4 General data

◆ Hardware specifications

Item	Specifications
Power supply	1~ 230V ±10% 50Hz
Consumption	25 W (maximum)
Outer dimensions	Width: 143 mm, Depth: 302 mm, Height: 76 mm
Weight	2 kg
Assembling conditions	Indoor (in a control panel or desktop)
Ambient temperature	0~40°C
Humidity	20~85% (Without condensation)

◆ Inputs and Outputs restrictions

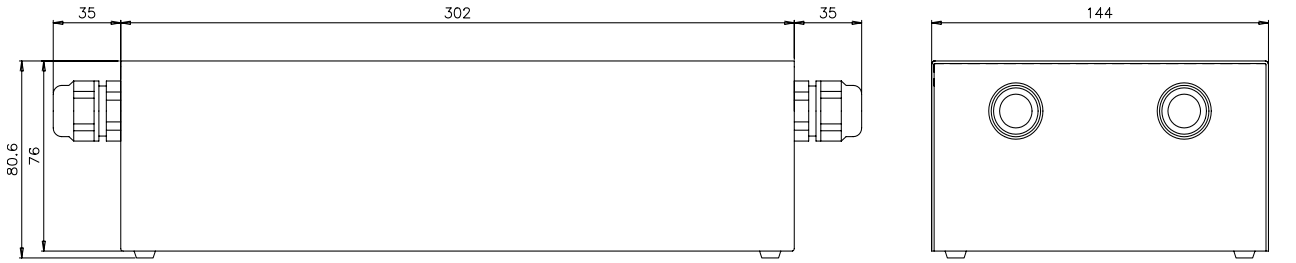
Item	Specifications
Analog Inputs AI1~AI8	V: 0~5 V DC, 0.5 A
Digital Inputs DI1~DI8	V: 5V DC, 1.9 A
Outputs: O1~O8	V: 0~24V DC, 1.9A

◆ Communication

Item	Specifications
Communication with	CSNET WEB
Communication line	Twisted pair shielded cable, non polarity
Communications system	Half-duplex
Communication method	Asynchronous
Speed of transmission	9600 Bauds
Length of wiring	1000 m maximum (total length of H-LINK I/O bus)
Maximum number of PC-A1IO	16 x PC-A1IO per O.U. address in a H-LINK / H-LINK II systems

8.3.2.5 Dimensional data

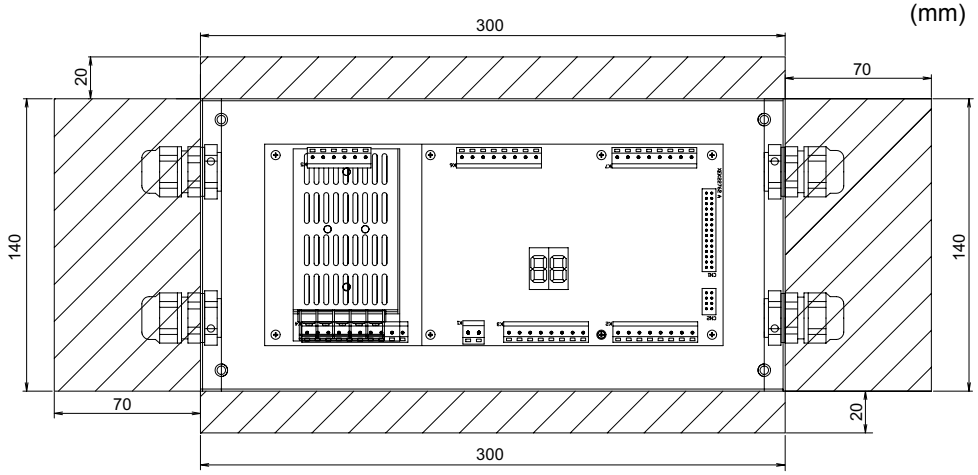
(mm)



8.3.2.6 Installation space

Keep free grated area for ventilation and cable connection.

(mm)



8.3.2.7 Installation procedure

CAUTION

Before applying power and turning on PC-A1IO you must ensure that:

- *All circuits to be connected are correctly applied.*
- *All H-Link connections have been set up.*
- *Follow the local regulations for the electrical installation of PC-A1IO and associated circuits.*

Any unit that is not connected or is not under power when turning on PC-A1IO, will not be recognised and will have to be configured later.

The signals' cables should be as short as possible. Keep a distance of more than 150 mm from other power cables. Don't wire them together (although they may intersect). If they must necessarily be installed together, take the following measures to avoid noise:

- *Protect the signal cable with a metal tube which is earthed at one end.*
- *For communications, use shielded wire which is earthed at one end.*

DANGER

- ***Always disconnect the power supply for PC-A1IO when handling the machine, in order to avoid eletrical discharges.***
- ***Do not connect the interface to the power supply until the installation has been completed.***
- ***Comply strictly with local security codes and regulations when connecting the machine to the electric network.***
- ***You will need a three-wire cable (two cores and earth) with a suitable plug at one end.***

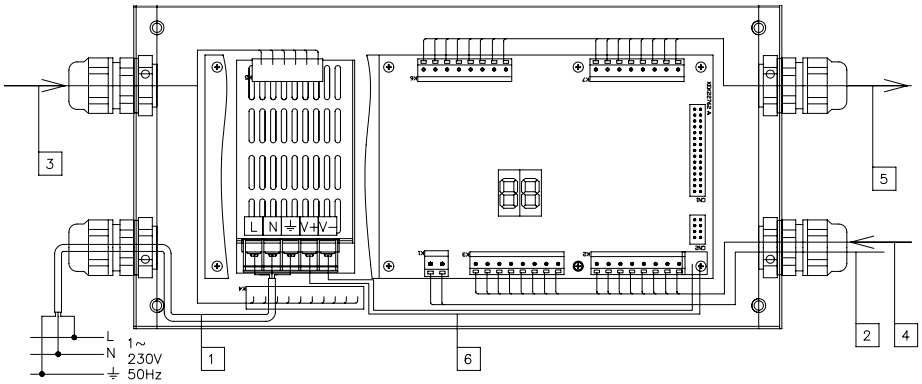
◆ **Procedure**

1 Remove the rubber supports
2 Unscrew the 4 screws from the top cover and remove it
3 Attach the box to the rear vertical board from the inside with M4 screws (not provided) and place 3 mm washers on the outside to separate the box from the wall.
4 Reinstall the top cover. Be careful to position it correctly.

8.3.3 Electrical wiring

In order to run, PC-A1IO must be connected to the corresponding input and output signals, power supply cables and H-LINK.

No.	Connection	Cable Specifications
1	Power supply circuit 1~ 230V 50Hz 25W (With protection circuit)	Select wires accordiong local regulatrions (Recommended minimum 1.5 mm² H05RN-F)
2	H-LINK	Communication cables for the connection of PC-A1IO to an Hitachi installation, via CS-NET WEB or any Hitachi unit using same H-LINK terminals. Twisted pair shielded cable 0.75 mm² H05RN-F. Shield must be grounded in one side only.
3	DI1~8: Digital input signals +5V DC. Imax.=0.5 A	Pair cable 0.75 mm² H05RN-F. Use different colour for each cable.
4	AI1~8: Analog input signals 0~5V DC. Imax.= 1.9 A	Pair cable 0.75 mm² H05RN-F. Use different colour for each cable.
5	DO1~8: Output signals (relay) +5V DC, Imax.= 1.9A	Pair cable 0.75 mm². Use different colour for each cable. Do no apply directly output signals to the main circuit. Apply some switch, relay or contactor for the correct use of output signal.
6	PCBs power supply +5V DC. Imax.= 5 A DC	Pair cable 0.75 mm² H05RN-F. V:0~5V DC. Imax.= 1.9 A



Field supplied Protections:
CB/EF:5A
ELB: 2 / 40A / 30m A
CB: Circuit Breaker
EF: Electric Fuse
ELB: Earth Leakage Breaker

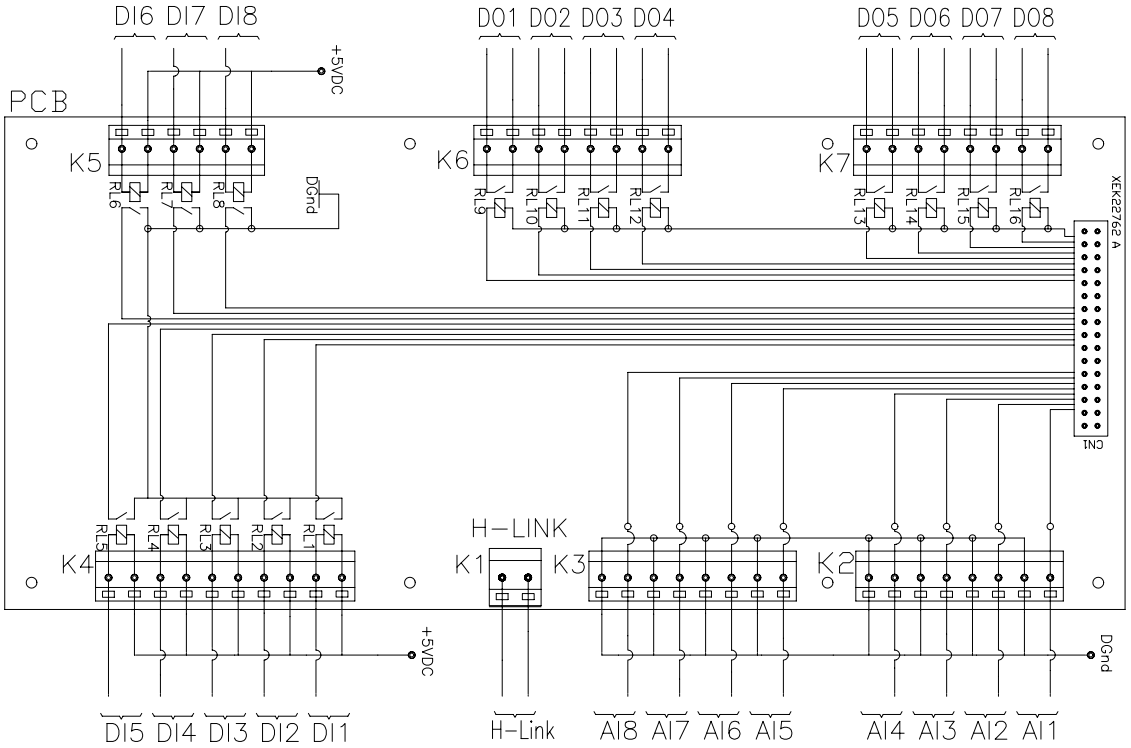
Checking procedure

Checking of PC-A1IO consist in disconnect and connect the PC-A1IO and check that in the 7-segments display appears the current software value.

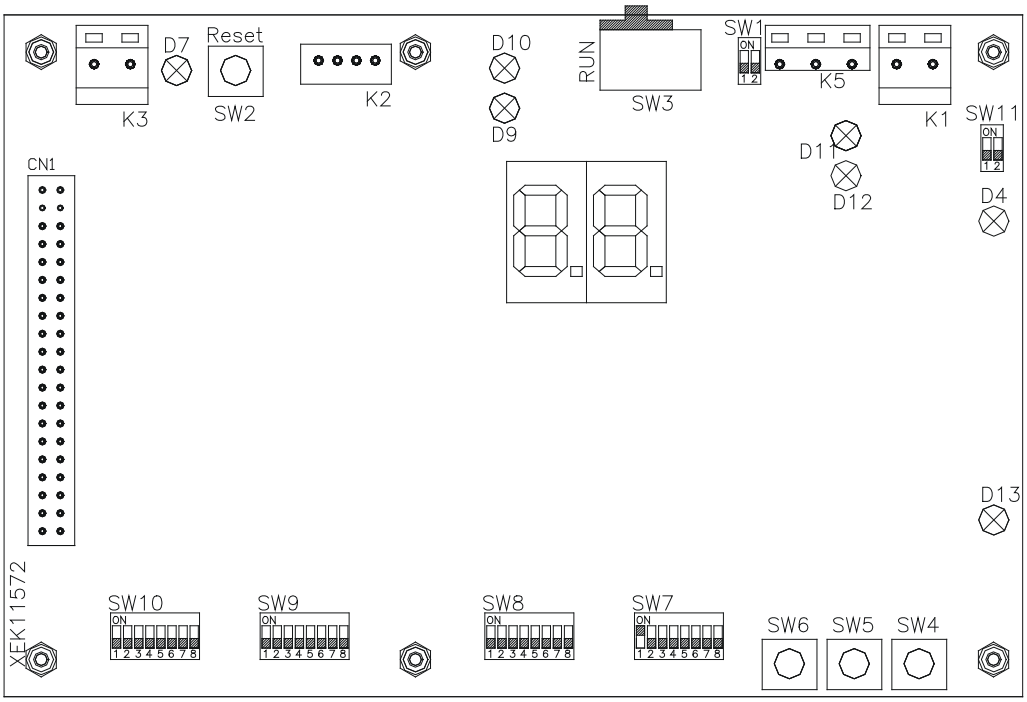
NOTE

Ask your Hitachi distributor what check value has the last version of firmware

8.3.3.1 Relay PCB

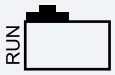
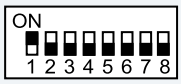
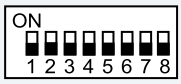
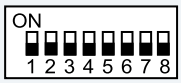
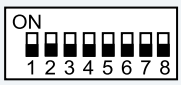


8.3.3.2 Control PCB



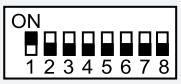
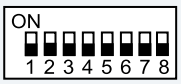
8.3.3.3 Configuration

◆ Factory Setting

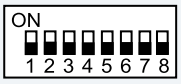
Name	Function	Factory setting	Description
SW1	Not available		–
SW2	Reset	–	Reset button. To be used in case of program has been locked
SW3 (TELE)	Not available		Factory purposes. Never change it
SW4	Not available	–	–
SW5	Not available	–	–
SW6	Not available	–	–
SW7	Options 2		SW7-1: OFF=SLAVE / ON=MASTER. SW7-2~8: Not used
SW8	Options 1 (Application type)		0 (All OFF): A.C I.U. Parameters 1~255 (Other configurations): Not available
SW9	Indoor unit address		Same concept than Hitachi I.U. address Each PC-A1IO must use free I.U. and O.U. address
SW10	Outdoor unit address		In case of several PC-A1IO, thay can use the same O.U. address, following same limitations than I.U. (64 I.U./O.U.). These addresses must be free (not used by any other O.U.)
SW11	H-LINK DSW		2-Pins DSW SW11-1: H-LINK end resistance SW11-2: Not used
D4, D11	H-LINK	–	H-LINK transmission
D7	Power	–	Power supply ON/OFF
D9, D10 D12, D13	Not used	–	–

◆ Configuration options

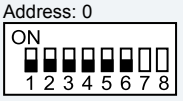
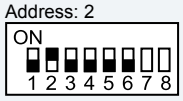
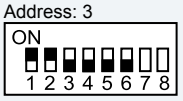
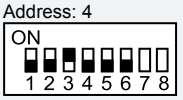
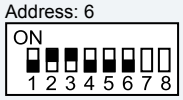
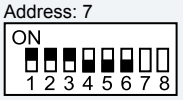
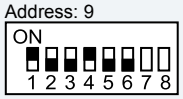
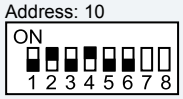
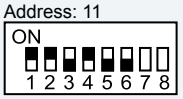
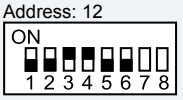
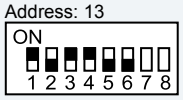
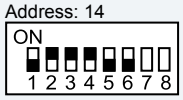
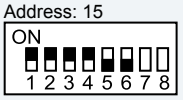
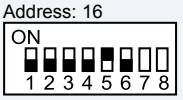
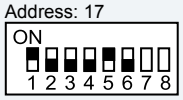
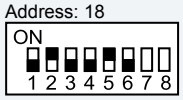
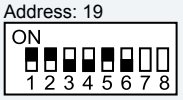
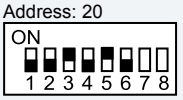
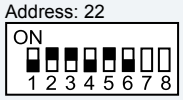
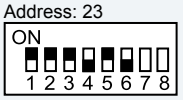
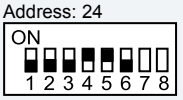
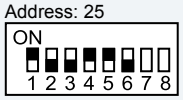
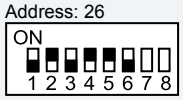
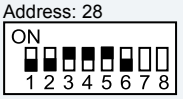
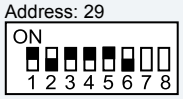
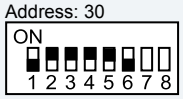
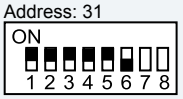
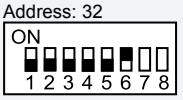
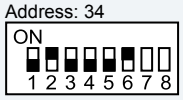
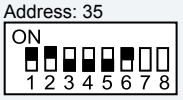
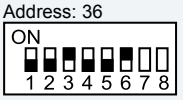
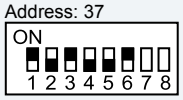
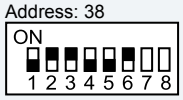
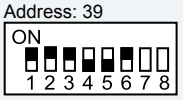
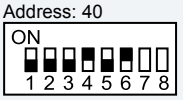
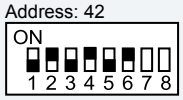
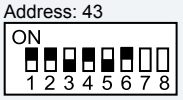
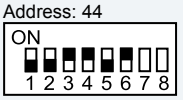
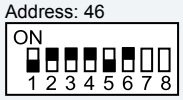
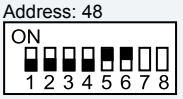
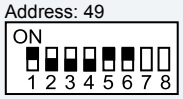
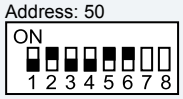
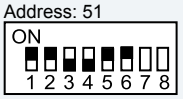
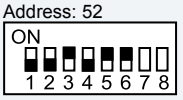
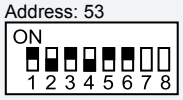
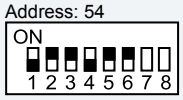
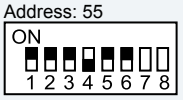
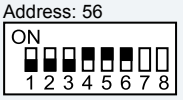
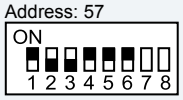
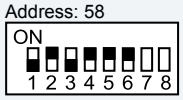
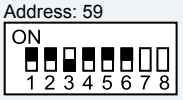
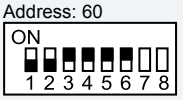
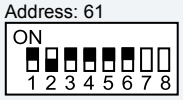
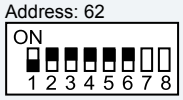
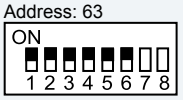
SW7 – MASTER / SLAVE configuration

SW7	Description
	Configuration as MASTER PC-A1IO: SW7-1=ON. All the rest of the pins are set to OFF Only one PC-A1IO can be set as a Master PC-A1IO
	Configuration as SLAVE PC-A1IO : All SW7 pins are set to OFF Only one PC-A1IO can be set as a MASTER PC-A1IO. All the rest of PC-A1IO uni ts must be configured as SLAVE

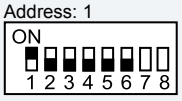
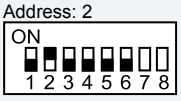
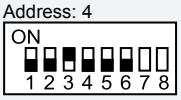
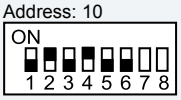
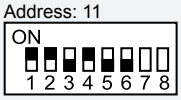
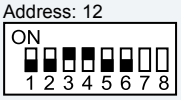
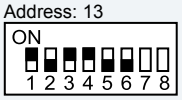
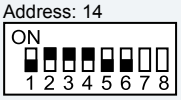
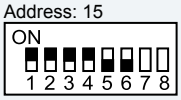
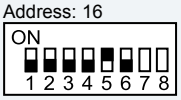
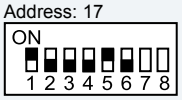
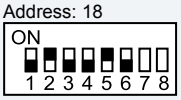
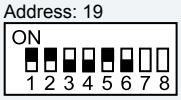
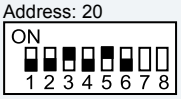
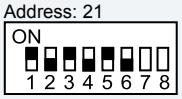
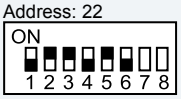
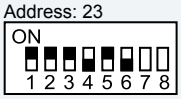
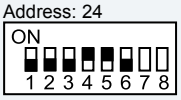
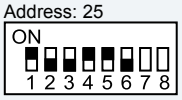
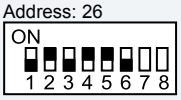
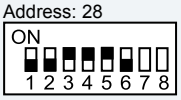
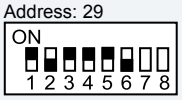
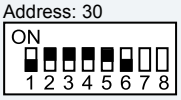
SW8 – PARAMETERS configuration

SW8	Description
	Configuration of parameters as normal Air-Conditioner I.U.: All SW8 pins to OFF Other configurations are not available

SW9 – PC-A1IO address in H-LINK (Same concept of I.U. address)

SW9				Description
Address: 0 	Address: 1 	Address: 2 	Address: 3 	Configuration of PC-A1IO Address: SW9 pins 1~6 must be set according to the corresponding drawing of the desired address. SW9 pins 7~8 must be kept in OFF
Address: 4 	Address: 5 	Address: 6 	Address: 7 	
Address: 8 	Address: 9 	Address: 10 	Address: 11 	
Address: 12 	Address: 13 	Address: 14 	Address: 15 	
Address: 16 	Address: 17 	Address: 18 	Address: 19 	
Address: 20 	Address: 21 	Address: 22 	Address: 23 	
Address: 24 	Address: 25 	Address: 26 	Address: 27 	
Address: 28 	Address: 29 	Address: 30 	Address: 31 	
Address: 32 	Address: 33 	Address: 34 	Address: 35 	
Address: 36 	Address: 37 	Address: 38 	Address: 39 	
Address: 40 	Address: 41 	Address: 42 	Address: 43 	
Address: 44 	Address: 45 	Address: 46 	Address: 47 	
Address: 48 	Address: 49 	Address: 50 	Address: 51 	
Address: 52 	Address: 53 	Address: 54 	Address: 55 	
Address: 56 	Address: 57 	Address: 58 	Address: 59 	
Address: 60 	Address: 61 	Address: 62 	Address: 63 	

SW10 – O.U. address H-LINK (Same concept of O.U./Refrigerant cycle address)

SW10				Description
Address: 0 	Address: 1 	Address: 2 	Address: 3 	Configuration of O.U Address: It can be associated up to 64 PC-A1I/O to the same O.U. address, considering that this address is free in the rest of installation. SW10 pins 1~6 must be set according to the corresponding drawing of the desired address. SW10 pins 7~8 must be kept in OFF
Address: 4 	Address: 5 	Address: 6 	Address: 7 	
Address: 8 	Address: 9 	Address: 10 	Address: 11 	
Address: 12 	Address: 13 	Address: 14 	Address: 15 	
Address: 16 	Address: 17 	Address: 18 	Address: 19 	
Address: 20 	Address: 21 	Address: 22 	Address: 23 	
Address: 24 	Address: 25 	Address: 26 	Address: 27 	
Address: 28 	Address: 29 	Address: 30 	Address: 31 	
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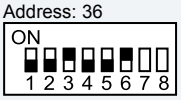
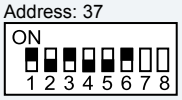
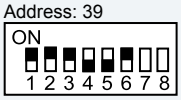
Address: 36 	Address: 37 	Address: 38 	Address: 39 	
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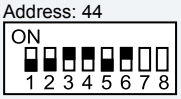
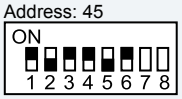
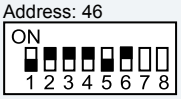
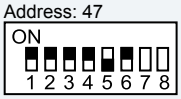
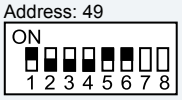
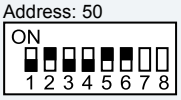
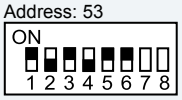
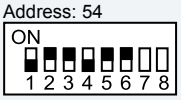
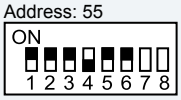
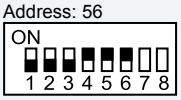
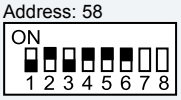
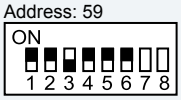
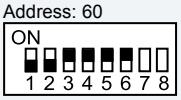
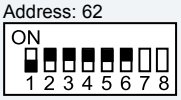
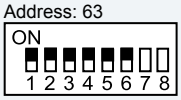
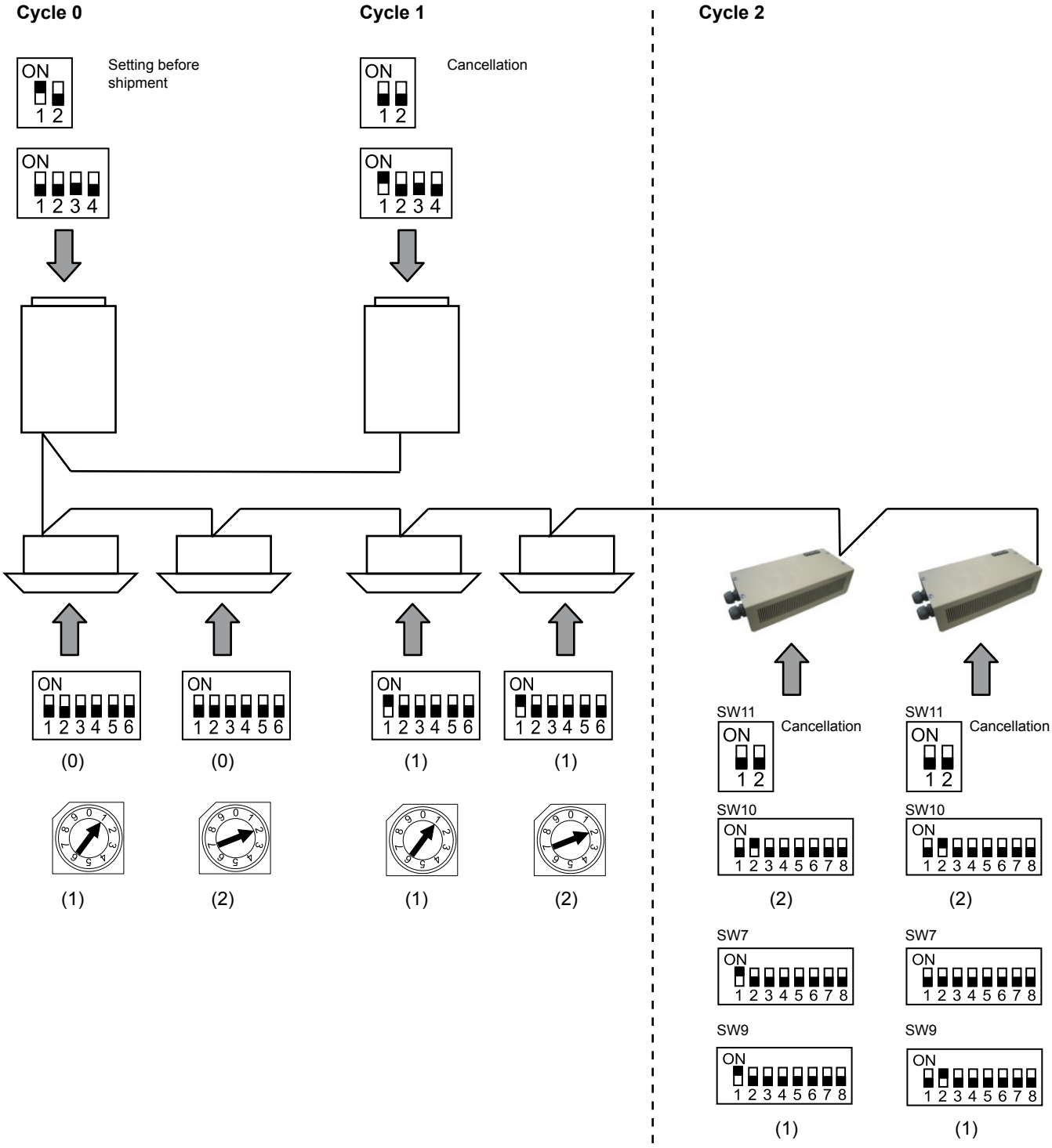
Address: 44 	Address: 45 	Address: 46 	Address: 47 	
Address: 48 	Address: 49 	Address: 50 	Address: 51 	
Address: 52 	Address: 53 	Address: 54 	Address: 55 	
Address: 56 	Address: 57 	Address: 58 	Address: 59 	
Address: 60 	Address: 61 	Address: 62 	Address: 63 	

Example


Cycle 0
Cycle 1
Cycle 2
Setting before shipment
Cancellation
ON
1 2
1 2 3 4
1 2 3 4 5 6
(0)
(0)
(1)
(1)
(1)
(2)
(1)
(2)
SW11
Cancellation
SW10
1 2 3 4 5 6 7 8
(2)
SW7
SW9
(1)

8.3.4 Operation

8.3.4.1 Parameters list

(SW8 setting: All in Off)

Code	Description	Connection	Remarks	Local	Central
AI1	Not available	–	–	–	–
AI2					
AI3					
AI4					
AI5					
AI6					
AI7					
AI8					
DI1	Fan unit ON/OFF	From local remote controller	OFF: Open ON: Closed	Applicable	Monitoring
DI2	Fan HIGH speed	From local remote controller	Selector switch: Selected switch is closed circuit (1)	Applicable	Monitoring
DI3	Fan MEDIUM speed	From local remote controller			
DI4	Fan LOW speed	From local remote controller			
DI5	Alarm code	From local remote controller	Alarm OFF: Open Alarm ON: Closed	Applicable	Monitoring
DI6	ON/OFF status	From fan unit (feedback signal)	OFF: Open ON: Closed	Applicable	Monitoring
DI7	Not available	–	–	–	–
DI8	Not available				
DO1	Fan unit ON/OFF	Unit fan: ON/OFF terminals	OFF: Open ON: Closed	Applicable	Control
DO2	Fan HIGH speed	Unit fan: HIGH speed terminals	OFF: Disabled ON: Activated	Applicable (2)	Control
DO3	Fan MEDIUM speed	Unit fan: MEDIUM speed terminals			
DO4	Fan LOW speed	Unit fan: LOW speed terminals			
DO5	Heat/Cool mode	Unit fan: Operation mode terminals	COOL: Open HEAT: Closed	Applicable (2)	Control
DO6	Central/Local mode	Local Remote Controller: Lamp	OFF: Local ON: Central	Applicable	Control
DO7	Alarm signal	To Local Remote Controller	OFF: Alarm OFF ON: Alarm ON	Applicable	Control
DO8	Not available	-	-	-	-

1) If some of DI2~4 are activated at the same time, the lower speed is selected.

2) If some of those terminals are not available or accessible from fan unit, then those functions are not available.

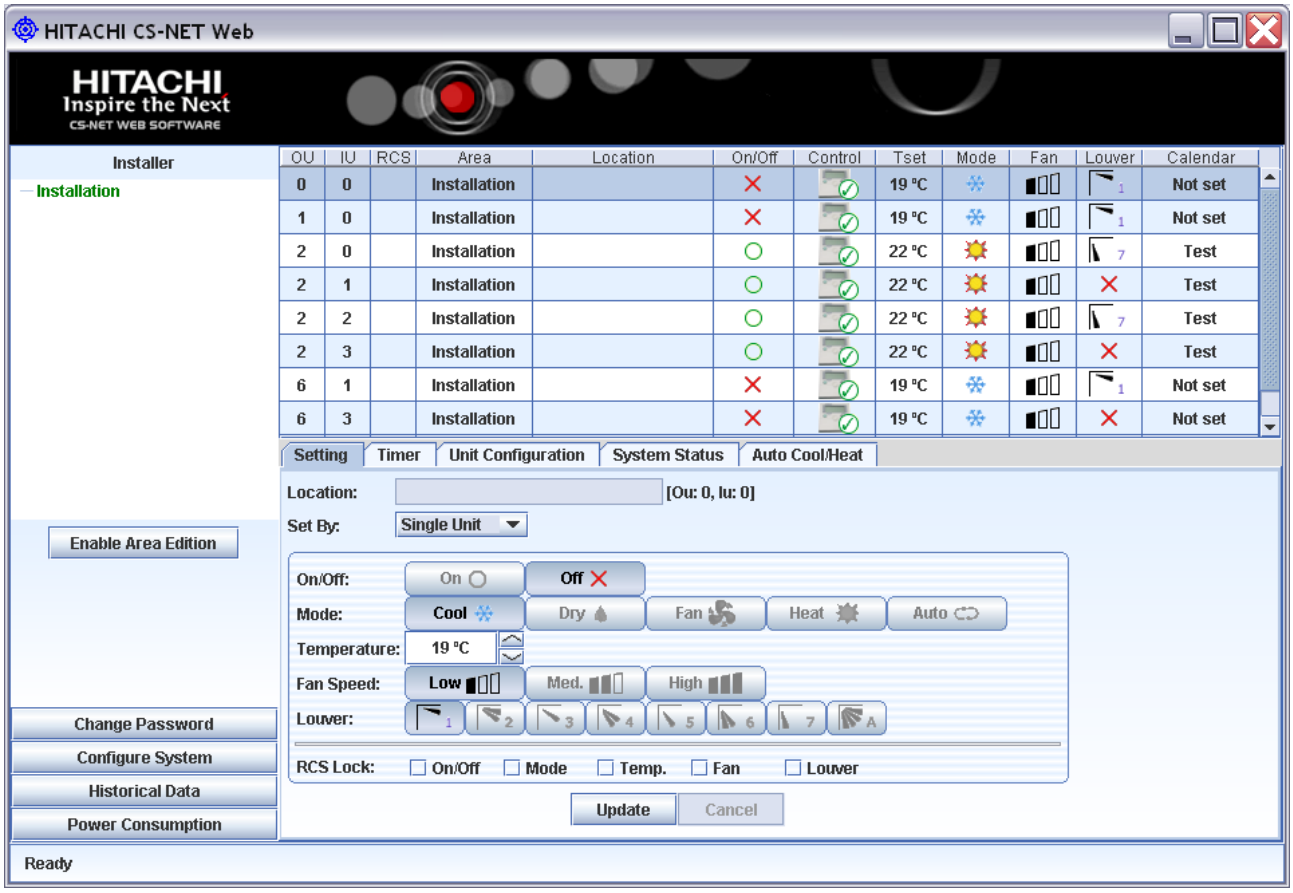
Some functions activated by local Remote Controller (ON/OFF and FAN SPEED).

All these parameters can be used for other purposes different from those indicated in the previous table. In that case, it is recommended to keep in local mode, just to avoid the undesired performance of that parameter in case of central control.

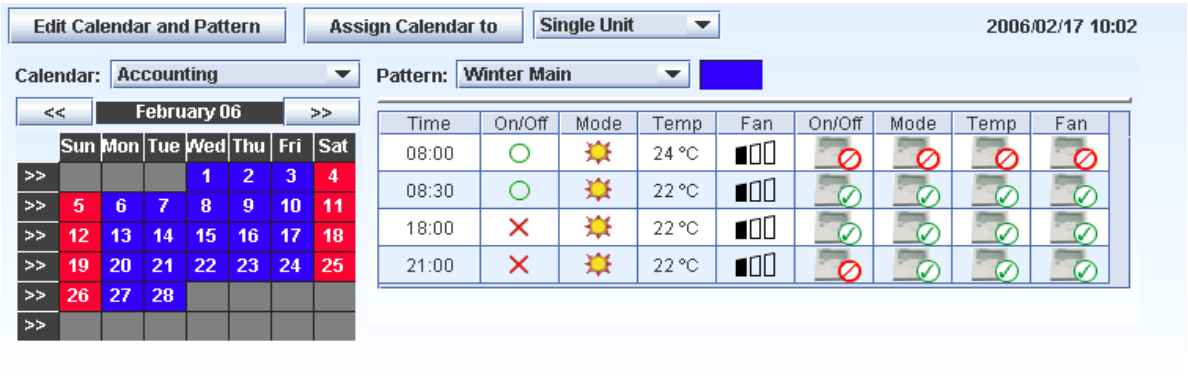
Those functions in central mode can be operated from CSNET WEB as normal Hitachi Indoor Unit

8.3.4.2 Operation procedure

All central control is made from CSNET WEB as normal Indoor Unit. It can be controlled / monitored with the same parameters than any Indoor Unit by using next screen, provided that these parameters are available on the connected unit.



These parameters can be controlled by timer as normal Indoor Unit



Historical data of these units are available as any Indoor Unit

For more control and monitoring details, see CSNET WEB manual

8.3.5 Troubleshooting

Nº	Alarm Code	Description	Countermeasure
1	D7 is always OFF	No LED is flickering on PCB and 7 segments are OFF	**1** Ensure that 230 are supplied to Power Source. **2** Ensure that +5V DC is supplied to K3. **NOTE** *Power source output DC signal has a rotary switch that must be correctly set to get +5V DC.* *D7 must be in ON.*
2	D4 & D11 are not flickering	There is no H-LINK communication	D4 neither D11 are not flickering. → See line Nº1, countermeasure 1.

8.4 PSC-5HR

8.4.1 Safety summary

⚠CAUTION

DO NOT TURN ON the power source of the H-LINK Relay, control system, unless the preparation for the test running is completed.

Read this manual carefully before installation work for correct performance.

Read this manual together with the "Installation & Operation Manuals" for the controller and air conditioning equipment.

This appliance must be used only by adult and capable people, having received the technical information or instructions to handle properly and safely this appliance.

Children should be supervised to ensure that they do not play with the appliance.

DO NOT install PSC-5HR at a place such as follows:

- *where there is oil vapour and the oil is dispersed.*
- *where the hot springs are near(in a sulphuric environment)*
- *where generation, flowing, staying or leaking of flammable gas is detected.*
- *where the sea is near (in the salty environment) , an acid or alkaline environment, it causes biting of the acid.*

Install the unit to the place that is not facing to transmission face of electromagnetic waves:

DO NOT install the indoor unit, controller and cable within approximately 3 meters from strong electromagnetic wave radiators by such as medical equipment.

Attach Noise Filter if there is noise generation in the unit.

Follow the local electrical standards.

Use an independent circuit to avoid the capacity shortage for power supply, otherwise it will cause electric shock or fire disaster.

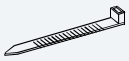
8.4.2 Installation

8.4.2.1 Components list

Unpack the unit and check that:

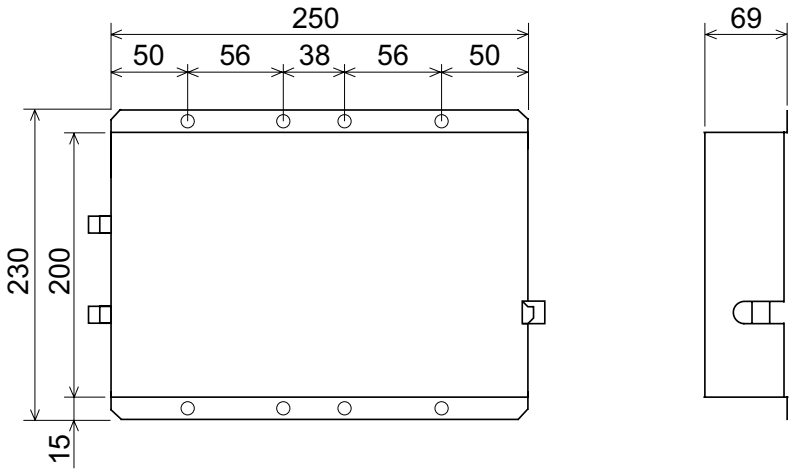
- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quant.	Comments
PSC-5HR		1	-
Clamp		1	-
Clamp		2	-
Screw		2	-
Screw for wood		5	M4 x 16 mm
Installation and operation manual		1	Installation and operation unit instructions.

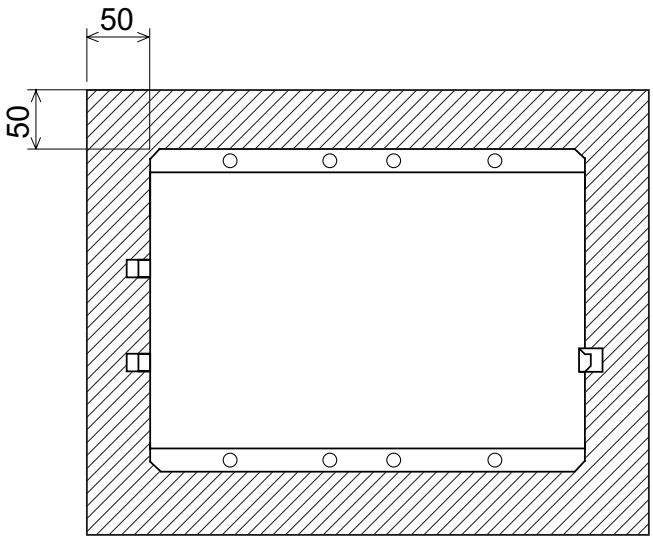
8.4.2.2 Dimensional data

Units in mm.



8.4.2.3 Installation space

Units in mm.



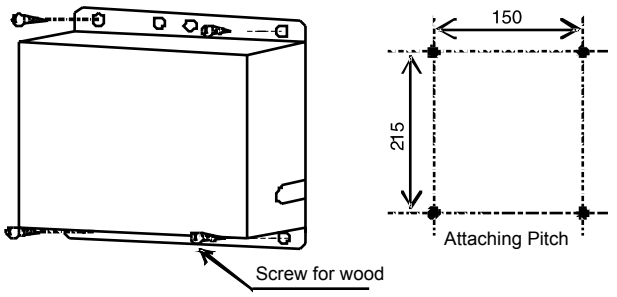
8.4.2.4 Installation procedure

There are two attachment methods.

Attaching on the Wall

Attach the PSC-5HR on the wall by using screw for wood as follows.

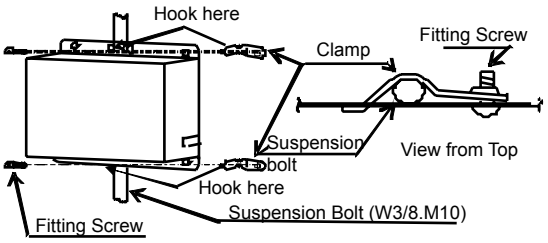
(mm)



Mounting on Suspension Bolt

Attach the PSC-5HR on the suspension bolts using clamps and screws.

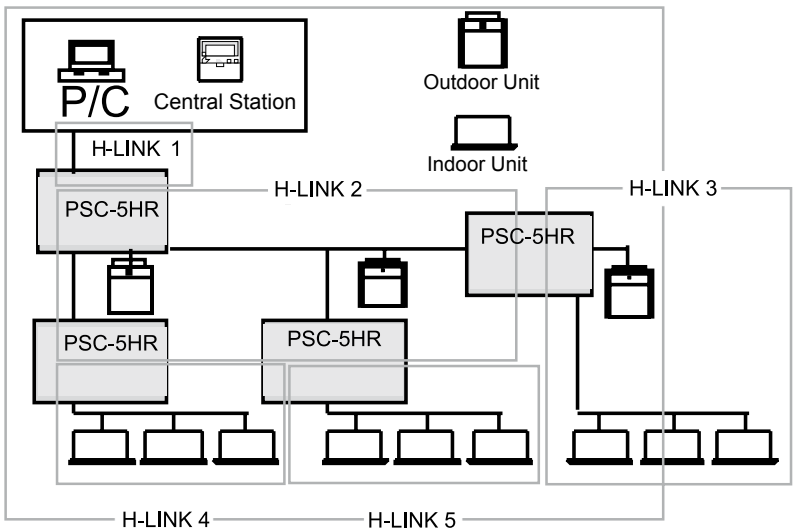
Fasten screws fixing the hook of the clamp into the attaching holes.



8.4.3 Electrical wiring

8.4.3.1 Wiring connection

◆ **System**



NOTE

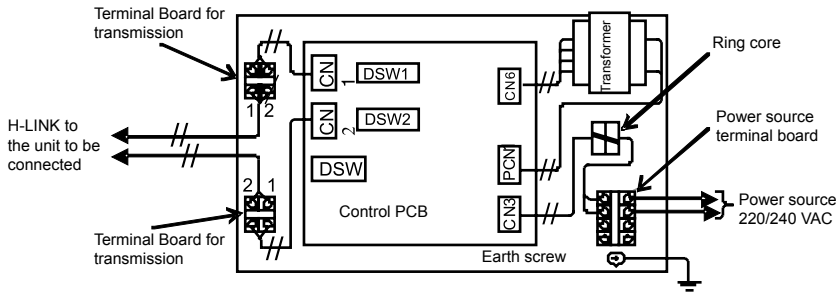
Four PSC-5HR can be installed as a maximum in one system.

Ensure the quantity of connections of the following:

- *Ref. System Quantity: within 16*
- *Indoor Unit Quantity: within 128*
- *Total Length of each divided H-Link: up to 1000 m*

In the case of H-LINK is divided into five blocks as beside figure: Set End Terminal Resistance in each PSC-5HR (For details, see "Setting Dip Switch".)

◆ Internal layout

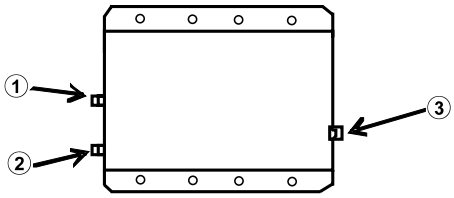


⚠CAUTION

- *Check to ensure the power source voltage is correct.*
- *Incorrect wiring will cause a breakdown of the Transformer or H-LINK Relay*
- *Especially, DO NOT connect power source to the Terminal Board for transmission.*
- *DO NOT install the H-LINK wires along the power line, other signal wires, etc. If installed, it may cause malfunction due to electrical noise. If it is needed to install the wire near them, provide a space of 15cm or more. Or, insert the wires into the steel pipe and ground one end of the pipe.*

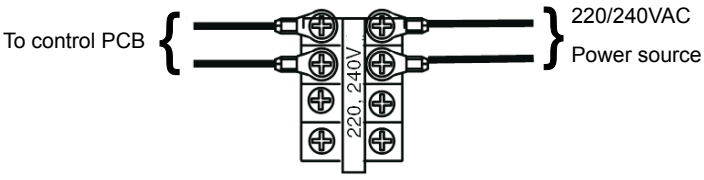
◆ How to open the cover

Loosen the screws ① to ③ and open the cover.



◆ Wiring connection

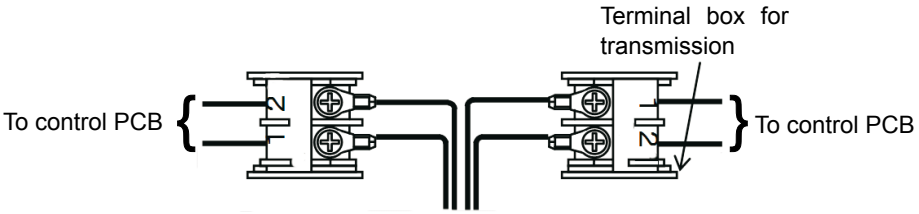
Connect the wires to the power source terminal board Power source is 220/240 VAC



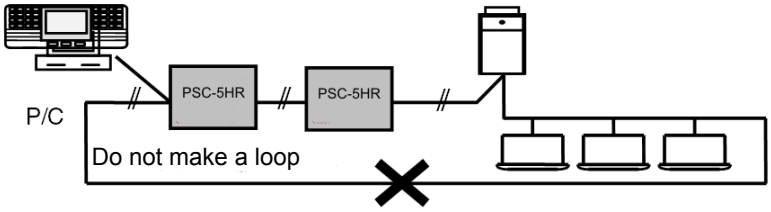
Power source Terminal Board

◆ Transmission wires

Connect the H-LINK terminal board for transmission.



Do not make a loop in each H-LINK.



8.4.3.2 Wiring type and length

Select the wire as shown below.

- It is recommended that the cable should be twist pair cable (1P-0.75 mm2). The cable type is as shown in the table.
- If the twist cable is used, the maximum length in each divided H-LINK is 1000m.
- It is possible to use shielded or not shielded cable.

Type	Hitachi Cable
without Shield	KPEV
with Shield (Copper foil)	KPEV-S

8.4.3.3 DSW setting

◆ Setting of End Terminal Resistance

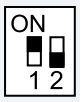
Set the end terminal by using Dip Switch, DSW1 (at CN1 side) and DSW2 (at CN2 side) on the control PCB. As each H-LINK is divided by using the PSC-5HR, it is required to set the end resistance in each H-LINK.

Perform the following.

- In the case that outdoor units exist in the divided H-LINK, set the end terminal resistance at one of the Outdoor Units (See the end terminal resistance setting method for Outdoor Unit)
- In case that Outdoor Units do not exist in the divided H-LINK, refer to items 1 to 3.

1 If there is a centralised controller, set end terminal resistance at the centralised controller.

Set No.1 pin at the ON side on DSW1 or DSW2, it depends if it is connected to CN1 or CN2.

DSW3


2 If there are indoor units only, set the end terminal resistance at the PSC-5HR.

DSW1	DSW2
	
(CN1 Side)	(CN2 Side)

3 In the case that PSC-5HR is directly connected to each other, set end terminal resistance at one of the PSC-5HR devices. Set No.1 pin at the ON side on DSW1 or DSW2, it depends if it is connected to CN1 or CN2.

◆ Fuse Recovery

In the case that the fuse is blown out, it is possible to recover by turning No 2 pin of Dip Switch 1 (at CN1 side) or Dip Switch 2 (at CN2 side) at ON side.

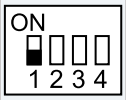
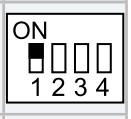
DSW1	DSW2
	
(CN1 Side)	(CN2 Side)

◆ Setting of Main/Sub

Set Main/Sub Relays by No.1 pin of DSW 3 (2~4 are not used) on control PCB (See beside).

Setting depends on the number of H-LINK Relay, set it as follows,

1 Installation number of PSC-5HR devices is only one: Main (No. setting is required)
2 Installation number of PSC-5HR devices is more than one: One: Main / Others: Sub

DSW3	DSW3
	
Main	Sub

8.4.3.4 Test run

Test run shall be performed after Installation, wiring and other setting.

Refer to the Installation and operation manual of each central control system and check the detail.

1 Check connection condition of Air conditioners.
- Check the model name and connected unit quantity by using remote control switch.
- In the case that control equipment is used, perform connection check at the central control equipment.

2 Check transmission Alarm.
- Perform RUN/STOP by the central control equipment or remote control switch.
- Check to ensure that no transmission alarm such as 03.32.35.60.61 (60 and 61 are only with central control equipment) occurs.

3 Check of Activation State Monitoring
- Monitor activation state from the LED on control PCB.
- Check to ensure that LED1 is not keeping ON due to continuous collision. The cause of continuous LED ON is as follows. Incorrect Setting of Master or Slave H-LINK Relays, end terminal resistance, looped wiring, etc. Check to ensure that setting and wiring are correctly performed.
- Check to ensure that LED2, 3 and 4 are flicking. If not, check to ensure that transmission is performed by checking LED on PCB in the other unit. In the case that the above LED on the H-LINK Relay does not flick despite sending signal from the other unit. Check the wiring connection, end terminal resistance setting, type of wires and wiring length. If the fuse in the transmitting circuit is melted due to incorrect wiring, use Fuse Recovery setting.

8.5 PC-AMTB

8.5.1 Safety summary

NOTE

- *HITACHI cannot anticipate every possible circumstance that might involve a potential hazard.*
- *Read carefully this document before performing the installation work.*

DANGER

- ***Do not install this device in places accessible to the general public. Install it in enclosures or other places which not are accessible.***
- ***Do not connect power supply before the device installation is correctly done. Always disconnect power supply from the device before any maintenance or servicing action.***

CAUTION

- *The device installation must be performed by qualified professionals.*
- *Check to ensure that the field supplied electrical components (mains power switches, circuit breakers, wires, connectors and wire terminals) have been properly selected according to the electrical data indicated on this document and they comply with national and local codes. If it is necessary, contact with your local authority in regards to standards, rules, regulations, etc.*
- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle properly and safely this appliance.*
- *Children should be supervised to ensure that they do not play with the appliance.*

8.5.2 Installation

8.5.2.1 Installation site selection

Take note of the maximum admissible cable length between units and the control as well as between the units themselves, as shown in the following table:

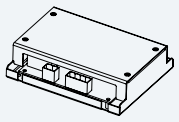
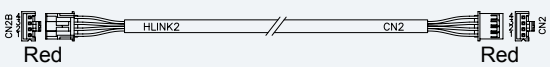
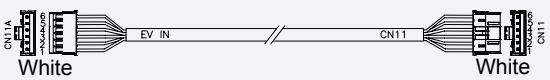
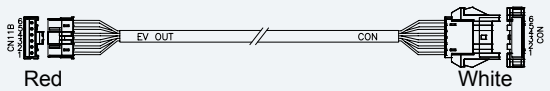
Cable section	0.3 mm²	≥ 0.75 mm²
Cable length	30 m	500 m

8.5.2.2 Components list

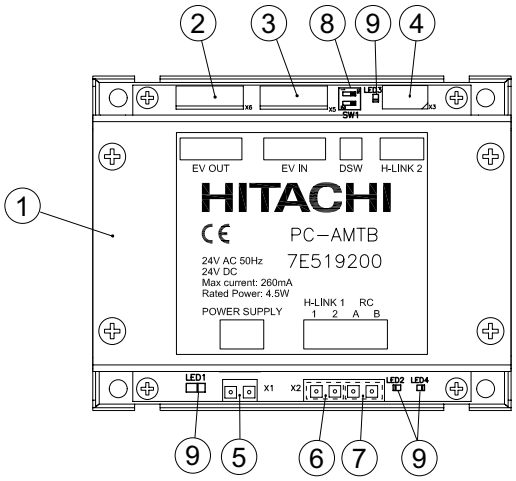
Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Item	Description	Qty.	Purpose
Multitenant Box		1	For allowing individual shutdown of indoor units in a multiple indoor unit installation.
Connector wire <1>		1	For the electrical connection between “H-LINK2” connector of PC-AMTB and the “CN2” connector of Indoor unit PCB.
Connector wire <2>		1	For the electrical connection between “EV IN” connector of PC-AMTB and the “CN11” connector of Indoor unit PCB.
Connector wire <3>		1	For the electrical connection between “EV OUT” connector of PC-AMTB and the EVI wire-end previously connected to the “CN11” connector of indoor unit PCB.
Installation and operation manual		1	Installation and operation unit instructions.

8.5.2.3 Description of the parts



No.	Description
①	Case
②	Expansion valve outlet connector
③	Expansion valve inlet connector
④	Internal H-LINK connector
⑤	Power supply terminals
⑥	External H-LINK connector
⑦	Remote control communication terminals
⑧	DIP switch (SW1)
⑨	LED indicators

8.5.2.4 General data

Item	Units	Description
Power supply	V	24 VDC/VAC ±10%
Rated power	W	2.3
Peak power consumption		
1) Connected to type A models (*)	W	4.7
2) Connected to type B models (*)	W	7
Dimensions (HxWxD)	mm	92 x 115 x 29
Weight (Gross/Net)	g	450/250
Mounting conditions	-	Indoor
Working range		
Temperature	ºC	0-60ºC
Humidity	%	20-85% RH

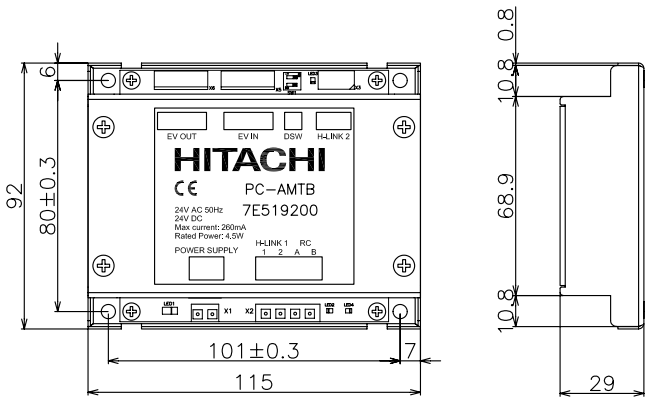
NOTE

(*):

- *Indoor unit models type A: All indoor units except B and C type.*
- *Indoor unit models type B: RPI-(8.0/10.0)FSN3E.*
- *Indoor unit models type C: RPI-(16.0/20.0)FSN3PE, which cannot be used with PC-AMTB.*

8.5.2.5 Dimensional data

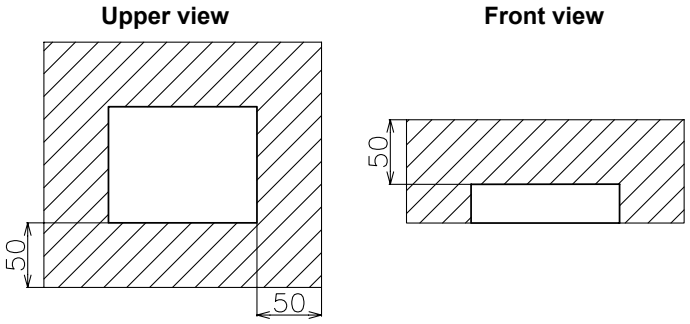
Units: mm



8.5.2.6 Installation space

Please consider that installation space must be wide enough for wiring connection.

Units: mm



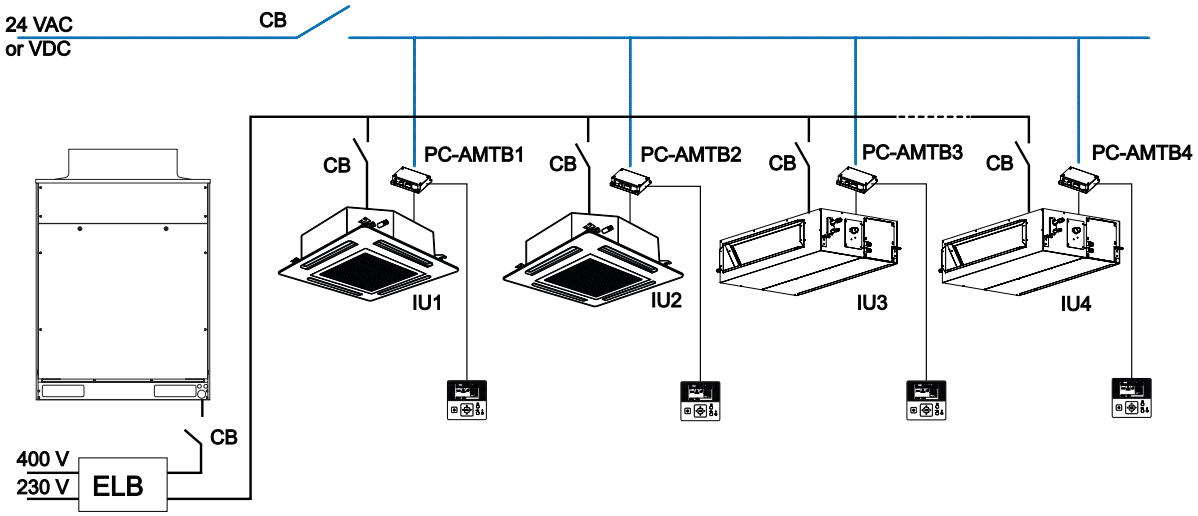
8.5.2.7 Installation procedure

PC-AMTB enclosure is furnished with side bored flanges in order to easily screw it to a wall or vertical surface by using 4 screws M4 or 4 mm diameter, tapping type (field-supplied).

It can also be left lying on a flat surface such as a false ceiling.

8.5.3 Electrical wiring

8.5.3.1 Connection scheme



◆ **Power supply installation**

The installation must be provided with an independent low voltage power supply circuit of 24 V AC or DC type. Power supply cable sizes must be designed considering that max. voltage dropped is not exceeding the 10%.

NOTE

- *It is recommended to use 0.75 mm2 wires as minimum cable size, not lighter than the polychloroprene sheathed flexible cord (code designation 60245 IEC 57) type.*
- *Do not connect more than 8 devices in serial or increase power supply cable size accordingly.*

The power supply must be capable enough to supply the necessary power required base on the following formula:

$$P_{power\ supply}\ (watt) \geq (\ (NAtype*4.7 + NBtype*7)*0.7$$

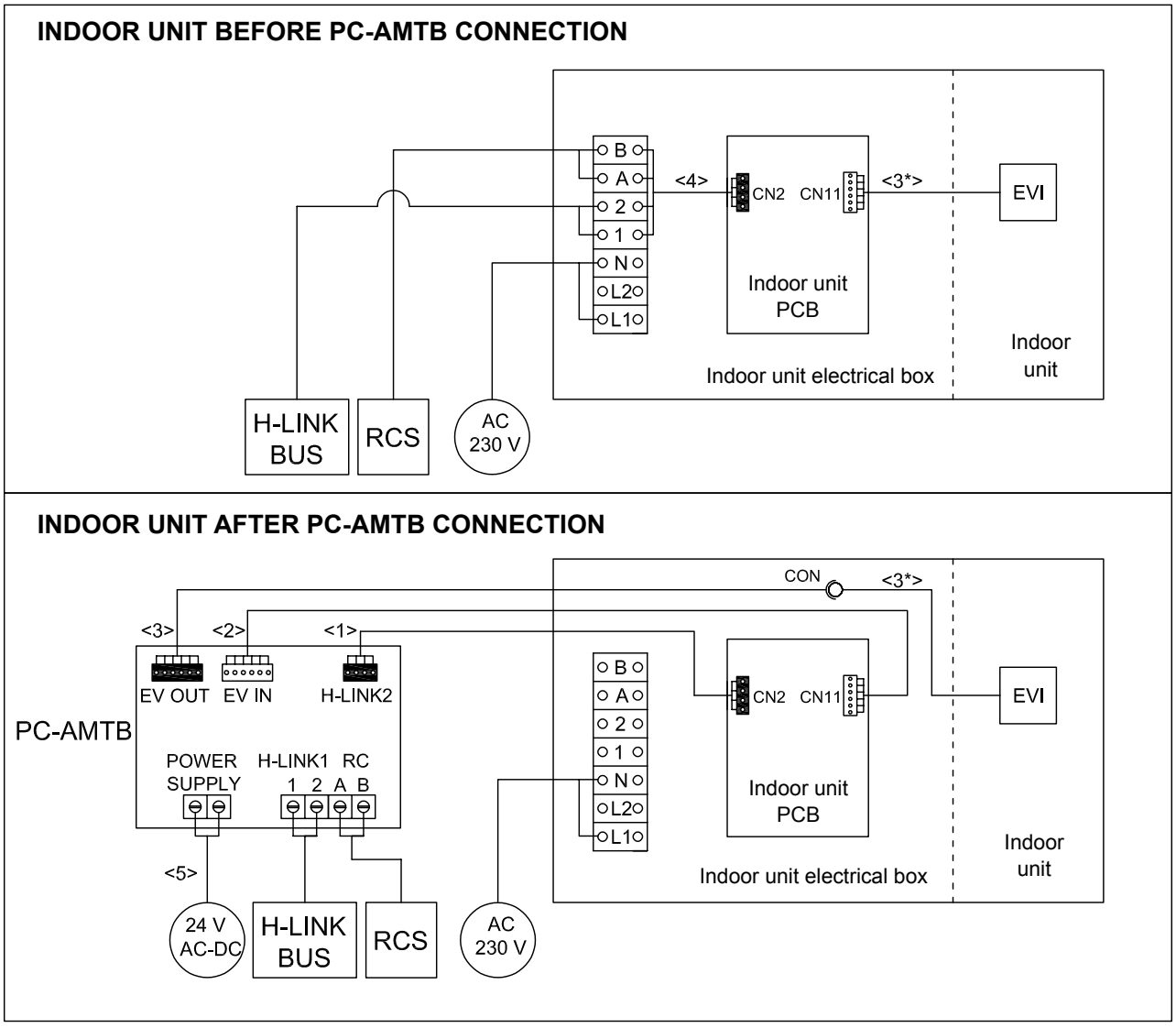
Where:

- NAtype: Number of multitenant devices installed to A type indoor units.
- NBtype: Number of multitenant devices installed to B type indoor units.

The installation must be equipped with disconnection devices permitting any servicing operation without power.

8.5.3.2 Electrical wiring

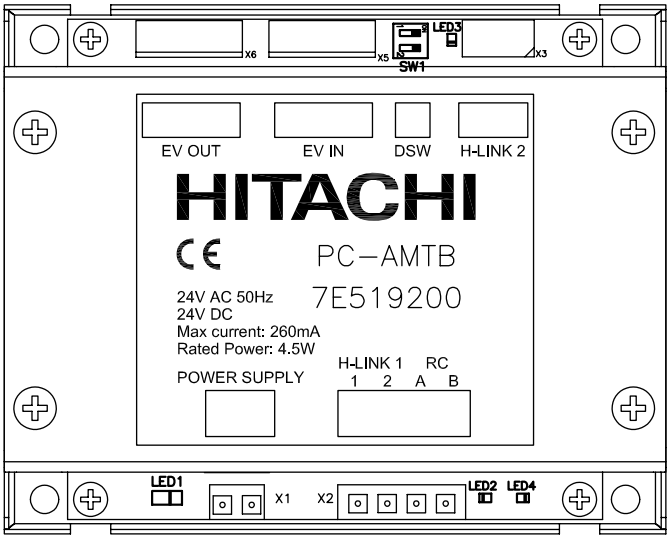
1. Make sure that indoor unit is switched off, and then, open the electrical box.
2. Disconnect the Remote Control (RCS) cable from the electrical box terminals of the indoor unit and connect it into the PC-AMTB screw terminals “RC-A,B”.
3. Disconnect the H-LINK cable from the electrical box terminals of the indoor unit and connect it into the PC-AMTB screw terminals “HLINK1-1,2”.
4. Remove wire <4> from IU electrical box (from terminal box and “CN2” connector).
5. Connect wire <1> from PC-AMTB ”HLINK 2” connector to IU PCB “CN2”.
6. Disconnect EVI wire <3*> from IU PCB “CN11” and switch it to connector wire <3>. The other ending of wire <3> must be switched to PC-AMTB “EV OUT”.
7. Connect wire <2> between PC-AMTB “EV IN” and IU PCB “CN11”.
8. Connect power wires <5> to PC-AMTB screw terminals “POWER SUPPLY”.



NOTE

- *PCB: Printed circuit board.*
- *EVI: Indoor unit expansion valve.*
- *Connectors in wires named after connectors in PC-AMTB and IU PCB.*

8.5.3.3 DSW Setting and led indication



◆ **Setting of DIP switches**

DSW1: Not used Factory setting (Do not change)	

◆ **LED indication**

- Monitor led 1 is ON while PC-AMTB is power supplied.
- Monitor led 2 flickers from time to time when there is traffic at HLINK bus 1.
- Monitor led 3 flickers from time to time when IU is ON and there is traffic at HLINK bus 2.
- Monitor led 4 is used for system diagnosis.

8.5.4 Troubleshooting

The indoor unit is not recognized by the outdoor unit despite being powered ON.

Check that PC-AMTB is power-supplied by checking monitor LED1. If it is OFF, please check fuse state, and in case it is fused, replace it by a 5x20 mm, 250 mA, 250V compatible fuse.

8.6 THM-R2AE

8.6.1 Installation

8.6.1.1 Installation site selection

The thermistor for detecting room temperature is installed inside the remote sensor.

The installation position of the remote sensor should be determined in consideration with the following conditions:

- where the average room temperature can be detected.
- where is not exposed to the sun.
- where a heat source is not located near the remote sensor.
- where the discharge air from the air conditioner does not blow directly.
- where is not affected by the outdoor air when opening /closing the door, etc.

8.6.1.2 Components list

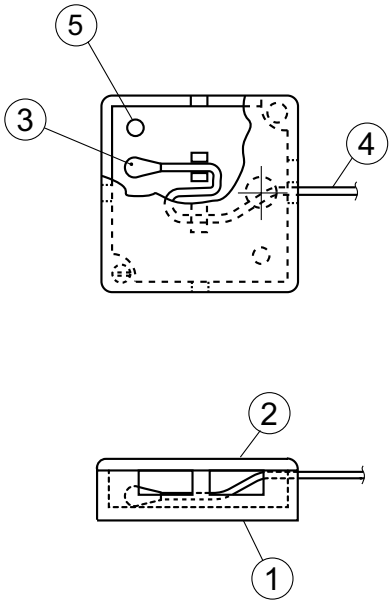
Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name		Quant.	Comments
Thermistor		1	-
Thermistor case		1	-
Thermistor case cover		2	-
Fixing screw		2	For fixing the accessory to the wall
Installation and operation manual		1	Installation and operation unit instructions.

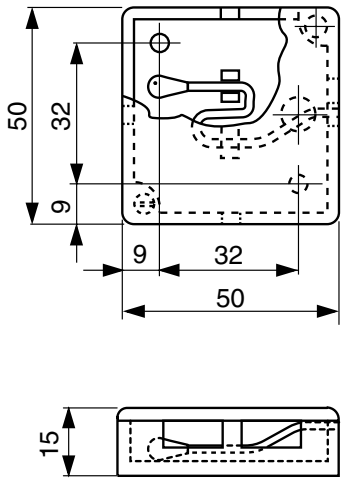
8.6.1.3 Description of the parts



No.	Description
①	Thermistor base
②	Thermistor case
③	Thermistor
④	Cord for thermistor
⑤	Holes for fixing device to wall (2-Φ4.5)

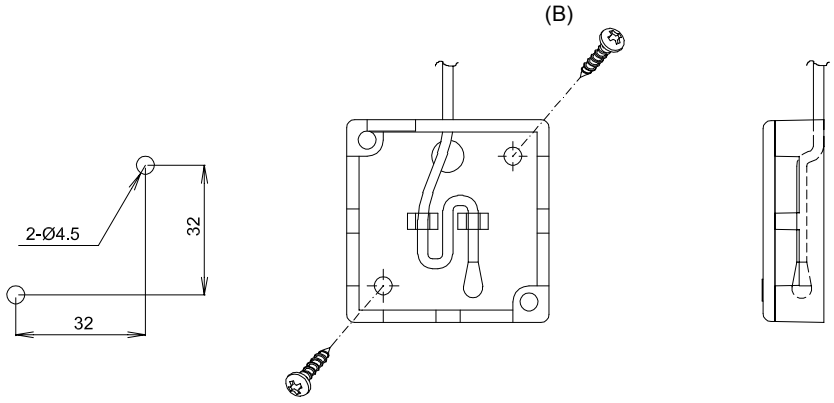
8.6.1.4 Dimensional data

Units in mm.



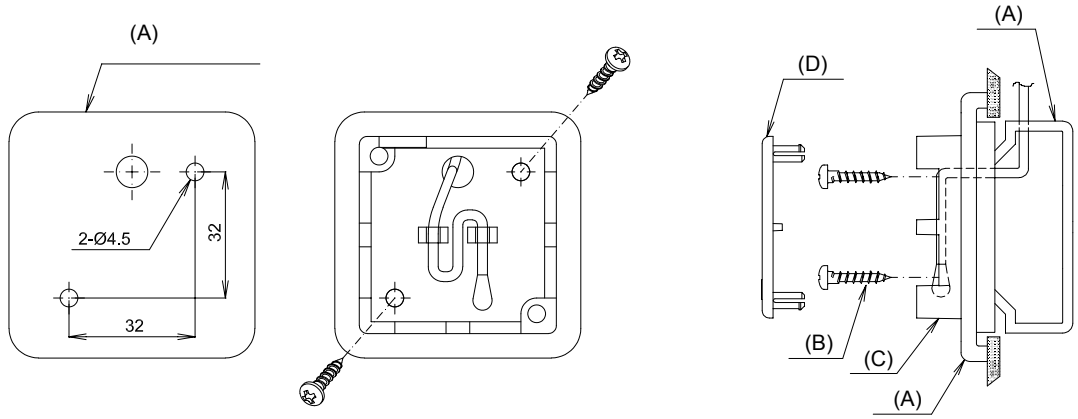
8.6.1.5 Installation procedure

◆ In case of mounting onto the wall



- Make the wiring on the sensor box, and let the wires for sensor through the box slot.
- Fix the sensor box onto the wall with 2 screws (B).
- In the case that the sensor box can not be fixed onto the wall with screws, fix it onto the wall by using the double-side adhesive tapes, etc.

◆ In case of mounting onto electric switch box



- Make the holes for fixing sensor box on the Switch Box Cover (A) (field-supplied) as shown on the figure, and fix the sensor box to the plate with screws (B).
- Pay attention that the hole for air intake on the sensor box (C). may not be shut.

8.6.2 Electrical wiring

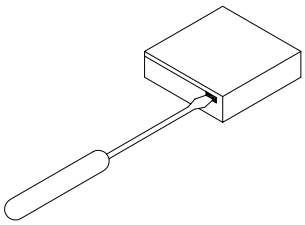
Connect the cord (8 m) of the remote sensor to THM4 of the indoor printed circuit board.

◆ In case of extending the cord

- In the case that the cord is required to be extended, cut the cord in the middle, connect the extension cord (field-supplied; with wire size over 0.3 mm) and use it.
- When using extension cord, connect and extension cord with solder and the soldering part should be isolated electrically so that contact failure may not occur.
- The total length of the cord (including extension cord) should be within 15 m.

⚠ CAUTION

- *When removing the cover of the sensor box, insert the tip of the flat head screwdriver between the upper recess part of the sensor box and the cover, and remove it.*



- *Run the sensor cord on a place where the power line or noise will not cause any abnormal operation.*
- *Check to ensure that the wiring is correctly performed.*
- *The contact failure may cause incorrect temperature sensing and an abnormal operation.*

9. Control accessories

Index

9.1 Wall and stand mounted support for CSNET Manager LT/XT

9.1.1 Components list

Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

◆ Wall mounted support

Name	Figure	Quantity	Comments
Wall support part 1	*To be informed later.*	1	Wall support part to be fixed on CSNET Manager.
Wall support part 2	*To be informed later.*	1	Wall support part to be fixed on the wall.
Screw		4	For fixing the support device on the wall.
Plug		4	-
Instruction sheet		1	Instructions for the installation work.

(*): All the data regarding Stand support are preliminary data, and therefore, they are subject to changes.

◆ Stand mounted support

Name	Figure	Quantity	Comments
Stand support base		1	Base for holding the stand support arm and the CSNET Manager.
Stand support arm			Stand support part to be fixed on CSNET Manager.
Screw		4	For fixing the stand support arm on CSNET Manager.
Rear support screw		1	For fixing the stand support base.
Instruction sheet		1	Instructions for the installation work.

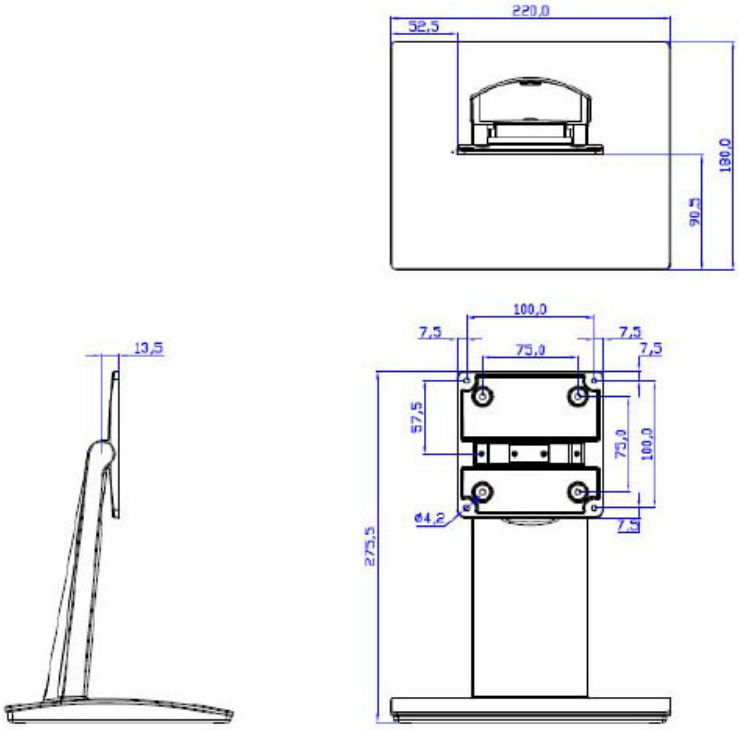
9.1.2 Dimensional data

Units in mm.

◆ **Wall mounted support**

To be informed later.

◆ **Stand mounted support**



9.1.3 Installation procedure

◆ **Wall mounted support**

⚠ CAUTION

- *This device cannot built in neither installed without providing ventilation to the aluminium sink behind*
- *Place the support on a resistant wall.*

CSNET Manager can be wall mounted by using any standard VESA 75 mm wall mounted support for LT & XT and VESA 100 mm for XT only. HITACHI offers the following wall mounted accessory, model code 7E512300.

(To be informed later)

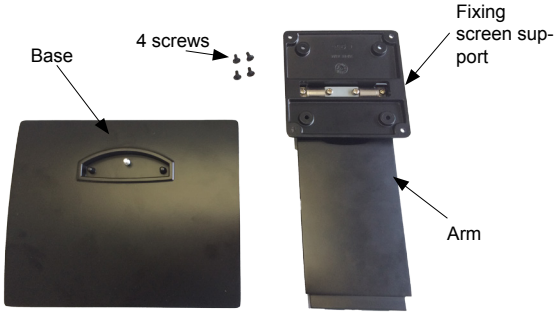
◆ **Stand mounted support**

⚠ CAUTION

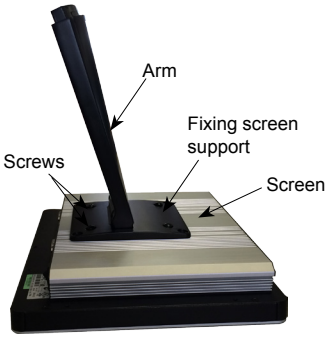
This device cannot built in neither installed without providing ventilation to the aluminium sink behind.

CSNET Manager can be stand mounted by using any standard VESA 75 mm stand mounted support for LT & XT and VESA 100 mm for XT only. HITACHI offers the following stand mounted accessory VESA 75, model code 7E512301.

The stand comes disassembled in 2 parts:



1 Place the fixing screen support 90 degrees with respect to its arm.
2 Put the screen upside down and insert the 4 stand screws on the rear of the screen (the power source connector will be at the bottom of the screen). There are 8 holes on the support, 4 for the LT screen and the other 4 for the XT screen.



⚠ CAUTION

In order to avoid damage to the screen, protect it before setting it upside down.

3 Screw the rear support screw to the arm and the stand will be completely mounted.

4 Finally, connect the power supply and LAN cable to the CSNET Manager.
5 Press down the power switch.
6 CSNET Manager program starts automatically.

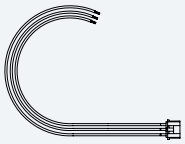
9.2 PCC-1A

9.2.1 Components list

Unpack the unit and check that:

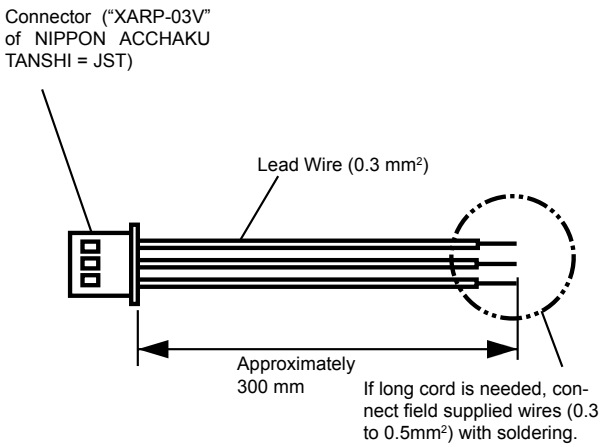
- The package contains all the components (see next table).
- All components are in perfect condition.

Otherwise, contact the manufacturer.

Name	Figure	Quantity	Comments
PCC-1A connector cord		5	For connection of external input/output signals
Cable tie		5	For securing the cables
Connector caps		15	-
Vinyl tape roll		1	-
Instruction sheet		1	Device instructions

9.2.2 System description

The PCC-1A is a 3P connector cable used when the remote ON/OFF device is connected or signals are taken out on the printed circuit board. One set contains five 3P connector cables.



9.3 PRC-(10-30)E1

9.3.1 Components list

Unpack the unit and check that:

- The package contains all the components (see next table).
- All components are in perfect condition.

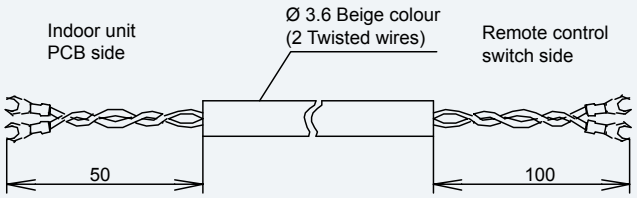
Otherwise, contact the manufacturer.

Name	Figure	Quantity	Comments
PCC-1A connector cord		1	For extending the length of individual and central remote controllers
Installation manual		1	Installation unit instructions.

9.3.2 System description

The PRC-(10/15/20/30)E1 is a 2P extension cable intended for individual remote controllers or central extensions whose cables need to be extended up to more than 30 m. When the total cable length is not higher than 30 m, other type cable (more than 0.3 mm^2) can be used.

For the details of the optional 2P extension cable, refer to the table:

Model	Length (m)	Specification
PRC-10E1	10	
PRC-15E1	15	
PRC-20E1	20	
PRC-30E1	30	

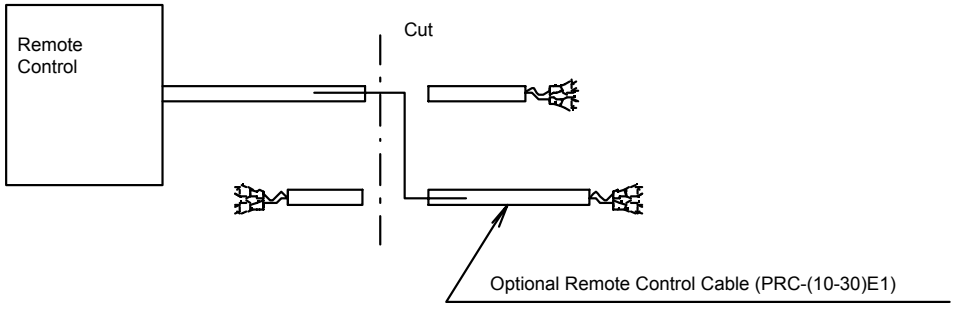
9.3.3 Installation procedure

If the remote control cable requirement is longer than 30 m, connect a control cable (2 x 0.75mm2) in the field, by soldering, or use an optional extension remote control cable.

- The remote control cable can be extended to a maximum of 500 m.
- Extend the Remote Control Cable as shown in the figure

NOTE

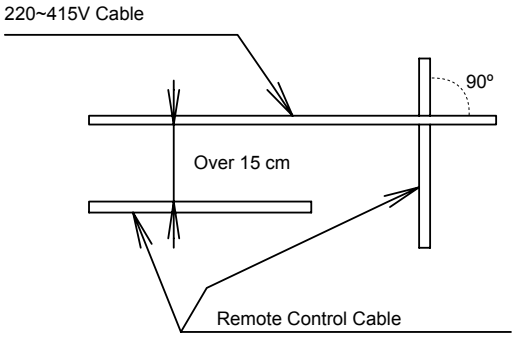
Cut, connect each wire by twisting, and then solder it. Insulate each wire with a vinyl tape.



◆ Remote Control Cable Utilization Method

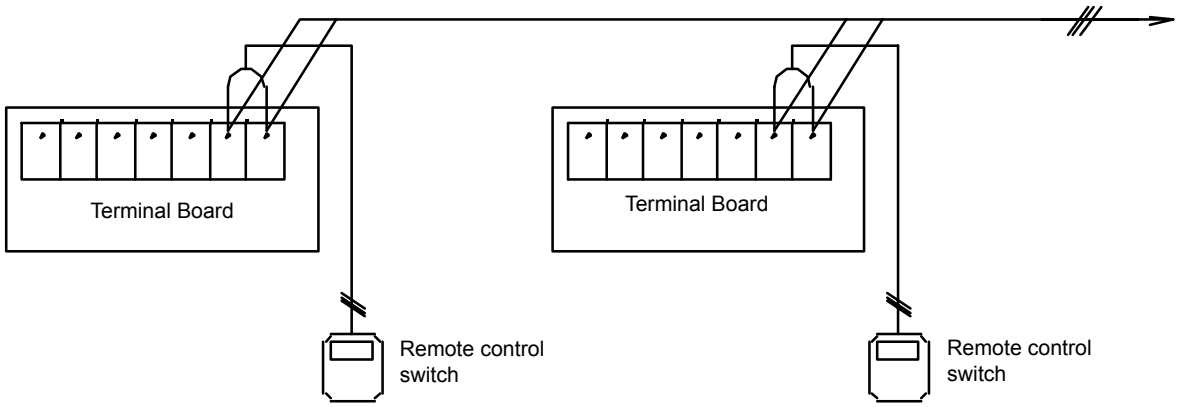
Do not install the control cable parallel to the power source wires (220V to 415V)

If the control cable is required to be installed parallel to the power source wires, separate the control cable by at least 15 cm. If cannot be separated, put either the control wire or the power source in a steel pipe and connect an earth wire to the pipe. Crossing at right angles of the control wire and power source wire is permitted.



◆ Utilization for connecting indoor units

When the indoor units are controlled by one remote control switch, use the remote control cable as connecting cables between indoor units, as shown in the figure.



⚠ CAUTION

If the remote control switch is disassembled, the following problems can occur:

- *Dust can enter into the remote control switch and cause remote control switch parts malfunction.*
- *Static electricity may occur and the electronic parts on the printed circuit board can be damaged.*
- *The total length of the remote controller cable and the control cable between the indoor units shall be 500m or less.*

9.4 Net Configuration Kit

This accessory provides all the necessary devices for HITACHI installers when commissioning a Modbus installation.

Name	Figure	Quantity	Comments
USB cable		1	For configuring the device (network parameters)
Ethernet cable		1	For a quick connection with a laptop for the Modbus communication check.
USB stick memory		1	It includes a software tool for Modbus communication check when commissioning

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