

# Daikin

# air handling units



## Air handling unit applications

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# Daikin's air handling units solutions

You will find your match

Why choose Daikin air handling units with a DX connection?



## Simplifying business

The unique total solution approach by Daikin helps businesses to propose better cross-pillar solutions, to increase their success ratio by providing unmatched product combinations to the end-user and to simplify the life of installers by supplying high-quality products coming from the same manufacturer. Contrary to other manufacturers, Daikin does not use OEM products in its AHU with DX offer. Many competitors are either offering OEM DX outdoor units or OEM AHU which create additional problems when warranties or faults arise. **Having a single interface for your business makes Daikin the right choice.**

## One-stop shop

Daikin is the only global manufacturer in the market **capable of offering a true Plug & Play solution** where Daikin AHUs manufactured by Daikin Applied Europe and certified by Eurovent, offer off-the-shelf compatibility with Daikin's unique VRV outdoor unit range for the best performance in the market. This unique integration of cross-pillar products under the same umbrella, gives the customer both peace-of-mind and added value when promoting a total solution approach.

## Complete range of possibilities

Thanks to the **most complete offer in the market**, Daikin has the solution for all types of commercial applications requiring fresh air. Daikin provides ventilation solutions based on AHU from 2,500 m<sup>3</sup>/h up to 140,000 m<sup>3</sup>/h either with natural heat recovery or more advanced ventilation solutions where a VRV outdoor unit can be connected to the Daikin AHU for ultimate climate control. The harmonized control, between the VRV outdoor unit and the AHU, offer outstanding reliable operation of the system when connected to an iTM.

## Advantages

- › Unique manufacturer offering a complete range
- › Plug & Play solution
- › Direct iTM compatibility

# Daikin's fresh air solution



Highly efficient EC fan



Factory fitted and tested DX heat exchanger



Efficient filtration



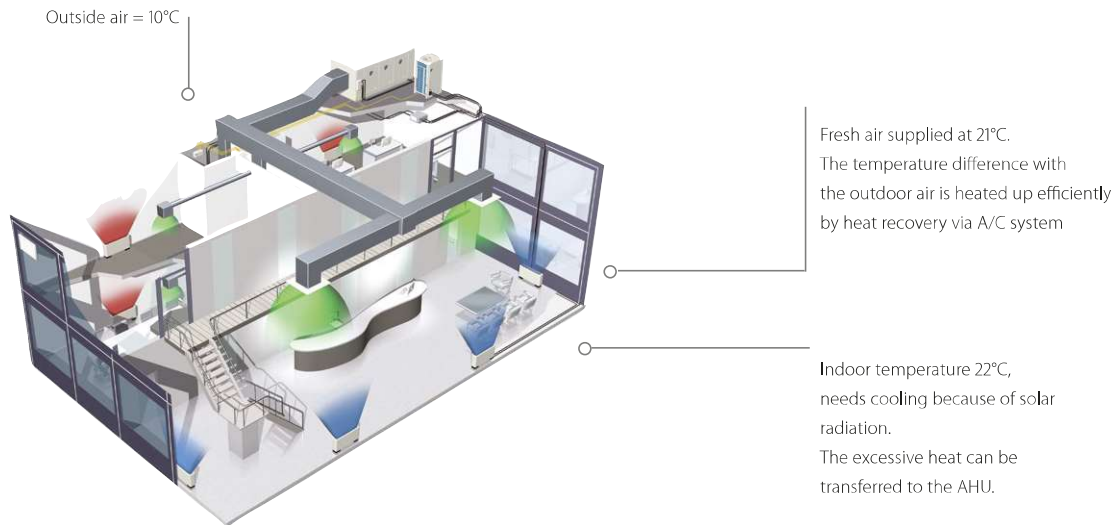
Heat wheel for energy recovery

## Why use VRV and ERQ condensing units for connection to air handling units?

### High Efficiency

Daikin heat pumps are renowned for their high energy efficiency. Integrating the AHU with a heat recovery system is even more effective since an office system can frequently be in cooling mode

while the outdoor air is too cold to be brought inside in an unconditioned state. In this case heat from the offices is merely transferred to heat up the cold fresh air.



### Fast response to changing loads resulting in high comfort levels

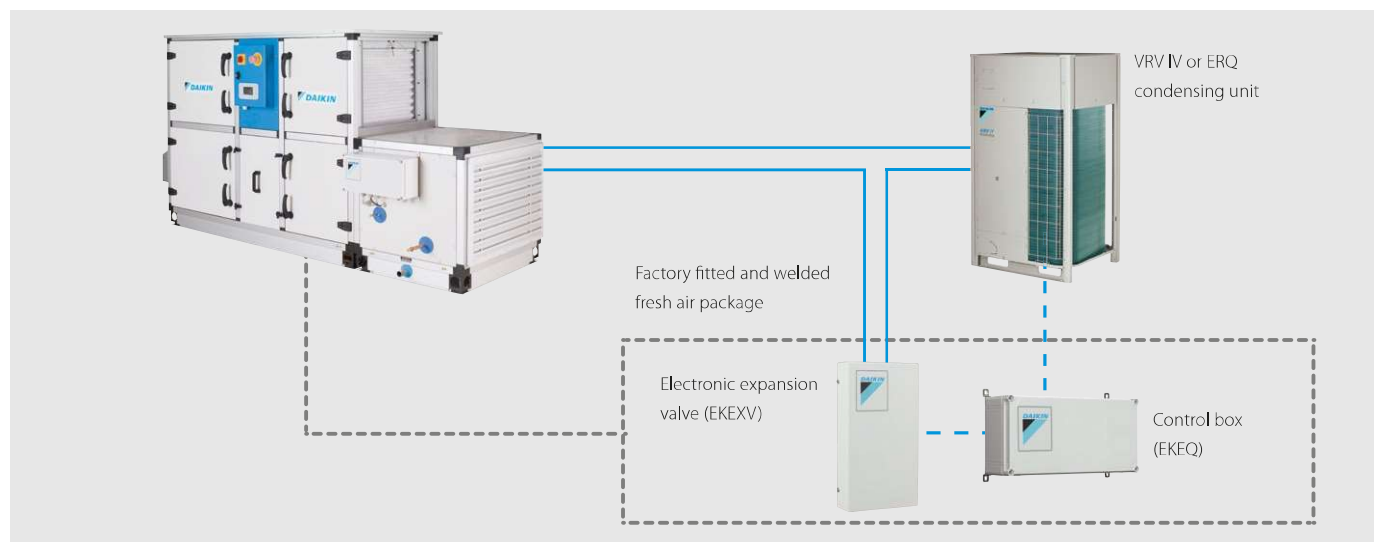
Daikin ERQ and VRV units respond rapidly to fluctuations in supply air temperature, resulting in a steady indoor temperature and resultant high comfort levels for the end user. The ultimate is the VRV range which improves comfort even more by offering continuous heating, also during defrost.

### Easy Design and Installation

The system is easy to design and install since no additional water systems such as boilers, tanks and gas connections etc. are required. This also reduces both the total system investment and running cost.

### Daikin Fresh air package

- > Plug & Play connection between VRV/ERQ and the entire D-AHU modular range.
- > Factory fitted and welded DX coil control and expansion valve kits.



# In order to maximise installation flexibility, 4 types of control systems are offered

**W control:** Off the shelf control of air temperature (discharge temperature, suction temperature, room temperature) via any DDC controller, easy to setup

**X control:** Precise control of air temperature (discharge temperature, suction temperature, room temperature) requiring a preprogrammed DDC controller (for special applications)

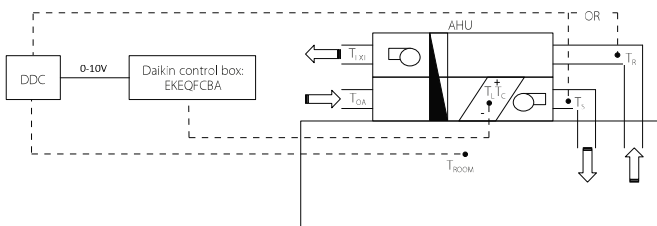
**Z control:** Control of air temperature (suction temperature, room temperature) via Daikin control (no DDC controller needed)

**Y control:** Control of refrigerant ( $T_e/T_c$ ) temperature via Daikin control (no DDC controller needed)

## 1. W control ( $T_s/T_r/T_{ROOM}$ control):

### Air temperature control via DDC controller

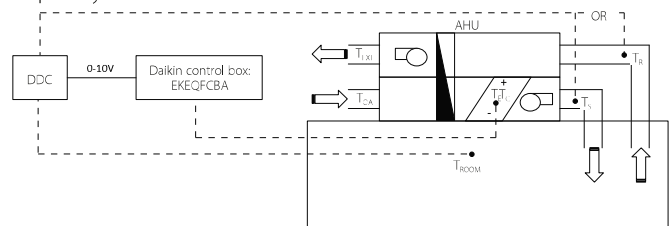
Room temperature is controlled as a function of the air handling unit suction or discharge air (customer selection). The DDC controller is translating the temperature difference between set point and air suction temperature (or air discharge temperature or room temperature) into a proportional 0-10V signal which is transferred to the Daikin control box (EKEQFCBA). This voltage modulates the capacity requirements of the outdoor unit.



## 2. X control ( $T_s/T_r/T_{ROOM}$ control):

### Precise air temperature control via DDC controller

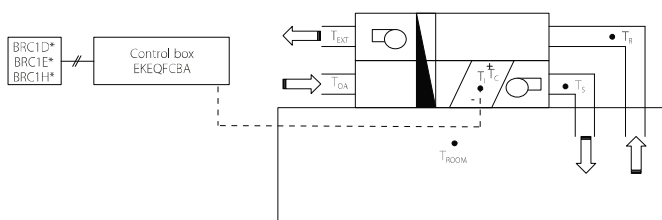
Room temperature is controlled as a function of the air handling unit suction or discharge air (customer selection). The DDC controller is translating the temperature difference between set point and air suction temperature (or air discharge temperature or room temperature) into a reference voltage (0-10V) which is transferred to the Daikin control box (EKEQFCBA). This reference voltage will be used as the main input value for the compressor frequency control.



## 3. Y control ( $T_e/T_c$ control):

### By fixed evaporating /condensing temperature

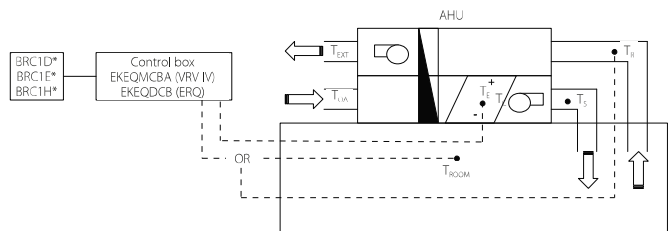
A fixed target evaporating or condensing temperature can be set by the customer. In this case, room temperature is only indirectly controlled. A Daikin wired remote control (BRC1\* - optional) have to be connected for initial set-up but not required for operation.



## 4. Z control ( $T_s/T_{ROOM}$ control):

### Control your AHU just like a VRV indoor unit with up to 100% fresh air

Allows the possibility to control the AHU just like a VRV indoor unit. Meaning temperature control will be focused on return air temperature from the room into the AHU. Requires BRC1\* for operation. The only control that allows the combination of other indoor units to the AHU at the same time.



$T_s$ = Supply air temperature	$T_r$ = Return air temperature	$T_{oa}$ = Outdoor air temperature	$T_{room}$ = Room air temperature
$T_{ext}$ = Extraction air temperature	$T_e$ = Evaporating temperature	$T_c$ = Condensing temperature	

	Option kit	Features
Possibility W	EKEQFCBA	Off-the-shelf DDC controller that requires no pre-configuration
Possibility X		Pre-configured DDC controller required
Possibility Y		Using fixed evaporating temperature, no set point can be set using remote control
Possibility Z	EKEQDCB EKFQMCBA*	Using Daikin infrared remote control BRC1* Temperature control using air suction temperature or room temperature (via remote sensor)

\* EKEQMCB (for "multi" application)