



## **DX KIT**

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## DX KIT

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# 1. FEATURES

## ■ MODELS : UTP-VX30A, UTP-VX60A, UTP-VX90A UTY-VDGX



EEV unit  
UTP-VX30A  
UTP-VX60A  
UTP-VX90A

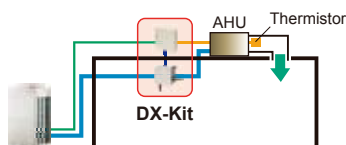


Control unit  
UTY-VDGX

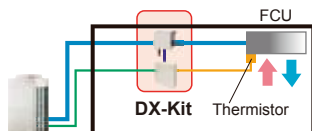
These kits enable other manufacturers air handling units (AHU) and fan coil units (FCU) to be incorporated into a Fujitsu VRF system or, be connected to a dedicated Fujitsu VRF outdoor unit as a 1:1 system to control outside air ventilation (AHU) or room temperature (FCU).

## ■ MULTIPLE TEMPERATURE SENSORS OPTIMALLY CONTROL THE AIR HANDLING UNIT AND FAN COIL UNIT

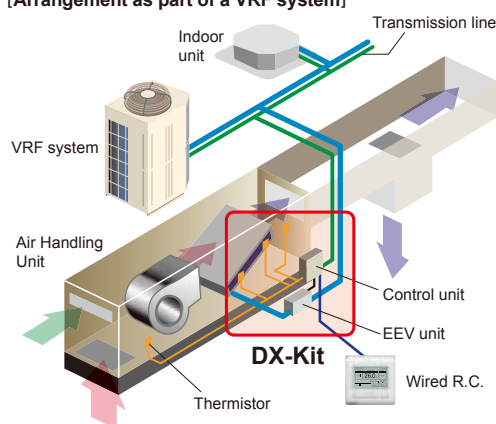
- When connecting to an air handling unit, the supply air temperature is controlled by the discharge sensor.



- When connecting to a fan coil unit, the room temperature is controlled by the return air temperature sensor.

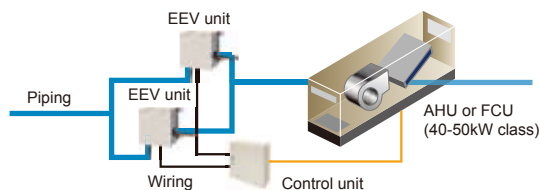


[Arrangement as part of a VRF system]



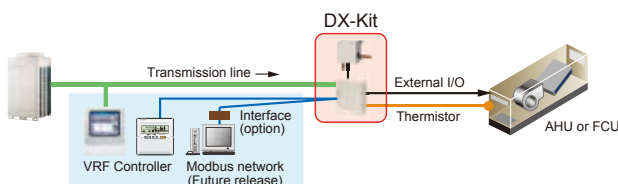
## ■ SUPPORTS A WIDE RANGE OF CAPACITY CLASSES

- 2 EEV units can be connected in parallel and up to 20 HP (50 kW) large capacity units. (Separation Tube of UTP-LX180A is required.)
- Connectable capacity range: 5 kW to 50 kW

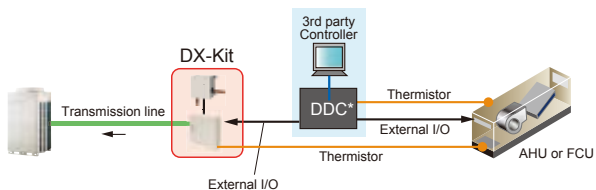


## ■ A VARIETY OF CONTROLS TO MATCH THE APPLICATION

- Central control using our VRF controllers or central management controllers



- Central control from external controllers



\*DDC=Direct Digital Controller

## 2. SPECIFICATIONS

### 2-1. EEV UNIT

Model name			UTP-VX30A			UTP-VX60A			UTP-VX90A		UTP-VX90A x 2	
Connectable capacity class		kW	5.0	6.3	8.0	10.0	12.5	14.0	20.0	25.0	40.0	50.0
Capacity	Cooling	kW	5.6	6.3	8.0	10.0	12.5	14.0	22.4	25.0	40.0	50.4
	Heating		6.3	7.1	9.0	11.2	14.0	16.0	25.0	28.0	45.0	56.5
Capacity range	Cooling	kW	5.1-5.9	6.0-7.1	7.2-9.0	9.1-11.1	11.2-13.2	13.3-18.0	18.1-23.7	23.8-28.0	28.1-44.7	44.8-50.4
	Heating	kW	5.7-6.7	6.8-8.0	8.1-10.0	10.1-12.4	12.5-15.0	15.1-20.0	20.1-26.5	26.6-31.5	31.6-49.9	50.0-56.5
Airflow rate (reference)		m³ / h	1060	1200	1520	1600	2000	2240	3560	4000	6400	8000
Dimensions (H x W x D)	Net	mm	160 x 220 x 90								(160 x 220 x 90) x 2	
	Gross		420 x 420 x 150								(420 x 420 x 150) x 2	
Weight	Net	kg	2								2 x 2	
	Gross		3								3 x 3	
Connection pipe diameter	Liquid	mm	ø 9.52 (Brazing)						ø 12.70 (Brazing)			

### 2-2. CONTROL UNIT

Model name			UTY-VDGX	
Power source			230 V ~, 50Hz	
Available voltage range			198 to 264 V	
Dimensions (H x W x D)	Net	mm	400 x 400 x 120	
	Gross		500 x 500 x 266	
Weight	Net	kg	10	
	Gross		13	

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 27°CDB / 19°CWB, and outdoor temperature of 35°CDB / 24°CWB.

Heating : Indoor temperature of 20°CDB / (15°CWB), and outdoor temperature of 7°CDB / 6°CWB.

Pipe length : 7.5 m; Height difference between outdoor unit and indoor unit : 0 m.

### 3. ELECTRIC CHARACTERISTICS

Model	Power Supply			
	Voltage (V)	Frequency (Hz)	MCA (A)	MFA (A)
UTY-VDGX	230~	50	0.096	20

#### ● Breaker requirements

Model	Recommended cable size (mm <sup>2</sup> )	MFA (A)	Breaker for leakage current	Remarks
All models	2.5	20	Refer to Table B	230V~ 50Hz 2Wire + ground

Refer to the table for the breaker specifications of each installation condition. Perform the power crossover wiring within the range of the same refrigerant system. When the crossover wiring is done, make a connection for "DX kit (Control unit)", "RB units" and "indoor units" to satisfy conditions Table A and Table B below.

Table A. Current breaker requirements

Model	MCA (A)	MFA (A)
All models	Refer to above	20

MCA : Minimum Circuit Ampacity

When the power crossover wiring is done, make it so that the total of the MCA of the connected "DX kit (Control unit)", "RB units" and "indoor units" does not exceed the 15 A. If the capacity of connected "DX kit (Control unit)", "RB units" and "indoor units" exceeds the upper limit, either add breakers or use a breaker with a greater capacity.

Table B. Earth leakage breaker requirements

Breaker capacity	Maximum connectable "DX kit (Control unit)", "RB units" and "indoor units"
30 mA, 0.1 sec or less	44 or less
100 mA, 0.1 sec or less	45 to 128

If the total number of units connected to the breaker exceeds 44, either add a 30mA breaker, or use breakers with a greater capacity.

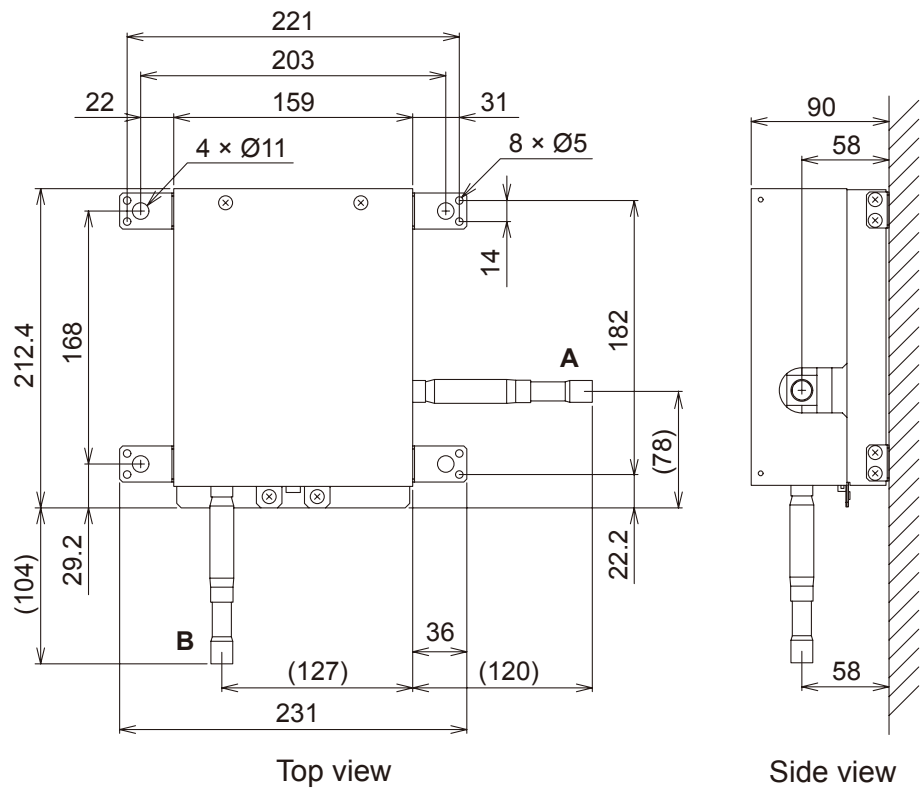
- Select cable size base on the value of total MCA of the indoor units connected. and if necessary divided the system which the total MCA of the indoor units connected must be smaller than 15 (A). The indoor units shall be connected up whthin refrigerant system.
- In order to be influenced of a breaker stop, please divide a power supply circuit for every refrigerant system.
- Please attach at least one breaker per refrigerant system.
- Please design the power supply circuit to keep the voltage drop within 2%.

4. DIMENSIONS

4-1. EEV UNIT

■ MODELS: UTP-VX30A, UTP-VX60A, UTP-VX90A

(Unit : mm)

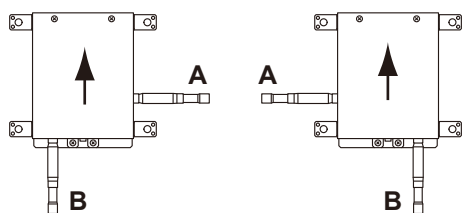


		UTP-VX30A	UTP-VX60A	UTP-VX90A
Refrigerant pipe connection	A	ø 9.52 mm	ø 9.52 mm	ø 12.70 mm
	B	ø 9.52 mm	ø 9.52 mm	ø 12.70 mm

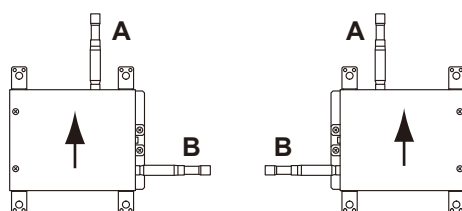
## ■ INSTALLABLE EEV UNIT ORIENTATIONS

↑ Orient the arrow upwards

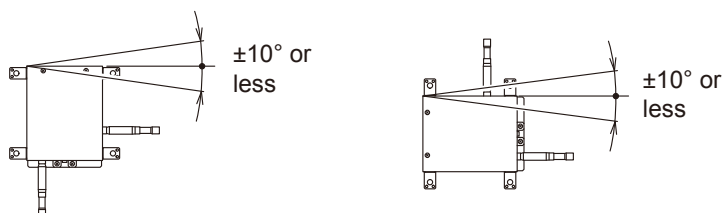
**Installable both indoors and outdoors**



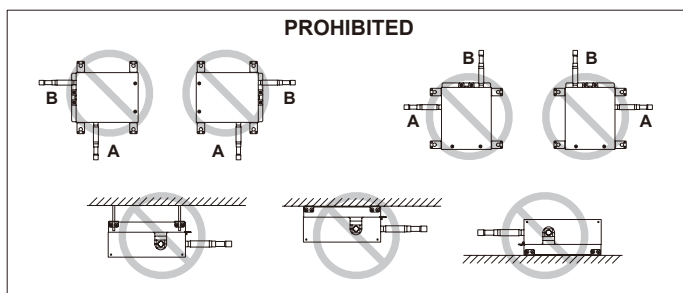
**Installable indoors only  
(Cannot be installed outdoors)**



**EEV unit inclination limits**



**Prohibited EEV unit orientations**

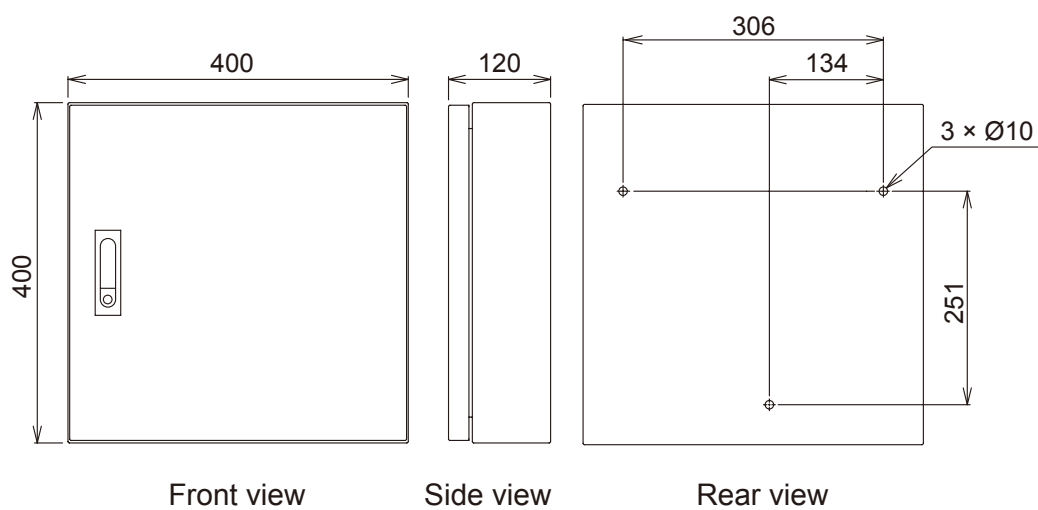




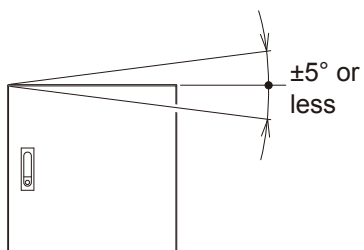
## 4-2. CONTROL UNIT

### ■ MODEL: UTY-VDGX

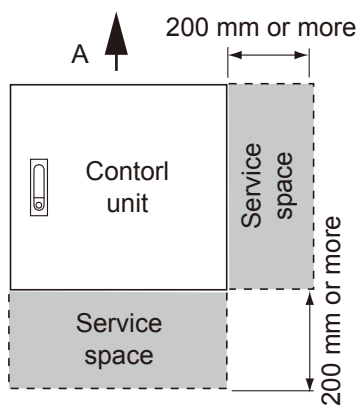
(Unit : mm)



### ■ INCLINATION LIMITS

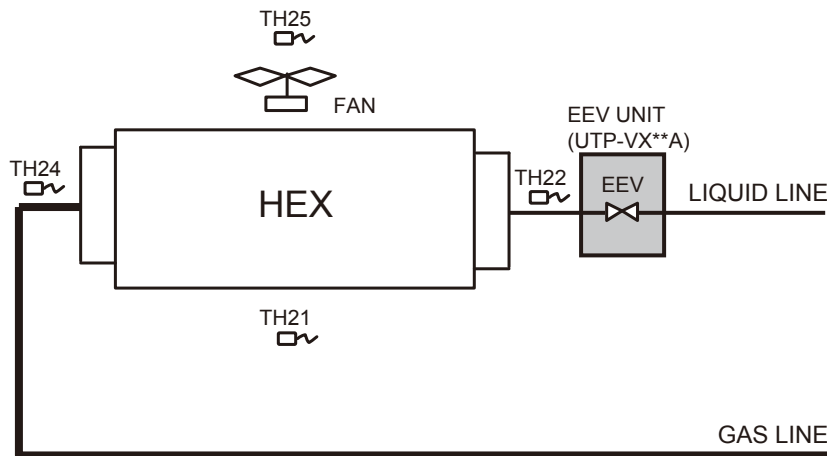


### ■ SERVICE SPACE



# 5. REFRIGERANT CIRCUIT

## ■ MODELS: UTP-VX30A, UTP-VX60A, UTP-VX90A



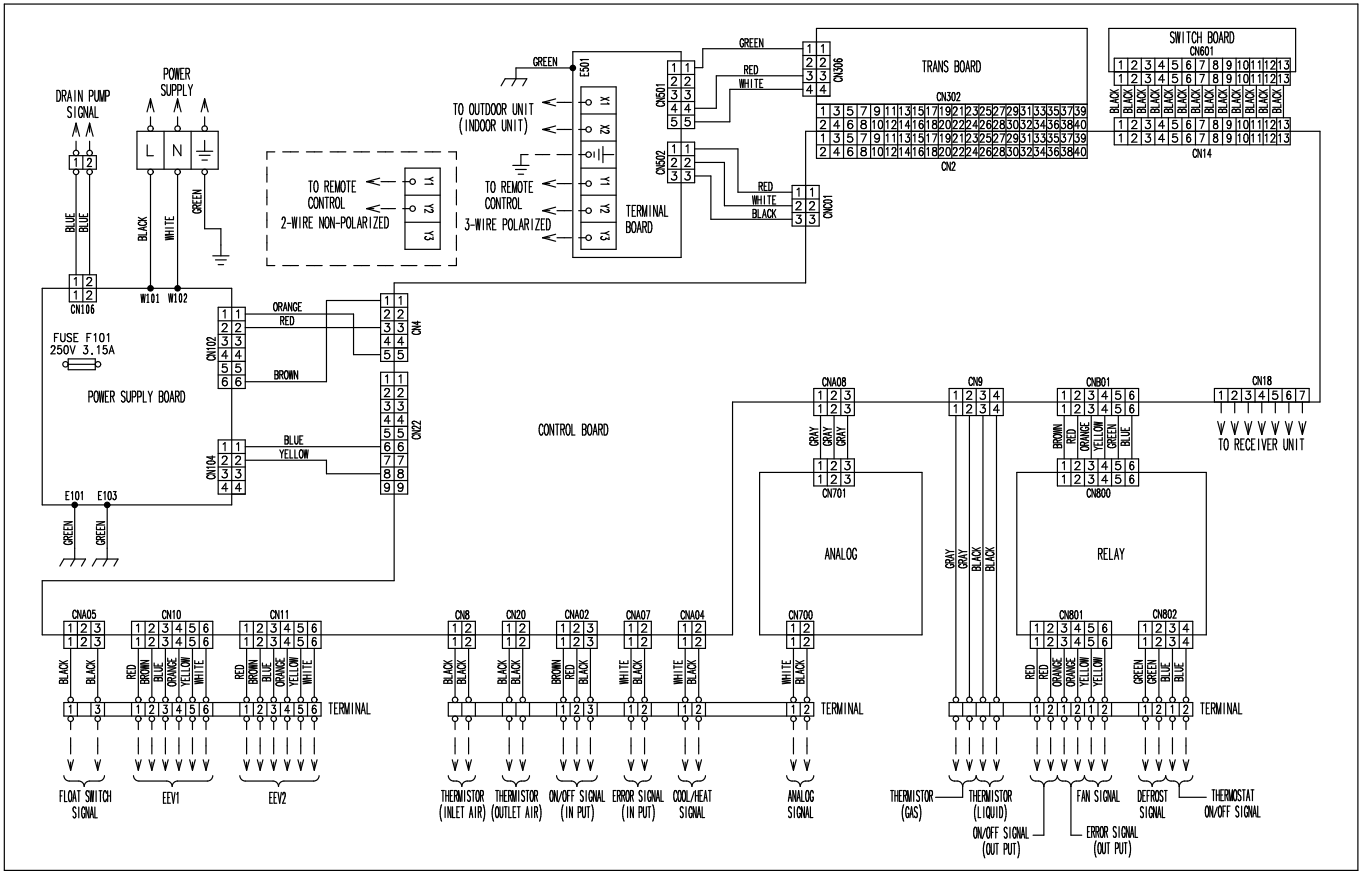
## ■ SYMBOL DESCRIPTION

MARK	DESCRIPTION
HEX	Heat exchanger (Locally purchased)
FAN	Fan (Locally purchased)
EEV	Electric expansion valve
TH21	Suction airflow temperature thermistor
TH22	Heat exchanger (inlet) thermistor
TH24	Heat exchanger (outlet) thermistor
TH25	Discharge airflow temperature thermistor

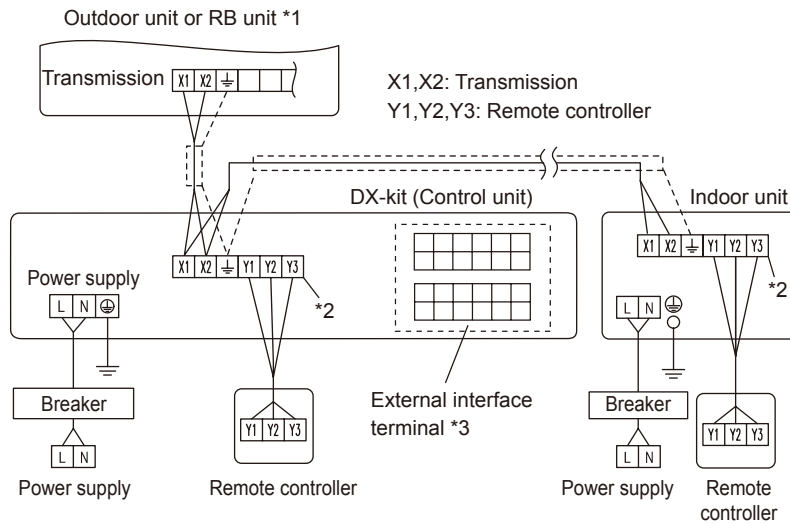
# 6. WIRING

## 6-1. WIRING DIAGRAMS

■ MODEL: UTY-VDGX



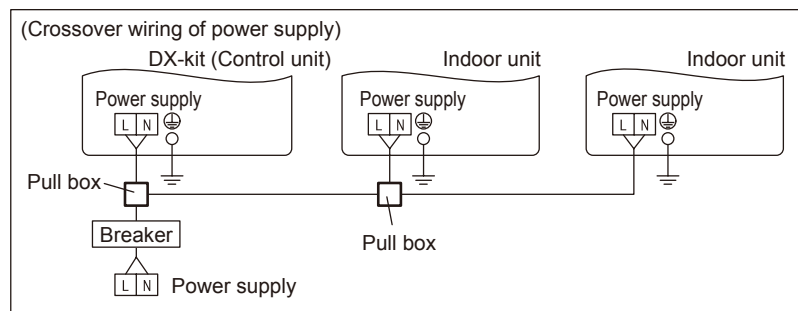
## 6-2. WIRING METHOD



\*1: When connecting to the Heat Recovery System, refer to the installation manual of the RB unit.

\*2: When connecting the 2-wire type remote controller, Y3 is not used.

\*3: For the external interface terminal, refer to "12.EXTERNAL INPUT&OUTPUT"



# 7. SAFETY DEVICES

Model	Fuse
UTY-VDGX	250 V 3.15 A

## 8. MODEL SELECTION

(Prior confirmation)

- Usage of DX kit (for air handling unit, or for indoor air conditioning)
- Whether there is energy recovery ventilator, heater, or return air
- Individual installation of DX kit, or mixed installation with VRF indoor unit
- Which VRF system is used; Heat pump type or Heat recovery type



(i) Calculate required "air conditioning capacity" and "heat exchanger capacity" based on design airflow, estimated air conditioning load (①), status of VRF refrigerant cycle (②).

Refer to following sections:

For ①: Operating temperature range and rated conditions

For ②: VRF refrigerant cycle information



(ii) Select appropriate expansion valve unit based on the calculated "air conditioning capacity".

\* Set the same amount for the capacity setting of the control unit.  
(DIP SW SET1 and SET2-1)

Refer to following section:

③ DX kit capacity and expansion valve selection



(iii) Select appropriate outdoor unit based on the calculated "heat exchanger capacity", "air conditioning load", and "designed system". Make sure that the total amount of capacity in same refrigerant system is within the limited range.

\* If it is out of range, consider adjustment of the air conditioning load by return air (system design), and then perform this selection flow again.

Refer to the following section:

④ Outdoor unit selection



Selection completed.

Total amount of capacity is out of limited range.



**(Prior confirmation) Usage of DX kit (for air handling unit, or for indoor air conditioning)**

Pattern	Usage of DX kit	Control method		Dip-sw		
				SET3-1	SET3-2	SET3-3
1	Thermostat condition in controlling the discharge air temperature.	Control using our VRF controllers.		OFF	-	OFF
2		Control from external controllers. (using DDC)	Operation temperature	ON	OFF	OFF
3			Required operation performance	ON	ON	OFF
4	Thermostat condition in controlling the suction/ return air temperature.	Control using our VRF controllers.		OFF	-	ON
5		Control from external controllers. (using DDC)	Operation temperature	ON	OFF	ON
6			Required operation performance	ON	ON	ON

**(i) Calculate required "air conditioning capacity" and "heat exchanger capacity" based on design airflow, estimated air conditioning load (①), status of VRF refrigerant cycle (②).**

① Operating temperature range and rated conditions

Operable temperature range of inlet air (just before the heat exchanger of AHU).

Condition	Inlet air temperature
Cooling	5°C to 43°C *1
Heating	-7°C to 30°C

\*1: When connecting J-II series, the upper-limit temperature of cooling operation becomes 40°C.

**Rated conditions**

Condition	Inlet air temperature	Outdoor temperature
Cooling	27°CDB / 19°CWB	35°CDB / -
Heating	20°CDB / -	7°CDB / 6°CWB

②VRF refrigerant cycle information

	J-IIS	J-II	V-II	VR-II
Evaporator temp. (°C)	7.2			
Condenser temp. (°C)	50			48

\* Minute adjustment of Evaporator/Condenser temp. can be made by performing the function setting of outdoor unit.

**Evaporator temp. shift (Function No.11)**

Setting value	Shift value (°C)	Evaporator temp. (°C)
00	±0	7.2
01	+2	9.2
02	-2	5.2
03	-4	3.2

**Condenser temp. shift (Function No.12)**

Setting value	Shift value (°C)	Evaporator temp. (°C)	
		Other than VR-II	Only VR-II
00	±0	50	48
01	-2	48	46
02	+2	52	50
03	+4	54	52

**(ii) Select appropriate expansion valve unit based on the calculated "air conditioning capacity".**

**③ DX kit capacity and expansion valve selection**

According to the calculated air conditioning capacity, perform the capacity setting (SW) on the control unit of DX kit and expansion valve (EEV unit) selection.

Written airflow is reference only, and strict observance is not required.

Model name		UTP-VX30A			UTP-VX60A			UTP-VX90A		UTP-VX90A x 2	
Connectable capacity class		5	6.3	8	10	12.5	14	20	25	40	50
Rated capacity [kW]	Cooling	5.6	6.3	8.0	10.0	12.5	14.0	22.4	25.0	40.0	50.4
	Heating	6.3	7.1	9.0	11.2	14.0	16.0	25.0	28.0	45.0	56.5
Capacity range [kW]	Cooling	5.1-5.9	6.0-7.1	7.2-9.0	9.1-11.1	11.2-13.2	13.3-18.0	18.1-23.7	23.8-28.0	28.1-44.7	44.8-50.4
	Heating	5.7-6.7	6.8-8.0	8.1-10.0	10.1-12.4	12.5-15.0	15.1-20.0	20.1-26.5	26.6-31.5	31.6-49.9	50.0-56.5
Airflow (Reference) [m <sup>3</sup> /h]		1060	1200	1520	1600	2000	2240	3560	4000	6400	8000

**(iii) Select appropriate outdoor unit based on the calculated "heat exchanger capacity", "air conditioning load", and "designed system".**

**④ Outdoor unit selection**

According to the heat exchanger capacity (\*1) of generic indoor unit to be used, select appropriate outdoor unit with considering following limitations.

\*1: Calculation of heat exchanger capacity

Heat exchanger capacity = (Cross-section of hairpin) × (Width of heat exchanger) × (Number of hairpins)

(Cross-section of hairpin) =  $\pi \times (\text{Internal diameter of hairpin})^2$

(Number of hairpin) = (Row) × (Stage)





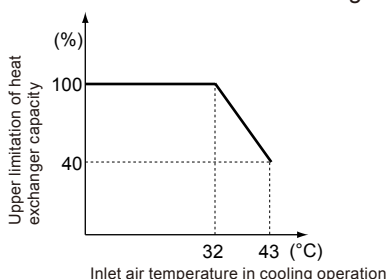
1) For connection of only generic indoor unit(s)

- Exchanger capacity of connecting generic indoor unit must be within the "Capacity range of connectable heat exchanger" mentioned in table below.
- Calculated capacity of connecting generic indoor unit must be higher than 50% or more, and lower than 100% or less of rated capacity for the outdoor unit.

Series	Capacity *2	Rated capacity [kW]	Capacity range of connectable heat exchanger [cm <sup>3</sup> ]	
			Min.	Max. *3
J-IIS	4HP	12.1	1000	4150
	5HP	14.0	1150	4800
	6HP	15.1	1250	5200
J-II	4HP	12.1	850	4500
	5HP	14.0	950	5200
	6HP	15.5	1050	5750
V-II	8HP	22.4	1350	9400
	10HP	28.0	1650	11750
	12HP	33.5	2000	14050
	14HP	40.0	2400	16800
	16HP	45.0	2700	18900
VR-II	8HP	22.4	1350	9650
	10HP	28.0	1650	12100
	12HP	33.5	2000	14450
	14HP	40.0	2400	17250
	16HP	45.0	2700	19450

\*2: In additional installation of outdoor unit(s), total amount of all outdoor unit capacity will be the limited range.

\*3: When the inlet air temperature in cooling operation exceeds 32 °C, the capacity of connectable heat exchanger decreases as shown in the figure below.



Series	capacity	Rated capacity [kW]	Capacity range of connectable heat exchanger [cm <sup>3</sup> ]											
			Inlet temperature											
			32 °C or less	33 °C	34 °C	35 °C	36 °C	37 °C	38 °C	39 °C	40 °C	41 °C	42 °C	43 °C
J-IIS	4HP	12.1	4150	3950	3700	3450	3250	3000	2800	2550	2350	2100	1900	1650
	5HP	14.0	4800	4550	4300	4050	3750	3500	3250	2950	2700	2450	2200	1900
	6HP	15.1	5200	4900	4650	4350	4050	3750	3500	3200	2900	2650	2350	2050
J-II	4HP	12.1	4500	4250	4000	3750	3500	3250	3000	2750	2500	2250	2050	1800
	5HP	14.0	5200	4900	4650	4350	4050	3800	3500	3200	2900	2650	2350	2050
	6HP	15.5	5750	5450	5100	4800	4500	4200	3850	3550	3250	2900	2600	2300
V-II	8HP	22.4	9400	8850	8350	7850	7350	6800	6300	5800	5300	4750	4250	3750
	10HP	28.0	11750	11100	10450	9800	9150	8550	7900	7250	6600	5950	5300	4700
	12HP	33.5	14050	13250	12500	11750	10950	10200	9450	8650	7900	7150	6350	5600
	14HP	40.0	16800	15850	14950	14000	13100	12200	11300	10350	9450	8550	7600	6700
	16HP	45.0	18900	17850	16800	15800	14750	13700	12700	11650	10650	9600	8550	7550
VR-II	8HP	22.4	9650	9150	8600	8050	7550	7000	6500	5950	5450	4900	4400	3850
	10HP	28.0	12100	11400	10750	10100	9450	8800	8100	7450	6800	6150	5500	4800
	12HP	33.5	14450	13650	12850	12100	11300	10500	9700	8900	8150	7350	6550	5750
	14HP	40.0	17250	16300	15400	14450	13500	12550	11600	10650	9700	8800	7850	6900
	16HP	45.0	19450	18350	17300	16250	15200	14100	13050	12000	10950	9900	8800	7750

- 2) For mixed connection of generic indoor unit(s) and VRF indoor unit(s) in same refrigerant circuit
- Exchanger capacity of connecting generic indoor unit must be within the "Capacity range of connectable heat exchanger" mentioned in table below.
  - Calculated capacity of connecting generic indoor unit must be higher than 50% or more, and lower than 100% or less of rated capacity for the outdoor unit.
  - The capacity of "DX kit" should be less than 30% of the outdoor unit capacity.

Series	Capacity	Rated capacity [kW]	Min. *3	Capacity range of connectable heat exchanger [cm <sup>3</sup> ]											
				Max. (Inlet temperature)											
				32 °C or less	33 °C	34 °C	35 °C	36 °C	37 °C	38 °C	39 °C	40 °C	41 °C	42 °C *1	43 °C *1
J-IIS	4HP	12.1	Prohibited												
	5HP	14.0													
	6HP	15.1													
J-II	4HP	12.1	Prohibited												
	5HP	14.0													
	6HP	15.5													
V-II	8HP	22.4	900	2800	2650	2500	2350	2200	2050	1850	1700	1550	1400	1400	1400
	10HP	28.0	1100	3500	3300	3100	2950	2750	2550	2350	2150	1950	1750	1750	1750
	12HP	33.5	1350	4200	3950	3750	3500	3250	3050	2800	2600	2350	2100	2100	2100
	14HP	40.0	1600	5000	4750	4450	4200	3900	3650	3350	3100	2800	2550	2550	2550
	16HP	45.0	1800	5650	5350	5050	4700	4400	4100	3800	3500	3150	2850	2850	2850
VR-II	8HP	22.4	900	2900	2700	2550	2400	2250	2100	1950	1750	1600	1450	1450	1450
	10HP	28.0	1100	3600	3400	3200	3000	2800	2600	2400	2200	2000	1800	1800	1800
	12HP	33.5	1350	4300	4100	3850	3600	3350	3150	2900	2650	2400	2200	2200	2200
	14HP	40.0	1600	5150	4900	4600	4300	4050	3750	3450	3200	2900	2600	2600	2600
	16HP	45.0	1800	5800	5500	5150	4850	4550	4200	3900	3600	3250	2950	2950	2950

\*1: In mixed connection under situations where the inlet air temperature is 42 °C or more, the air conditioning capacity might become insufficient.

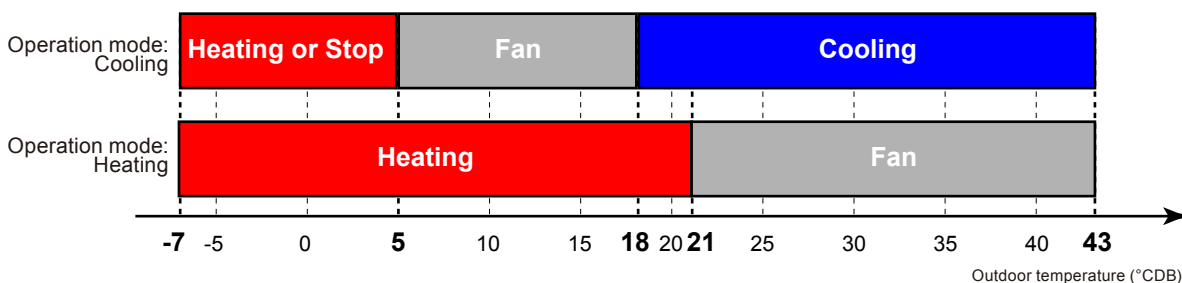
\*2: When performing the mixed connection with VRF indoor unit whose rated capacity is 1.1 kW (4000 Btu/h), calculate the upper limit of heat exchanger capacity for the generic indoor unit by using following formula, and use heat exchanger capacity satisfy both of the calculation result and the limitation in the table above.  
 (Maximum heat exchanger capacity of generic indoor unit [cm<sup>3</sup>]) = (Cooling capacity of generic indoor unit) × 250 cm<sup>3</sup>/kW

\*3: In mixed connection of indoor units, some combinations ease the limitation. (For the explicit capacity, calculate by using the design simulator.)

## ● Operation limit

[Condition]

Constructing without an external controlling device (when controlling by using Fujitsu General remote controller), and performing outlet temperature control  
(SET3-1="OFF" and SET3-3="OFF") or (SET3-1="ON", SET3-2="OFF" and SET3-3="OFF")



Operation mode	Details
Cooling	When the intake air temperature is under 18°C, the unit will turn the thermostat off. If the intake air temperature is under 5°C, the unit will force start heating operation. *If the heating operation cannot be started, the unit will conduct protective stop (Thermostat off, Fan off) to prevent frost and so on.
Heating	When the intake air temperature is over 21°C, the unit will turn the thermostat off. If the intake air temperature is under -7°C, the unit will conduct protective stop (Thermostat off, Fan off). *When operating conditions are under -7°C, pretreat the air by installing a heater in front of the air intake opening.
Fan	If the intake air temperature is under 5°C, the unit will force start heating operation. *If the heating operation cannot be started, the unit will conduct protective stop (Thermostat off, Fan off) to prevent frost and so on.

NOTE: intake air temperature = outdoor temperature.

When connecting J-II series, the upper-limit temperature of cooling operation becomes 40°C.

## 9. SYSTEM DESIGN

### 9-1. REFRIGERANT SYSTEM

#### ■ CONNECTABLE OUTDOOR UNIT LINE UP

Outdoor unit	DX kit (EEV unit)				Connectable number of unit *1	
	VX30A	VX60A	VX90A	VX90A x 2	DX kit only	DX kit + VRF indoor unit
VR-II series	○	○	○	✕	1 to Max. 26 units	2 to Max. 64 units
V-II series	○	○	○	○	1 to Max. 26 units	2 to Max. 48 units
J-II series	○	○	✕	✕	1 to Max. 3 units	Prohibited *2
J-IIS series	○	○	✕	✕	1 to Max. 2 units	Prohibited *2

\*1: Maximum number of connectable unit (DX kit and indoor unit) are different according to the capacity of outdoor unit in each series.

\*2: Mixed connection of DX kit and VRF indoor unit to J-II series and J-IIS series is prohibited.

#### ■ CONNECTABLE UNIT WITHIN 1 REFRIGERANT SYSTEM

Unit	Connectable cooling capacity range	Remarks
Only DX kit	50% to 100%	-
DX kit + VRF indoor unit	50% to 100%	The capacity of "DX kit" should be <b><u>less than 30%</u></b> of the outdoor unit capacity.

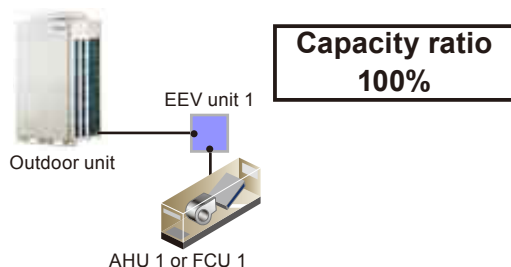
●The total capacity of "DX kit" + "VRF indoor unit" should be 50% to 100% of outdoor unit cooling capacity.  
(In case of using only "DX kit", it is same.)

●The capacity of "DX kit" should be less than 30% of the outdoor unit capacity.

## 9-1-1. EXAMPLE OF REFRIGERANT SYSTEM

### ■ HEAT PUMP TYPE

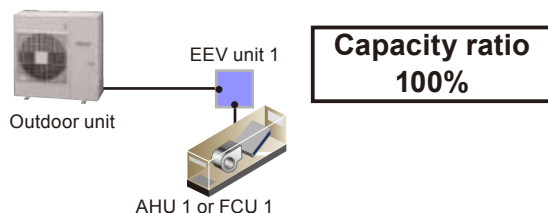
#### ● Example 1 (OK)



AHU: Air Handling Unit  
FCU: Fan Coil Unit

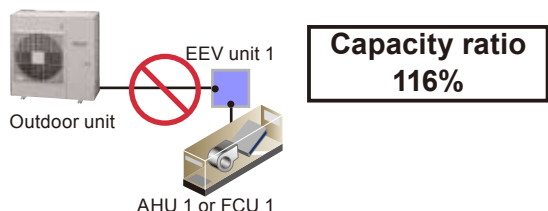
	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*A72L	22.4	22.4	② 50%	③ 100%	② ≤ ① ≤ ③ 11.2 < 22.4 ≤ 22.4 → OK
AHU 1 or FCU 1	-	22.4	① 22.4	11.2	22.4	
EEV unit 1	VX90A	-	① 22.4	② 18.1	③ 28.0	② ≤ ① ≤ ③ 18.1 < 22.4 < 28.0 → OK

#### ● Example 2 (OK)



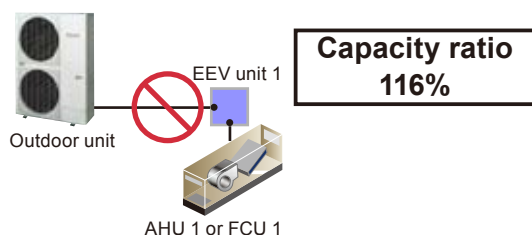
	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit (J-IIS)	AJ*045L	14.0	14.0	② 50%	③ 100%	② ≤ ① ≤ ③ 7.0 < 14.0 ≤ 14.0 → OK
AHU 1 or FCU 1	-	14.0	① 14.0	7.0	14.0	
EEV unit 1	VX60A	-	① 14.0	② 9.1	③ 18.0	② ≤ ① ≤ ③ 9.1 < 14.0 < 18.0 → OK

#### ● Example 3 (Prohibited)



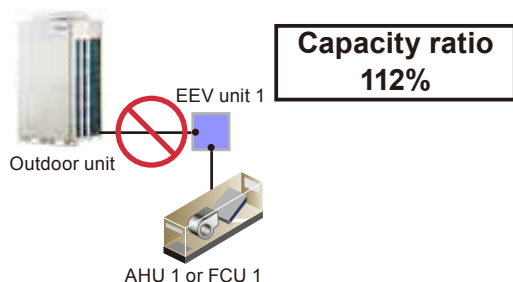
	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit (J-IIS)	AJ*040L	12.1	12.1	② 50%	③ 100%	③ < ① 12.1 < 14.0 → Prohibited
AHU 1 or FCU 1	-	14.0	① 14.0	6.1	12.1	
EEV unit 1	VX60A	-	① 14.0	② 9.1	③ 18.0	② ≤ ① ≤ ③ 9.1 < 14.0 < 18.0 → OK

### ● Example 4 (Prohibited)



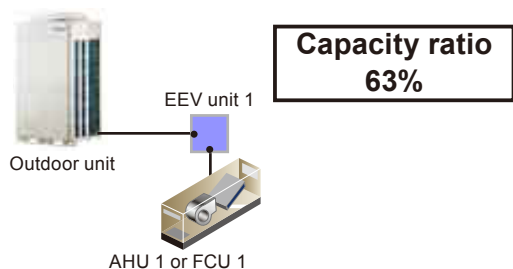
	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit (J-II)	AJ*A40L	12.1	12.1	② 50%	③ 100%	③ < ① 12.1 < 14.0 → Prohibited
AHU 1 or FCU 1	-	14.0	① 14.0	6.1	12.1	
EEV unit 1	VX60A	-	① 14.0	② 9.1	③ 18.0	② ≤ ① ≤ ③ 9.1 < 14.0 < 18.0 → OK

### ● Example 5 (Prohibited)



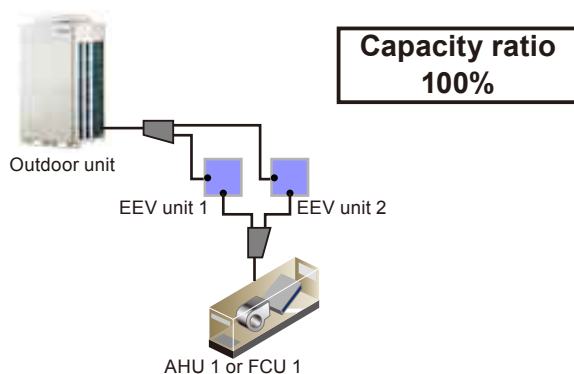
	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*A72L	22.4	22.4	② 50%	③ 100%	③ < ① 22.4 < 25.0 → Prohibited
AHU 1 or FCU 1	-	25.0	① 25.0	11.2	22.4	
EEV unit 1	VX90A	-	① 25.0	② 18.1	③ 28.0	② ≤ ① ≤ ③ 18.1 < 25.0 < 28.0 → OK

### ● Example 6 (OK)



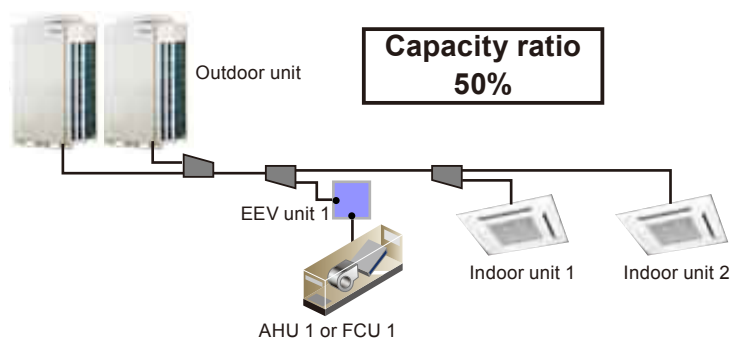
	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*A72L	22.4	22.4	② 50%	③ 100%	② ≤ ① ≤ ③ 11.2 < 14.0 < 22.4 → OK
AHU 1 or FCU 1	-	14.0	① 14.0	11.2	22.4	
EEV unit 1	VX60A	-	① 14.0	② 9.1	③ 18.0	② ≤ ① ≤ ③ 9.1 < 14.0 < 18.0 → OK

### ● Example 7 (OK)



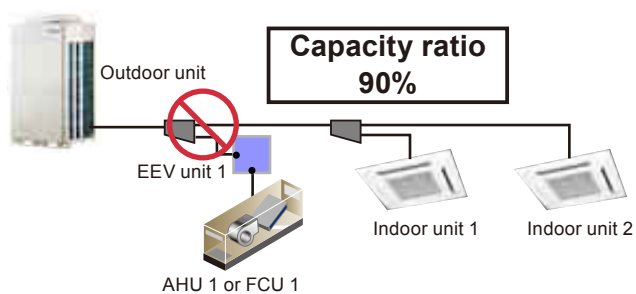
	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*126L	40.0	40.0	② 50%	③ 100%	$② \leq ① \leq ③$ $20.0 < 40.0 \leq 40.0 \rightarrow \text{OK}$
AHU 1 or FCU 1	-	40.0	① 40.0	20.0	40.0	
EEV unit 1 + 2	VX90A x 2	-	① 40.0	② 28.1	③ 50.4	$② \leq ① \leq ③$ $28.1 < 40.0 \leq 50.4 \rightarrow \text{OK}$

### ● Example 8 (OK)



	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*162L	50.4	50.4	② 50%  25.2	③ 100%  50.4	② ≤ ① ≤ ③  25.2 ≤ 25.2 < 50.4 → OK  Capacity ratio of AHU 1. is 14.0/50.4=28% ≤ 30%→ OK
AHU 1 or FCU 1	-	14.0	① 25.2			
Indoor unit 1	AUXB18	5.6				
Indoor unit 2	AUXB18	5.6				
EEV unit 1	VX60A	-	① 14.0	② 9.1	③ 18.0	② ≤ ① ≤ ③  9.1 < 14.0 < 18.0 → OK

## ● Example 9 (Prohibited)

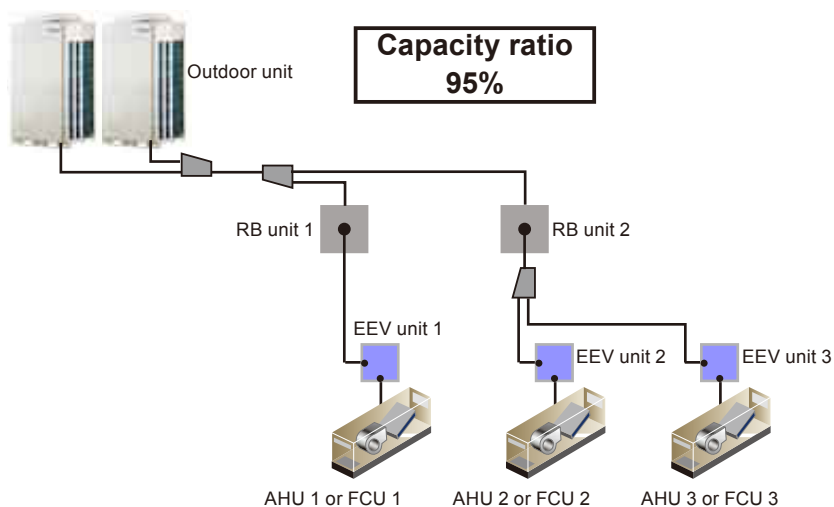


	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*A90L	28.0	28.0	② 50% 14.0	③ 100% 28.0	② ≤ ① ≤ ③ 14.0 < 25.2 < 28.0 → OK Capacity ratio of AHU 1 is 14.0/28.0=50% > 30%→ Prohibited
AHU 1 or FCU 1	-	14.0	① 25.2			
Indoor unit 1	AUXB18	5.6				
Indoor unit 2	AUXB18	5.6				
EEV unit 1	VX60A	-	① 14.0	② 9.1	③ 18.0	② ≤ ① ≤ ③ 9.1 < 14.0 < 18.0 → OK



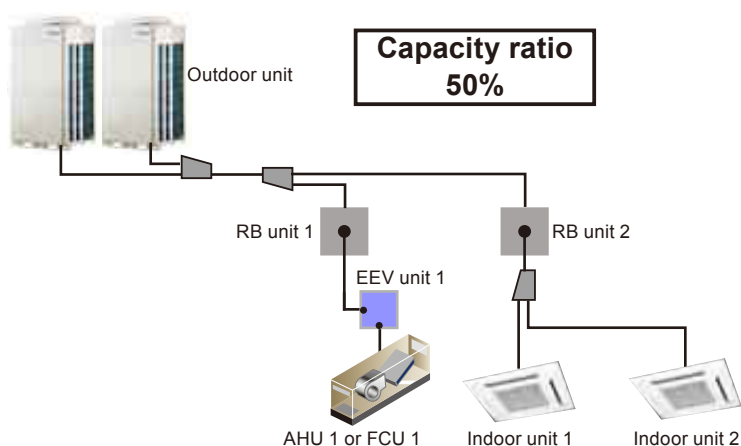
## ■ HEAT RECOVERY TYPE

### ● Example 10 (OK)



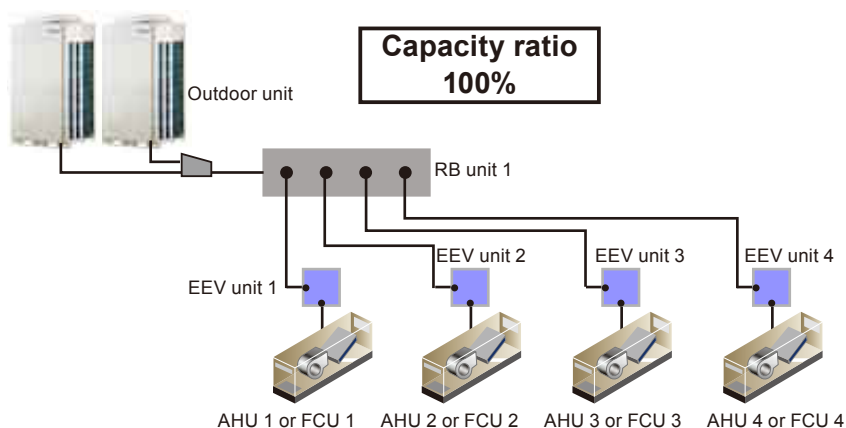
	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*180G	56.0	56.0	② 50% 28.0	③ 100% 56.0	②≤ ①≤ ③ 28.0 < 53.0 < 56.0→ OK
AHU 1 or FCU 1	-	25.0	① 53.0			
AHU 2 or FCU 2	-	14.0				
AHU 3 or FCU 3	-	14.0				
RB unit 1	RX01CH	-	①25.0	②2.2	③28.0	②≤ ①≤ ③ 2.2 < 25.0 < 28.0→ OK
RB unit 2	RX01CH	-	①28.0	②2.2	③28.0	②≤ ①≤ ③ 2.2 < 28.0 ≤ 28.0→ OK
EEV unit 1	VX90A	-	① 25.0	② 18.1	③ 28.0	②≤ ①≤ ③ 18.1 < 25.0 < 28.0 → OK
EEV unit 2	VX60A	-	① 14.0	② 9.1	③ 18.0	②≤ ①≤ ③ 9.1 < 14.0 < 18.0 → OK
EEV unit 3	VX60A	-	① 14.0	② 9.1	③ 18.0	②≤ ①≤ ③ 9.1 < 14.0 < 18.0 → OK

# ● Example 11 (OK)



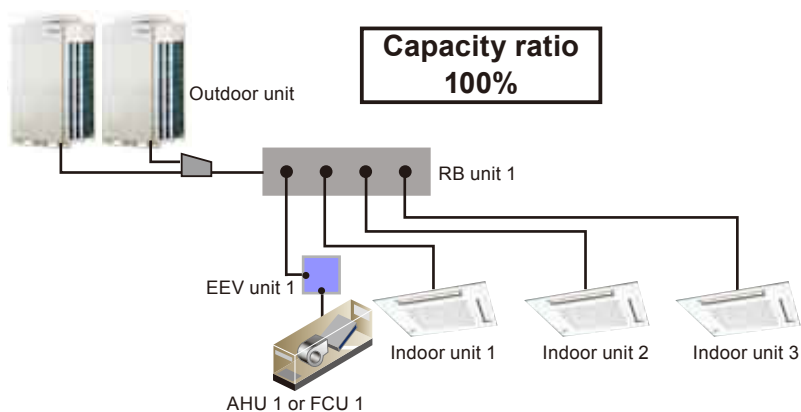
	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*180G	56.0	56.0	② 50% 28.0	③ 100% 56.0	②≤ ①≤ ③ 28.0 < 28.2 < 56.0→ OK Capacity ratio of AHU 1. is 14.0/56.0=25% < 30%→ OK
AHU 1 or FCU 1	-	14.0	① 28.2			
Indoor unit 1	AUXB24	7.1				
Indoor unit 2	AUXB24	7.1				
RB unit 1	RX01BH	-	①14.0	②2.2	③18.0	②≤ ①≤ ③ 2.2 < 14.0 < 18.0→ OK
RB unit 2	RX01BH	-	①14.2	②2.2	③18.0	②≤ ①≤ ③ 2.2 < 14.2 < 18.0→ OK
EEV unit 1	VX60A	-	① 14.0	② 9.1	③ 18.0	②≤ ①≤ ③ 9.1 < 14.0 < 18.0 → OK

# ● Example 12 (OK)



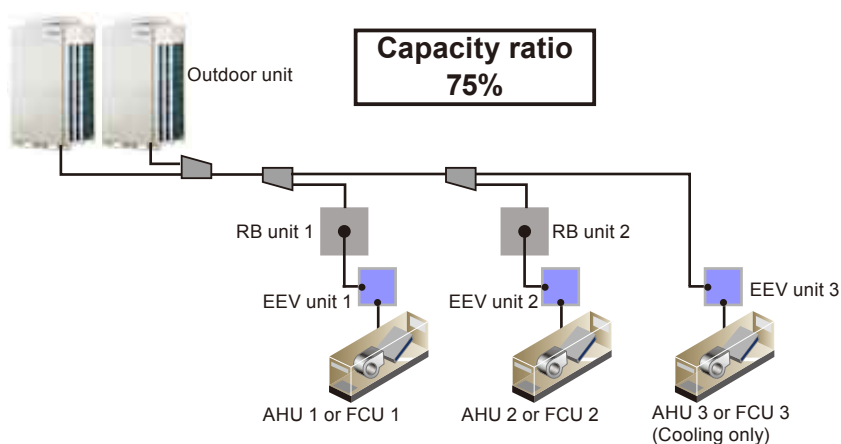
	Model	Cooling Capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*180G	56.0	56.0	② 50% 28.0	③ 100% 56.0	② ≤ ① ≤ ③ 28.0 < 56.0 ≤ 56.0 → OK
AHU 1 or FCU 1	-	14.0	① 56.0			
AHU 2 or FCU 2	-	14.0				
AHU 3 or FCU 3	-	14.0				
AHU 4 or FCU 4	-	14.0				
RB unit 1	RX04BH	-	① 56.0	② 6.6	③ 56.0	② ≤ ① ≤ ③ 6.6 < 56.0 ≤ 56.0 → OK
			① 14.0	② 2.2	③ 18.0	② ≤ ① ≤ ③ 2.2 < 14.0 < 18.0 → OK
			① 14.0	② 2.2	③ 18.0	
			① 14.0	② 2.2	③ 18.0	
			① 14.0	② 2.2	③ 18.0	
EEV unit 1	VX60A	-	① 14.0	② 9.1	③ 18.0	② ≤ ① ≤ ③ 9.1 < 14.0 < 18.0 → OK
EEV unit 2	VX60A	-	① 14.0	② 9.1	③ 18.0	② ≤ ① ≤ ③ 9.1 < 14.0 < 18.0 → OK
EEV unit 3	VX60A	-	① 14.0	② 9.1	③ 18.0	② ≤ ① ≤ ③ 9.1 < 14.0 < 18.0 → OK
EEV unit 4	VX60A	-	① 14.0	② 9.1	③ 18.0	② ≤ ① ≤ ③ 9.1 < 14.0 < 18.0 → OK

### ● Example 13 (OK)



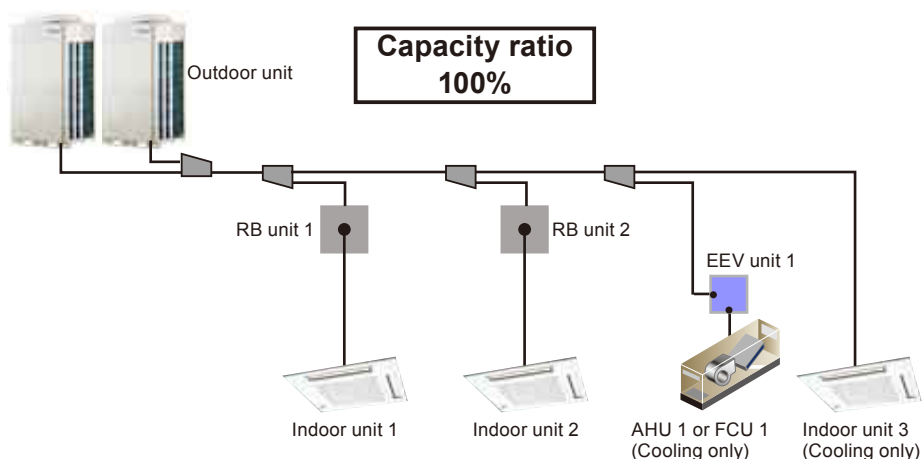
	Model	Cooling Capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*180G	56.0	56.0	② 50%  28.0	③ 100%  56.0	② ≤ ① ≤ ③  28.0 < 56.0 ≤ 56.0 → OK  Capacity ratio of AHU 1 is 14.0/56.0=25% < 30%→ OK
AHU 1 or FCU 1	-	14.0	①  56.0			
Indoor unit 1	AUXA54	14.0				
Indoor unit 2	AUXA54	14.0				
Indoor unit 3	AUXA54	14.0				
RB unit 1	RX04BH	-	①56.0	②6.6	③56.0	② ≤ ① ≤ ③ 6.6 < 56.0 ≤ 56.0 → OK
			①14.0	②2.2	③18.0	② ≤ ① ≤ ③ 2.2 < 14.0 < 18.0 → OK
			①14.0	②2.2	③18.0	
			①14.0	②2.2	③18.0	
			①14.0	②2.2	③18.0	
EEV unit 1	VX60A	-	① 14.0	② 9.1	③ 18.0	② ≤ ① ≤ ③ 9.1 < 14.0 < 18.0 → OK

# ● Example 14 (OK)



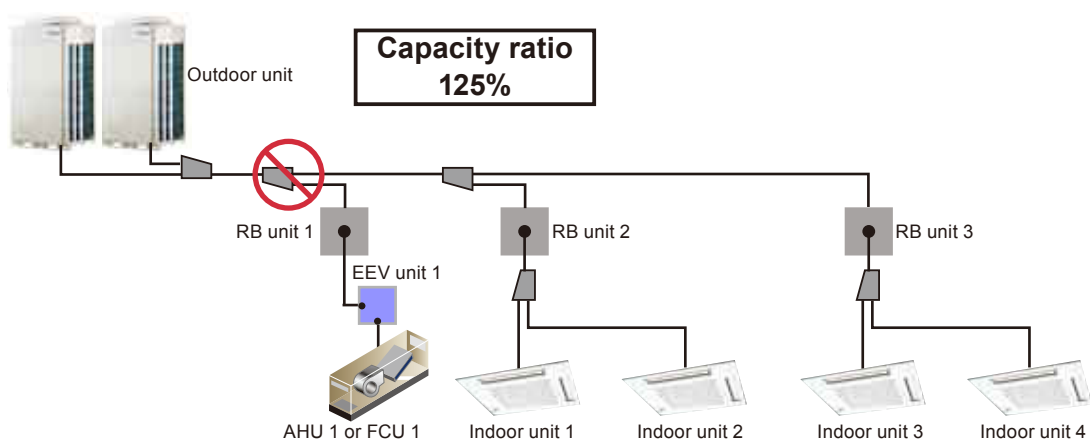
	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*180G	56.0	56.0	② 50% 28.0	③ 100% 56.0	② ≤ ① ≤ ③ 28.0 < 42.0 < 56.0 → OK Capacity ratio of Cooling only type is 14.0/42.0=33% < 50% → OK
AHU 1 or FCU 1	-	14.0	① 42.0			
AHU 2 or FCU 2	-	14.0				
AHU 3 or FCU 3	-	14.0				
RB unit 1	RX01BH	-	①14.0	②2.2	③18.0	② ≤ ① ≤ ③ 2.2 < 14.0 < 18.0 → OK
RB unit 2	RX01BH	-	①14.0	②2.2	③18.0	② ≤ ① ≤ ③ 2.2 < 14.0 < 18.0 → OK
EEV unit 1	VX60A	-	① 14.0	② 9.1	③ 18.0	② ≤ ① ≤ ③ 9.1 < 14.0 < 18.0 → OK
EEV unit 2	VX60A	-	① 14.0	② 9.1	③ 18.0	② ≤ ① ≤ ③ 9.1 < 14.0 < 18.0 → OK
EEV unit 3	VX60A	-	① 14.0	② 9.1	③ 18.0	② ≤ ① ≤ ③ 9.1 < 14.0 < 18.0 → OK

# ● Example 15 (OK)



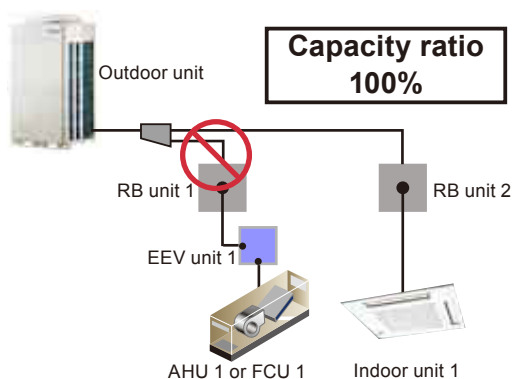
	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*180G	56.0	56.0	② 50% 28.0	③ 100% 56.0	② ≤ ① ≤ ③ 28.0 < 56.0 ≤ 56.0 → OK Capacity ratio of AHU 1. is 14.0/56.0=25% < 30% → OK Capacity ratio of Cooling only type is 28.0/56.0=50% ≤ 50% → OK
Indoor unit 1	AUXA54	14.0	① 56.0			
Indoor unit 2	AUXA54	14.0				
AHU 1 or FCU 1	-	14.0				
Indoor unit 3	AUXA54	14.0				
RB unit 1	RX01BH	-	①14.0	②2.2	③18.0	② ≤ ① ≤ ③ 2.2 < 14.0 < 18.0 → OK
RB unit 2	RX01BH	-	①14.0	②2.2	③18.0	② ≤ ① ≤ ③ 2.2 < 14.0 < 18.0 → OK
EEV unit 1	VX60A	-	① 14.0	② 9.1	③ 18.0	② ≤ ① ≤ ③ 9.1 < 14.0 < 18.0 → OK

## ● Example 16 (Prohibited)



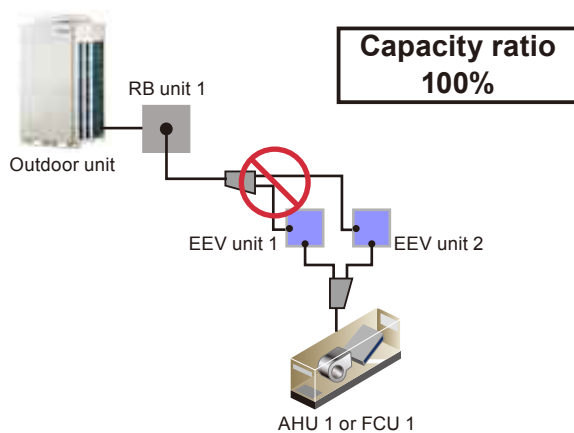
	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*180G	56.0	56.0	② 50% 28.0	③ 100% 56.0	③<① 56.0 < 70.0 → Prohibited Capacity ratio of AHU 1. is 14.0/56.0=25% < 30%→ OK
AHU 1 or FCU 1	-	14.0	① 70.0			
Indoor unit 1	AUXA54	14.0				
Indoor unit 2	AUXA54	14.0				
Indoor unit 3	AUXA54	14.0				
Indoor unit 4	AUXA54	14.0				
RB unit 1	RX01BH	-	①14.0	②2.2	③18.0	②≤ ①≤ ③ 2.2 < 14.0 < 18.0→ OK
RB unit 2	RX01CH	-	①28.0	②2.2	③28.0	②≤ ①≤ ③ 2.2 < 28.0 ≤ 28.0→ OK
RB unit 3	RX01CH	-	①28.0	②2.2	③28.0	②≤ ①≤ ③ 2.2 < 28.0 ≤ 28.0→ OK
EEV unit 1	VX60A	-	① 14.0	② 9.1	③ 18.0	②≤ ①≤ ③ 9.1 < 14.0 < 18.0 → OK

## ● Example 17 (Prohibited)



	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*A90G	28.0	28.0	② 50% 14.0	③ 100% 28.0	② ≤ ① ≤ ③ 14.0 < 28.0 ≤ 28.0 → OK Capacity ratio of AHU 1 is 14.0/28.0=50% > 30% → Prohibited
AHU 1 or FCU 1	-	14.0	① 28.0			
Indoor unit 1	AUXA54	14.0				
RB unit 1	RX01BH	-	① 14.0	② 2.2	③ 18.0	② ≤ ① ≤ ③ 2.2 < 14.0 < 18.0 → OK
RB unit 2	RX01BH	-	① 14.0	② 2.2	③ 18.0	② ≤ ① ≤ ③ 2.2 < 14.0 < 18.0 → OK
EEV unit 1	VX60A	-	① 14.0	② 9.1	③ 18.0	② ≤ ① ≤ ③ 9.1 < 14.0 < 18.0 → OK

## ● Example 18 (Prohibited)

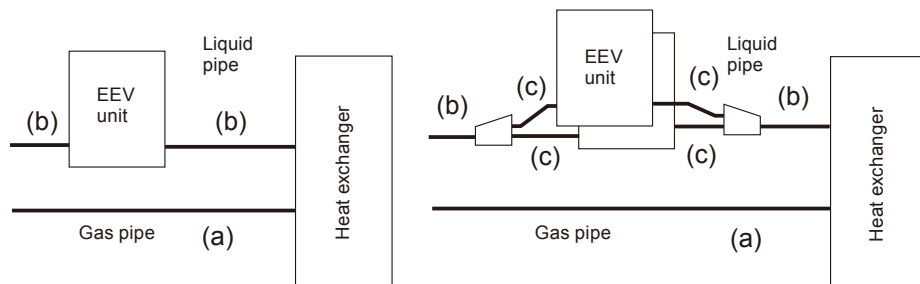


	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*126G	40.0	40.0	② 50%	③ 100%	$② \leq ① \leq ③$ $20.0 < 40.0 \leq 40.0 \rightarrow \text{OK}$
AHU 1 or FCU 1	-	40.0	① 40.0	20.0	40.0	
RB unit 1	RX01CH	-	① 40.0	② 2.2	③ 28.0	$③ < ①$ $28.0 < 40.0 \rightarrow \text{Prohibited}$
EEV unit 1 + 2	VX90A x 2	-	① 40.0	② 28.1	③ 50.4	$② \leq ① \leq ③$ $28.1 < 40.0 \leq 50.4 \rightarrow \text{OK}$



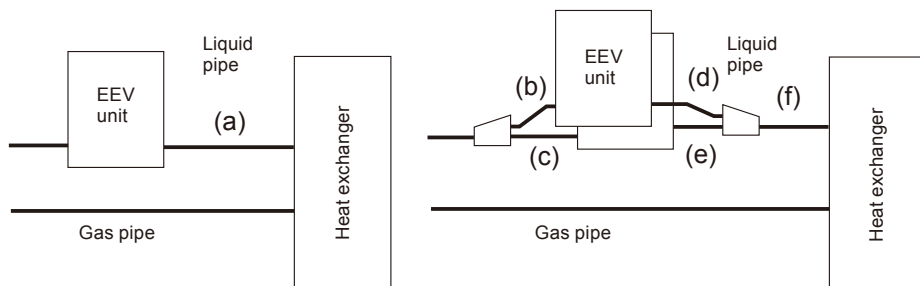
## 9-2. LIMITATION

### ■ PIPE SIZE



Capacity class (kW)		5.0	6.3	8.0	10.0	12.5	14.0	20.0	25.0	40.0	50.0
Pipe size	Gas (a) (mm)	15.88	15.88	15.88	15.88	19.05	19.05	22.22	22.22	28.58	28.58
	Liquid (b) (mm)	9.52	9.52	9.52	9.52	9.52	9.52	12.70	12.70	12.70	15.88
	Liquid (c) (mm)	-	-	-	-	-	-	-	-	12.70	12.70

### ■ PIPE LENGTH



Pipe length	(a)	5 m or less
	(b)	2 m or less
	(c)	2 m or less
	(d)	2 m or less
	(e)	2 m or less
	(d)+(f)	5 m or less
	(e)+(f)	5 m or less

## 9-3. VRF NETWORK SYSTEM

### ■ MAXIMUM WIRING LENGTH OF VRF NETWORK SYSTEM

Transmission line	Maximum wiring length
Total wiring length of transmission	3600m
Maximum wiring length between units	400m
Total wiring length in 1 segment	500m

	VRF network system	segment
Wiring length	3600m	500m
Number of unit	400	64

### ■ THE MAXIMUM CONNECTABLE UNIT

#### ● Outdoor unit, Indoor unit and DX kit

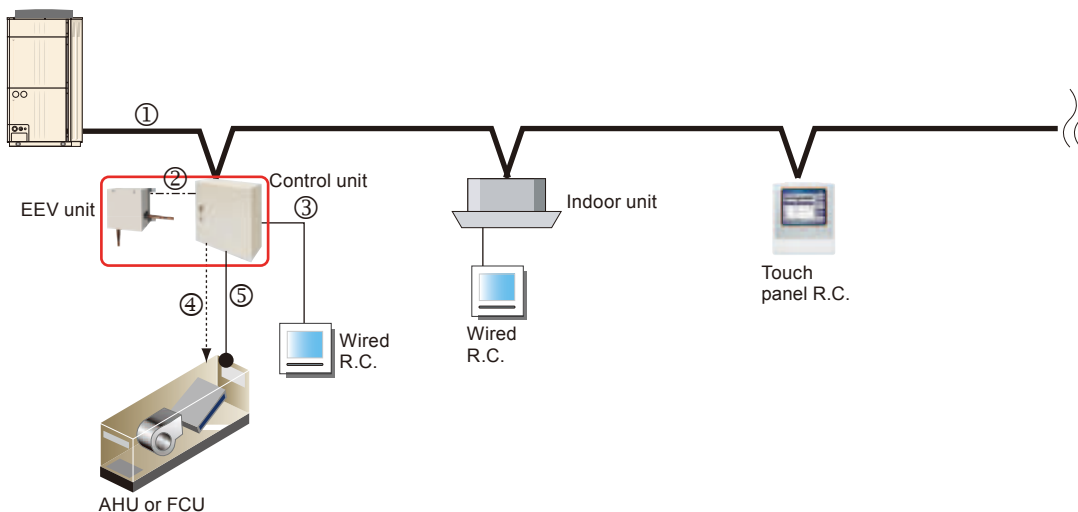
	Maximum connectable units in 1 VRF network system
Outdoor unit	100
Indoor unit & DX kit	400

## 9-4. TRANSMISSION WIRING

### ■ WIRING RULES

#### ● Case 1

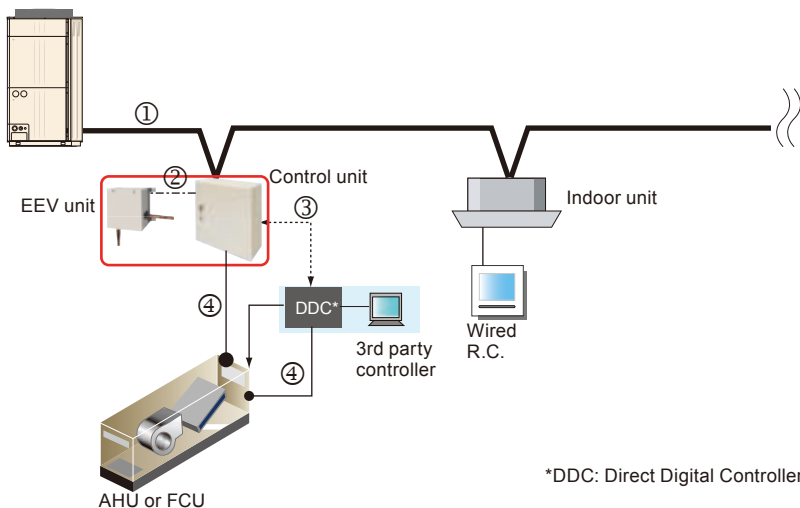
Central control using our VRF controllers.



		Cable size (mm <sup>2</sup> )	Cable type	Remarks
①	Transmission cable	0.33 (22AWG)	Twisted pair cable Non polar 2 core	Locally purchased
②	EEV cable	(24AWG)	Shielded cable	Accessory
③	Remote controller cable (2-wire type)	0.33 to 1.25 (22 to 16AWG)	Sheathed PVC cable Twisted pair cable Non polar 2 core	Locally purchased
	Remote controller cable (3-wire type)	0.33 (22AWG)	Sheathed PVC cable Polar 3 core	Accessory
④	External output	0.33 (22AWG)	Twisted pair cable	Locally purchased
⑤	Thermister			Accessory

#### ● Case 2

Central control from external controllers.

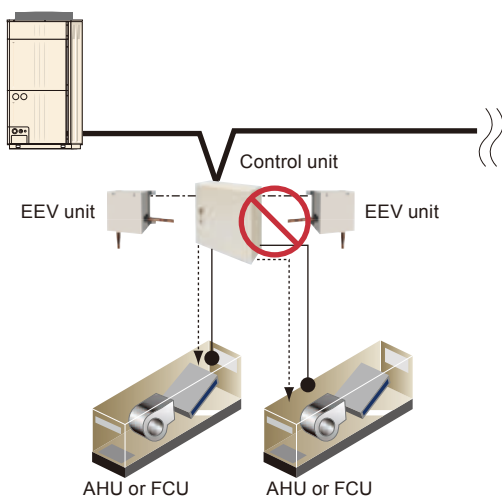


\*DDC: Direct Digital Controller

		Cable size (mm <sup>2</sup> )	Cable type	Remarks
①	Transmission cable	0.33 (22AWG)	Twisted pair cable Non polar 2 core	Locally purchased
②	EEV cable	(24AWG)	Shielded cable	Accessory
③	External input/output	0.33 (22AWG)	Twisted pair cable	Locally purchased
④	Thermister			Accessory

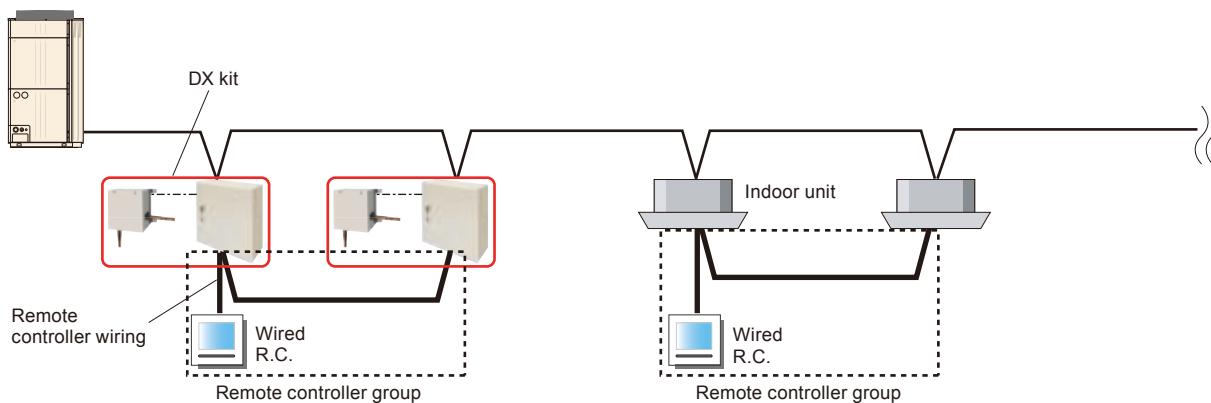
## ● Prohibited

Multiple connection of EEV unit (AHU or FCU) to one control unit is prohibited.



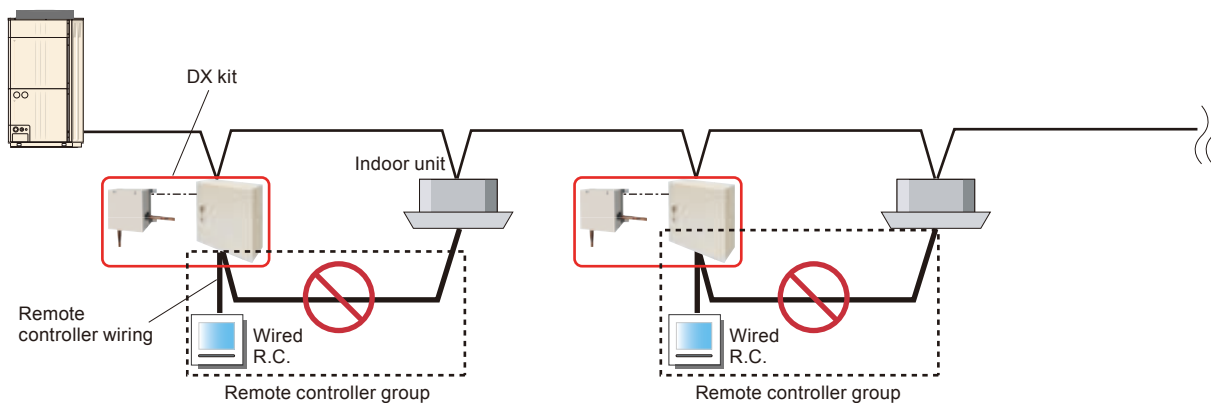
## ■ REMOTE CONTROLLER GROUP

The remote controller group can be constructed by only the DX kits or only the Indoor units.



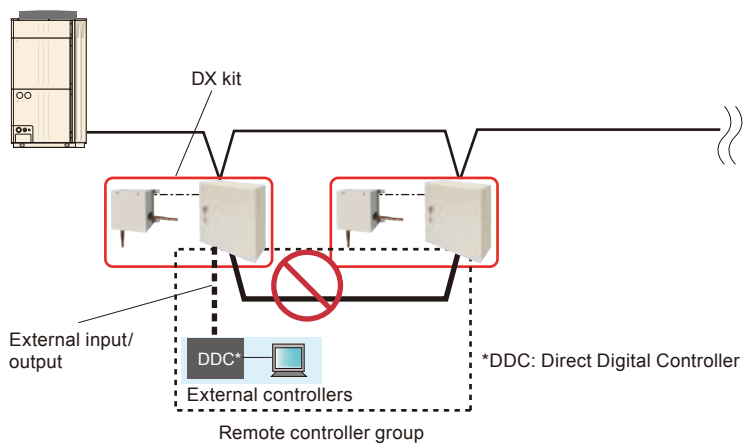
### ● Prohibited

In mixed connection of the DX kit and Indoor unit, construction of the remote controller group is prohibited.



### ● Prohibited

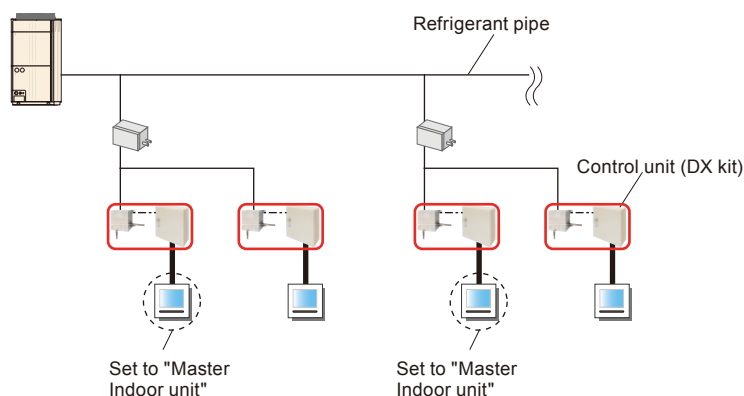
When controlling from external controllers, construction of the remote controller group is prohibited.



## ■ ADMINISTRATIVE (MASTER) INDOOR UNIT SETTING

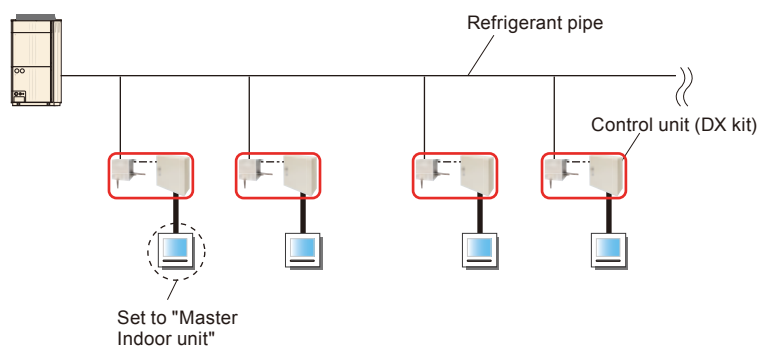
### ● Heat recovery type

Only 1 master indoor unit can be set up in 1 RB group.



### ● Heat pump type

Only 1 master indoor unit can be set up in 1 refrigerant system.



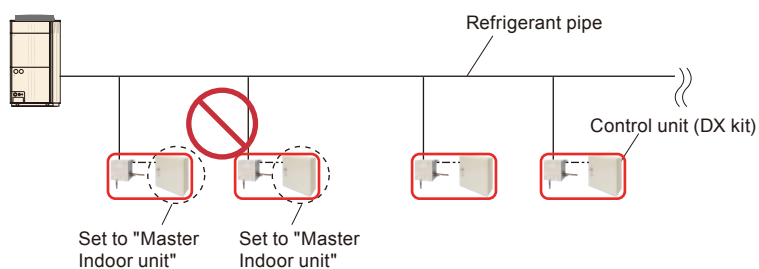
### ● NOTES

When no wired remote controller is connected, setting for master indoor unit can be made on DIP SW4-4 of DX kit. However, following settings are prohibited:

- Duplicated setting (SW setting on multiple DX kit)
- DIP SW setting while wired remote controller is connected (Setting must be done on the wired remote controller.)
- DIP SW setting while remote controller group is constructed (Setting must be done on the wired remote controller.)

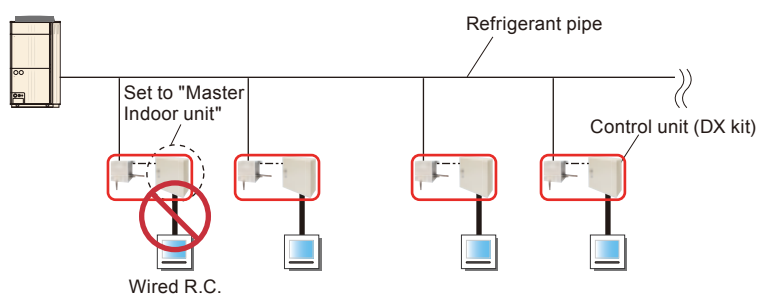
## ● Prohibited

Duplicated setting (SW setting on multiple DX kit)



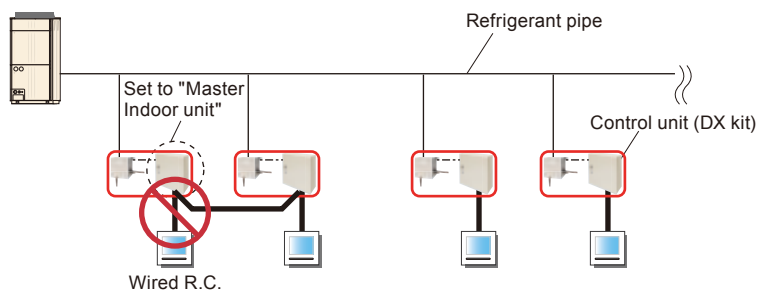
## ● Prohibited

When wired remote controller is connected, DIP SW setting is prohibited. (Setting must be done on the wired remote controller.)



## ● Prohibited

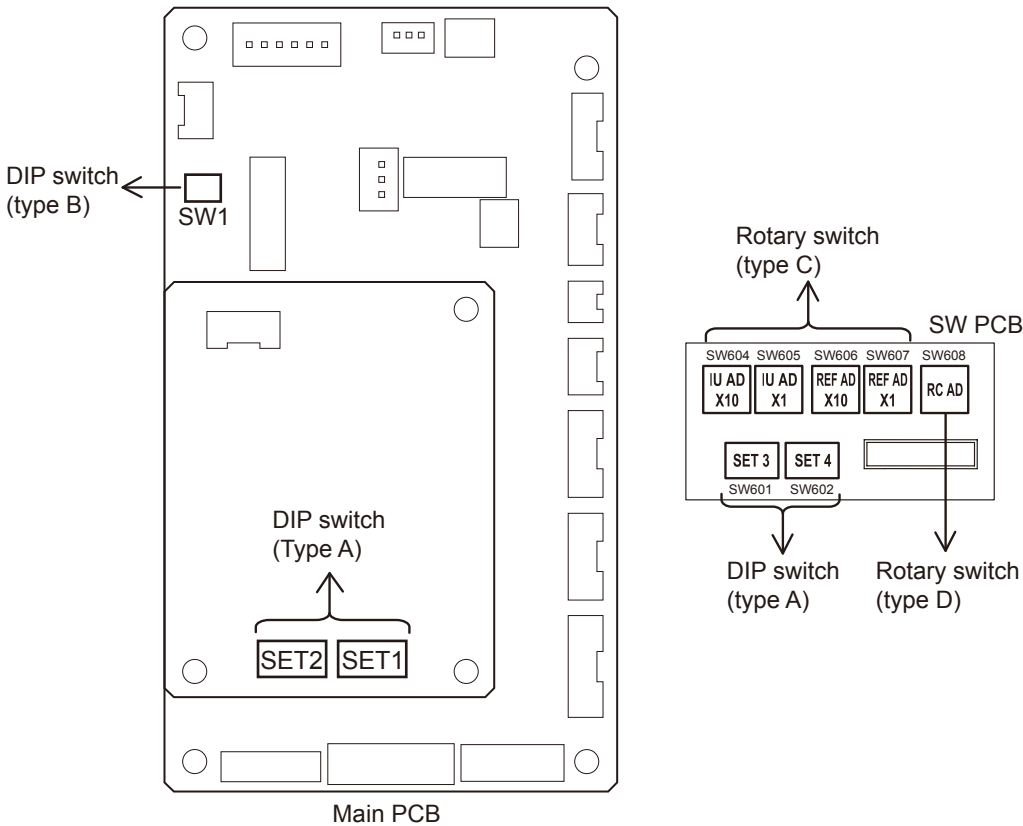
When remote controller group is constructed, DIP SW setting is prohibited. (Setting must be done on the wired remote controller.)



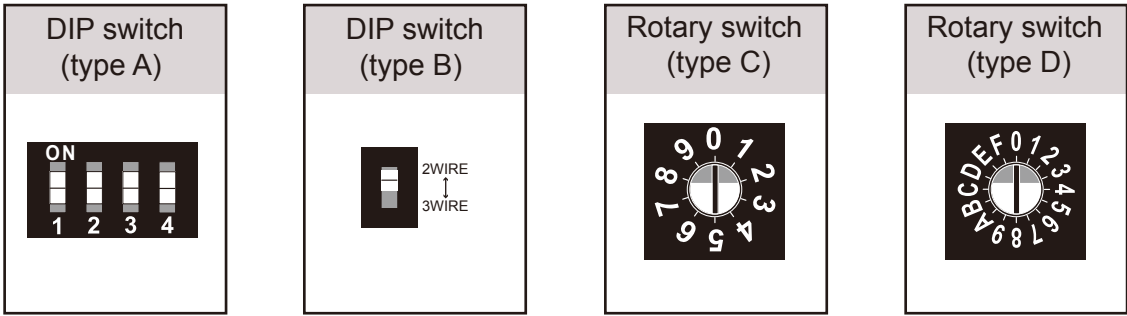
# 10. FUNCTION SETTINGS

## 10-1. SETTING BY SWITCH

### ■ SWITCH POSITION



### ■ SWITCH TYPE





## SWITCH TABLE

DIP-SW	type A	SET1	1	Capacity settings of indoor units to be controlled
			2	
			3	
			4	
		SET2	1	Setting digital input signal methods
			2	
			3	
			4	
		SET3	1	Analog external inputs methods (ON / OFF)
			2	Analog external inputs methods (Control items)
			3	AC (air conditioning.) control settings
			4	Prohibited
		SET4	1	Prohibited
			2	Prohibited
			3	RB unit bypass circuit feasibility
			4	Administrative indoor unit setting
	type B	SW1	Remote controller wire type switch	
Rotary SW	type C	IU AD x 1	Indoor unit address switch 1	
		IU AD x 10	Indoor unit address switch 2	
		REF AD x1	Refrigerant circuit address switch 1	
		REF AD x10	Refrigerant circuit address switch 2	
	type D	RC AD	Remote controller address switch	

## ■ DIP SWITCH SETTING

### ● SET1 and SET2-1 setting

#### ● Capacity settings of indoor units to be controlled

	SET1-1	SET1-2	SET1-3	SET1-4	SET2-1	Indoor unit capacity	
						Cooling	Heating
◆	ON	OFF	ON	OFF	OFF	5.1 - 5.9 kW	5.7 - 6.7 kW
	ON	OFF	ON	OFF	ON	6.0 - 7.1 kW	6.8 - 8.0 kW
	ON	ON	ON	OFF	OFF	7.2 - 9.0 kW	8.1 - 10.0 kW
	OFF	ON	ON	OFF	ON	9.1 - 11.1 kW	10.1 - 12.4 kW
	OFF	ON	OFF	ON	OFF	11.2 - 13.2 kW	12.5 - 15.0 kW
	ON	ON	OFF	ON	OFF	13.3 - 18.0 kW	15.1 - 20.0 kW
	ON	OFF	ON	ON	OFF	18.1 - 23.7 kW	20.1 - 26.5 kW
	OFF	ON	ON	ON	OFF	23.8 - 28.0kW	26.6 - 31.5 kW
	ON	OFF	OFF	ON	ON	28.1 - 44.7 kW	31.6 - 49.9 kW
	OFF	ON	OFF	ON	ON	44.8 - 50.4 kW	50.0 - 56.5 kW

NOTE: Setup other than the above is prohibited.

### ● SET2 setting

#### ● Setting digital input signal methods

(◆...Factory setting)

	SET2-2	Digital input signals format
	OFF	Edge
◆	ON	pulse

#### ● SET2-3, SET2-4 setting prohibited

(◆...Factory setting)

	SET2-3	SET2-4	
	OFF	OFF	Fixed at OFF
◆	ON	ON	Setting prohibited

## ● SET3 setting

### ● Analog external inputs methods (ON / OFF)

(◆...Factory setting)

◆	SET3-1	Analog external inputs ON/ OFF
	OFF	OFF
	ON	ON

### ● Analog external inputs methods (Control items)

(◆...Factory setting)

◆	SET3-2	Control conditions
	OFF	Operation temperature
	ON	Required operation performance

### ● AC (air conditioning.) control settings

(◆...Factory setting)

◆	SET3-3	Temperature control position
	OFF	Outlet temperature control
	ON	Inlet temperature control

### ● SET3-4 setting prohibited

(◆...Factory setting)

◆	SET3-4	
	OFF	Fixed at OFF
	ON	Setting prohibited

## ● SET4 setting

### ●RB unit bypass circuit feasibility

(◆...Factory setting)

◆	SET4-3	
	OFF	No bypass
	ON	With bypass

### ●Administrative indoor unit setting

(◆...Factory setting)

◆	SET4-4	Administrative indoor unit settings
	OFF	OFF
	ON	ON

### ●SET4-1, SET4-2 setting prohibited

(◆...Factory setting)

◆	SET4-1	SET4-2	
	OFF	OFF	Fixed at OFF
	ON	ON	Setting prohibited

## ● SW1 setting

### ●Remote controller wire type setting switch

(◆...Factory setting)

◆	SW1	Remote controller wire type
	2WIRE	2-Wire type
	3WIRE	3-Wire type

## ■ ROTARY SWITCH SETTING

### ● IU AD setting

#### ● Indoor unit address switch

Sets the indoor unit addresses.

Please see "1-3 address setting" for indoor unit address conversion table.

INDOOR UNIT ADDRESS SWITCH (Factory setting IU AD x 1: 0, IU AD x 10: 0)		
Rotary SW	Description	Remarks
IU AD x 1	Indoor unit address Switch 1	Indoor unit address (the first digit)
IU AD x 10	Indoor unit address Switch 2	Indoor unit address (the second digit)

### ● REF AD setting

#### ● Refrigerant circuit address switch

Sets the refrigerant circuit address.

Please see "1-3 address setting" for refrigerant circuit address conversion table.

REFRIGERANT CIRCUIT ADDRESS SWITCH (Factory setting REF AD x 1: 0, REF AD x 10: 0)		
Rotary SW	Description	Remarks
REF AD x 1	Refrigerant circuit address Switch 1	Refrigerant circuit address (the first digit)
REF AD x 10	Refrigerant circuit address Switch 2	Refrigerant circuit address (the second digit)

### ● RC AD setting

#### ● Remote controller address switch

When the Outdoor air unit is wired by remote controller group, to identify the Outdoor air unit in the remote controller group, the number (remote controller address) in the remote controller group is set. The remote controller group can not be constructed, when the Outdoor air unit and Indoor unit is mixed.

##### i) 3 wire type

Only for manual address setting

Set the remote controller address in the 0.1.2,~,15 order (Blank is not allowed)

REMOTE CONTROLLER ADDRESS SWITCH (Factory setting : 0)		
Rotary SW	Description	Remarks
RC AD	Remote controller address	Remote controller address

##### ii) 2 wire type

It can choose either automatic address setting or manual address setting.

① When setting the automatic address.

Set the remote controller address in the "0" only. (Factory setting is "0")

② When setting the manual address.

Set the remote controller address in the 1.2,~,15

REMOTE CONTROLLER ADDRESS SWITCH (Factory setting : 0)		
Rotary SW	Description	Remarks
RC AD	Remote controller address	Remote controller address

**Note: When setting the manual address, can not be set the "0".**

## 10-2. SETTING BY REMOTE CONTROLLER

### ■ FUNCTION DETAILS

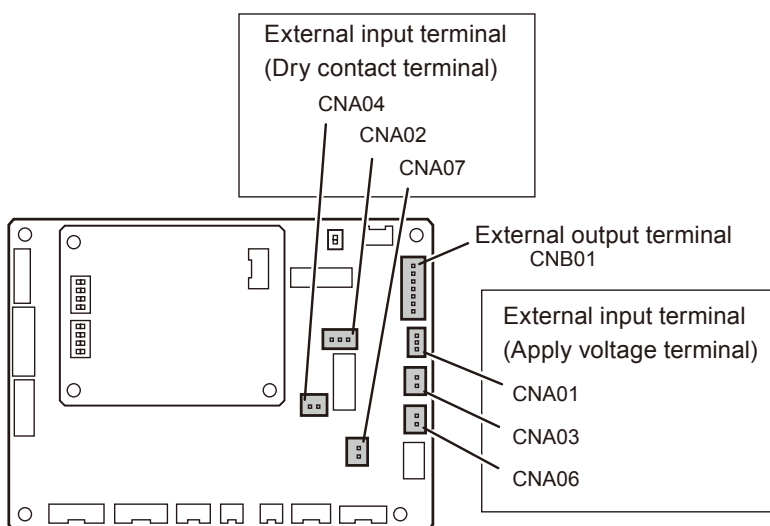
Function	Function number	Setting number		Default	Details		
Filter indicator interval	11	00	Standard (400h)	●	Adjust the filter cleaning interval notification. If the notification is too early, change to setting 01. If the notification is too late, change to setting 02.		
		01	Longer (1000h)				
		02	Shorter (200h)				
Filter indicator action	13	00	Enable		Enable or disable the filter indicator. Setting 02 is for use with a central remote control.		
		01	Disable	●			
		02	Display only on central remote control				
Auto restart	40	00	Enable		Enable or disable automatic system restart after a power outage.		
		01	Disable	●			
Cool Air Prevention	43	00	Super low		Restraining the cold airflow with making the airflow lower when starting heating operation. If using Outlet temperature control (DIP switch SET3-3: OFF) , set this function"01".		
		01	Follow the setting on the remote controller	●			
Error report target	47	00	All	●	Change the target for reporting errors. Errors can either be reported in all locations, or only on the wired remote.		
		01	Display only on central remote control				
Switching functions for external inputs and external outputs terminals	60	00	Mode 0	●	60-00	CNA01, 02	Operation / Stop
						CNA03, 04	Heating / Cooling
		01	Mode 1		60-01	CNA01, 02	Cooling operation / Stop
						CNA03, 04	Heating operation / Stop
Selecting stop operation during an external error	64	00	Mode 0	●	Thermostat off		
		01	Mode 1		Thermostat OFF + fan stop		
		02	Mode 2		Thermostat OFF + fan stop + outdoor unit stop		

## 11. EXTERNAL INPUT & OUTPUT

External input	External output	Input select	Connector	Terminal
ON / OFF SIGNAL	-	Apply voltage	CNA01	EX6
		Dry contact	CNA02	
COOL / HEAT SIGNAL	-	Apply voltage	CNA03	EX8
		Dry contact	CNA04	
FLOAT SW SIGNAL	-	Dry contact	CNA05	EX10
ERROR SIGNAL	-	Apply voltage	CNA06	EX7
		Dry contact	CNA07	
ANALOG SIGNAL	-	-	-	EX9
-	ON / OFF SIGNAL	Apply voltage / Dry contact	CNB01	EX1
	ERROR SIGNAL			EX2
	FAN SIGNAL			EX3
	DEFROST SIGNAL			EX4
	THERMOSTAT ON / OFF SIGNAL			EX5
	DRAIN PUMP SIGNAL	-	-	D1

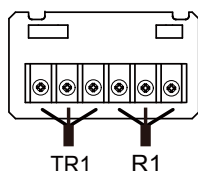
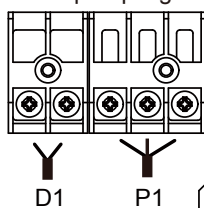
### ■ PC BOARD & TERMINAL LAYOUTS

#### ● PC board layout



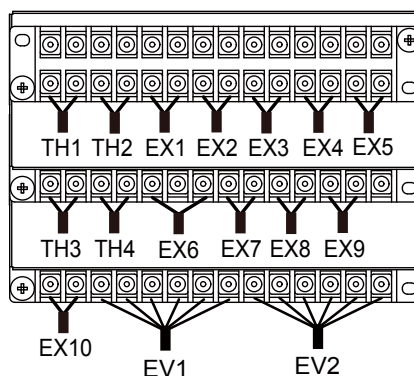
#### ● Terminal layout

- Power supply terminal
- Drain pump signal terminal



- Transmission terminal
- Remote controller terminal

- External interface terminal



## 11-1. EXTERNAL INPUT

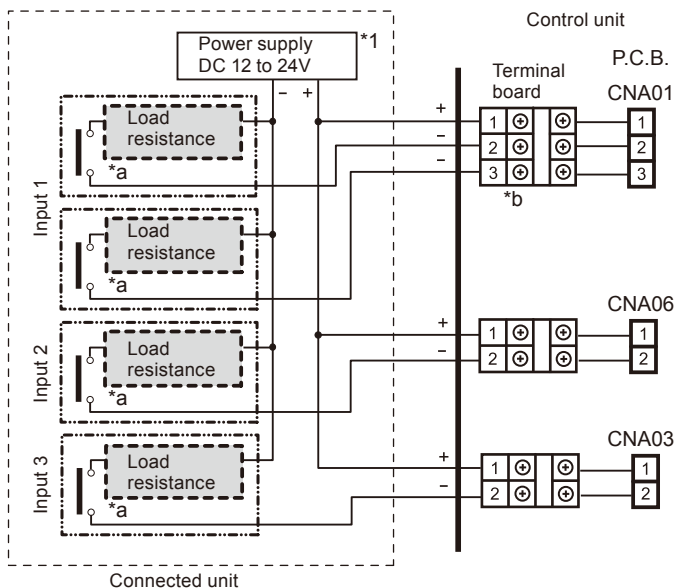
- A twisted pair cable (22AWG) should be used. Maximum length of cable is 10m.
- Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.
- The wire connection should be separate from the power cable line.

### INPUT SELECT

Use either one of these types of terminal according to the application. (Both types of terminals cannot be used simultaneously.)

#### ● Apply voltage terminal ([CNA01], [CNA03], [CNA06])

When a power supply must be provided at the input device you want to connect, use the Apply voltage terminal.



\*1: Make the power supply DC12 to 24 V. Select a power supply capacity with an ample surplus for the connected load.

Do not impress a voltage exceeding 24 V across pins 1-2, and 1-3.

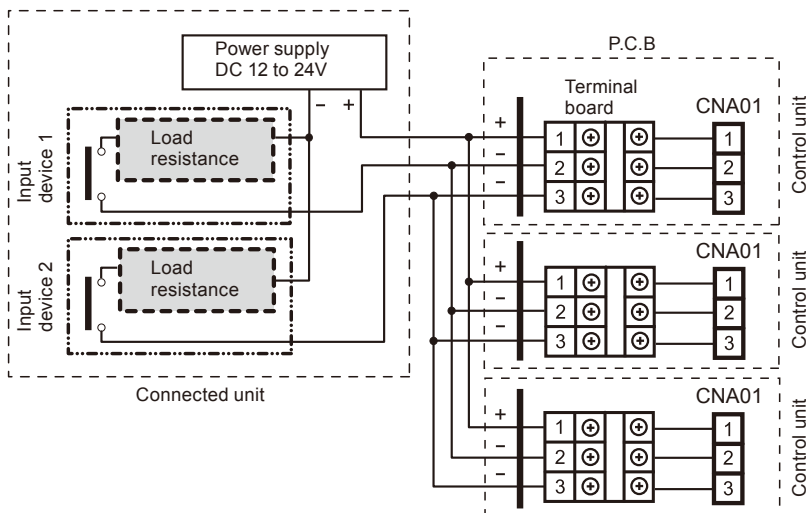
\*a: The allowable current is DC 5 mA to 10 mA. (Recommended: DC 5 mA)

Provide a load resistance such that the current becomes DC 10 mA or less.

Select very low current use contacts (usable at DC 12 V, DC 1 mA or less).

\*b: The polarity is [+] for pin 1 and [-] for pin 2 and 3. Connect correctly.

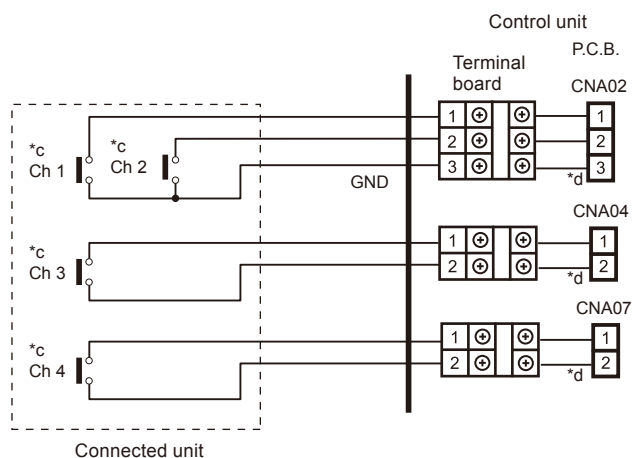
When connected to Apply voltage terminals of multiple indoor units with a connected unit, be sure to make a branch outside the indoor unit using a pull box, etc. as shown on below example.





## ● Dry contact terminal ([CNA02], [CNA04], [CNA07])

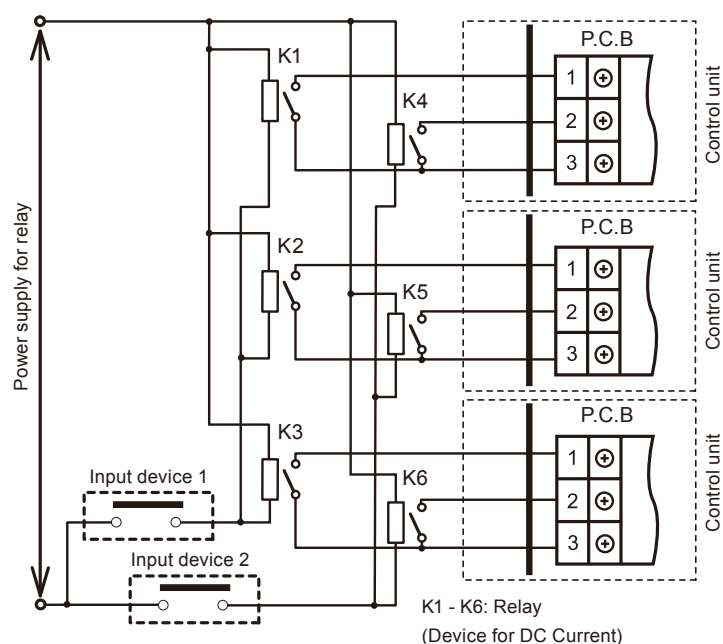
When a power supply is unnecessary at the input device you want to connect, use the Dry contact terminal.



\*c: Select very low current use contacts (usable at DC12V, DC1mA or less).

\*d: The wiring is different from Apply voltage terminals. Be sufficiently careful when wiring.

When connected to Dry contact terminals of multiple indoor units with a connected unit, insulate each indoor unit with relay, etc. as shown on below example.



### NOTE :

- When connected to multiple control units directly, it will cause breakdown.

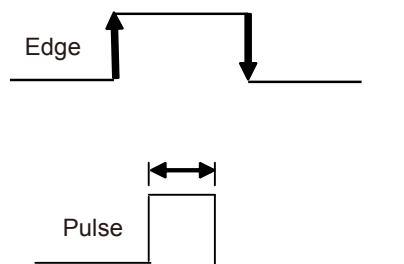
## ■ INPUT SIGNAL TYPE

The input signal type can be selected.

It is switched by Dip-Sw on the Control unit PCB.

(◆...Factory setting)

Dip-sw [Set 2-2]	Input signal type
OFF	Edge
ON	Pulse

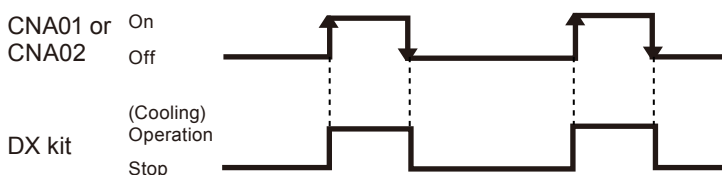


### (1) ON/OFF SIGNAL

#### ●In the case of "Edge" input

Function setting	Terminal	External input	Input signal	Command
60-00	EX6	CNA01 or CNA02 (Pin1 to 3)	OFF → ON	Operation
			ON → OFF	Stop

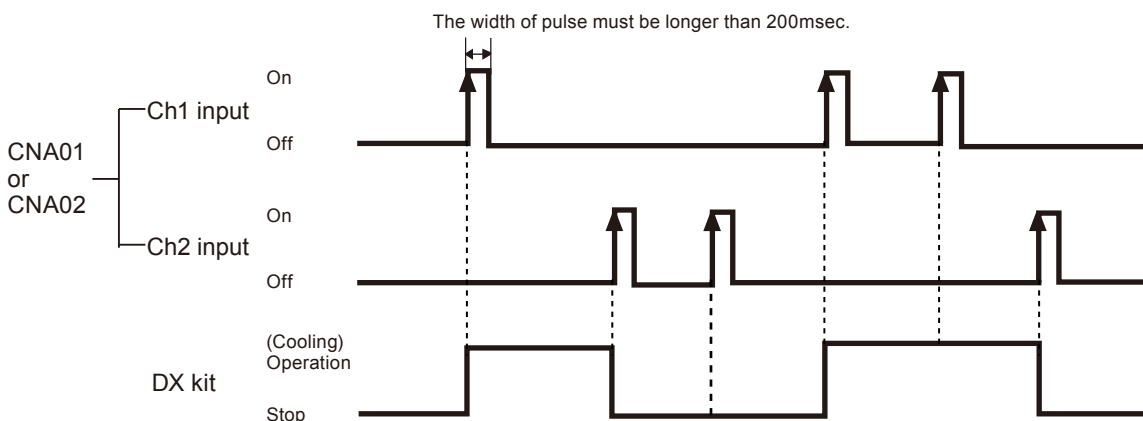
Function setting	Terminal	External input	Input signal	Command
60-01	EX6	CNA01 or CNA02 (Pin1 to 3)	OFF → ON	Cooling operation
			ON → OFF	Stop



#### ●In the case of "Pulse" input

Function setting	Terminal	External input	Input signal	Command
60-00	EX6	CNA01 or CNA02	Pin1 to 2 OFF → ON	Operation
			Pin1 to 3 OFF → ON	Stop

Function setting	Terminal	External input	Input signal	Command
60-01	EX6	CNA01 or CNA02	Pin1 to 2 OFF → ON	Cooling operation
			Pin1 to 3 OFF → ON	Stop



#### NOTE :

- The last command has priority.
- The DX kits within the same remote controller group operates in the same mode.

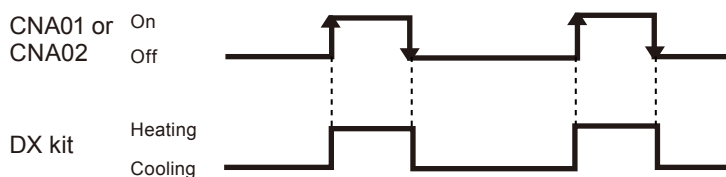
## (2) COOL/HEAT SIGNAL

### • "Edge" input only

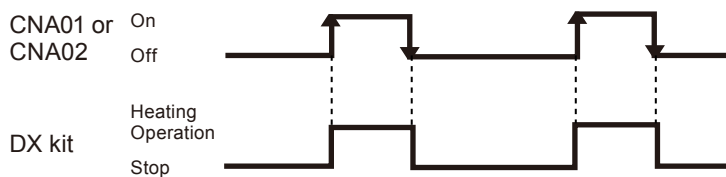
Function setting	Terminal	External input	Input signal	Command
60-00	EX8	CNA03 or CNA04 (Pin1 to 2)	OFF → ON	Heating
			ON → OFF	Cooling

Function setting	Terminal	External input	Input signal	Command
60-01	EX8	CNA03 or CNA04 (Pin1 to 2)	OFF → ON	Heating operation
			ON → OFF	Stop

Example of Function setting: 60-00



Example of Function setting: 60-01



#### NOTE :

- In heat recovery system, HEAT/COOL switching during operation is disabled unless the RB unit and indoor unit are connected in 1-to-1.
- If switching the operation mode directly from cooling to heating to cooling, set the priority mode to "indoor unit priority", and set the DX kit to "Administrative indoor unit(or Master indoor unit)". Making this setting when the DX kit and the VRF for another indoor unit are connected to the same refrigerant system will make the DX kit prioritize the operation mode, so be careful.

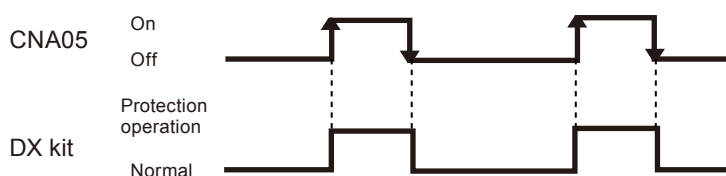
### (3) FLOAT SW SIGNAL

Check the drain status.

If the "ON" status continues for 3 mins. or more, decide a drainage error, and perform a protection stop. (Thermostat OFF and FAN OFF mode) Further, turn OFF and ON the power again to restore.

#### • "Edge" input only

Terminal	External input	Input signal	Command
EX10	CNA05 (Pin1 to 2)	OFF → ON	Protection operation
		ON → OFF	Normal



### (4) ERROR SIGNAL

If an error signal is input, perform protection operation (Thermostat OFF mode).

Make sure to install so that the input signals during normal operation is always "ON".

#### • "Edge" input only

Terminal	External input	Input signal	Command
EX7	CNA06 or CNA07 (Pin1 to 2)	ON	Normal
		OFF	Error

## 11-2. EXTERNAL OUTPUT

- A twisted pair cable (22AWG) should be used. Maximum length of cable is 10m.
- Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.
- The wire connection should be separate from the power cable line.

Terminal	Function	Type-i	Type-ii	Status
		DX kit internal relay status	DX kit output level	
EX1	ON/OFF SIGNAL	ON (Open)	OFF	Stop
		OFF (Short)	ON (DC 12 V)	Operation
EX2	ERROR SIGNAL	ON (Open)	OFF	Normal
		OFF (Short)	ON (DC 12 V)	Error
EX3	FAN SIGNAL	ON (Open)	OFF	Fan stop
		OFF (Short)	ON (DC 12 V)	Fan operation
EX4	DEFROST SIGNAL	ON (Open)	OFF	Normal
		OFF (Short)	ON (DC 12 V)	Defrosting
EX5	THERMOSTAT ON/OFF SIGNAL	ON (Open)	OFF	Thermostat OFF
		OFF (Short)	ON (DC 12 V)	Thermostat ON
D1	DRAIN PUMP SIGNAL	OFF		Drain pump OFF
		ON (AC 230 V)		Drain pump ON

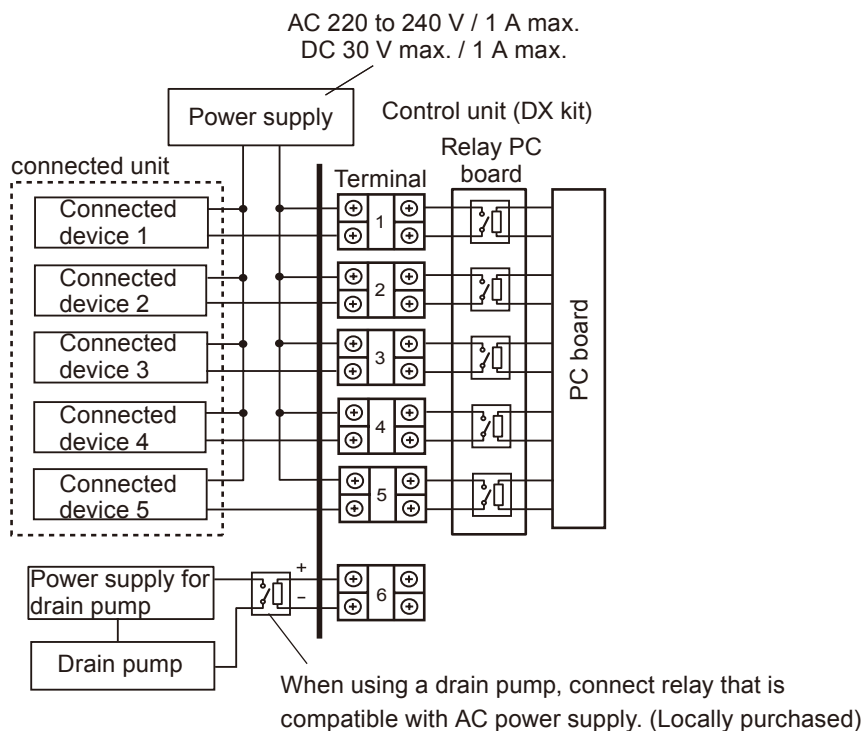
### OUTPUT SELECT

Select either of the following two power supply methods.

(Factory setting is Type-i)

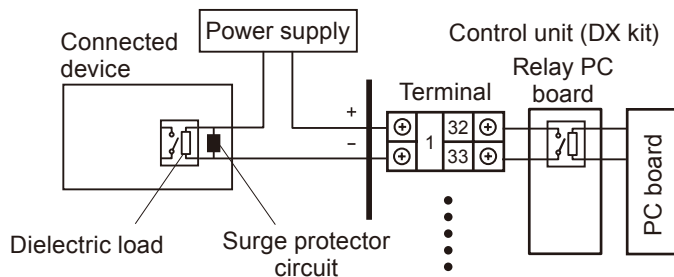
Type-i	<ul style="list-style-type: none"> <li>• Using a power supply from other than the DX kit (Connected unit, etc.)</li> <li>• Usable tolerance voltages and currents: AC 220 to 240 V /1A max or DC 30 V max /1A Max</li> </ul>
Type-ii	<ul style="list-style-type: none"> <li>• Using a power supply from the DX kit control unit</li> <li>• Output voltage: Hi DC12V±2V, Lo 0 V</li> </ul>

#### (1) Type-i: Using a power supply from other than the DX kit (Connected unit, etc.)

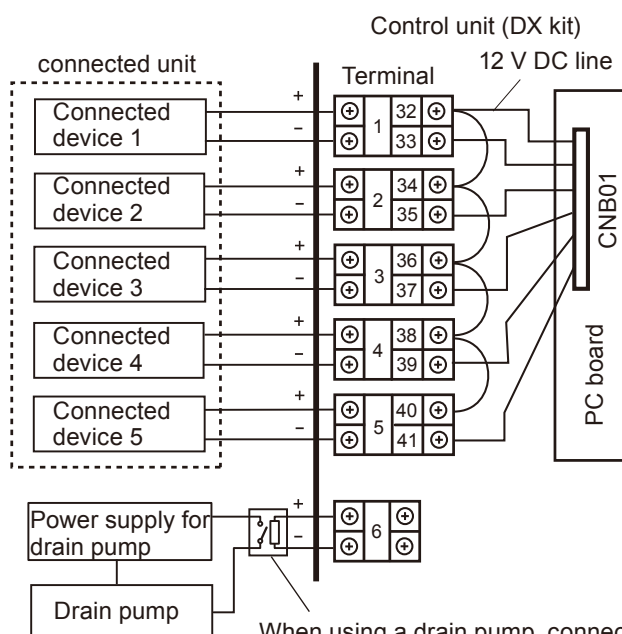


## Precautions for Type-i

If connecting a dielectric load such as a relay coil, etc., to the connected device, make sure to add a surge protector circuit to the load side as shown in the diagram.

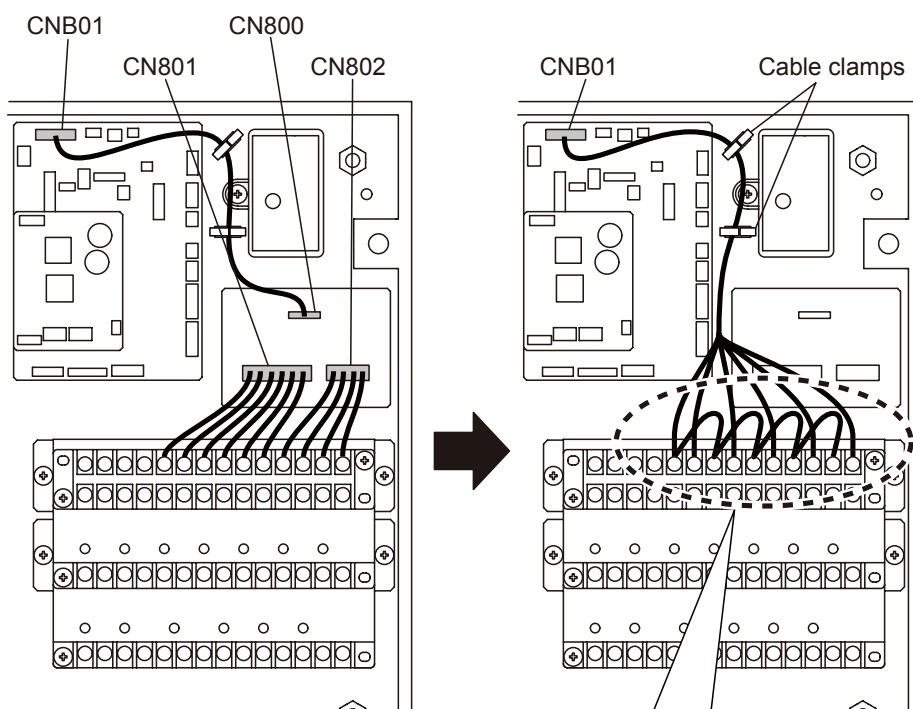


## (2) Type-ii: Using a power supply from the DX kit control unit



When using a drain pump, connect relay that is compatible with AC power supply. (Locally purchased)

If Type-ii is selected, change the wiring as shown in the diagram. (All cables used are enclosed.)



If connecting an connection cables (accessories) to a terminal, make sure to match the number of the label affixed to the cable with the terminal number.

About the cable name and cable color

(a) Connection cable 1:

(a1) Brown, (a2) Red

(a3) Orange, (a4) Yellow

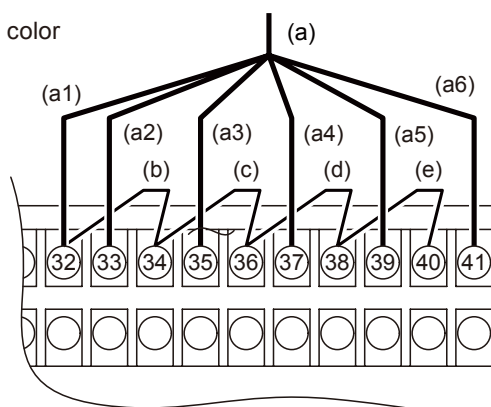
(a5) Green, (a6) Blue

(b) Connection cable 2: Brown

(c) Connection cable 3: Brown

(d) Connection cable 4: Brown

(e) Connection cable 5: Brown



## 11-3. EXTERNAL INPUT / OUTPUT FUNCTION SUMMARY

### ■ EXTERNAL INPUT FUNCTION

Dry contact/ Apply voltage	Function						Specifications				
	Operation / Stop	Cooling operation / Stop	Heat / Cool	Heating operation / Stop	Float sw	Error	Terminal	Signal type	External power supply		Wire size / length
									Allowable voltage	Allowable current	
Dry contact DC12[V]	● (60-00)	● (60-01)	-	-	-	-	CNA02 (PIN1-3)	Edge	-	-	AWG22 Twist / Max. Cable length 10 [m]
							CNA02 (Ch1:PIN1-3) (Ch2:PIN2-3)	Pulse *1			
	-	-	● (60-00)	● (60-01)	-	-	CNA04 (PIN1-2)	Edge			
	-	-	-	-	●	-	CNA05 (PIN1-2)	Edge			
	-	-	-	-	-	●	CNA07 (PIN1-2)	Edge			
Apply voltage	● (60-00)	● (60-01)	-	-	-	-	CNA01 (PIN1-2)	Edge	DC12-24 [V]	5 mA or more and 10 mA or less	
							CNA01 (Ch1:PIN1-2) (Ch2:PIN1-3)	Pulse *1			
	-	-	● (60-00)	● (60-01)	-	-	CNA03 (PIN1-2)	Edge			
	-	-	-	-	-	●	CNA06 (PIN1-2)	Edge			

\*1 : Default setting is Edge signal, if you use pulse signal, must be set Dip SW2-2 to ON position.

### ■ EXTERNAL OUTPUT FUNCTION

Dry contact / Apply voltage	Function						Specifications			
	Operation / Stop	Error	Fan Operation / Stop	Defrost	Thermostat On / Off	Drain pump On / Off	Terminal	External power supply		Wire size / length
Type-i	●	-	-	-	-	-	CNB01 (PIN1-2)	AC 220 V to 240 V or DC 30 V or less	1 A or less	AWG22 Twist / Max. Cable length 10 [m]
	-	●	-	-	-	-	CNB01 (PIN1-3)			
	-	-	●	-	-	-	CNB01 (PIN1-4)			
	-	-	-	●	-	-	CNB01 (PIN1-5)			
	-	-	-	-	●	-	CNB01 (PIN1-6)			
AC 230 V	-	-	-	-	-	●	-	-	-	AWG20
Type-ii DC12 [V]	●	-	-	-	-	-	CNB01 (PIN1-2)	-	-	AWG22 Twist / Max. Cable length 10 [m]
	-	●	-	-	-	-	CNB01 (PIN1-3)			
	-	-	●	-	-	-	CNB01 (PIN1-4)			
	-	-	-	●	-	-	CNB01 (PIN1-5)			
	-	-	-	-	●	-	CNB01 (PIN1-6)			



## 11-4. ANALOG EXTERNAL INPUT

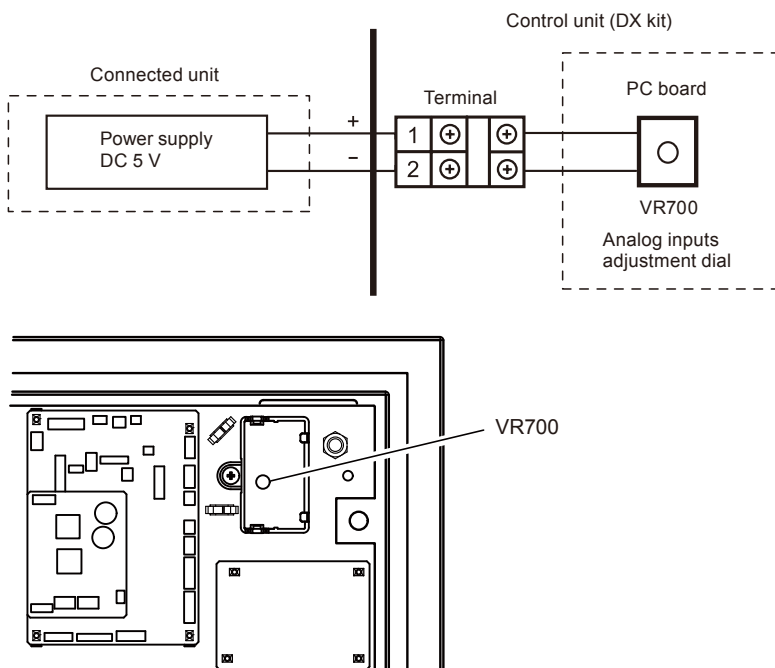
The operation temperature and required operation performance are set by changing the voltage of the signals entered to "analog external inputs". Compensating the analog circuit tolerance before using this function is recommended.

(1) Initial settings for using the analog external inputs circuit.

Set the DIP switch SET3-1 to "ON".

Set the DIP switch SET3-2 to "OFF".

(2) Compensate the tolerance of the circuit that measures the voltage of the analog input signals.



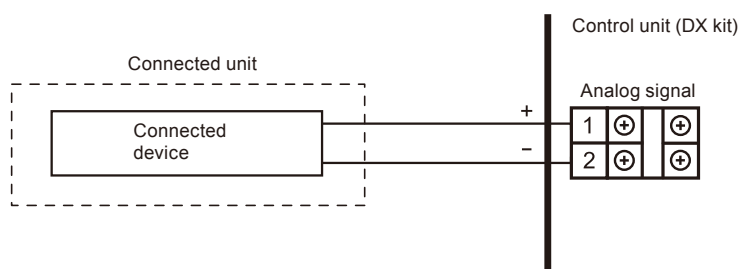
### • Compensation method

i) Connect the power supply adjusted to output DC 5 V to the designated terminal.

ii) Turn ON the power supply.

iii) Use the adjustment dial to compensate so that the temperature display for the wired remote controller or service tool indicates 20 °C.

(3) Setting the operation temperature using analog external inputs



The operation temperature is set by changing the voltage of the input signals.

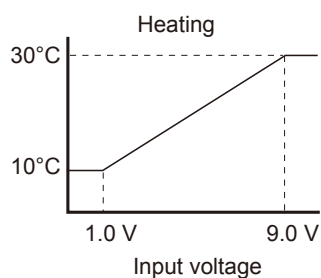
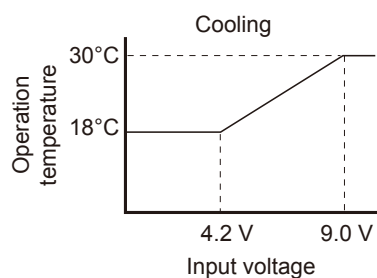
(• If using this function, set the DIP switch SET3-2 to "OFF".)

Formula: Operation temperature T (°C) = 2.5 × Ain + 7.5 (by 0.5 °C)

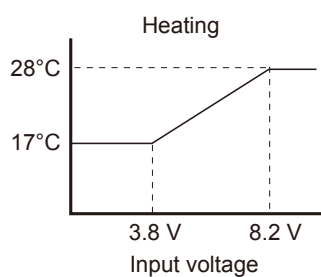
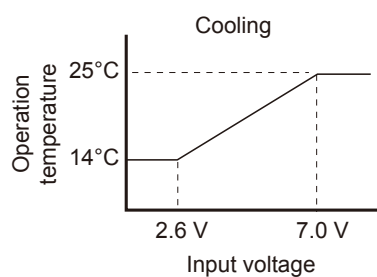
Ain = Input voltage (1.0 to 9.0 V)

See the following diagram for the advanced input conditions.

a) Using the inlet to control the temperature



b) Using the outlet to control the temperature



(4) Setting required operation performance using analog external inputs

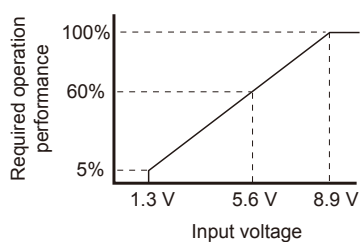
- The operation capacity can be set by changing the voltage of the input signals.
- If using this function, set the DIP switch SET3-2 to "ON".

Formula: Required operation performance C(%)=12.5 × Ain - 11.25 (by 5%)

Ain= Input voltage (1.3 to 8.9 V)

If Ain<1.3 V, C=0% fixed

If Ain>8.9 V, C=100% fixed



NOTE: Refrigerant cycle protection is prioritized, so operation may not be as required.

## 12. IMPORTANT NOTICES

- For the air handling unit (heat exchanger) construction, see the air handling unit installation manual.
- Take special precaution for connection to the external controller (DDC, Locally purchased). Make sure the wiring for the external input and output signals is correct. Miswiring of these cables could damage the entire system.
- Do not install the unit where it will be exposed to direct sunlight.

### ■ SAFETY PRECAUTIONS

#### WARNING

- Request your dealer or a professional installer to install the DX kit in accordance with this Installation Manual. An improperly installed unit can cause serious accidents such as water leakage, electric shock, or fire. If the DX kit is installed in disregard of the instructions in the Installation Manual, it will void the manufacturer's warranty.
- Do not turn ON the power until all work has been completed. Turning ON the power before the work is completed can cause serious accidents such as electric shock or fire.
- If refrigerant leaks while work is being carried out, ventilate the area. If the refrigerant comes in contact with a flame, it produces a toxic gas.
- Installation work must be performed in accordance with national wiring standards by authorized personnel only.
- Except for EMERGENCY, never turn off main as well as sub breaker of the DX kits during operation. It will cause compressor failure as well as water leakage. First, stop the DX kit by operating the control unit, converter or external input device and then cut the breaker. Make sure to operate through the control unit, converter or external input device. When the breaker is designed, locate it at a place where the users cannot start and stop in the daily work.

#### CAUTION

- Read carefully all security information before use or install the DX kit.
- Do not attempt to install the DX kit or a part of the DX kit by yourself.
- This unit must be installed by qualified personnel with a capacity certificate for handling refrigerant fluids. Refer to regulation and laws in use on installation place.
- The installation must be carried out in compliance with regulations in force in the place of installation and the installation instructions of the manufacturer.
- This unit is part of a set constituting the DX kit. It must not be installed alone or with nonauthorized by the manufacturer.
- Always use a separate power supply line protected by a circuit breaker operating on all wires with a distance between contact of 3mm for this unit.
- The unit must be correctly earthed (grounded) and the supply line must be equipped with a differential breaker in order to protect the persons.
- The units are not explosion proof and therefore should not be installed in explosive atmosphere.
- Never touch electrical components immediately after the power supply has been turned off. Electric shock may occur. After turning off the power, always wait 5 minutes before touching electrical components.
- This unit contains no user-serviceable parts. Always consult authorized service personnel to repairs.
- When moving, consult authorized service personnel for disconnection and installation of the unit.

## 13. OPTIONAL PARTS

### 13-1. CONTROLLERS

Type	Model	
System Controller	UTY-APGX	Option: UTY-PEGX
System Controller Lite	UTY-ALGX	Option: UTY-PLGXA1, UTY-PLGXR1, UTY-PLGXE1
Touch Panel Controller	UTY-DTG*	
Central Remote Controller	UTY-DCG*	
Group Remote Controller	UTY-CGG*	
Wired Remote Controller (Touch panel)	UTY-RNR*	
Wired Remote Controller	UTY-RLR*	
Wired Remote Controller	UTY-RNK*	
Simple Remote Controller (With operation mode)	UTY-RSK*	
Simple Remote Controller (Without operation mode)	UTY-RHK*	
Wireless Remote Controller	UTY-LNH*	

### 13-2. OTHERS

Type	Model
IR Receiver unit	UTB-*WC
Separation tube (For EEV unit 2 connections)	UTP-LX180A
Network convertor (For Group remote controller)	UTY-VGGXZ1