

# Panasonic

## DX-AHU WITH VRF SYSTEMS



 SAIVER

DX-AHU

**Panasonic**

VRF SYSTEMS

 FSV EX



# JOINING TWO FORCES

Panasonic, the global leading air conditioning company,  
and SAIVER, manufacturer of high quality air handling units for more than half a century,  
now join forces to bring DX-AHU with VRF Systems,  
a new and comprehensive air conditioning solution to the market  
through cutting edge technologies and superior reliability.



**DX-AHU**  
by SAIVER

**VRF Systems**  
by Panasonic



## Case studies - DX-AHU with VRF Systems



Global Switch Data Center / Hong Kong - Installed in 2018



Sukmo Gallery / Thailand - Installed in 2018



Paramount Utropolis / Malaysia - Installed in 2017



Queen Mary Hospital / Hong Kong - Installed in 2015



Tesco Lotus / Thailand - Installed in 2015

## Installation reference



Cheung Ching Community Centre / Hong Kong - Installed in 2017



SAIVER Air Handling Units incorporate the finely tuned, value engineered cost effective design aided by computer coupled with human ingenuity. SAIVER team comprises of highly experienced engineers and technicians totally committed to produce one of the finest Double Skinned Air Handling Units range in the World to meet the requirements of most demanding cost and quality conscious customer.

Iconic project



Marina Bay Sands

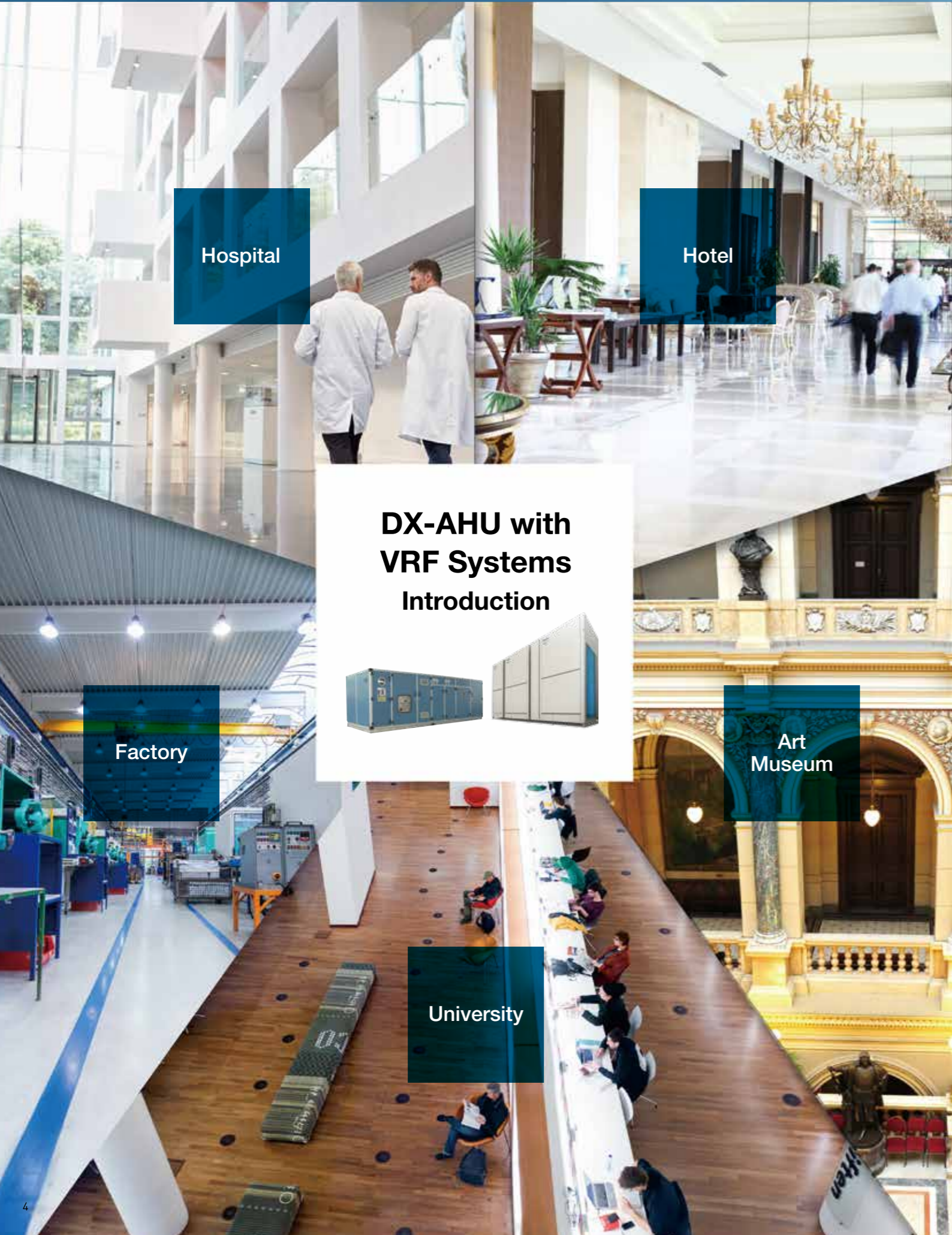


Panasonic's air conditioner business delivers leading-quality air conditioning solutions throughout the world. Its reliable and widely-trusted Japanese craftsmanship, with performance that has been refined for over 60 years since the start of the air conditioner business, is acknowledged as a global brand of the highest quality.

Iconic Project



Xiamen University



Hospital

Hotel

## DX-AHU with VRF Systems Introduction

Factory

Art Museum

University

## DX-AHU with VRF Systems applications

Air quality and efficient air conditioning plays a vital role in maintaining our health, comfort and productivity. Whether it's a hotel, hospital or museum, every building matters. That's why Panasonic together with SAIVER has developed large scale DX-AHU with VRF Systems to suit a variety of business applications.

### Benefits by applications

Hotel	Art Museum	University	Factory	Hospital
Easy air conditioning installation for both guest rooms(VRF) and large spaces(DX-AHU) like ballroom.	Effortless management of air conditioning for large spaces displaying items that require temperature control.	Effective air conditioning for classrooms and large spaces and rooms.	Customized air conditioning for processes requiring control of temperature.	Easily customized air conditioning for general wards and lobbies.

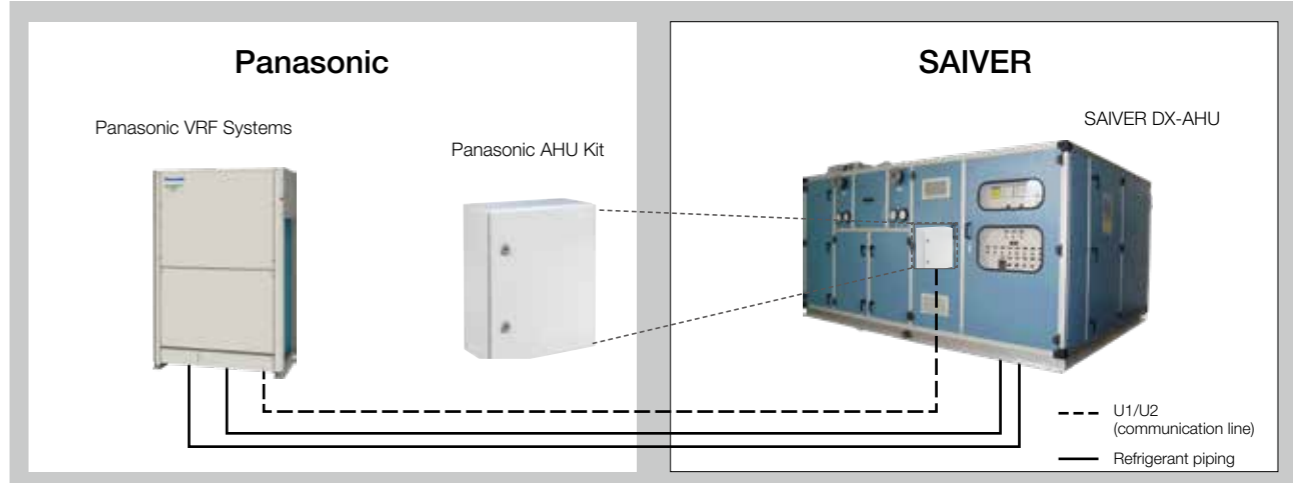
## Panasonic VRF Systems

Panasonic's FSV-EX is a game-changing VRF systems delivering high energy-saving performance, powerful operation, reliability and comfort surpassing anything previously possible. It represents a true paradigm shift in air conditioning solutions. Taking quality to the extreme - that's the Panasonic challenge.

## SAIVER AHU

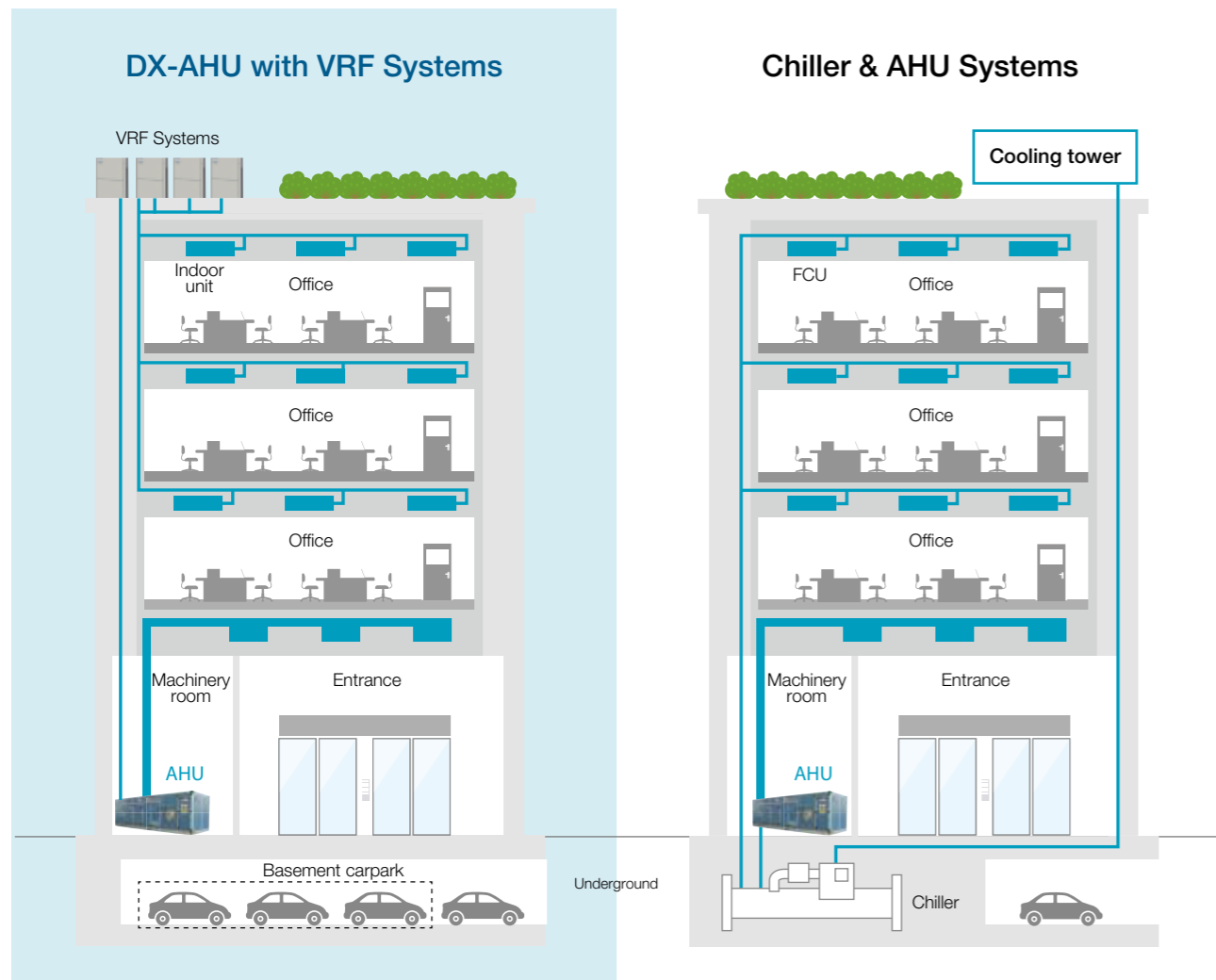
SAIVER's AHU/OHU is HVAC system used to regulate and circulate air as part of heating, cooling and ventilation with large air flow rate and high static pressure. Its configuration is also expandable with various add-ons such as heat recovery, heat pipe, filter, etc., providing a tailor-made solution according to modular size fitting for a variety of large sized applications.

### System overview



## Comparison of DX-AHU with VRF Systems to Chiller & AHU Systems

The combined system of VRF for building and AHU allows control of room air temperature delivering many benefits. The installation of DX-AHU with VRF Systems requires minimal effort as there's no need to add cooling towers, chiller and long piping on the premises. It also allows installation to spaces with limited construction flexibility. Even the maintenance cost of the total solution can be drastically reduced eliminating after care of cooling tower and water piping.

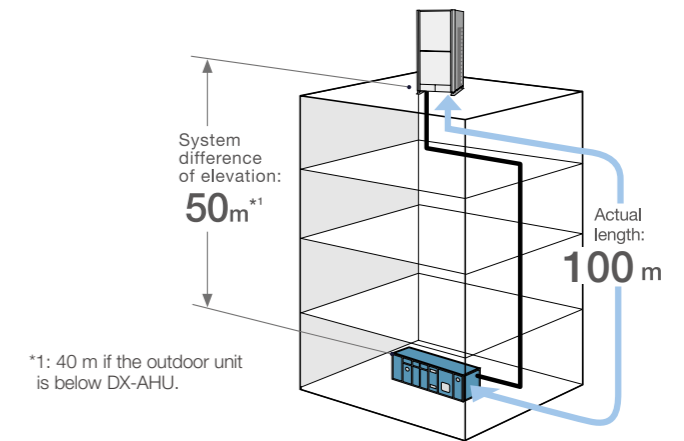


DX-AHU with VRF Systems		Chiller & AHU Systems
Easy maintenance (Same as common VRF Systems)	Maintenance	Require frequent maintenance (Cooling tower, chiller, pump & terminal)
Minimal maintenance cost	Maintenance Cost	Higher cost due to frequent maintenance
Small installation space (Only for AHU & VRF)	Space	Require larger installation space (AHU, FCU, chiller, cooling tower)
Simple system (HVAC ducting)	System	Complex system (HVAC ducting, chiller and water piping)
Simple control (Intelligent controller)	Control	Complex control (Variable frequency device, variable air volume control, complicated wiring)

## Increased piping length for greater design flexibility

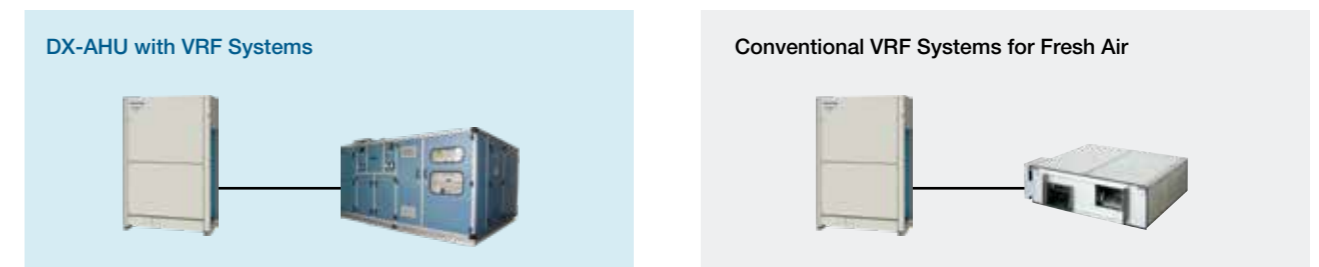
Adaptable to various building types and sizes.  
Actual piping length: 100m / Equivalent 120m

\*Connection of other types of indoor units is not available in case of DX-AHU with VRF in the same system.



## Better air treatment

Comparison of custom made DX-AHU with VRF Systems to conventional VRF Systems for fresh air.

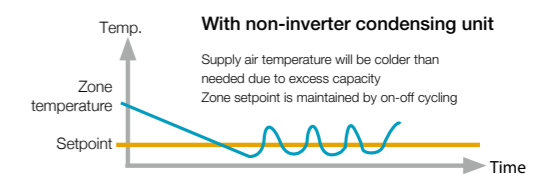
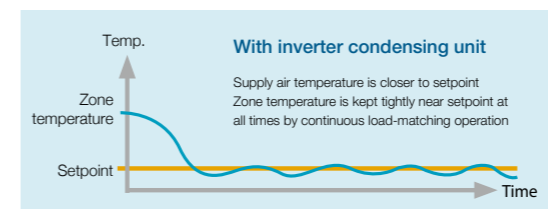


- Up to 30,000 CMH
- Large cooling capacity (up to 80HP)
- Large external static pressure provided (up to 500Pa)
- Lots of IAQ options

- Small air flow rate (Max. 2,100 CMH)
- Small cooling capacity (Max. 10HP)
- Limited external static pressure (Max. 200Pa)
- No space to install IAQ components

## Comfort temperature control

Comparing inverter condensing unit to non-inverter condensing unit.  
- Prevention of temperature hunting



# Air Handling Unit Kit

Panasonic AHU Kit connects VRF systems to SAIVER Air Handling Unit systems using same refrigerant circuit as the VRF systems. With flexible connectivity, Panasonic AHU Kit can be easily integrated to air conditioning system for a high efficiency operation.



## Standard kit

### AHU connection kit

PCB, power trans, terminal block



Thermistor x2 (refrigerant: E1, E2)



Wired remote controller CZ-RTC6BL

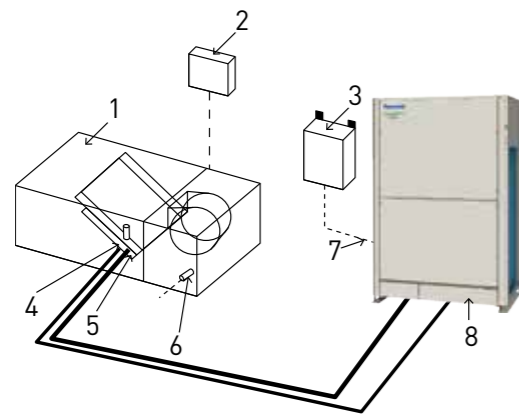


Thermistor (air: TA; 1 sensor)



### Optional controller

Timer remote controller CZ-RTC5B



- System and regulations. System overview
- 1 | AHU connection kit equipment (field supplied)
  - 2 | AHU connection kit system controller (field supplied)
  - 3 | AHU connection kit controller box (with control PCB)
  - 4 | Thermistor for gas pipe (E2)
  - 5 | Thermistor for liquid pipe (E1)
  - 6 | Thermistor for suction air
  - 7 | Inter-unit wiring
  - 8 | Outdoor unit

## Optional parts

### Seri-Para I/O unit for DDC connection (CZ-CAPBC2)



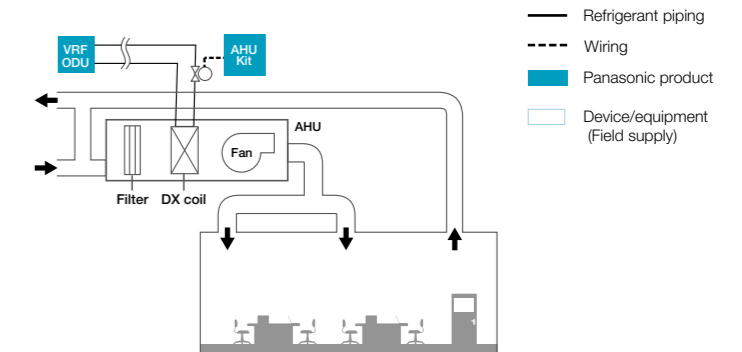
- Control and status monitoring is possible for individual indoor unit (1 group).
- In addition to operation and stop, there is a digital input function for temperature setting and operation mode.
- Temperature setting and measuring of the indoor suction temperature can be performed from central monitoring.
- The analog input for temperature setting is DC0 to 10 V, or 0 to 140 Ohm.
- Power is supplied from the T10 terminal of the indoor units.
- Separate power supply also is possible (in case of suction temperature measuring).

## AHU kit usage example

### Standard usage

(Used without DDC\*)

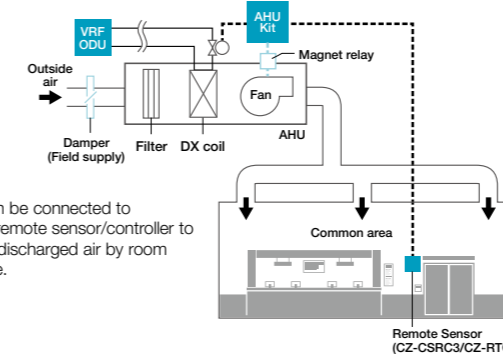
DX-AHU with VRF supplies large air volume to large spaces. AHU Kit can be used with DX-AHU without DDC or other external devices under certain conditions. (Please consult with Panasonic sales engineers).



### As OHU

#### Control by room temperature

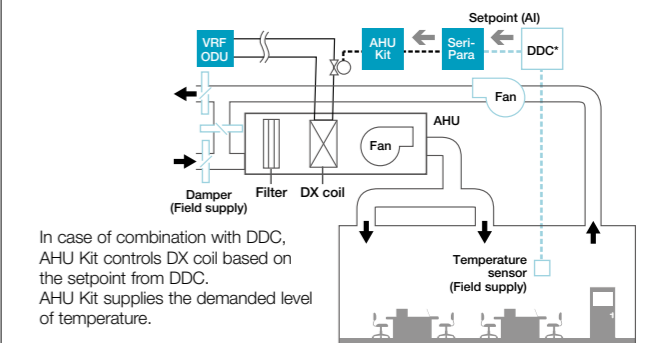
\*Please consult a Panasonic system engineer for outside air temperature.



AHU Kit can be connected to Panasonic remote sensor/controller to control the discharged air by room temperature.

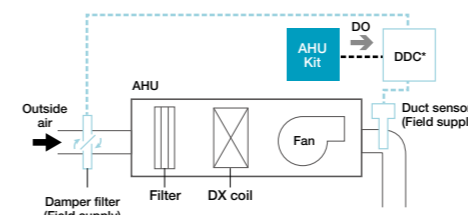
### As AHU

#### Room temperature control by DDC



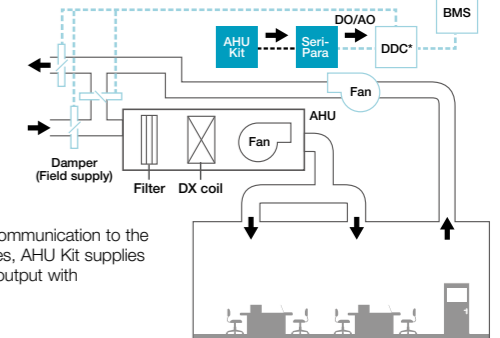
In case of combination with DDC, AHU Kit controls DX coil based on the setpoint from DDC. AHU Kit supplies the demanded level of temperature.

#### Send the On/Off status to DDC for damper control



When DDC controls external equipment (e.g. Dampers), AHU Kit gives On/Off status to DDC with dry contact. (Dampers are controlled by DDC.)

#### Digital/Analog output to external devices



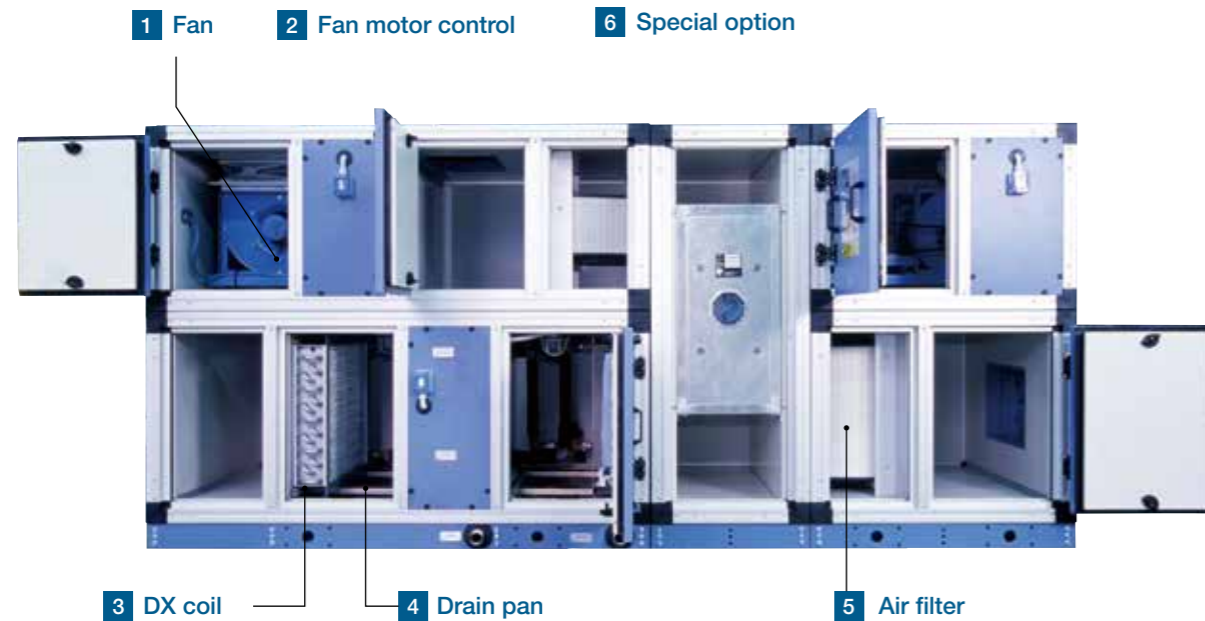
On behalf of communication to the external devices, AHU Kit supplies digital/analog output with Seri-Para unit.

### AHU connection kit / System combination

Capacity	Outdoor unit combination			AHU connection kit combination			
5 HP 16 kW	All FSV outdoor units			160MAH3M	—	—	—
10 HP 28 kW	U-10ME2E8	—	—	280MAH3M	—	—	—
20 HP 56 kW	U-20ME2E8	—	—	560MAH3M	—	—	—
30 HP 84 kW	U-16ME2E8	U-14ME2E8	—	560MAH3M	280MAH3M	—	—
40 HP 112 kW	U-20ME2E8	U-20ME2E8	—	560MAH3M	560MAH3M	—	—
50 HP 140 kW	U-18ME2E8	U-16ME2E8	U-16ME2E8	560MAH3M	560MAH3M	280MAH3M	—
60 HP 168 kW	U-20ME2E8	U-20ME2E8	U-20ME2E8	560MAH3M	560MAH3M	560MAH3M	—
70 HP 196 kW	U-20ME2E8	U-20ME2E8	U-20ME2E8	560MAH3M	560MAH3M	560MAH3M	280MAH3M
80 HP 224 kW	U-20ME2E8	U-20ME2E8	U-20ME2E8	560MAH3M	560MAH3M	560MAH3M	560MAH3M



## Wide range options to fit any use-case



### 1 Fan types

- Backward curve aerofoil
- Plug fan
- Standard in 60mm EC fan series



### 2 Fan motor controls

- Fixed speed
- Class H motor
- Exn/ Exe explosion motor
- PM motor

### 3 DX coil material types

- Copper fin
- Blue fin
- Epoxy coated fin and coil
- Tinned copper fin
- Heresite coated fin
- Blygold coated fin



### 4 Drain pan types

- Galvanized steel
- Stainless steel (SS304/ SS316/ SS316L)
- Epoxy polyester powder coated GI



### 5 Air filter types

- Medium filter
- Extra filter
- Synthetic
- Bag
- HEPA
- Aluminum
- Cartridge
- ULPA
- Auto-roll filter
- Chemical filter
- Carbon filter



### 6 Special options

- Electric heater
- Mixing box
- Outdoor roof
- 88mm panel thickness
- Heat pipes
- Heat wheel
- Acoustic panel
- Dessicant wheel
- UV lamp
- Humidifier



### Customization

- Airflow
- Capacity
- ESP
- Discharge direction
- Piping outlet

\*Please consult a Panasonic system engineer for more details.

## DX-AHU work flow / Certification



### 1 Selection software by SAIVER

- Sophisticated computer selection software.
- Flexible AHU dimension.
- Accurate quotation, technical data, detailed drawing.



### 2 Selection sheet

- -Data sheet, sound data
- -Energy class calculation
- -Psychrometric chart
- -Fan operating point
- -Dimensioning
- -Eurovent



### 3 Real use case

- Customized system design
- E.G. : Outdoor installation
  - Outdoor canopy with slope
  - Rain hood, wire mesh
  - Anti-corrosion

### Certification for SAIVER AHU\*

- ✓ EUROVENT - EN1886
- ✓ VDI 6022 Hygienic standard
- ✓ AMCA Fan standard
- ✓ AHRI 410, 430, 1350 Certified



\* AHU unit only.

# VRF Systems Features

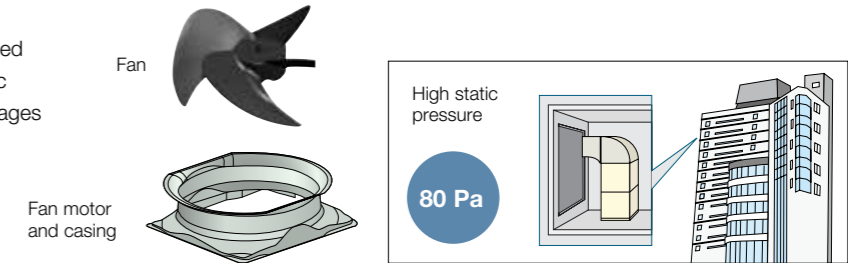
## FSV-EX advantages

The most efficient, powerful and quiet systems in Panasonic's history. There has never been a VRF systems like it. It's the story of a true game changer.



## High external static pressure on condensers

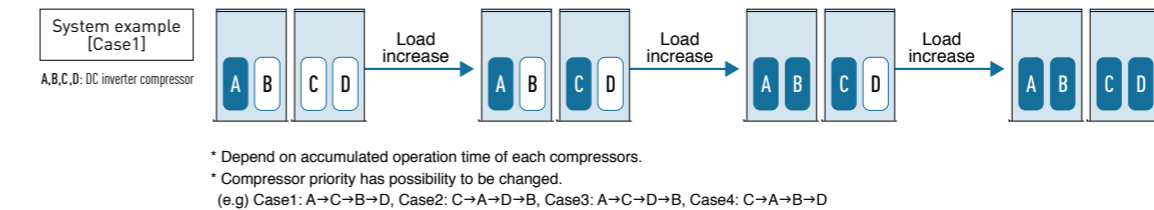
With a newly designed fan, fan guard, motor, and casing, new models can be custom-installed on-site to provide up to 80 Pa of external static pressure. An air discharge duct prevents shortages of air circulation, allowing outdoor units to be installed on every floor of a building.



## Extended compressor life by uniform compressor operation time

The total run-time of compressors are monitored by a built-in microcomputer, which ensures that operation times of all compressors within the same refrigerant circuit are balanced.

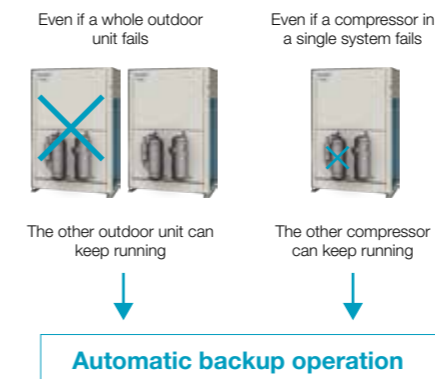
Compressors with histories showing shorter run times are selected first, ensuring equal wear and tear across all units and extended the working life of the system.



## Automatic backup operation

Automatic backup operation in the case of compressor failure or outdoor unit malfunction.

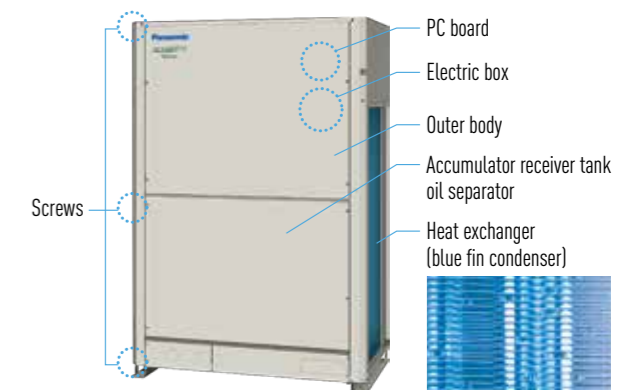
\*Except for 10 HP single unit installation.  
\*Backup operation allows uninterrupted cooling or heating to continue whilst waiting for service. Users should contact their authorised service center as soon as fault occurs.



## Hi-durability outdoor unit (option)

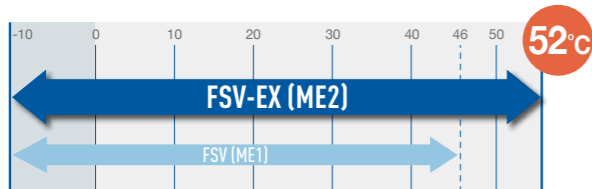
Corrosion-resistance treated for high resistance to rust and salty air to assure long-lasting performance.

Note: Selecting this unit does not completely eliminate the possibility of rust developing. For details concerning unit installation and maintenance, please consult an authorised dealer.



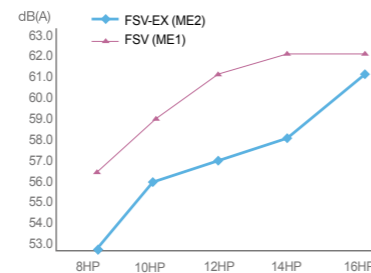
## Extended operation range up to 52°C

The FSV-EX can provide cooling even when the outside temperature reaches a maximum of about 52°C. And amazingly, it can still operate at 100% capacity when the outside temperature is as high as 43°C.



## Low-noise operation

Numerous technological innovations, including an improved compressor and a newly designed bell mouth and larger fan, have dramatically reduced the outdoor noise level.



## Remarkable improvement on key components

### 4 Flat fan guard



### 1 Multiple large-capacity inverter compressor (More than 14HP)

### Extraordinary energy-saving performance

#### 1 Multiple large-capacity all inverter compressors (more than 14HP)



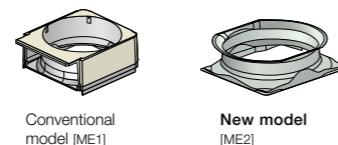
#### 2 Enlarged heat exchanger surface area with triple surface\*

\*For 8 & 10HP unit, the heat exchanger is 2 row design.



### Redesigned for smooth and better air discharge

#### 3 Newly designed curved air discharge bell mouth for better aerodynamics



#### 4 Large air discharge area with new flush surface top panel







MEMO

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# Panasonic®

## **Building Passion, Building Solutions.** Panasonic Air Conditioning Systems

We face a time in which “quality air” differentiates business. It’s a time for Panasonic to fully display its strengths. Our ability to assemble and build superior systems isn’t just due to the rich resources we have as a comprehensive electronics manufacturer, but also to Panasonic’s 100 years of tradition, where each person thinks and acts on their own initiative while working in a team to reach further heights. We do not compromise. Each of our independent selves is a one stop solution. We face our customers’ challenges together with our customers and do all that we can to build effective systems. As a true partner for our customers, we strive to always be at the forefront of business.

- Please read the Installation Instructions carefully before installing the unit, and the Operating Instructions before using it.
- Specifications are subject to change without prior notice.
- The contents of this catalogue are accurate as of May 2024.
- Due to printing considerations, actual colours may vary slightly from those shown.
- All graphics are provided solely for the purpose of illustrating a point.



Do not add or replace refrigerant other than the specified type. Manufacturer is not responsible for damage or deterioration in safety due to usage of other refrigerant.

Authorised Dealer

## Panasonic Australia Pty. Limited.

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