

# Panasonic

NEW VRF  
SYSTEMS RANGE  
ENERGY SAVING,  
EASY INSTALLATION  
AND HIGH  
EFFICIENCY

2013 / 2014



FS MULTI



ECO i



ECO G



VENTILATION

NEW VRF SYSTEMS 2013 / 2014

heating and cooling systems

FS MULTI

ECO i

ECO G

# NEW 2013 / 2014

## VRF RANGE

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ISO 9000 Series Certification  
**CERTIFIED TO MS ISO 9002:1994**  
 Panasonic HA Air-Conditioning (M) Sdn. Bhd. (PHAAM)  
 (Formerly know as Matsushita Industrial Corp. Sdn. Bhd.)  
 Registration No.: AR 0866



Environment Management Systems Approval Certificate  
**CERTIFIED TO MS ISO 14001:1997**  
 Panasonic HA Air-Conditioning (M) Sdn. Bhd. (PHAAM)  
 (Formerly know as Matsushita Industrial Corp. Sdn. Bhd.)  
 Certification No.: M015802127

**NEW****3-PIPE ECOi MF2 SERIES SIMULTANEOUS HEATING AND COOLING VRF SYSTEM**

PG 70

**NEW****ECO G HIGH POWER. THE 2-PIPE GAS DRIVEN VRF WITH AN ELECTRICAL POWER GENERATOR**

PG 88

**NEW****K2/TYP  
WALL MOUNTED****NEW  
DESIGN**

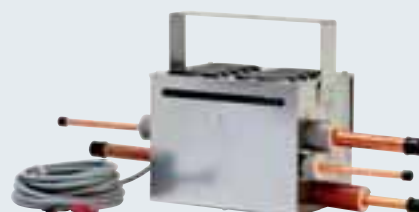
PG 116

**NEW****AIR CURTAIN CONNECTED TO VRF  
INSTALLATION****HIGH  
EFFICIENCY  
WITH EC FAN  
MOTORS**

PG 124

**NEW****SUPER LOW TEMPERATURE RADIATORS,  
FOR HIGH EFFICIENT INSTALLATION****35°C  
WATER  
TEMPERATURE**

PG 100

**NEW****SOLENOID VALVE KIT. "NON-STOP" OIL  
RECOVERY OPERATION**

PG 72



## Panasonic – leading the way in Heating & Cooling

With more than 30 years of experience, selling to more than 120 countries around the world, Panasonic is unquestionably one of the leaders in the heating and cooling sector.

With a diverse network of production and R&D facilities, Panasonic delivers innovative products incorporating cutting-edge technologies that set the standard for air conditioners worldwide. Expanding globally, Panasonic provides superior international products transcending borders.

### History of Air Conditioning Group

Panasonic starts with a desire to create things of value. As hard work and dedication results in one innovative product after another, the fledgling company takes its first steps towards becoming the electronics giant of today.



- |   |  |   |   |  |  |   |   |  |  |
|---|--|---|---|--|--|---|---|--|--|
| <p><b>1936</b><br/>First electric Fan with Automatic Oscillation (36 cm table top model).</p> | <p><b>1958</b><br/>First room air conditioner launched for domestic installation. Prior to this date, air conditioners were large and only for commercial use. Panasonic developed the first compact air conditioner for windows; it was lightweight and easy to install, improving the quality of life in Japanese homes. 1,100 units were sold in Japan in the first year, and just two years later, in 1960, this figure rose to 230,000.</p> | <p><b>1973</b><br/>Panasonic launches the first highly efficient air-to-water heat pump in Japan.</p> | <p><b>1975</b><br/>Panasonic becomes the first Japanese air conditioner manufacturer in Europe.</p> | <p><b>2002</b><br/>The Ion and Oxygen Generator — two of the most important contributions to air conditioning systems.</p> | <p><b>2008</b><br/>Etherea new concept of air conditioning systems: high efficiency and high performances with a great design. Etherea also includes a very innovative air quality sensor and air purifier in order to enjoy healthy air at home at all times.</p> | <p><b>2010</b><br/>New Aquarea. Panasonic has created Aquarea, an innovative new, low-energy system, designed to help you enjoy ideal temperatures and hot water in your home, even with extreme outdoor temperatures. Aquarea cools or heats to ensure maximum comfort. Aquarea is far cleaner, safer, cheaper and environmentally friendly than alternatives using gas, oil and other electrical systems.</p> | <p><b>2011</b><br/>New Eco i VRF solution. The new Panasonic VRF solution for big buildings is the most efficient in the industry in more than 74% of combinations. ECO i satisfies the most demanding standards required by design offices, architects, owners and installers.</p> | <p><b>2012</b><br/>New GHP units. Panasonic's gas-driven VRF systems are ideal for projects where power restrictions apply. In 2012, Panasonic extends the Gas Heat Pump range with a new GHP line-up, new GHP G Power (electricity production) and the new Chiller Units.</p> | <p><b>2013</b><br/>New ECOi 3-Pipes. The best efficiency for your building. Our New 6 Series 3-Pipes is achieving a COP of 4.77 at full load, and even more when recovering heat from the building. There is no doubt, Panasonic is reducing environmental impact!</p> |
|---|--|---|---|--|--|---|---|--|--|



**Panasonic Europe**

Panasonic is committed to offering our customers innovative products in the heating and cooling market across Europe, which not only meet but exceed their requirements. Key to success is Panasonic's investment in R&D, manufacture and training to ensure innovative, cutting edge products and investment in our distribution channels and partners so that these products are accessible in Europe. Panasonic has developed a comprehensive network across Europe of training centers and training academies for installers, design offices and service teams in all major countries.



**Panasonic Factories and R&D Department**

There is a close relationship between R&D innovation and good manufacturing processes, and so Panasonic has placed its R&D facilities very close to its manufacturing bases. This ensures good integration between all divisions to deliver high quality and reliable solutions to our markets.

**We control the process**

The company is also a world leader in innovation as it has filed more than 91,539 patents to improve its customers' lives. Moreover, Panasonic is determined to remain at the forefront of its market. In all, the company has produced more than 200 million compressors and its products are manufactured in 294 plants which are located all over the world. You can be assured of the extremely high quality of Panasonic's heat pumps. This wish to excel has made Panasonic the international leader in heating and turn-key air conditioning solutions for homes, medium-sized buildings such as offices and restaurants, and large-scale buildings. These offer maximum effectiveness, comply with the strictest environmental standards and meet the most avant-garde construction requirements of our time. At Panasonic we know what a great responsibility it is to install heating and cooling systems. Because offering you the best solutions in heating and cooling matters.

**PRODUCTION 100% PANASONIC**



**SERVICE PROVIDER**



**RESEARCH & DEVELOPMENT AND DESIGN**



**TESTING AND QUALITY INSURANCE**



**100%**  

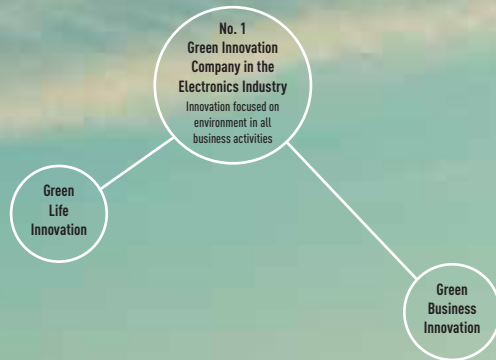

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**Panasonic**

eco  
ideas

## Eco & smart ideas for a sustainable lifestyle

Panasonic aims to be the No. 1 Green Innovation Company in the Electronics Industry by 2018. We will make the environment central to all our business activities and work to realize our vision with innovations for both every day life and business.



Exemplary sustainable projects



**Blackfriars Bridge**  
London, UK  
with Panasonic solar panels.



**Skolkovo City**  
Moscow, Russia  
with Panasonic energy saving concept.

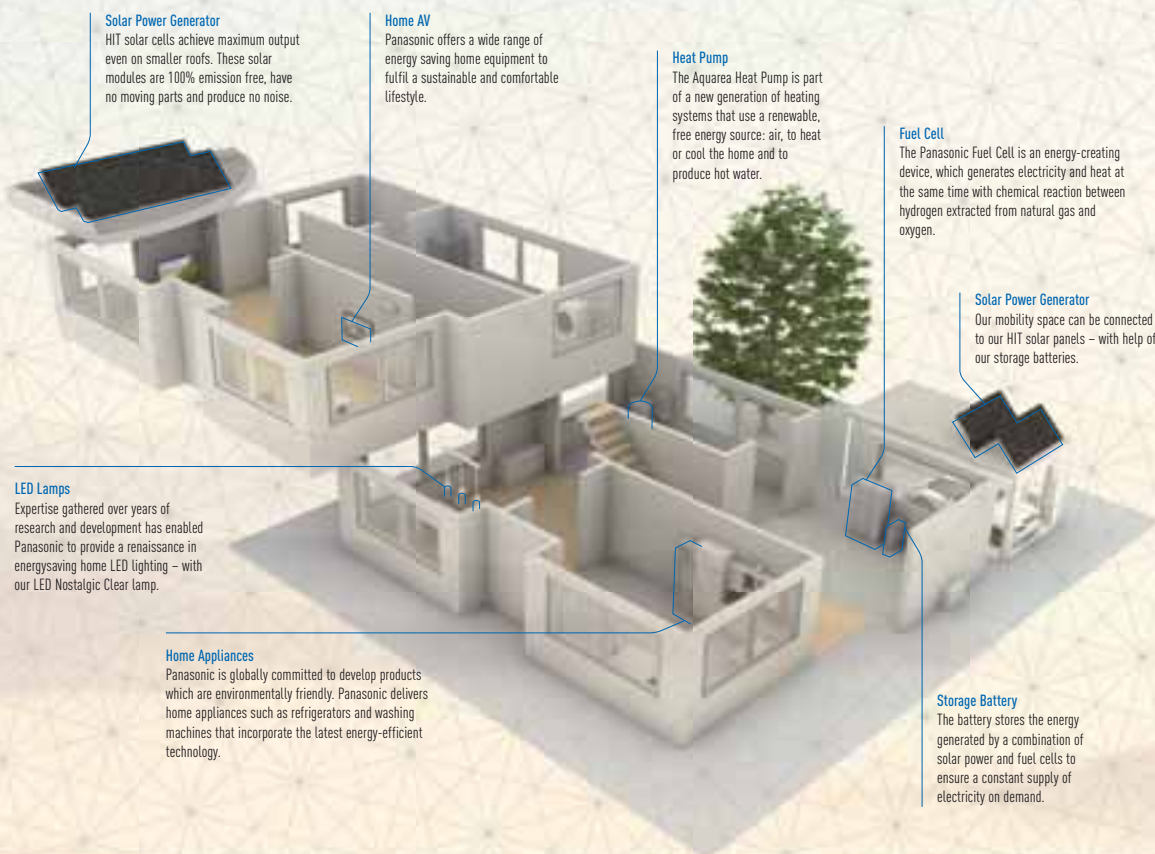


**Photosynthesis**  
Milano Salone, Milano, Italy  
with Panasonic LED light bulbs and HIT solar power generators.



**Siestorage**  
Modular energy storage solution with Panasonic lithium ion batteries.

We aim to realize a lifestyle with virtually zero CO<sub>2</sub> emissions throughout the entire home





## Panasonic Professional

Panasonic has an impressive range of support services for designers, specifiers, engineers and distributors working in the heating and cooling markets.

## Panasonic's New Advanced VRF Software with AutoCAD® compatibility makes design easier than ever

### Software

Panasonic provides bespoke software helping system designers, installers and dealers to very quickly design and size systems, create wiring diagrams and issue bills of quantities at the push of a button.



### ECOi VRF Designer

Panasonic is pleased to announce the launch of its new Advanced VRF Designer software. Building on the success of the ECOi VRF Designer software, this package provides air conditioning system designers, installers and dealers with a program to design and size projects for Panasonic's VRF ranges. Similar to the standard VRF Designer software, it is possible to create wiring diagrams, electrical power wiring and issue bills of quantities with a simple push of a button. With Panasonic's Advanced software, designers are now able to work directly from AutoCAD files, making the process extremely easy to manage and time-saving. AutoCAD drawings, print outs and scans from existing designs can be imported and altered with the system therein. Super-efficient and built for the designers' every need, Panasonic's Advanced VRF software can create life-sized piping designs and automatic length calculation based on their imported drawings

**The Panasonic VRF Designer system software can be used for all Panasonic ECOi 6N and FS Multi VRF**

### Features include

- Easy to use system wizards.
- Auto piping and wiring features.
- Converted duties for conditions and pipework.
- Auto CAD (DXF), Excel and PDF export.
- Detailed wiring and pipework diagram.





## Panasonic

PRO Club 

### Panasonic PRO Club

Panasonic announces a new initiative for all professionals involved in the heating and cooling business - the Panasonic PRO Club ([www.panasonicproclub.com](http://www.panasonicproclub.com)). This exciting new portal provides distributors, installers, engineers and specifiers with a direct communication channel with one of the industry's major manufacturers.

The website contains a wealth of information from the latest versions of Panasonic's Aquarea and Etherea Design Software, to Technical Documentation, Catalogues and Images for the company's wide range of heating and cooling systems - all in an easy to navigate and use website. Also, registered users will be able to access news regarding special promotions and take advantage of these offers, as well as access helpful business advice such as ideas and guidelines for showroom decoration or van livery featuring Panasonic logos and display material.

[www.panasonicproclub.com](http://www.panasonicproclub.com)

or connect simply with your smartphone to the proclub using this QR:



## Panasonic

PRO Academy 

### The Panasonic PRO-Academy opens its doors

Panasonic takes its responsibility to its distributors, specifiers and installers seriously and has developed a comprehensive Training Programme. The Panasonic Pro-Academy encompasses the traditional hands-on approach, as well as embracing today's technology to offer an eLearning facility available 24 hours, 7 days a week!

### New training courses cover three levels

#### Design, installation, and commissioning & trouble-shooting

Training courses include:

- VRF ECOi
- Aquarea air source heat pumps (MCS accredited)
- GHP (2012)

The courses are offered on site at Panasonic's premises across Europe as well as via the Panasonic ProClub eLearning site. The Training Centres display Panasonic's latest product range and give delegates an opportunity to get hands-on experience with the latest controllers, indoor and outdoor units from the VRF ECOi, Etherea, GHP and Aquarea ranges.



NEW

# THE NEW PANASONIC INDUSTRIAL VRF SYSTEMS

## PROFESSIONAL SOLUTIONS FOR ALL TYPES OF PROJECTS

The new Panasonic VRF system is specifically designed for energy saving, easy installation and high efficiency performance, with a wide choice of outdoor and indoor unit models and unique features which are designed for the most demanding offices and big buildings.

**A class energy saving**



Inverter+ products improve on the characteristics of standard Inverter range by over 20%. A Inverter plus is also A class on cooling and heating mode.

**Energy saving**



The Inverter range provides greater efficiency, more comfort. Provides more precise temperature control, without highs and lows, and keeps the ambient temperature constant with lower energy consumption and a significant reduction in noise and vibration levels.

**High savings**



GHP technology offer the best preliminary efficiency.

**Maximum flexibility**



VRF. The Inverter plus range provides greater efficiency.

**Down to -25 °C in heating mode**



The ECOi system works in heating mode at outdoor temperatures down to -25 °C (2-Pipe series) or -20 °C (3-Pipe series and Mini ECOi).

**Easy control**



The communication port is integrated into the indoor unit and provides easy connection to, and control of, your Panasonic heat pump to your home or building management system.

**Environmentally friendly refrigerant**



R410A. Environmentally friendly refrigerant.

**5 year compressor warranty**

5 YEARS WARRANTY. We guarantee the compressors in the entire range for five years.



## FS MULTI

### FS Multi VRF

The FS Multi VRF lineup is a full Electrical VRF line up specially designed for small to medium installations.

#### Benefits:

- Easy to install units
- No additional gas needed (for 4, 5 and 6 HP)
- Indoor units match Ethera wall mounted designs
- Self diagnostic function with 7-digit code for easy set up and repair

#### Example applications:

1. Apartments
2. Bungalows
3. Offices
4. Shops & Boutiques

## ECO i

### Mini ECOi

The Mini ECOi VRF lineup is a high efficiency electrical VRF.

#### Benefits:

- High efficiency outdoor units
- Compatible with all ECOi indoors units
- Compatible with all remote controls/interfaces from the ECOi range
- Flexible connection to ECOi projects

#### Example of ECOi and MiniECOi applications:

1. Complexes // 2. High Rise Buildings //
3. Commercial Buildings // 4. Hotels

### ECOi

ECOi electrical VRF is specifically designed for the most demanding offices and big buildings.

#### Benefits:

- High efficiency system
- From 8 to 20 HP in only one chassis
- Extended operating range to provide heating at outdoor temperature as low as -25 °C
- Suitable for refurbishment projects

## ECO G

### ECO G

ECO G gas VRF is specially designed for buildings where the electricity is restricted or CO<sub>2</sub> emissions must be reduced.

#### Benefits:

- Very high preliminary efficiency ratio
- Very low electrical consumption
- Compatible with all ECOi indoor units and remote controls
- Sanitary hot water is produced freely in summer

#### Example applications:

1. Complexes
2. High Rise Buildings
3. Commercial Buildings
4. Hotels



# FS MULTI VRF FROM PANASONIC



Easy to install VRF, specially designed for homes and small commercial buildings: large lineup of indoor units, Ethera wall mounted design, 5-6-8-10 HP outdoor units, single phase and three phase.

FS Multi VRF's cutting edge VRF technology is perfectly suited to medium-sized or small areas, with single-phase power sources, together with advanced Inverter technology, opening up previously unimagined possibilities in the world of air conditioning.

Air conditioning spaces can now take on a new dimension. If you have bought a new property, home, office or commercial place which is still in the construction phase, or if you are refurbishing, Panasonic offers you the chance to enjoy FS Multi VRF air conditioning.

## FS MULTI

**U-5LA1E5 // U-6LA1E5**

For homes and multi-storey apartments.  
Enabling air conditioning in multiple rooms with a single outdoor unit.

**U-8EA1E8 // U-10EA1E8**

Offices, shops and boutiques.  
As well as being ideal for new buildings.

**FS Multi VRF from Panasonic**

- Total freedom of choice. Up to 30 different indoor models. Gives you the freedom to choose the best option depending on architectural needs and interior decor criteria.
- Two single-phase outdoor unit ratings: 5 and 6 HP
- Two three-phase outdoor unit ratings: 8 and 10 HP
- Inverter technology with R410A refrigerant, "greater comfort and economy with lower consumption".
- Greatest space reduction. A single outdoor unit feeds up to 16 indoor units (at 10 HP).
- Ease of installation. Thanks to the reduced dimensions of the outdoor unit it can be taken to the roof of the building in the lift.

**Energy Saving Inverter**

All the models of Panasonic FS Multi VRF series are equipped with DC inverter compressor for the higher EER operation. The new design, not only helps to achieve improved quiet and high-efficiency operation, but also reduces running costs.

**Panasonic's Original High-Performance Compressor**

It's the compressor at the heart of an air conditioner that determines reliability and efficiency. The FS Multi VRF features Panasonic's original high-performance compressor to ensure outstanding performance and quality.

**High-Efficiency Compressor**

Panasonic has achieved a more compact motor by using a powerful neodymium (rare-metal) magnet. Higher efficiencies are possible thanks to the smaller magnetic field distortion of the winding rotor motor.

**Pump-Down Mode (5 and 6 HP)**

The 5 and 6 HP FS Multi VRF outdoor units incorporate a pump-down mode, making it possible to drain all of the refrigerant from the installation (not just from the external unit). This facilitates improved installation and maintenance routines.

**Refrigerant Charge-free System On the 5 and 6 HP**

The FS Multi VRF is a refrigerant charge-free system that does not require a charge of additional refrigerant even when using a full pipe length of up to 90 m. This dramatically shortens the installation time required for charging with additional refrigerant, weight measurement and pressure judgment. It also eliminates charge amount calculation and there's less chance of a cooling capacity shortage due to an incorrect amount of refrigerant being used or other errors.

**System advantages. Installation and maintenance flexibility**

The FS Multi VRF system solves the air conditioning design and construction problems that arise due to pipes at different heights and the location of the installation site. Exceptional installation flexibility makes installation easy and maintains the attractive appearance of buildings.

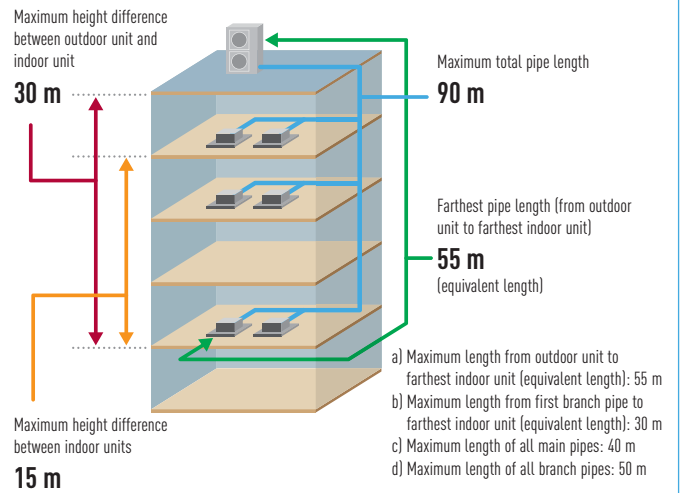
## OUTDOOR UNITS

U-5LA1E5 // U-6LA1E5



### Pipes of up to 90 m

The total length of the pipe between a system's indoor and outdoor units can be extended up to 90 metres, with a height difference of up to 30 metres. These ample limits make it possible to place the outdoor unit on the roof. The maximum height difference between indoor units in the same system may be up to 15 metres, thus covering 4 or 5 floors in the same system.



### Residences

Since a layout using long piping is possible, a single outdoor unit can be used even for multi-storey residences. And we offer a wide range of indoor unit designs to choose from to complement different interiors.

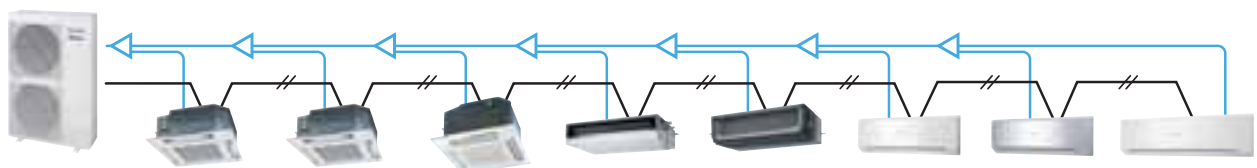
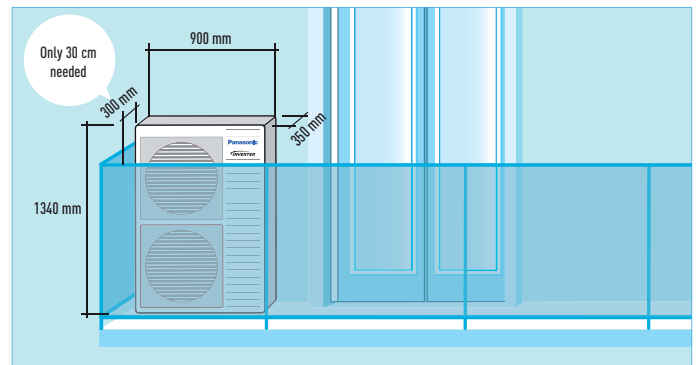


### Multi-storey Apartments

Enabling air conditioning in multiple rooms with a single outdoor unit, the FS Multi VRF system offers an effective solution to today's demand for aesthetically pleasing buildings. The indoor units are also available in designs providing an ideal match for modern living environments.

### Space-Saving Design

Improvements to the design of the outdoor unit's fan has reduced the size of the unit to enable installation in a smaller space. Without sacrificing quietness, higher efficiency is also attained. Easy piping facilitates freedom in installation, and reduction in installation costs.

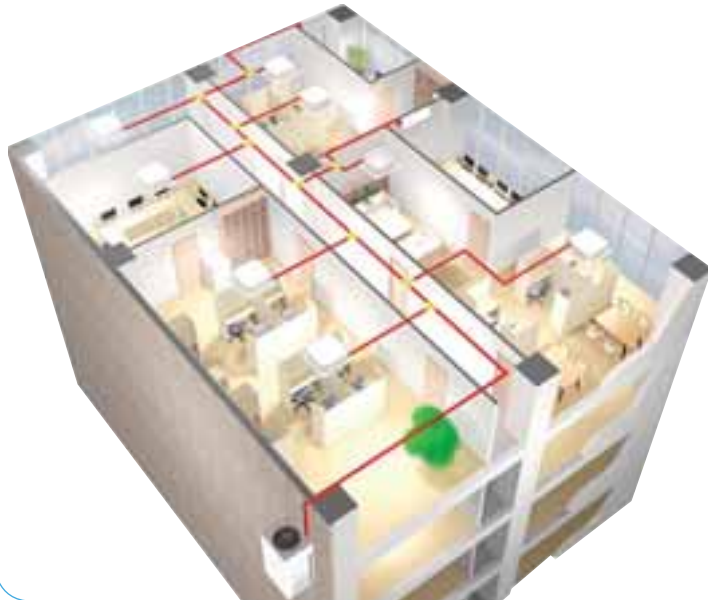


SYSTEM / HP	5HP	6HP
Connectable Indoor Unit	8	8

← Refrigerant pipe  
 // URBAN net control line

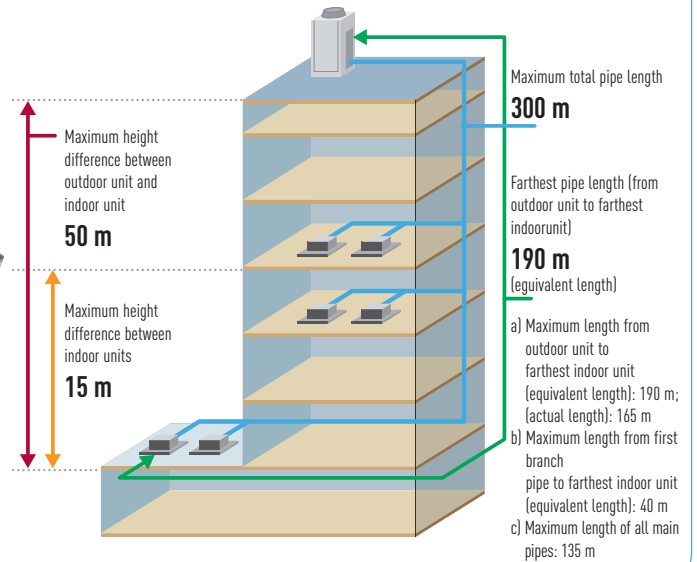
## OUTDOOR UNITS

U-8EA1E8 // U-10EA1E8



### Long pipe-runs possible

The total length of the pipe between a system's indoor and outdoor units can be extended up to 300 metres, with a height difference of up to 50 metres. These ample limits make it possible to place the outdoor unit on the roof. The maximum height difference between indoor units in the same system may be up to 15 metres, thus covering 4 or 5 floors in the same system.



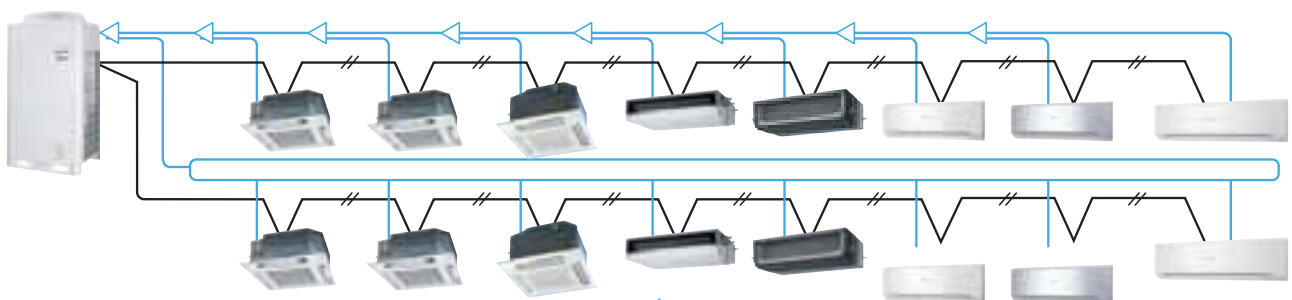
### Offices, Shops and Boutiques

As well as being ideal for new buildings, the FS Multi VRF system offers space-saving benefits when refurbishing and renovating existing spaces. What's more, independent air conditioning reduces energy wasted in unused offices, and much neater pipe layout is possible than with a single split system. Using the Weekly Timer also enables setting for the optimum Energy saving operation in offices and commercial facilities. And there are options enabling demand control and digital connection compatibility to meet the needs of business applications.



### High External Static Pressure Mode

8 and 10 HP outdoor unit features a high external static pressure mode (up to 60 Pa). Select via the outdoor unit's local setting mode.



SYSTEM / HP	8HP	10HP
Connectable Indoor Unit	13	16

← Refrigerant pipe  
 // URBAN net control line

**Energy saving**

**1. Hyper Wave Inverter**

The series quickly warms the room up to the set temperature and maintains it within the comfort zone while ensuring energy efficiency and savings.

**2. DC Inverter Compressor**

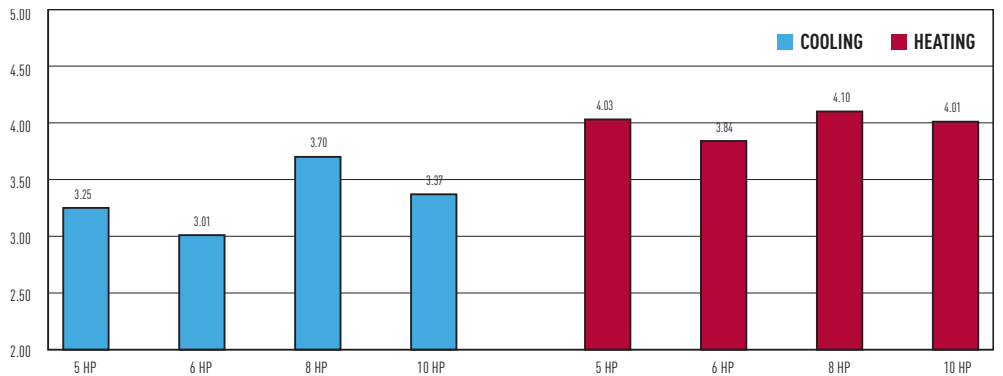
A powerful neodymium magnet helps make the motor more compact.

**3. Large Diagonal Air Flow Fan**



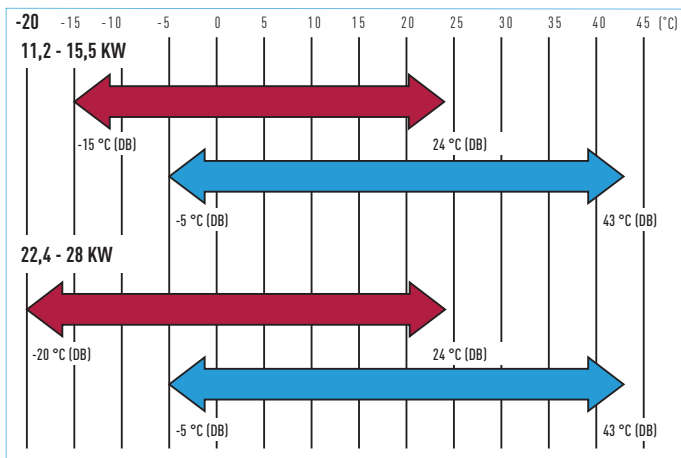
**Energy Saving**

High quality features translate into savings thanks to great energy efficiency. This efficiency is due to the fact that each room is individually controlled and only the rooms that require air-conditioning are heated or cooled. Moreover, thanks to Inverter technology, the level of air conditioning can be adjusted precisely depending on each room's condition.



**Broad Operating Range**

The heating function will remain stable indoors even when the temperature outside drops to -15 °C, thus meeting users different needs. Moreover, the cooling function operates from -5 °C to 43 °C.



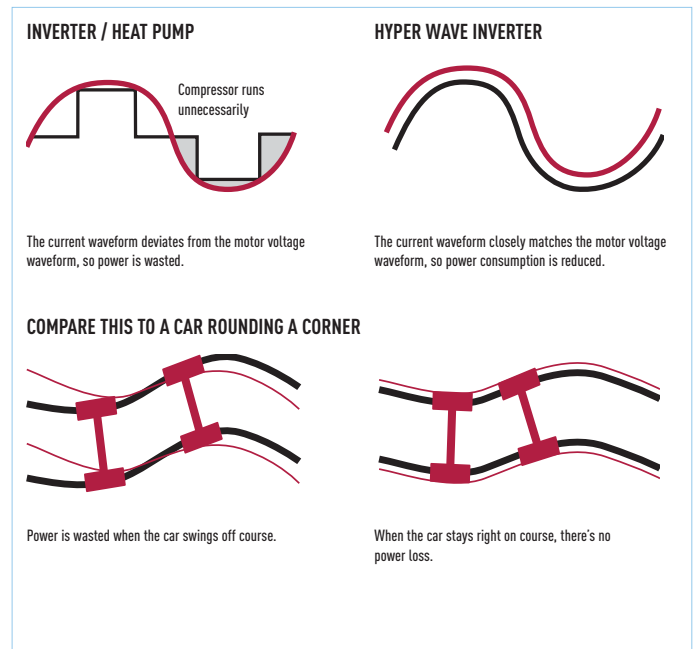
**Quiet Operation**

A host of silencing technologies achieve super-quiet operation. We've also improved operating efficiency and reduced energy consumption.

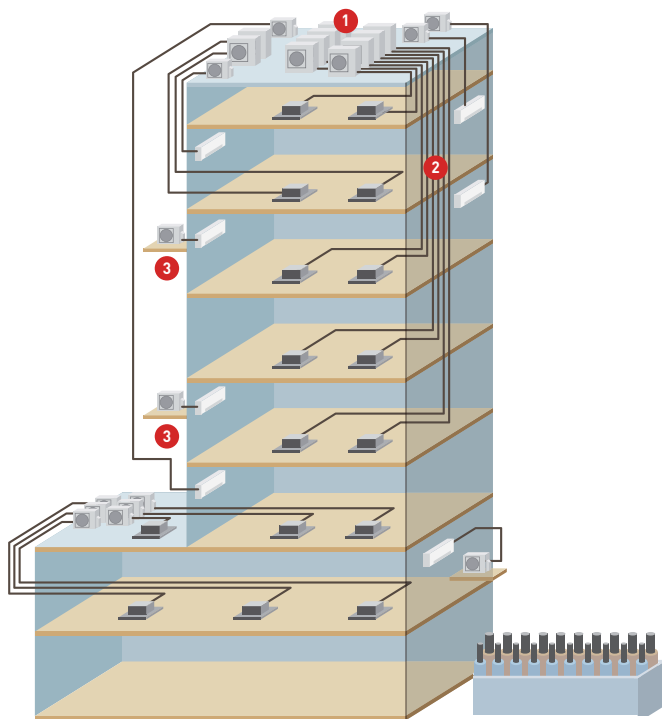


**Hyper Wave Inverter**

Panasonic's expertise from inverter development is realised in the Hyper Wave Inverter. The control of the inverter demonstrates optimum compressor torque. The FS Multi VRF series quickly heats up the room to the set temperature and maintains a comfortable condition, whilst ensuring energy efficiency and savings.

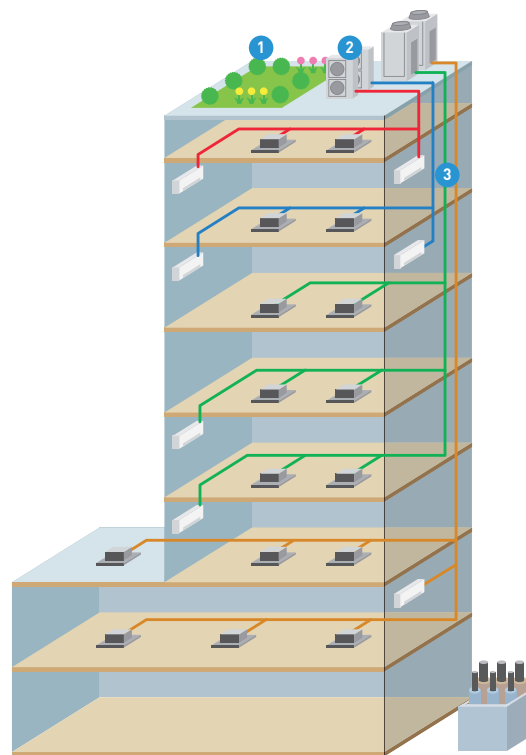






### Frequent Single Split System Problems

1. Requires many outdoor units and large installation space. Thus, spoiling the building's appearance, and the building's strength must be assessed.
2. Requires many pipe shafts.
3. Pipes are short so outdoor units have to be installed on wall surfaces. Insufficient pipe length makes installation impossible.



### FS Multi VRF System Solution

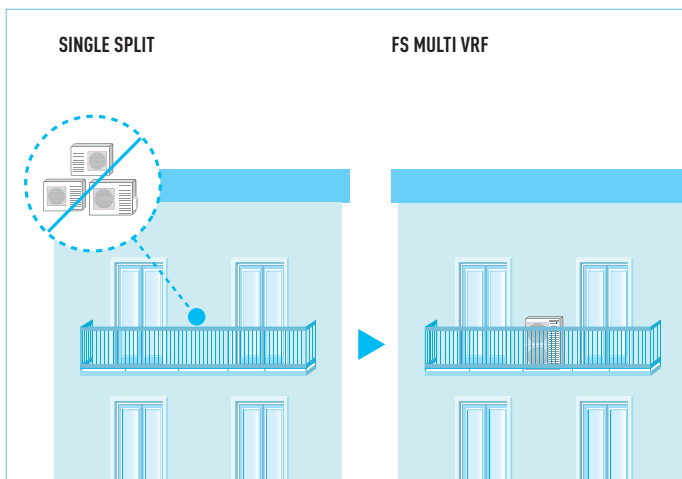
1. Minimized number of outdoor units thanks to multi system. Rooftop space can be used more effectively and the unit load on the roof is considerably reduced.
2. Outdoor units can be installed close to each other, maintaining the building's appearance and enhancing the installation flexibility.
3. The number of pipings is reduced, thus minimising the space required in pipe shafts.

### Easy maintenance

When there is a breakdown in an indoor unit, the system continues to work without this indoor unit. The outdoor unit does not stop, and the rest of the indoor units continue to operate.

### When installation space is limited

A single compact FS Multi VRF system outdoor unit enables air conditioning in multiple rooms, solving the problems of narrow or limited installation space.



### Innovative and perfect control of loading for the 5 and 6 HP

The outdoor unit controls and optimises the loading of refrigerant in the system by asking each indoor unit its requirements. With this very innovative loading control, the system is highly efficient and the indoor unit responds very quickly to demands.

### Cooling Only Model Setting

- The unit designed for cooling only can be set by the JP wire on the outdoor unit PC board.
- After setting this mode, the FS Multi VRF system cools only.

### Outdoor Unit Silent Operation Mode

The Silent Operation mode of the outdoor unit can be selected by remote control. There are three mode settings that reduce the noise level by up to 6 dB(A). (When the Silent Operation mode is selected, cooling and heating capacity are reduced.)

EXAMPLE AT 4HP MODEL AT COOLING OPERATION

Reference	Capacity index*	Sound pressure dB(A)
Normal mode	100	52
LV1	80	50
LV2	72	48
LV3	62	46

\* The indexes are nominal capacity operation reference values

# INTERNET CONTROL. CONTROL YOUR AIR CONDITIONING SYSTEM WITH YOUR SMART DEVICE -SMARTPHONE & INTERNET FOR PACi



## Control your comfort and efficiency with the lowest energy consumption

### What's Internet Control?

Internet Control is a next generation system providing a user-friendly remote control of air conditioning or heat pump units from everywhere, using a simple Android or iOS smartphone, tablet or PC via internet.

#### Simple Installation

Just connect the Internet Control device to the air conditioner or heat pump with the supplied wire and then link it to your WIFI Access point.

### Internet Control. Easy to install. Maximum benefit

Internet Control is underlined with the slogan "Your home in the cloud", meaning a simple and easy to handle solution has been considered for every user to manage the device, not requiring any communication or computer skills.

No servers. No adaptors. No wires. Just a small box to be connected and placed close to the air conditioning indoor unit is needed... and your smartphone, tablet or PC.

Start the App from your smartphone device, your tablet or your computer, and enjoy a new experience in comfort. An intuitive and user-friendly application on the screen of your smartphone or PC let you manage the air conditioning unit in the same way you do with the remote controller. Internet Control can be downloaded in Apple's AppStore and Android's PlayStore.

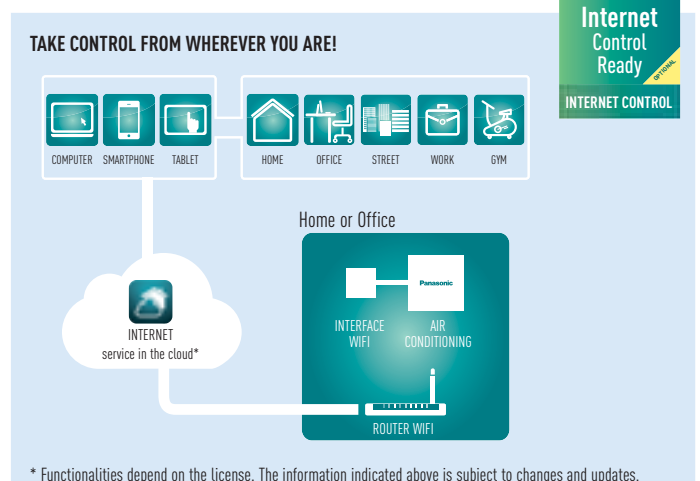
### Control your air conditioning with the smart internet control device via smartphones, tablet, PC and smart desktop phone via internet

Offering the same functions as if you were at home or office: start/stop, Mode Operation, Set Temperature, Room Temperature etc as well as the new, advanced functionality provided by Internet Control to achieve the best comfort and efficiency with the lowest energy consumption.



### Study Case. Alice, Shop Owner

"I want maximum comfort and the best savings for my shop. And I manage to get these in the easiest and most natural way possible. From my smartphone, something I always carry with me, I can control the temperature of my shop and in this way, as well as maintaining an ideal temperature I also save a small fortune in electricity at the end of the year."



\* Functionalities depend on the license. The information indicated above is subject to changes and updates.

# FS MULTI CONNECTIVITY. NEW INTERFACES FOR FS LINE UP. INCREASED FLEXIBILITY FOR INTEGRATION INTO YOUR PROJECTS



Easy control  
CONNECTIVITY

Great flexibility for integration into your KNX / EnOcean / Modbus / LonWorks / BACnet projects allows fully bi-directional monitoring and control of all the functioning parameters  
Panasonic Partners have designed solutions specifically for Panasonic air conditioners, and provide complete monitoring, control and full functionality of the entire Commercial line-up from KNX / EnOcean / Modbus / LonWorks / BACnet installations.  
For more information, contact Panasonic.

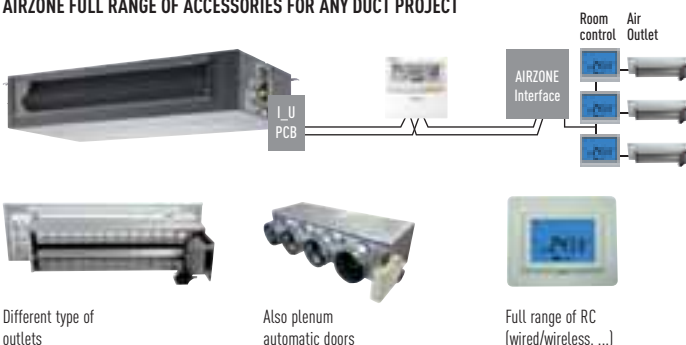


	PANASONIC MODEL NAME	INTERFACE	CONNECTED ON P-LINK OR IN THE INDOOR UNIT	MAX NUMBER OF INDOOR UNITS CONNECTED	POSSIBLE TO CONNECT MORE THAN 1 INDOOR UNIT (GROUP OF INDOORS)
FS Multi	PAW-RC-KNX-1i	KNX	Indoor unit	1 (1 Group of Indoor units)	No
	PAW-RC-MBS-1	Modbus RTU	Indoor unit	1 (1 Group of Indoor units)	No
	PAW-RC-ENO-1i	EnOcean	Indoor unit	1 (1 Group of Indoor units)	No
	PA-RC-WIFI-1	IntesisHome	Indoor unit	1 (1 Group of Indoor units.)	No

## AIRZONE. CONTROL OF THE PACI HIDE AWAYS

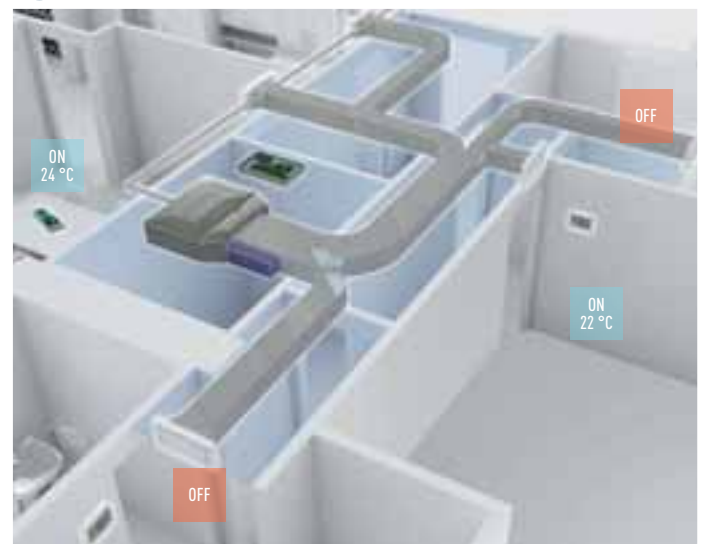
Airzone has developed interfaces to easily connect to Panasonic PACi Hide Away units. Ensuring optimum performance, comfort and energy savings, the new system is efficient and easy to install.

### AIRZONE FULL RANGE OF ACCESSORIES FOR ANY DUCT PROJECT



Interface dimensions: 120 x 25 x 65 cm (W x H x D). Interfaces must be purchased direct from Airzone.

## AIRZONE



# INDIVIDUAL CONTROL SYSTEMS

Unlike conventional air conditioning systems, the VRF system is applied separately to each room. So, this system is ideal for areas with fluctuation in traffic. Moreover, you can have precise control over each of the rooms to achieve exact conditions. Individual control makes this system more cost-effective and efficient.

## Wired Remote Controller

### CZ-RT1

- Remote controller with LCD and self-diagnosis
- Constant monitoring of the system with fault detection
- Weekly timer function
- Maintenance time and cost reduction

#### OPERATING BUTTONS

- ON/OFF
- Real time daily timer
- Weekly timer: 6 actions per day (total 42 actions per week), including temperature setting.
- Temperature adjustment
- Adjusting air direction
- Selection of operating mode
- Fan speed control
- Restart filter
- Ventilation interlink

#### MONITOR

- Operating mode
- Centralised control indicator
- Demand control indicator
- Operation priority indicator
- Selected temperature
- Air direction
- Clock
- Day of the week indicator
- Inspection/operating test
- Fan speed
- Filter maintenance
- Defrost/hot start indicator
- Error mode display



### 1. Weekly Timer

Weekly timer setting (each day of the week) is available to control the air conditioner. Max. 6 settings/day and 42 settings/week can be executed. The setting temperature can also be programmed for optimal comfort.

#### EXAMPLES OF SETTING WEEKLY TIMER

##### SHOP WITH REGULAR HOLIDAYS

Example: Closed Saturday afternoon and all day Sunday.

Mon-Fri On 9:00, Off 18:00  
Sat On 9:00, Off 12:00  
Sun Not set

The timer can have different settings for every day of the week.

##### THE NUMBER OF PERSONS VARIES DEPENDING ON TIME ZONES.

Example: Set a lower temperature at lunch time when many people may visit.

Everyday  
On 12:00 23 °C  
On 14:00 28 °C

In this case, the temperature can be set at the same time.

##### NOT TO FORGET TO SWITCH OFF

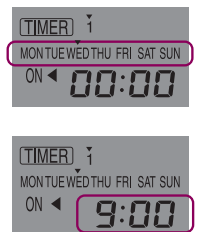
Example: To prevent forgetting to switch OFF weekdays

Mon-Fri  
Off 20:00

The timer can be set for simple shut-off operation.

#### HOW TO SET

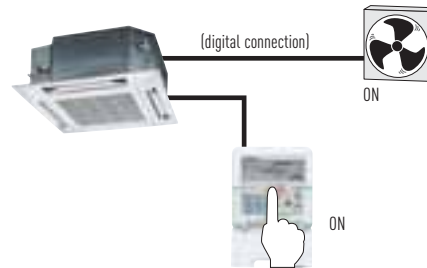
- 1 SELECT THE DAY
  - 2 ENTER THE TIME
- \*Simple Timer Mode



### 2. Ventilation Interlink

When an external device such as a ventilator is connected to the indoor unit, switch ON/OFF of the ventilator can be controlled by the wired remote control. Either link-ventilation or independent-ventilation is selectable.

Energy recovery ventilators are also offered by Panasonic. Optional printed circuit board (Interface Adapter for External Signals: CZ-TA31P\*) is needed.



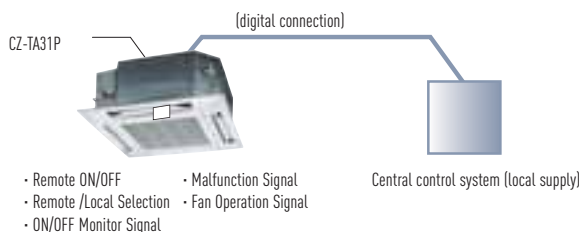
## Interface Adapter for External Signals

### CZ-TA31P\*

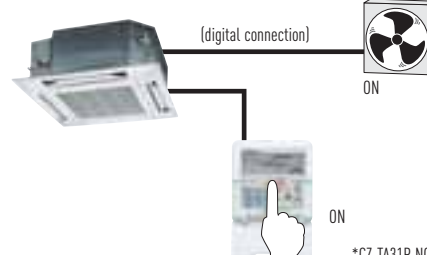
- By connecting to the indoor unit, a separately sold ventilator can be controlled.
- Remote control operation of the indoor unit is enabled (ON/OFF control).
- The operating condition of the indoor unit (malfunctions, operating status) can be externally output.
- Control in linkage with a Energy Recovery Ventilators (ERV) or similar is possible.



#### CONNECTION WITH EXTERNAL CENTRAL SYSTEM



#### INTERLINK WITH VENTILATION OR ERV



\*CZ-TA31P NOT applicable for wall-mounted indoor unit

**Wireless Remote Controller**  
**CZ-RWS1 . Heat Pump Models**

**CZ-RWC1. Cooling Only Models**

- Remote controller with LCD and self-diagnosis
- Error code recognition
- Maintenance time and cost reduction
- Real time daily timer

**OPERATING BUTTONS**

- ON/OFF
- Activate/deactivate programmer
- Real time daily timer
- Temperature adjustment
- Air direction
- Operating mode
- Fan speed control
- Restart filter
- Inspection of error code

**MONITOR**

- Operating mode
- Temperature selected
- Air direction
- Time programming
- Error code display
- Fan speed
- Clock



**Wireless Controller Receiver**  
**For Cassette Type CZ-RWRU1**

**For Duct Type CZ-RWRM1**



Wireless receivers for wall-mounted and 60x60 Cassette types are equipped as standard.

**Cooling/Heating Controller for the Outdoor Unit**  
**CZ-RD1**

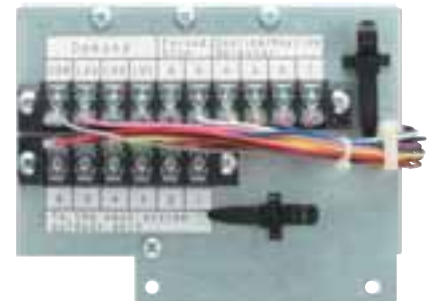
Enables the cooling, heating and ventilating operating mode for each outdoor unit. Allows the operating mode to be changed for several outdoor units at the same time by means of a single remote control.



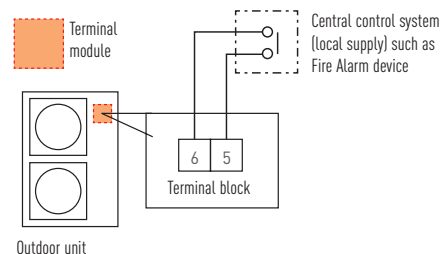
**Terminal Module (Equipped as Standard on the Outdoor Unit)**  
**CZ-CAP1**

Control terminal to be connected with outside devices or CZ-RD1 controller.

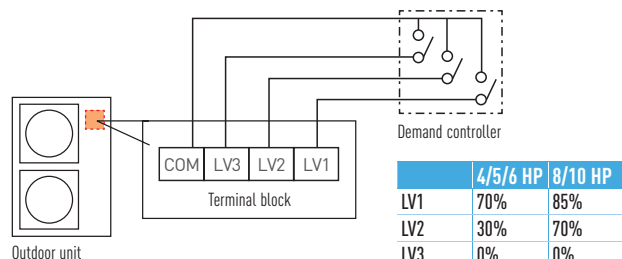
- Used to receive forced stop digital signal from local procured central control system.
- Used to receive demand control signal from local procured central control system. (Demand control for energy saving with 3-level selection)
- Required to connect with CZ-RD1 cooling/heating controller.
- Group control of several FS Multi VRF systems for forced stop and CZ-RD1 cooling/heating controller.



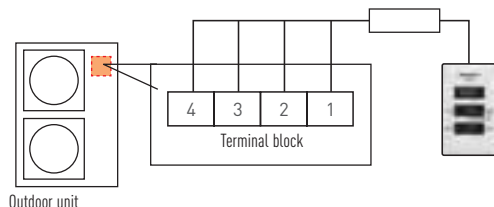
**WHEN CONNECTING FORCED STOP INPUT**



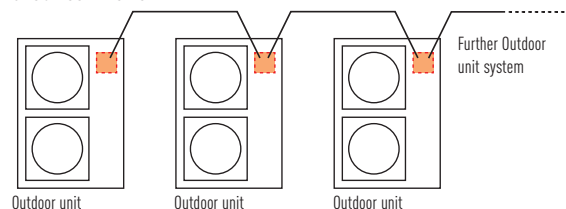
**WHEN CONNECTING DEMAND CONTROLLER**



**WHEN USING CZ-RD1 (COOLING / HEATING SELECTOR)**



**GROUP CONNECTION**



\*Not applicable for demand controller



## COMBINATION TABLE

The FS Multi VRF system attains maximum indoor unit connection capacity of up to 130% in the units connection range, depending on the outdoor and indoor models selected. In the case of a 6 HP outdoor unit (15.5 kW / 53,000 Btu/h), connection is possible with a maximum indoor unit range of 20.15 kW. So for a reasonable investment, the FS Multi VRF system provides an ideal air conditioning solution for locations where full cooling/heating is not always required.

### COMBINATION TABLE

Reference	Outdoor unit System cooling capacity	Maximum indoor unit	Standard combination capacity*	Maximum combination capacity	Minimum combination capacity
U-5LA1E5	5.0HP/ 14.0 kW/ 47,800 Btu/h	8	14.0 kW	18.20 kW	7.0 kW
U-6LA1E5	6.0HP/ 15.5 kW/ 52,900 Btu/h	8	15.5 kW	20.15 kW	7.75 kW
			100%	130%	50%

\*Standard combination capacity is the system's maximum cooling capacity.

### COMBINATION EXAMPLE

#### Correct

	Reference	Quantity	Capacity	Minimum combination capacity	Maximum combination capacity
Outdoor	U-6LA1E5	1	15.5 kW*	7.75 kW	20.15 kW
Indoor	S-22KA1E5	1	2.2 kW	-	-
	S-36KA1E5	2	(3.6x2)7.2 kW	-	-
	S-22NA1E5	1	2.2 kW	-	-
	S-28NA1E5	3	(2.8x3)8.4 kW	-	-
Total indoor capacity		7	20.0 kW(129%)		

#### Incorrect

	Reference	Quantity	Capacity	Minimum combination capacity	Maximum combination capacity
Outdoor	U-6LA1E5	1	15.5 kW*	7.75 kW	20.15 kW
Indoor	S-22KA1E5	1	2.2 kW	-	-
	S-36KA1E5	2	(3.6x2)7.2 kW	-	-
	S-45KA1E5	1	4.5 kW	-	-
	S-22NA1E5	1	2.2 kW	-	-
	S-28NA1E5	3	(2.8x3)8.4 kW	-	-
Total indoor capacity		8	24.5 kW(158%)		

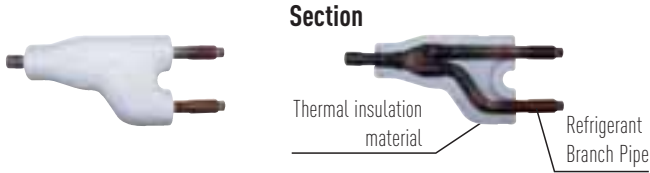
\*Standard combination capacity is the system's maximum cooling capacity.

# BRANCH PIPES

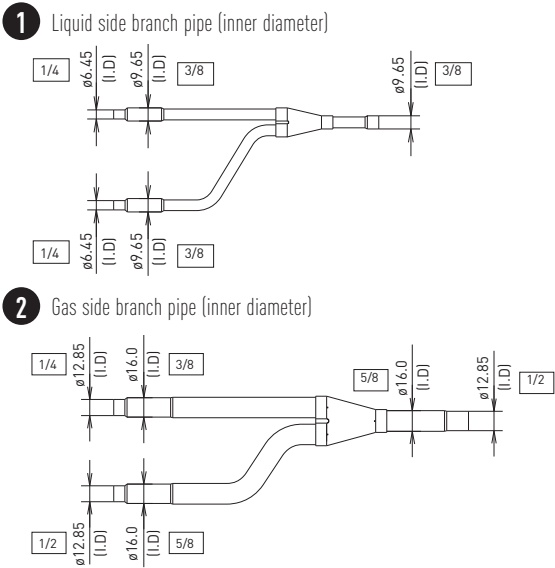
## R410A Branch pipe kits

The use of branch piping combined with expansion valves mounted in VRF indoor units considerably reduces the imbalance of the refrigerant liquid flow between indoor units despite the smaller piping diameter. The joints for these pipes have been designed to reduce installation time, as they are easy to fit. Finally, the branch pipes optimise refrigerant flow.

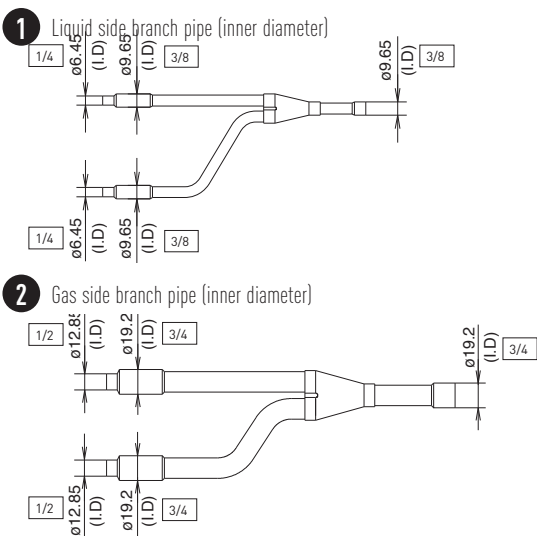
### CZ-P155BK1 / CZ-P280BK1



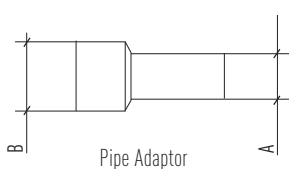
### BRANCH PIPE KIT CZ-P155BK1 (FOR 4, 5 AND 6 HP SYSTEMS)



### BRANCH PIPE KIT CZ-P280BK1 (FOR 8 AND 10 HP SYSTEMS)



### PIPE ADAPTORS ARE SUPPLIED WITH THE PACKAGE.



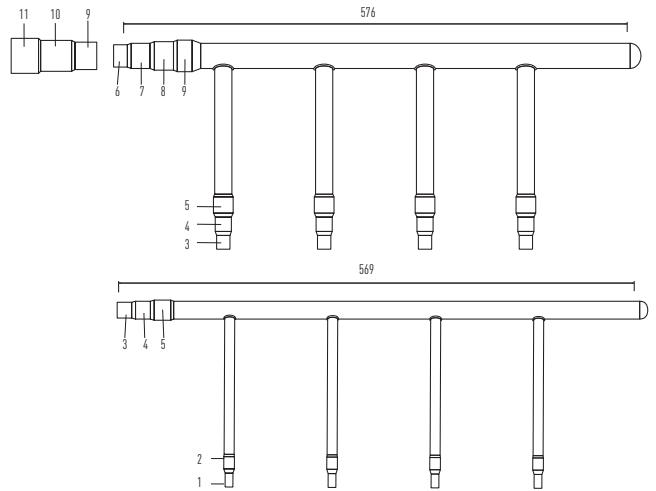
A	B	Quantity
ø19.05	ø 15.88	1
ø 12.70	ø 15.88	2
ø 19.05	ø 25.40	1
ø 19.05	22.2	3
ø 9.52	12.7	1

### ONLY FOR 8-10 HP

### CZ-P3HPC2BM: 3-PIPE HEADER CZ-P4HP4C2BM




### Header pipe models for 2-Pipe systems: CZ-P4HP4C2BM





### DIAMETERS

1	6.35 mm	1/4"
2	9.52 mm	3/8"
3	12.70 mm	1/2"
4	15.88 mm	5/8"
5	19.05 mm	3/4"
6	22.40 mm	7/8"
7	25.40 mm	1"
8	28.57 mm	1" 1/8
9	31.75 mm	1" 1/4
10	34.92 mm	1" 3/8
11	38.10 mm	1" 1/2











## INDOOR UNITS RANGE



	0.8 HP	1.0 HP	1.25 HP	1.5 HP
COOLING CAPACITY	2.2kW / 7,500 Btu/h	2.8kW / 9,600 Btu/h	3.2kW / 10,900 Btu/h	3.6kW / 12,300 Btu/h
HEATING CAPACITY	2.5kW / 8,500 Btu/h	3.2kW / 10,900 Btu/h	3.6kW / 12,300 Btu/h	4.2kW / 14,300 Btu/h
WALL-MOUNTED TYPE				
	S-22KA1E5	S-28KA1E5		S-36KA1E5
				
	S-22KA1E5S	S-28KA1E5S		S-36KA1E5S
CASSETTE TYPE				
60x60 CASSETTE TYPE				
	S-22YA1E5	S-28YA1E5		S-36YA1E5
LOW-SILHOUETTE DUCT TYPE (LOW STATIC PRESSURE TYPE)				
	S-22NA1E5	S-28NA1E5	S-32NA1E5	S-36NA1E5
LOW-SILHOUETTE DUCT TYPE (MID STATIC PRESSURE TYPE)				

## OUTDOOR UNITS RANGE


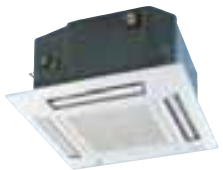
	5.0 HP	6.0 HP
COOLING CAPACITY	14.0 kW / 47,800 Btu/h	15.5 kW / 52,900 Btu/h
HEATING CAPACITY	16.0 kW / 54,600 Btu/h	18.0 kW / 61,400 Btu/h
OUTDOOR UNIT		
	U-5LA1E5	U-6LA1E5








1.75 HP	2.0 HP	2.5 HP	3.0 HP	3.5 HP	4 HP
4.5kW / 15,400 Btu/h	5.6kW / 19,100 Btu/h	6.3kW / 21,500 Btu/h	7.1kW / 24,200 Btu/h	9.0kW / 30,700 Btu/h	10.0kW
5.1kW / 17,400 Btu/h	6.4kW / 21,800 Btu/h	7.1kW / 24,200 Btu/h	8.0kW / 27,300 Btu/h	10.0kW / 34,100 Btu/h	11.2kW
					
S-45KA1E5	S-56KA1E5	S-63KA1E5	S-71KA1E5		
					
S-45KA1E5S					
					
		S-63UA1E5	S-71UA1E5	S-90UA1E5	S-100UA1E5
					
S-45YA1E5	S-56YA1E5				
					
S-45NA1E5	S-56NA1E5				
					
S-45MA1E5	S-56MA1E5	S-63MA1E5	S-71MA1E5	S-90MA1E5	S-100MA1E5

8.0 HP	10.0 HP
22.4 kW / 76,000 Btu/h	28.0 kW / 95,000 Btu/h
25.0kW	31.5kW
	
U-8EA1E8	U-10EA1E8

## FEATURE COMPARISON

INDOOR UNIT		WALL MOUNTED		60X60 CASSETTE	
					
FEATURE	Remote controller	Wired remote controller	Infrared remote controller	Wired remote controller	Infrared remote controller
CONTROL FLEXIBILITY	24 h ON/OFF Real setting timer	✗	✗	✗	✗
	Weekly timer (6-Pattern/Max. 42-Pattern with temp setting)	✗		✗	
	Group control by single remote controller	✗	✗	✗	✗
	0_U Silent operation mode (3-Level)	✗	✗	✗	✗
	I_U Thermistor switching (I_U or RC)	✗		✗	
	Ventilation unit control	✗		✗	
	Digital input / Output contact				with CZ-TA31P
COMFORTABILITY	Filter sign	✗	✗	✗	✗
	Hot start control	✗	✗	✗	✗
	Filter	✗	✗	✗	✗
	Anti Bacterial Filter (optional)	CZ-SA16P (10 years)	CZ-SA16P (10 years)	CZ-SA13P (3 years)	CZ-SA13P (3 years)
FIELD SERVICE & MAINTENANCE	Indoor unit address setting	✗	✗	✗	✗
	Outdoor unit address setting	✗	✗	✗	✗
	Indoor unit test run mode	✗	✗	✗	✗
	Emergency operation		✗		✗
	Self diagnosis function	✗	✗	✗	✗
	Self diagnosis records	✗		✗	

OUTDOOR UNIT		5-6 HP	8-10 HP
			
CONTROL FLEXIBILITY	"Cooling Only" model setting (Locked)	✗	✗
	Power save mode	✗	✗
	0_U Silent operation Mode (3-Level)	✗	✗
	Auto restart	✗	✗
FIELD SERVICE & MAINTENANCE	Pump down operation	✗	
	Cooling operation TESTRUN	✗	✗
	Heating operation TESTRUN	✗	✗
	Automatic address resetting	✗	✗
	Self diagnosis function	✗ (LED display)	✗ (LED display)
DIGITAL INPUT/ OUTPUT	Cooling / Heating selector (optional)	✗	✗
	Demand control input (3 Levels demand control input)	✗	✗
	Forced stop input	✗	✗

CASSETTE		DUCT (LOW STATIC PRESSURE)		DUCT (MID STATIC PRESSURE)	
					
Wired remote controller	Infrared remote controller	Wired remote controller	Infrared remote controller	Wired remote controller	Infrared remote controller
X	X	X	X	X	X
X		X		X	
X	X	X	X	X	X
X	X	X	X	X	X
X		X		X	
X		X		X	
with CZ-TA31P	with CZ-TA31P	with CZ-TA31P	with CZ-TA31P	with CZ-TA31P	with CZ-TA31P
X	X	X	X	X	X
X	X	X	X	X	X
X	X	X	X		
X	X	X	X	X	X
X	X	X	X	X	X
X	X	X	X	X	X
X	X	X	X	X	X
X		X		X	

Maximum flexibility

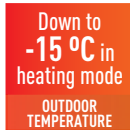
VRF

ABE

## 5 AND 6 HP, OUTDOOR UNITS

THE MONOPHASE 5 AND 6 HP OUTDOOR UNITS ARE IDEAL FOR INSTALLATION IN RESTAURANTS, OFFICES AND HOMES.

All Panasonic FS Multi VRF series modules are equipped with DC inverter compressor for the higher energy saving operation. The new design attains the quiet and high-efficient operation and reduces the running cost.



### TECHNICAL ZOOM

- REFRIGERANT CHARGE-FREE SYSTEM (NO ADDITIONAL REFRIGERANT IS REQUIRED)
- VERY QUIET OUTDOOR UNITS
- FLEXIBLE INSTALLATION AND EASY SETUP
- EASY TROUBLE CHECK FUNCTION
- SPACE-SAVING DESIGN

HP			5HP	6HP
MODEL NUMBER			U-5LA1E5	U-6LA1E5
Power Source		phase	1Ø	1Ø
		V	220-230-240	220-230-240
		Hz	50Hz	50Hz
Cooling	Capacity	kW (Btu/h)	14.00 (47,800)	15.50 (52,900)
	Power Input	W	4,310	5,150
	EER	W/W (Btu/h)	3.25 (11.09)	3.01 (10.27)
	Current <sup>1</sup>	A	19.80	23.50
	Air Volume	m <sup>3</sup> /min (ft <sup>3</sup> /min)	95.0 (3,353)	98.0 (3,459)
	Sound Pressure Level	Hi/Lo dB (A)	53/-	55/-
	Sound Power Level	Hi/Lo dB	71/-	73/-
Operating Range	Min. - Max. °C	-5 - 43	-5 - 43	
Heating	Capacity	kW (Btu/h)	16.00 (54,600)	18.00 (61,400)
	Power Input	W	3,970	4,690
	COP	W/W (Btu/h)	4.03 (13.75)	3.84 (13.09)
	Current <sup>1</sup>	A	18.10	21.40
	Air Volume	m <sup>3</sup> /min (ft <sup>3</sup> /min)	95.0 (3,353)	98.0 (3,459)
	Sound Pressure Level	Hi/Lo dB (A)	55/-	57/-
	Sound Power Level	Hi/Lo dB	72/-	74/-
Operating Range	Min. - Max. °C	-15 - 24	-15 - 24	
Connectable Indoor Unit	Total Capacity		50 - 130% of Outdoor Unit Capacity	
	Model/Qty	unit	S-22 ~ S-90 /2 - 8	S-22 ~ S-90 /2 - 8
Moisture Removal Volume		L/h (Pt/h)	9.0 (18.9)	10.3 (21.6)
Dimensions	H x W x D	mm	1,340 x 900 x 350(+40) <sup>2</sup>	
		inch	52-3/4 x 35-7/16 x 13-25/32(+1-9/16)	
Net Weight		kg (lb)	123 (271)	123 (271)
Piping Connection	Liquid Side	mm (inch)	9.52 (3/8)	9.52 (3/8)
	Gas Side	mm (inch)	15.88 (5/8)	15.88 (5/8)
Maximum Total Piping Length	Min. - Max.	m (ft)	20 - 90 (65.6 - 295.2)	20 - 90 (65.6 - 295.2)
Height Difference (Maximum)	Max	m (ft)	30 (98.4)	30 (98.4)
Max Charge Less Length	Max	m (ft)	90 (295.2)	90 (295.2)
Refrigerant			R410A / 8 kg	R410A / 8 kg

<sup>1</sup> These values are at 230V only. For 220V and 240V specifications, please refer to the technical data book.  
<sup>2</sup> Add 40mm for discharge grille.

GLOBAL REMARKS	Rated conditions:	Cooling	Heating
	Indoor air temperature	27 °C DB / 19 °C WB	20 °C DB
	Outdoor air temperature	35 °C DB / 24 °C WB	7 °C DB / 6 °C WB

DB: Dry Bulb; WB: Wet Bulb

POWER	5HP	6HP
REFERENCE	U-5LA1E5	U-6LA1E5
Maximum combination of indoor unit	8	8
Power rates (kW)	7.0 - 14.0 - 18.2	7.8 - 15.5 - 20.2
Power supply (V/Hz)	220-240 / 50	220-240 / 50



**U-5LA1E5 // U-6LA1E5**

**Control Flexibility**

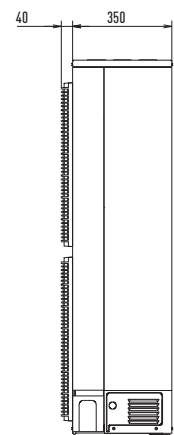
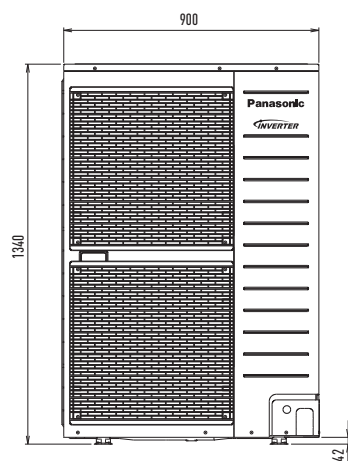
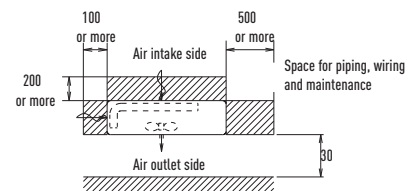
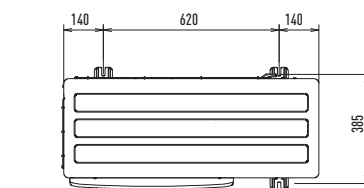
- Cooling Only Model Setting (by jumper line cut)
- Power Save Mode
- Outdoor Unit Silent Operation Mode
- Auto Restart

**Field Service & Maintenance**

- Pump Down Operation
- Cooling Operation TESTRUN
- Heating Operation TESTRUN
- Automatic Address Resetting
- Self Diagnosis Function (LED display)

**Digital Input/Output**

- Cooling/Heating Selector
- Demand Control Input (LV1/LV2/LV3)
- Forced STOP Input



Maximum flexibility

VRF

ABE

## 8 AND 10 HP, OUTDOOR UNITS

NEW THREE PHASE 8 AND 10 HP OUTDOOR UNITS. EASY TO INSTALL, HIGH PERFORMANCES!  
All the models of Panasonic FS Multi VRF series are equipped with DC inverter compressor for the higher energy saving operation. The new design attains the quiet and high-efficient operation and reduces the running cost.

**A class**  
energy saving

INVERTER+

Environmentally friendly  
refrigerant

R410A

Down to  
**-15 °C** in  
heating mode

OUTDOOR TEMPERATURE

**5 year**  
compressor  
warranty

### TECHNICAL ZOOM

- VERY QUIET OUTDOOR UNITS
- FLEXIBLE INSTALLATION AND EASY SETUP
- EASY TROUBLE CHECK FUNCTION
- SPACE-SAVING DESIGN

HP			8HP	10HP
MODEL NUMBER			U-8EA1E8	U-10EA1E8
Power Source			phase	3Ø
			V	380-400-415
			Hz	50Hz
Cooling	Capacity		kW (Btu/h)	22.40 (76,500)
	Power Input		W	6,050
	EER		W/W (Btu/h)	3.70 (12.64)
	Current <sup>1</sup>		A	9.40
	Air Volume		m <sup>3</sup> /min (ft <sup>3</sup> /min)	150 (5,297)
	Sound Pressure Level	Hi/Lo	dB (A)	58/-
	Sound Power Level	Hi/Lo	dB	78/-
	Operating Range	Min. - Max.	°C	-5 - 43
Heating	Capacity		kW (Btu/h)	25.00 (85,300)
	Power Input		W	6,100
	COP		W/W (Btu/h)	4.10 (13.98)
	Current <sup>1</sup>		A	9.40
	Air Volume		m <sup>3</sup> /min (ft <sup>3</sup> /min)	150 (5,297)
	Sound Pressure Level	Hi/Lo	dB (A)	59/-
	Sound Power Level	Hi/Lo	dB	79/-
	Operating Range	Min. - Max.	°C	-20 - 24
Connectable Indoor Unit	Total Capacity		50~130% of Outdoor Unit Capacity	
	Model/Qty	unit	S-22 ~ S-125 /2 - 13	S-22 ~ S-125 /2 - 16
Dimensions	H x W x D		mm	1,745 x 920 x 760
			inch	68-11/16 x 36-7/32 x 29-29/32
Net Weight			kg (lb)	195 (430)
Piping Connection	Liquid Side		mm (inch)	9.52 (3/8)
	Gas Side		mm (inch)	19.05 (4/3)
Maximum Total Piping Length	Min. - Max.	m (ft)	15 - 300 (49.2 - 984.2)	15 - 300 (49.2 - 984.2)
Height Difference (Maximum)	Max	m (ft)	50 (164.0)	50 (164.0)
Refrigerant			R410A / 8.5 kg	R410A / 11.0 kg

<sup>1</sup> These values are at 400 V only. For 380 V and 415 V specifications, please refer to the technical data book.  
<sup>2</sup> Add 40 mm for discharge grille.

GLOBAL REMARKS	Rated conditions:	
	Cooling	Heating
	Indoor air temperature	27 °C DB / 19 °C WB
Outdoor air temperature	35 °C DB / 24 °C WB	7 °C DB / 6 °C WB

DB: Dry Bulb; WB: Wet Bulb

POWER	8HP	10HP
REFERENCE	U-8EA1E8	U-10EA1E8
Maximum combination of indoor unit	13	16
Power rates (kW)	11.2 - 22.4 - 29.1	14.0 - 28.0 - 36.4
Power supply (V/Hz)	380 - 415 / 50	380 - 415 / 50



**U-8EA1E8 // U-10EA1E8**

**Control Flexibility**

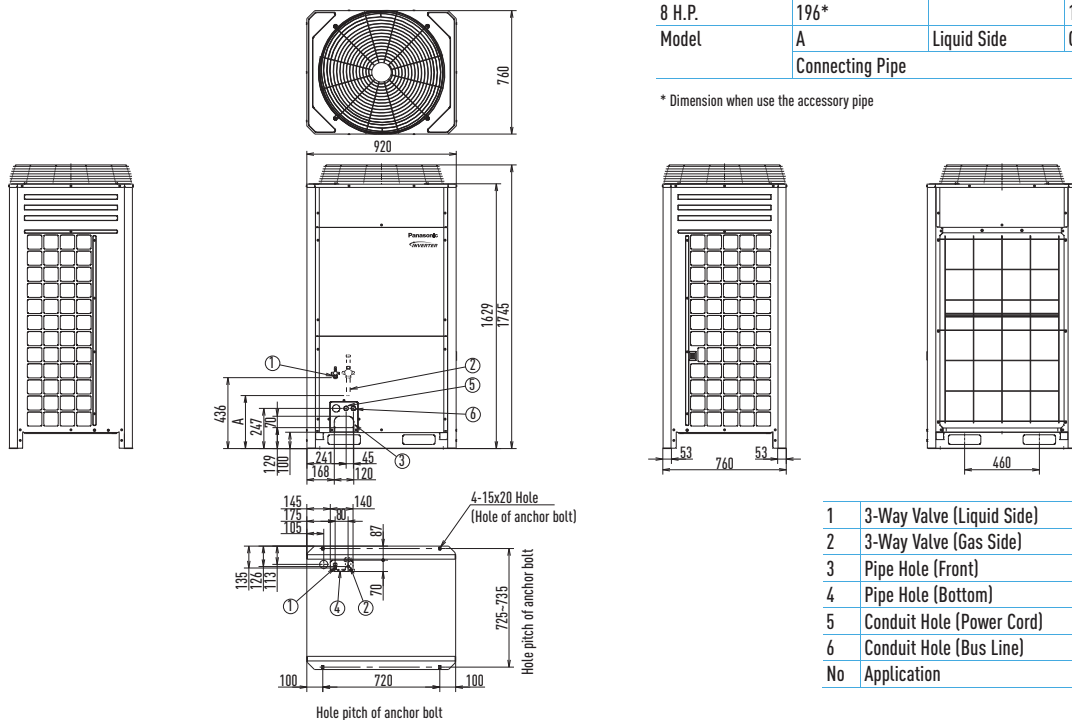
- . Cooling/Heating Selector
- . Demand Control Input (LV1/LV2/LV3)
- . Forced STOP Input
- . Cooling Only Model Setting (by jumper line cut)
- . Power Save Mode
- . Outdoor Unit Silent Operation Mode
- . Auto Restart

**Field Service & Maintenance**

- . Cooling Operation TESTRUN
- . Heating Operation TESTRUN
- . Automatic Address Resetting
- . Self Diagnosis Function (LED display)

10 H.P.	326	9.52 Flare	22.22 Brazing
8 H.P.	196*		19.05 Brazing
Model	A	Liquid Side	Gas Side
	Connecting Pipe		

\* Dimension when use the accessory pipe



1	3-Way Valve (Liquid Side)
2	3-Way Valve (Gas Side)
3	Pipe Hole (Front)
4	Pipe Hole (Bottom)
5	Conduit Hole (Power Cord)
6	Conduit Hole (Bus Line)
No	Application

Maximum flexibility

VRF

ABt

## WALL-MOUNTED TYPE // SILVER COLOUR

FS MULTI VRF WALL-MOUNTED TYPE AIR CONDITIONERS HAVE BEEN DESIGNED IN A BEAUTIFUL AND STYLISH WAY. The fresh new horizontal curved form characterizes the air conditioner's new design. The gentle curve at the centre stylishly conceals the complex high-performance mechanisms inside, while thin ends emphasize the air conditioner's slim style. This allows it to blend into the wall in an attractive manner, and to harmonise with virtually any room interior.

A class energy saving  
INVERTER+

Easy control  
CONNECTIVITY

Environmentally friendly refrigerant  
R410A

5 year compressor warranty

### TECHNICAL ZOOM

- FLEXIBLE INSTALLATION
- EFFECTIVE LONG-LIFE FILTER
- SELF DIAGNOSIS FUNCTION WITH 7-SEG CODE DISPLAY

INDOOR			0.8HP	1.0HP	1.5HP	1.75HP	
			S-22KA1E5S	S-28KA1E5S	S-36KA1E5S	S-45KA1E5S	
Power Source		phase	1Ø	1Ø	1Ø	1Ø	
		V	220-230-240	220-230-240	220-230-240	220-230-240	
		Hz	50 Hz	50 Hz	50 Hz	50 Hz	
Cooling	Capacity	kW (Btu/h)	2.20 (7,500)	2.80 (9,600)	3.60 (12,300)	4.50 (15,400)	
	Power Input	W	25	27	30	35	
	Current	A	0.25	0.30	0.35	0.40	
	Air Volume	Hi	m <sup>3</sup> /min (ft <sup>3</sup> /min)	9.5 (335)	9.7 (342)	10.9 (385)	11.3 (399)
	Sound Pressure Level	Hi/Lo	dB (A)	38/33	39/33	42/34	43/35
	Sound Power Level	Hi/Lo	dB	53/48	54/48	57/49	58/50
Heating	Capacity	kW (Btu/h)	2.50 (8,500)	3.20 (10,900)	4.20 (14,300)	5.10 (17,400)	
	Power Input	W	25	27	30	35	
	Current	A	0.25	0.30	0.35	0.40	
	Air Volume	Hi	m <sup>3</sup> /min (ft <sup>3</sup> /min)	10.3 (364)	10.9 (385)	11.6 (409)	12.1 (427)
	Sound Pressure Level	Hi/Lo	dB (A)	38/33	39/33	42/34	43/35
	Sound Power Level	Hi/Lo	dB	53/48	54/48	57/49	58/50
Moisture Removal Volume		L/h (Pt/h)	1.3 (2.7)	1.6 (3.4)	2.1 (4.4)	2.5 (5.3)	
Dimensions	H x W x D	mm	290 x 870 x 204	290 x 870 x 204	290 x 870 x 204	290 x 870 x 204	
		inch	11-7/16 x 34-9/32 x 8-1/16	11-7/16 x 34-9/32 x 8-1/16	11-7/16 x 34-9/32 x 8-1/16	11-7/16 x 34-9/32 x 8-1/16	
Net Weight		kg (lb)	9 (20)	9 (20)	9 (20)	9 (20)	
Piping Connection	Liquid Side	mm (inch)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	
	Gas Side	mm (inch)	Ø 12.7 (1/2)	Ø 12.7 (1/2)	Ø 12.7 (1/2)	Ø 12.7 (1/2)	

Before installing in quiet room such as a bedroom, please consult with an authorized distributor.

GLOBAL REMARKS	Rated conditions:	
	Cooling	Heating
	Indoor air temperature	27 °C DB / 19 °C WB
Outdoor air temperature	35 °C DB / 24 °C WB	7 °C DB / 6 °C WB

DB: Dry Bulb; WB: Wet Bulb

### FLEXIBLE INSTALLATION

Thanks to its compact and stylish design, Panasonic's wall mounted air conditioner can be installed in very limited spaces, without detracting from your room's interior design.

### EFFECTIVE LONG-LIFE FILTER

This long-life filter can trap dust mites, tobacco smoke and other common pollutants effectively. When it catches certain airborne particles, the clean-indicator will remind you to clean. You can remove the filter quickly with a simple one step operation, after cleaning, it can be re-fitted.



### OPTIONAL ACCESSORIES

Anti Bacterial Filter - 10 - year filter life

CZ-SA16P  
Replacement: every 10 years

### SELF DIAGNOSIS FUNCTION WITH 7-SEG CODE DISPLAY

When the air conditioner has trouble the indicator and 7-seg code displays on the panel making it easier for service technicians to diagnose problems.







**S-22KA1E5S // S-28KA1E5S // S-36KA1E5S // S-45KA1E5S**

**Control Flexibility**

- 24-Hours ON/OFF Real Setting Timer
- Weekly Timer (Wired Only)
- Group Control by Single Remote Controller
- Outdoor Unit Silent Operation Mode
- Indoor Unit Thermistor Switching (Wired Only)
- Ventilation Unit Control (Wired Only)

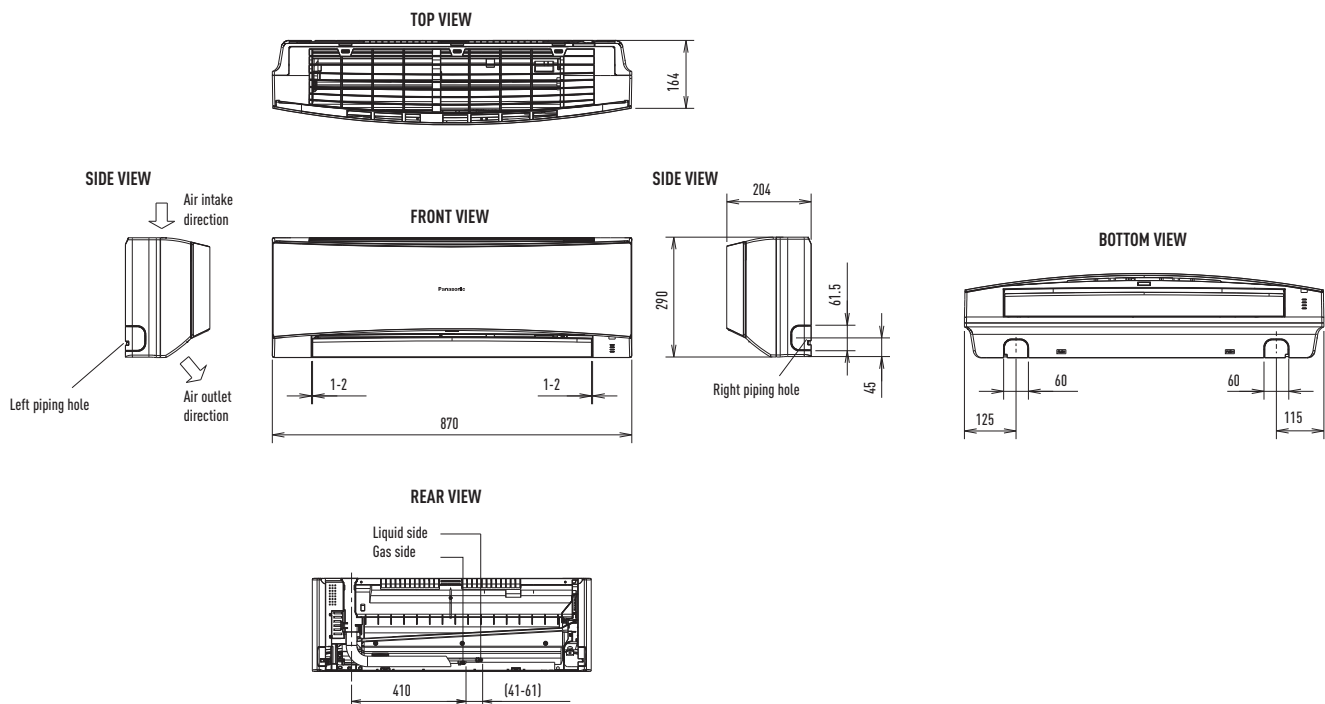
**Comfortability**

- Filter Sign
- Hot Start Control
- Filter
- Anti Bacterial Filter (optional/10-year lifetime)

**Field Service & Maintenance**

- Indoor Unit Address Setting
- Outdoor Unit Address Setting
- Automatic Address Resetting for Group Control (Wired Only)
- Indoor Unit Test Run Mode
- Emergency Operation (Infrared Only)
- Self Diagnosis Function
- Self Diagnosis Records (Wired Only)

\* Wired: Wired Remote Controller / Infrared: Infrared Remote Controller.



Maximum flexibility

VRF

ABE

## WALL-MOUNTED TYPE // WHITE COLOUR // WHITE COLOUR WIDE TYPE

FS MULTI VRF WALL-MOUNTED TYPE AIR CONDITIONERS HAVE BEEN DESIGNED IN A BEAUTIFUL AND STYLISH WAY. The fresh new horizontal curved form characterizes the air conditioner's new design. The gentle curve at the centre stylishly conceals the complex high-performance mechanisms inside, while thin ends emphasize the air conditioner's slim style. This allows it to blend into the wall in an attractive manner, and to harmonise with virtually any room interior.

A class energy saving  
INVERTER+

Easy control  
CONNECTIVITY

Environmentally friendly refrigerant  
R410A

5 year compressor warranty

### TECHNICAL ZOOM

- FLEXIBLE INSTALLATION
- EFFECTIVE LONG-LIFE FILTER
- SELF DIAGNOSIS FUNCTION WITH 7-SEG CODE DISPLAY

INDOOR			0.8HP	1.0HP	1.5HP	1.75HP	2.0HP	2.5HP	3.0HP	
			S-22KA1E5	S-28KA1E5	S-36KA1E5	S-45KA1E5	S-56KA1E5	S-63KA1E5	S-71KA1E5	
Power Source		phase	1Ø	1Ø	1Ø	1Ø	1Ø	1Ø	1Ø	
		V	220-230-240	220-230-240	220-230-240	220-230-240	220-230-240	220-230-240	220-230-240	
		Hz	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz	
Cooling	Capacity	kW (Btu/h)	2.20 (7,500)	2.80 (9,600)	3.60 (12,300)	4.50 (15,400)	5.60 (19,100)	6.30 (21,500)	7.10 (24,200)	
	Power Input	W	25	27	30	35	45	50	55	
	Current	A	0.25	0.30	0.35	0.40	0.40	0.45	0.50	
	Air Volume	Hi	m <sup>3</sup> /min (ft <sup>3</sup> /min)	9.5 (335)	9.7 (342)	10.9 (385)	11.3 (399)	15.3 (540)	16.0 (565)	17.4 (614)
	Sound Pressure Level	Hi/Lo	dB (A)	38/33	39/33	42/34	43/35	44/38	46/39	48/40
	Sound Power Level	Hi/Lo	dB	53/48	54/48	57/49	58/50	59/53	61/54	63/55
Heating	Capacity	kW (Btu/h)	2.50 (8,500)	3.20 (10,900)	4.20 (14,300)	5.10 (17,400)	6.40 (21,800)	7.10 (24,200)	8.00 (27,300)	
	Power Input	W	25	27	30	35	45	50	55	
	Current	A	0.25	0.30	0.35	0.40	0.40	0.45	0.50	
	Air Volume	Hi	m <sup>3</sup> /min (ft <sup>3</sup> /min)	10.3 (364)	10.9 (385)	11.6 (409)	12.1 (427)	16.7 (590)	17.1 (604)	18.3 (648)
	Sound Pressure Level	Hi/Lo	dB (A)	38/33	39/33	42/34	43/35	44/38	46/39	48/40
	Sound Power Level	Hi/Lo	dB	53/48	54/48	57/49	58/50	59/53	61/54	63/55
Moisture Removal Volume		L/h (Pt/h)	1.3 (2.7)	1.6 (3.4)	2.1 (4.4)	2.5 (5.3)	3.2 (6.7)	3.6 (7.6)	4.2 (8.8)	
Dimensions	H x W x D	mm	290 x 870 x 204	290 x 870 x 204	290 x 870 x 204	290 x 870 x 204	290 x 1,070 x 235	290 x 1,070 x 235	290 x 1,070 x 235	
		inch	11-7/16 x 34-9/32 x 8-1/16	11-7/16 x 34-9/32 x 8-1/16	11-7/16 x 34-9/32 x 8-1/16	11-7/16 x 34-9/32 x 8-1/16	11-7/16 x 42-5/32 x 9-9/32	11-7/16 x 42-5/32 x 9-9/32	11-7/16 x 42-5/32 x 9-9/32	
Net Weight		kg (lb)	9 (20)	9 (20)	9 (20)	9 (20)	11 (24)	12 (26)	12 (26)	
Piping Connection	Liquid Side	mm (inch)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 9.52 (3/8)	
	Gas Side	mm (inch)	Ø 12.7 (1/2)	Ø 12.7 (1/2)	Ø 12.7 (1/2)	Ø 12.7 (1/2)	Ø 12.7 (1/2)	Ø 12.7 (1/2)	Ø 15.88 (5/8)	

Before installing in quiet room such as a bedroom, please consult with an authorized distributor.

GLOBAL REMARKS	Rated conditions:			
	Cooling	27 °C DB / 19 °C WB	Heating	20 °C DB
	Indoor air temperature	35 °C DB / 24 °C WB	Outdoor air temperature	7 °C DB / 6 °C WB

DB: Dry Bulb; WB: Wet Bulb

### FLEXIBLE INSTALLATION

Thanks to its compact and stylish design, Panasonic's wall mounted air conditioner can be installed in very limited spaces, without detracting from your room's interior design.

### EFFECTIVE LONG-LIFE FILTER

This long-life filter can trap dust mites, tobacco smoke and other common pollutants effectively. When it catches certain airborne particles, the clean-indicator will remind you to clean. You can remove the filter quickly with a simple one step operation, after cleaning, it can be re-fitted.



### OPTIONAL ACCESSORIES

Anti Bacterial Filter - 10 - year filter life

CZ-SA16P  
Replacement: every 10 years

### SELF DIAGNOSIS FUNCTION WITH 7-SEG CODE DISPLAY

When the air conditioner has trouble the indicator and 7-seg code displays on the panel making it easier for service technicians to diagnose problems.





WHITE COLOUR - WIDE TYPE-



WHITE COLOUR

**S-22KA1E5 // S-28KA1E5 // S-36KA1E5 // S-45KA1E5 // S-56KA1E5 // S-63KA1E5 // S-71KA1E5**

**Control Flexibility**

- 24-Hours ON/OFF Real Setting Timer
- Weekly Timer (Wired Only)
- Group Control by Single Remote Controller
- Outdoor Unit Silent Operation Mode
- Indoor Unit Thermistor Switching (Wired Only)
- Ventilation Unit Control (Wired Only)

**Comfortability**

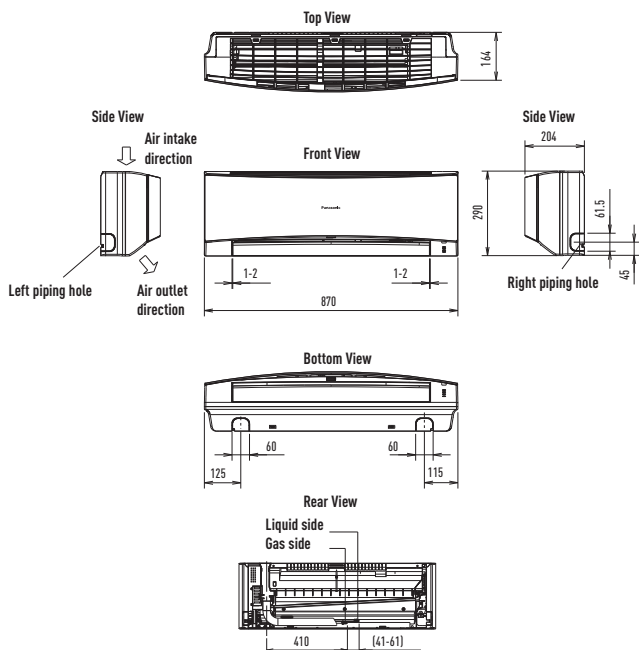
- Filter Sign
- Hot Start Control
- Filter
- Anti Bacterial Filter (optional/10-year lifetime)

**Field Service & Maintenance**

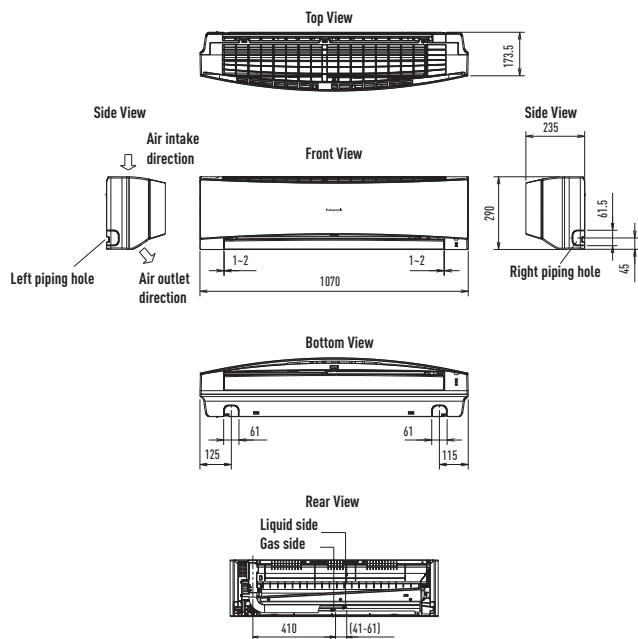
- Indoor Unit Address Setting
- Outdoor Unit Address Setting
- Automatic Address Resetting for Group Control (Wired Only)
- Indoor Unit Test Run Mode
- Emergency Operation (Infrared Only)
- Self Diagnosis Function
- Self Diagnosis Records (Wired Only)

\* Wired: Wired Remote Controller / Infrared: Infrared Remote Controller.

**0.8HP - 1.75HP MODELS**



**2HP - 3HP MODELS**



Maximum flexibility

VRF

ABt

## CASSETTE TYPE (60x60)

4-WAY AIRFLOW COMFORT WITH ELEGANT, COMPACT PANEL

A class energy saving  
INVERTER+

Easy control  
CONNECTIVITY

Environmentally friendly refrigerant  
R410A

5 year compressor warranty

### TECHNICAL ZOOM

- COMPACT DESIGN ALLOWS SPACE SAVING!
- SELF DIAGNOSIS FUNCTION WITH 7-SEG CODE DISPLAY
- ONLY 260 mm THIN
- 750 mm DRAIN-UP MECHANISM
- ANTI-MOULD LONG-LIFE AIR FILTER

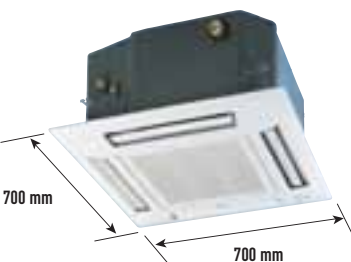
			0.8HP	1.0HP	1.5HP	1.75HP	2.0HP
INDOOR			S-22YA1E5	S-28YA1E5	S-36YA1E5	S-45YA1E5	S-56YA1E5
Panel			CZ-KPY1	CZ-KPY1	CZ-KPY1	CZ-KPY1	CZ-KPY1
Power Source	phase		1Ø	1Ø	1Ø	1Ø	1Ø
	V		220-230-240	220-230-240	220-230-240	220-230-240	220-230-240
	Hz		50Hz	50Hz	50Hz	50Hz	50Hz
Cooling	Capacity	kW (Btu/h)	2.20 (7,500)	2.80 (9,600)	3.60 (12,300)	4.50 (15,400)	5.60 (19,100)
	Power Input	W	35	35	40	40	45
	Current	A	0.30	0.30	0.35	0.35	0.35
	Air Volume	Hi m <sup>3</sup> /min (ft <sup>3</sup> /min)	8.3 (293)	8.6 (304)	9.0 (318)	9.3 (328)	9.9 (349)
	Sound Pressure Level	Hi/Lo dB (A)	36/33	37/33	38/34	39/35	40/36
	Sound Power Level	Hi/Lo dB	51/48	52/48	53/49	54/50	55/51
Heating	Capacity	kW (Btu/h)	2.50 (8,500)	3.20 (10,900)	4.20 (14,300)	5.10 (17,400)	6.40 (21,800)
	Power Input	W	35	35	40	40	45
	Current	A	0.30	0.30	0.35	0.35	0.35
	Air Volume	Hi m <sup>3</sup> /min (ft <sup>3</sup> /min)	9.3 (328)	9.6 (339)	9.9 (349)	10.3 (364)	10.6 (374)
	Sound Pressure Level	Hi/Lo dB (A)	36/33	37/33	38/34	39/35	40/36
	Sound Power Level	Hi/Lo dB	51/48	52/48	53/49	54/50	55/51
Moisture Removal Volume		L/h (Pt/h)	1.3 (2.7)	1.6 (3.4)	2.1 (4.4)	2.5 (5.3)	3.2 (6.7)
Dimensions (H x W x D)	Indoor unit	mm	260 x 575 x 575	260 x 575 x 575	260 x 575 x 575	260 x 575 x 575	260 x 575 x 575
		inch	10-1/4 x 22-21/32 x 22-21/32	10-1/4 x 22-21/32 x 22-21/32	10-1/4 x 22-21/32 x 22-21/32	10-1/4 x 22-21/32 x 22-21/32	10-1/4 x 22-21/32 x 22-21/32
	Panel	mm	51 x 700 x 700	51 x 700 x 700	51 x 700 x 700	51 x 700 x 700	51 x 700 x 700
Net Weight		kg (lb)	18 (40)	18 (40)	18 (40)	18 (40)	18 (40)
Piping Connection	Liquid Side	mm (inch)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)
	Gas Side	mm (inch)	Ø 12.7 (1/2)	Ø 12.7 (1/2)	Ø 12.7 (1/2)	Ø 12.7 (1/2)	Ø 12.7 (1/2)

GLOBAL REMARKS	Rated conditions:	
	Cooling	Heating
	Indoor air temperature 27 °C DB / 19 °C WB	20 °C DB
Outdoor air temperature 35 °C DB / 24 °C WB	7 °C DB / 6 °C WB	

DB: Dry Bulb; WB: Wet Bulb

### COMPACT DESIGN ALLOWS SPACE SAVING!

The panel is a compact 70x70 cm so it can be installed even in a small room where space is limited. The ceiling space required is 65x65 cm.

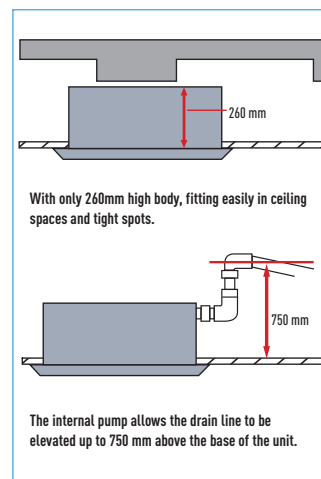


### SELF DIAGNOSIS FUNCTION WITH 7-SEG CODE DISPLAY

When the air conditioner has trouble the indicator and 7-seg code displays on the panel making it easier for service technicians to diagnose problems.



### ONLY 260 mm THIN AND 750 mm DRAIN-UP MECHANISM



### ANTI-MOULD LONG-LIFE AIR FILTER



\* For optimum comfort, we recommend cleaning the air filter every 1.5 months.

### OPTIONAL ACCESSORIES



Anti Bacterial Filter  
CZ-SA13P  
Replacement: every 3 years



**S-22YA1E5 // S-28YA1E5 // S-36YA1E5 // S-45YA1E5 // S-56YA1E5**

**Control Flexibility**

- 24-Hours ON/OFF Real Setting Timer
- Weekly Timer (Wired Only)
- Group Control by Single Remote Controller
- Outdoor Unit Silent Operation Mode
- Indoor Unit Thermistor Switching (Wired Only)
- Ventilation Unit Control (Wired Only)
- Digital Input/Output Contact - with CZ-TA31P (Optional)

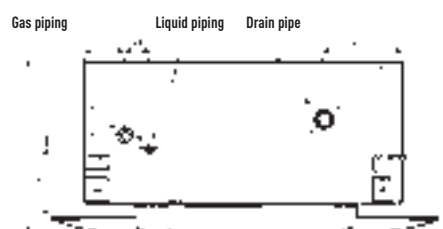
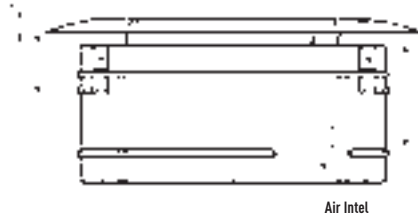
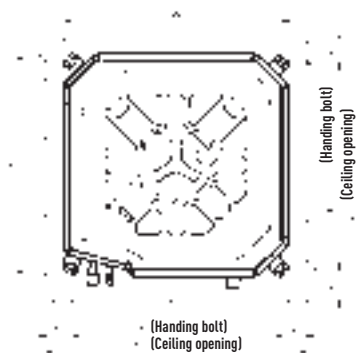
**Comfortability**

- Filter Sign
- Mildew-Proofing Drain pan
- Hot Start Control
- Filter
- Anti Bacterial Filter (optional/3-year lifetime)

**Field Service & Maintenance**

- Indoor Unit Address Setting
- Outdoor Unit Address Setting
- Automatic Address Resetting for Group Control (Wired Only)
- Indoor Unit Test Run Mode
- Emergency Operation (Infrared Only)
- Self Diagnosis Function
- Self Diagnosis Records (Wired Only)

\* Wired: Wired Remote Controller / Infrared: Infrared Remote Controller.



Maximum flexibility

VRF

ABt

## CASSETTE TYPE (90x90)

4-WAY AIRFLOW, POWERFUL, AND COMPACT (ONLY 246 cm HIGH)

A class energy saving  
INVERTER+

Easy control  
CONNECTIVITY

Environmentally friendly refrigerant  
R410A

5 year compressor warranty

### TECHNICAL ZOOM

- SELF DIAGNOSIS FUNCTION WITH 7-SEG CODE DISPLAY
- ONLY 246 mm THIN
- 750 mm DRAIN-UP MECHANISM
- ELEGANT PANEL, 4-DIRECTION BLOW
- THREE AIRFLOW PATTERNS FOR EXTRA COMFORT
- FLEXIBLE PIPING LAYOUT
- INNOVATIVE DESIGN CREATES EXTRA QUIET OPERATION

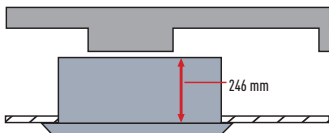
INDOOR			2.5HP	3.0HP	3.5HP	4.0HP
Panel			S-63UA1E5	S-71UA1E5	S-90UA1E5	S-100UA1E5
Power Source		phase	1Ø	1Ø	1Ø	1Ø
		V	220-230-240	220-230-240	220-230-240	220-230-240
		Hz	50Hz	50Hz	50Hz	50Hz
Cooling	Capacity	kW (Btu/h)	6.30 (21,500)	7.10 (24,200)	9.00 (30,700)	10.00 (34,100)
	Power Input <sup>1</sup>	W	110	115	115	205
	Current <sup>1</sup>	A	0.50	0.55	0.55	1.05
	Air Volume	Hi m <sup>3</sup> /min (ft <sup>3</sup> /min)	21 (741)	22 (777)	22 (777)	30 (1,059)
	Sound Pressure Level <sup>1</sup>	Hi/Lo dB (A)	41/35	42/36	42/36	48/43
Heating	Capacity	kW (Btu/h)	7.10 (24,200)	8.00 (27,300)	10.00 (34,100)	11.20 (38,200)
	Power Input <sup>1</sup>	W	110	115	115	205
	Current <sup>1</sup>	A	0.50	0.55	0.55	1.05
	Air Volume	Hi m <sup>3</sup> /min (ft <sup>3</sup> /min)	21 (741)	22 (777)	22 (777)	30 (1,059)
	Sound Pressure Level <sup>1</sup>	Hi/Lo dB (A)	41/35	42/36	42/36	48/43
	Sound Power Level <sup>1</sup>	Hi/Lo dB	56/50	57/51	57/51	63/58
Moisture Removal Volume		L/h (Pt/h)	3.6 (7.6)	4.2 (8.8)	5.4 (11.3)	6.0 (12.6)
Dimensions (H x W x D)	Indoor unit	mm	246 x 840 x 840	246 x 840 x 840	246 x 840 x 840	288 x 840 x 840
		inch	9-11/16 x 33-1/16 x 33/1/16	9-11/16 x 33-1/16 x 33/1/16	9-11/16 x 33-1/16 x 33/1/16	11-11/32x33-1/16x33-1/16
	Panel	mm	45 x 950 x 950	45 x 950 x 950	45 x 950 x 950	45 x 950 x 950
Net Weight		kg (lb)	26 (57)	26 (57)	26 (57)	30 (66)
Piping Connection	Liquid Side	mm (inch)	Ø 6.35 (1/4)	Ø 9.52 (3/8)	Ø 9.52 (3/8)	Ø 9.52 (3/8)
	Gas Side	mm (inch)	Ø 12.7 (1/2)	Ø 15.88 (5/8)	Ø 15.88 (5/8)	Ø 15.88 (5/8)

GLOBAL REMARKS	Rated conditions:		Cooling	Heating
	Indoor air temperature	27 °C DB / 19 °C WB	20 °C DB	20 °C DB
	Outdoor air temperature	35 °C DB / 24 °C WB	7 °C DB / 6 °C WB	

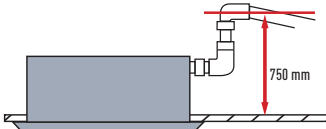
<sup>1</sup> These values are at 230V only. For 220V and 240V specifications, please refer to the technical data book.

DB: Dry Bulb; WB: Wet Bulb

### ONLY 246 MM THIN AND 750 MM DRAIN-UP MECHANISM



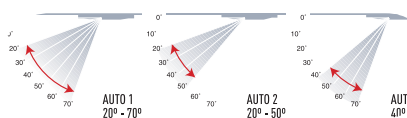
With only 246 mm high body, fitting easily in ceiling spaces and tight spots.



The internal pump allows the drain line to be elevated up to 750 mm above the base of the unit.

### THREE AIRFLOW PATTERNS FOR EXTRA COMFORT

• Multi-Comfort Air Control



### ELEGANT PANEL, 4-DIRECTION BLOW

The slim body can be totally hidden in the ceiling, only leaving its elegant panel outside to decorate your room. The 4-direction blow can deliver airflows evenly throughout the room, eliminating the temperature difference.



### SELF DIAGNOSIS FUNCTION WITH 7-SEG CODE DISPLAY

When the air conditioner has trouble the indicator and 7-seg code displays on the panel making it easier for service technicians to diagnose problems.



### FLEXIBLE PIPING LAYOUT

Drainpipe and refrigerant pipe distributed on the different sides of the unit, giving more flexibility of piping layout. Its excellent inside heat-protection material effectively avoids frost and water-leakage, and reduces the damage possibility in the transportation.



### INNOVATIVE DESIGN CREATES EXTRA QUIET OPERATION



More de-noising Material Adopting de-noising material inside, improving the seal quality to isolate and reduce the operation noises.



**S-63UA1E5 // S-71UA1E5 // S-90UA1E5 // S-100UA1E5**

**Control Flexibility**

- 24-Hours ON/OFF Real Setting Timer
- Weekly Timer (Wired Only)
- Group Control by Single Remote Controller
- Outdoor Unit Silent Operation Mode
- Indoor Unit Thermistor Switching (Wired Only)
- Ventilation Unit Control (Wired Only)
- Digital Input/Output Contact - with CZ-TA31P (Optional)

**Comfortability**

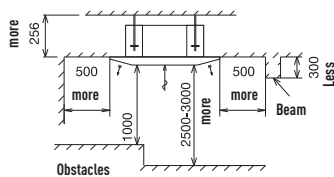
- Filter Sign
- Mildew-Proofing Drain pan
- Hot Start Control
- Filter

**Field Service & Maintenance**

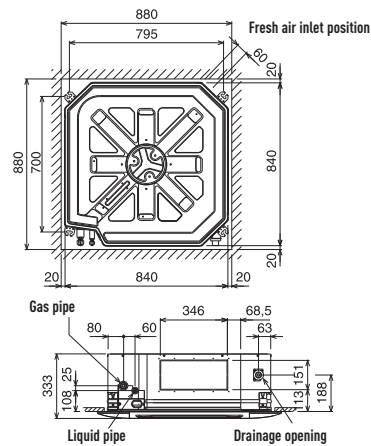
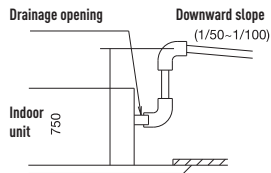
- Indoor Unit Address Setting
- Outdoor Unit Address Setting
- Automatic Address Resetting for Group Control (Wired Only)
- Indoor Unit Test Run Mode
- Emergency Operation (Infrared Only)
- Self Diagnosis Function
- Self Diagnosis Records (Wired Only)

\* Wired: Wired Remote Controller / Infrared: Infrared Remote Controller.

**SPACE NEEDED FOR INSTALLATION**



**DRAINAGE**



Remote control photoreceiver position

Maximum flexibility

VRF

ABE

## LOW-SILHOUETTE // DUCT TYPE // LOW STATIC PRESSURE

OFFERS MAXIMUM INSTALLATION FLEXIBILITY WITH SLIM, LIGHTWEIGHT DESIGN  
Only 200 mm tall! Ideal for hotels and offices.

A class energy saving  
INVERTER+

Easy control  
CONNECTIVITY

Environmentally friendly refrigerant  
R410A

5 year compressor warranty

### TECHNICAL ZOOM

- ULTRA-THIN, DUCT-TYPE INDOOR UNIT
- ULTRA-THIN 200 mm DESIGN: FITS IN EVEN WHERE CEILING HEIGHT IS LIMITED
- BUILT-IN SELECTABLE STATIC PRESSURE SETTINGS
- THOROUGHLY CONSIDERED CONNECTING FLANGE DESIGN

			0.8HP	1.0HP	1.25HP	1.5HP	1.75HP	2.0HP	
INDOOR			S-22NA1E5	S-28NA1E5	S-32NA1E5	S-36NA1E5	S-45NA1E5	S-56NA1E5	
Power Source	phase		1Ø	1Ø	1Ø	1Ø	1Ø	1Ø	
	V		220-230-240	220-230-240	220-230-240	220-230-240	220-230-240	220-230-240	
	Hz		50Hz	50Hz	50Hz	50Hz	50Hz	50Hz	
Cooling	Capacity		2.20 (7,500)	2.80 (9,600)	3.20 (10,900)	3.60 (12,300)	4.50 (15,400)	5.60 (19,100)	
	Power Input <sup>1</sup>		75	80	85	85	95	105	
	Current <sup>1</sup>		A	0.40	0.45	0.45	0.45	0.50	
	Air Volume	Hi	m <sup>3</sup> /min (ft <sup>3</sup> /min)	10 (353)	11 (388)	11 (388)	11 (388)	12 (424)	12.5 (441)
	Sound Pressure Level <sup>1</sup>	Hi/Lo	dB (A)	36/30	37/30	38/31	38/31	39/32	39/32
	Sound Power Level <sup>1</sup>	Hi/Lo	dB	51/45	52/45	53/46	53/46	54/47	54/47
Heating	Capacity		2.50 (8,500)	3.20 (10,900)	3.60 (12,300)	4.20 (14,300)	5.10 (17,400)	6.40 (21,800)	
	Power Input <sup>1</sup>		75	80	85	85	95	105	
	Current <sup>1</sup>		A	0.40	0.45	0.45	0.45	0.50	
	Air Volume	Hi	m <sup>3</sup> /min (ft <sup>3</sup> /min)	10 (353)	11 (388)	11 (388)	11 (388)	12 (424)	12.5 (441)
	Sound Pressure Level <sup>1</sup>	Hi/Lo	dB (A)	36/30	37/30	38/31	38/31	39/32	39/32
	Sound Power Level <sup>1</sup>	Hi/Lo	dB	51/45	52/45	53/46	53/46	54/47	54/47
Moisture Removal Volume		L/h (Pt/h)	1.3 (2.7)	1.6 (3.4)	1.8 (3.8)	2.1 (4.4)	2.5 (5.3)	3.2 (6.7)	
External Static Pressure <sup>2</sup>		Pa (mmAq)	0/29 (0/3)	0/29 (0/3)	0/29 (0/3)	0/29 (0/3)	0/29 (0/3)	0/29 (0/3)	
Dimensions	H x W x D	mm	200 x 900 x 550	200 x 900 x 550	200 x 900 x 550	200 x 900 x 550	200 x 900 x 550	200 x 900 x 550	
		inch	7-7/8 x 35-7/16 x 21-21/32	7-7/8 x 35-7/16 x 21-21/32	7-7/8 x 35-7/16 x 21-21/32	7-7/8 x 35-7/16 x 21-21/32	7-7/8 x 35-7/16 x 21-21/32	7-7/8 x 35-7/16 x 21-21/32	
Net Weight		kg(lb)	21 (46)	21 (46)	22 (48)	22 (48)	22 (48)	22 (48)	
Piping Connection	Liquid Side	mm (inch)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	
	Gas Side	mm (inch)	12.7 (1/2)	12.7 (1/2)	12.7 (1/2)	12.7 (1/2)	12.7 (1/2)	12.7 (1/2)	

GLOBAL REMARKS	Rated conditions:	
	Cooling	Heating
	Indoor air temperature 27 °C DB / 19 °C WB	20 °C DB
Outdoor air temperature 35 °C DB / 24 °C WB	7 °C DB / 6 °C WB	

<sup>1</sup> These values are at 230 V only. For 220 V and 240 V specifications, please refer to the technical data book.  
<sup>2</sup> The external static pressure is set to 0Pa at factory default setting.

DB: Dry Bulb; WB: Wet Bulb

### ULTRA-THIN, DUCT-TYPE INDOOR UNIT

The slim design of this ultra-thin, duct-type indoor unit is especially suited for rooms with partially or minimally dropped ceilings. Its space-saving design contributes to a brighter and more spacious living environment.

### ULTRA-THIN 20 CM DESIGN: FITS IN EVEN WHERE CEILING HEIGHT IS LIMITED

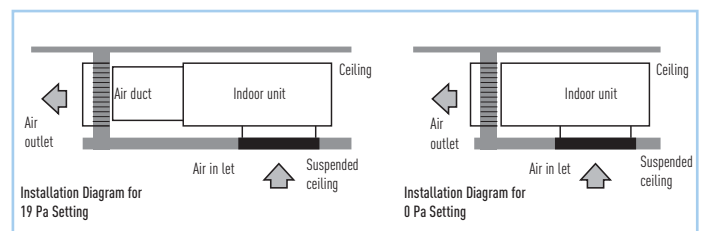
Even where ceiling height is limited, the indoor units effectively fit in and provide a more spacious feel in most suspended ceiling situations. Occupying only 20 cm of vertical space and projecting only 55 cm, the unit can be installed in semi-dropped ceiling situations, thus helping to create spacious and comfortable surroundings.



### BUILT-IN SELECTABLE STATIC PRESSURE SETTINGS

Our ultra thin duct-type indoor units have two static pressure settings: 0 Pa and 29 Pa. In situations without ducting, the 0 Pa\* static pressure setting is applicable. Where ducting is present, set the unit to 29 Pa\* static pressure.

\*0 Pa is the default setting; 29 Pa must be selected if required.



### THOROUGHLY CONSIDERED CONNECTING FLANGE DESIGN

The addition of air duct connecting flanges on the indoor unit enables easy connection to short air ducts. Thus flange design both greatly simplifies installation and makes it easy to effectively seal the air duct.





**S-22NA1E5 // S-28NA1E5 // S-32NA1E5 // S-36NA1E5 // S-45NA1E5 // S-56NA1E5**

**Control Flexibility**

- 24-Hours ON/OFF Real Setting Timer
- Weekly Timer (Wired Only)
- Group Control by Single Remote Controller
- Outdoor Unit Silent Operation Mode
- Indoor Unit Thermistor Switching (Wired Only)
- Ventilation Unit Control (Wired Only)
- Digital Input/Output Contact - with CZ-TA31P (Optional)

**Comfortability**

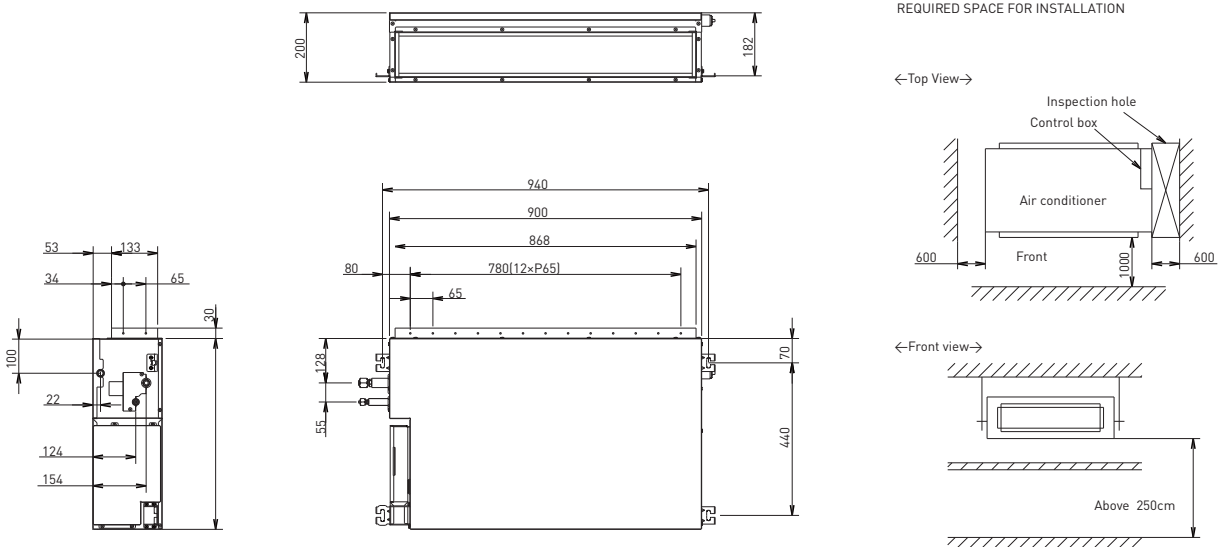
- Filter Sign
- Hot Start Control

**Field Service & Maintenance**

- Indoor Unit Address Setting
- Outdoor Unit Address Setting
- Automatic Address Resetting for Group Control (Wired Only)
- Indoor Unit Test Run Mode
- Emergency Operation (Infrared Only)
- Self Diagnosis Function
- Self Diagnosis Records (Wired Only)

\* Wired: Wired Remote Controller / Infrared: Infrared Remote Controller.

(UNIT:mm)



SCALE 1:10

Maximum flexibility

VRF

ABE

## LOW-SILHOUETTE // DUCT TYPE // MID STATIC PRESSURE

DUCT TYPE WITH A MAXIMUM OF 7 mmAq OF STATIC PRESSURE WITH SLIM PROFILE OF ONLY 250 mm. COMPACT AND POWERFUL!

**A class**  
energy saving

INVERTER+

**Easy**  
control

CONNECTIVITY

**Environmentally**  
friendly  
refrigerant

R410A

**5 year**  
compressor  
warranty

### TECHNICAL ZOOM

- COMPACT, LIGHTWEIGHT DESIGN FOR EASY INSTALLATION
- 3-WAY REMOVABLE AIR FILTER
- VERSATILE AIR INLET AND DRAIN INSTALLATION
- STATIC PRESSURE SELECTION

		1.75 HP	2.0 HP	2.5 HP	3.0 HP	3.5 HP	4.0HP
		S-45MA1E5	S-56MA1E5	S-63MA1E5	S-71MA1E5	S-90MA1E5	S-100MA1E5
INDOOR	Power Source	phase	1Ø	1Ø	1Ø	1Ø	1Ø
		V	220-230-240	220-230-240	220-230-240	220-230-240	220-230-240
		Hz	50Hz	50Hz	50Hz	50Hz	50Hz
Cooling	Capacity	kW (Btu/h)	4.50 (15,400)	5.60 (19,100)	6.30 (21,500)	7.10 (24,200)	9.00 (30,700)
	Power Input <sup>1</sup>	W	135	135	135	135	175
	Current <sup>1</sup>	A	0.60	0.60	0.60	0.60	0.80
	Air Volume	Hi	m <sup>3</sup> /min (ft <sup>3</sup> /min)	15 (530)	15 (530)	17 (600)	19 (671)
	Sound Pressure Level <sup>1</sup>	Hi/Lo	dB (A)	42/35	42/35	43/36	44/37
	Sound Power Level <sup>1</sup>	Hi/Lo	dB	57/50	57/50	58/51	59/52
Heating	Capacity	kW(Btu/h)	5.10 (17,400)	6.40 (21,800)	7.10 (24,200)	8.00 (27,300)	10.00 (34,100)
	Power Input <sup>1</sup>	W	135	135	135	135	175
	Current <sup>1</sup>	A	0.60	0.60	0.60	0.60	0.80
	Air Volume	Hi	m <sup>3</sup> /min (ft <sup>3</sup> /min)	15 (530)	15 (530)	17 (600)	19 (671)
	Sound Pressure Level <sup>1</sup>	Hi/Lo	dB (A)	42/35	42/35	43/36	44/37
	Sound Power Level <sup>1</sup>	Hi/Lo	dB	57/50	57/50	58/51	59/52
Moisture Removal Volume	L/h (Pt/h)	2.5 (5.3)	3.2 (6.7)	3.6 (7.6)	4.2 (8.8)	5.4 (11.3)	6.0 (12.6)
External Static Pressure <sup>2</sup>	Pa (mmAq)	49/69 (5/7)	49/69 (5/7)	49/69 (5/7)	49/69 (5/7)	49/69 (5/7)	49/69 (5/7)
Dimensions	H x W x D	mm	250x780(+100) <sup>3</sup> x650	250x780(+100) <sup>3</sup> x650	250x1,000(+100) <sup>3</sup> x650	250x1,000(+100) <sup>3</sup> x650	250x1,200(+100) <sup>3</sup> x650
		inch	9-27/32x30-23/32(+3-15/16) x25-19/32	9-27/32x30-23/32(+3-15/16) x25-19/32	9-27/32x39-3/8(+3-15/16) x25-19/32	9-27/32x39-3/8(+3-15/16) x25-19/32	9-27/32x47-1/4(+3-15/16) x25-19/32
Net Weight		kg(lb)	28 (62)	28 (62)	32 (71)	32 (71)	41 (90)
Piping Connection	Liquid Side	mm (inch)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 9.52 (3/8)	Ø 9.52 (3/8)
	Gas Side	mm (inch)	12.7 (1/2)	12.7 (1/2)	12.7 (1/2)	15.88 (5/8)	15.88 (5/8)

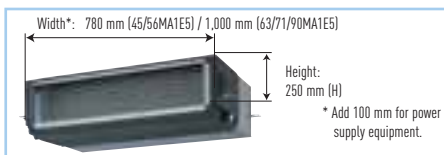
GLOBAL REMARKS	Rated conditions:	
	Cooling	Heating
	Indoor air temperature 27 °C DB / 19 °C WB	20 °C DB
Outdoor air temperature 35 °C DB / 24 °C WB	7 °C DB / 6 °C WB	

1 These values are at 230 V only. For 220 V and 240 V specifications, please refer to the technical data book.  
 2 The external static pressure is set to 49 Pa at factory default setting.  
 3 Add 100 mm for piping port.

DB: Dry Bulb; WB: Wet Bulb

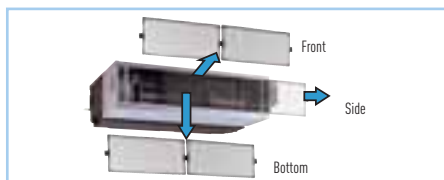
### COMPACT, LIGHTWEIGHT DESIGN FOR EASY INSTALLATION

Thin and only 250 mm high, with a slim width. This compact unit fits easily in limited spaces. The lightweight and small size also make it easier to transport and install.



### 3-WAY REMOVABLE AIR FILTER

The air filter can be slide in-out in three directions even after duct installation for easier maintenance.

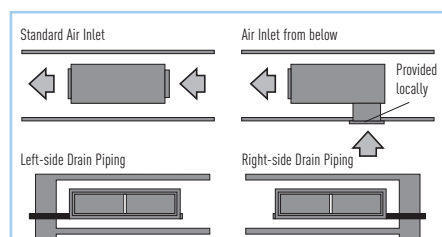


### VERSATILE AIR INLET AND DRAIN INSTALLATION

The mounting locations for the air inlet and drain outlet can be changed as desired for easy, flexible system layout and installation.

### STATIC PRESSURE SELECTION

The static pressure is selectable from 5 or 7 mmAq according to the condition of the duct. For short ducts, the lower pressure of 5 mmAq provides efficient operation.



### PLENUMS

MA1 E5 MEDIUM PRESSURE DUCTED		
S- MA1E5	Air Outlet Plenum (without regulation adaptor)	Model
45 & 56	3 x Ø 160	CZ-DUMPA45MAS3
63 , 71 & 90	4 x Ø 160	CZ-DUMPA63MAS4
100 & 125	5 x Ø 200	CZ-DUMPA100MAS5

MA1 E5 MEDIUM PRESSURE DUCTED		
S- MA1E5	Air Inlet Plenum	Model
45 & 56	2 x Ø 200	CZ-DUMPA45MAR2
63 , 71 & 90	2 x Ø 250	CZ-DUMPA63MAR2
100 & 125	4 x Ø 200	CZ-DUMPA100MAR4





**S-45MA1E5 // S-56MA1E5 // S-63MA1E5 // S-71MA1E5 // S-90MA1E5  
S-100MA1E5**

**Control Flexibility**

- 24-Hours ON/OFF Real Setting Timer
- Weekly Timer (Wired Only)
- Group Control by Single Remote Controller
- Outdoor Unit Silent Operation Mode
- Indoor Unit Thermistor Switching (Wired Only)
- Ventilation Unit Control (Wired Only)
- Digital Input/Output Contact - with CZ-TA31P (Optional)

**Comfortability**

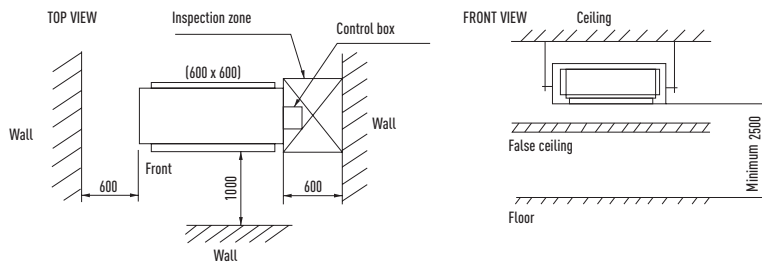
- Filter Sign
- Hot Start Control
- Filter

**Field Service & Maintenance**

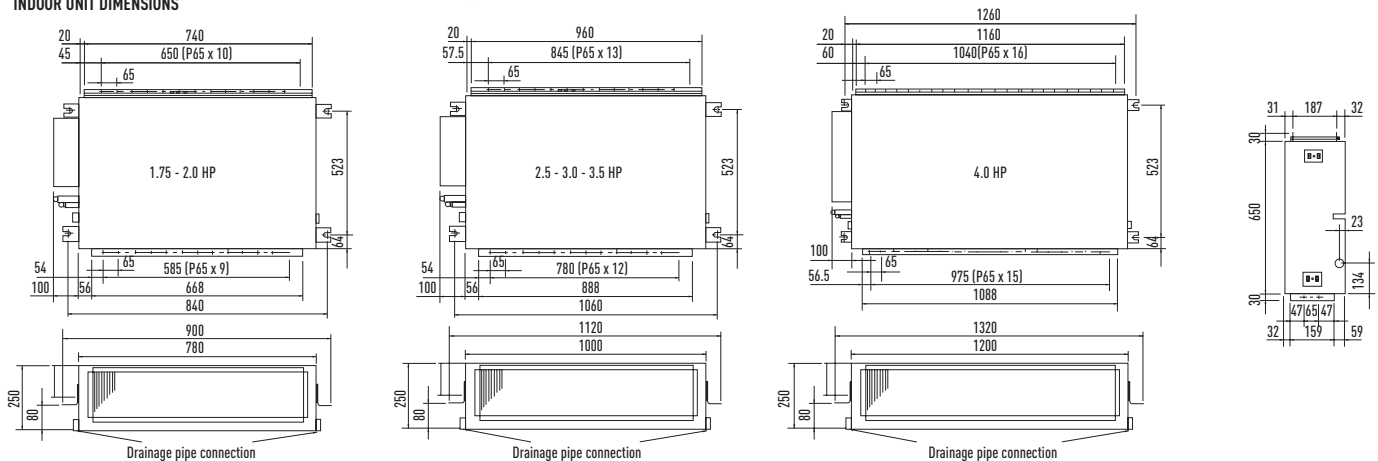
- Indoor Unit Address Setting
- Outdoor Unit Address Setting
- Automatic Address Resetting for Group Control (Wired Only)
- Indoor Unit Test Run Mode
- Emergency Operation (Infrared Only)
- Self Diagnosis Function
- Self Diagnosis Records (Wired Only)

\* Wired: Wired Remote Controller / Infrared: Infrared Remote Controller.

**SPACE NEEDED FOR INSTALLATION**



**INDOOR UNIT DIMENSIONS**





# PANASONIC INTRODUCING THE NEW 3 WAY BEST EFFICIENCY ECOi

## ECOi SERIES

DC-inverter control technology for rapid and powerful cooling & heating.

### The ever-evolving Panasonic ECOi 6N series

The ECOi 6N series is designed for energy savings, easy installation, and high efficiency. Always continuing to evolve, Panasonic uses advanced technologies to meet the requirements of diverse situations and contribute to the creation of comfortable living spaces.

### Lower running and life cycle costs

Panasonic ECOi 6N systems are amongst the most efficient VRF systems on the market, offering COPs in excess of 4.0 at full load conditions. The system is also designed to make sure that we reduce the running cost of each system by using our unique road map control routine to ensure that the most efficient combination of compressors are running at any

one time. Improved defrost sequencing also reduces running costs by defrosting each outdoor coil in turn when conditions allow.

The range of outdoor unit modules consists of 7 models from 8 HP to 20 HP. The module sizes from 10 HP to 20 HP can be configured for HI-COP.

Standard mode offers the highest capacity while still delivering excellent efficiency, while HI-COP mode delivers exceptional efficiency and low running costs with a slight reduction in capacity.

Up to 64 indoor units can be connected up to a capacity of 200% indexed indoor unit loads, enabling the system to be used effectively on highly diversified building loads: this large connectability feature makes it an easy-to-design solution for schools, hotels, hospitals and other large buildings. Up to 1,000 m in pipe length enables the New VRF ECOi 6N series to be used in very large buildings, with maximum design flexibility.

The ECOi 6N system is also easy to control. It has more than 8 types of control from standard wired remote controls to touch screen panels or web access interfaces.



### MINI ECO*i*

Panasonic's policy of product development continues with the expansion of the Mini ECO*i* 6N, the 2-Pipe heat pump small VRF system specifically designed for the European market.



### 2-PIPE ECO*i* 6N SERIES

The 2-Pipe ECO*i* 6N series is specifically designed for energy saving, easy installation and high efficiency performance as its main focus.



### 3-PIPE ECO*i* MF2 SERIES

ECO*i* 3-Pipe is one of the most advanced VRF systems available. Not only offering high-efficiency and performance for simultaneous heating and cooling, its sophisticated design makes installation and maintenance much easier.



\* At full load

## ECO*i* 6N SERIES BENEFITS

### Ease of installation

R410A has a higher operating pressure with a lower pressure loss than previous refrigerants. This enables smaller pipe sizes to be used and allows reduced refrigerant charges.

### Simple to design

Panasonic recognise that designing, selecting and preparing a professional VRF quotation can be a time consuming and costly process, especially as it is often also a speculative exercise. So we have designed proprietary software which is quick and easy to use and produces a full schematic layout of pipework and controls, as well as a full materials list and performance data.

### ECO*i* 6N 2-PIPE WITH WATER HEAT EXCHANGER FOR CHILLED AND HOT WATER PRODUCTION

For hydronic applications.



### Easy to control

A wide variety of control options are available to ensure that the ECO*i* 6N system provides the user with the degree of control that they desire, from simple room controllers through to state of the art BMS controls.

### Simple to commission

Simple set-up procedure including automatic addressing of connected indoor units. Configuration settings can be made from an outdoor unit or via a remote controller.

### Accurate capacity control

To ensure that the compressor capacity is matched to building load as accurately and efficiently as possible, Panasonic has designed its range of 2 and 3-Pipe ECO*i* systems to operate with DC inverter and high-efficiency fixed speed compressors. The system selects the most efficient compressor to operate by dynamically monitoring the building load and choosing the best compressor combination to run.

### Easy to position

The compact design of the ECO*i* 6N outdoor units means that sizes 8 HP to 12 HP fit into a standard lift and are easy to handle and position when on site. The small footprint and modular appearance of the units ensure a cohesive appearance to an installation.

### Off-coil temperature control

Panasonic ducted units offer the unique advantage of being able to offer off-coil temperature control as standard. This allows designers to select units using an off coil temperature between 7 °C and 22 °C. This allows room environments to be cooled without subjecting its occupants to cold drafts or uncomfortable conditions. This is achieved without any extra controls or wiring to each unit.

### Wide selection and connectability

With 11 indoor model styles available, ECO*i* 6N systems are the ideal choice for multiple small capacity indoor unit installations, with the ability to connect up to 40 indoor units to systems of 24 HP or greater for 3-Pipe ECO*i* MF2 series.

### Easy to maintain

Each system allows the use of prognostic and diagnostic controls routines, from refrigerant charge control through to complex fault code diagnostics, all designed to reduce the speed of maintenance calls and unit down time.

### Lower running and life cycle costs

Panasonic ECO*i* 6N systems are amongst the most efficient VRF systems on the market. The system is also designed to make sure that we reduce the running cost of each system by using our unique road map control routine to ensure that the most efficient combination of compressors are running at any one time. Improved defrost sequencing also reduces running costs by defrosting each outdoor coil in turn when conditions allow.

## 2-PIPE MINI ECOi LE1 SERIES COOLING AND HEATING TYPE 1-PHASE COOLING AND HEATING TYPE 3-PHASE

FOR SMALL-SCALE COMMERCIAL AND RESIDENTIAL USE



<p><b>Internet Control Ready</b></p> <p>INTERNET CONTROL</p>	<p><b>Energy saving</b></p> <p>INVERTER+</p>	<p>Environmentally friendly refrigerant</p> <p>R410A</p>	<p>Down to <b>-20 °C</b> in heating mode</p> <p>OUTDOOR TEMPERATURE</p>	<p><b>5 year</b> compressor warranty</p>
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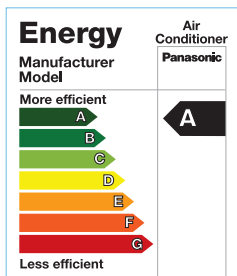


Panasonic 2-Pipe Mini ECOi, the 2-pipe heat pump is specifically designed for the most demanding applications. Mini ECOi is available in 3 sizes with cooling capacities ranging from 12.1 kW to 15.5 kW and connectable up to 9 indoor units (applicable for 15.5 kW).

An expansion from the Panasonic VRF line up, the Mini ECOi is compatible with the same indoor units and controls as the rest of the ECOi range.

### Energy saving concept

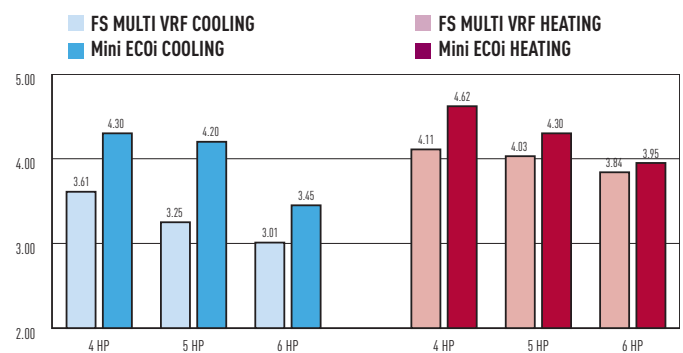
The energy saving designs for the structure of fans, fan motors, compressors and heat exchangers has resulted in high COP values, which rank as one of the top classed in the industry. In addition, use of highly efficient R410A refrigerant reduces CO<sub>2</sub> emission and lowers operating costs.



All Mini ECOi VRF systems are rated as EEL Category A, which confirms that they are amongst the most energy efficient systems available. Power consumption during operation is substantially less than that of lower rated units and consequently both the day to day running costs and full life cycle costs are significantly reduced.

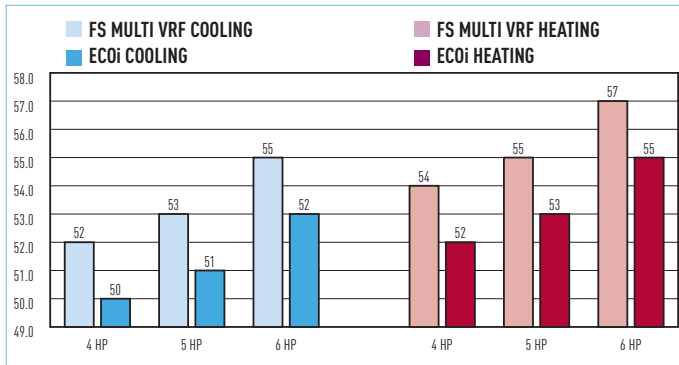
### Improved energy saving

The operation efficiency has been improved using highly efficient R410A refrigerant, new DC inverter compressor, new DC motor and new design of heat exchanger.



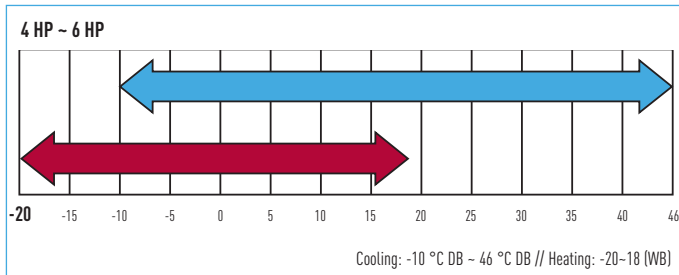
### Drastically reduced sound level

The pressure sound level has been reduced drastically thanks to the new DC Inverter compressor, newly designed heat exchanger and Fan.



### Wide operating range

The operating range for heating operation is to -20 °C, the cooling range is to -10 °C. The remote controller temperature setting offers a range from 16 °C to 30 °C.



### Lightweight

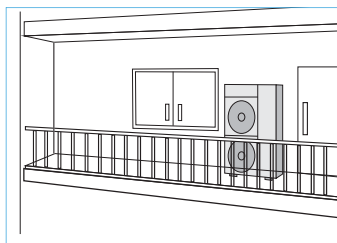
In case of 5/6 HP, the weight has been reduced from 123 kg into 104 kg.



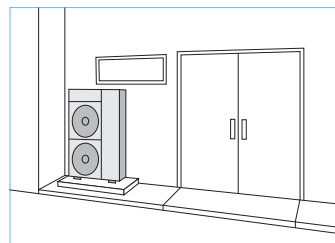
### Compact & Flexibility-design

The slim and lightweight design can be installed in various places.

FOR BALCONIES



FOR NARROW SPACES

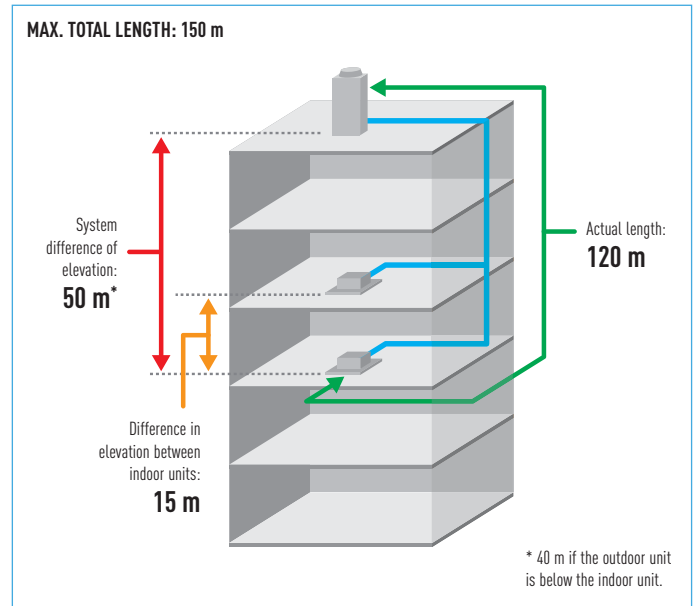


### Increased piping length for Greater design flexibility

Adaptable to various building types and sizes.

Actual piping length: 120 m (equivalent piping length 140 m).

Max. piping length: 150 m.

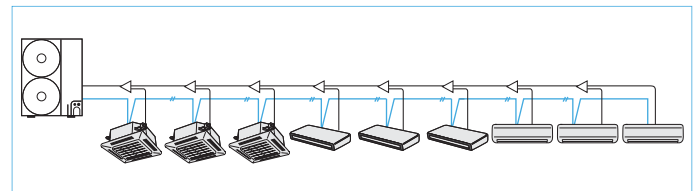


### Silent mode

3 dB can be reduced by setting. External input signal is also available.

### Up to 9 indoor units per system

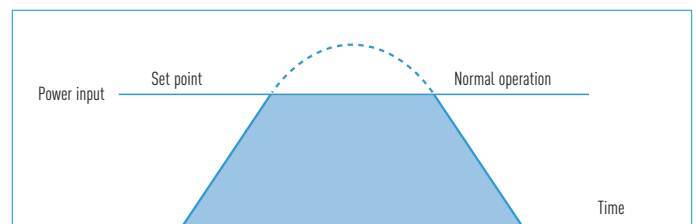
SYSTEM / HP	4 HP	5 HP	6 HP
Connectable Indoor Unit	6	8	9



### Power suppression control for energy saving (Demand control)\*

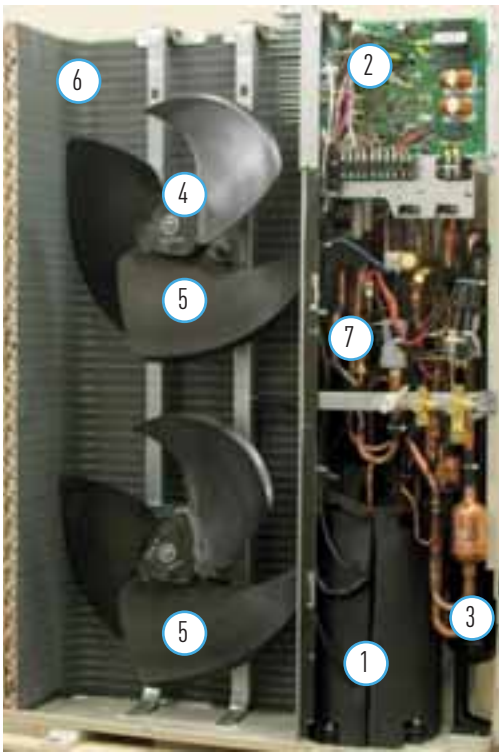
ECOi systems have a demand control utilising inverter technology. With this control, power consumption can be set in three steps to deliver optimum performance. This helps to reduce annual power consumption and electricity costs while maintaining comfort.

\* Demand control kit outdoor unit (CZ-CAPDC3) is required to input the signal. Setting is possible as 0% or in the range from 40 to 100% (in steps of 5%). At the time of shipping, setting has been done to the three steps of 0%, 70% and 100%.



	Power input	
Level 1	100% (Preset)	Possible to change 40-100%
Level 2	70% (Preset)	
Level 3	0% (Always in stop condition)	





**Mini ECOi**

- 1 Inverter compressor. Large-capacity inverter compressor has been adopted. The inverter compressor is superior in performance with improved partial-load capacity.
- 2 Printed Circuit Board. PCBs have been reduced to two, to improve maintenance.
- 3 Accumulator. Larger accumulator has been adopted to maintain compressor reliability and because of the increased refrigerant quantity, extended max piping length can be achieved. Furthermore, the refrigerant pressure loss was reduced, which contributes to an improved operating efficiency.
- 4 DC Fan motor. Checking load and outside temperature, the DC motor is controlled for optimum air volume.
- 5 Newly designed Big Edgy Fan. The newly designed Fan edge has been realized to inhibit air turbulent and to increase efficiency. As Fan diameter has been sized up to 490 mm, the air volume has been increased by 12% keeping low sound level.
- 6 Heat exchanger & copper tubes. The heat exchanger size and the copper tube sizes in the heat exchanger has been redesigned to increase efficiency.
- 7 Oil separator. New centrifugal separator has been adopted to improve oil separation efficiency and reduce refrigerant pressure loss.

**Demand control Kit information**

		PACi	MINI ECOi	ECOi 6N
CZ-CAPDC2	Seri-Para I/O unit for outdoor unit	Yes	Yes	Yes
CZ-CAPDC3	Demand Control Kit	Yes	Yes	-
CZ-CAPDC4	Demand Control Kit	-	-	Yes

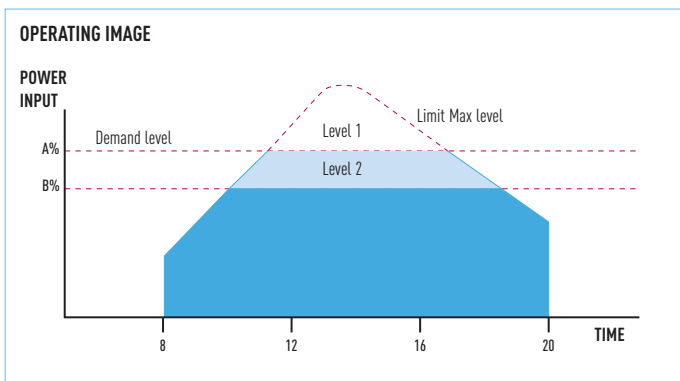
**Function of Demand control**

This function limits the maximum operating input at peak time. 3 levels as 100%/70%/0% is set at the factory<sup>1</sup>.

The limit value setting for level 1 & 2 can be changed from 40% ~ 100% by 5% at the system commissioning.

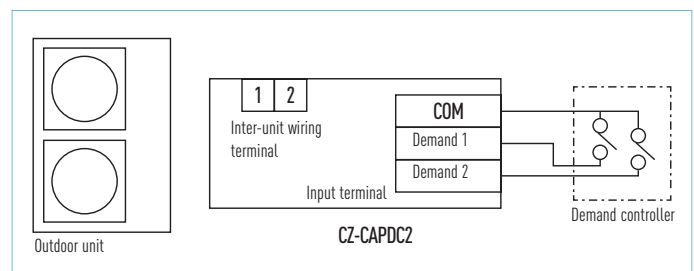
1. The 3rd level is available only for CZ-CAPDC3 & CZ-CAPDC4.)

	POWER INPUT LEVEL (VS. RATED CONDITION)	
Level 1	100% (at ship)	From 40%-100% setting can be changed (by 5% step)
Level 2	70% (at ship)	
Level 3	0% (Forcible thermo-OFF)	



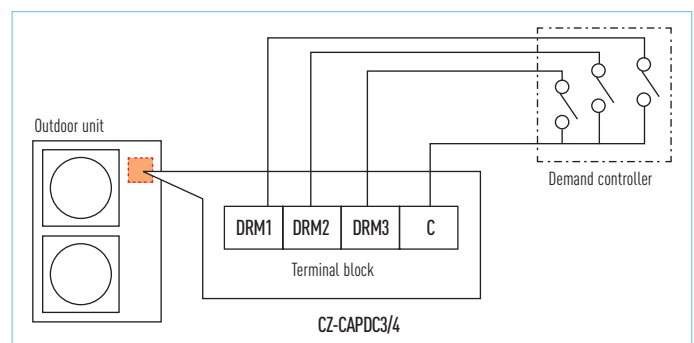
**CZ-CAPDC2**

Demand control input signals sent to this outdoor interface will be transferred to the system via inter-unit control wiring. Other controls (ex. Operation ON/OFF, Mode switch Cool/Heat) are also available. Demand level 1 & 2 are available.



**CZ-CAPDC3 for PACi and Mini ECOi // CZ-CAPDC4 for ECOi 6N 2way**

Optional terminal block kit for demand control to be mounted in the outdoor unit. Via this interface, the demand control signals go directly to the outdoor unit control PCB. 3 control levels are available.



\* Only for 6N series ECO-i outdoor unit, "Regular Demand control" setting is available. (The system will be limited the maximum input level for all the time without any signal input.) (The setting to be done at the time of system start-up or service by maintenance remote controller.)



## MINI ECOi HIGH EFFICIENCY

### FOR LIGHT COMMERCIAL USE

Panasonic's Mini ECOi, the 2-Pipe heat pump small VRF system, is specifically designed for the most demanding applications. Offering between 11 kW and 16 kW cooling capacity in 3 sizes and up to 9 indoor units connected, the Mini ECOi sets standards of performance and flexibility. Utilising R410A and DC inverter technology, Panasonic offers VRF to a new and growing market. Forming a new key part of the Panasonic VRF line up, the Mini ECOi is compatible with the same indoor units and controls as the rest of the ECOi range.

**Internet  
Control  
Ready**  
INTERNET CONTROL

**Environmentally  
friendly  
refrigerant**  
R410A

**Down to  
-20 °C in  
heating mode**  
OUTDOOR  
TEMPERATURE

**5 year**  
compressor  
warranty

OPTIONAL

### TECHNICAL FOCUS

- SINGLE PHASE OR THREE PHASE POWER SUPPLY
- ONE AMP START CURRENT
- DC INVERTER TECHNOLOGY COMBINED WITH R410A
- DIVERSITY RATIO 50-130%
- COOLING OPERATION TO -10 °C
- COMPACT OUTDOOR UNIT 1,330 x 940 x 410 mm

HP		4.0 HP		5.0 HP		6.0 HP											
<b>Model name</b>		<b>U-4LE1E5</b>		<b>U-4LE1E8</b>		<b>U-5LE1E5</b>		<b>U-5LE1E8</b>		<b>U-6LE1E5</b>		<b>U-6LE1E8</b>					
<b>Power supply</b>		220/230/240 V, 50 Hz		380/400/415 V, 50 Hz		220/230/240 V, 50 Hz		380/400/415 V, 50 Hz		220/230/240 V, 50 Hz		380/400/415 V, 50 Hz					
<b>Cooling capacity</b>		kW		12.1		12.1		14.0		14.0		15.5		15.5			
		BTU/h		41,300		41,300		47,800		47,800		52,900		52,900			
<b>EER</b>		W/W		4.30		4.30		4.20		4.20		3.45		3.45			
<b>Heating capacity</b>		kW		12.5		12.5		16.0		16.0		18.0		18.0			
		BTU/h		42,700		42,700		54,600		54,600		61,400		61,400			
<b>COP</b>		W/W		4.62		4.62		4.30		4.30		3.95		3.95			
<b>Dimensions</b>		H x W x D		mm		1,330 x 940 x 340 (410)		1,330 x 940 x 340 (410)		1,330 x 940 x 340 (410)		1,330 x 940 x 340 (410)		1,330 x 940 x 340 (410)			
<b>Piping connection</b>		Gas		mm		15.88		15.88		15.88		15.88		19.05		19.05	
		Liquid		mm		9.52		9.52		9.52		9.52		9.52		9.52	
<b>Sound pressure level</b>		Cooling		dB(A)		50		50		51		51		52		52	
		Heating		dB(A)		52		52		53		53		55		55	
<b>Maximum number of indoor units</b>				6		6		8		8		9		9			

Preliminary specifications, subject to change without notice.

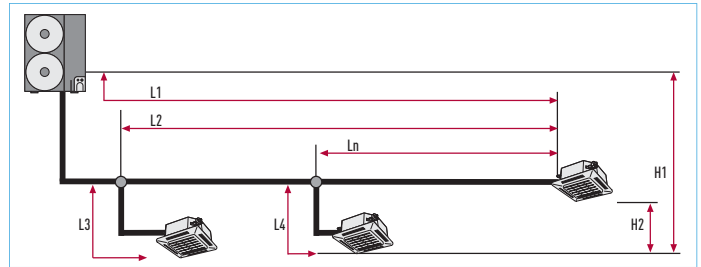
GLOBAL REMARKS	Rated conditions:	
	Cooling	Heating
	Indoor air temperature	27 °C DB / 19 °C WB
Outdoor air temperature	35 °C DB / 24 °C WB	7 °C DB / 6 °C WB

Specifications subject to change without notice.

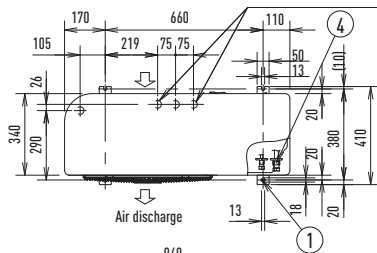


### Flexible pipework

CATEGORY	ITEM	DESCRIPTION	MAX LENGTH (m)
Allowable pipework length	L1	Maximum pipe run	Actual length 120
			Equivalent length 140
	L2-L3	Difference between maximum length and minimum length from the first distribution joint	40
	L3 L4 Ln	Maximum length of each distribution joint	30
	L1+L3+L4	Maximum total pipe run length	150
Allowable height difference	H1	When outdoor unit installed higher	50
		When outdoor unit installed lower	40
	H2	Maximum difference between indoor units	15

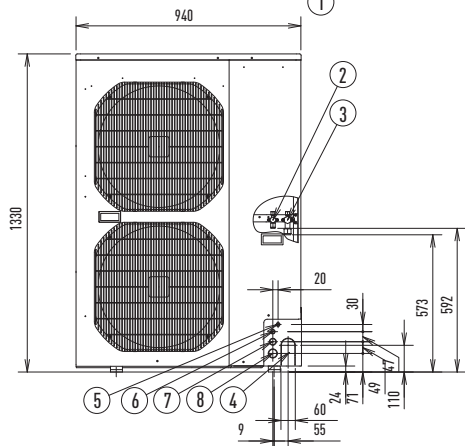


### TOP VIEW

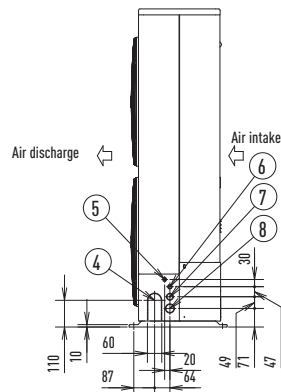


4 x Ø 32 holes (holes for drain)  
Of the 4 Ø 32 holes, use 1 of the 2 holes specified for drain use to install the port.  
Use rubber plugs to seal the remaining 3 holes.

### FRONT VIEW



	Size (mm)
1 Mounting hole (4-R6.5), anchor bolt:	M10
2 Refrigerant tubing (liquid tube), flared connection	Ø 9.52
3 Refrigerant tubing (gas tube), flared connection	15.88 or 19.05
4 Refrigerant tubing port.	
5 Electrical wiring port	Ø 16
6 Electrical wiring port	Ø 19
7 Electrical wiring port	Ø 29
8 Electrical wiring port	Ø 38





## 2-PIPE ECOi 6N SERIES

HIGH-EFFICIENCY AND LARGE-CAPACITY VRF SYSTEM

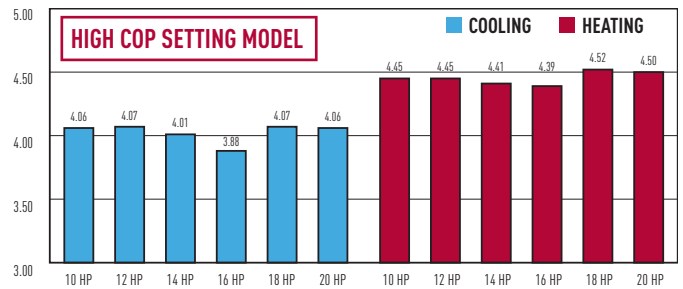
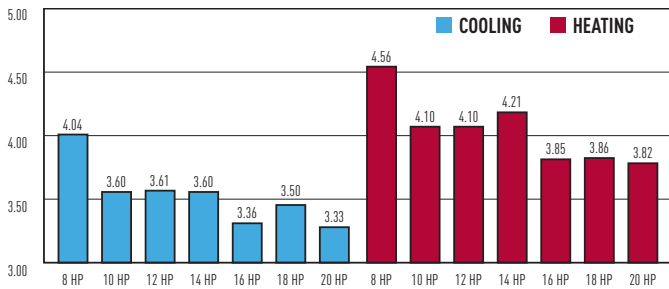
<b>Internet Control Ready</b> INTERNET CONTROL	<b>Energy saving</b> INVERTER+	<b>Environmentally friendly refrigerant</b> R410A	<b>Down to -25 °C in heating mode</b> OUTDOOR TEMPERATURE	<b>5 year compressor warranty</b>
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Large-capacity VRF systems using R410A with advanced technology.  
Newly designed next generation VRF!



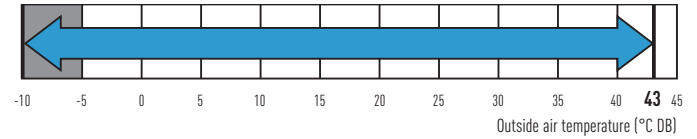
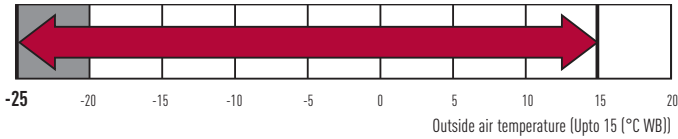
### Energy savings

The operation efficiency has been improved using highly efficient R410A refrigerant, new DC inverter compressor, new DC motor and new design of heat exchanger.



### Extended operating range

Heating operation range: Extended heating operation range enables heating even when outdoor temperature as low as -25 °C. Using a wired remote control, indoor heating temperature range can be set from 16 °C to 30 °C.



Wide temperature setting range.

Cooling operation range: -10 °C DB to +43 °C DB.



### Connectable indoor/outdoor unit capacity ratio up to 200%

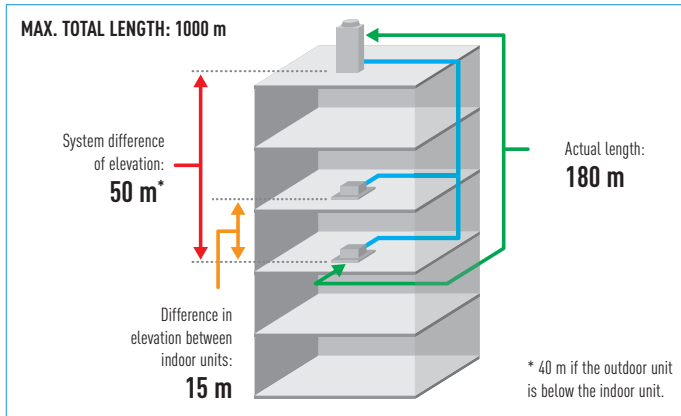
VRF systems attain maximum indoor unit connection capacity of up to 200 % of the unit's connection range, depending on the outdoor and indoor models selected. So for a reasonable investment, VRF systems provide an ideal air conditioning solution for locations where full cooling/heating are not always required.

SYSTEM (HP)	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60
CONNECTABLE INDOOR UNITS: 130%	13	16	19	23	26	29	33	36	40	43	47	50	53	56	59											64	
CONNECTABLE INDOOR UNITS: 200%	20	25	30	35	40	45	50	55	60											64							

If more than 100% indoor units are operated with a high load, the units may not perform at the rated capacity. For the details, please consult with an authorized Panasonic dealer.

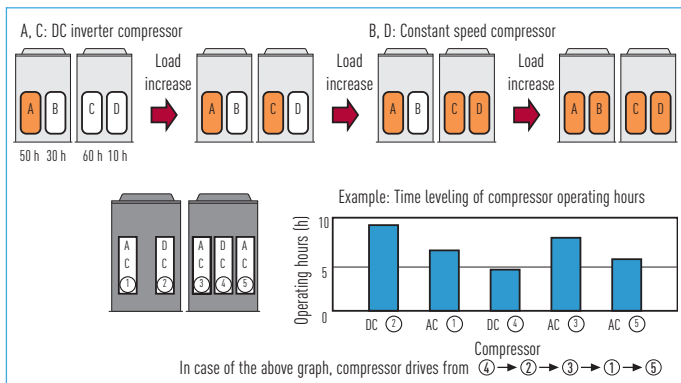
### Increased piping lengths and design flexibility

Adaptable to various building types and sizes. Actual piping length: 180 m. Maximum piping length: 1000 m.



### Extended compressor life by uniform compressor operation times

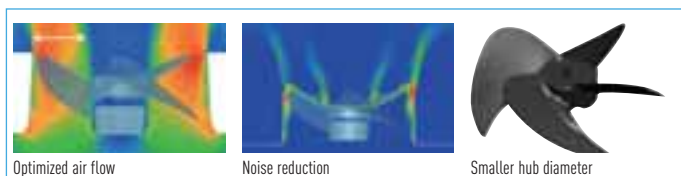
Total compressors run-time is monitored by a built-in microcomputer, which ensures that operation times of all compressors within the same refrigerant circuit are balanced. Compressors with histories showing shorter run times are selected first, ensuring equal wear and tear across all units and extended working life for the system.



### Newly designed fan

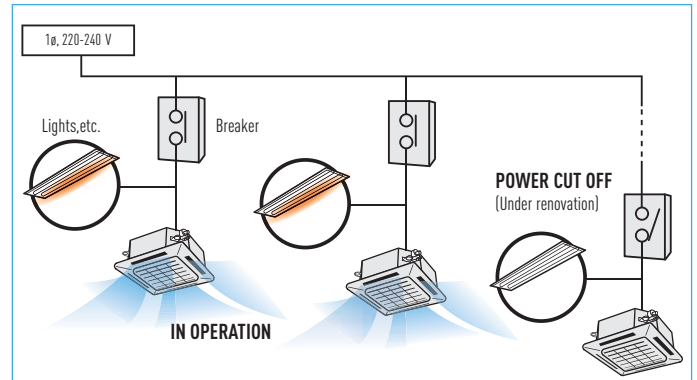
#### Optimized air flow and noise reduction

Newly designed fan and bell-mouth reduces stress to fan by dispersing fast wind speed. Thus, lower air resistance results in lower energy consumption. The turbulent flow (blue part) can be suppressed and the noise can be reduced. Even though the high speed circulation is utilized, the noise level is held at the same level as normal.



### Non-stop operation during maintenance

In the event of an indoor unit malfunctioning, other indoor units can be set to continue operation even during maintenance.



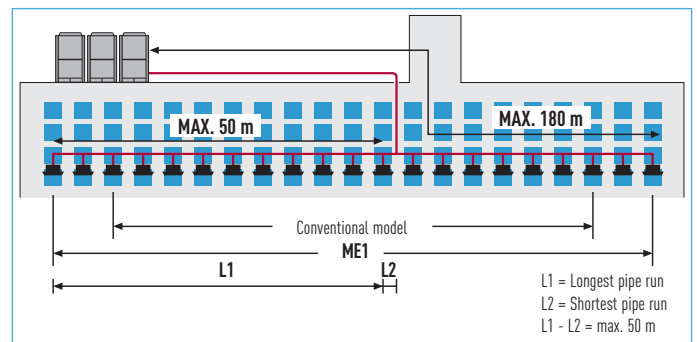
### Automatic backup operation in the case of compressor and outdoor units malfunction

Backup operation is applied during in the case of emergencies. If error message is displayed, please contact your local service office. (Except for 8 HP single unit installation).



### Easy to design solutions for schools, hotels, hospitals and other large buildings

Difference between Max. and Min. pipe runs after first branch can be a maximum of 50 m; larger pipe runs can be up to 180 m.

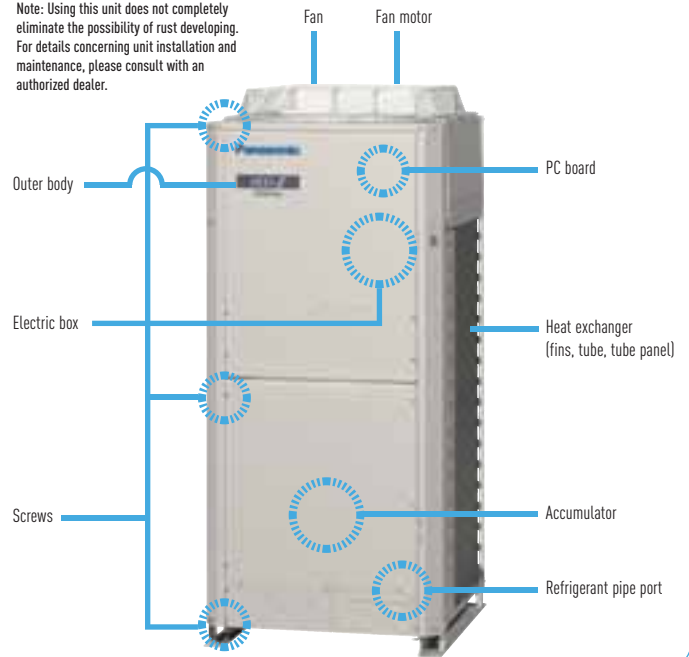




**Anti-corrosion model available**

For bespoke projects: for use in coastal areas and other locations where sea air can easily cause salt damage to units. As well as the heat exchanger, various other parts are specially treated to provide exceptional durability.

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



**Demand control Kit information**

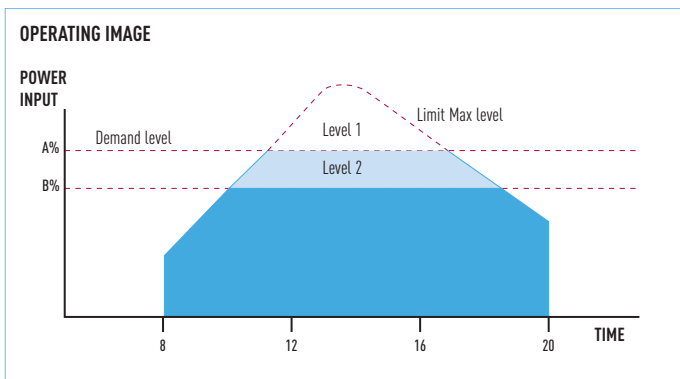
		PACi	MINI ECOi	ECOi 6N
CZ-CAPDC2	Seri-Para I/O unit for outdoor unit	Yes	Yes	Yes
CZ-CAPDC3	Demand Control Kit	Yes	Yes	-
CZ-CAPDC4	Demand Control Kit	-	-	Yes

**Demand Control Functions**

This function limits the maximum operating input at peak time. 3 levels as 100%/70%/0% is set at the factory<sup>1</sup>. The limit value setting for level 1 & 2 can be changed from 40% ~ 100% by 5% when the system is commissioned.

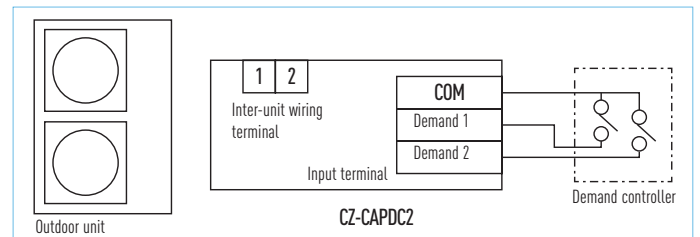
1. The 3rd level is available only for CZ-CAPDC3 & CZ-CAPDC4.)

	POWER INPUT LEVEL (VS. RATED CONDITION)	
Level 1	100% (at ship)	From 40%-100% setting can be changed (by 5% step)
Level 2	70% (at ship)	
Level 3	0% (Forcible thermo-OFF)	



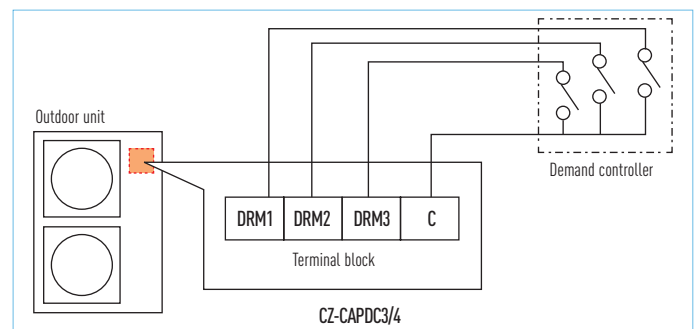
**CZ-CAPDC2**

Demand control input signals sent to this outdoor interface will be transferred to the system via inter-unit control wiring. Other controls (ex. Operation ON/OFF, Mode switch Cool/Heat) are also available. Demand level 1 & 2 are available.



**CZ-CAPDC3 for PACi and Mini ECOi // CZ-CAPDC4 for ECOi 6N 2way**

Optional terminal block kit for demand control to be mounted in the outdoor unit. Via this interface, the demand control signals go directly to the outdoor unit control PCB. Three control levels are available.



\* Only for 6N series ECO-i outdoor unit, "Regular Demand control" setting is available. (The system will be limited the maximum input level for all the time without any signal input.) (The setting to be done at the time of system start-up or service by maintenance remote controller.)



## 8-12 HP // 2-PIPE ECOi 6N SERIES

NEXT GENERATION VRF NEWLY-REDESIGNED!

At start up stage a unit can have Hi COP function selected - this lowers the capacity and increases the COP. It's your choice.

- Top class COP= 4.56 (In case of 8 HP heating).
- Heating operation at outdoor temperatures down to -25 °C.
- Extended pipe runs of up to 180 m.

Internet  
Control  
Ready

INTERNET CONTROL

Environmentally  
friendly  
refrigerant

R410A

Down to  
-25 °C in  
heating mode

OUTDOOR  
TEMPERATURE

5 year  
compressor  
warranty

OPTIONAL

### TECHNICAL FOCUS

- COMPACT CASING
- LONGER MAX PIPING LENGTH UP TO 1,000 m
- EXTENDED OPERATING RANGE TO PROVIDE HEATING AT OUTDOOR TEMPERATURE AS LOW AS -25 °C
- SUITABLE FOR REFURBISHMENT PROJECTS (REFER TO TECHNICAL DATA BOOK)

HP			8.0 HP	10.0 HP	12.0 HP
STANDARD MODEL			U-8ME1E81	U-10ME1E81	U-12ME1E81
Power supply			400 V / 3 phase / 50 Hz		
Cooling capacity		kW	22.4	28.0	33.5
EER		W/W	4.04	3.60	3.61
Electrical ratings	Operating current	A	8.5	12.2	14.6
	Power input	kW	5.54	7.78	9.29
Heating capacity		kW	25.0	31.5	37.5
COP		W/W	4.56	4.10	4.10
Electrical ratings	Operating current	A	8.4	12.1	14.4
	Power input	kW	5.48	7.68	9.15
Dimensions	H x W x D	mm	1,758 x 770 x 930	1,758 x 770 x 930	1,758 x 770 x 930
Net weight		kg	234	234	281
Starting current		A	1	1	81
Air flow rate		m <sup>3</sup> /h	8,820	9,180	11,400
Refrigerant amount at shipment		kg	6.5	6.8	6.8
Demand control			13 steps (0 – 100 %)	13 steps (0 – 100 %)	13 steps (0 – 100 %)
External static pressure		Pa	80	80	80
Piping connections	Gas pipe	mm	19.05	22.22	25.4
	Liquid pipe	mm	9.52	9.52	12.7
	Balance pipe	mm	6.35	6.35	6.35
Ambient temperature operating range			Cooling: -10 °C DB ~ +43 °C DB, Heating: -25 °C WB ~ +15 °C WB		
Sound pressure level	Normal mode	dB(A)	56.5	59.0	61.0
	Silent mode	dB(A)	53.5	56.0	58.0
Sound power level	Normal mode	dB	71.0	73.5	75.5

GLOBAL REMARKS	Rated conditions:	
	Cooling	Heating
	Indoor air temperature	27 °C DB / 19 °C WB
Outdoor air temperature	35 °C DB / 24 °C WB	7 °C DB / 6 °C WB

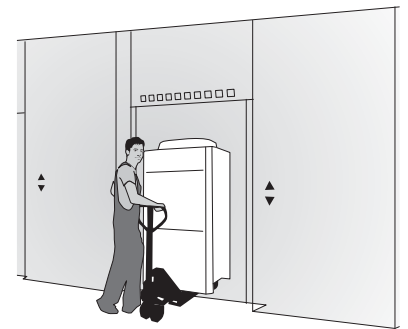
Specifications subject to change without notice.



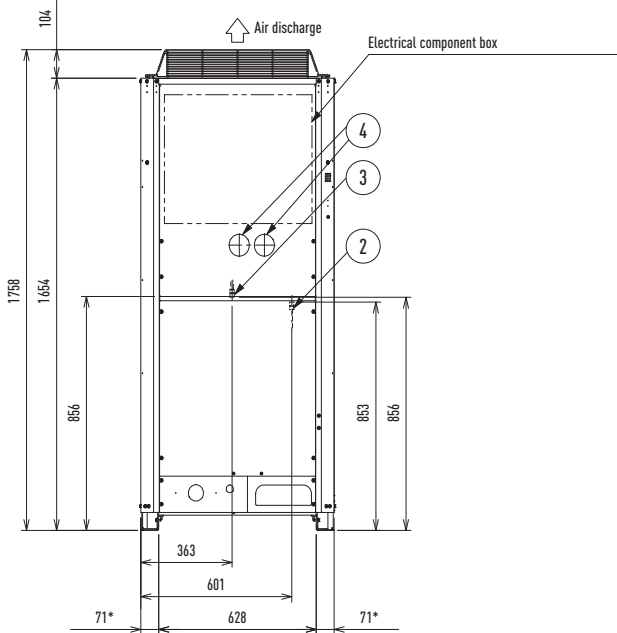


**Compact design**

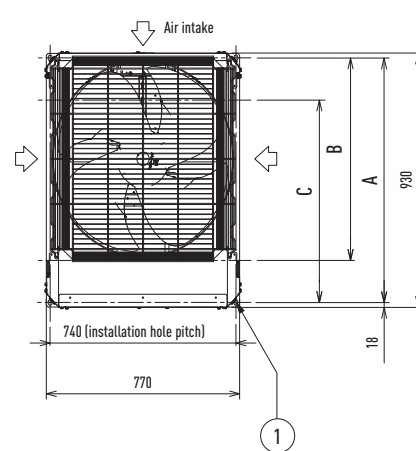
8-12 HP fit inside a lift for easy handling at site.



**FRONT VIEW**



**TOP VIEW**



A 894 (installation hole pitch). The tubing is routed out from the front  
 B 730 (installation hole pitch). The tubing is routed out from the front  
 C 730 (installation hole pitch).

- 1 Installation holes (8-15x21 elongated holes) anchor bolts M12 or larger.
- 2 Pressure outlet port (for high pressure: Ø 7.94 Scradex-type connection).
- 3 Pressure outlet port (for low pressure: Ø 7.94 Scradex-type connection).
- 4 Knock-out hole for connecting pressure gauge (optional).
- 5 Terminal board.
- 6 Terminal board (for inter-outdoor-unit control wiring).

\* Installation fixing bracket, installation side.



## 14-16 HP // 2-PIPE ECOi 6N SERIES

NEXT GENERATION VRF NEWLY-REDESIGNED!

At start up stage a unit can have Hi COP function selected - this lowers the capacity and increases the COP. It's your choice.

- Heating operation at outdoor temperatures down to -25 °C.
- Extended pipe runs of up to 180 m.

**Internet Control Ready**

INTERNET CONTROL

**Environmentally friendly refrigerant**

R410A

**Down to -25 °C in heating mode**

OUTDOOR TEMPERATURE

**5 year compressor warranty**

OPTIONAL

### TECHNICAL FOCUS

- LONGER MAX PIPING LENGTH UP TO 1,000 m
- EXTENDED OPERATING RANGE TO PROVIDE HEATING AT OUTDOOR TEMPERATURE AS LOW AS -25 °C
- SUITABLE FOR REFURBISHMENT PROJECTS (REFER TO TECHNICAL DATA BOOK)

HP			14.0 HP	16.0 HP
STANDARD MODEL			U-14ME1E81	U-16ME1E81
Power supply			400 V / 3 phase / 50 Hz	
Cooling capacity		kW	40.0	45.0
EER		W/W	3.60	3.36
Electrical ratings	Operating current	A	17.1	20.7
	Power input	kW	11.1	13.4
Heating capacity		kW	45.0	50.0
COP		W/W	4.21	3.85
Electrical ratings	Operating current	A	16.5	20.1
	Power input	kW	10.7	13.0
Dimensions	H x W x D	mm	1,758 x 1,000 x 930	1,758 x 1,000 x 930
Net weight		kg	309	309
Starting current		A	77	81
Air flow rate		m <sup>3</sup> /h	12,720	12,720
Refrigerant amount at shipment		kg	8.5	8.5
Demand control			13 steps (0 – 100 %)	13 steps (0 – 100 %)
External static pressure		Pa	80	80
Piping connections	Gas pipe	mm	25.4	28.58
	Liquid pipe	mm	12.7	12.7
	Balance pipe	mm	6.35	6.35
Ambient temperature operating range			Cooling: -10 °C DB ~ +43 °C DB, Heating: -25 °C WB ~ +15 °C WB	
Sound pressure level	Normal mode	dB(A)	62.0	62.0
	Silent mode	dB(A)	59.0	59.0
Sound power level	Normal mode	dB	76.5	76.5

GLOBAL REMARKS	Rated conditions:	
	Cooling	Heating
	Indoor air temperature	27 °C DB / 19 °C WB
Outdoor air temperature	35 °C DB / 24 °C WB	7 °C DB / 6 °C WB

Specifications subject to change without notice.

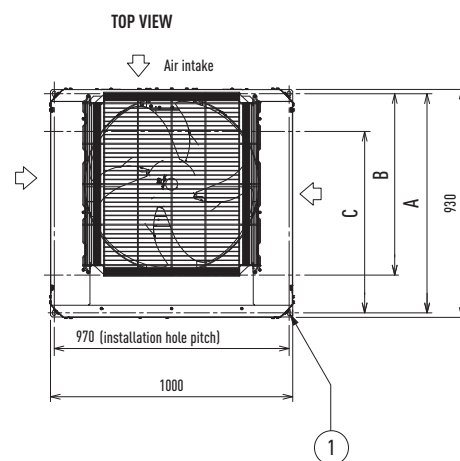
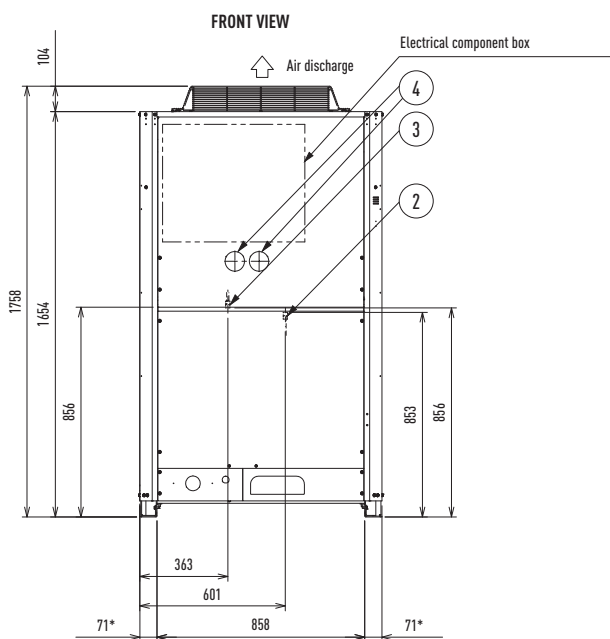


### High external static pressure

Special setting at site allows all models to provide up to 80 Pa due to newly designed fan, fan motor and casing.

The flexible design requires an air discharge duct to avoid a reduction in performance due to shortcut of air circulation.

The new feature allows the outdoor unit to be installed inside plant rooms on any floor of the building.



A 894 (installation hole pitch). The tubing is routed out from the front  
 B 730 (installation hole pitch). The tubing is routed out from the front  
 C 730 (installation hole pitch).

- 1 Installation holes (8-15x21 elongated holes) anchor bolts M12 or larger.
- 2 Pressure outlet port (for high pressure: Ø 7.94 Scradler-type connection).
- 3 Pressure outlet port (for low pressure: Ø 7.94 Scradler-type connection).
- 4 Knock-out hole for connecting pressure gauge (optional).
- 5 Terminal board.
- 6 Terminal board (for inter-outdoor-unit control wiring).

\* Installation fixing bracket, installation side.



## 18-20 HP // 2-PIPE ECOi 6N SERIES

NEXT GENERATION VRF NEWLY-REDESIGNED!

At start up stage a unit can have Hi COP function selected - this lowers the capacity and increases the COP. It's your choice.

- Heating operation at outdoor temperatures down to -25 °C.
- Extended pipe runs of up to 180 m.

**Internet Control Ready**

INTERNET CONTROL

**Environmentally friendly refrigerant**

R410A

**Down to -25 °C in heating mode**

OUTDOOR TEMPERATURE

**5 year**  
compressor  
warranty

### TECHNICAL FOCUS

- BIGGER CAPACITY IN ONE CASING
- LONGER MAX PIPING LENGTH UP TO 1,000 m
- EXTENDED OPERATING RANGE TO PROVIDE HEATING AT OUTDOOR TEMPERATURE AS LOW AS -25 °C
- SUITABLE FOR REFURBISHMENT PROJECTS (REFER TO TECHNICAL DATA BOOK)

HP			18.0 HP	20.0 HP
STANDARD MODEL			U-18ME1E81	U-20ME1E81
Power supply			400 V / 3 phase / 50 Hz	
Cooling capacity			kW	50.0
EER			W/W	3.50
Electrical ratings	Operating current	A	22.8	26.8
	Power input	kW	14.3	16.8
Heating capacity			kW	56.0
COP			W/W	3.86
Electrical ratings	Operating current	A	23.1	26.3
	Power input	kW	14.5	16.5
Dimensions			H x W x D	mm
Net weight			kg	421
Starting current			A	93
Air flow rate			m <sup>3</sup> /h	14,640
Refrigerant amount at shipment			kg	9.0
Demand control			13 steps (0 – 100 %)	
External static pressure			Pa	80
Piping connections	Gas pipe	mm	28.58	28.58
	Liquid pipe	mm	15.88	15.88
	Balance pipe	mm	6.35	6.35
Ambient temperature operating range			Cooling: -10 °C DB ~ +43 °C DB, Heating: -25 °C WB ~ +15 °C WB	
Sound pressure level	Normal mode	dB(A)	60.0	63.0
	Silent mode	dB(A)	57.0	60.0
Sound power level	Normal mode	dB	74.5	77.5

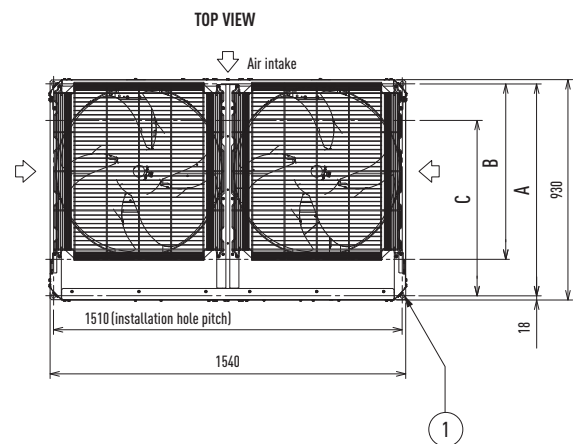
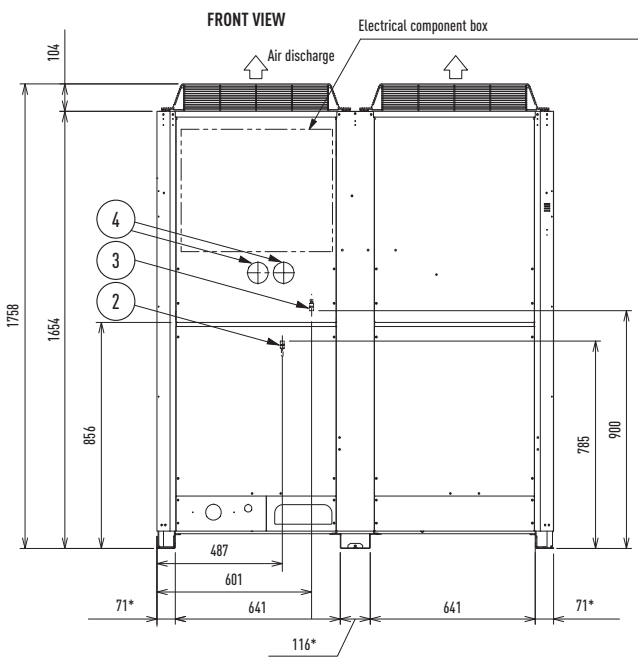
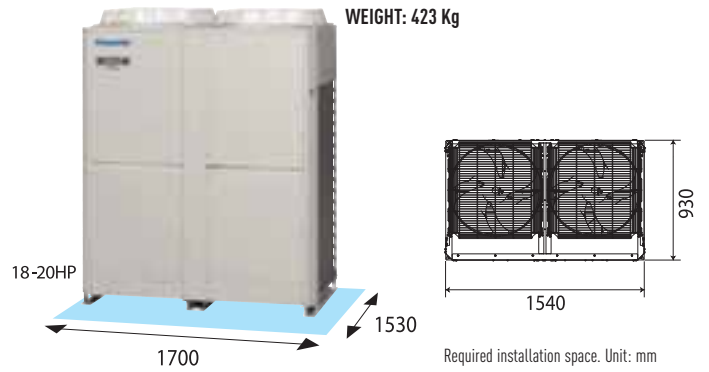
GLOBAL REMARKS	Rated conditions:	
	Cooling	Heating
	Indoor air temperature	27 °C DB / 19 °C WB
Outdoor air temperature	35 °C DB / 24 °C WB	7 °C DB / 6 °C WB

Specifications subject to change without notice.



**Compact design**

2-Pipe ECOi 6N series has reduced the installation space required by 1 chassis for sizes up to 20 HP.



A 894 (installation hole pitch). The tubing is routed out from the front  
 B 730 (installation hole pitch). The tubing is routed out from the front  
 C 730 (installation hole pitch).

- 1 Installation holes (8-15x21 elongated holes) anchor bolts M12 or larger.
- 2 Pressure outlet port (for high pressure: Ø 7.94 Scradler-type connection).
- 3 Pressure outlet port (for low pressure: Ø 7.94 Scradler-type connection).
- 4 Knock-out hole for connecting pressure gauge (optional).
- 5 Terminal board.
- 6 Terminal board (for inter-outdoor-unit control wiring).

\* Installation fixing bracket, installation side.

Energy saving



## 2-PIPE ECOi 6N SERIES // COMBINATION FROM 22 TO 60 HP

NEXT GENERATION VRF NEWLY-REDESIGNED!

At start up stage a unit can have Hi COP function selected - this lowers the capacity and increases the COP. It's your choice.

- Wide range of system up to 60 HP.
- Heating operation at outdoor temperatures down to -25 °C.
- Extended pipe runs of up to 180 m.



OPTIONAL



### TECHNICAL FOCUS

- INCREASED CONNECTABLE I\_U/O\_U CAP. RATIO UP TO 200%
- INCREASED MAX NO. OF CONNECTABLE I\_U UP TO 64 UNITS
- INCREASED HIGH EXTERNAL STATIC PRESSURE UP TO 80 Pa
- EXTENDED OPERATING RANGE TO PROVIDE HEATING AT OUTDOOR TEMPERATURE AS LOW AS -25 °C

HP		22	24	26	28	30	32	34	36	
STANDARD MODEL		U-14ME1E81 U-8ME1E81	U-14ME1E81 U-10ME1E81	U-14ME1E81 U-12ME1E81	U-16ME1E81 U-12ME1E81	U-16ME1E81 U-14ME1E81	U-16ME1E81 U-16ME1E81	U-18ME1E81 U-16ME1E81	U-20ME1E81 U-16ME1E81	
Power supply		400 V / 3 phase / 50 Hz								
Cooling capacity	kW	61.5	68.0	73.0	78.5	85.0	90.0	96.0	101.0	
EER	W/W	3.75	3.60	3.60	3.47	3.47	3.35	3.43	3.34	
Electrical ratings	Operating current	A	25.2	29.4	31.6	35.2	37.8	41.5	44.0	47.5
	Power input	kW	16.4	18.9	20.3	22.6	24.5	26.9	28.0	30.2
Heating capacity	kW	69.0	76.5	81.5	87.5	95.0	100.0	108.0	113.0	
COP	W/W	4.34	4.09	4.12	3.96	4.03	3.86	3.86	3.83	
Electrical ratings	Operating current	A	24.5	29.1	30.8	34.4	36.4	40.0	44.0	46.4
	Power input	kW	15.9	18.7	19.8	22.1	23.6	25.9	28.0	29.5
Dimensions	H x W x D	mm	1,758 x 1,830 x 930	1,758 x 1,830 x 930	1,758 x 1,830 x 930	1,758 x 1,830 x 930	1,758 x 2,060 x 930	1,758 x 2,060 x 930	1,758 x 2,600 x 930	1,758 x 2,600 x 930
Net weight	kg	543	543	590	590	618	618	730	730	
Starting current	A	86	94	98	102	98	102	114	122	
Air flow rate	m <sup>3</sup> /h	21,540	21,900	24,120	24,120	25,440	25,440	27,360	29,700	
Refrigerant amount at shipment	kg	15.0	15.3	15.3	15.3	17.0	17.0	17.5	17.5	
Demand control		13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	
External static pressure	Pa	80	80	80	80	80	80	80	80	
Piping connections	Gas pipe	mm	28.58	28.58	31.75	31.75	31.75	31.75	38.10	
	Liquid pipe	mm	15.88	15.88	19.05	19.05	19.05	19.05	19.05	
	Balance pipe	mm	6.35	6.35	6.35	6.35	6.35	6.35	6.35	
Ambient temperature operating range		Cooling: -10 °C DB ~ +43 °C DB, Heating: -25 °C WB ~ +15 °C WB								
Sound pressure level	Normal mode	dB(A)	63.0	63.5	64.5	64.5	65.0	65.0	64.0	65.5
	Silent mode	dB(A)	60.0	60.5	61.5	61.5	62.0	62.0	61.0	62.5
Sound power level	Normal mode	dB	77.5	78.0	79.0	79.0	79.5	79.5	78.5	80.0

GLOBAL REMARKS	Rated conditions:	
	Cooling	Heating
	Indoor air temperature	27 °C DB / 19 °C WB
Outdoor air temperature	35 °C DB / 24 °C WB	7 °C DB / 6 °C WB

Specifications subject to change without notice.



38	40	42	44	46	48	50	52	54	56	58	60
U-20ME1E81 U-18ME1E81	U-20ME1E81 U-20ME1E81	U-16ME1E81 U-14ME1E81 U-12ME1E81	U-16ME1E81 U-16ME1E81 U-12ME1E81	U-16ME1E81 U-16ME1E81 U-14ME1E81	U-16ME1E81 U-16ME1E81 U-16ME1E81	U-18ME1E81 U-16ME1E81 U-16ME1E81	U-20ME1E81 U-16ME1E81 U-16ME1E81	U-20ME1E81 U-18ME1E81 U-16ME1E81	U-20ME1E81 U-18ME1E81 U-18ME1E81	U-20ME1E81 U-20ME1E81 U-18ME1E81	U-20ME1E81 U-20ME1E81 U-20ME1E81
400 V / 3 phase / 50 Hz											
107.0	113.0	118.0	124.0	130.0	135.0	140.0	145.0	151.0	156.0	162.0	168.0
3.44	3.36	3.51	3.43	3.43	3.35	3.41	3.35	3.39	3.44	3.38	3.33
49.6	53.6	52.1	56.2	58.5	62.2	64.2	67.7	70.3	72.4	76.4	80.4
31.1	33.6	33.6	36.2	37.9	40.3	41.1	43.3	44.5	45.4	47.9	50.4
119.0	127.0	132.0	138.0	145.0	150.0	155.0	160.0	169.0	175.0	182.0	189.0
3.84	3.85	4.04	3.92	3.96	3.86	3.86	3.84	3.85	3.85	3.83	3.81
49.4	52.6	50.8	54.6	56.5	60.1	62.8	65.2	69.3	72.4	75.8	79.1
31.0	33.0	32.7	35.2	36.6	38.9	40.2	41.7	43.9	45.4	47.5	49.6
1,758 x 3,140 x 930	1,758 x 3,140 x 930	1,758 x 2,890 x 930	1,758 x 2,890 x 930	1,758 x 3,120 x 930	1,758 x 3,120 x 930	1,758 x 3,660 x 930	1,758 x 3,660 x 930	1,758 x 4,200 x 930	1,758 x 4,740 x 930	1,758 x 4,740 x 930	1,758 x 4,740 x 930
842	842	899	899	927	927	1,039	1,039	1,151	1,263	1,263	1,263
123	127	119	122	119	122	134	142	144	146	149	153
31,620	33,960	36,840	36,840	38,160	38,160	40,080	42,420	44,340	46,260	48,600	50,940
18.0	18.0	23.8	23.8	25.5	25.5	26.0	26.0	26.5	27.0	27.0	27.0
13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)
80	80	80	80	80	80	80	80	80	80	80	80
38.10	38.10	38.10	38.10	38.10	38.10	38.10	38.10	38.10	38.10	38.10	38.10
19.05	19.05	19.05	19.05	19.05	19.05	19.05	19.05	19.05	19.05	19.05	19.05
6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35
Cooling: -10 °C DB ~ +43 °C DB, Heating: -25 °C WB ~ +15 °C WB											
65.0	66.0	66.5	66.5	67.0	67.0	66.0	67.0	66.5	66.0	67.0	68.0
62.0	63.0	63.5	63.5	64.0	64.0	63.0	64.0	63.5	63.0	64.0	65.0
79.5	80.5	81.0	81.0	81.5	81.5	80.5	81.5	81.0	80.5	81.5	82.5



## 10-12 HP // 2-PIPE ECOi 6N SERIES // HIGH COP SETTING MODEL

NEXT GENERATION VRF NEWLY-REDESIGNED!

- Heating operation at outdoor temperatures down to -25 °C.
- Extended pipe runs of up to 180 m.

**Internet Control Ready**

INTERNET CONTROL

**Environmentally friendly refrigerant**

R410A

**Down to -25 °C in heating mode**

OUTDOOR TEMPERATURE

**5 year compressor warranty**

OPTIONAL

### TECHNICAL FOCUS

- LONGER MAX PIPING LENGTH UP TO 1,000 m
- EXTENDED OPERATING RANGE TO PROVIDE HEATING AT OUTDOOR TEMPERATURE AS LOW AS -25 °C
- SUITABLE FOR REFURBISHMENT PROJECTS (REFER TO TECHNICAL DATA BOOK)

HP			10.0 HP	12.0 HP
HIGH COP SETTING MODEL			U-14ME1E81	U-16ME1E81
Power supply			400 V / 3 phase / 50 Hz	
Cooling capacity		kW	28.0	33.5
EER		W/W	4.06	4.07
Electrical ratings	Operating current	A	10.7	12.7
	Power input	kW	6.90	8.23
Heating capacity		kW	31.5	37.5
COP		W/W	4.45	4.45
Electrical ratings	Operating current	A	10.9	13.0
	Power input	kW	7.08	8.43
Dimensions	H x W x D	mm	1,758 x 1,000 x 930	1,758 x 1,000 x 930
Net weight		kg	307	307
Starting current		A	77	81
Air flow rate		m <sup>3</sup> /h	12,720	12,720
Demand control			13 steps (0 - 100 %)	13 steps (0 - 100 %)
External static pressure		Pa	80	80
Refrigerant amount at shipment		kg	8.5	8.5
Piping connections	Gas pipe	mm	22.22	25.40
	Liquid pipe	mm	9.52	12.70
	Balance pipe	mm	6.35	6.35
Ambient temperature operating range			Cooling: -10 °C DB ~ +43 °C DB, Heating: -25 °C WB ~ +15 °C WB	
Sound pressure level	Normal mode	dB(A)	62.0	62.0
	Silent mode	dB(A)	59.0	59.0
Sound power level		dB	76.5	76.5

GLOBAL REMARKS	Rated conditions:	
	Cooling	Heating
	Indoor air temperature	27 °C DB / 19 °C WB
Outdoor air temperature	35 °C DB / 24 °C WB	7 °C DB / 6 °C WB

Specifications subject to change without notice.



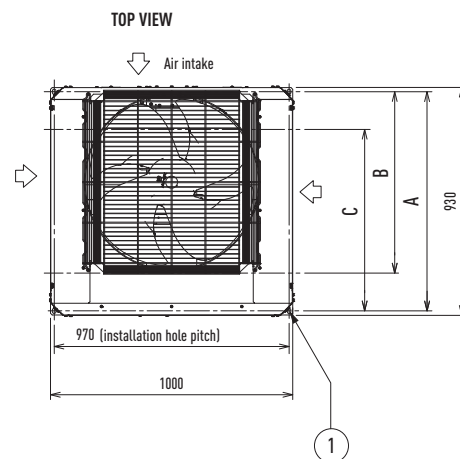
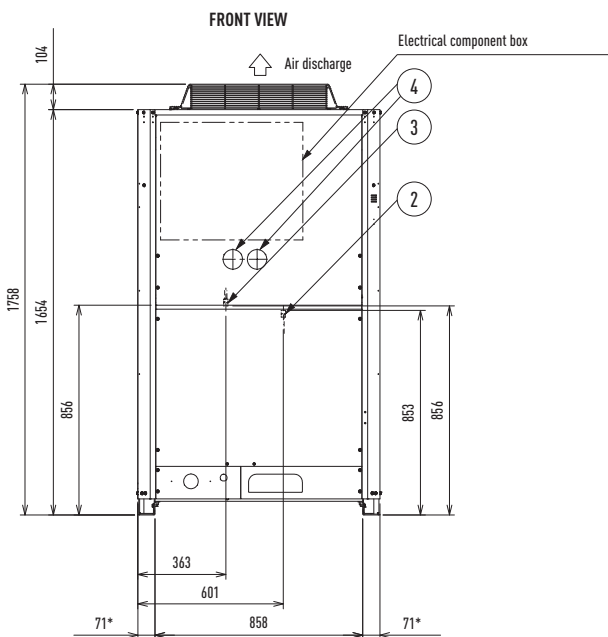


### High external static pressure

Special setting at site allows all models to provide up to 80 Pa due to newly designed fan, fan motor and casing.

The flexible design requires an air discharge duct to avoid a reduction in performance due to shortcut of air circulation.

The new feature allows the outdoor unit to be installed inside plant rooms on any floor of the building.



A 894 (installation hole pitch). The tubing is routed out from the front  
 B 730 (installation hole pitch). The tubing is routed out from the front  
 C 730 (installation hole pitch).

- 1 Installation holes (8-15x21 elongated holes) anchor bolts M12 or larger.
- 2 Pressure outlet port (for high pressure: Ø 7.94 Scradler-type connection).
- 3 Pressure outlet port (for low pressure: Ø 7.94 Scradler-type connection).
- 4 Knock-out hole for connecting pressure gauge (optional).
- 5 Terminal board.
- 6 Terminal board (for inter-outdoor-unit control wiring).

\* Installation fixing bracket, installation side.



## 14-16 HP // 2-PIPE ECOi 6N SERIES // HIGH COP SETTING MODEL

NEXT GENERATION VRF NEWLY-REDESIGNED!

- Heating operation at outdoor temperatures down to -25 °C.
- Extended pipe runs of up to 180 m.

**Internet Control Ready**

INTERNET CONTROL

**Environmentally friendly refrigerant**

R410A

**Down to -25 °C in heating mode**

OUTDOOR TEMPERATURE

**5 year compressor warranty**

OPTIONAL

### TECHNICAL FOCUS

- BIGGER CAPACITY IN ONE CASING
- LONGER MAX PIPING LENGTH UP TO 1,000 m
- EXTENDED OPERATING RANGE TO PROVIDE HEATING AT OUTDOOR TEMPERATURE AS LOW AS -25 °C
- SUITABLE FOR REFURBISHMENT PROJECTS (REFER TO TECHNICAL DATA BOOK)

HP			14.0 HP	16.0 HP
HIGH COP SETTING MODEL			U-18ME1E81	U-20ME1E81
Power supply			400 V / 3 phase / 50 Hz	
Cooling capacity		kW	40.0	45.0
EER		W/W	4.01	3.88
Electrical ratings	Operating current	A	15.4	17.9
	Power input	kW	9.98	11.6
Heating capacity		kW	45.0	50.0
COP		W/W	4.41	4.39
Electrical ratings	Operating current	A	15.8	17.6
	Power input	kW	10.2	11.4
Dimensions	H x W x D	mm	1,758 x 1,540 x 930	1,758 x 1,540 x 930
Net weight		kg	423	423
Starting current		A	92	98
Air flow rate		m <sup>3</sup> /h	14,640	16,980
Demand control			13 steps (0 - 100 %)	13 steps (0 - 100 %)
External static pressure		Pa	80	80
Refrigerant amount at shipment		kg	9.0	9.0
Piping connections	Gas pipe	mm	25.40	28.58
	Liquid pipe	mm	12.70	12.70
	Balance pipe	mm	6.35	6.35
Ambient temperature operating range			Cooling: -10 °C DB ~ +43 °C DB, Heating: -25 °C WB ~ +15 °C WB	
Sound pressure level	Normal mode	dB(A)	60.0	63.0
	Silent mode	dB(A)	57.0	60.0
Sound power level	Normal mode	dB	74.5	77.5

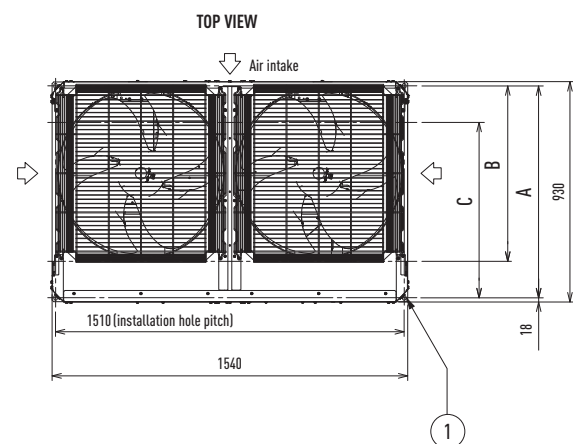
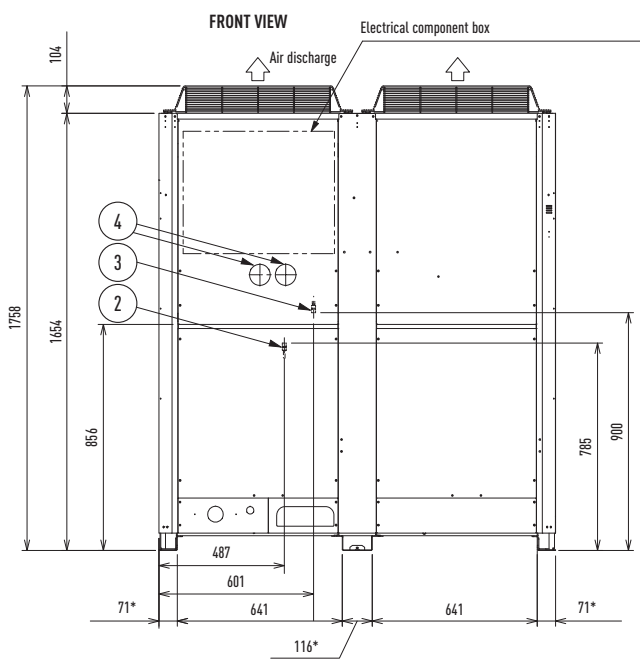
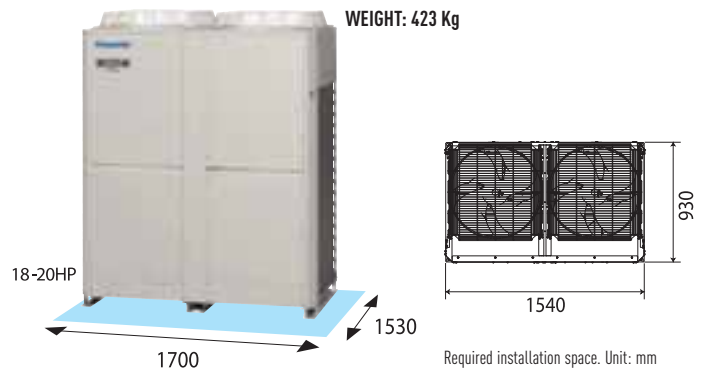
GLOBAL REMARKS	Rated conditions:	
	Cooling	Heating
	Indoor air temperature	27 °C DB / 19 °C WB
Outdoor air temperature	35 °C DB / 24 °C WB	7 °C DB / 6 °C WB

Specifications subject to change without notice.



**Compact design**

2-Pipe ECOi 6N series has reduced the installation space required by one chassis for sizes up to 20 HP.



A 894 (installation hole pitch). The tubing is routed out from the front  
 B 730 (installation hole pitch). The tubing is routed out from the front  
 C 730 (installation hole pitch).

- 1 Installation holes (8-15x21 elongated holes) anchor bolts M12 or larger.
- 2 Pressure outlet port (for high pressure: Ø 7.94 Scradler-type connection).
- 3 Pressure outlet port (for low pressure: Ø 7.94 Scradler-type connection).
- 4 Knock-out hole for connecting pressure gauge (optional).
- 5 Terminal board.
- 6 Terminal board (for inter-outdoor-unit control wiring).

\* Installation fixing bracket, installation side.

Energy saving



## 2-PIPE ECOi 6N SERIES // HIGH COP SETTING MODEL // COMBINATION FROM 18 TO 48 HP

NEXT GENERATION VRF NEWLY-REDESIGNED!

- Wide range of system up to 48 HP.
- Heating operation at outdoor temperatures down to -25 °C.
- Extended pipe runs of up to 180 m.



OPTIONAL



### TECHNICAL FOCUS

- INCREASED CONNECTABLE I\_U/O\_U CAP. RATIO UP TO 200%
- INCREASED MAX NO. OF CONNECTABLE I\_U UP TO 64 UNITS
- INCREASED HIGH EXTERNAL STATIC PRESSURE UP TO 80 Pa
- EXTENDED OPERATING RANGE TO PROVIDE HEATING AT OUTDOOR TEMPERATURE AS LOW AS -25 °C

HP		18	20	22	24	26	28	30		
HIGH COP SETTING MODEL		U-14ME1E81 U-8ME1E81	U-16ME1E81 U-8ME1E81	U-18ME1E81 U-8ME1E81	U-16ME1E81 U-16ME1E81	U-18ME1E81 U-16ME1E81	U-20ME1E81 U-16ME1E81	U-20ME1E81 U-18ME1E81		
Power supply		400 V / 3 phase / 50 Hz								
Cooling capacity		kW	50.0	56.0	61.5	68.0	73.0	78.5	85.0	
EER		W/W	4.07	4.06	3.97	4.07	4.01	3.96	3.94	
Electrical ratings	Operating current	A	18.9	21.2	23.9	25.8	28.1	30.6	33.4	
	Power input	kW	12.3	13.8	15.5	16.7	18.2	19.8	21.6	
Heating capacity		kW	56.0	63.0	69.0	76.5	81.5	87.5	95.0	
COP		W/W	4.52	4.50	4.39	4.45	4.38	4.42	4.40	
Electrical ratings	Operating current	A	19.1	21.5	24.2	26.6	28.7	30.6	33.4	
	Power input	kW	12.4	14.0	15.7	17.2	18.6	19.8	21.6	
Dimensions	H x W x D	mm	1,758 x 1,830 x 930	1,758 x 1,830 x 930	1,758 x 2,370 x 930	1,758 x 2,060 x 930	1,780 x 2,600 x 930	1,780 x 2,600 x 930	1,758 x 3,140 x 930	
Net weight		kg	537	537	653	614	730	730	846	
Starting current		A	86	90	101	94	105	111	114	
Air flow rate		m <sup>3</sup> /h	21,540	21,540	23,460	25,440	27,360	29,700	31,620	
Demand control			13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	13 steps (0 - 100 %)	
External static pressure		Pa	80	80	80	80	80	80	80	
Refrigerant amount at shipment		kg	15.0	15.0	15.5	17.0	17.5	17.5	18.0	
Piping connections	Gas pipe	mm	28.58	28.58	28.58	28.58	31.75	31.75	31.75	
	Liquid pipe	mm	15.88	15.88	15.88	15.88	19.05	19.05	19.05	
	Balance pipe	mm	6.35	6.35	6.35	6.35	6.35	6.35	6.35	
Ambient temperature operating range			Cooling: -10 °C DB ~ +43 °C DB, Heating: -25 °C WB ~ +15 °C WB							
Sound pressure level	Normal mode	dB(A)	63.0	63.0	61.5	65.0	64.0	65.5	65.0	
	Silent mode	dB(A)	60.0	60.0	58.5	62.0	61.0	62.5	62.0	
Sound power level		Normal mode	dB	77.5	77.5	76.0	79.5	78.5	80.0	79.5

GLOBAL REMARKS	Rated conditions:	
	Cooling	Heating
	Indoor air temperature	27 °C DB / 19 °C WB
Outdoor air temperature	35 °C DB / 24 °C WB	7 °C DB / 6 °C WB

Specifications subject to change without notice.



32	34	36	38	40	42	44	46	48
U-20ME1E81 U-20ME1E81	U-18ME1E81 U-16ME1E81 U-8ME1E81	U-16ME1E81 U-16ME1E81 U-16ME1E81	U-18ME1E81 U-16ME1E81 U-16ME1E81	U-20ME1E81 U-16ME1E81 U-16ME1E81	U-20ME1E81 U-18ME1E81 U-16ME1E81	U-20ME1E81 U-18ME1E81 U-18ME1E81	U-20ME1E81 U-20ME1E81 U-18ME1E81	U-20ME1E81 U-20ME1E81 U-20ME1E81
400 V / 3 phase / 50 Hz								
90.0	96.0	101.0	107.0	113.0	118.0	124.0	130.0	135.0
3.88	4.09	4.07	4.08	4.04	3.96	3.97	3.92	3.88
35.9	36.2	38.3	40.5	43.3	46.1	48.3	51.4	53.8
23.2	23.5	24.8	26.2	28.0	29.8	31.2	33.2	34.8
100.0	108.0	113.0	119.0	127.0	132.0	138.0	145.0	150.0
4.41	4.54	4.45	4.44	4.47	4.40	4.42	4.41	4.40
35.1	36.7	39.2	41.4	43.9	46.4	48.3	50.9	52.8
22.7	23.8	25.4	26.8	28.4	30.0	31.2	32.9	34.1
1,758 x 3,140 x 930	1,758 x 3,430 x 930	1,758 x 3,120 x 930	1,758 x 3,660 x 930	1,758 x 3,660 x 930	1,758 x 4,200 x 930	1,758 x 4,740 x 930	1,758 x 4,740 x 930	1,758 x 4,740 x 930
846	960	921	1,037	1,037	1,153	1,269	1,269	1,269
116	113	107	118	124	127	130	131	134
33,960	36,180	38,160	40,080	42,420	44,340	46,260	48,600	50,940
13 steps (0 - 100%)	13 steps (0 - 100%)	13 steps (0 - 100%)	13 steps (0 - 100%)	13 steps (0 - 100%)	13 steps (0 - 100%)	13 steps (0 - 100%)	13 steps (0 - 100%)	13 steps (0 - 100%)
80	80	80	80	80	80	80	80	80
18.0	24.0	25.5	26.0	26.0	26.5	27.0	27.0	27.0
31.75	31.75	38.10	38.10	38.10	38.10	38.10	38.10	38.10
19.05	19.05	19.05	19.05	19.05	19.05	19.05	19.05	19.05
6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35
Cooling: -10 °C DB ~ +43 °C DB, Heating: -25 °C WB ~ +15 °C WB								
66.0	64.5	66.5	66.0	67.0	66.5	66.0	67.0	67.5
63.0	61.5	63.5	63.0	64.0	63.5	63.0	64.0	64.5
80.5	79.0	81.0	80.5	81.5	81.0	80.5	81.5	82.0

## NEW 3-PIPE ECOi MF2 SERIES

SIMULTANEOUS HEATING AND COOLING VRF SYSTEM

Internet  
Control  
Ready

INTERNET CONTROL

Energy  
saving

INVERTER+

Environmentally  
friendly  
refrigerant

R410A

Down to  
-20 °C in  
heating mode

OUTDOOR  
TEMPERATURE

5 year  
compressor  
warranty

NEW



The New Panasonic 3-Pipe MF2 series offers the best to the most demanding customers.

- The new 3-Pipe units have only one chassis size, with a very small footprint (only 0.93 m<sup>2</sup>)
- 1 body for all sizes: H1.758 x W1.000 x D930 mm, for 8, 10, 12, 14 and 16 HP
- Maximum capacity size as 48 HP by 3 unit combinations (16 HP x 3 = 48 HP)
- Up to 52 indoor units connectable
- Maximum capacity ratio of 150%



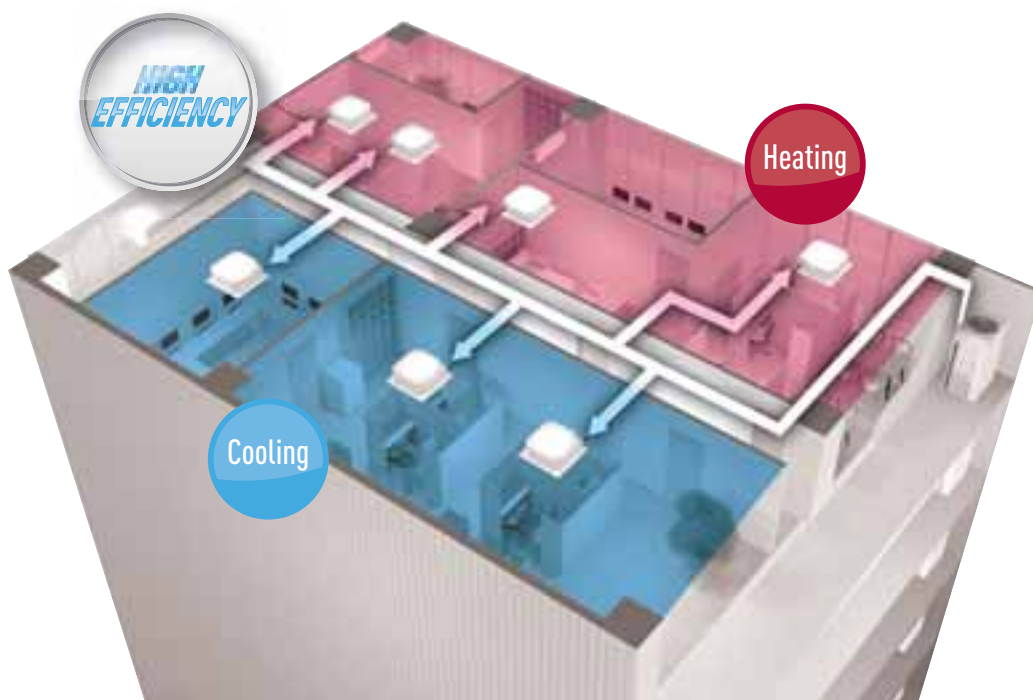
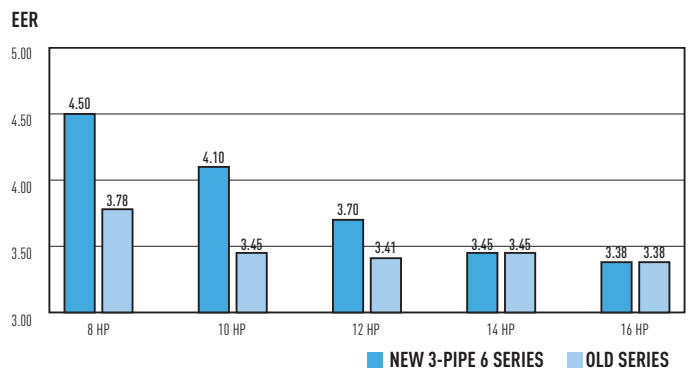
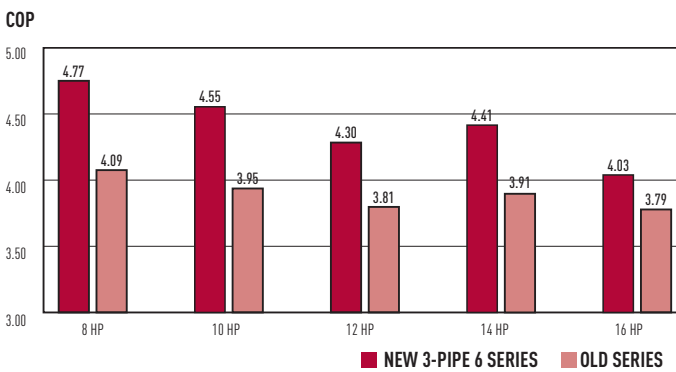
Large combination of outdoor units, up to 48 HP

Inverter unit	System (HP)																					
	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	
8	1					1	1	1	1					1	1	1	1					
10		1				1	1															
12			1							1				1								
14				1				1		1	2	1		1	2	1		3	2	1		
16					1				1			1	2			1	2		1	2	3	

High efficiency combination

Inverter unit	System (HP)					
	16	24	26	28	30	32
8	2	3	2	2	2	1
10			1			
12				1		2
14					1	
16						

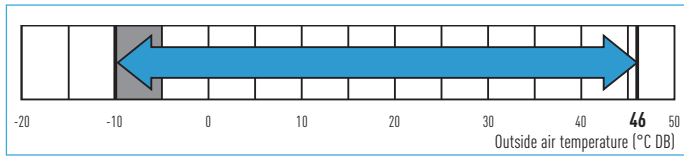
Top of de market COP (at full load), standard efficiency



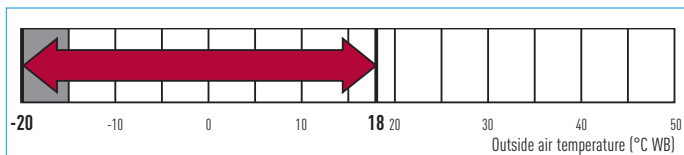
## Connectable indoor/outdoor unit capacity ratio up to 150%

### Extended operating range

Cooling operation range: The cooling operation range has been extended to -10 °C by changing the outdoor fan to an inverter type.



Heating operation range: Stable heating operation even with an outside air temperature of -20 °C. The heating operation range has been extended to -20 °C by use of a compressor with a high-pressure vessel.

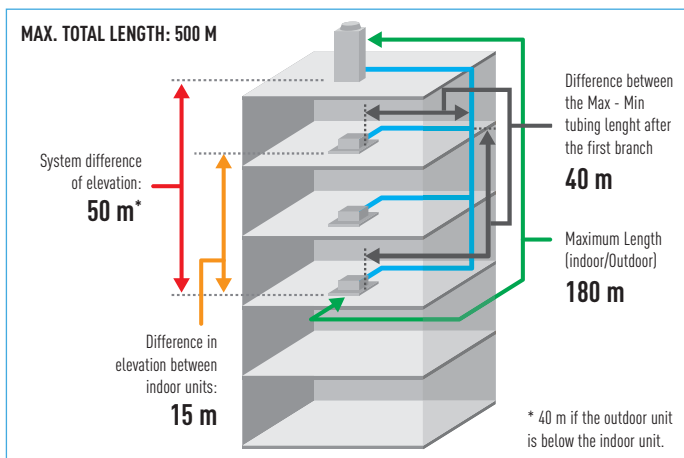


### Wide temperature setting range

Wired remote control heating temperature setting range is 16 to 30 °C.

### Increased piping lengths and design flexibility

Adaptable to various building types and sizes. Actual piping length: 180 m. Maximum piping length: 500 m.



### Non-stop operation during maintenance

Even when an indoor unit needs maintenance, the other indoor units can be kept operating by setting. (Not applicable for all situations)

### Power suppression control for energy saving (Demand control)<sup>1</sup>

The 3-Pipe ECOi MF2 series has a built-in demand function which uses the inverter characteristics. With this demand function, the power consumption can be set in three steps, and operation<sup>2</sup> at optimum performance is performed according to the setting and the power consumption. This function is useful to reduce the annual power consumption and to save electricity costs while maintaining comfort.

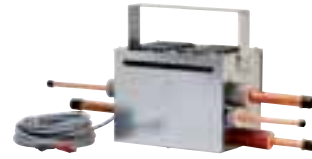
<sup>1</sup> An outdoor Seri-Para I/O unit is required for demand input.

<sup>2</sup> Setting is possible as 0% or in the range from 40 to 100% (in steps of 5%). At the time of shipping, setting has been done to the three steps of 0%, 70%, and 100%.

## New Solenoid valve kit

Oil-recovery operation to gives more stable comfort air-conditioning control.

### 3-PIPE CONTROL SOLENOID VALVE KIT



**CZ-P56HR3**  
Up to 5.6 kW  
**CZ-P160HR3**  
From 5.7 to 16 kW

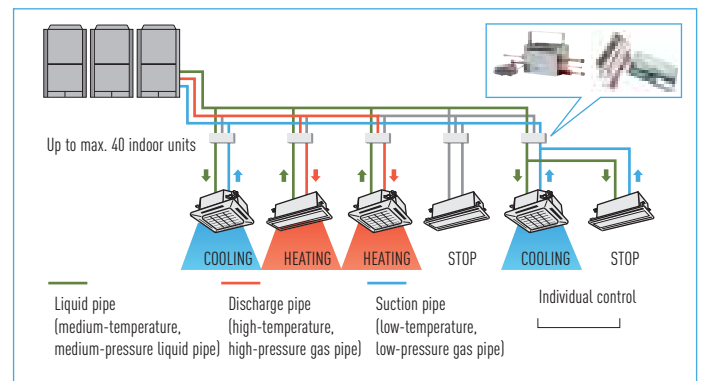
### 3-PIPE CONTROL PCB



3-Pipe control PCB **CZ-CAPE2\***.  
Must be added to the CZ-P56HR3 OR CZ-P160HR3.  
\* For wall mounted S-22MK2E5/S-28MK2E5/S-36MK2E5.  
For S-45MK1E5/S-56MK1E5/S-73MK1E5/S-106MK1E5: CZ-CAPE2.

### Individual control of multiple indoor units with solenoid valve kits

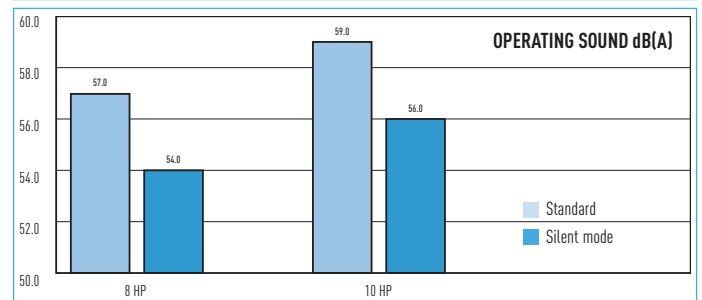
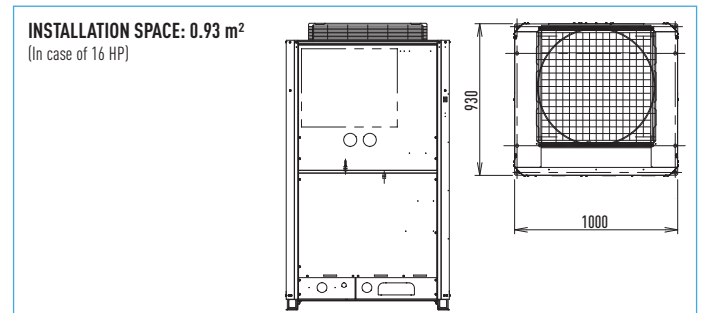
- Any design and layout can be used in a single system.
- Cooling operation is possible up to an outdoor temperature of -10 °C.



### Compact design for superb space saving and low noise level

5 types of outdoor units with different capacities have been standardized to one compact casing.

Uniquely constructed with two compartments, the upper chamber contains the heat exchange, with the lower chamber stores the compressors. The benefits are two-fold - superb space saving and low noise level.

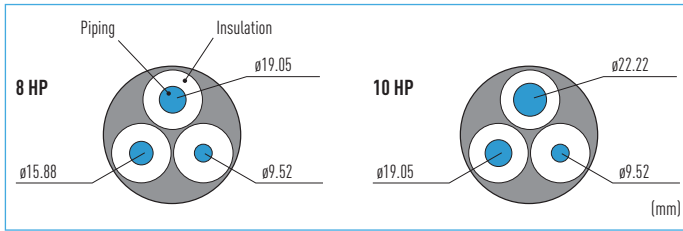




### Excellent cost saving and smaller piping size

By using R410a with low pressure loss, pipe sizes for discharge, suction and liquid are all reduced.

This makes it possible to aim for reduced piping space, improved workability at the site, and reduction of the piping material costs.

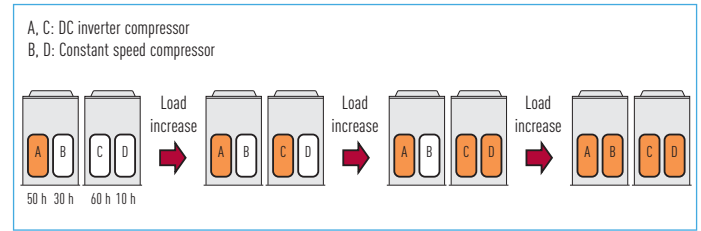


#### 3-PIPE ECO*i* MF2

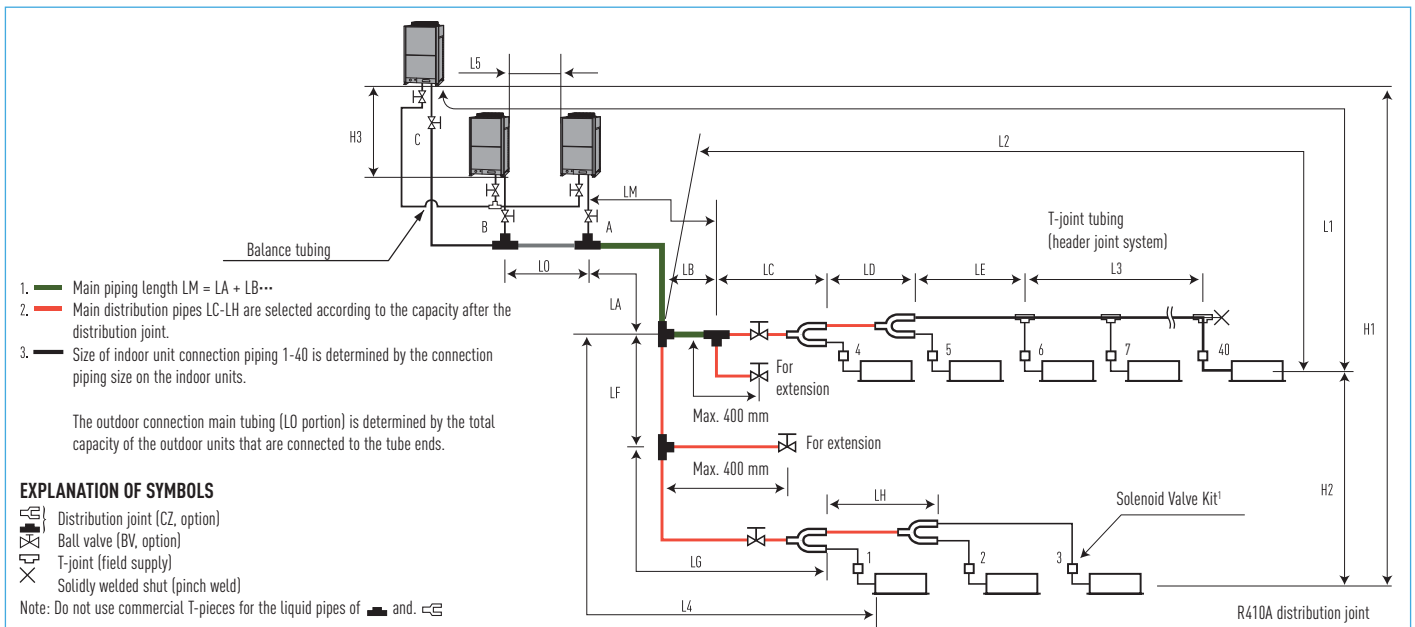
HP	SUCTION PIPE	DISCHARGE PIPE	LIQUID PIPE
8	Ø 19.05	Ø 15.88	Ø 9.52
10	Ø 22.22	Ø 19.05	Ø 9.52

### Extended compressor life

The total operation time of the compressors is monitored by a microcomputer, so that there is no imbalance for the operation times of all compressors in the same refrigerant system, and compressors with a shorter operation time are operated with preference.



### Piping design



- Main piping length  $LM = LA + LB + \dots$
  - Main distribution pipes LC-LH are selected according to the capacity after the distribution joint.
  - Size of indoor unit connection piping 1-40 is determined by the connection piping size on the indoor units.
- The outdoor connection main tubing (LO portion) is determined by the total capacity of the outdoor units that are connected to the tube ends.

#### EXPLANATION OF SYMBOLS

- Distribution joint (CZ, option)
- Ball valve (BV, option)
- T-joint (field supply)
- Solidly welded shut (pinch weld)

Note: Do not use commercial T-pieces for the liquid pipes of and .

- \* Be sure to use R410A distribution joints for outdoor unit connections and piping branches.
- The connection between the indoor unit(s) and the solenoid valve kit(s) has three (3) types of methods. For further details, refer to the Section 2. 3-4. "Connecting Multiple Indoor Units to a Single Solenoid Valve Kit".

#### RANGES THAT APPLY TO REFRIGERANT PIPING LENGTHS AND TO DIFFERENCES IN INSTALLATION HEIGHTS

Items	Marks	Contents	Length (m)
Allowable piping length	L1	Max. piping length	Actual piping length $\leq 180^1$ Equivalent piping length $\leq 200$
	$\Delta L (L2-L4)$	Difference between the max. length and the min. length from the No. 1 distribution	$\leq 40$
	LM	Max. length of main piping (at max. diameter)	$\leq 2$
	$\phi 1, \phi 2-\phi 40$	Max. length of each distribution	$\leq 30$
	$L1 + \phi 1 + \phi 2 + \dots + \phi 39 + \phi A + \phi B + LF + LG + LH$	Total max. piping length including length of each distribution (only liquid tubing)	$\leq 500^3$
Allowable elevation difference	L5	Distance between outdoor units	$\leq 10$
	H1	When outdoor unit is installed higher than indoor unit	$\leq 50$
		When outdoor unit is installed lower than indoor unit	$\leq 40$
Allowable length of joint tubing	H2	Max. difference between indoor units	$\leq 15$
	H3	Max. difference between outdoor units	$\leq 4$
	L3	T-joint tubing (field-supply); Max. tubing length between the first T-joint and solidly welded-shut end point	$\leq 2$

L = Length, H = Height

- If the longest tubing length (L1) exceeds 90 m (equivalent length), increase the sizes of the main tubes (LM) by 1 rank for the discharge tubes, suction tubes, and narrow tubes. (field supplied).
- If the longest main tube length (LM) exceeds 50 m, increase the main tube size at the portion before 50 m by 1 rank for the suction tubes and discharge tubes. (field supplied). (For the portion that exceeds 50 m, set based on the main tube sizes (LA) listed in the table on the following page).
- 24 HP - 30HP of high efficiency combination is 300 m.



## 8-16 HP // 3-PIPE ECOi MF2 SERIES

WITH SIMULTANEOUS HEATING AND COOLING OPERATION HEAT RECOVERY TYPE

ECOi 3-Pipe is one of the most advanced VRF systems available. Not only offering high-efficiency and performance for simultaneous heating and cooling, its sophisticated design makes installation and maintenance much easier.

- Achieves COP 4.77 as the top class in the industry (Average cooling and heating value for 8 HP outdoor unit).
- Simultaneous cooling or heating operation for up to 26 indoor units.
- Small installation space, top class in the industry.
- Rotation operation function and back-up operation function provided.

Internet  
Control  
Ready

INTERNET CONTROL

Environmentally  
friendly  
refrigerant

R410A

Down to  
-20 °C in  
heating mode

OUTDOOR TEMPERATURE

5 year  
compressor  
warranty

OPTIONAL

### TECHNICAL FOCUS

- STANDARDIZATION OF O\_U TO ONE COMPACT CASING SIZE
- IMPROVED OPERATION EFFICIENCY
- THE CONSTANT-SPEED COMPRESSOR ADOPTS A HIGH-PERFORMANCE INTERNAL HIGH-PRESSURE SCROLL
- IMPROVEMENT OF THE HEAT EXCHANGER
- REDESIGN OF STRUCTURAL PARTS
- CLOSE SIDE-BY-SIDE INSTALLATION IS POSSIBLE

HP	8		10		12		14		16		
MODEL NAME	U-8MF2E8		U-10MF2E8		U-12MF2E8		U-14MF2E8		U-16MF2E8		
Power supply	380 / 400 / 415 V - Three Phase / 50 Hz										
Cooling capacity	kW	22.4	28.0	33.5	40.0	45.0					
	BTU/h	76,500	95,600	114,300	136,500	153,600					
EER	W/W	4.50	4.10	3.70	3.45	3.38					
Running current	380 / 400 / 415 V	A 8.60 / 8.20 / 8.00		11.3 / 10.8 / 10.6		15.1 / 14.5 / 14.1		19.2 / 18.4 / 17.9		22.0 / 21.1 / 20.6	
Power input	kW	4.98	6.83	9.05	11.00	13.00					
Heating capacity	kW	25.0	31.5	37.5	45.0	50.0					
	BTU/h	85,300	107,500	128,000	153,600	170,600					
COP	W/W	4.77	4.55	4.30	4.41	4.03					
Running current	380 / 400 / 415 V	A 8.95 / 8.50 / 8.30		11.6 / 11.0 / 10.7		14.7 / 14.1 / 13.8		17.0 / 16.4 / 15.9		20.7 / 19.9 / 19.4	
Power input	kW	5.24	6.92	8.72	10.2	12.4					
Dimensions	H x W x D	mm 1758 x 1000 x 930		1758 x 1000 x 930		1758 x 1000 x 930		1758 x 1000 x 930		1758 x 1000 x 930	
Net weight	kg	269	269	314	322	322					
Air circulation	m <sup>3</sup> /min	158	178	212	212	212					
Refrigerant amount at shipment	kg	8.3	8.5	8.8	9.3	9.3					
Piping connections	Suction pipe	mm (Inch)	Ø 19.05 (3/4)		Ø 22.22 (7/8)		Ø 25.40 (1)		Ø 28.58 (1-1/8)		
	Discharge pipe	mm (Inch)	Ø 15.88 (5/8)		Ø 19.05 (3/4)		Ø 19.05 (3/4)		Ø 22.22 (7/8)		
	Liquid pipe	mm (Inch)	Ø 9.52 (3/8)		Ø 9.52 (3/8)		Ø 12.70 (1/2)		Ø 12.70 (1/2)		
	Balance pipe	mm (Inch)	Ø 6.35 (1/4)		Ø 6.35 (1/4)		Ø 6.35 (1/4)		Ø 6.35 (1/4)		
Ambient temperature operating range	Cooling/Dry: -10 °C~+46 °C (DB). Heating: -20 °C~+18 °C (WB) Simultaneous operation: -10 °C~+24 °C (DB)										
Sound pressure level	High / Low	dBA	57.0 / 54.0	59.0 / 56.0	61.0 / 58.0	62.0 / 59.0	62.0 / 59.0				
Sound power level	Normal mode	dB	71.5 / 68.5	73.5 / 70.5	75.5 / 72.5	76.5 / 73.5	76.5 / 73.5				

GLOBAL REMARKS	Rated conditions:	
	Cooling	Heating
	Indoor air temperature	27 °C DB / 19 °C WB
Outdoor air temperature	35 °C DB / 24 °C WB	7 °C DB / 6 °C WB

Specifications subject to change without notice.

NEW



COP  
4,77

**System limitations**

Max. number of combined outdoor units	3
Max. HP of combined outdoor units	135 kW (48 HP)
Max. number of connectable indoor units	52
Indoor/outdoor unit capacity ratio	50 - 150%

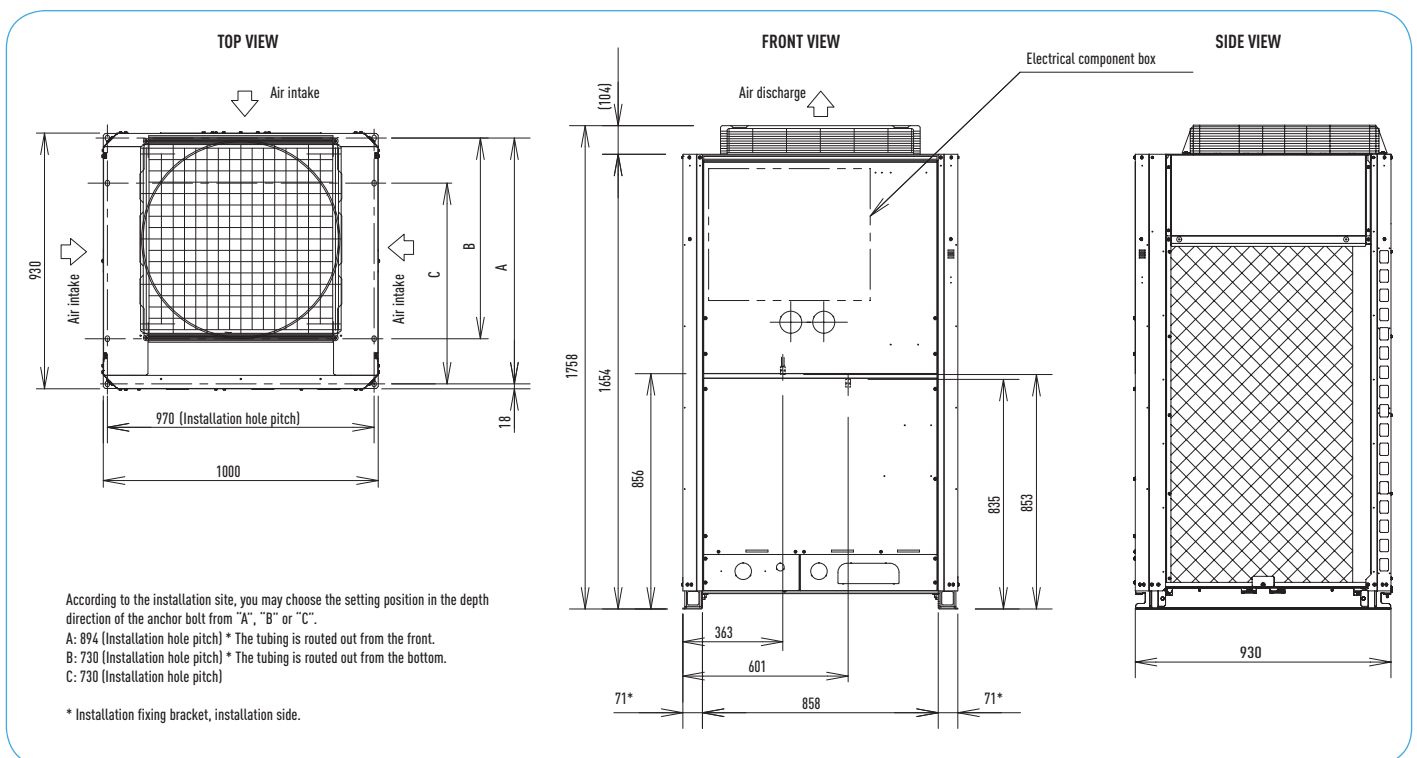
**Additional refrigerant charge**

LIQUID PIPING SIZE	AMOUNT OF REFRIGERANT CHARGE/m (g/m)	LIQUID PIPING SIZE	AMOUNT OF REFRIGERANT CHARGE/m (g/m)
Ø 6.35	26	Ø 19.05	259
Ø 9.52	56	Ø 22.22	366
Ø 12.7	128	Ø 25.40	490
Ø 15.88	185		

**Refrigerant piping**

PIPING SIZE (mm)			
Ø MATERIAL		1/2 H, H MATERIAL	
Outer diameter	Wall thickness	Outer diameter	Wall thickness
Ø 6.35	0.8	Ø 25.4	1.0
Ø 9.52	0.8	Ø 28.58	1.0
Ø 12.7	0.8	Ø 31.75	1.1
Ø 15.88	1.0	Ø 38.1	over 1.35
Ø 19.05	1.0	Ø 41.28	over 1.45
Ø 22.22	1.15		

Note: When pipe bending is to be performed, the bending radius shall be at least 4 times the outer diameter. Also, take sufficient care to prevent pipe collapse and damage at the time of bending.





## 3-PIPE ECOi MF2 SERIES // COMBINATION FROM 18 TO 48 HP

WITH SIMULTANEOUS HEATING AND COOLING OPERATION HEAT RECOVERY TYPE

ECOi 3-Pipe is one of the most advanced VRF systems available. Not only offering high-efficiency and performance for simultaneous heating and cooling, its sophisticated design makes installation and maintenance much easier.

- Achieves COP 4,63 as the top class in the industry (Average cooling and heating value for 8 HP outdoor unit).
- Simultaneous cooling or heating operation for up to 52 indoor units.
- Small installation space, top class in the industry.
- Rotation operation function and back-up operation function provided.

**Internet Control Ready**

INTERNET CONTROL

**Environmentally friendly refrigerant**

R410A

**Down to -20 °C in heating mode**

OUTDOOR TEMPERATURE

**5 year compressor warranty**

### TECHNICAL FOCUS

- STANDARDIZATION OF O\_U TO ONE COMPACT CASING SIZE
- IMPROVED OPERATION EFFICIENCY
- THE CONSTANT-SPEED COMPRESSOR ADOPTS A HIGH-PERFORMANCE INTERNAL HIGH-PRESSURE SCROLL
- IMPROVEMENT OF THE HEAT EXCHANGER
- REDESIGN OF STRUCTURAL PARTS
- CLOSE SIDE-BY-SIDE INSTALLATION IS POSSIBLE

HP		18	20	22	24	26	28	30
MODEL NAME		U-8MF2E8 U-10MF2E8	U-8MF2E8 U-12MF2E8	U-8MF2E8 U-14MF2E8	U-8MF2E8 U-16MF2E8	U-12MF2E8 U-14MF2E8	U-14MF2E8 U-14MF2E8	U-14MF2E8 U-16MF2E8
Power supply		380 / 400 / 415 V - Three Phase / 50 Hz						
Cooling capacity	kW	50.4	56.0	61.5	68.0	73.0	78.5	85.0
	BTU/h	172,000	191,100	209,900	232,100	249,100	267,900	290,100
EER	W/W	4.27	3.97	3.80	3.68	3.58	3.49	3.41
Running current	380 / 400 / 415 V A	19.7 / 18.9 / 18.4	23.8 / 22.9 / 22.3	27.0 / 26.0 / 25.3	30.9 / 29.7 / 28.9	33.7 / 32.4 / 31.5	37.2 / 35.7 / 34.8	41.1 / 39.5 / 38.5
Power input	kW	11.8	14.1	16.2	18.5	20.4	22.5	24.90
Heating capacity	kW	56.5	63.0	69.0	76.5	81.5	87.5	95.0
	BTU/h	192,800	215,000	235,500	261,100	278,200	298,600	324,200
COP	W/W	4.63	4.47	4.57	4.20	4.38	4.49	4.20
Running current	380 / 400 / 415 V A	20.4 / 19.6 / 19.1	23.8 / 22.9 / 22.3	25.2 / 24.2 / 23.6	30.4 / 29.2 / 28.5	31.1 / 29.8 / 29.1	32.6 / 31.3 / 30.5	37.7 / 36.2 / 35.3
Power input	kW	12.2	14.1	15.1	18.2	18.6	19.5	22.6
Dimensions	H x W x D	mm 1758 x 2060 x 930	1758 x 2060 x 930	1758 x 2060 x 930	1758 x 2060 x 930	1758 x 2060 x 930	1758 x 2060 x 930	1758 x 2060 x 930
Net weight	kg	538	538	591	591	636	644	644
Air circulation	m <sup>3</sup> /min	336	370	370	370	424	424	424
Refrigerant amount at shipment	kg	16.8	17.1	17.6	17.6	18.1	18.6	18.6
Piping connections	Suction pipe	mm (Inch) Ø 28.58 (1-1/8)	Ø 28.58	Ø 28.58	Ø 28.58	Ø 31.75 (1-1/4)	Ø 31.75	Ø 31.75
	Discharge pipe	mm (Inch) Ø 22.22 (7/8)	Ø 22.22	Ø 25.40 (1)	Ø 25.40	Ø 25.40	Ø 28.58	Ø 28.58
	Liquid pipe	mm (Inch) Ø 15.88 (5/8)	Ø 15.88	Ø 15.88	Ø 15.88	Ø 19.05 (3/4)	Ø 19.05	Ø 19.05
	Balance pipe	mm (Inch) Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)
Ambient temperature operating range		Cooling/Dry: -10 °C~+46 °C (DB). Heating: -20 °C~+18 °C (WB) Simultaneous operation: -10 °C~+24 °C (DB)						
Sound pressure level	High / Low	dBA 61.0 / 58.0	62.5 / 59.5	63.0 / 60.0	63.0 / 60.0	64.5 / 61.5	65.0 / 62.0	65.0 / 62.0
Sound power level	Normal mode	dB 75.5 / 72.5	77.0 / 74.0	77.5 / 74.5	77.5 / 74.5	79.0 / 76.0	79.5 / 76.5	79.5 / 76.5

GLOBAL REMARKS	Rated conditions:	Cooling	Heating
	Indoor air temperature	27 °C DB / 19 °C WB	20 °C DB
	Outdoor air temperature	35 °C DB / 24 °C WB	7 °C DB / 6 °C WB

Specifications subject to change without notice.

NEW



32	34	36	38	40	42	44	46	48
U-16MF2E8 U-16MF2E8	U-8MF2E8 U-12MF2E8 U-14MF2E8	U-8MF2E8 U-14MF2E8 U-14MF2E8	U-8MF2E8 U-14MF2E8 U-16MF2E8	U-8MF2E8 U-16MF2E8 U-16MF2E8	U-14MF2E8 U-14MF2E8 U-14MF2E8	U-14MF2E8 U-14MF2E8 U-16MF2E8	U-14MF2E8 U-16MF2E8 U-16MF2E8	U-16MF2E8 U-16MF2E8 U-16MF2E8

380 / 400 / 415 V - Three Phase / 50 Hz

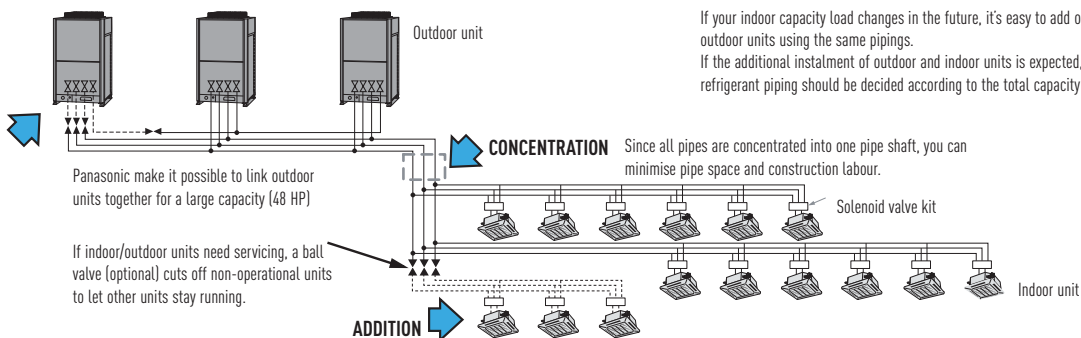
90.0	96.0	101.0	107.0	113.0	118.0	124.0	130.0	135.0
307,200	327,600	344,700	365,200	385,700	402,700	423,200	443,700	460,800
3.38	3.74	3.66	3.60	3.55	3.48	3.43	3.40	3.38
43.9 / 42.2 / 41.1	42.9 / 41.2 / 39.7	46.1 / 44.3 / 43.1	49.6 / 47.6 / 46.4	53.1 / 51.0 / 49.7	56.0 / 53.8 / 52.4	59.6 / 57.3 / 55.8	63.8 / 61.3 / 59.7	65.9 / 63.3 / 61.7
26.6	25.7	27.6	29.7	31.8	33.9	36.1	38.2	39.9
100.0	108.0	113.0	119.0	127.0	132.0	138.0	145.0	150.0
341,300	368,600	385,700	406,100	433,400	450,500	471,000	494,900	511,900
4.03	4.44	4.52	4.33	4.12	4.46	4.30	4.14	4.03
41.7 / 40.1 / 39.1	41.0 / 39.4 / 38.4	41.6 / 39.9 / 38.9	46.1 / 44.3 / 43.1	52.2 / 49.6 / 47.8	49.3 / 47.3 / 46.1	53.8 / 51.6 / 50.3	58.8 / 56.5 / 55.0	62.6 / 60.1 / 58.6
24.8	24.3	25.0	27.5	30.8	29.6	32.1	35.0	37.2
1758 x 2060 x 930	1758 x 3120 x 930	1758 x 3120 x 930	1758 x 3120 x 930	1758 x 3120 x 930	1758 x 3120 x 930	1758 x 3120 x 930	1758 x 3120 x 930	1758 x 3120 x 930
644	905	913	913	913	966	966	966	966
424	582	582	582	582	636	636	636	636
18.6	26.4	26.9	26.9	26.9	27.9	27.9	27.9	27.9
Ø 31.75	Ø 31.75	Ø 38.10 (1-1/2)	Ø 38.10	Ø 38.10	Ø 38.10	Ø 38.10	Ø 38.10	Ø 38.10
Ø 28.58	Ø 28.58	Ø 28.58	Ø 31.75	Ø 31.75	Ø 31.75	Ø 31.75	Ø 31.75	Ø 31.75
Ø 19.05	Ø 19.05	Ø 19.05	Ø 19.05	Ø 19.05	Ø 19.05	Ø 19.05	Ø 19.05	Ø 19.05
Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)

Cooling/Dry: -10 °C~+46 °C (DB). Heating: -20 °C~+18 °C (WB) Simultaneous operation: -10 °C~+24 °C (DB)

65.0 / 62.0	65.0 / 62.0	65.5 / 62.5	65.5 / 62.5	65.5 / 62.5	67.0 / 64.0	67.0 / 64.0	67.0 / 64.0	67.0 / 64.0
79.5 / 76.5	79.5 / 76.5	80.0 / 77.0	80.0 / 77.0	80.0 / 77.0	81.5 / 78.5	81.5 / 78.5	81.5 / 78.5	81.5 / 78.5

SYSTEM EXAMPLE

CONNECTION



If your indoor capacity load changes in the future, it's easy to add on both indoor and outdoor units using the same pipings.

If the additional instalment of outdoor and indoor units is expected, the size of refrigerant piping should be decided according to the total capacity after the addition.



## 3-PIPE ECOi MF2 SERIES // HIGH EFFICIENCY COMBINATION 16 TO 32 HP

WITH SIMULTANEOUS HEATING AND COOLING OPERATION HEAT RECOVERY TYPE

ECOi 3-Pipe is one of the most advanced VRF systems available. Not only offering high-efficiency and performance for simultaneous heating and cooling, its sophisticated design makes installation and maintenance much easier.

- Achieves COP 4.76 as the top class in the industry (Average cooling and heating value for 8 HP outdoor unit).
- Simultaneous cooling or heating operation for up to 52 indoor units.
- Small installation space, top class in the industry.
- Rotation operation function and back-up operation function provided.

Internet Control Ready

INTERNET CONTROL

Environmentally friendly refrigerant

R410A

Down to -20 °C in heating mode

OUTDOOR TEMPERATURE

5 year compressor warranty

### TECHNICAL FOCUS

- STANDARDIZATION OF O\_U TO ONE COMPACT CASING SIZE
- IMPROVED OPERATION EFFICIENCY
- THE CONSTANT-SPEED COMPRESSOR ADOPTS A HIGH-PERFORMANCE INTERNAL HIGH-PRESSURE SCROLL
- IMPROVEMENT OF THE HEAT EXCHANGER
- REDESIGN OF STRUCTURAL PARTS
- CLOSE SIDE-BY-SIDE INSTALLATION IS POSSIBLE

HP			16	24	26	28	30	32
MODEL NAME			U-8MF2E8 U-8MF2E8	U-8MF2E8 U-8MF2E8 U-8MF2E8	U-8MF2E8 U-8MF2E8 U-10MF2E8	U-8MF2E8 U-8MF2E8 U-12MF2E8	U-8MF2E8 U-8MF2E8 U-14MF2E8	U-8MF2E8 U-12MF2E8 U-12MF2E8
Power supply	380 / 400 / 415 V - Three Phase / 50 Hz							
Cooling capacity	kW		45.0	68.0	73.0	78.5	85.0	90.0
	BTU/h		153,600	232,100	249,100	267,900	290,100	307,200
EER	W/W		4.50	4.47	4.32	4.11	3.94	3.86
Running current	380 / 400 / 415 V	A	17.3 / 16.4 / 16.0	26.2 / 24.9 / 24.3	28.5 / 27.4 / 26.7	32.2 / 31.0 / 30.2	36.5 / 35.0 / 34.1	38.9 / 37.4 / 36.4
Power input	kW		10.0	15.2	16.9	19.1	21.6	23.3
Heating capacity	kW		50.0	76.5	81.5	87.5	95.0	100.0
	BTU/h		170,600	261,100	278,200	298,600	324,200	341,300
COP	W/W		4.76	4.72	4.68	4.56	4.59	4.41
Running current	380 / 400 / 415 V	A	17.9 / 17.0 / 16.6	27.7 / 26.3 / 25.6	29.4 / 27.9 / 27.5	32.4 / 31.1 / 30.4	35.0 / 33.6 / 32.7	38.3 / 36.8 / 35.9
Power input	kW		10.5	16.2	17.4	19.2	20.7	22.7
Dimensions (Combination)	H x W x D	mm	1758 x 2060 x 930	1758 x 3120 x 930	1758 x 3120 x 930	1758 x 3120 x 930	1758 x 3120 x 930	1758 x 3120 x 930
Net weight	kg		538	807	807	852	860	897
Air circulation	m <sup>3</sup> /min		316	474	494	528	528	582
Refrigerant amount at shipment	kg		16.6	24.9	25.1	25.4	25.9	25.9
Piping connections	Suction pipe	mm	Ø 28.58	Ø 28.58	Ø 31.75	Ø 31.75	Ø 31.75	Ø 31.75
	Discharge pipe	mm	Ø 22.22	Ø 25.40	Ø 25.40	Ø 28.58	Ø 28.58	Ø 28.58
	Liquid pipe	mm	Ø 12.70	Ø 15.88	Ø 19.05	Ø 19.05	Ø 19.05	Ø 19.05
	Balance pipe	mm	Ø 6.35	Ø 6.35	Ø 6.35	Ø 6.35	Ø 6.35	Ø 6.35
Ambient temperature operating range	Cooling/Dry: -10 °C~+46 °C (DBT). Heating: -20 °C~+18 °C (WBT) Simultaneous operation: -10 °C~+24 °C (DBT)							
Sound pressure level	High / Low	dB(A)	60.0 / 57.0	62.0 / 59.0	62.5 / 59.5	63.5 / 60.5	64.0 / 61.0	65.0 / 62.0
Sound power level	Normal mode	dB	74.5 / 71.5	76.5 / 73.5	77.0 / 74.0	78.0 / 75.0	78.5 / 75.5	79.5 / 76.5

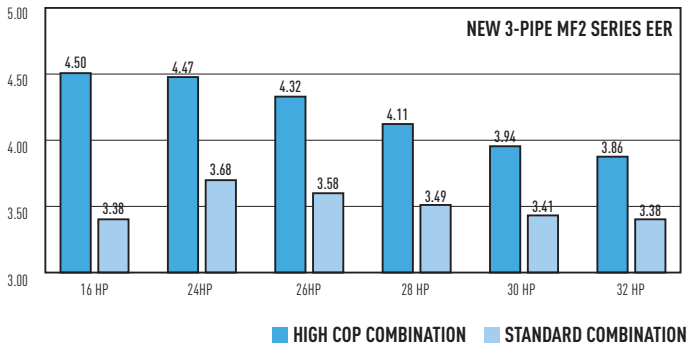
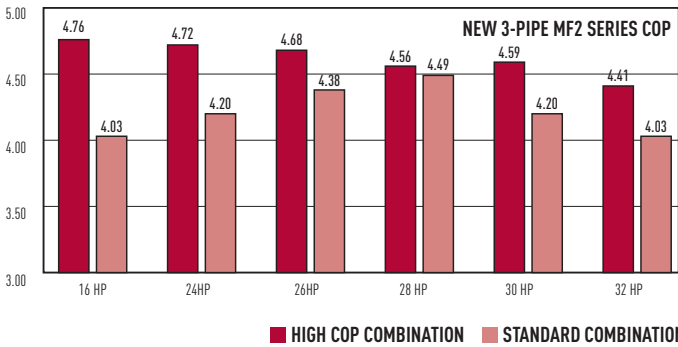
GLOBAL REMARKS	Rated conditions:	
	Cooling	Heating
	Indoor air temperature	27 °C DB / 19 °C WB
Outdoor air temperature	35 °C DB / 24 °C WB	7 °C DB / 6 °C WB

Specifications subject to change without notice.

NEW



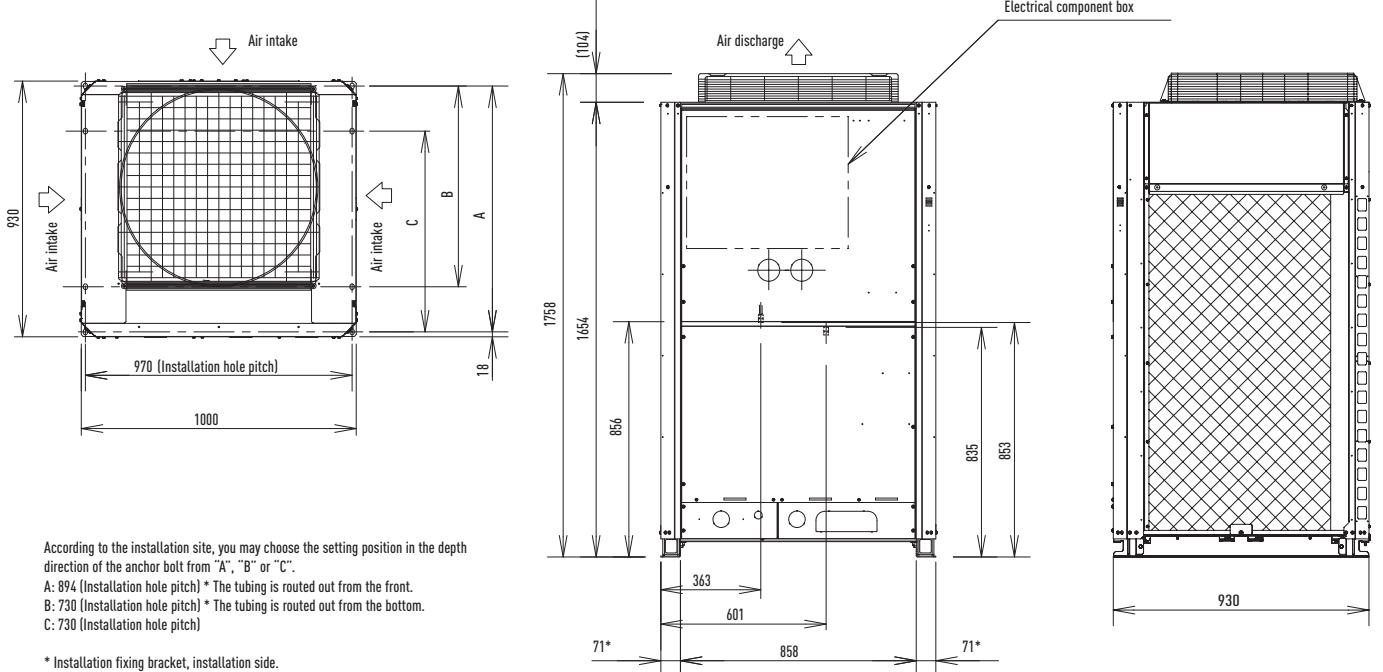
Market-leading COP (at full load), standard efficiency



TOP VIEW

FRONT VIEW

SIDE VIEW



# PANASONIC INTRODUCING THE GAS DRIVEN VRF



## ECO G AND ECO G MULTI, S SERIES

Panasonic's GHP range is extensive and covers the ECO G and ECO G Multi Series, and the S Series. Our GHP VRF range of commercial systems is leading the industry in the development of efficient and flexible systems, and is the natural choice for commercial projects, especially those where power restrictions apply. As you would expect, all our gas-driven VRF systems have the highest reliability rates in the industry and a leading customer service programme. The torque and rpm control functions of the GHP's motor are comparable with an inverter-type electric air conditioner. Thus, the GHP ensures individual, and efficient control and performance - just as you expect from an electric inverter controlled air conditioner.

### Easy to position

The advanced Gas Driven VRF systems offers increased efficiency and performance across the range. Now more powerful than ever before, it can connect up to 48 indoor units.

Improvements include increased part load performance, reduced gas consumption with a Miller-cycle engine and reduced electrical consumption by using DC fan motors.

- Up to 71 kW of cooling from a current consumption of 11.0 AMPs
- Single phase power supply across the range
- The option of natural gas or LPG as its main power source
- A Water Heat Exchanger to connect to domestic hot water systems 16-25 HP (2-Pipe units only)
- Option of DX or chilled water for indoor heat exchange
- Reduced CO<sub>2</sub> emissions





### NEW ECO G HIGH POWER

1% this is what the new ECO G High Power is consuming versus your Electrical VRF. Your savings start now!  
Ideal for locations with low electricity grid, for Chiller, Ventilation and Air conditioning application.

### ECO G AND ECO G MULTI

The S Series 2-Pipe not only offers improved performance but also increased flexibility.

### ECO G 3 WAY MULTI

3 Way heat recovery system with simultaneous heating & cooling.

NEW

## ECO G AND ECO G MULTI BENEFITS

### High-efficiency operation

All models are equipped with a high-performance air exchanger and a newly developed refrigerant heat exchanger for high efficiency operation, making them one of the most energy efficient solutions on the market.

### Lowest nitrogen oxide emissions

The GHP VRF systems have the lowest nitrogen oxide emissions, 66% below the standard. In a pioneering development, the Panasonic GHP features a brand new lean-burn combustion system that utilises air fuel ratio feedback control to reduce NOx emissions to an all time low.

### High performance

With its advanced heat exchanger design, this new GHP system offers improved efficiency and reduced running costs, which, coupled with improved engine management systems, have greatly improved the system COP rating.

### NEW ECO G WITH WATER HEAT EXCHANGER FOR CHILLED AND HOT WATER PRODUCTION

For hydronic applications.



### Excellent economy

The Panasonic GHP provides quick and powerful cooling/heating and increases delivery of heat into the space by the efficient recovery of heat from the engine cooling water, which is injected into the refrigerant circuit by a highly efficient plate heat exchanger. In addition, the use of engine waste heat ensures that our gas heat pump air conditioner requires no defrost cycle, therefore providing continuous 100% heating performance in severe weather conditions with an outside air temperature as low as -20 °C. During cooling mode the rejected heat from the engine is available for use with in a DHW system and can supply up to 30 kW of hot water at 75 °C. The DHW is also available in heating when the outside air temp is above 7 °C.




### Water chiller option

Our GHP system is also available with a water chiller option, which can be combined with individual outdoor units or as part of a DX chilled water mix of indoor units. The system can be operated via a BMS system or a Panasonic supplied control panel, with chilled water set points from -15 °C – 15 °C and heating set points 25 °C – 55 °C.

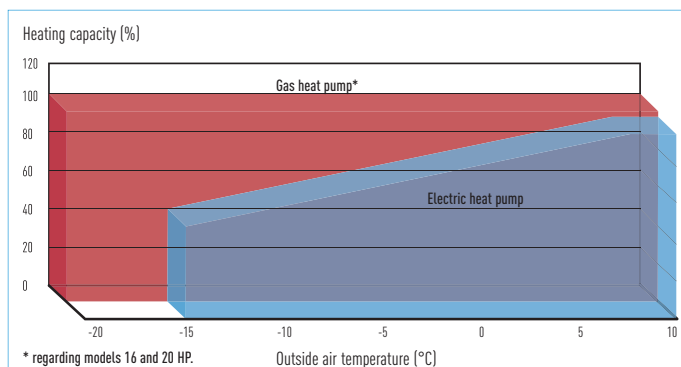
### No defrost requirements

Below 7 °C ambient in heating mode, the outdoor fans switch off, saving further running costs and CO<sub>2</sub> emissions.

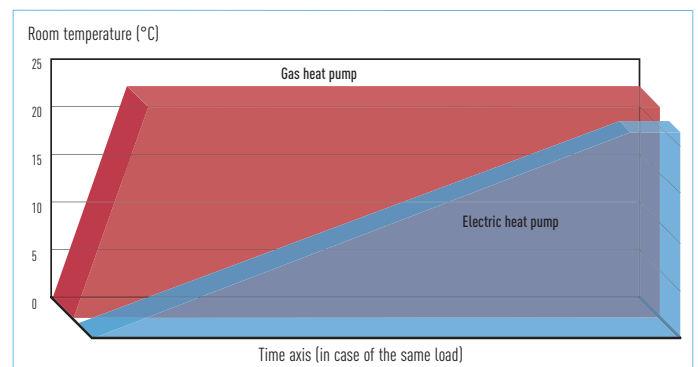
## ECO G OUTDOOR UNITS RANGE

HP	16	20	25	30	32	36	40	45	50
CAPACITY (Cooling / Heating) kW	45.00 / 50.00	56.00 / 63.00	71.00 / 80.00	85.00 / 95.00	90.00 / 100.00	101.00 / 113.00	112.00 / 126.00	127.00 / 143.00	142.00 / 160.00
									
<b>NEW</b>									
ECO G HIGH POWER	U-16GEP2E5	U-20GEP2E5	U-25GEP2E5						
ECO G AND ECO G MULTI	U-16GE2E5	U-20GE2E5	U-25GE2E5	U-30GE2E5	U-16GE2E5 U-16GE2E5	U-16GE2E5 U-20GE2E5	U-20GE2E5 U-20GE2E5	U-20GE2E5 U-25GE2E5	U-25GE2E5 U-25GE2E5
ECO G 3 WAY MULTI	U-16GF2E5	U-20GF2E5	U-25GF2E5						

### Comparison of heating capacity

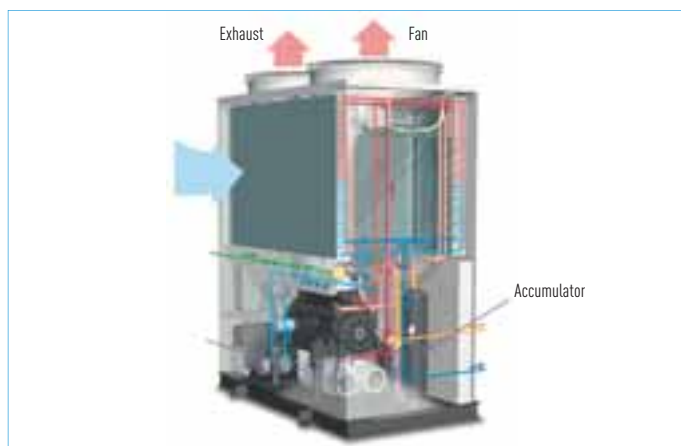


### Comparison of the start times for heating operation



### The Gas Heat Pump (GHP)

Panasonic Gas Heat Pump is the natural choice for commercial projects, especially for those projects where power restrictions apply. As you would expect, all of our Gas Driven VRF systems are designed to give the highest reliability rates. The GHP engine or (internal combustion engine) varies the engine speed to match the building load functions that are comparable with an inverter type electric air conditioner.



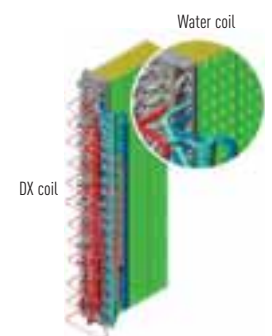
### Power supply problems?

If you are short of electrical power, our gas heat pump could be the perfect solution:

- Runs on natural gas or LPG and just needs single phase supply
- Enables the building's electrical power supply to be used for other critical electrical demands
- Reduces capital cost to upgrade power substations to run heating and cooling systems
- Reduces power loadings within a building especially during peak periods
- Electricity supply freed up for other uses such as IT servers, commercial refrigeration, manufacturing, lighting etc.

### GHP Outdoor Heat Exchanger

- Integrated DX and hot water coil
- No defrost required
- Faster reaction to demand for heating





### ECO G 3 Way Multi

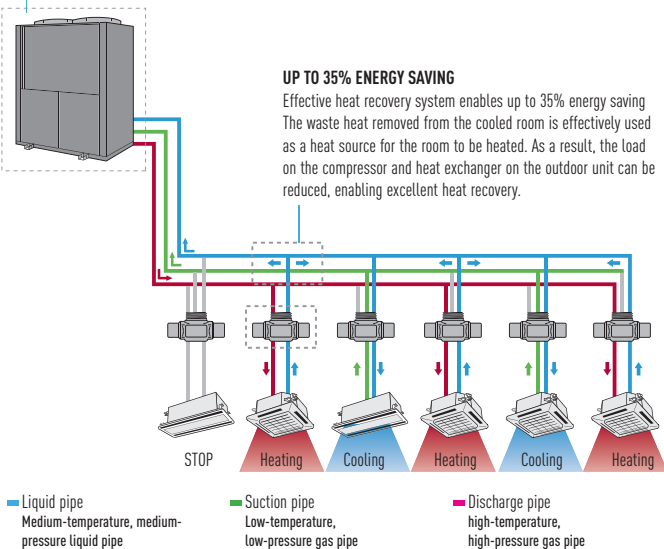
#### SYSTEM EXAMPLE

##### EXCELLENT PERFORMANCE

Panasonic 3 WAY Multi system is capable of simultaneous heating/cooling and individual operation of each indoor unit by only one outdoor unit. As a result, efficient individual air conditioning is possible in buildings having diverse room temperatures.

##### IMPROVED MAINTENANCE INTERVALS

The unit only needs to be serviced every 10,000 hours. This is the best in the industry.



**SOLENOID VALVE KIT CZ-P56HR3, CZ-P160HR3**  
**KIT-P56HR3** (CZ-P56HR3+CZ-CAPE2), **KIT-P160HR3** (CZ-P160HR3+CZ-CAPE2)  
 To be fitted on all 'zones' to allow simultaneous heating and cooling. Up to 36 indoor units are capable of simultaneous heating/cooling operation.

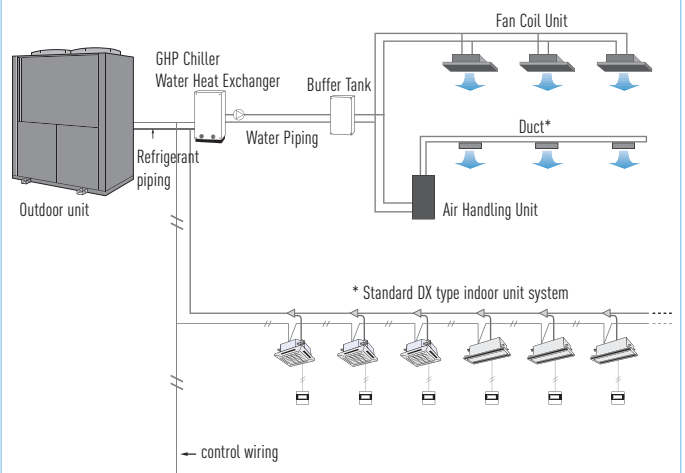
**SOLENOID VALVE CONTROLLER CZ-CAPE2\***  
 Must be added to the CZ-P56HR3 OR CZ-P160HR3.  
 \* For wall mounted S-22MK2E5/S-28MK2E5/S-36MK2E5.  
 For S-45MK1E5/S-56MK1E5/S-73MK1E5/S-106MK1E5: CZ-CAPE2.

### ECO G Water Heat Exchanger

#### Mixed System Application

- Combined with a Water Heat Exchanger unit, the Panasonic GHP can create a flexible system--the ideal replacement for existing chiller and boiler systems.
- The GHP Multi System can have an indoor unit plus a GHP chiller. When the two systems are operated independently, an outdoor unit with 130% capacity can be connected.

#### SYSTEM EXAMPLE



Note: The mode of running of outdoor unit depends on the Water Heat Exchanger's mode. The water pump is not included in the Water Heat Exchanger unit. For simultaneous operation, however, the maximum capacity is 130%. Please contact Panasonic for details of this system design.

## ECO G HIGH POWER

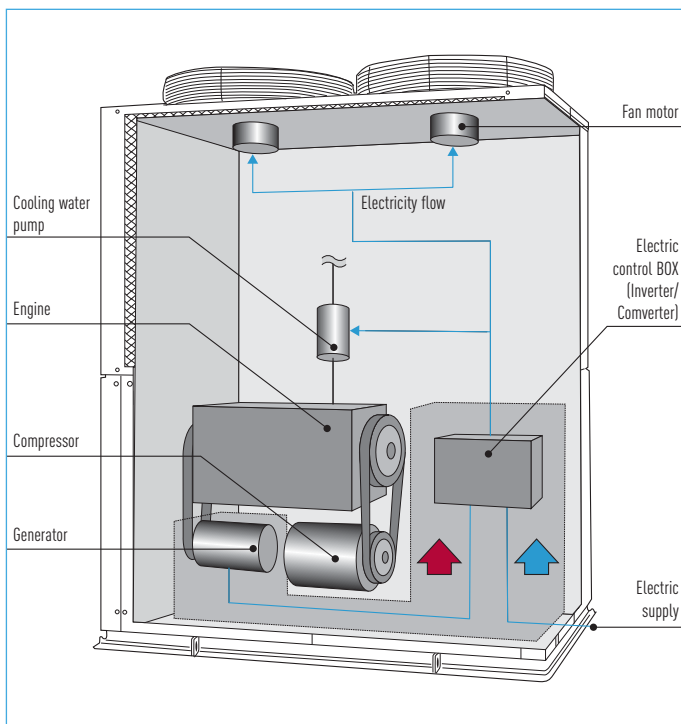
### 2-Pipe Heat Pump System with Electrical Power Generator

#### Production of electricity

Generates up to 2 kW depending on air conditioning load.

#### Panasonic innovates again introducing a new GHP producing his own electricity.

Equipped with a small generator of high-performance. Compressor and generator are driven by gas engine. The generated electricity is used for the fan motor and cooling water pump of its own unit. The generating efficiency is more than 40%.



## ECO G HIGH POWER, ECO G AND ECO G MULTI

### 2-Pipe Heat Pump System

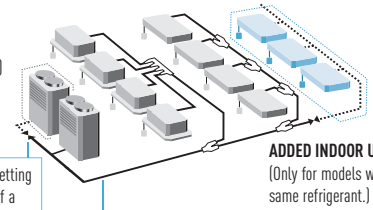
#### Easy to add additional units in the future

Load can easily be increased in the future by the addition of indoor and outdoor units without having to plumb pipe shafts.

\* When specifying refrigerant pipe work, please choose the size according to the horsepower after the increase of units.

#### EXAMPLE OF A SYSTEM

**ADDED OUTDOOR UNITS.**  
(Only for models with the same refrigerant.)



Main pipe: Maximum gas pipe diameter 38.1 (1 1/2)  
Maximum fluid pipe diameter 19.05 (3/4)

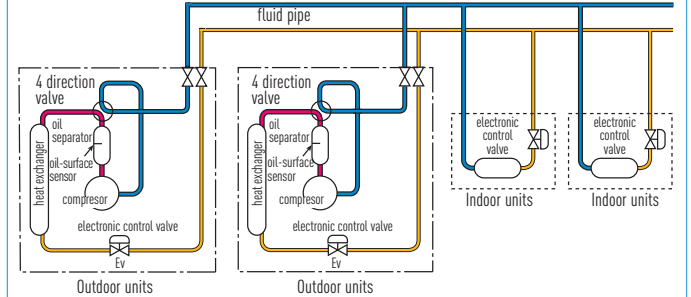
Maximum possible number of outdoor units to be combined: 2 units.  
Maximum horsepower of combined outdoor units: 50 HP.  
Maximum possible number of indoor units to be connected: 48 units<sup>1</sup>.  
Indoor/outdoor units capacity ratio: 50%~130%<sup>2</sup>.

<sup>1</sup> When 2 outdoor units are connected.

<sup>2</sup> Capacity of indoor units connection is: Minimum) 50% of the capacity of the smallest outdoor unit within the system.  
Maximum) 130%: total capacity of the system outdoor units.

Indoor units are same as multi series for buildings.

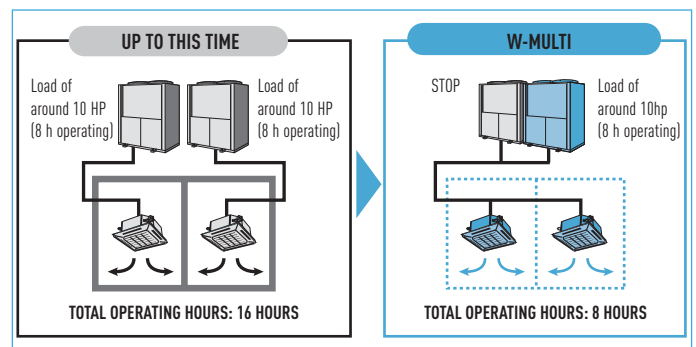
#### SYSTEM DIAGRAM



### Saving Energy

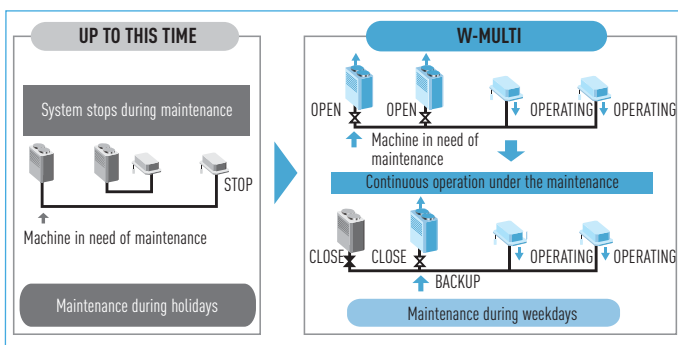
- Energy savings achieved by the Appropriate Capacity.
- Equational Program Function.

Energy savings are achieved by the Appropriate Load Divider Function, which enables efficient operation by concentrating the cooling/heating capacity to one outdoor unit and stopping the other. Compared to conventional machines with a similar COP, this function allows energy savings and thus reduces the running costs, especially in part-load seasons like spring and autumn.



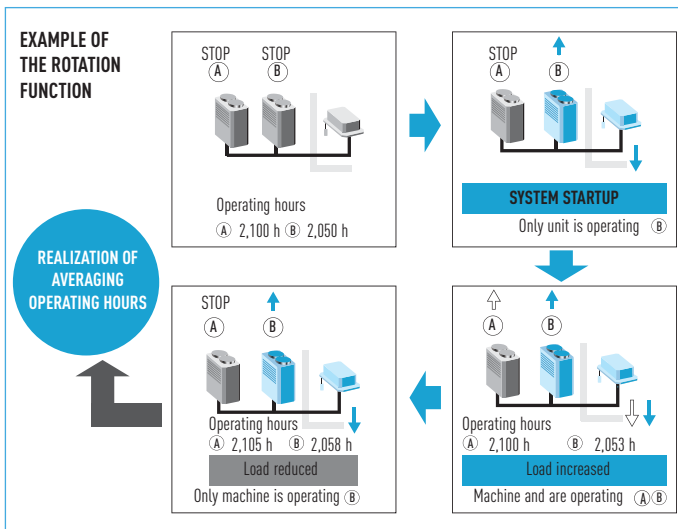
### Non-stop operation, even during maintenance

- System will not stop even during maintenance, due to Manual Backup Operating Function.
  - Maintenance is possible during weekdays because it can continue operating during maintenance.
  - Automatic Backup Operating Function enables continuous operation.
- If one outdoor unit stops the backup function will automatically start on the remaining unit and continue operating. During service intervals, the system being serviced can be isolated by a closing valve in the outdoor unit, enabling continuous operation with the still operative outdoor unit.



### Long lifetime

- Renewal period prolonged due to rotation function.
- Rotation function, which is run from outdoor units with low operating time, will average the operating hours of each outdoor unit. This extends the periods between maintenance or replacement.

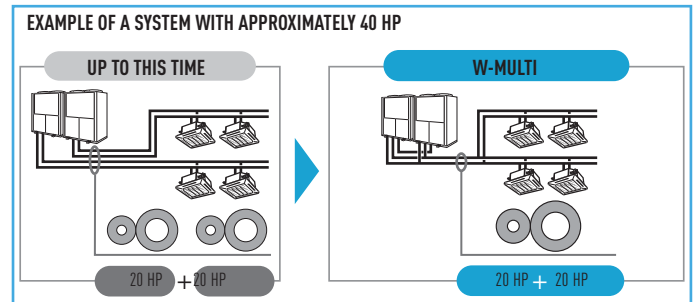


### Ease of construction

- By using common header pipe work the installation cost and time is significantly reduced.
- By combining all pipes, which were needed for each indoor unit, into a common pipe in each system, the number of pipes are reduced by half\* which leads to ease of construction. Furthermore, space of pipes within pipe shafts can be reduced by 2/3.\*

\*System with approximately 40hp (20hp x 2 units)

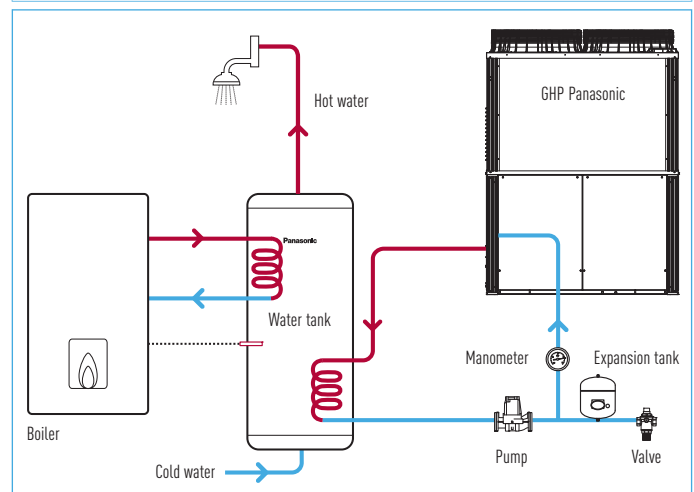
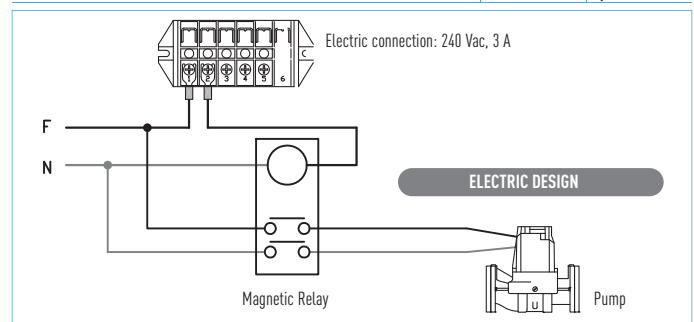
Combining all pipes, which were needed for each outdoor unit, into a pipe in each system. (Number of pipes is reduced by half).



### Hot Water Supply Function

- System Advantage.
- The engine waste heat, which is normally exhausted into the atmosphere, is recovered via the heat exchanger and effectively used as hot water, so the GHP Chiller acts as a sub system that alleviates the load on the client's main hot water system, and therefore offers 'free' hot water.

CAPACITY AT COOLING STANDARD POINT		OUTLET TEMP 75 °C	
Outdoor unit	U-16GE2E5	kW	15.00
	U-20GE2E5		20.00
	U-25GE2E5		30.00
	U-30GE2E5		30.00
Hot water piping allowable pressure		MPa	0.7
Hot water circulation rate		m³/h	3.9
Hot water tube size			Rp 3/4



- All the items illustrated in this drawing (except the outdoor unit) are not supplied by Panasonic.  
 - During startup, set temperature value of the water in the outdoor unit's parameter.

# ECO G WATER HEAT EXCHANGER FOR HYDRONIC APPLICATIONS

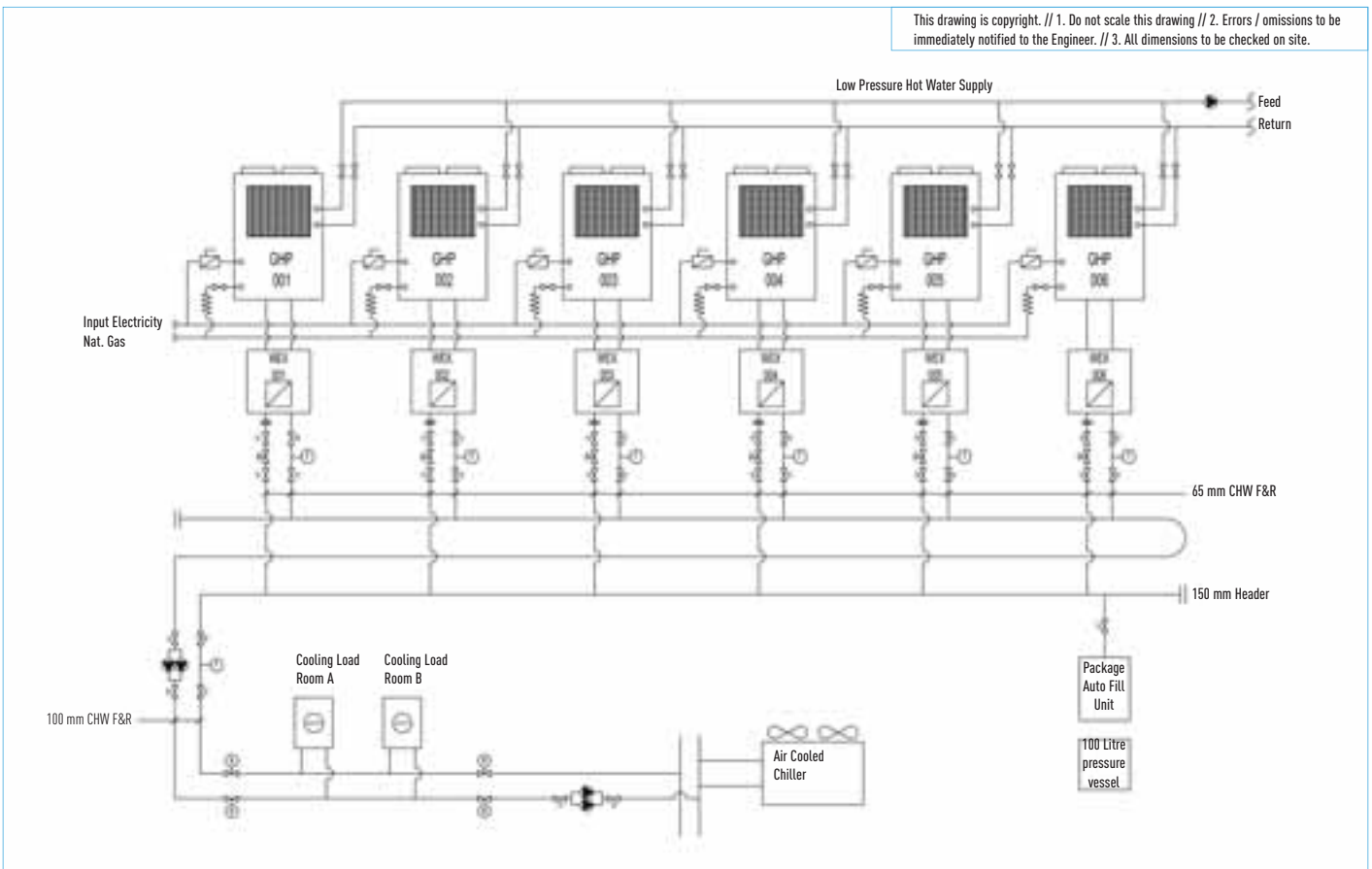
## Application Examples



### Application Examples

CONNECTION TO 'CLOSE CONTROL' COMPUTER EQUIPMENT.  
COMPUTER ROOM APPLICATIONS

When all available electrical power needed to be utilised for the IT equipment for a leading international bank, the cooling load of over 450 kW had to be powered by gas. The outdoor units were connected via Water Heat Exchangers to cooling coils inside the 'close control' units thereby maintaining a conditioned environment for temperature and humidity. By utilising the hot water function over 100 kW of hot water are supplied to the building and therefore the additional benefit of considerable CO<sub>2</sub> savings is ensured.



This Part L design has reduced CO<sub>2</sub> Emissions by 26% or 166 tonnes per annum compared to electric chillers.

Specifications subject to change without notice.  
Rating Conditions: Cooling Indoor 27 °C DB 19 °C WB Outdoor 35 °C DB 24 °C WB Heating Indoor 20 °C DB Outdoor 7 °C DB 6 °C WB.



CONNECTION TO CHILLED WATER COILS IN AIR HANDLING EQUIPMENT.  
AIR HANDLING APPLICATION

When a top London restaurant opened, it needed large volumes of fresh air to ensure the optimum dining environment. GHP units connected to the cooling coils within the air handling equipment ensured the air was introduced in the right condition in both summer and winter.



CHILLER REPLACEMENT. CHILLED WATER SUPPLY TO FAN COILS.  
CHILLER REPLACEMENT

When some old chillers needed replacing at the end of their operational lifetime, GHPs with Water Heat Exchangers enabled the project to be carried out in stages whilst still utilising the existing water pipe work and fan coils. This enabled the project to be delivered on time, to a restricted budget and avoided all issues regarding refrigerant in confined spaces.



## NEW ECO G HIGH POWER

THE 2-PIPE GAS DRIVEN VRF WITH AN ELECTRICAL POWER GENERATOR

ECO G High Power is a revolution in air conditioning design. Fitted with a permanent magnet, non-bearing type generator, it is the first VRF system that can supply heating, cooling, hot water and now also supply electrical power. Each ECO G High Power unit has a 2.0 kW generator, drastically reducing the outdoor unit's electricity consumption.



OPTIONAL

### TECHNICAL ZOOM

- 2-PIPE AIR CONDITIONING SYSTEM PROVIDING COOLING OR HEATING
- UP TO 2 kW ELECTRICITY GENERATED (USED ON THE OUTDOOR UNIT)
- VERY EFFICIENT GENERATOR
- CAN CONNECT TO UP TO 24 INDOOR UNITS
- IU/OU CAPACITY RATIO 50-200%
- 15 TO 30 kW HOT WATER GENERATION CAPACITY

HP	16 HP		20 HP		25 HP	
MODEL NAME	U-16GEP2E5		U-20GEP2E5		U-25GEP2E5	
Cooling capacity	kW	45.00	56.00		71.00	
Hot water (cooling mode)	kW	15.0	20.0		30.0	
Power Input	kW	0.1 (220-230) 0.36 (240)	0.1 (220-230) 0.36 (240)		0.1 (220-230) 0.36 (240)	
EER						
Max COP (inc hot water)						
Gas consumption	kW	31.3	41.4		63.5	
Heating capacity	STD / Low temp <sup>1</sup>	kW 50.0 / 53.0	63.0 / 67.0		80.0 / 78.0	
Power Input	kW	0.1 (220-230) 0.36 (240)	0.1 (220-230) 0.36 (240)		0.1 (220-230) 0.36 (240)	
COP						
Gas consumption	STD / Low temp <sup>1</sup>	kW 33.8	43.9		55.1	
COP	Average					
Size	Height	mm	2,273		2,273	
	Width	mm	1,650		1,650	
	Depth	mm	1,000 (+80)		1,000 (+80)	
Weight	kg	770	795		825	
Starter amperes	A	30	30		30	
Pipe Connections	Gas	Inches (mm)	1 1/8 (Ø 28.58)		1 1/8 (Ø 28.58)	
	Liquid	Inches (mm)	1/2 (Ø 12.70)		5/8 (Ø 15.88)	
	Fuel gas		R3/4 (bolt thread)		R3/4 (bolt thread)	
	Exhaust drain port	mm	Ø 25		Ø 25	
Operation sound	dB(A)	57	58		62	
Indoor/outdoor capacity ratio		50-200% <sup>1</sup>	50-200% <sup>1</sup>		50-200% <sup>1</sup>	
Number of connections indoor <sup>2</sup>		24	24		24	

1) Low temp condition: outdoor temperature 2 °C.

2) Indoor unit can be connected to up to 16 kW model (model size 60)

Specifications subject to change without notice.

GLOBAL REMARKS	Rated conditions:	Cooling	Heating (standard)	Heating (low temp.)
	Indoor air temperature	27 °C DB / 19 °C WB	20 °C DB	20 °C DB / 15 °C WB or less
	Outdoor air temperature	35 °C DB	7 °C DB / 4 °C WB	2 °C DB / 1 °C WB

Cooling and heating capacities in the tables are determined under the test conditions of JIS B 8627.

Effective heating requires that the outdoor air intake temperature be at least -20 °C DB or -21 °C WB.

DB: Dry Bulb; WB: Wet Bulb

- Gas consumption is the total (high) calorific value standard.

- Outdoor unit operating sound is measured 1 meter from the front and 1.5 meters above the floor (in an anechoic environment).

- Actual installations may have larger values due to ambient noise and reflections.

- Values in parentheses ( ) for refrigerant gas and liquid types are those when the maximum piping length exceeds 90 meters (equivalent length). (Reducers are available locally.)

- Specifications are subject to change without notice.

- Hot water heating capacity is applicable during cooling operation as in Note 1.

- The maximum water temperature that can be obtained is 75 °C. Water heating performance and temperature vary with the air conditioning load. Because the hot water heating system uses waste heat from the engine, which runs the air conditioning, its ability to heat water is not guaranteed.

SERVICE KITS MODEL	KIT CZ-PSK560SP
Outdoor unit reference	U-16GEP2E5 / U-20GEP2E5 / U-25GEP2E5
MATERIAL INCLUDED	
Oil Filter	1
Air Cleaner Element	1
Plug	4
V BELT (for compressor)	1
V Belt (for generator)	1
Oil Strainer	1
Drain Filter Packing	1





**More Technical Zoom**

- Free Hot water provided when in cooling throughout temperature range and in heating when the ambient is above 7 °C
- 200 m maximum allowable piping length (L1)

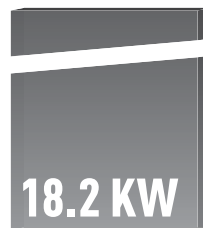
\* Referring to outside temperature.

**Generates electricity during heating or cooling operation**

Generates electricity and air conditioning (heating or cooling) at the same time by using remaining engine power. ECO G High Power can generate 2.0 kW electricity at a generation efficiency of more than 40%.

**New ECO G High Power**

GHP with electrical generator. Only consumes 1% of the electricity required by Standard VRF systems!



Standard VRF for 73 kW

COMPARISON OF ELECTRICAL CONSUMPTION ON A 71 KW OUTDOOR UNIT



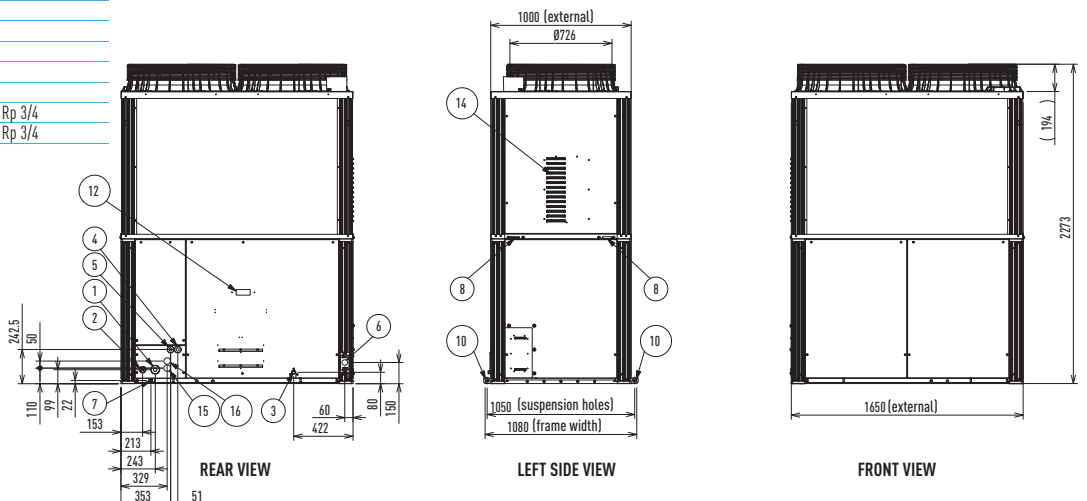
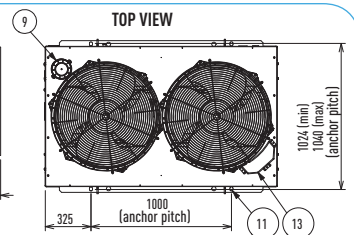
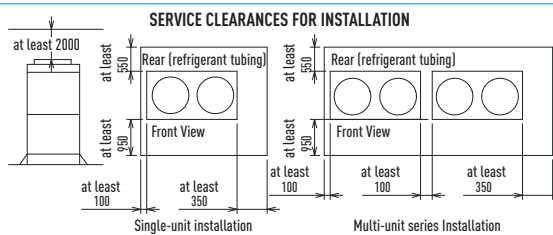
ECO G for 71 kW

Less than 1% of electrical consumption



ECO G High Power for 71 kW

	45.0 kW	56.0-71.0 kW
1 Suction refrigerant pipe	Ø 28.58	Ø 28.58
2 Liquid refrigerant pipe	Ø 12.7	Ø 15.88
3 Exhaust gas drain port	HOSE OD Ø 25 (accessory)	
4 Electrical power supply port	Ø 28	
5 Inter-unit cable port	Ø 28	
6 Fuel gas port	R3/4	
7 Condensation drain opening	Ø 20	
8 Rain and condensation outlet		
9 Engine exhaust outlet		
10 Suspension holes 4-Ø 20x30		
11 Anchor holes 4-Ø 22x30		
12 Segmented display		
13 Coolant intake (top)		
14 Vent		
15 Hot water inlet	Rp 3/4	
16 Hot water outlet	Rp 3/4	





## ECO G AND ECO G MULTI

### 2-PIPE HEAT PUMP SYSTEM

ECO G and ECO G Multi 2-Pipe for Heat Pump Applications.

The S Series 2-Pipe not only offers improved performance but also increased flexibility. Now available as multi-systems, many combinations are possible, from 16 HP to 50 HP, allowing for more power and enabling accurate matching of a system building load. Additional new features include part load engine management and compressor run hour equalisation.



OPTIONAL

### TECHNICAL ZOOM

- REDUCED GAS CONSUMPTION BY MILLER-CYCLE ENGINE
- REDUCED ELECTRICAL POWER CONSUMPTION BY USING DC MOTORS
- NEW LIGHTWEIGHT DESIGN BY USE OF REDUCES WEIGHT
- DIVERSITY RATIO 50-200% (SINGLE MODELS ONLY)
- QUIET MODE OFFERS A FURTHER 2 dB(A) REDUCTION
- PART LOAD EFFICIENCIES INCREASED

HP		16 HP	20 HP	25 HP	30 HP	32 HP	36 HP*	40 HP*	45 HP*	50 HP
MODEL NAME		U-16GE2E5	U-20GE2E5	U-25GE2E5	U-30GE2E5	U-16GE2E5 U-16GE2E5	U-16GE2E5 U-20GE2E5	U-20GE2E5 U-20GE2E5	U-20GE2E5 U-25GE2E5	U-25GE2E5 U-25GE2E5
Cooling capacity	kW	45.00	56.00	71.00	85.00	90.00	101.00	112.00	127.00	142.00
Hot water (cooling mode)	kW	15.00	20.00	30.00	30.00	30.00	35.00	40.00	50.00	60.00
Power Input	kW	0.71	1.02	1.33	1.70	1.42	1.73	2.04	2.35	2.66
EER		1.48	1.40	1.15	1.22	1.48	1.43	1.40	1.25	1.15
Max COP (inc hot water)		1.97	1.89	1.64	1.65	1.97	1.93	1.89	1.74	1.64
Gas consumption	kW	29.70	39.10	60.40	67.9	59.40	68.80	78.20	99.50	120.80
Heating capacity	STD Low temp <sup>1</sup> kW	50.00 / 53.00	63.00 / 67.00	80.00 / 78.00	95.00 / 90.00	100.00 / 106.00	113.00 / 120.00	126.00 / 134.00	143.00 / 145.00	160.00 / 156.00
Power Input	kW	0.60	0.64	0.83	1.45	1.20	1.24	1.28	1.47	1.66
COP		1.51	1.46	1.48	1.37	1.51	1.48	1.46	1.47	1.48
Gas consumption	STD Low temp <sup>1</sup> kW	32.50 / 41.50	42.50 / 56.40	53.20 / 62.30	68.10 / 78.00	65.00 / 83.00	75.00 / 97.90	85.00 / 112.80	95.70 / 118.70	106.40 / 124.60
COP	Average	1.50	1.43	1.32	1.29	1.50	1.46	1.43	1.36	1.32
Size	Height	mm	2273	2273	2273	2273	2273	2273	2273	2273
	Width	mm	1650	1650	1650	2026	1650+100+1650	1650+100+1650	1650+100+1650	1650+100+1650
	Depth	mm	1000 (+80)	1000 (+80)	1000 (+80)	1000 (+80)	1000 (+80)	1000 (+80)	1000 (+80)	1000 (+80)
Weight	kg	755	780	810	840	755.775	755.780	780.780	780.810	810
Starter amperes	A	30	30	30	30	30	30	30	30	30
Pipe Connections	Gas	Inches (mm)	1 1/8 (Ø 28.58)	1 1/8 (Ø 28.58)	1 1/8 (28.58)	1 1/4 (Ø 31.75)	1 1/4 (Ø 31.75)	1 1/4 (Ø 31.75)	1 1/2 (Ø 38.10)	1 1/2 (Ø 38.10)
	Liquid	Inches (mm)	1/2 (Ø 12.70)	5/8 (Ø 15.88)	5/8 (Ø 15.88)	3/4 (Ø 19.05)	3/4 (Ø 19.05)	3/4 (Ø 19.05)	3/4 (Ø 19.05)	3/4 (Ø 19.05)
	Fuel gas		R3/4 (bolt thread)	R3/4 (bolt thread)	R3/4 (bolt thread)	R3/4 (bolt thread)	R3/4 (bolt thread)	R3/4 (bolt thread)	R3/4 (bolt thread)	R3/4 (bolt thread)
	Exhaust drain port	mm	Ø 25 rubber hose	Ø 25 rubber hose	Ø 25 rubber hose	Ø 25 rubber hose	Ø 25 rubber hose	Ø 25 rubber hose	Ø 25 rubber hose	Ø 25 rubber hose
Operation sound	dB(A)	57	58	62	63	60	61	61	63	65
Indoor/outdoor capacity ratio		50-200 %	50-200 %	50-200 %	50-170 %	50-130 %	50-130 %	50-130 %	50-130 %	50-130 %
Number of connections indoor*		24	24	24	32	48	48	48	48	48

\* In these combinations, GEP2E5 is able to connect to a W-multi system Specifications subject to change without notice instead of a GE2E5.  
1 Low temp condition: outdoor temperature 2 °C.

Specifications subject to change without notice.

GLOBAL REMARKS	Rated conditions:	Cooling	Heating (standard)	Heating (low temp.)
	Indoor air temperature	27 °C DB / 19°C WB	20 °C DB	20 °C DB / 15 °C WB or less
	Outdoor air temperature	35 °C DB	7 °C DB / 4 °C WB	2 °C DB / 1 °C WB

Cooling and heating capacities in the tables are determined under the test conditions of JIS B 8627. Effective heating requires that the outdoor air intake temperature be at least -20 °C DB or -21 °C WB.  
DB: Dry Bulb; WB: Wet Bulb  
- Gas consumption is the total (high) calorific value standard.  
- Outdoor unit operating sound is measured 1 meter from the front and 1.5 meters above the floor (in an anechoic environment). Actual installations may have larger values due to ambient noise and reflections.  
- Values in parentheses ( ) for refrigerant gas and liquid types are those when the maximum piping length exceeds 90 meters (equivalent length). (Reducers are available locally.)  
- Specifications are subject to change without notice.  
- Hot water heating capacity is applicable during cooling operation as in Note 1.  
- The maximum water temperature that can be obtained is 75 °C. Water heating performance and temperature vary with the air conditioning load. Because the hot water heating system uses waste heat from the engine, which runs the air conditioning, its ability to heat water is not guaranteed.

GHP SERVICE KITS MODEL NAMES	KIT CZ-PSK560S	KIT CZ-PSK850S
Outdoor unit reference	U-16GE2E5 / U-20GE2E5 / U-25GE2E5	U-30GE2E5
MATERIAL INCLUDED ON THE KIT		
Oil Filter	1	1
Air Cleaner Element (Air Filter)	1	1
Plug	4	4
V BELT (for compressor)	1	1
V Belt (for generator)	-	-
Oil Strainer	1	1
Drain Filter Packing	1	1



**More Technical Zoom**

- Connectivity increased - now up to 48 indoor units
- Multi-systems with combinations from 13 HP up to 50 HP
- 200 m maximum allowable piping length (L1)
- Extended pipe runs (total 780 m)
- 10,000 run hours between engine service intervals (equivalent to one maintenance every 3.2 years\*)
- Full heating capacity down to -20 °C
- No defrost cycle
- Assuming 3,120 running hours per year - 12 h x 5 days x 52 weeks

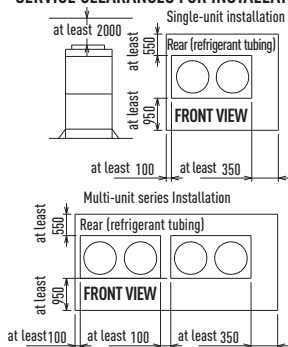


Sample installation

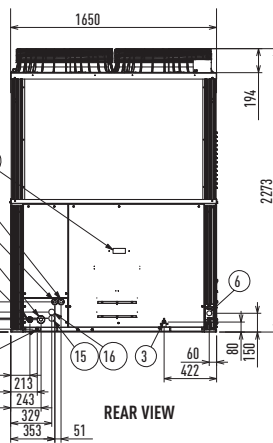
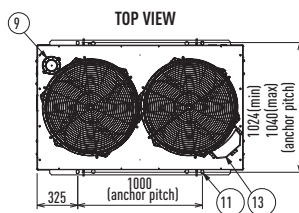
\* Referring to outside temperature

	45 kW	56 - 71 kW	85 kW
1 Gas refrigerant pipe	Ø 28.58	Ø 31.75	Ø 31.75
2 Liquid refrigerant pipe	Ø 12.7	Ø 15.88	Ø 19.05
3 Exhaust gas drain port	HOSE OD Ø 25 (accessory)		
4 Electrical power supply port	Ø 28		
5 Inter-unit cable port	Ø 28		
6 Fuel gas port	R3/4		
7 Condensation drain opening	Ø 20		
8 Rain and condensation outlet			
9 Engine exhaust outlet			
10 Suspension holes 4-Ø 20x30			
11 Anchor holes 4-Ø 22x30			
12 Segmented display			
13 Coolant intake (top)			
14 Vent			
15 Hot water intake		Rp3/4	
16 Hot water outlet		Rp3/4	

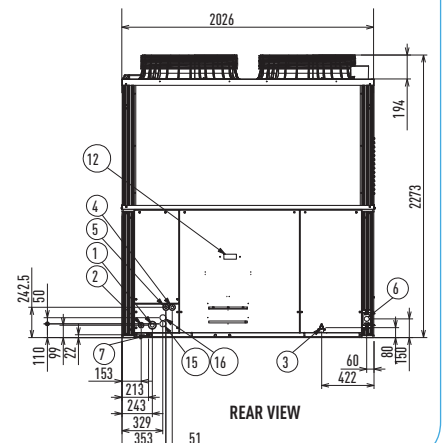
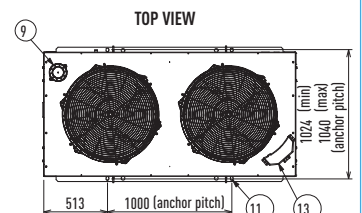
**SERVICE CLEARANCES FOR INSTALLATION**



**U-16GE2E5 // U-20GE2E5 // U-25GE2E5**



**U-30GE2E5**



High savings

ECO G  
ECO E

## ECO G 3 WAY MULTI

3 WAY HEAT RECOVERY SYSTEM WITH SIMULTANEOUS HEATING & COOLING

The only 3 Way GHP system in Europe, the S Series ECO G 3 Way offers even more performance and outstanding features when you need simultaneous heating and cooling. Now with capacities available from 16 HP to 25 HP, Panasonic offers the greatest choice and flexibility to solve any power problem or site requirement.



OPTIONAL

### TECHNICAL ZOOM

- SIMULTANEOUS HEATING AND COOLING FOR TOTAL CONTROL
- REDUCED GAS CONSUMPTION BY MILLER-CYCLE ENGINE
- REDUCED ELECTRICAL POWER CONSUMPTION BY USING DC MOTORS
- NEW LIGHTWEIGHT DESIGN
- PART LOAD EFFICIENCIES INCREASED
- CONNECTABILITY INCREASED TO UP TO 24 INDOOR UNITS
- 145 m MAXIMUM ALLOWABLE PIPING LENGTH, L1

HP			16 HP	20 HP	25 HP
MODEL NAME			U-16GF2E5	U-20GF2E5	U-25GF2E5
Cooling capacity		kW	45.00	56.00	71.00
Cooling power input		kW	0.71	1.02	1.33
EER			1.48	1.40	1.15
Cooling gas consumption		kW	29.7	39.1	60.4
Heating capacity	STD	kW	50.00	63.00	80.00
	Low temp*	kW	53.00	67.00	78.00
Heating power input		kW	0.60	0.64	0.83
COP			1.51	1.46	1.48
Heating gas consumption	STD	kW	32.5	42.5	53.2
	Low	kW	41.5	56.4	62.3
COP	Average		1.50	1.43	1.32
Size	H x W x D	mm	2273 x 1650 x 1000 (+80)	2273 x 1650 x 1000 (+80)	2273 x 1650 x 1000 (+80)
Weight		kg	775	775	805
Starter amperes		A	30	30	30
Pipe	Gas	Inches (mm)	1 1/8 (Ø 28.58)	1 1/8 (Ø 28.58)	1 1/8 (Ø 28.58)
	Liquid	Inches (mm)	3/4 (Ø 19.05)	3/4 (Ø 19.05)	3/4 (Ø 19.05)
	Discharge	Inches (mm)	7/8 (Ø 22.22)	1 (Ø 25.40)	1 (Ø 25.40)
	Fuel gas		R3/4	R3/4	R3/4
	Exhaust drain port	mm	Ø 25	Ø 25	Ø 25
Operation sound		dB(A)	57	58	62
Indoor/outdoor capacity ratio			50-200% <sup>1</sup>	50-200% <sup>1</sup>	50-200% <sup>1</sup>
Number of connected indoor units*			24	24	24

\*Low temp condition: outdoor temperature 2 °C.

<sup>1</sup> Indoor unit can be connected to up to 16 kW model (model size 60)

Specifications subject to change without notice.

GLOBAL REMARKS	Rated conditions:	Cooling	Heating (standard)	Heating (low temp.)
	Indoor air temperature	27 °C DB / 19°C WB	20 °C DB	20 °C DB / 15 °C WB or less
	Outdoor air temperature	35 °C DB	7 °C DB / 4 °C WB	2 °C DB / 1 °C WB

Cooling and heating capacities in the tables are determined under the test conditions of JIS B 8627.

Effective heating requires that the outdoor air intake temperature be at least -20 °C DB or -21 °C WB.

DB: Dry Bulb; WB: Wet Bulb

- Gas consumption is the total [high] calorific value standard.

- Outdoor unit operating sound is measured 1 meter from the front and 1.5 meters above the floor (in an anechoic environment).

- Actual installations may have larger values due to ambient noise and reflections.

- Values in parentheses ( ) for refrigerant gas and liquid types are those when the maximum piping length exceeds 90 meters (equivalent length). (Reducers are available locally.)

- Specifications are subject to change without notice.

- Hot water heating capacity is applicable during cooling operation as in Note 1.

- The maximum water temperature that can be obtained is 75 °C. Water heating performance and temperature vary with the air conditioning load. Because the hot water heating system uses waste heat from the engine, which runs the air conditioning, its ability to heat water is not guaranteed.

GHP SERVICE KITS MODEL NAME	KIT CZ-PSK560S
Outdoor unit reference	U-16GF2E5 / U-20GF2E5 / U-25GF2E5
MATERIAL INCLUDED ON THE KIT	
Oil Filter	1
Air Cleaner Element (Air Filter)	1
Plug	4
V BELT (for compressor)	1
V Belt (for generator)	-
Oil Strainer	1
Drain Filter Packing	1



**More Technical Zoom**

- Diversity ratio 50–200%
- Extended pipe runs (total 780 m)
- Quiet mode offers a further 2 dB(A) reduction
- Full heating capacity down to -21 °C
- No defrost cycle
- Option of using LPG as a power supply (increases flexibility and avoids problems of potential site restrictions in the future. The purer fuel is also excellent for further reductions in CO<sub>2</sub> emissions)
- 10,000 run hours between engine service intervals (equivalent to one maintenance every 3.2 years\*)

- Assuming 3,120 running hours per year - 12 h x 5 days x 52 weeks

**Additional parts**



**Solenoid valve controller**

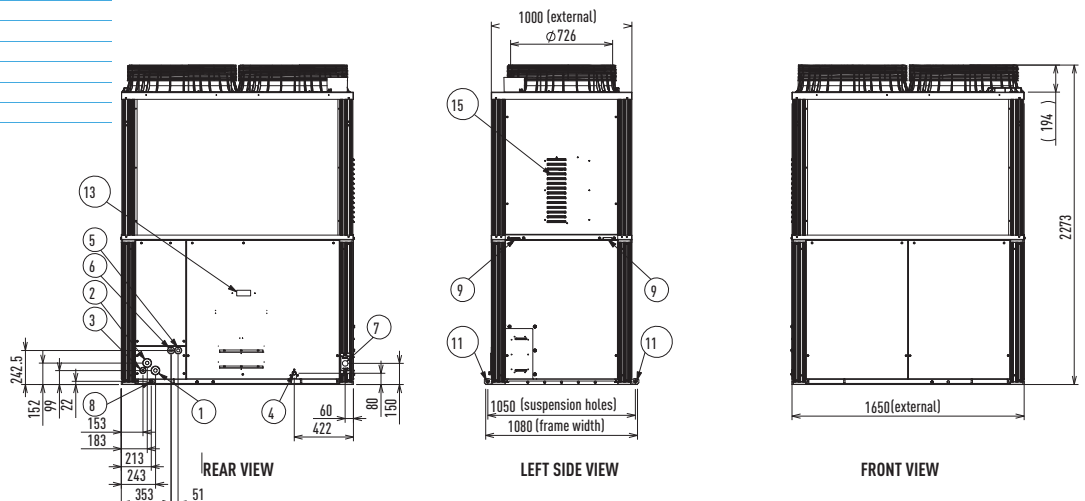
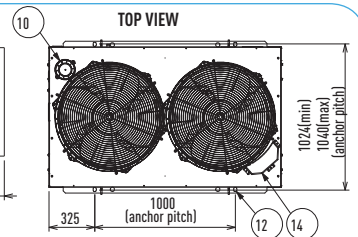
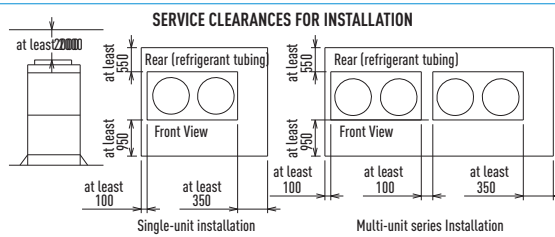
3-Pipe control PCB CZ-CAPE2\*.  
Must be added to the CZ-P56HR3 OR CZ-P160HR3.  
KIT-P56HR3 (CZ-P56HR3+CZ-CAPE2), KIT-P160HR3 (CZ-P160HR3+CZ-CAPE2)  
\* For wall mounted S-22MK2E5/S-28MK2E5/S-36MK2E5.  
For S-45MK1E5/S-56MK1E5/S-73MK1E5/S-106MK1E5: CZ-CAPE2.



**Solenoid valve kit**

CZ-P56HR3 (up to 5.6 kW) CZ-P160HR3 (from 5.7 to 16 kW)  
KIT-P56HR3 (CZ-P56HR3+CZ-CAPE2), KIT-P160HR3 (CZ-P160HR3+CZ-CAPE2)  
\* For conference rooms and other locations where low noise is required, pay attention to the installation location and install in a corridor etc.

	45.0 kW	56.0-71.0 kW
1 Suction refrigerant pipe	Ø 28.58	Ø 28.58
2 Discharge refrigerant pipe	Ø 22.22	Ø 25.4
3 Liquid refrigerant pipe	19.05	
4 Exhaust gas drain port	HOSE OD Ø 25 (accessory)	
5 Electrical power supply port	Ø 28	
6 Inter-unit cable port	Ø 28	
7 Fuel gas port	R3/4	
8 Condensation drain opening	Ø 20	
9 Rain and condensation outlet		
10 Engine exhaust outlet		
11 Suspension holes 4-Ø 20x30		
12 Anchor holes 4-Ø 22x30		
13 Segmented display		
14 Coolant intake (top)		
15 Vent		





## THE NEW PANASONIC SOLUTION FOR CHILLED AND HOT WATER PRODUCTION!

FROM 28 kW TO 80 kW

Key benefits:

- No cascade installation up to 80 kW with GHP outdoor unit and 51.3 kW with ECOi
- No Glycol needed when WHE is located on the heated part of the building
- Full line-up of outdoor units which can cover up to 80 kW heat demand
- Large choice of remote controls and interfaces
- 3.25 COP with water at 45 °C and outdoor temperature of +7 °C

Energy saving  
Environmentally friendly refrigerant  
**INVERTER+**  
R410A

High savings  
Environmentally friendly refrigerant  
**ECO G**  
R410A



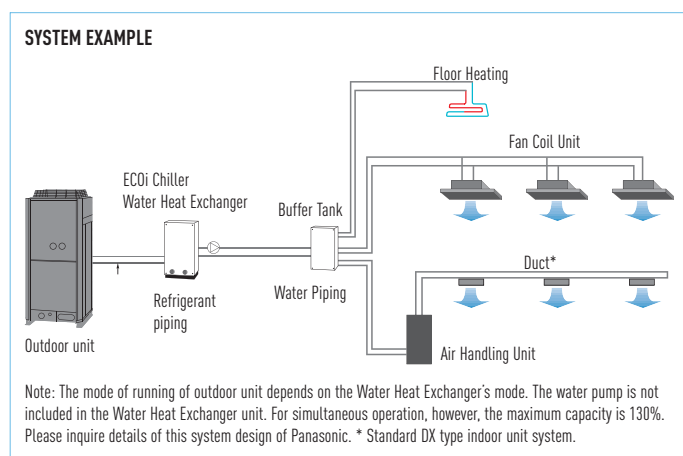
### With ECOi outdoor units

- Maximum hot water outlet temperature: 45 °C
- Minimum chilled water outlet temperature: 7 °C
- Outdoor temperature range in cooling mode: +5 °C to +43 °C
- Outdoor temperature range in heating mode: -20 °C to +15 °C

### ECOi Water Heat Exchanger

#### Electrical VRF with Water Heat Exchanger

- With this easy to install Water Heat Exchanger unit, you can now cover projects up to 51 kW hot water demand or 44 kW on chilled application on a efficient way and cost effective.

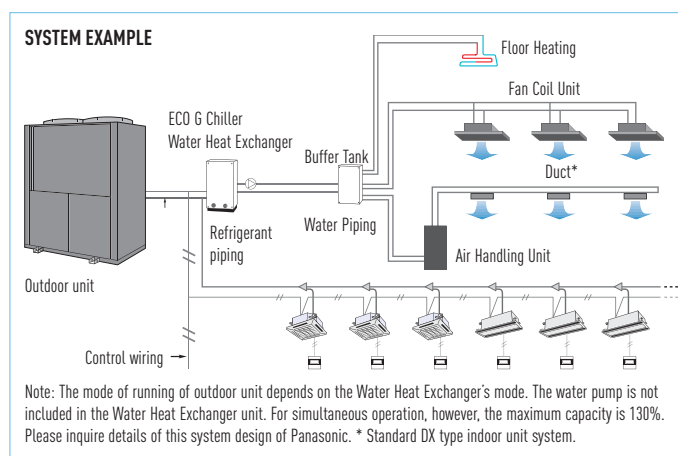


### With GHP outdoor units:

- Hot water outlet temperatures from 35 °C to 55 °C
- Chilled water outlet temperatures from 5 °C to 15 °C
- Outdoor temperature range in cooling mode: -10 °C to +43 °C
- Minimum outdoor temperature in heating mode: -21 °C

### ECO G Water Heat Exchanger. Mixed System Application

- Combined with a Water Heat Exchanger unit, the Panasonic GHP can create a flexible system, the ideal replacement for existing chiller and boiler systems.
- The GHP Multi System can have an indoor unit plus a GHP chiller. When the two systems are operated independently, an outdoor unit with 130% capacity can be connected.



MODEL			S-250WX2E5 <sup>1</sup>	S-500WX2E5	S-710WX2E5 <sup>2</sup>
Rated capacity	Cooling/Heating	kW	25 / 30	50 / 60	71 / 80
Rated power input	Cooling/Heating	kW	0.01	0.01	0.01
Rated current		A	0.07	0.07	0.07
Power supply		V / Ph / Hz	220-240 / 1 / 50	220-240 / 1 / 50	220-240 / 1 / 50
Water volume flow		m <sup>3</sup> /h	4.3	8.6	12.2 <sup>4</sup>
Pressure loss		kPa	6.6	9.6	11.7
Water volume in heat exchanger / in primary circuit (min)		m <sup>3</sup>	0.008 / 0.28	0.012 / 0.5	0.017 / 0.73
Max. water pressure		MPa	0.686	0.686	0.686
Type of anti-freeze protection			Flow switch		
Dimensions / Weight	H x W x D	mm / kg	1,000 x 395 x 965 / 110	1,000 x 395 x 965 / 130	1,000 x 395 x 965 / 150
Pipe connections	Gas pipe / Liquid pipe	mm	22.22 / 9.52	28.58 / 15.88	31.75 / 19.05
Max. piping length		m	170 <sup>3</sup>	170 <sup>3</sup>	170 <sup>3</sup>
Max. height difference IU above OU / OU above IU		m	35 <sup>3 5</sup> / 50 <sup>3</sup>	35 <sup>3 5</sup> / 50 <sup>3</sup>	35 <sup>3 5</sup> / 50 <sup>3</sup>
Power supply wire diameter		mm <sup>2</sup>	2 x 2.0	2 x 2.0	2 x 2.0
Communication wire (LIYCY)		mm <sup>2</sup>	2 x 0.5-2.0 (total length up to 1,000 m)	2 x 0.5-2.0 (total length up to 1,000 m)	2 x 0.5-2.0 (total length up to 1,000 m)
Fuse size (slow-blow)		A	15	15	15

1. Only with indoors combination. Can not be used as 1 to 1.

2. Only connectable with GHP.

3. Not valid in case of mixed systems, combination ratio in case of mixed systems: 50 to 130 %, combination ratio in case of one-to-one-systems: 100 %.

4. Water circulating pump. Power supply: 230 V / 1 Ph / 50 Hz; power input: 0.75 kW; external pressure head: 6 m.

5. For cooling operation where the outdoor air temperature is 10 °C or less, this value should be 30 m.

Energy  
saving

INVERTER +  
INVERTER +

## NEW ECOi 2-PIPE WITH WATER HEAT EXCHANGER FOR CHILLED AND HOT WATER PRODUCTION

FOR HYDRONIC APPLICATIONS

New Water Heat Exchanger for GHP and ECOi, dimensions reduced by 45 %. Operation and control by wired remote control CZ-RTC2. Energy-efficient capacity control.

Stainless steel plate heat exchanger with anti-freeze protection control. Change-over between heating and cooling operation

Environmentally  
friendly  
refrigerant  
R410A

### TECHNICAL ZOOM

- MAXIMUM DISTANCE BETWEEN OUTDOOR UNIT AND WATER HEAT EXCHANGER: 170 m
- MAXIMUM HOT WATER OUTLET TEMPERATURE: 45 °C
- MINIMUM CHILLED WATER OUTLET TEMPERATURE: 7 °C
- OUTDOOR TEMP. RANGE IN COOLING MODE: +5 °C TO +43 °C
- OUTDOOR TEMP. RANGE IN HEATING MODE: -20 °C TO +15 °C

WATER HEAT EXCHANGER			S-250WX2E5*	S-500WX2E5
Nominal Cooling Capacity			25.0	50.0
Nominal Heating Capacity			28.0	51.3
Heating Capacity at +7°C, heating water temperature at 45 °C		kW	28.0	51.3
COP at +7°C with heating water temperature at 45 °C			3.25	3.10
Dimensions / Weight	H x W x D	mm / kg	1,000 x 395 x 965 / 165	1,000 x 395 x 965 / 190
Water pipe connector			Rp2 Nut thread (50A)	Rp2 Nut thread (50A)
Pump			(Field supply)	(Field supply)
Heating water flow (ΔT=5 K, 35 °C)		l/min	4.3	8.6
Capacity of integrated electric heater			(Not equipped)	(Not equipped)
Input Power			kW	0.01
Maximum Current			A	0.07
OUTDOOR UNIT			U-10ME1E81	U-20ME1E81
Sound pressure / Sound power level			dB(A) / dB	63 / 77.5
Dimensions Weight	H x W x D	mm / kg	1,758 x 770 x 930 / 283	1,758 x 1,540 x 930 / 423
Pipe Diameter	Liquid / Gas	mm (Inch)	22.22 / 9.52	28.58 / 15.88
Refrigerant (R410A)			kg	6.3 *Need Additional charge at site
Pipe Length Range			m	max. 170
Pipe Length for nominal capacity			m	7.5
Pipe Length for additional gas			m	0 <
Additional Gas Amount (R410A)			g/m	Refer to Manual
I/D&O/D Hight Difference			m	50 (OD above) 35 (OD below)
Operation Range	Outdoor Ambient	°C	-20 — 15	-20 — 15
	Water Outlet (at-2/-7/-15) 2	°C	35 — 45	35 — 45

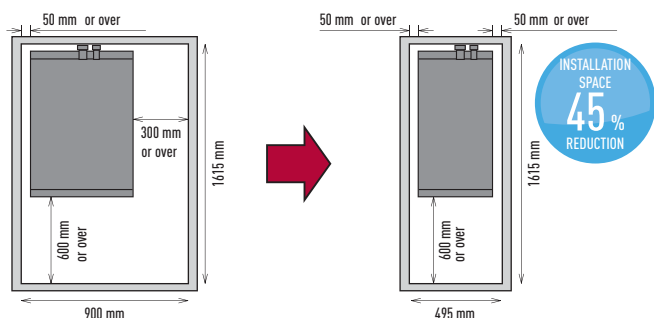
All values shown as tentative data.  
Performance calculation in agreement with Eurovent.  
Sound pressure measured at 1 m from the outdoor unit and at 1.5-m height.  
\* Only with indoors combination. Can not be used as 1 to 1.



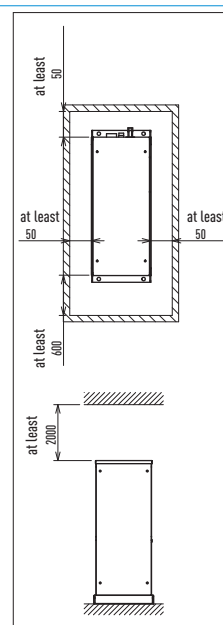
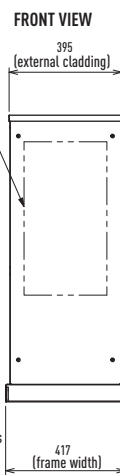
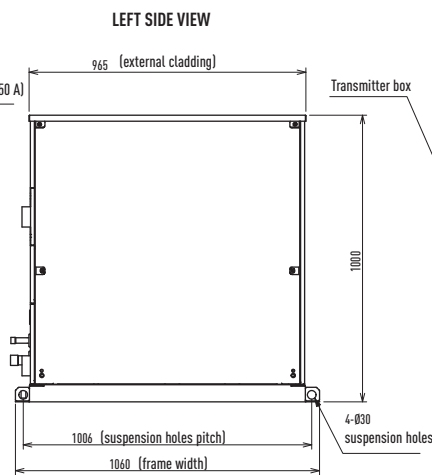
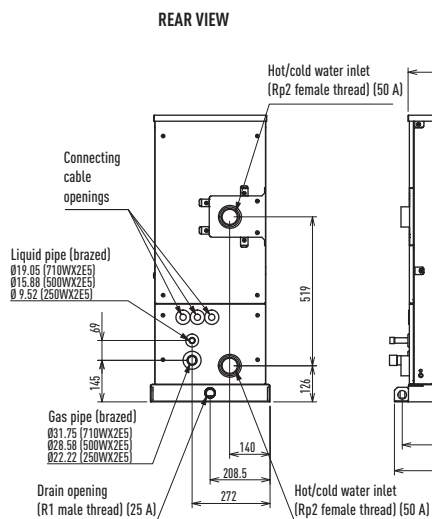
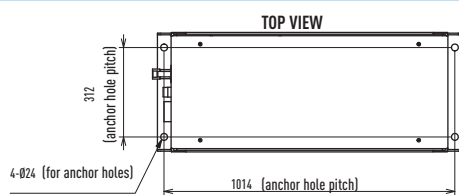
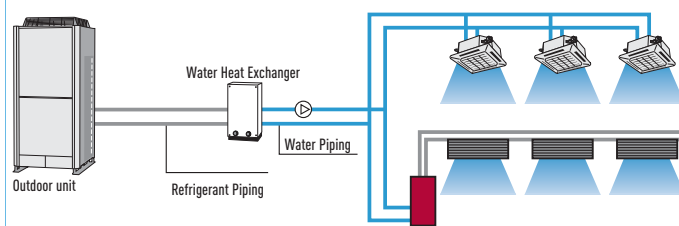


### Newly Slim & Light design

Due to the unit's internal redesign, the width and weight are drastically reduced.



### Standard system example



High  
savings

ECO G

ECO E

## NEW ECO G WITH WATER HEAT EXCHANGER FOR CHILLED AND HOT WATER PRODUCTION

FOR HYDRONIC APPLICATIONS

New Water Heat Exchanger, dimensions reduced by 45 % (250 W x 2 and 500 W x 2).

Operation and control by wired remote control CZ-RTC2. Energy-efficient capacity control. Stainless steel plate heat exchanger with anti-freeze protection control.

Change-over between heating and cooling operation.

Environmentally  
friendly  
refrigerant

R410A

### TECHNICAL ZOOM

- MAXIMUM DISTANCE BETWEEN O\_U AND WHE: 170 m
- POSSIBILITY TO MIX DX AND WATER HEAT EXCHANGER SYSTEMS
- NO COOLING TOWER NECESSARY
- HOT WATER OUTLET TEMPERATURES FROM 35 °C TO 55 °C
- CHILLED WATER OUTLET TEMPERATURES FROM 5 °C TO 15 °C
- OUTDOOR TEMP. RANGE IN COOLING MODE: -10 °C TO +43 °C
- MINIMUM OUTDOOR TEMPERATURE IN HEATING MODE: -21 °C

WATER HEAT EXCHANGER			S-250WX2E5*	S-500WX2E5	S-710WX2E5	
Nominal Heating Capacity			30	60	80	
Heating Capacity at +7 °C, heating water temperature at 35 °C		kW		62	82,8	
COP at +7 °C with heating water temperature at 35 °C				1.49	1.34	
Heating Capacity at +7 °C, heating water temperature at 45 °C		kW	30	60	80	
COP at +7 °C with heating water temperature at 45 °C				1.30	1.17	
Heating Capacity at -7 °C, heating water temperature at 35 °C		kW		57.2	74.6	
COP at -7 °C, heating water temperature at 35 °C				0.76	0.77	
Heating Capacity at -15 °C, heating water temperature at 35 °C		kW		59.2	77.4	
COP at -15 °C with heating water temperature at 35 °C				0.75	0.76	
Nominal Cooling Capacity			25	50	71	
Cooling capacity at +35 °C, outlet tp 7 °C, inlet tp 12 °C		kW		50	71	
EER at +35 °C, outlet tp 7 °C, inlet tp 12 °C				1.15	1.05	
Dimensions / Weight		H x W x D	mm / kg	1,000 x 395 x 965 / 110	1,000 x 395 x 965 / 130	1,000 x 395 x 965 / 150
Water pipe connector			Rp2 Nut thread (50A)	Rp2 Nut thread (50A)	Rp2 Nut thread (50A)	
Pump			(Field supply)	(Field supply)	(Field supply)	
Heating water flow (ΔT=5 K, 35 °C)		l/min	4.3	8.6	12.2	
Capacity of integrated electric heater			(Not equipped)	(Not equipped)	(Not equipped)	
Input Power			kW	0.01	0.01	
Maximum Current			A	0.07	0.07	
OUTDOOR UNIT			-	U-20GE2E5	U-30GE2E5	
Sound pressure / Sound power level			dB(A) / dB	58 / 83	63 / 86	
Dimensions / Weight		H x W x D	mm / kg	2,273 x 1,650 x 1,000 / 780	2,273 x 2,026 x 1,000 / 840	
Pipe Diameter		Liquid / Gas	mm (Inch)	28.58 / 15.88	31.75 / 19.05	
Refrigerant (R410A)			kg	11.5 *Need additional charge at site	11.5 *Need additional charge at site	
Pipe Length Range			m	max. 170	max. 170	
Pipe Length for nominal capacity			m	7	7	
Pipe Length for additional gas			m	0<	0<	
Additional Gas Amount (R410A)			g/m	Refer to Manual	Refer to Manual	
I/D&O/D High Difference			m	50 (OD above) 35 (OD below)	50 (OD above) 35 (OD below)	
Operation Range		Outdoor Ambient	°C	-21 — 15.5	-21 — 15.5	
		Water Outlet (at-2/-7/-15) <sup>2)</sup>	°C	35 — 55	35 — 55	

All values shown as tentative data.

Performance calculation in agreement with Eurovent.

Sound pressure measured at 1 m from the outdoor unit and at 1.5 m height.

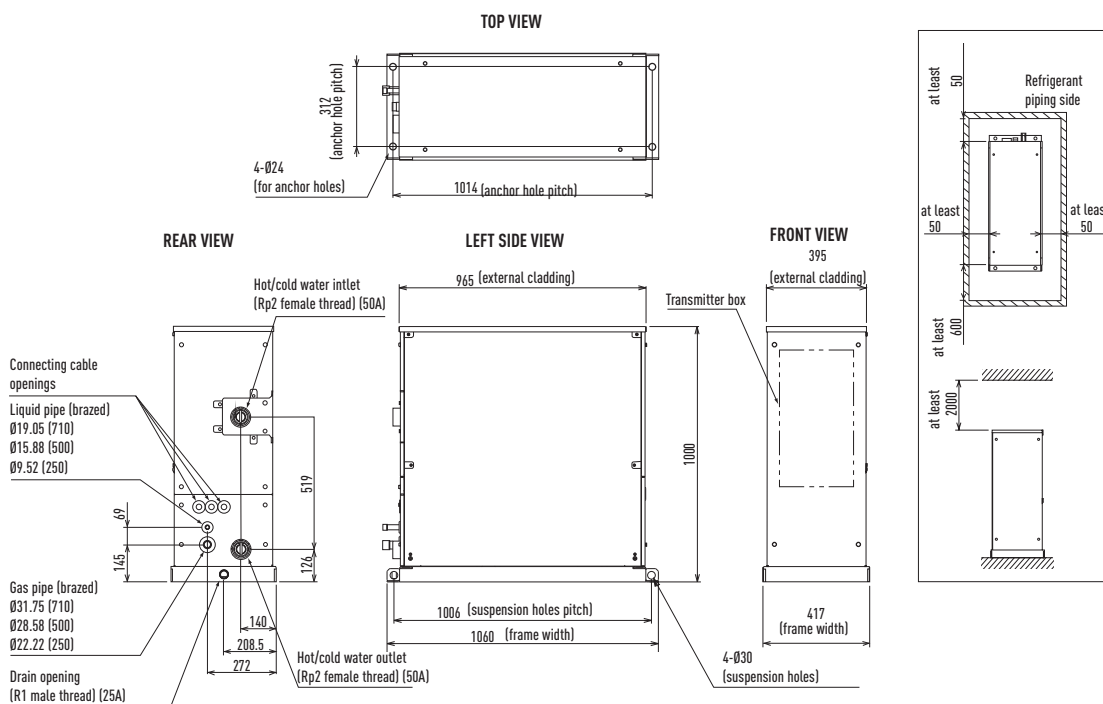
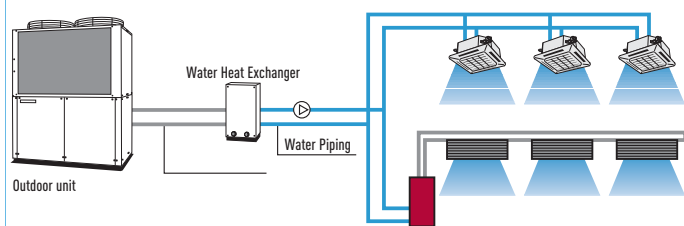
\* Only with indoors combination. Can not be used as 1 to 1.



### Combination system example

The GHP multi system can have indoor units with a GHP chiller. When the two systems are operated independently, an outdoor unit with 130% capacity can be connected.

### Standard system example



## NEW SQUAREA AIR RADIATORS

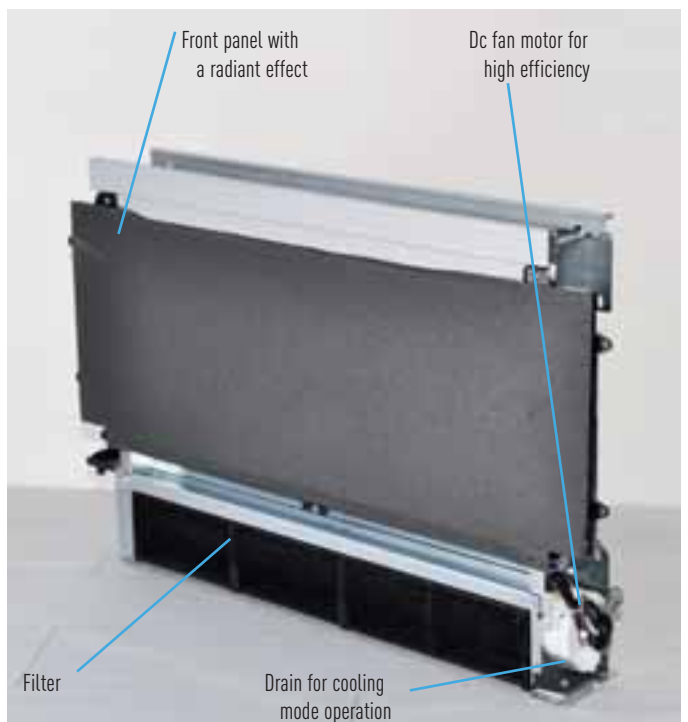
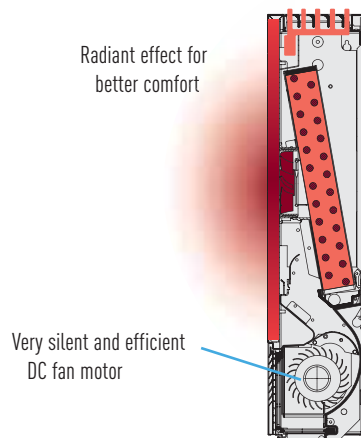
High efficiency climate control High Efficiency Radiators Aquarea Air radiators are extremely slim. With a depth of just under 13 cm they are at the cutting edge of the market. Blending easily into the home, Aquarea Air's elegant design, and product refinements are clear to see in every detail.

Its particular slimness has been obtained thanks to the innovative layout of the ventilation unit and the heat exchanger. The fan is tangential with asymmetric blades and the heat exchanger has large surface, enabling high airflows to be achieved with low pressure loss and low noise levels. Exceptional ventilation efficiency means the motor uses considerably less energy (low wattage). The fan speed is continuously modulated by the temperature controller with proportional integral logic, with undoubted advantages for regulating the temperature and humidity in summer mode.



Fan Coils for Heat Pump application		PAW-AAIR-200					PAW-AAIR-700					PAW-AAIR-900						
Total heating capacity	W	138	160	217	470	570	223	360	708	1032	1188	273	475	886	1420	1703		
Water flow	kg/h	23.7	27.5	37.3	80.8	98.0	38.4	61.9	121.8	177.5	204.3	47.0	81.7	152.4	244.2	292.9		
Water pressure drop	kPa	0.1	0.2	0.4	2.0	2.9	0.1	0.1	0.3	0.8	1.0	0.1	0.2	0.5	1.6	2.2		
Air flow	m³/h	28	37	55	113	162	44	84	155	252	320	54	110	248	367	461		
	Speed	Main	Fan Off	Super	Min	Med	Max	Main	Fan Off	Super	Min	Med	Max	Main	Fan Off	Super	Min	Med
Maximum input power	W	2	5	7	9	13	3	9	14	18	22	3	11	16	20	24		
Sound pressure level	dB(A)	17.6	18.8	24.7	33.2	39.4	18.4	19.6	25.8	34.1	40.2	18.4	22.3	26.2	34.4	42.2		
Inlet water temperature	°C	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35		
Outlet water temperature	°C	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30		
Inlet air temperature	°C	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19		
Outlet air temperature	°C	34.5	32.6	38.9	32.0	30.0	34.9	32.4	33.3	31.8	30.6	34.8	32.5	30.2	31.1	30.6		
Dimensions (H x W x D)	mm	735 x 576 x 129					935 x 579 x 129					1135 x 579 x 129						
Weight	kg	17					20					23						
3 ways valve included		Yes					Yes					Yes						
Touch screen thermostat		Yes					Yes					Yes						

During winter, the operating principle is based on micro fans of very low power consumption and minimum noise that send hot air, coming from the heat exchanger, to the inside of the front panel of the device and therefore heat it effectively. With this principle, the terminal also provides significant power while heating, without running the main fan. Comfort temperatures therefore maintained, without air movements and in silence. In summer mode, the airflow generated by the micro fans is stopped to avoid any dew formation on the terminal's front surface.





## AQUAREA AIR

### New line up of Super low temperature radiators for Heat Pump application:

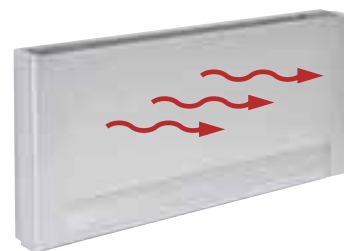
Aquarea Air 200/700/900 with radiating effect

#### Main features

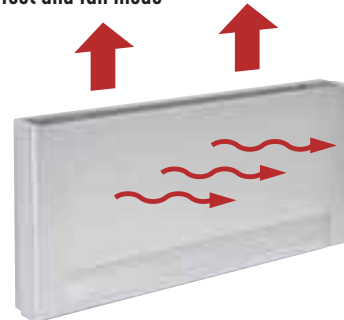
- Front panel heating with radiant effect
- High heating capacity (without main fan running)
- 4 fan speeds and capacities
- Exclusive design
- Extremely compact (only 12.9 cm deep)
- Cooling and dehumidification functions possible (drain is needed)
- 3-way valve included (no overflow valve needed on the installation if more than 3 radiators installed)
- Touch screen thermostat



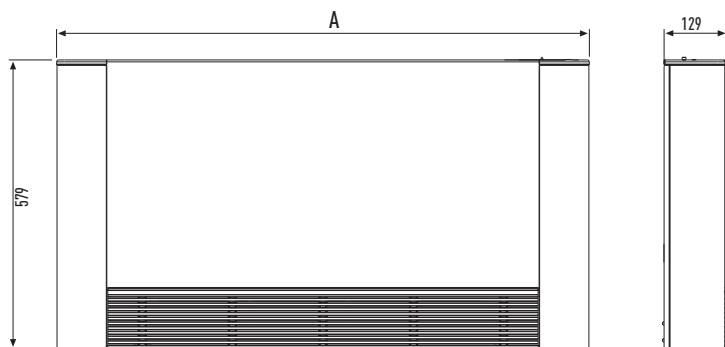
#### Operating on heating mode with radiator using only radiant effect



#### Operating on heating mode with radiant effect and fan mode



#### Operating on cooling mode with fan



	200R	700R	900R
A	735	935	1135

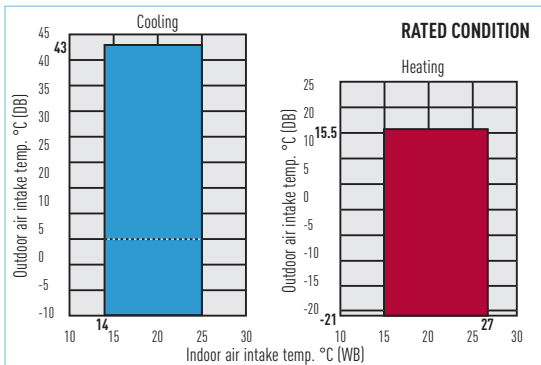
# FEATURES

## High technology features

Down to **-25 °C** in heating mode  
OUTDOOR TEMPERATURE

### Wider operation

Cooling can be performed throughout the year for computer rooms, banquet halls, etc. Wider operation range covers outdoor temperatures of as low as -10 °C DB for cooling and -21 °C WB for heating.



### Practical operation

AUTOMATIC RESTART

### Automatic restart function for power failure

Even when power failure occurs, preset programmed operation can be reactivated once power is resumed.

### Easy maintenance

SELF-DIAGNOSING

### Self-diagnosing function

By using electronic control valves past warnings are stored and can be verified on the liquid crystal display. This makes it easier to diagnose malfunctions, greatly reducing service labour and therefore costs.

## Simple, convenient features (Indoor Units)

For more comfort  
AUTOMATIC FAN

### Automatic fan operation

Convenient microprocessor control automatically adjusts fan speed to High, Medium or Low, corresponding to room sensor and maintains comfortable airflow throughout the room.

Comfort everywhere  
AIR SWEEP

### Air Sweep

The air sweep function moves the flap up and down in the air outlet, directing air in a "sweeping" motion around the room and providing comfort in every corner.

Perfect humidity control  
MILD DRY

### Mild dry

By intermittent control of compressor and indoor unit's fan, "New Mild Dry" gives you comfort. It realizes efficient dehumidification according to room temperature.

Easy to install  
BUILT-IN DRAIN PUMP

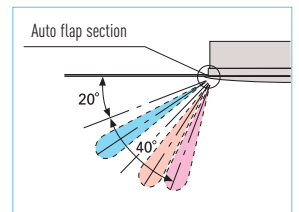
### Built-in drain pump

Maximum head 50 cm (or 75 cm for U type) from the bottom of the unit.

Further comfort  
AUTO-FLAP CONTROL

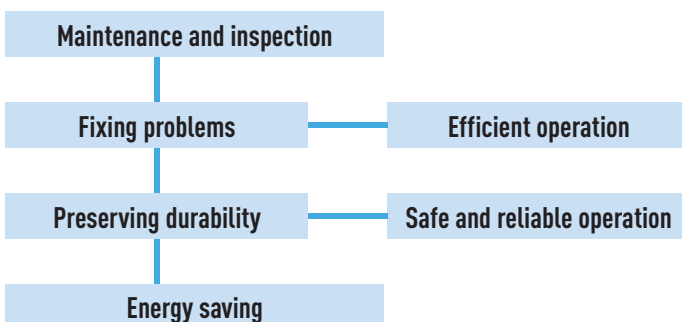
### Comfortable auto-flap control

When the unit is first turned on, flap position is automatically adjusted in accordance with the cooling or heating operation. This initial flap position can be preset within a certain range, for both cooling and heating. Auto button is included for continuous movement of flap to vary airflow direction.



## Maintenance and inspection is a must for gas heat pump air-conditioning systems.

Just like an automobile, a heat pump air-conditioning system requires periodic servicing so that it can perform efficiently.



## Main maintenance and inspection items

1. Changing the engine oil
2. Checking the coolant level
3. Inspecting the engine system
4. Checking the safety protection system
5. Checking and adjusting the running conditions, collecting operating data, etc.

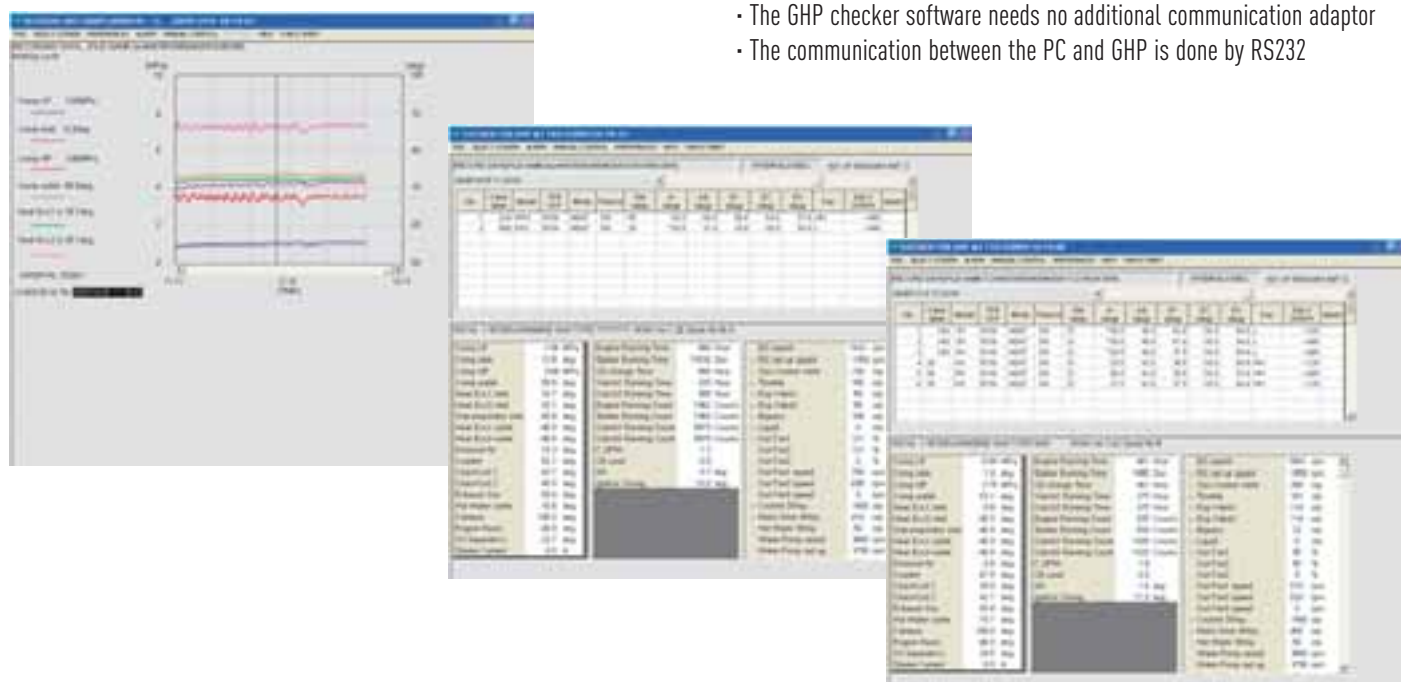
Since a heat pump air-conditioning system uses a gas engine as its power source, it should be periodically inspected to avoid trouble and keep it running efficiently. We recommend a maintenance contract for your Panasonic Gas Heat Pump, a great value because it not only ensures that problems will be fixed, but it helps reduce running costs and improve comfort and economical efficiency as well.

## PANASONIC'S DIAGNOSIS SOFTWARE

### GHP Checker Software

#### The handy tool for optimising the running of your system:

Diagnosis for start ups, maintenance and system supervising.



#### Features:

- Diagnosis with a PC
- Endless recording function allows analysis diagnosis even for long term running
- The GHP checker software needs no additional communication adaptor
- The communication between the PC and GHP is done by RS232

### Panasonic VRF Service Checker

Panasonic will make available to installers and commissioning companies the VRF Service Checker as a communication interface to Panasonic VRF systems. This easy to manage tool checks all parameters of the system.

#### The VRF Service Checker allows:

- On ECOi and Mini ECOi connect anywhere on the P-Link.
- Search the P-Link to validate systems that are connected.
- Monitor of all indoor and outdoor units simultaneously on 1 screen.
- Monitor all Temperature data, Pressure data , Valve position, and alarm status on 1 screen
- Data can be viewed in Graph or number format.
- Controlling the indoor unit ON/OFF, MODE, SET POINT, FAN, and TEST mode.
- Switching between various systems on same communication P-Link (ECOi only).
- Monitor and record at a set interval time.
- Record and review the data at a later date.
- Update software as ROM flash writer.

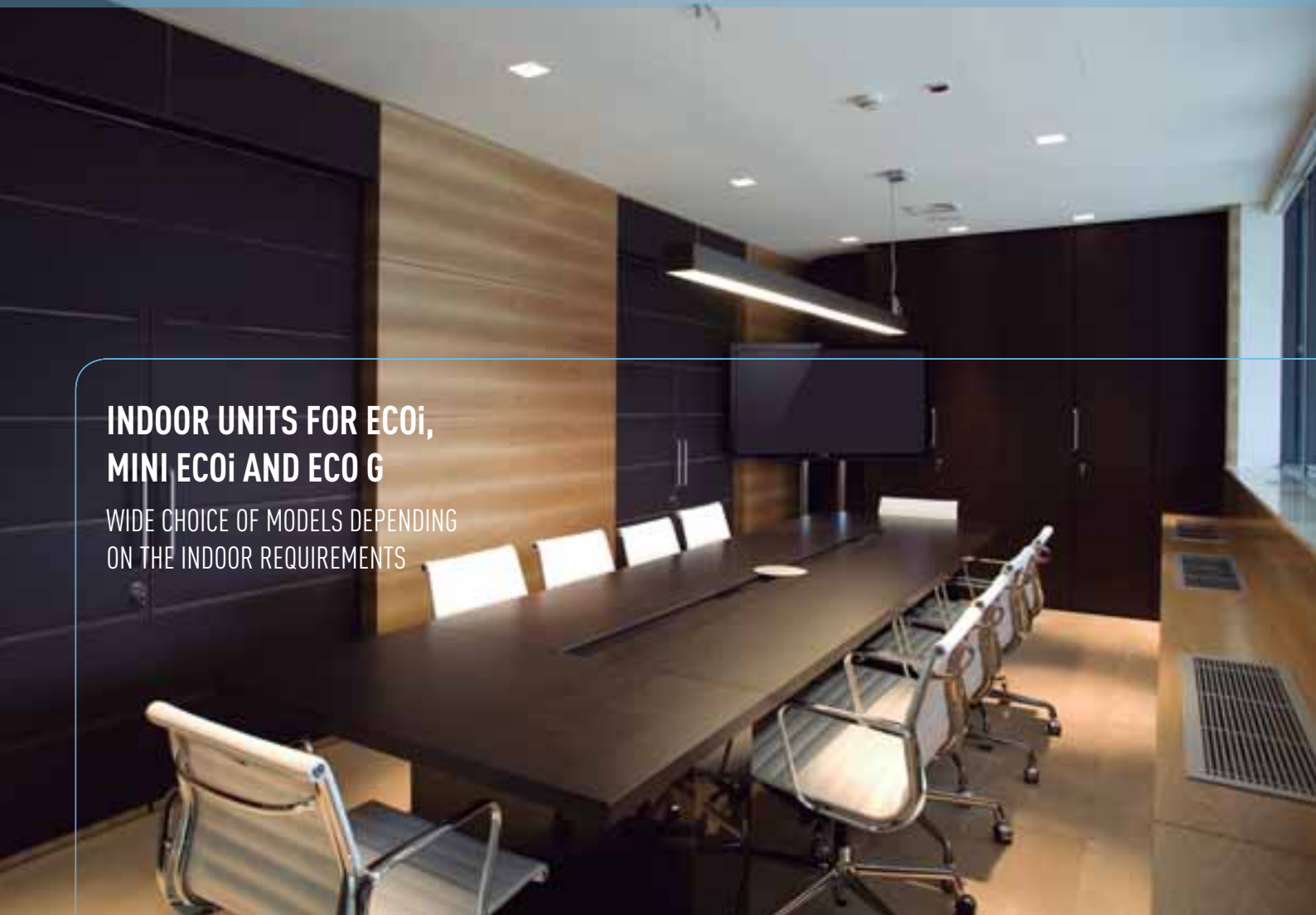
This Panasonic VRF Service Checker is available on your service partner.

#### INTERFACE BOX:



## INDOOR UNITS FOR ECOi, MINI ECOi AND ECO G

WIDE CHOICE OF MODELS DEPENDING  
ON THE INDOOR REQUIREMENTS

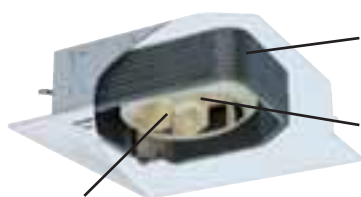




## 4 Way 90x90 Cassette

### Wide & Comfortable Airflow

This proprietary design has wide-angle discharge outlets and flaps are larger in the middle, featuring a shape based on a combination of geometrics and the testing of prototype units. Air coming out of the center of the discharge outlets travels farther. From the sides of each outlet, where the openings are larger, airflow spreads out to reach the corners of the room. Air is discharged across a wide area from the four sides of the unit. The curves on the room temperature distribution graph expand gently out through 360° in a circle centered on the indoor unit.



**HIGHER EFFICIENCY SPLIT FIN.**  
Improved heat-transfer coefficient due to adoption of high efficiently grooved heat exchanger tube.

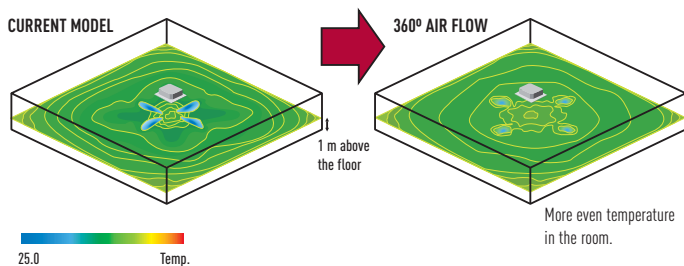
**NEW DC-FAN MOTOR.**  
It is realized more optimum air-flow by a new DC-fan motor with independent control.

**INDIVIDUAL FLAP CONTROL.**  
Flexible Air flow direction control by individual flap control is possible. 4 Flaps can be controlled individually by setting on wired timer remote controller. Several demands can be accommodated in one space.

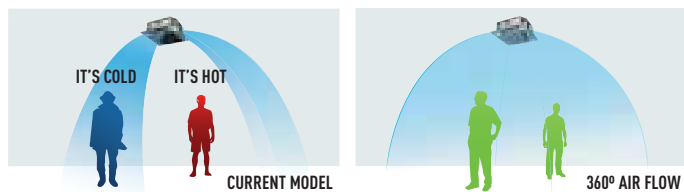
**HIGH-EFFICIENT & SILENT TURBO FAN.**  
It is realized more air volume and more silent due to new development of a bigger fan chassis than previous one and optimization design of airflow path.

### New 360° Air Flow for better comfort

By the new Design for the air-outlet and flap, Soft & 3D air flow circulates whole space and it keeps flat temperature distribution in the room.



Simulated condition: Floor area: 225 m<sup>2</sup>. Ceiling height: 3 m, Unit 5 HP type.



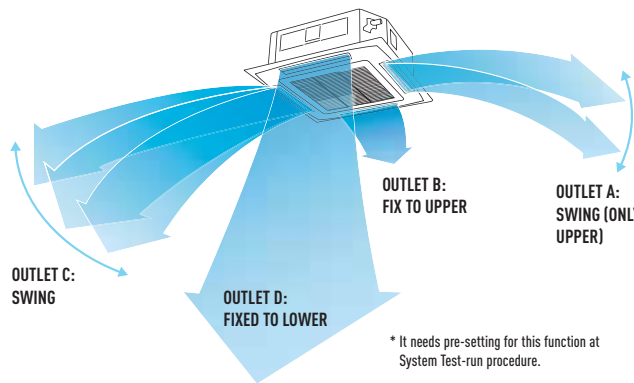
360°  
air flow



### Flexible 3D air-flow control

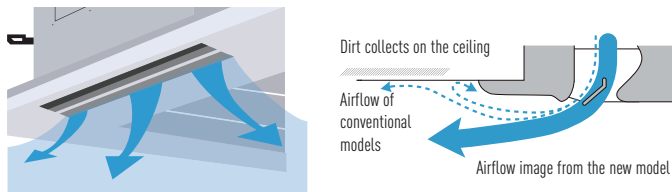
Comfort air flow control & proper energy use. Flexible Air flow direction control by individual flap control:

- 4 Flaps can be controlled individually (by standard wired remote controller\*).
- It can make more flexible Air-flow control to be matched to several demands can be accommodated in one space.





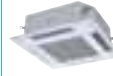

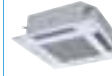

























































### New design





















Wide direction air discharge by outlet design. The Circle Flow Flap and redesigned air outlet eliminate airflow along recessed parts on the ceiling to reduce contamination. If air flows only along these recessed parts, they will quickly become dirty. These new features greatly reduce accumulations of dirt.



## VRF SYSTEMS INDOOR UNITS RANGE

	2.2 kW	2.8 kW	3.6 kW	4.5 kW	5.6 kW	6.0 kW	7.3 kW	8.4 kW	9.0 kW
U1 TYPE // 4-WAY 90x90 CASSETTE	 S-22MU1E51	 S-28MU1E51	 S-36MU1E51	 S-45MU1E51	 S-56MU1E51	 S-60MU1E51	 S-73MU1E51		 S-90MU1E51
Y1 TYPE // 4-WAY 60x60 CASSETTE	 S-22MY1E51	 S-28MY1E51	 S-36MY1E51	 S-45MY1E51	 S-56MY1E51				
L1 TYPE // 2-WAY CASSETTE	 S-22ML1E5	 S-28ML1E5	 S-36ML1E5	 S-45ML1E5	 S-56ML1E5		 S-73ML1E5		
D1 TYPE // 1-WAY CASSETTE		 S-28MD1E5	 S-36MD1E5	 S-45MD1E5	 S-56MD1E5		 S-73MD1E5		
F2 TYPE // VARIABLE STATIC PRESSURE HIDE AWAY	 S-22MF2E5	 S-28MF2E5	 S-36MF2E5	 S-45MF2E5	 S-56MF2E5	 S-60MF2E5	 S-73MF2E5		 S-90MF2E5
M1 TYPE // SLIM VARIABLE STATIC PRESSURE HIDE AWAY	 S-22MM1E51	 S-28MM1E51	 S-36MM1E51	 S-45MM1E51	 S-56MM1E51				
E1 TYPE // HIGH STATIC PRESSURE HIDE AWAY									
T1 TYPE // CEILING			 S-36MT1E5	 S-45MT1E5	 S-56MT1E5		 S-73MT1E5		
K2/K1 TYPE // WALL MOUNTED	 S-22MK2E5 <sup>1</sup> S-22MK1E5 <sup>2</sup>	 S-28MK2E5 <sup>1</sup> S-28MK1E5 <sup>2</sup>	 S-36MK2E5 <sup>1</sup> S-36MK1E5 <sup>2</sup>	 S-45MK1E5	 S-56MK1E5		 S-73MK1E5		
P1 TYPE // FLOOR STANDING	 S-22MP1E5	 S-28MP1E5	 S-36MP1E5	 S-45MP1E5	 S-56MP1E5		 S-71MP1E5		
R1 TYPE // CONCEALED FLOOR STANDING	 S-22MR1E5	 S-28MR1E5	 S-36MR1E5	 S-45MR1E5	 S-56MR1E5		 S-71MR1E5		
AHU CONNECTION KIT, 28 kW AND 56 kW FOR ECOi AND GHP		 CZ-280MAH1			 CZ-560MAH1			 CZ-280MAH1 + CZ-560MAH1	
AIR CURTAIN JET-FLOW									
AIR CURTAIN STANDARD									

Wide choice of models depending on the indoor requirements. 1 Available from June 2013. 2 Available until current stock ends.

10.6 kW	11.2 kW	12.5 kW	14.0 kW	16.0 kW	16.8 kW	20.0 kW	22.4 kW	25.0 kW	28.0 kW	30.0 kW
 S-106MU1E51			 S-140MU1E51	 S-160MU1E51						
 S-106MF2E5			 S-140MF2E5	 S-160MF2E5						
							 S-224ME1E5A		 S-280ME1E5	
 S-106MT1E5			 S-140MT1E5							
 S-106MK1E5										
	 CZ-560MAH1 x 2		 CZ-280MAH1 + CZ-560MAH1 x 2		 CZ-560MAH1 x 3					
		 PAW-10EAIRC-MJ				 PAW-15EAIRC-MJ		 PAW-20EAIRC-MJ		 PAW-25EAIRC-MJ
		 PAW-10EAIRC-MS				 PAW-20EAIRC-MS				

**U1 TYPE**  
4-WAY 90X90 CASSETTE  
SEMI CONCEALED CASSETTE



The award winning range of U1 type cassettes are smaller, shallower and lighter than previous models and feature a 950 x 950 mm panel throughout. The DC fan motor and air discharge louvre ensure quiet, optimum air distribution.

**Technical focus**

- Compact design
- Reduced sound levels (from previous models)
- DC fan motor for increased efficiency
- Powerful drain pump gives 850 mm lift
- Lightweight design
- Fresh air knockout
- Branch duct connection
- Optional air-intake plenum CZ-FDU2



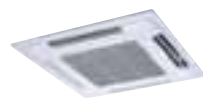
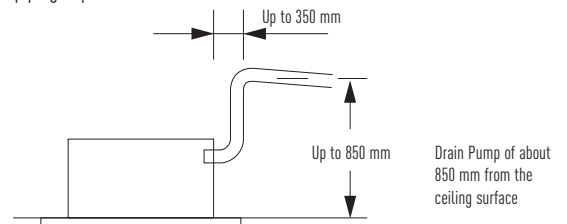
**Air intake chamber**

1. Air intake box CZ-BCU2 for main unit.
2. Air intake box CZ-ATU2\* for Air intake plenum.

\* When using Air intake box (CZ-ATU2), Air intake plenum (CZ-FDU2) is required.

**A drain height of approx. 850 mm from the ceiling surface**

The drain height can be increased by approximately 350 mm over the conventional value by using a high-lift drain pump, and long horizontal piping is possible.



**PANEL**  
CZ-KPU2



**OPTIONAL CONTROLLER**  
Timer remote controller  
CZ-RTC2



**OPTIONAL CONTROLLER**  
Wireless remote controller  
CZ-RWSU2  
CZ-RWSC2



**OPTIONAL CONTROLLER**  
Simplified remote controller  
CZ-RE2C2

MODEL NAME		S-22MU1E51	S-28MU1E51	S-36MU1E51	S-45MU1E51	S-56MU1E51	S-60MU1E51	S-73MU1E51	S-90MU1E51	S-106MU1E51	S-140MU1E51	S-160MU1E51
Power source		230 V / 1 phase / 50 Hz										
Cooling capacity	kW	2.2	2.8	3.6	4.5	5.6	6.0	7.3	9.0	10.6	14.0	16.0
Cooling power input	W	20	20	20	20	25	35	40	40	95	100	115
Cooling operating current	A	0.19	0.19	0.19	0.19	0.22	0.31	0.33	0.36	0.71	0.76	0.89
Heating capacity	kW	2.5	3.2	4.2	5.0	6.3	7.1	8.0	10.0	11.4	16.0	18.0
Heating power input	W	20	20	20	20	25	35	40	40	85	100	105
Heating operating current	A	0.17	0.17	0.17	0.17	0.20	0.30	0.32	0.34	0.65	0.73	0.80
Fan	Type	Turbo fan										
	Air flow rate (Hi)	m <sup>3</sup> /h	840	840	840	900	960	1,260	1,320	1,380	1,980	2,100
Sound pressure level (L/M/H)	dB(A)	28/29/30	28/29/30	28/29/30	28/29/31	28/30/33	29/32/36	29/32/37	32/35/38	34/38/44	35/39/45	38/40/46
Dimensions	H x W x D	256 (+33.5) x 840 (950) x 840 (950)									319 (+33.5) x 840 (950) x 840 (950)	
	Pipe connections	Liquid inches (mm)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)
	Gas inches (mm)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)
	Drain piping	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25
Net weight	kg	23	23	23	23	23	24	24	24	27	27	27

Rating Conditions: Cooling Indoor 27 °C DB / 19 °C WB. Cooling Outdoor 35 °C DB / 24 °C WB. Heating Indoor 20 °C DB. Cooling Outdoor 7 °C DB / 6 °C WB.  
DB: Dry Bulb; WB: Wet Bulb

<b>Energy saving</b> INVERTER+	<b>Environmentally friendly refrigerant</b> R410A	<b>Easy maintenance</b> SELF-DIAGNOSING	<b>For more comfort</b> AUTOMATIC FAN	<b>Perfect humidity control</b> MILD DRY	<b>Further comfort</b> AUTO-FLAP CONTROL	<b>Practical operation</b> AUTOMATIC RESTART	<b>Comfort everywhere</b> AIR SWEEP	<b>Easy to install</b> BUILT-IN DRAIN PUMP	<b>Easy control</b> CONNECTIVITY
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# Y1 TYPE

## 4-WAY 60X60 CASSETTE

### MINI SEMI CONCEALED CASSETTE



Designed to fit exactly into a 600 x 600 mm ceiling grid without the need to alter the bar configuration, the Y1 is ideal for small commercial and retrofit applications. In addition, the improvements to efficiency make this one of the most advanced units in the industry.

#### Technical focus

- Mini cassette fits into a 600x600 mm ceiling grid
- Fresh air knock out
- Multidirectional air flow
- Anti-mould and anti-bacteria washable filters
- Powerful drain pump gives 850 mm lift
- Turbo fans and heat exchanger fins with improved design
- DC fan motors with variable speed, new heat exchangers, etc. ensure an efficient power consumption

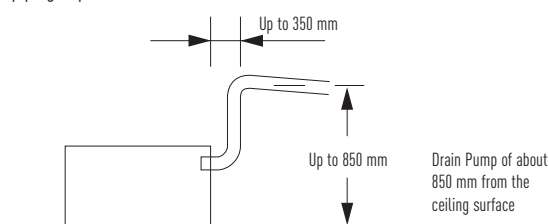
#### Special designed flap

The flap can be removed easily for washing with water.

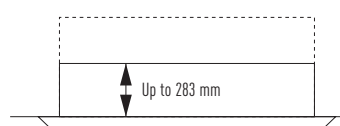


#### A drain height of approx. 850 mm from the ceiling surface

The drain height can be increased by approximately 350 mm over the conventional value by using a high-lift drain pump, and long horizontal piping is possible.



A lightweight unit at 18.4 kg the unit is also very slim with a height of only 283 mm, making installation possible even in narrow ceilings.



PANEL  
CZ-KPY21



OPTIONAL CONTROLLER  
Timer remote controller  
CZ-RTC2



OPTIONAL CONTROLLER  
Wireless remote controller  
CZ-RWSU2  
CZ-RWSC2



OPTIONAL CONTROLLER  
Simplified remote controller  
CZ-RE2C2

MODEL NAME		S-22MY1E51	S-28MY1E51	S-36MY1E51	S-45MY1E51	S-56MY1E51	
Power source		230 V / 1 phase / 50 Hz					
Cooling capacity	kW	2.2	2.8	3.6	4.7	5.6	
Cooling power input	W	25	25	27	31	38	
Cooling operating current	A	0.16	0.16	0.18	0.21	0.29	
Heating capacity	kW	2.5	3.2	4.2	5.0	6.3	
Heating power input	W	15	15	17	21	29	
Heating operating current	A	0.13	0.13	0.15	0.18	0.26	
Fan	Type	Centrifugal fan	Centrifugal fan	Centrifugal fan	Centrifugal fan	Centrifugal fan	
	Air flow rate (H/M/L)	m³/h	480 / 420 / 360	480 / 420 / 360	540 / 480 / 420	640 / 510 / 450	750 / 630 / 540
Sound pressure level (L/M/H)	dB(A)	25 / 27 / 30	25 / 27 / 30	26 / 29 / 32	28 / 32 / 36	33 / 37 / 41	
Dimensions	H x W x D	mm	283+(30) x 575 (625) x 575 (625)	283+(30) x 575 (625) x 575 (625)	283+(30) x 575 (625) x 575 (625)	283+(30) x 575 (625) x 575 (625)	283+(30) x 575 (625) x 575 (625)
Pipe connections	Liquid	inches (mm)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)
	Gas	inches (mm)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)
	Drain piping		VP-20	VP-20	VP-20	VP-20	VP-20
Net weight	kg	18.4	18.4	18.4	18.4	18.4	

Rating Conditions: Cooling Indoor 27 °C DB / 19 °C WB. Cooling Outdoor 35 °C DB / 24 °C WB. Heating Indoor 20 °C DB. Cooling Outdoor 7 °C DB / 6 °C WB.  
DB: Dry Bulb; WB: Wet Bulb

<b>Energy saving</b>	<b>Environmentally friendly refrigerant</b>	<b>Easy maintenance</b>	<b>For more comfort</b>	<b>Perfect humidity control</b>	<b>Further comfort</b>	<b>Practical operation</b>	<b>Comfort everywhere</b>	<b>Easy to install</b>	<b>Easy control</b>
INVERTER+	R410A	SELF-DIAGNOSING	AUTOMATIC FAN	MILD DRY	AUTO-FLAP CONTROL	AUTOMATIC RESTART	AIR SWEEP	BUILT-IN DRAIN PUMP	CONNECTIVITY

L1 TYPE  
2-WAY CASSETTE



Slim, compact and lightweight units. Remarkable size and weight reductions have been achieved by improvement of the design around the fan, the weight of all models now being 30 kg.

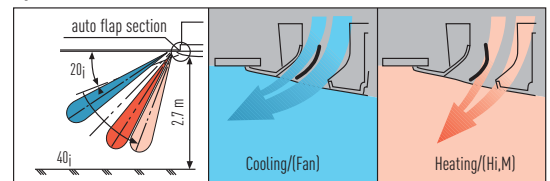
**Technical focus**

- Airflow and distribution is automatically altered depending on the operational mode of the unit
- Drain up is possible up to 500 mm from the drain port
- Simple maintenance

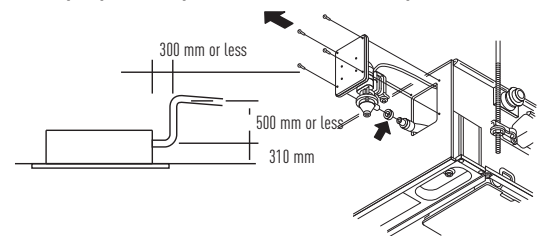
**Simple maintenance**

The drain pan is equipped with site wiring and can be removed. The fan case has a split construction, and the fan motor can be removed easily when the lower case is removed.

**Airflow and distribution is automatically altered depending on the operational mode of the unit.**



**Drain up is possible up to 500 mm from the drain port.**



Maintenance of the drain pump is possible from two sides, from the left side (piping side) and from the inside of the unit.



**PANEL**  
CZ-02KPL2  
Big size panel (for S-73ML1E5)  
CZ-03KPL2



**OPTIONAL CONTROLLER**  
Timer remote controller  
CZ-RTC2



**OPTIONAL CONTROLLER**  
Wireless remote controller  
CZ-RWSL2  
CZ-RWSC2



**OPTIONAL CONTROLLER**  
Simplified remote controller  
CZ-RE2C2

MODEL NAME		S-22ML1E5	S-28ML1E5	S-36ML1E5	S-45ML1E5	S-56ML1E5	S-73ML1E5
Power source		230 V / 1 phase / 50 Hz					
Cooling capacity	kW	2.2	2.8	3.6	4.5	5.6	7.3
Cooling power input	W	90	92	93	97	97	145
Cooling operating current	A	0.45	0.45	0.45	0.45	0.45	0.65
Heating capacity	kW	2.5	3.2	4.2	5.0	6.3	8.0
Heating power input	W	58	60	61	65	65	109
Heating operating current	A	0.29	0.29	0.29	0.29	0.29	0.48
Fan	Type	Sirocco fan					
	Air flow rate (H/M/L)	m <sup>3</sup> /h	480 / 420 / 360	540 / 480 / 420	580 / 520 / 460	660 / 540 / 480	660 / 540 / 480
Sound pressure level (L/M/H)	dB(A)	24 / 27 / 30		26 / 29 / 33	28 / 31 / 34	29 / 33 / 35	33 / 35 / 38
Dimensions	H x W x D	mm					
Pipe connections	Liquid	inches (mm)	1/4 (6.35)		1/4 (6.35)	1/4 (6.35)	1/4 (6.35)
	Gas	inches (mm)	1/2 (12.7)		1/2 (12.7)	1/2 (12.7)	5/8 (15.88)
	Drain piping		VP-25		VP-25	VP-25	VP-25
Net weight	kg	28.5	28.5	28.5	28.5	28.5	39

Rating Conditions: Cooling Indoor 27 °C DB / 19 °C WB. Cooling Outdoor 35 °C DB / 24 °C WB. Heating Indoor 20 °C DB. Cooling Outdoor 7 °C DB / 6 °C WB.  
DB: Dry Bulb; WB: Wet Bulb

<b>Energy saving</b>	<b>Environmentally friendly refrigerant</b>	<b>Easy maintenance</b>	<b>For more comfort</b>	<b>Perfect humidity control</b>	<b>Further comfort</b>	<b>Practical operation</b>	<b>Comfort everywhere</b>	<b>Easy to install</b>	<b>Easy control</b>
INVERTER+	R410A	SELF-DIAGNOSING	AUTOMATIC FAN	MILD DRY	AUTO-FLAP CONTROL	AUTOMATIC RESTART	AIR SWEEP	BUILT-IN DRAIN PUMP	CONNECTIVITY

# D1 TYPE 1-WAY CASSETTE

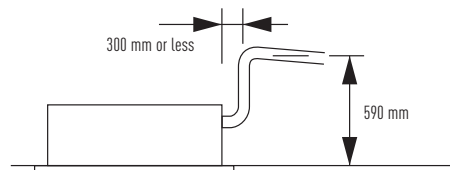


Designed for installation within the ceiling void, the D1 range of slimline 1 way blow cassettes feature powerful yet quiet fans for up to 4.2 m.

### Technical focus

- Ultra-Slim
- Suitable for standard and high ceilings
- Built-in drain pump provides 590 mm lift
- Easy to install and maintain
- Hanging height can be easily adjusted
- Uses a DC fan motor to improve energy-efficiency

### Drain height



**PANEL**  
CZ-KP02



**OPTIONAL CONTROLLER**  
Timer remote controller  
CZ-RTC2



**OPTIONAL CONTROLLER**  
Wireless remote controller  
CZ-RWST2  
CZ-RWSC2



**OPTIONAL CONTROLLER**  
Simplified remote controller  
CZ-RE2C2

MODEL NAME		S-28MD1E5	S-36MD1E5	S-45MD1E5	S-56MD1E5	S-73MD1E5
Power source		230 V / 1 phase / 50 Hz				
Cooling capacity	kW	2.8	3.6	4.5	5.6	7.3
Cooling power input	W	51	51	51	58	87
Cooling operating current	A	0.39	0.39	0.39	0.46	0.7
Heating capacity	kW	3.2	4.2	5.0	6.3	8.0
Heating power input	W	40	40	40	48	76
Heating operating current	A	0.35	0.35	0.35	0.41	0.65
Fan	Type	Sirocco fan				
	Air flow rate (H/M/L)	m <sup>3</sup> /h	720 / 600 / 540	720 / 600 / 540	720 / 660 / 600	780 / 690 / 600
Sound pressure level (L/M/H)	dB(A)	33 / 34 / 36				
Dimensions	H x W x D	mm				
		200+(20) x 1,000 (1,230) x 710 (800)	200+(20) x 1,000 (1,230) x 710 (800)	200+(20) x 1,000 (1,230) x 710 (800)	200+(20) x 1,000 (1,230) x 710 (800)	200+(20) x 1,000 (1,230) x 710 (800)
Pipe connections	Liquid	inches (mm)	1/4 (6.35)		1/4 (6.35)	
	Gas	inches (mm)	1/2 (12.7)		1/2 (12.7)	
	Drain piping		VP-25		VP-25	
Net weight	kg	26.5	26.5	26.5	26.5	27.5

Rating Conditions: Cooling Indoor 27 °C DB / 19 °C WB. Cooling Outdoor 35 °C DB / 24 °C WB. Heating Indoor 20 °C DB. Cooling Outdoor 7 °C DB / 6 °C WB.  
DB: Dry Bulb; WB: Wet Bulb

<b>Energy saving</b>	<b>Environmentally friendly refrigerant</b>	<b>Easy maintenance</b>	<b>For more comfort</b>	<b>Perfect humidity control</b>	<b>Further comfort</b>	<b>Practical operation</b>	<b>Comfort everywhere</b>	<b>Easy to install</b>	<b>Easy control</b>
INVERTER+	R410A	SELF-DIAGNOSING	AUTOMATIC FAN	MILD DRY	AUTO-FLAP CONTROL	AUTOMATIC RESTART	AIR SWEEP	BUILT-IN DRAIN PUMP	CONNECTIVITY

F2 TYPE  
VARIABLE  
STATIC  
PRESSURE  
HIDE AWAY



S-22MF2E5 // S-28MF2E5 // S-36MF2E5 // S-45MF2E5 // S-56MF2E5

S-60MF2E5 // S-73MF2E5 // S-90MF2E5

S-106MF2E5 // S-140MF2E5 // S-160MF2E5

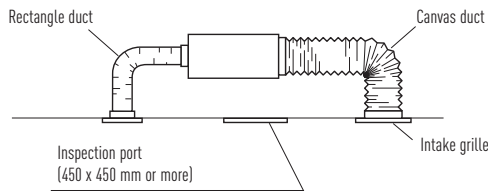
The new F2 type is designed specifically for applications requiring fixed square ducting. The internal filter is equipped as standard.

**Technical focus**

- Industry-leading low sound levels from 25 dB(A)
- Built-in drain pump provides 785 mm lift
- Easy to install and maintain
- Air off sensor avoids cold air dumping
- Configurable air temperature control
- Anti-mould washable filters included

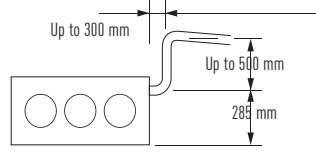
**System example**

An inspection port (450 x 450 mm or more) is required at the lower side of the indoor unit body.



**More powerful drain pump**

Using a high-lift drain pump, drain piping can be elevated up to 785 mm from the base of the unit.



**OPTIONAL CONTROLLER**  
Timer remote controller  
CZ-RTC



**OPTIONAL CONTROLLER**  
Wireless remote controller  
CZ-RWSC2



**OPTIONAL CONTROLLER**  
Simplified remote controller  
CZ-RELC2

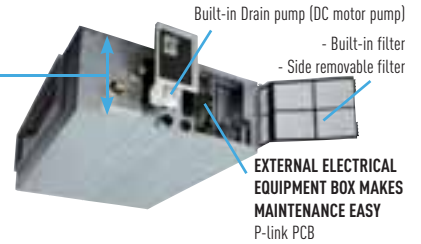


**OPTIONAL CONTROLLER**  
Simplified remote controller  
CZ-RE2C2

**New Variable Static Pressure Hide Away MF2 series**

**STANDARDIZED HEIGHT OF 290 mm FOR ALL MODELS**

Height standardization enables easy and uniform installation for models with different capacities.



**Lowest noise levels in the industry.**

The static pressure outside the unit can be increased. New DC fan motor is adopted to new unit. External static pressure is available up to 150 Pa.

\*No booster cable is needed.

TYPE	22-90	106-160
Standard	70 Pa	100 Pa
Range	10-150 Pa	10-150 Pa

**Air Outlet & Inlet Plenum**

S-...MF2E5	Diameters	Air Outlet Plenum	Diameters	Air Inlet Plenum
22, 28, 36, 45 & 56	2 x ø 200	CZ-56DAF2	2 x ø 200	CZ-DUMPA56MF2
60, 73 & 90	3 x ø 200	CZ-90DAF2	2 x ø 250	CZ-DUMPA90MF2
106, 140 & 160	4 x ø 200	CZ-160DAF2	4 x ø 200	CZ-DUMPA160MF2



Air Outlet Plenum



Air Inlet Plenum

MODEL NAME		S-22MF2E5	S-28MF2E5	S-36MF2E5	S-45MF2E5	S-56MF2E5	S-60MF2E5	S-73MF2E5	S-90MF2E5	S-106MF2E5	S-140MF2E5	S-160MF2E5	
Power source		230 V / 1 phase / 50 Hz											
Cooling capacity	kW	2.2	2.8	3.6	4.5	5.6	6.0	7.3	9.0	10.6	14.0	16.0	
Cooling power input	W	70	70	70	70	100	120	120	135	195	215	225	
Cooling operating current	A	0.57	0.57	0.57	0.57	0.74	0.89	0.89	0.97	1.30	1.44	1.50	
Heating capacity	kW	2.5	3.2	4.2	5.0	6.3	7.1	8.0	10.0	11.4	16.0	18.0	
Heating power input	W	70	70	70	100	100	120	120	135	200	210	225	
Heating operating current	A	0.57	0.57	0.57	0.57	0.74	0.89	0.89	0.97	1.30	1.44	1.50	
Fan	Type	Sirocco fan											
	Air flow rate (Hi)	m <sup>3</sup> /h	840	840	840	840	960	1,260	1,260	1,500	1,920	2,040	2,160
	External static pressure	Pa	70 (10-150)	70 (10-150)	70 (10-150)	70 (10-150)	70 (10-150)	70 (10-150)	70 (10-150)	70 (10-150)	100 (10-150)	100 (10-150)	100 (10-150)
Sound power level (L/M/H)	dB	47/51/55	47/51/55	47/51/55	50/54/56	50/54/56	48/54/57	48/54/57	50/56/59	53/56/60	54/57/61	55/58/62	
Sound pressure level (L/M/H/(H-booster))	dB(A)	25/29/33	25/29/33	25/29/33	28/32/34	28/32/34	26/32/35	26/32/35	28/34/37	31/34/38	32/35/39	33/36/40	
Dimensions	H x W x D	290x800x700											
		290x800x700											
Pipe connections	Liquid	inches (mm)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	
	Gas	inches (mm)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)	
	Drain piping		VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	
Net weight	kg	29	29	29	29	29	34	34	34	46	46	46	

Rating Conditions: Cooling Indoor 27 °C DB / 19 °C WB. Cooling Outdoor 35 °C DB / 24 °C WB. Heating Indoor 20 °C DB. Cooling Outdoor 7 °C DB / 6 °C WB. DB: Dry Bulb; WB: Wet Bulb

<b>Energy saving</b>	<b>Environmentally friendly refrigerant</b>	<b>Easy maintenance</b>	<b>For more comfort</b>	<b>Perfect humidity control</b>	<b>Practical operation</b>	<b>Easy to install</b>	<b>Easy control</b>
INVERTER+	R410A	SELF-DIAGNOSING	AUTOMATIC FAN	MILD DRY	AUTOMATIC RESTART	BUILT-IN DRAIN PUMP	CONNECTIVITY



## M1 TYPE

### SLIM VARIABLE STATIC PRESSURE HIDE AWAY CONCEALED DUCT



The ultra slim M1 type is one of the leading products of its type in the industry. With a depth of only 200 mm it provides greater flexibility and can be used in far more applications. In addition, its high-efficiency and extremely quiet sound levels make it very popular with many users, including hotels and small offices.

#### Technical focus

- Ultra-slim profile: 200 mm for all models
- DC fan motor greatly reduces power consumption
- Ideal for hotel application with very narrow false ceilings
- Anti-mould washable filters included
- Easy maintenance and service by external electrical box
- 40 Pa static pressure enables ductwork to be fitted.
- Includes drain pump

#### Air Outlet & Inlet Plenum

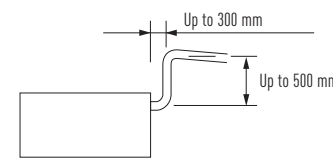
S-...MM1E51	Diameters	Air Outlet Plenum	Diameters	Air Inlet Plenum
22, 28 & 36	2 x $\varnothing$ 200	CZ-DUMPA22MMS2	2 x $\varnothing$ 200	CZ-DUMPA22MMR2
45 & 56	3 x $\varnothing$ 160	CZ-DUMPA45MMS3	2 x $\varnothing$ 200	CZ-DUMPA22MMR3

#### Ultra-slim profile for all models



#### Drain pump with increased power!

By adoption of a high-lift drain pump, the drain piping rise height can be increased to 785 mm from the lower surface of the body.



PANEL  
CZ-KPUZ



OPTIONAL CONTROLLER  
Timer remote controller  
CZ-RTC2



OPTIONAL CONTROLLER  
Wireless remote controller  
CZ-RWSC2



OPTIONAL CONTROLLER  
Simplified remote controller  
CZ-RE2C2

MODEL NAME		S-22MM1E51	S-28MM1E51	S-36MM1E51	S-45MM1E51	S-56MM1E51	
Power source		230 V / 1 phase / 50 Hz					
Cooling capacity	kW	2.2	2.8	3.6	4.5	5.6	
Cooling power input	W	36	40	42	49	64	
Cooling operating current	A	0.26	0.30	0.31	0.37	0.48	
Heating capacity	kW	2.5	3.2	4.2	5.0	6.3	
Heating power input	W	26	30	32	39	54	
Heating operating current	A	0.23	0.27	0.28	0.34	0.45	
Fan	Type	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	
	Air flow rate (H/M/L)	m <sup>3</sup> /h	480 / 420 / 360	510 / 450 / 390	540 / 480 / 420	630 / 570 / 480	750 / 690 / 600
	External static pressure	Pa	10 (30)	15 (30)	15 (40)	15 (40)	15 (40)
Sound pressure level (L/M/H)	dB(A)	25 / 27 / 28 (27 / 29 / 30) <sup>1</sup>	27 / 29 / 30 (29 / 31 / 32) <sup>1</sup>	28 / 30 / 32 (30 / 32 / 34) <sup>1</sup>	30 / 32 / 34 (32 / 34 / 36) <sup>1</sup>	31 / 33 / 35 (32 / 35 / 37) <sup>1</sup>	
Dimensions	H x W x D	mm	200 x 750 x 640	200 x 750 x 640	200 x 750 x 640	200 x 750 x 640	
Pipe connections	Liquid	inches (mm)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	
	Gas	inches (mm)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	
	Drain piping		VP-20	VP-20	VP-20	VP-20	
Net weight	kg	19	19	19	19	19	

1. With booster cable using short circuit connection.

Energy saving INVERTER+	Environmentally friendly refrigerant R410A	Easy maintenance SELF-DIAGNOSING	For more comfort AUTOMATIC FAN	Perfect humidity control MILD DRY	Practical operation AUTOMATIC RESTART	Comfort everywhere AIR SWEEP	Easy to install BUILT-IN DRAIN PUMP	Easy control CONNECTIVITY
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Rating Conditions: Cooling Indoor 27 °C DB / 19 °C WB. Cooling Outdoor 35 °C DB / 24 °C WB. Heating Indoor 20 °C DB. Cooling Outdoor 7 °C DB / 6 °C WB.  
DB: Dry Bulb; WB: Wet Bulb

**E1 TYPE**  
HIGH STATIC PRESSURE  
HIDE AWAY



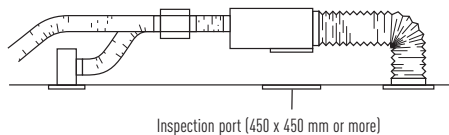
The E1 range of ducted units offers improved design flexibility for extended duct layouts as a result of their increased external static pressures.

**Technical focus**

- Complete flexibility for ductwork design
- Can be located into a weatherproof housing for external siting
- Air off sensor avoids cold air dumping
- Configurable air temperature control

**System example**

An inspection port (450 x 450 mm or more) is required at the lower side of the indoor unit body (field supply).



**Rap valve kit CZ-P160RVK2**

The types 224 and 280 require two rap valve kits for each unit. (not required on a 1:1 installation)



**Plenums**

AIR OUTLET PLENUM (SUITABLE FOR RIGID + FLEXIBLE DUCT)		
	N. of exits with diameters	Model
S-224ME1E5A / S-280ME1E5	1 x 500 mm	CZ-TREMIESPW706



**OPTIONAL CONTROLLER**  
Timer remote controller  
CZ-RTC2



**OPTIONAL CONTROLLER**  
Wireless remote controller  
CZ-RWSC2



**OPTIONAL CONTROLLER**  
Simplified remote controller  
CZ-RE2C2

MODEL NAME		S-224ME1E5A	S-280ME1E5
Power source		230 V / 1 phase / 50 Hz	
Cooling capacity	kW	22.4	28.0
Cooling power input	W	1310	1330
Cooling operating current	A	5.98	6.06
Heating capacity	kW	25.0	31.5
Heating power input	W	1310	1330
Heating operating current	A	5.98	6.06
Fan	Type	Sirocco fan	
	Air flow rate (H/M/L)	m <sup>3</sup> /h 4,320 / 4,200 / 3,960	
	External static pressure	Pa 216 (235) <sup>1</sup>	
Sound pressure level (L/M/H)	dB(A)	49 / 50 / 51 (50 / 51 / 52) <sup>1</sup>	
Dimensions	H x W x D	mm 479 x 1,428 x 1,230	
Pipe connections	Liquid	inches (mm) 3/8 (9.52)	
	Gas	inches (mm) 7/8 (22.22)	
	Drain piping	VP-25	
Net weight	kg	120	

<sup>1</sup> With booster cable.

<b>Energy saving</b> INVERTER+	<b>Environmentally friendly refrigerant</b> R410A	<b>Easy maintenance</b> SELF-DIAGNOSING	<b>For more comfort</b> AUTOMATIC FAN	<b>Perfect humidity control</b> MILD DRY	<b>Practical operation</b> AUTOMATIC RESTART	<b>Easy control</b> CONNECTIVITY
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Rating Conditions: Cooling Indoor 27 °C DB / 19 °C WB. Cooling Outdoor 35 °C DB / 24 °C WB. Heating Indoor 20 °C DB. Cooling Outdoor 7 °C DB / 6 °C WB. DB: Dry Bulb; WB: Wet Bulb

# T1 TYPE CEILING



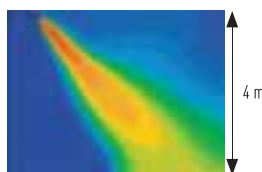
The T1 type ceiling mounted unit feature a DC fan motor for increased efficiency and reduced operating sound levels. All the units are the same height and depth for a uniform appearance in mixed installations and feature a fresh air knockout for improved air quality.

### Technical focus

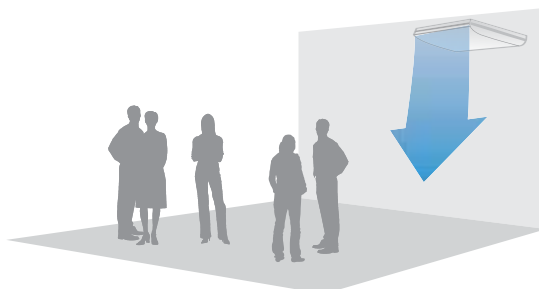
- Low sound levels
- New design, all units just 210 mm high
- Large and wide air distribution
- Easy to install and maintain
- Fresh air knockout

### Further comfort improvement

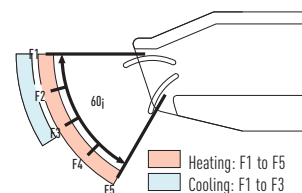
The wide air discharge opening widens the air flow to the left and the right, so that a comfortable temperature is obtained in the entire room. The unpleasant feeling caused when the air flow directly hits the human body is prevented by the "Draft prevention position", which changes the swing width, so that the degree of comfort is increased.



### Further comfort improvement with airflow distribution



Air distribution is automatically altered depending on the operational mode of the unit



**OPTIONAL CONTROLLER**  
Timer remote controller  
CZ-RTC2



**OPTIONAL CONTROLLER**  
Wireless remote controller  
CZ-RWST2  
CZ-RWSC2



**OPTIONAL CONTROLLER**  
Simplified remote controller  
CZ-RE2C2

MODEL NAME		S-36MT1E5	S-45MT1E5	S-56MT1E5	S-73MT1E5	S-106MT1E5	S-140MT1E5
Power source		230 V / 1 phase / 50 Hz					
Cooling capacity	kW	3.6	4.5	5.6	7.3	10.6	14.0
Cooling power input	W	29	29	32	43	74	86
Cooling operating current	A	0.24	0.24	0.26	0.35	0.57	0.63
Heating capacity	kW	4.2	5.0	6.3	8.0	11.4	16.0
Heating power input	W	28	28	31	42	73	85
Heating operating current	A	0.24	0.24	0.26	0.35	0.57	0.63
Fan	Type	Sirocco fan					
	Air flow rate (H/M/L)	m³/h	720 / 600 / 540	780 / 660 / 540	780 / 660 / 540	1,110 / 900 / 840	1,650 / 1,380 / 1,200
Sound pressure level (L/M/H)	dB(A)	30 / 32 / 35	30 / 33 / 36	30 / 33 / 36	33 / 36 / 38	35 / 38 / 41	37 / 40 / 43
Dimensions	H x W x D	mm	210 x 910 x 680	210 x 910 x 680	210 x 910 x 680	210 x 1,180 x 680	210 x 1,595 x 680
Pipe connections	Liquid	inches (mm)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	3/8 (9.52)	3/8 (9.52)
	Gas	inches (mm)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	5/8 (15.88)	5/8 (15.88)
	Drain piping		VP-20	VP-20	VP-20	VP-20	VP-20
Net weight	kg	21	21	21	25	33	33

<b>Energy saving</b> INVERTER+	<b>Environmentally friendly refrigerant</b> R410A	<b>Easy maintenance</b> SELF-DIAGNOSING	<b>For more comfort</b> AUTOMATIC FAN	<b>Perfect humidity control</b> MILD DRY	<b>Further comfort</b> AUTO-FLAP CONTROL	<b>Practical operation</b> AUTOMATIC RESTART	<b>Comfort everywhere</b> AIR SWEEP	<b>Easy control</b> CONNECTIVITY
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Rating Conditions: Cooling Indoor 27 °C DB / 19 °C WB. Cooling Outdoor 35 °C DB / 24 °C WB. Heating Indoor 20 °C DB. Cooling Outdoor 7 °C DB / 6 °C WB.  
DB: Dry Bulb; WB: Wet Bulb

## K2/K1 TYPE WALL MOUNTED



S-22MK2E5 / S-28MK2E5 / S-36MK2E5



S-22MK1E5 / S-28MK1E5 / S-36MK1E5



S-45MK1E5 / S-56MK1E5 / S-73MK1E5 / S-106MK1E5



**EXTERNAL VALVE (OPTIONAL)**  
CZ-P56SVK2 (model sizes 22 to 56)  
CZ-P160SVK2 (model sizes 73 to 106)



**OPTIONAL CONTROLLER**  
Timer remote controller  
CZ-RTC2



**OPTIONAL CONTROLLER**  
Wireless remote controller  
CZ-RWSK2



**OPTIONAL CONTROLLER**  
Simplified remote controller  
CZ-RE2C2

The K2/K1 Type wall mounted unit has a stylish smooth panel which not only looks good but is also easy to clean. The unit is also smaller, lighter and substantially quieter than previous models making it ideal for small offices and other commercial applications.

### Technical focus

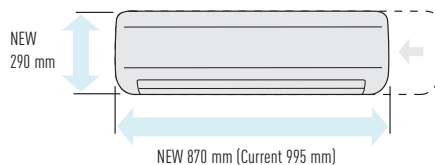
- Closed discharge port
- Lighter and smaller units make the installation easy
- Quiet operation
- Smooth and durable design
- Piping outlet in three directions
- Washable front panel
- Air distribution is automatically altered depending on the operational mode of the unit
- Anti-mould filters are standard

### Closed discharge port

When the unit is turned off, the flap closes completely to prevent entry of dust into the unit and to keep the equipment clean.

### Lighter and smaller units make the installation easy

The width has been decreased by 17% and the units are lighter.



### Quiet operation

These units are among the quietest in the industry, making them ideal for hotels and hospitals.

### Smooth and durable design

The smooth cover means these units match most modern interiors. Their compact size enables them to blend in, even in small spaces.

### Piping outlet in three directions

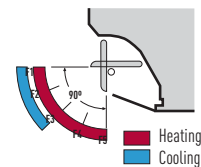
Piping outlet is possible in the three directions of rear, right, and left, making the installation work easier.

### Washable front panel

The indoor unit's front panel can be easily removed and washed for trouble-free cleaning.



### Air distribution is automatically altered depending on the operational mode of the unit



MODEL NAME		S-22MK2E5 <sup>1</sup>	S-28MK2E5 <sup>1</sup>	S-36MK2E5 <sup>1</sup>	S-22MK1E5 <sup>2</sup>	S-28MK1E5 <sup>2</sup>	S-36MK1E5 <sup>2</sup>	S-45MK1E5	S-56MK1E5	S-73MK1E5	S-106MK1E5	
Power source		230 V / 1 phase / 50 Hz										
Cooling capacity	kW	2.2	2.8	3.6	2.20	2.80	3.60	4.5	5.6	7.3	10.6	
Cooling power input	W	25	25	30	19	19	22	20	30	57	60	
Cooling operating current	A	0.21	0.23	0.25	0.16	0.16	0.19	0.26	0.35	0.58	0.62	
Heating capacity	kW	2.5	3.2	4.2	2.50	3.20	4.20	5.0	6.3	8.0	11.4	
Heating power input	W	25	25	30	19	19	23	20	30	57	68	
Heating operating current	A	0.21	0.23	0.25	0.17	0.17	0.20	0.26	0.35	0.58	0.70	
Fan	Type	Cross flow	Cross flow	Cross flow	Sirocco fan	Sirocco fan	Sirocco fan	Cross flow	Cross flow	Cross flow	Cross flow	
	Air flow rate (H/M/L)	m <sup>3</sup> /h	540/450/390	570/500/390	655/540/390	540/450/360	540/450/360	600/510/390	720/630/510	840/720/630	1,080/870/690	1,140/990/780
Sound pressure level (L/M/H)	dB(A)	29/33/36	29/34/37	29/36/40	28/32/35	28/32/35	29/33/37	30/34/38	32/36/40	40/44/47	42/45/49	
Dimensions	H x W x D	mm	290x870x214	290x870x214	290x870x214	285x825x217	285x825x217	285x825x217	300x1,065x230	300x1,065x230	300x1,065x230	300x1,065x230
Pipe connections	Liquid	inches (mm)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	3/8 (9.52)	3/8 (9.52)
	Gas	inches (mm)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	5/8 (15.88)	5/8 (15.88)
	Drain piping (O.D.)	φ	φ 16	φ 16	φ 16	VP-13	VP-13	VP-13	φ 18	φ 18	φ 18	φ 18
Net weight	kg	9	9	9	10	10	10	13	13	14.5	14.5	

1. Available from June 2013.  
2. Available until current stock ends.

<b>Energy saving</b> INVERTER+	<b>Environmentally friendly refrigerant</b> R410A	<b>Easy maintenance</b> SELF-DIAGNOSING	<b>For more comfort</b> AUTOMATIC FAN	<b>Perfect humidity control</b> MILD DRY	<b>Further comfort</b> AUTO-FLAP CONTROL	<b>Practical operation</b> AUTOMATIC RESTART	<b>Comfort everywhere</b> AIR SWEEP	<b>Easy control</b> CONNECTIVITY
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Rating Conditions: Cooling Indoor 27 °C DB / 19 °C WB. Cooling Outdoor 35 °C DB / 24 °C WB. Heating Indoor 20 °C DB. Cooling Outdoor 7 °C DB / 6 °C WB.  
DB: Dry Bulb; WB: Wet Bulb

**P1 TYPE**  
FLOOR STANDING

**R1 TYPE**  
CONCEALED FLOOR  
STANDING



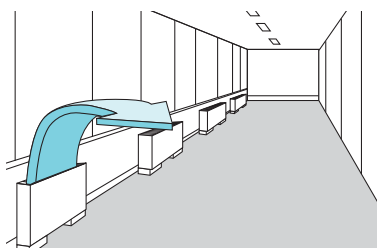
**P1 type**

The compact floor standing P1 units are the ideal solution for providing perimeter air conditioning. The standard wired controller can be incorporated into the body of the unit.

**Technical focus**

- Pipes can be connected to either side of the unit from the bottom or rear
- Easy to install
- Front panel opens fully for easy maintenance
- Removable air discharge grille gives flexible air flow
- Room for condensate pump

**Effective perimeter handling**



**A standard wired remote control can be installed in the body**



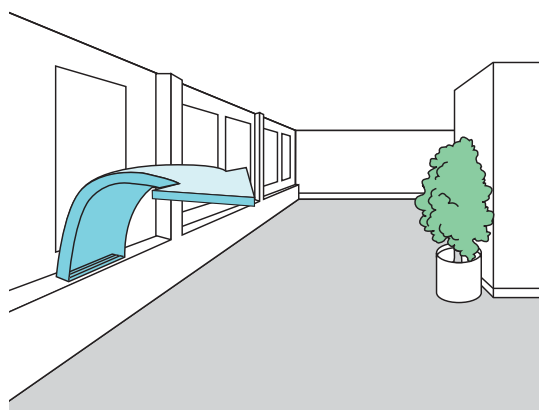
**R1 Type**

At just 229 mm deep, the R1 unit can be easily concealed in perimeter areas to provide powerful and effective air conditioning.

**Technical focus**

- Chassis unit for discreet installation
- Complete with removable filters
- Pipes can be connected to either side of the unit from the bottom or rear
- Easy to install

**Perimeter air conditioning with high interior quality**



**OPTIONAL CONTROLLER**  
Timer remote controller  
CZ-RTC2



**OPTIONAL CONTROLLER**  
Wireless remote controller  
CZ-RWSC2



**OPTIONAL CONTROLLER**  
Simplified remote controller  
CZ-RE2C2

MODEL NAME	P1 TYPE	S-22MP1E5	S-28MP1E5	S-36MP1E5	S-45MP1E5	S-56MP1E5	S-71MP1E5
	R1 TYPE	S-22MR1E5	S-28MR1E5	S-36MR1E5	S-45MR1E5	S-56MR1E5	S-71MR1E5
Power source		230 V / 1 phase / 50 Hz					
Cooling capacity	kW	2.2	2.8	3.6	4.5	5.6	7.1
Cooling power input	W	56	56	85	126	126	160
Cooling operating current	A	0.25	0.25	0.38	0.56	0.56	0.72
Heating capacity	kW	2.5	3.2	4.2	5.0	6.3	8.0
Heating power input	W	40	40	70	91	91	120
Heating operating current	A	0.18	0.18	0.31	0.41	0.41	0.54
Fan	Type	Sirocco fan					
	Air flow rate (H/M/L)	m <sup>3</sup> /h	420 / 360 / 300	420 / 360 / 300	540 / 420 / 360	720 / 540 / 480	900 / 780 / 660
Sound pressure level (L/M/H)	dB(A)	28 / 30 / 33					
Dimensions P1 Type	H x W x D	615 x 1,065 x 230					
Dimensions R1 Type	H x W x D	616 x 904 x 229					
Pipe connections	Liquid	inches (mm) 1/4 (6.35)					
	Gas	inches (mm) 1/2 (12.7)					
	Drain piping	VP-20					
Net weight P1 Type	kg	29					
Net weight R1 Type	kg	21					

<b>Energy saving</b> INVERTER+	<b>Environmentally friendly refrigerant</b> R410A	<b>Easy maintenance</b> SELF-DIAGNOSING	<b>For more comfort</b> AUTOMATIC FAN	<b>Perfect humidity control</b> MILD DRY	<b>Practical operation</b> AUTOMATIC RESTART	<b>Easy control</b> CONNECTIVITY
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Rating Conditions: Cooling Indoor 27 °C DB / 19 °C WB. Cooling Outdoor 35 °C DB / 24 °C WB. Heating Indoor 20 °C DB. Cooling Outdoor 7 °C DB / 6 °C WB. DB: Dry Bulb; WB: Wet Bulb



PANASONIC VENTILATION  
SOLUTIONS. FOR MAXIMUM  
SAVINGS AND EASY INTEGRATION



## AIR HANDLING UNIT KIT

Connects easily to your ECOi and GHP systems.

## ENERGY RECOVERY VENTILATOR

Energy recovery ventilators offer ventilation which increases comfort and saves energy. They efficiently recover the heat lost in ventilation during the heat recovery process.

## AIR HANDLING UNIT KIT

NEW AHU KITS CONNECT VRF SYSTEMS TO AIR HANDLING UNIT SYSTEMS, USING THE SAME REFRIGERANT CIRCUIT AS THE VRF SYSTEM.



Large connectivity possibilities mean the Panasonic AHU Kit can be easily integrated.

Application: Hotels, offices, server rooms or all large buildings where air quality control such as humidity control and fresh air and is needed.

### AHU CONNECTION KIT



PCB, Power trans, Terminal block



Remote control can be easily installed on the AHU Kit box. Remote control must be purchase separately.



Expansion valve



Thermistor x2 (Refrigerant: E1, E3)



Thermistor x2 (Air: Tf, Tb)

### REMOTE CONTROLLER



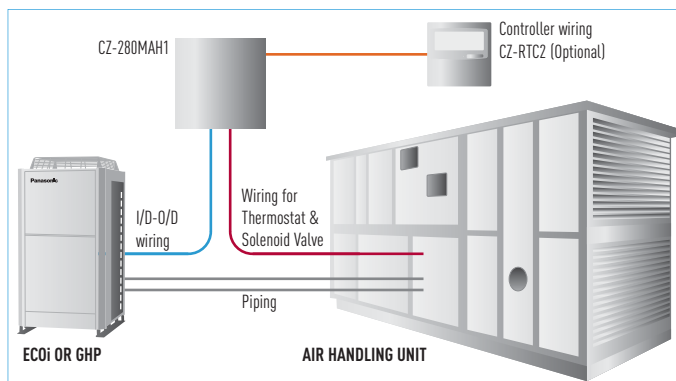
Standard wired remote controller. Optional



Possible Solution 1 by 1

**Panasonic AHU Kit, 28 / 56 kW**

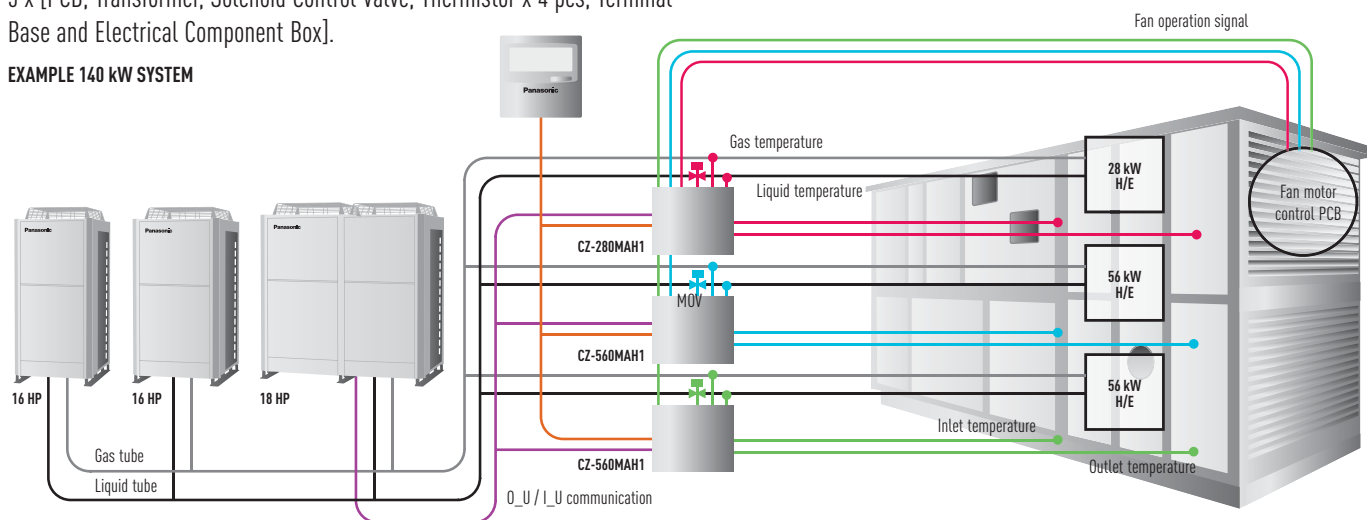
PCB, Transformer, Solenoid Control Valve, Thermistor x 4 pcs, Terminal Base and Electrical Component Box.



System example for large capacity (more than 56 kW)

3 x [PCB, Transformer, Solenoid Control Valve, Thermistor x 4 pcs, Terminal Base and Electrical Component Box].

**EXAMPLE 140 kW SYSTEM**



Optional parts: Following functions are available by using different control accessories:

**CZ-RTC2 Wired remote controller**

- Operation-ON/OFF
- Mode select
- Temperature setting

\* Fan operation signal can be taken from the PCB.

**CZ-T10 terminal**

- Input signal= Operation ON/OFF
- Remote controller prohibition
- Output signal= Operating-ON status
- Alarm output (by DC12V)

**PAW-OCT, DC12 V outlet. OPTION terminal**

- Output signal= Cooling/Heating/Fan status
- Defrost
- Thermostat-ON

**CZ-CAPBC2 Mini seri-para I/O unit**

- Temperature setting by 0-10 V or 0-140 Ω input signal
- Room (inlet air) temp outlet by 4-20 mA
- Mode select or/and ON/OFF control
- Fan operation control
- Operation status output/ Alarm output

## AHU CONNECTION KIT, 28 kW AND 56 kW FOR ECOi AND GHP

Heat exchanger, Fan & Fan motor to be mounted in AHU Kit shall be provided in the field.

AHU connection Kit can be connected this (field supplied) AHU Kit system. (Contents of kit:

Control PCB, expansion valve, sensors)

Application: Hotels, offices, server rooms or all large buildings where air quality control such as humidity control and fresh air and is needed.

AHU Kit combine air conditioning and fresh air in only one solution.

6N SERIES 2-PIPE ECOi OUTDOOR UNIT SHALL BE USED FOR AHU CONNECTION KIT.

2 models for VRF system: 10 HP (CZ-280MAH1) and 20 HP (CZ-560MAH1)

WITH GHP OUTDOOR UNITS:

- One AHU kit may be used for one GHP unit (2 way, 56 kW). Multiple AHU kits cannot be used.
- Mix connection with standard indoor units is not allowed.
- Power specifications are single-phase 220 V to 240 V.

MODEL		CZ-280MAH1	CZ-560MAH1	CZ-280MAH1 + CZ-560MAH1	CZ-560MAH1 + CZ-560MAH1	CZ-560MAH1 + CZ-560MAH1 + CZ-280MAH1	CZ-560MAH1 + CZ-560MAH1 + CZ-560MAH1
Nominal Cooling capacity @ 50hz	kW	28.0	56.0	84.0	112.0	140.0	168.0
Nominal Heating @ 50hz	kW	31.5	63.0	95.0	127.0	155.0	189.0
Horsepower	HP	10	20	30	40	50	60
Cooling Airflow High	m <sup>3</sup> /min	5,000	10,000	15,000	20,000	25,000	30,000
Cooling Airflow Low	m <sup>3</sup> /min	3,500	7,000	10,500	14,000	17,500	21,000
Heating Airflow High	m <sup>3</sup> /min						
Heating Airflow Low	m <sup>3</sup> /min						
Bypass Factor		0.9 (recommended)					
Fan Input Power		—	—	—	—	—	—
Total Cooling (incl. T-Heat exch.)	Nom (Min - Max)	—	—	—	—	—	—
Total Heating (incl. T-Heat exch.)	Nom (Min - Max)	—	—	—	—	—	—
Fuse Size	A	—	—	—	—	—	—
Running Current @ 230v		—	—	—	—	—	—
Input Power @ 230v							
Dimensions of the box (H x W x D)	mm	420 x 280 x 160					
Weight	kg						
Sound pressure level on cooling mode (nominal)	dB(A)	—	—	—	—	—	—
Sound power level on cooling mode (nominal)		—	—	—	—	—	—
Piping length (min/max)	m	10/100	10/100	10/100	10/100	10/100	10/100
Installation height difference (max)	m	10	10	10	10	10	10
Pipe Diameters	Inch (mm)	3/8 (9.52)	5/8 (15.88)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)
	Inch (mm)	7/8 (22.22)	1 1/8 (28.58)	1 1/4 (31.75)	1 1/2 (38.15)	1 1/2 (38.15)	1 1/2 (38.15)
Intake temperature of AHU Kit (Min / Max)	°C	Cooling: 18 - 32DB (13 - 23 WB) / Heating: 16 - 30 DB					
Ambient temperature of outdoor unit (min / Max)	°C	Cooling: -5 - 43 DB / Heating: -15 - 15.5 WB					

### AHU CONNECTION KIT / SYSTEM COMBINATION

CAPACITY (HP)	OUTDOOR UNIT COMBINATION			AHU KIT COMBINATION		
28 kW (10 HP)	U-10ME1E81			CZ-280MAH1		
56 kW (20 HP)	U-20ME1E81			CZ-560MAH1		
84 kW (30 HP)	U-16ME1E81	U-14ME1E81		CZ-560MAH1	CZ-280MAH1	
112 kW (40 HP)	U-20ME1E81	U-20ME1E81		CZ-560MAH1	CZ-560MAH1	
140 kW (50 HP)	U-18ME1E81	U-16ME1E81	U-16ME1E81	CZ-560MAH1	CZ-560MAH1	CZ-280MAH1
168 kW (60 HP)	U-20ME1E81	U-20ME1E81	U-20ME1E81	CZ-560MAH1	CZ-560MAH1	CZ-560MAH1
56 kW (20 HP)	U-20GE2E5			CZ-560MAH1		

**OPTIONAL**

Standard wired remote controller  
CZ-RTC2



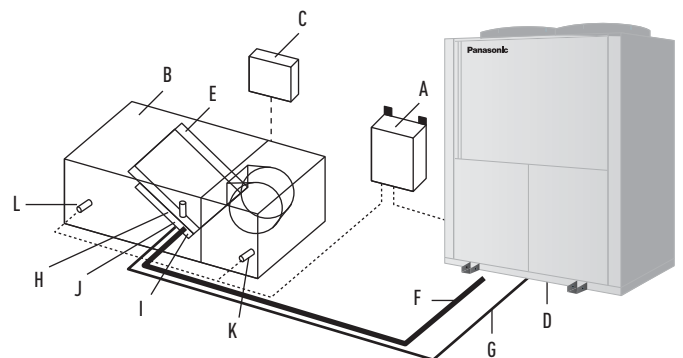
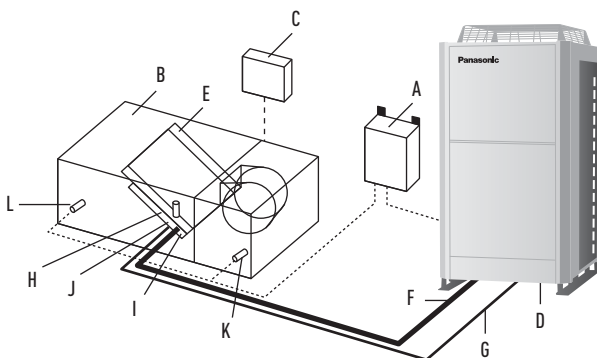
**TECHNICAL ZOOM**

- MAX. CAPACITY: 60HP (168 kW)
- MAX. PIPING LENGTH: 180 m
- MAX. TOTAL PIPING: 210 m
- ELEV. DIFF. (O\_U-I\_U): 50 m (O\_U ABOVE)
- ELEV. DIFF. (I\_U-I\_U): 4 m
- IN/OUT CAPACITY RATIO: 50~100%
- MAX. I\_U NUMBER: 2 UNITS\*
- AVAILABLE TEMPERATURE RANGE IN HEATING: -15~15.5 °C
- AVAILABLE TEMPERATURE RANGE FOR THE SUCTION AIR AT AHU KIT: COOL: 15~24 °C / HEAT: 10~30 °C

\* To be simultaneous operation controlled by one remote controller sensor.

**CZ-280MAH1 // CZ-560MAH1**

- The system controlled by the suction air (or return air from room) temperature as same as standard indoor unit. (Selectable mode: Automatic / Cooling / Heating / Fan / Dry (but same as Cool))
- The discharge air temperature is also controlled to prevent too-low air discharge in Cooling or too-high air discharge in Heating. (in case of VRF system)
- Demand control (Forcible thermostat-OFF control by operating current)
- Defrost operation signal, Thermo-ON/OFF states output
- Drain pump control (Drain-pump and the float switch to be supplied in local)
- External target temperature setting via Indoor/Outdoor signal interface is available with CZ-CAPBC2. (Ex. 0 - 10 V)
- Connectable with P-LINK system  
Special care for the electrical noise may necessary depending on the system at site.)
- Fan control signal from the PCB can be used for control the air volume (High/Mid/Low and LL for Th-off)  
Need to change the fan control circuit wiring at field.



**SYSTEM & REGULATIONS. SYSTEM OVERVIEW**

- A: AHU Kit controller box (with control PCB)
- B: AHU Kit equipment (Field supplied)
- C: AHU Kit system controller (Field supplied)

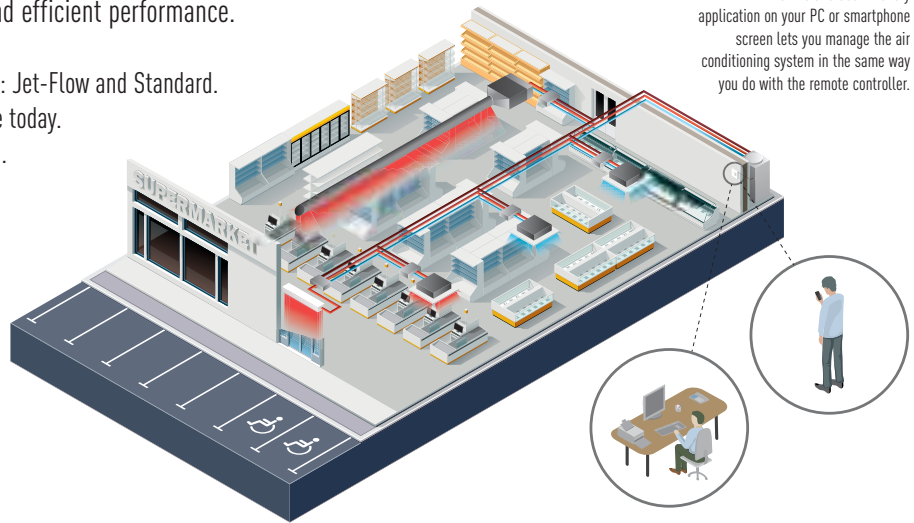
- D: Outdoor unit
- F: Gas piping (Field supplied)
- G: Liquid piping (Field supplied)
- H: Electronic expansion valve

- I: Thermistor for Gas pipe
- J: Thermistor for Liquid pipe
- K: Thermistor for Suction air
- L: Thermistor for Discharge air

# AIR CURTAIN

High efficiency Air curtain connected to your VRF installation. EC Fan motor for a smooth operation and efficient performance.  
 Plug & Play Installation  
 2 types of Air flow available: Jet-Flow and Standard.  
 2015 Fan Standard available today.  
 Easy Cleaning and Servicing.

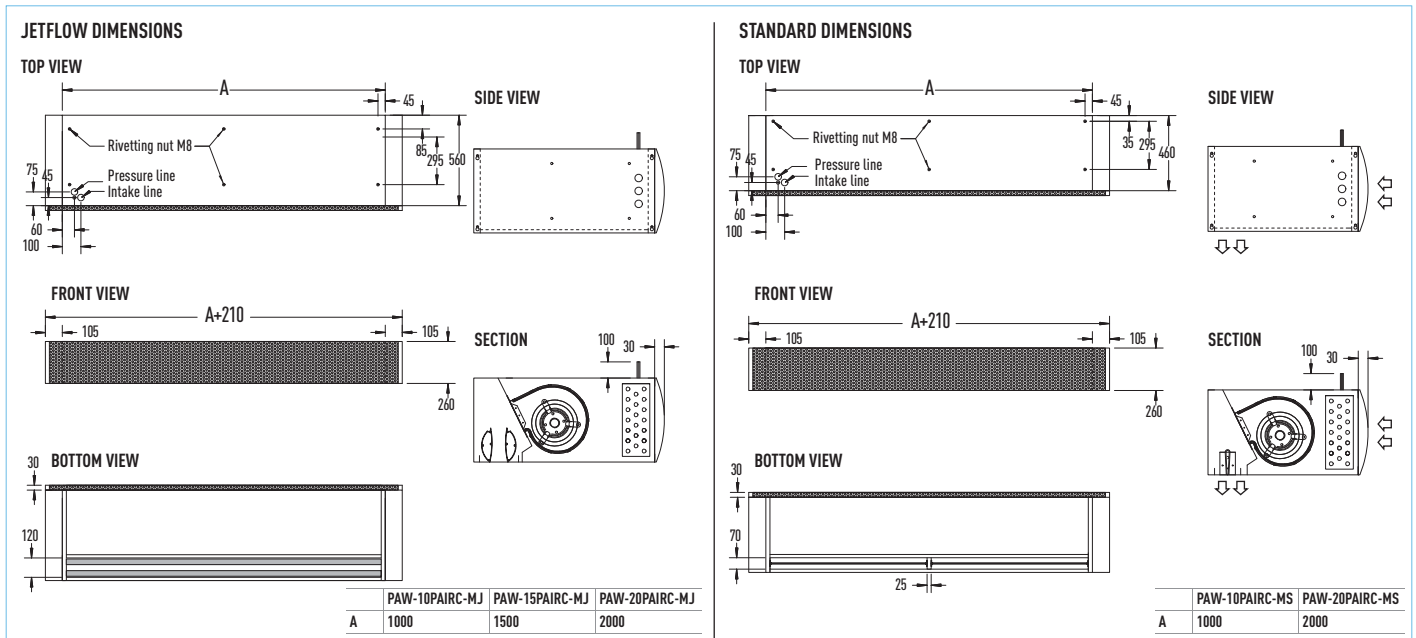
**INTERNET CONTROL**  
 An intuitive and user-friendly application on your PC or smartphone screen lets you manage the air conditioning system in the same way you do with the remote controller.



HP	4		8		10		14		4		10	
AIR CURTAIN*	PAW-10EAIRC-MJ		PAW-15EAIRC-MJ <sup>1</sup>		PAW-20EAIRC-MJ <sup>2</sup>		PAW-25EAIRC-MJ <sup>2</sup>		PAW-10EAIRC-MS		PAW-20EAIRC-MS <sup>1</sup>	
Air flow type	Jetflow						Standard					
Air Volume	High / Med / Low	m <sup>3</sup> /h	2700 / 1900 / 1200	3600 / 2500 / 1600	5400 / 3800 / 2400	6300 / 4400 / 2800	2700 / 1900 / 1200	5400 / 3800 / 2400				
Air Flow Length (A)		m	1.0	1.5	2.0	2.5	1.0	2.0				
Heating capacity nominal		kW	11.4	25.0	31.5	37.5	11.4	31.5				
Heating capacity max (at air in 20 °C)		kW	12.47	19.55	29.99	37.53	12.47	29.99				
Max Installation high		m	2.7	2.7	2.7	2.7	2.4	2.4				
Refrigerant			R410A	R410A	R410A	R410A	R410A	R410A				
Pressure		bar	45	45	45	45	45	45				
Tubing Gas		mm	16	18	22	22	16	22				
Tubing Liquid		mm	10	10	10	10	10	10				
Fan			230 V / 50 Hz / 1 / N / PE	230 V / 50 Hz / 1 / N / PE	230 V / 50 Hz / 1 / N / PE	230 V / 50 Hz / 1 / N / PE	230 V / 50 Hz / 1 / N / PE	230 V / 50 Hz / 1 / N / PE				
Fan type			EC	EC	EC	EC	EC	EC				
Currency	High / Med / Low	A	2.1 / 0.8 / 0.3	2.8 / 1.1 / 0.4	4.2 / 1.6 / 0.6	4.9 / 1.9 / 0.7	2.1 / 0.8 / 0.3	4.2 / 1.6 / 0.6				
Electrical Consumption	High / Med / Low	kW	0.44 / 0.17 / 0.06	0.59 / 0.23 / 0.08	0.89 / 0.34 / 0.12	1.03 / 0.4 / 0.14	0.44 / 0.17 / 0.06	0.89 / 0.34 / 0.12				
Protecting Fuse		A	M16A	M16A	M16A	M16A	M16A	M16A				
Noise		dB(A)	40-55	40-56	40-57	40-58	40-55	40-57				
Dimensions / Weight	L x H x D	mm / kg	1210 x 260 x 590 / 70	1710 x 260 x 590 / 100	2210 x 260 x 590 / 138	2710 x 260 x 590 / 160	1210 x 260 x 490 / 60	2210 x 260 x 490 / 128				

Outdoor combination with Mini ECOi	U-4LE1E5/8						U-4LE1E5/8					
Outdoor combination with ECOi	All models		All models		All model without 8HP		All model without 8/10HP		All models		All model without 8HP	
Outdoor combination with GHP	All models		All models		All models		All models		All models		All models	

\* Available from April 2013. 1) Needs 2 RAP Valve CZ-160RVK2. 2) Needs 3 RAP Valve CZ-160RVK2.





### JET-FLOW: PAW-10PAIRC-MJ // PAW-15PAIRC-MJ // PAW-20PAIRC-MJ

#### Technical Focus

- PLUG & PLAY INSTALLATION
- SAVE UP TO 40% ENERGY COSTS BY USE OF THE INTEGRATED EC FAN TECHNOLOGY
  - HIGHER EFFICIENCY CONVENTIONAL AC FAN
  - SOFTSTART
  - LONGER MOTOR DURATION
- 3 LENGTHS OF AIR CURTAINS, FROM 1.0 TO 2.0 m
- INSTALLATION HEIGHT UP TO 2.7 m
- OUTLET GRILLES CAN BE ADJUSTED IN FIVE POSITIONS, TO SUITE DIFFERENT INDOOR AND INSTALLATION REQUIREMENTS
- CONTROL WITH PANASONIC REMOTE CONTROL SYSTEMS (OPTIONAL)
- DIRECT INTEGRATION TO BMS BY OPTIONAL PANASONIC INTERFACES
- DRAIN INCLUDED FOR COOLING OPERATION

### STANDARD: PAW-10PAIRC-MS // PAW-20PAIRC-MS

#### Technical Focus

- PLUG & PLAY INSTALLATION
- SAVE UP TO 40% ENERGY COSTS BY USE OF THE INTEGRATED EC FAN TECHNOLOGY
  - HIGHER EFFICIENCY CONVENTIONAL AC FAN
  - SOFTSTART
  - LONGER MOTOR DURATION
- 2 LENGTHS OF AIR CURTAINS, 1.0 AND 2.0 m
- INSTALLATION HEIGHT UP TO 2.4 m
- CONTROL WITH PANASONIC REMOTE CONTROL SYSTEMS (OPTIONAL)
- DIRECT INTEGRATION TO BMS BY OPTIONAL PANASONIC INTERFACES
- DRAIN INCLUDED FOR COOLING OPERATION

#### Features

##### COMFORT

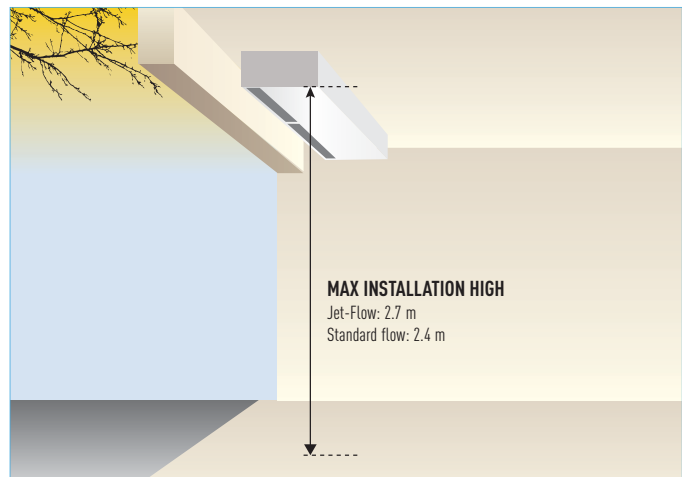
- Easy redirection of Air-Flow by means of manual deflector (Jet-Flow)

##### EASE OF USE

- Speed selector (high and low) on the unit itself

##### EASY INSTALLATION AND MAINTENANCE

- Easy installation
- Compact dimensions improve installation and positioning (Jet-Flow)
- Easy cleaning of grid without opening of the unit





## ENERGY RECOVERY VENTILATOR

SUPPRESSES INDOOR TEMPERATURE CHANGES WHILE PROVIDING FRESH AIR

### Heat exchange ventilation and normal ventilation

#### Heat exchange ventilation

When a room is cooled or heated, the exhausted cooling / heating energy is recovered by heat-exchange ventilation.

#### Normal ventilation

This is used in the spring and autumn, when rooms are not cooled or heated, that is, when there is little difference between the indoor and outdoor air conditions. In addition, at night during the hot season, when the outside air temperature drops the outside air is drawn inside without heat exchange, alleviating the load on the air conditioning equipment.

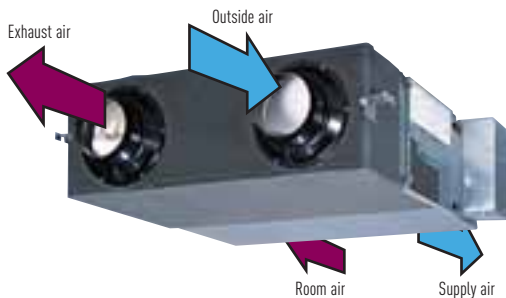
The heat exchanger is made up of a membrane manufactured from a special material covered in resin for optimal heat transmission. The nylon/polyester fibre filter offers high dust retention capacity. We have also redesigned the air ducts to obtain a long-lasting heat exchange system which does not need periodic cleaning.

### Energy efficiency and ecology

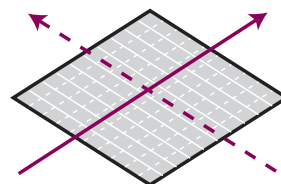
Energy consumption is dramatically reduced by using a counter-flow heat-exchange element. Air conditioning load is reduced by approximately 20%, resulting in significant energy savings.



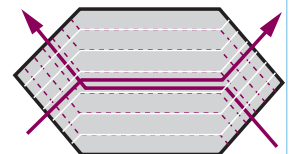
#### ADOPTS A HIGHLY EFFICIENT COUNTER-FLOW HEAT EXCHANGE ELEMENT



#### HEAT EXCHANGER CHARACTERISTICS



Former (cross-flow element)



New (counter-flow element)

### Heat exchanger

With the cross-flow element, air moves in a straight line across the element. With the counter-flow element, air flows through the element for a longer time (longer distance), so the heat-exchange effect remains unchanged even if the element is made thinner.

### Characteristics common to all models

- Counter-flow heat exchange element used for reduced noise and slimmer, more compact body shape.
- All maintenance can be performed through a single inspection hole.
- Straight air supply / exhaust system used for easier installation.
- Each unit can be mounted in reverse position.
- Equipped with an Extra-High setting.
- Can incorporate a medium performance filter (optional, installed on site).

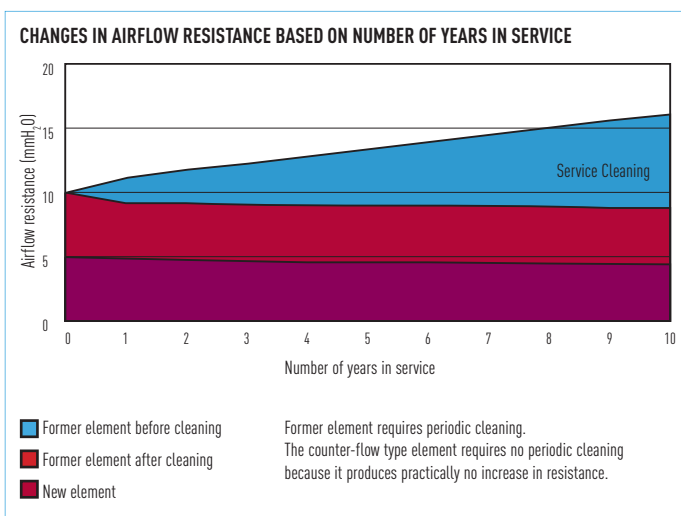
### More Comfort

#### Quiet operation

Low noise operation results in noticeably quieter units. All models with capacities below 500 m<sup>3</sup>/h run at noise levels below 32 dB (High setting) and even our largest 1,000 m<sup>3</sup>/h-capacity model runs at only 37.5 dB (High setting).

#### Long heat-exchange element service life

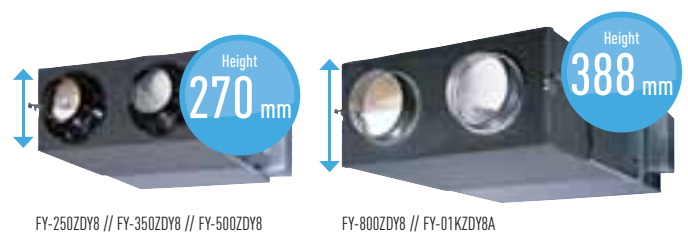
Cleaning reduced due to the special material heat exchanger. The nylon/polyester fibre filter offers high dust retention capacity.



### Easy Installation and Maintenance

#### Slim shape and easier installation

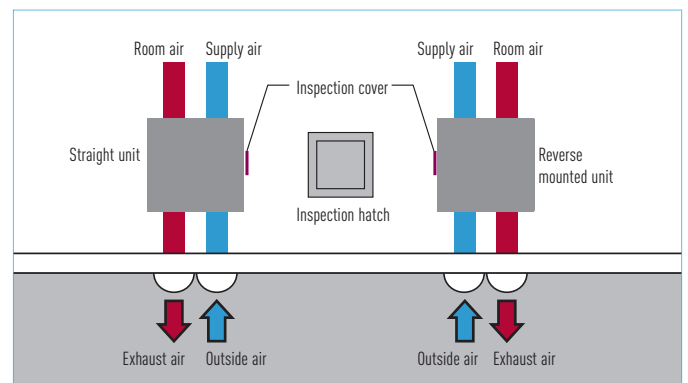
Counter-flow heat exchange element used for reduced noise and slimmer, more compact body shape.



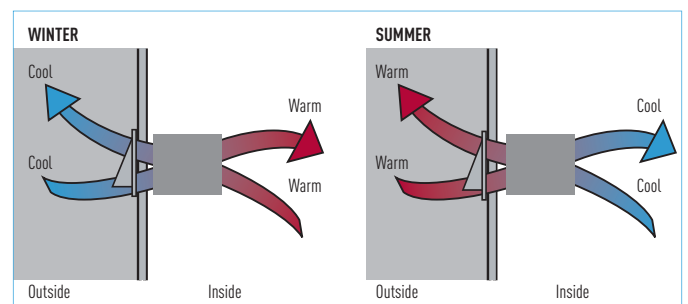
#### Reverse mountable direct air supply / exhaust system

Adoption of straight air supply / exhaust system: Duct design is simplified because the air supply / exhaust ducts are straight.

Since each unit can be mounted in reverse position, only one inspection hole is needed for two units: Two units can share one inspection hole so duct work is easier and more flexible.



### Balanced Ventilation



## ENERGY RECOVERY VENTILATION SYSTEM

Recovers up to 77% of the heat in the outgoing air, for an ecological and energy efficient building.



FY-250ZDY8



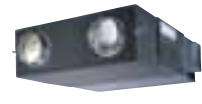
FY-350ZDY8



FY-500ZDY8



FY-800ZDY8

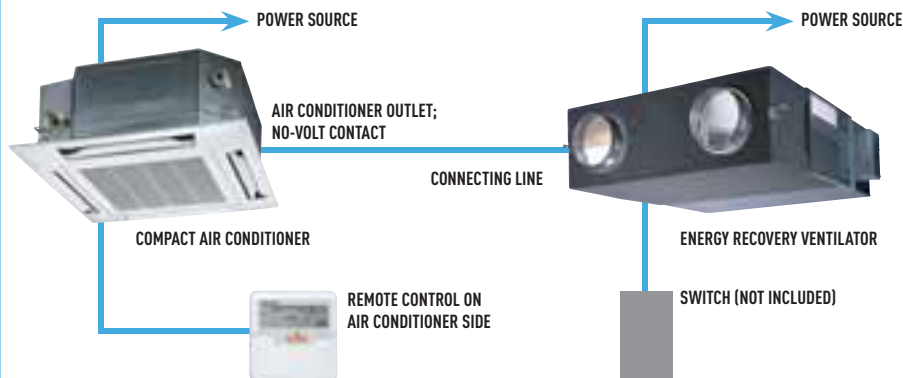


FY-01KZDY8A

RATED FLOW RATE	150 m³/h			250 m³/h			350 m³/h			500 m³/h			650 m³/h			800 m³/h			1000 m³/h			
MODELS	FY-150ZDY8			FY-250ZDY8			FY-350ZDY8			FY-500ZDY8			FY-650ZDY8			FY-800ZDY8			FY-01KZDY8A			
Power Source	220-240 V - 50 Hz																					
HEAT EXCHANGE VENTILATION	E-High	High	Low	E-High	High	Low	E-High	High	Low	E-High	High	Low	E-High	High	Low	E-High	High	Low	E-High	High	Low	
Input	W	97-114	92-107	69-77	112-128	108-123	87-96	182-190	178-185	175-168	263-289	204-225	165-185	326-347	269-295	200-210	387-418	360-378	293-295	437-464	416-432	301-311
Air Volume	m³/h	150	150	120	250	250	190	350	350	240	500	500	440	650	650	460	800	800	630	1000	1000	700
External Static Pressure	Pa	80	70	25	105	95	45	140	60	45	120	60	35	65	40	40	140	110	55	105	80	75
Noise	dB	28.5-29.0	28.0-29.0	19.5-21.5	30.0-31.5	29.5-30.5	23.5-26.5	32.5-33.0	30.5-31.0	22.5-25.5	36.5-37.5	34.5-35.5	31.0-32.5	36.5-37.5	34.5-35.5	30.0-32.0	37.0-37.5	36.5-37.0	33.5-34.5	37.5-38.5	37.0-37.5	33.5-34.5
Temp. Exchange Efficiency	%	75	75	77	75	75	77	75	75	78	75	75	76	75	75	79	75	75	76	75	75	79
NORMAL VENTILATION	E-High	High	Low	E-High	High	Low	E-High	High	Low	E-High	High	Low	E-High	High	Low	E-High	High	Low	E-High	High	Low	
Input	W	97-114	92-107	69-77	112-128	108-123	87-96	182-190	178-185	175-168	263-289	204-225	165-185	326-347	269-295	200-210	387-418	360-378	293-295	437-464	416-432	301-311
Air Volume	m³/h	150	150	120	250	250	190	350	350	240	500	500	440	650	650	460	800	800	630	1000	1000	700
External Static Pressure	Pa	80	70	25	105	95	45	140	60	45	120	60	35	65	40	40	140	110	55	105	80	75
Noise	dB	28.5-29.0	28.0-29.0	19.5-21.5	30.0-31.5	29.5-30.5	23.5-26.5	32.5-33.0	30.5-31.0	22.5-25.5	37.5-38.5	37.0-38.0	31.0-32.5	36.5-37.5	35.0-35.5	30.0-32.0	37.0-37.5	36.5-37.0	33.5-34.5	39.5-40.5	39.0-39.5	35.5-36.5
Temp. Exchange Efficiency	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dimensions (W x D x H)	mm	970 x 467 x 270			882 x 599 x 270			1050 x 804 x 317			1090 x 904 x 317			1204 x 884 x 388			1322 x 884 x 388			1322 x 1134 x 388		
Weight	kg	25			29			49			57			68			71			83		

This noise of the product is the value which was measured at the acoustic room. Actually, in the established condition, that undergo influence by the echoing of the room and so that become bigger than the display numerical value. The input, the current and the exchange efficiency are values at the time of the mentioned air volume. The noise level shall be measured 1.5m below the centre of the unit. The temperature exchange efficiency averages that of when cooling and when heating.

### TYPICAL SYSTEM LINKED TO A CASSETTE TYPE AIR CONDITIONER



### USE CONDITIONS

**OUTDOOR AIR CONDITIONS**  
 TEMPERATURE RANGE: -10 °C – 40 °C  
 RELATIVE HUMIDITY: 85% OR LESS

**INDOOR AIR CONDITIONS**  
 TEMPERATURE RANGE: -10 °C – 40 °C  
 RELATIVE HUMIDITY: 85% OR LESS

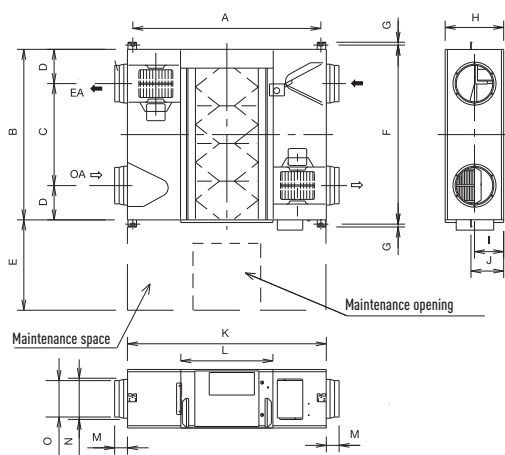
**REQUIREMENTS FOR INSTALLATION**  
 USE IS TO BE AVOIDED IN REFRIGERATED CHAMBERS OR OTHER PLACES WHERE THE TEMPERATURE MAY UNDERGO SIGNIFICANT FLUCTUATIONS, EVEN WHEN THE TEMPERATURE RANGE IS ACCEPTABLE.





## TECHNICAL ZOOM

- HIGH ENERGY SAVING, UP TO 20%
- COUNTER CROSS FLOW TECHNOLOGY FOR BETTER EFFICIENCY
- LONG LIFE ELEMENT CORE
- EASY INSTALLATION AND 20% LESS THICKNESS
- EASY CONNECTION TO AIR CONDITIONING UNITS
- SUPER QUIET UNITS



## FY-250ZDY8 // FY-350ZDY8 // FY-500ZDY8 // FY-800ZDY8 // FY-01KZDY8A

### HEALTHY AIR

- The filter guarantees healthier air

### ENERGY EFFICIENCY AND ECOLOGY

- Up to 20% energy saving in the installation
- Recovers up to 77% of the heat in the outgoing air

### COMFORT






- Quiet units (21,5 dB for the FY-250ZDY8)
- Cleaning reduced due to the revolutionary structure of the exchanger (recommended every 6 months)
- Ideal for indoor spaces without windows

### EASY INSTALLATION AND MAINTENANCE

- Five models for easier selection
- Reduced system height (270 mm and 388 mm)
- Side opening for cleaning (inspection of filter, motor and other parts)
- Installation can be reversed to share an inspection opening between 2 machines
- Easy connection to the air conditioning unit (without additional elements)
- Installation in false ceilings
- Units operate at 220 - 240 V
- High static pressure for easier installation

	FY-250ZDY8	FY-350ZDY8	FY-500ZDY8	FY-800ZDY8	FY-01KZDY8A
A	810	810	890	1,250	1,250
B	599	804	904	884	1,134
C	315	480	500	428	678
D	142	162	202	228	228
E	600	600	600	600	600
F	655	860	960	940	1,190
G	19	19	19	19	19
H	270	270	270	288	388
I	135	145	145	194	194
J	159	159	159	218	218
K	882	882	962	1,322	1,322
L	414	414	414	612	612
M	95	95	107	85	85
N	219	219	246	258	258
O	144	144	194	242	242









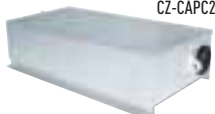



OPERATION SYSTEM	INDIVIDUAL CONTROL SYSTEMS				TIMER OPERATION	
Requirements	Normal operation	Operation from each seat	Quick and easy operation		Daily and weekly program	
External appearance						
Type, model name	Timer Remote Controller (Wired) CZ-RTC2	Wireless Remote Controller CZ-RWSU2 CZ-RWSY2 CZ-RWSL2	CZ-RWSC2 CZ-RWST2 CZ-RWSK2	Simplified Remote Controller CZ-RE2C2	Backlight remote controller CZ-RELC2	Schedule Timer CZ-ESWC2
Built-in Thermostat	✗	✗	✗			
N. of I/O which can be controlled	1 group, 8 units	1 group, 8 units	1 group, 8 units		64 groups, max. 64 units	
Use limitations	· Up to 2 controllers can be connected per group.	· Up to 2 controllers can be connected per group.	· Up to 2 controllers can be connected per group.		· Required power supply from the system controller · When there is no system controller, connection is possible to the T10 terminal of an indoor unit.	
Function ON/OFF	✗	✗	✗		—	
Mode setting	✗	✗	✗		—	
Fan speed setting	✗	✗	✗		—	
Temperature setting	✗	✗	✗		—	
Air flow direction	✗	✗ <sup>1</sup>	✗ <sup>1</sup>		—	
Permit/Prohibit switching	—	—	—		—	
Weekly program	✗	—	—		✗	

1. Setting is not possible when a remote control unit is present. (Use the remote control for setting.)  
All specifications subject to change without notice.

## CONTROL SYSTEMS FOR VRF

A WIDE VARIETY OF CONTROL OPTIONS TO MEET THE REQUIREMENTS OF DIFFERENT APPLICATIONS.

### CENTRALIZED CONTROL SYSTEMS

Operation with various function from center station	Only ON/OFF operation from center station	Simplified load distribution ratio (LDR) for each tenant	BMS System. PC Base	Connection with 3rd Party Controller
				
System Controller CZ-64ESMC2	ON/OFF Controller CZ-ANC2	Intelligent Controller (Touch screen panel) CZ-256ESMC2 (CZ-CFUNC2)	P-AIMS. Basic Software CZ-CSWKC2	Seri-Para I/O unit for outdoor unit CZ-CSWKC2
—	—	—		
64 groups, max. 64 units	16 groups, max. 64 units	64 units x 4 systems, max. 256 units	Optional software CZ-CSWAC2 for Load distribution. CZ-CSWWC2 for Web application. CZ-CSWGC2 for Object layout display. CZ-CSWBC2 for BAC net software interface. *PC required (field supply)	Local adaptor for ON/OFF control CZ-CAPC2
<ul style="list-style-type: none"> <li>Up to 10 controllers, can be connected to one system.</li> <li>Main unit/sub unit (1 main unit + 1 sub unit) connection is possible.</li> <li>Use without remote controller is possible.</li> </ul>	<ul style="list-style-type: none"> <li>Up to 8 controllers (4 main units + 4 sub units) can be connected to one system.</li> <li>Use without remote controller is impossible.</li> </ul>	<ul style="list-style-type: none"> <li>A communication adaptor (CZ-CFUNC2) must be installed for three or more systems.</li> </ul>	Web Interface Systems CZ-CWEBC2 *PC required (field supply) 	MINI Seri-Para I/O Unit CZ-CAPBC2 
X	X	X		Communication Adaptor CZ-CFUNC2 
X	—	X		
X	—	X		
X	—	X		
X <sup>1</sup>	—	X <sup>1</sup>		
X	X	X		
—	—	X		

## INDIVIDUAL CONTROL SYSTEMS

### Timer remote controller (CZ-RTC2)



Dimensions  
H 120 x W 120 x D 16 mm

#### Basic remote controller ON/OFF

- Operation mode changeover (Cooling, Heating, Dry, Auto, Fan).
- Temperature setting (Cooling/Dry: 18-30 deg Heating: 16-30 deg).
- Fan speed setting H/ M/ L and Auto.
- Air flow direction adjustment.

#### Time Function 24 hours real time clock

- Week day indicator.

#### Weekly Programme Function

- A maximum of 6 actions can be programmed for each day.

#### Outing Function

- This function can prevent the room temperature from dropping or rising when the occupants are out for a long time.

#### Sleeping Function

- This function controls the room temperature for comfortable sleeping.

#### Max. 8 indoor units can be controlled from one remote controller

#### Remote control by main remote controller and sub controller is possible

Max. 2 remote controllers (main remote controller and sub controller) can be installed for one indoor unit.

#### Possible to connect to the outdoor unit using PAW-MRC cable for servicing purposes

### Wireless remote controller



Y1 TYPE  
CZ-RWSY2



U1 TYPE  
CZ-RWSU2



L1 TYPE  
CZ-RWSL2



#### Easy installation for the 4-way cassette type simply by replacing the corner part

#### 24 hour timer function

#### Remote control by main remote controller and sub controller is possible

- Max. 2 remote controllers (main remote controller and sub controller) can be installed for one indoor unit.

#### When CZ-RWSC2 is used, wireless control becomes possible for all indoor units

- When a separate receiver is set up in a different room, control from that room also becomes possible.
- Automatic operation by means of the emergency operation button is possible even when the remote controller has been lost or the batteries have been exhausted.

#### Operation of separate energy recovery ventilators

When commercial ventilation fans or heat-exchange ventilation fans have been installed, they can be operated with this remote control (interlocked operation with the indoor unit or independent ventilation ON/OFF).



K1 TYPE  
CZ-RWSK2



D1 AND T1 TYPE  
CZ-RWST2



WIRELESS REMOTE CONTROL  
FOR ALL INDOOR UNITS  
CZ-RWSC2

## Simplified remote controller (CZ-RE2C2)



Dimensions  
H 120 x W 70 x D 16 mm

### A remote controller with simple functions and basic operation

- Suitable for open rooms or hotels where detailed functions are not required.
- ON/OFF, operation mode switching, temperature setting, air speed switching, air flow direction setting, alarm display, and remote controller self-diagnosis can be performed.
- Batch group control for up to 8 indoor units.
- Remote control by main remote controller and sub controller is possible with a simplified remote controller or a wired remote controller (up to two units).

## Backlight remote controller (CZ-RELC2)



Dimensions  
H 120 x W 70 x D 16 mm

### Backlight remote controller with simple and friendly operation

- ON/OFF, operation mode switching, temperature setting, air speed switching, air flow direction setting, alarm display can be performed. LCD backlight display.
- Built-in temperature sensor and batch group control for up to 8 indoor units.

## Remote sensor (CZ-CSRC2)



- This remote sensor can be connected to any indoor unit. Please use it to detect the room temperature when no remote controller sensor or body sensor is used. (connection to a system without a remote controller is possible).
- For joint use with a remote control switch, use the remote control switch as main remote controller.
- Batch group control for up to 8 indoor units.

CONTROL CONTENTS	PART NAME, MODEL NO.	QUANTITY
<b>Standard Control</b> <ul style="list-style-type: none"> <li>• Control of the various operations of the indoor unit by wired or wireless remote controller.</li> <li>• Cooling or heating mode of the outdoor unit is decided by the first priority of the remote controller.</li> <li>• Switching between remote controller sensor and body sensor is possible.</li> </ul>	Timer remote controller <b>CZ-RTC2 // CZ-RE2C2 // CZ-RELC2</b> Wireless remote controller <b>CZ-RWSY2 // CZ-RWSU2 // CZ-RWSL2 // CZ-RWSG2</b> <b>CZ-RWSK2 // CZ-RE2C2</b>	1 unit each
<b>(1) Group control</b> <ul style="list-style-type: none"> <li>• Batch remote control on all indoor units.</li> <li>• Operation of all indoor cells in the same mode.</li> <li>• Up to 8 units can be connected.</li> </ul>	Timer remote controller <b>CZ-RTC2 // CZ-RE2C2</b> Wireless remote controller <b>CZ-RWSY2 // CZ-RWSU2 // CZ-RWSL2 // CZ-RWSG2</b> <b>CZ-RWSK2 // CZ-RE2C2</b>	1 unit
<b>(2) Main/sub remote control</b> <ul style="list-style-type: none"> <li>• Max 2 remote controllers per indoor unit.</li> <li>• The button pressed last has priority.</li> <li>• Timer setting is possible even with the sub remote controller.</li> </ul>	Main or sub. Timer remote controller <b>CZ-RTC2</b> Wireless remote controller <b>CZ-RWSY2 // CZ-RWSU2 // CZ-RWSL2 // CZ-RWSG2</b> <b>CZ-RWSK2 // CZ-RE2C2</b>	As required

# CENTRALISED CONTROL SYSTEMS

## Schedule timer (CZ-ESWC2)



Dimensions  
H 120 x W 120 x D 16 mm

The power supply for the schedule timer is taken from one of the following.

1. Control circuit board (T10) of a nearby indoor unit (power supply wiring length: within 200 m from the indoor unit).
2. System controller (power supply wiring length: within 100 m from the indoor unit).

When the power supply for the schedule timer is taken from the control circuit board of the indoor unit, that indoor unit cannot be used with other control devices using the CZ-T10 terminal. As operation mode and temperature settings are not possible with the schedule timer, it must be used together with a remote controller, a system controller, an intelligent

controller, etc. Also, as it does not have an address setting function, the control function of a system controller etc. must be used for address setting.

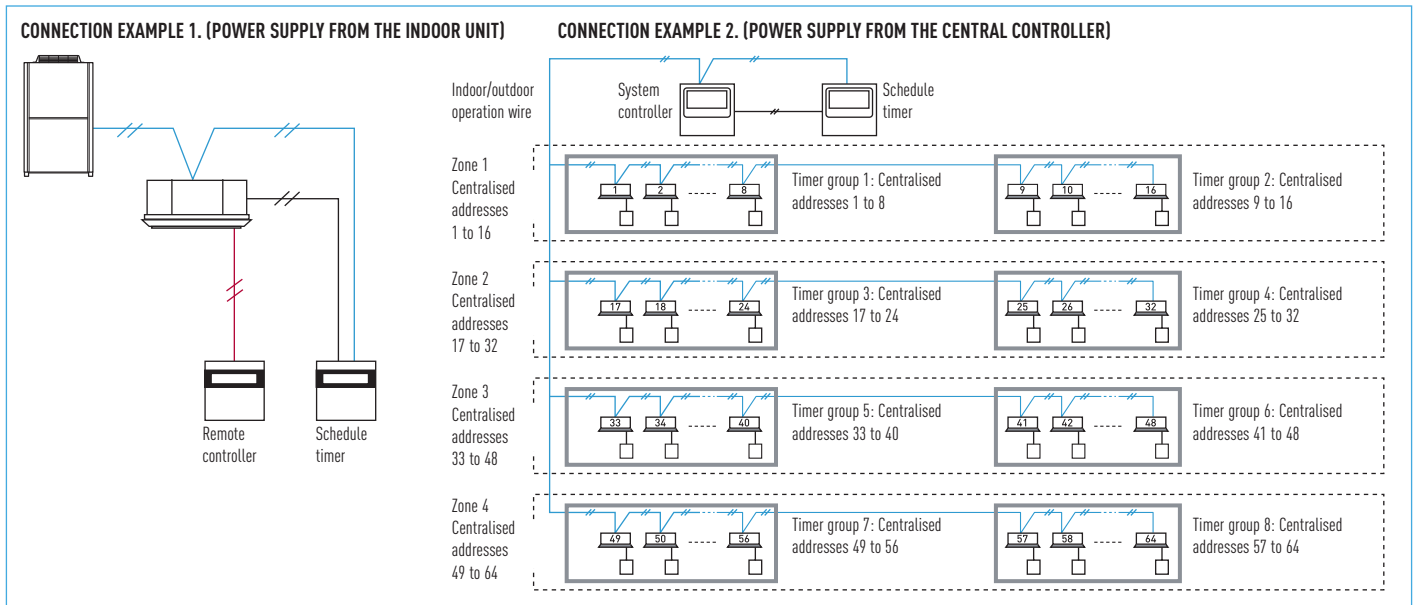
**Up to 64 groups (max. 64 indoor units) can be controlled divided into 8 timer groups**

**Six program operations (Operation/Stop/Local permission/ Local prohibition) per day can be set in a program for one week**

- Only operation or stop, remote controller local permission or remote controller local prohibition, and their respective combinations are possible. (Operation + local permission, stop + local prohibition, only local permission, etc.)
- Local prohibition and the combination of the three items of temperature setting, mode change, and operation/stop can be set at the time of installation.

**A function for pausing the timer in case of national holidays has been added, and timer operation also can be stopped for a long time**

- By setting holidays or operation stop within one week, the timer can be paused just for that week.
- All timer settings can be stopped with the timer "ON/OFF effective" button. (Return to timer operation is made by pressing the button again.)



## ON/OFF controller (CZ-ANC2)



Dimensions  
H 121 x W 122 x D 14 + 52  
(embedding dimension mm)

Power supply: AC 220 to 240 V  
I/O part: Remote input (effective voltage: within DC 24 V): All ON/OFF  
Remote output (allowable voltage: within DC 30 V): All ON, All alarm

- 16 groups of indoor units can be controlled.
- Collective control and individual group (unit) control can also be performed.
- Up to 8 ON/OFF controller (4 main, 4 sub) can be installed in one link system.
- The operation status can be determined immediately.

Note: As operation mode and temperature settings are not possible with the ON/OFF controller, it must be used together with a remote controller, a system controller etc.

## System controller (CZ-64ESMC2)



Dimensions  
H 120 x W 120 x D 21 + 69  
(embedding dimension mm)

Power supply: AC 220 to 240 V  
I/O part: Remote input (effective voltage: DC 24 V): All ON/All OFF  
Remote output (voltage-free contact): All ON/All OFF (external Power supply within DC 30 V, max 1 A)  
Total wiring length 1 km

### Individual control is possible for max. 64 groups, 64 indoor units.

Control of 64 indoor units divided into 4 zones. (One zone can have up to 16 groups, and one group can have up to 8 units.)

Control is possible for ON/OFF, operation mode, fan speed, air flow direction (only when used without a remote controller), operation monitoring, alarm monitoring, ventilation, remote controller local operation prohibition, etc.

**Individual** All operations are possible from the remote controller. However, the contents will be changed to the last settings used on the controller.

**Central 1** The remote controller cannot be used for ON/OFF. (All other operations are possible from the remote controller.)

**Central 3** The remote controller cannot be used for mode change or temperature setting change. (All other operations are possible from the remote controller.)

**Central 4** The remote controller cannot be used for operation mode change. (All other operations are possible from the remote controller.)

### Joint use with a remote controller, an intelligent controller, a schedule timer, etc. is possible

(The maximum number of connectable system controllers is 10, including other central controllers on the same circuit.)

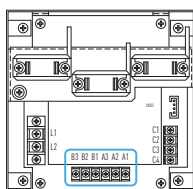
(In case of joint use with a wireless remote controller, there are limitations for the control mode. Please use only with "Individual" and "Central 1".)

### Control of systems without a remote controller and of main/sub systems (a total of up to 2 units) is possible

#### External Contacts On Central Controllers

Terminals for remote monitoring:

- A1) Input for turning ON air conditioners concurrently
- A2) Input for turning OFF air conditioners concurrently
- A3) Common input for turning air conditioners ON or OFF
- B1) On operation state indicator output
- B2) Alarm indicator output
- B3) Common indicator output



A control mode corresponding to the use condition can be selected from 10 patterns

#### A. Operation mode: Central control mode or remote control mode can be selected

**Central control mode:** The system controller is used as centralised control device. (Setting from a remote controller can be prohibited by prohibiting local operation from the system controller.)

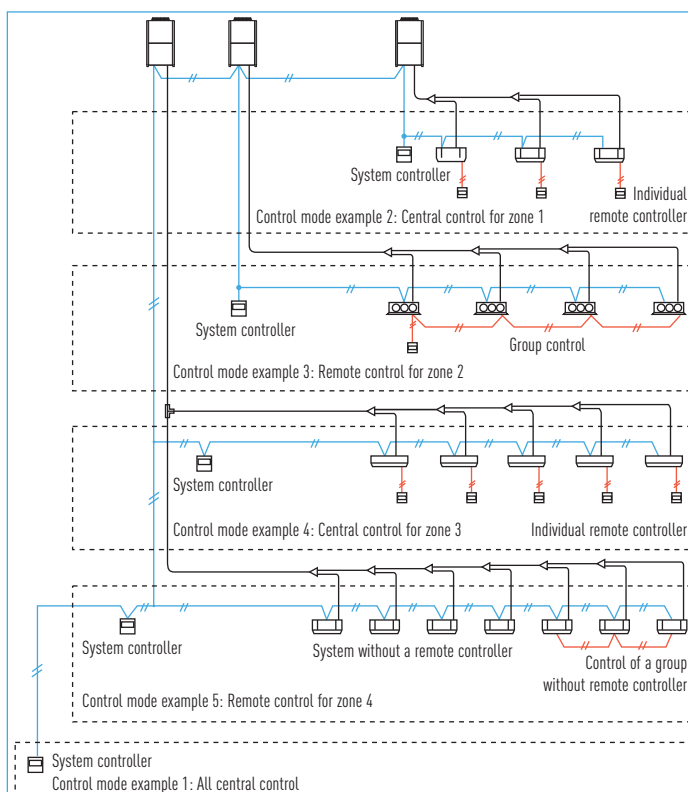
**Remote control mode:** The system controller is used as a remote controller. (Setting from the system controller can be prohibited by prohibiting local operation from another central control unit.)

#### B. Controlled unit number mode: All mode or zone 1, 2, 3, 4 mode can be selected

**All mode:** All, zone, or group unit can be selected.

**Zone 1, 2, 3, 4 mode:** Setting is possible only for the indoor units of zone 1, 2, 3, or 4.

CONNECTION EXAMPLE		A Operation mode	
		Central control mode	Remote control mode
B Controlled unit number mode	All mode	All central control Example 1	All remote control
	Zone 1 mode	Zone 1 central control Example 2	Zone 1 remote control
	Zone 2 mode	Zone 2 central control	Zone 2 remote control Example 3
	Zone 3 mode	Zone 3 central control Example 4	Zone 3 remote control
	Zone 4 mode	Zone 4 central control	Zone 4 remote control Example 5



Intelligent controller (CZ-256ESMC2)



Touch panel

Dimensions  
H 240 x W 280 x D 138 mm

Power supply AC 100 to 240 V (50 Hz), 30 W (separate power supply)

I/O part Remote in put (voltage-free contact): All ON/OFF  
Remote output (voltage-free contact): All ON, All alarm (external power supply within DC 30 V, 0.5 A)

Total wiring length: 1 km for each system  
Only for embedding in the panel

Limitation contents for prohibited operation

Prohibition means limiting the operations possible from the remote controller. It is also possible to change the prohibition items.

Limitation contents (Limitations can be user defined)

- Individual No limits are set for the remote controller operation. However, the contents will be changed to the controller's last settings. (Last-pressed priority.)
- Prohibition 1 The remote controller cannot be used for ON/OFF. (All other operations are possible from the remote controller.)
- Prohibition 2 The remote controller cannot be used for ON/OFF, operation mode change and temperature setting. (All other operations are possible from the remote controller.)
- Prohibition 3 The remote controller cannot be used for operation mode change and temperature setting. (All other operations are possible from the remote controller.)
- Prohibition 4 The remote controller cannot be used for operation mode change. (All other operations are possible from the remote controller.)

Note: Avoid joint use of the AMY system and the intelligent controller on the same indoor/ outdoor operation line.

**Max. 256 indoor units (4 systems x 64 units) can be controlled. In case of three or more systems, a communication adaptor CZ-CFUNC2 must be installed on the outside**

**Operation is possible as batch, in zone units, in tenant and in group units**

**ON/OFF, operation mode setting, temperature setting, fan speed setting, air flow direction setting (when used without a remote controller), and remote controller local operation prohibition (prohibition 1, 2, 3, 4)**

**A system without a remote controller is possible. Joint use with a remote controller or a system controller is also possible**

**Use of a schedule timer and holiday setting also can be done**

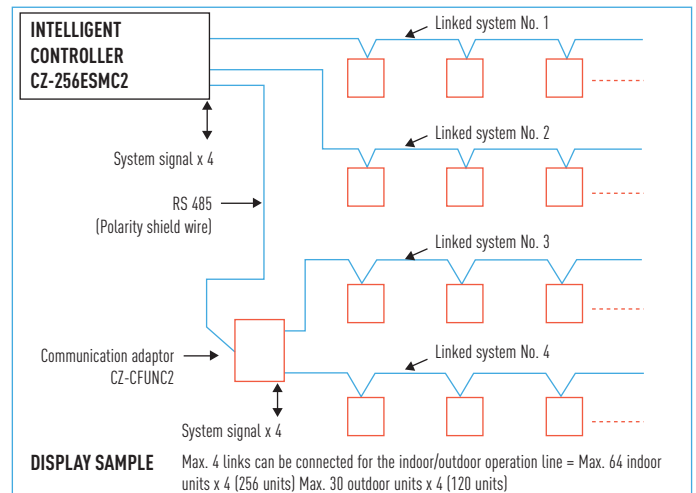
**Proportional distribution of the air conditioning energy is possible. Including csv-file export via CF-card (supplementary accessory)**

**NEW function: Pulse signal input from electric/gas consumption meter**

In case of joint use with a wireless remote control system, there are limitations for the control mode. Please use only with "Permission" and "Prohibition 1".



Web application





## Web Interface / CZ-CWEBC2

### Functions

- Access and operation by Web browser.
- Icon display.
- Language codes available in English, French, German, Italian, Portuguese, Spanish.
- Individual control possible (max. 64 indoor units) ON/OFF operation mode, set temperature, fan speed, Flap set, timer on/off alarm code monitoring, prohibit Remote Control.
- Zone control\*.
- All Units control.
- Alarm Log.
- Mail Sent Log.
- Program Timer set 50 daily timers with 50 actions each day, 50 weekly timers 50 weekly timers, 1 holiday timer, 5 special day timers, for each tenant
- Prohibit Remote Control settings.
- IP ADDRESS could be changed via Internet.



(HxWxD): 248x185x80 mm  
AC 100 to 240 V (50/60Hz), 17 W  
(separate power supply)

Note: It is recommended to install a remote controller or a system controller on site to enable local control if it network experience a problem.

### Easy to set to every room by recognizable icon and user-friendly remote control window

- If any of the indoor units is selected, the remote control window shown will be displayed for detailed setting modifications.

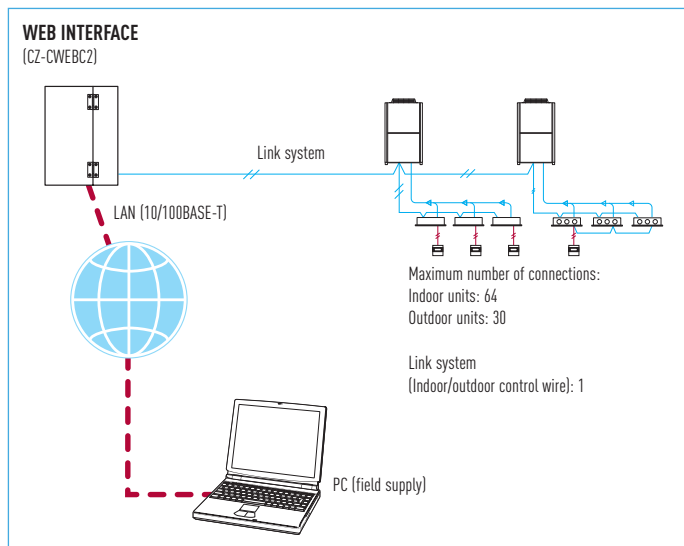
### Easy to manage and monitor each tenant use\*

- Each floor or tenant, otherwise each zone can be displayed and controlled.
- All unit statuses can also be displayed on one screen.

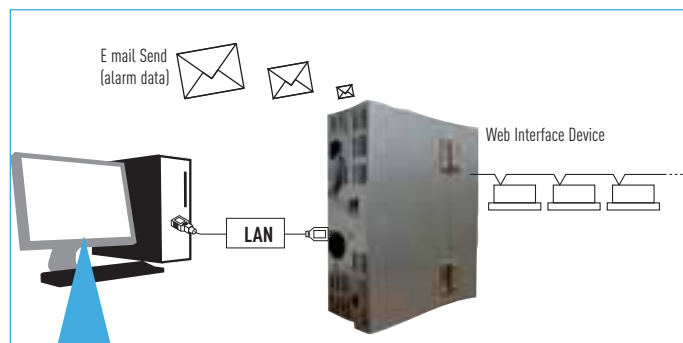
### Program Timer set

- 50 daily timers with 50 actions each day, 50 weekly timers, holiday timer, 5 special day timers, for each tenant.

\* Web interface system not applicable for load distribution.



## Web Interface Device (CZ-CWEBC2)



### Functions

- Access and operation by Web browser.
- Icon display.
- Language codes available in English, French, German, Italian, Portuguese, Spanish.
- Individual control possible (max. 64 indoor units) ON/OFF operation mode, set temperature, fan speed, Flap set, timer on/off alarm code monitoring, prohibit Remote Control.
- Each Tenant (Zone) control.
- All Units control.
- Alarm Log.
- Mail Sent Log.
- Program Timer set 50 daily timers with 50 actions each day, 50 weekly timers 50 weekly timers, 1 holiday timer, 5 special day timers, for each tenant.
- Prohibit Remote Control settings.
- IP ADDRESS could be changed via Internet.

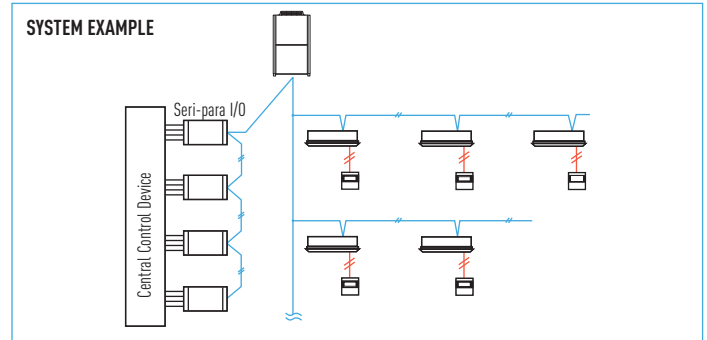
Note: it is recommended to install a remote controller or a system controller on site to enable local control if IT network experience a problem.

### Seri-Para I/O unit for outdoor unit (CZ-CAPDC2)



Dimensions H 80 x W 290 x D 260 mm  
 Power supply Single phase 100/200 V (50/60 Hz), 18 W  
 Input Batch operation/Batch stop (non-voltage contact/DC 24 V, pulse signal). Cooling/Heating (non-voltage contact/static signal). Demand 1/2 (non-voltage contact/static signal) (Local stop by switching)  
 Output Operation output (non-voltage contact). Alarm output (non-voltage contact)  
 Wiring length Indoor/Outdoor operation lines: Total length 1 km. Digital signal: 100 m or shorter

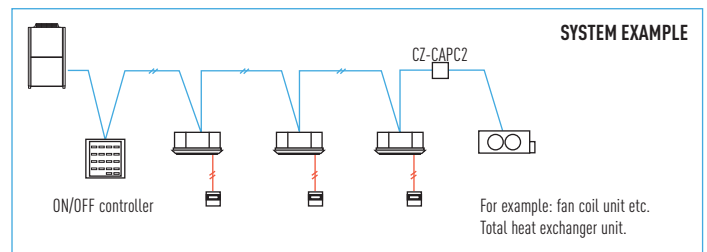
- This unit can control up to 4 outdoor units.
- From the central control device, mode changing and batch operation/batch stop are possible.
- Required for demand control.



### Local adaptor for ON/OFF control (CZ-CAPC2)



- Control and status monitoring is possible for individual indoor unit (or any external electrical device up to 250 V AC, 10 A) by contact signal.

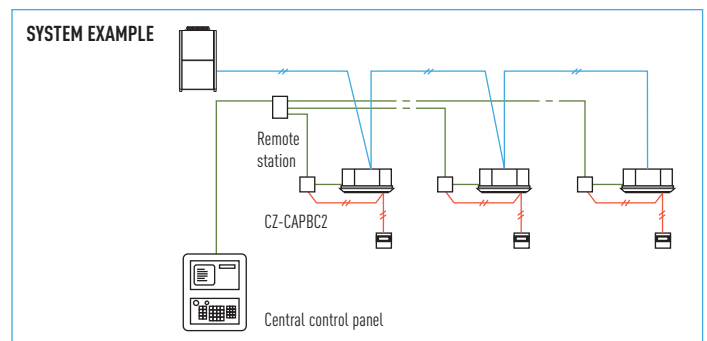


### CZ-CAPBC2 Parallel interface 0 -10 V



- 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 air speed 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 0 to 10 V, or 0 to 140 Ohm.

- Power is supplied from the CZ-T10 terminal of the indoor units.
- Separate power supply also is possible (in case of suction temperature measuring).



## P-AIMS. Panasonic Total Air Conditioning Management System

### P-AIMS Basic software / CZ-CSWKC2

~ Up to 1024 indoor units can be controlled by one PC ~

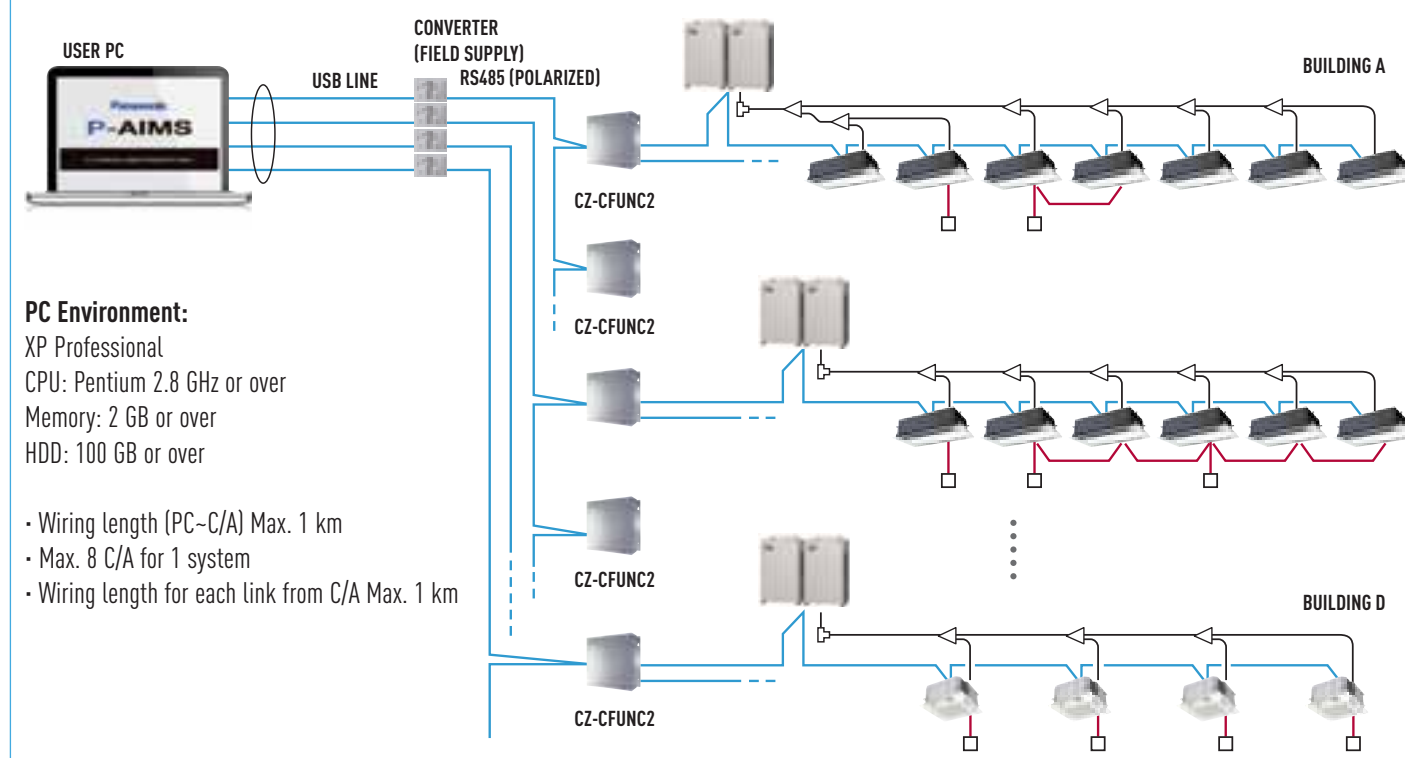
#### Functions of basic software

- Standard remote control for all indoor units.
- Many timer schedule programs can be set on the calendar.
- Detailed information display for alarms.
- CSV file output with alarm history, operating status.
- Automatic data backup to HDD.



With 4 upgrade packages the basic software can be upgraded to suit individual requirements

P-AIMS is suitable for large shopping centers and universities with many areas/ buildings. 1 "P-AIMS" PC can have 4 independent systems at once. Each system can have max. 8 C/A units, and control max. 512 units. In total, 1024 indoor units can be controlled by 1 "P-AIMS" PC.



### P-AIMS optional software CZ-CSWAC2 for Load distribution

#### Load distribution calculation for each tenant

- Air-conditioner load distribution ratio is calculated for each unit (tenant) with used energy consumption data (m<sup>3</sup>, kWh).
- Calculated data is stored as a CSV type file.
- Data from the last 365 days is stored.

### P-AIMS optional software CZ-CSWWC2 for Web application

#### Web access & control from remote station

- Accessing P-AIMS software from remote PC.
- You can monitor/operate ECOi 6N system by using Web browser (Internet Explorer).

### P-AIMS optional software CZ-CSWGC2 for Object layout display

#### Whole system can be controlled visually

- Operating status monitor is available on the layout display.
- Object's layout and indoor unit's location can be checked at once.
- Each unit can be controlled by virtual remote controller on the display.
- Max. 4 layout screens are shown at once.

### P-AIMS optional software CZ-CSWBC2 for BACnet software interface

#### Connectable to BMS system

- Can communicate with other equipment by BACnet protocol.
- ECOi 6N system can be controlled by both BMS and P-AIMS.
- Max. 255 indoor units can be connected to 1 PC (that has P-AIMS basic & BACnet software).

# INTERNET CONTROL. CONTROL YOUR AIR CONDITIONING SYSTEM WITH YOUR SMART DEVICE -SMARTPHONE & INTERNET FOR VRF SYSTEMS



## Control your comfort and efficiency with the lowest energy consumption

### What's Internet Control?

Internet Control is a next generation system providing a user-friendly remote control of air conditioning or heat pump units from everywhere, using a simple Android or iOS smartphone, tablet or PC via internet.

#### Simple Installation

Just connect the Internet Control device to the air conditioner or heat pump with the supplied wire and then link it to your WIFI Access point.

### Internet Control. Easy to install. Maximum benefit

Internet Control is underlined with the slogan "Your home in the cloud", meaning a simple and easy to handle solution has been considered for every user to manage the device, not requiring any communication or computer skills.

No servers. No adaptors. No wires. Just a small box is needed to be connected and placed close to the air conditioning indoor unit... and your smartphone, tablet or PC.

Start the App from your smartphone device, your tablet or your computer, and enjoy a new experience in comfort. An intuitive and user-friendly application on the screen of your smartphone or PC that lets you manage the air conditioning unit in the same way you do with the remote controller. Internet Control can be downloaded in Apple's AppStore and Android's PlayStore.

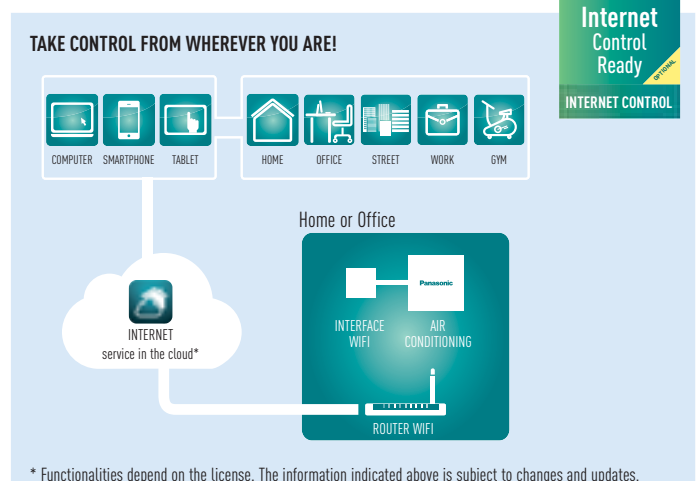
### Control your air conditioning with the smart internet control device via smartphones, tablet, PC and smart desktop phone via internet

Offering the same functions as if you were at home or office: start/stop, Mode Operation, Set Temperature, Room Temperature etc as well as the new, advanced functionality provided by Internet Control to achieve the best comfort and efficiency with the lowest energy consumption.



### Study Case. Paul, Business Man

"My business is growing but I still want to feel like I'm in control. So I carry out all the arrangements, transactions and operations I can from my mobile. From bank transactions, processing orders, to controlling the temperature at the company's different plants; I do everything from my smartphone thanks to IntesisHome and Panasonic."



\* Functionalities depend on the license. The information indicated above is subject to changes and updates.

## ECOi ANG GHP CONNECTIVITY. NEW PLUG AND PLAY INTERFACE CONNECTED DIRECTLY TO THE P-LINK



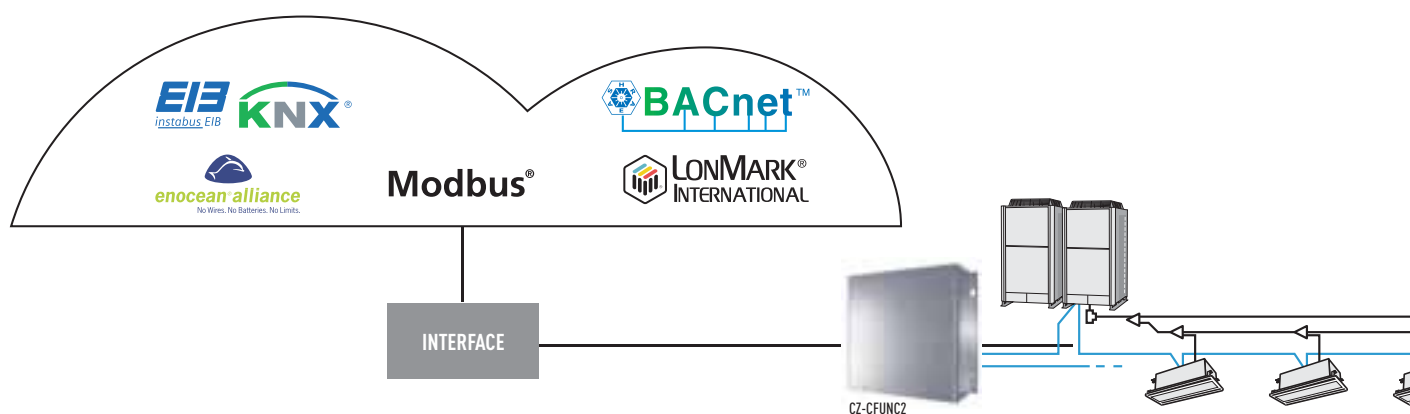
Easy  
control

CONNECTIVITY

Great flexibility for integration into your KNX / EnOcean / Modbus / LonWorks / BACnet projects allows fully bi-directional monitoring and control of all the functioning parameters

Panasonic Partners have designed solutions specifically for Panasonic air conditioners, and provide complete monitoring, control and full functionality of the entire Commercial line-up from KNX / EnOcean / Modbus / LonWorks / BACnet installations.

For more information, contact Panasonic.



### Communication adaptor (CZ-CFUNC2)

This communication interface is required to connect a ECOi and GHP systems to a BMS. An additional interface is needed to convert the information into KNX/ Modbus/Bacnet language. CZ-CFUNC2 is very easy to operate and to connect to the Panasonic P-link, which is the ECOi bus. From the CZ-CFUNC2, all the indoor and outdoor units of the installation can be easily control. Two linked wiring systems can be connected to one CZ-CFUNC2.

Dimensions: H 260 x W 200 x D 68 mm

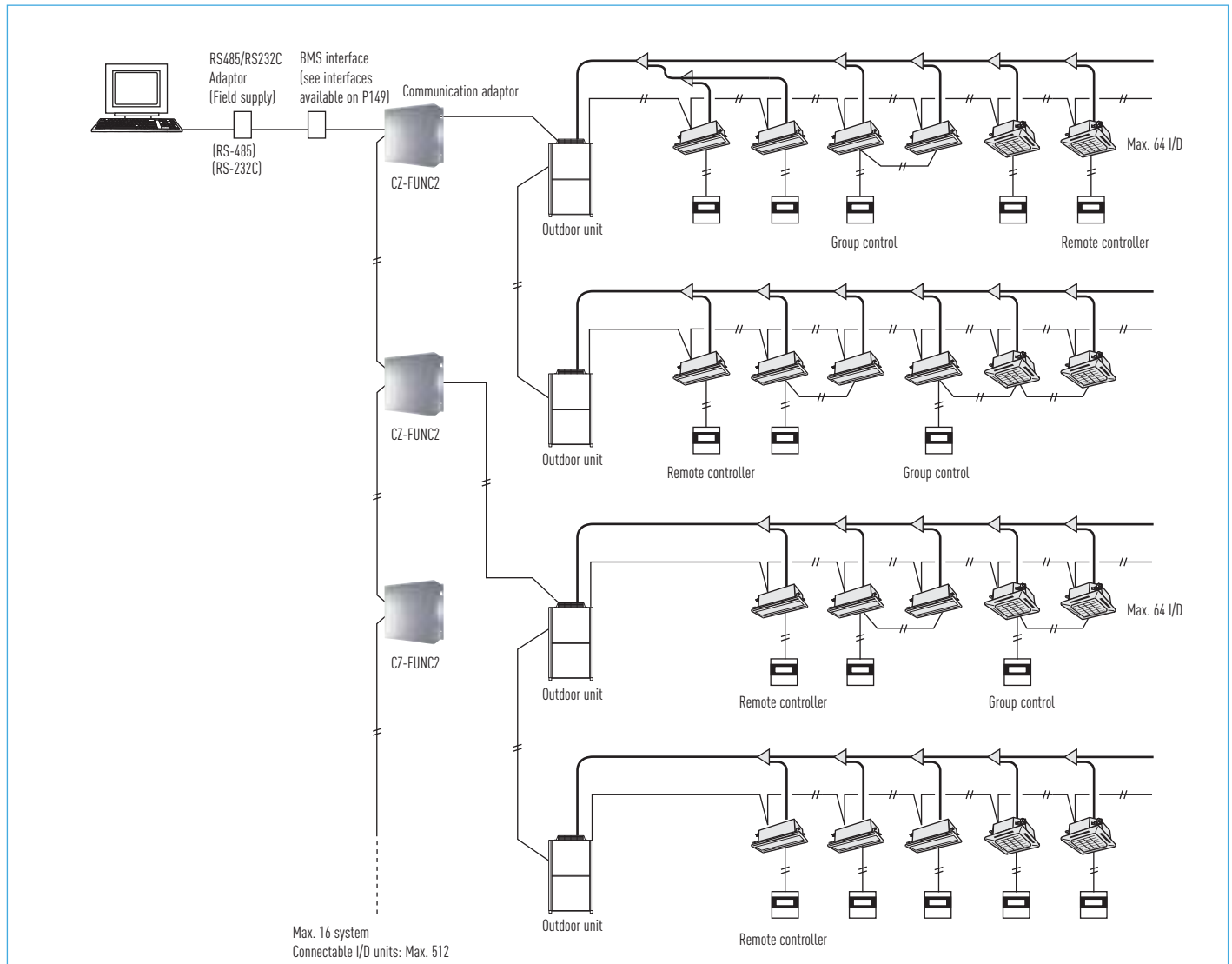
\* As this is not a splash-proof design, it must be installed indoors or in the control panel, etc.

	PANASONIC MODEL NAME	INTERFACE	CONNECTED ON P-LINK OR IN THE INDOOR UNIT	MAX NUMBER OF INDOOR UNITS CONNECTED
ECOi / PACi Indoor Units	PAW-RC2-KNX-1i	KNX	Indoor unit	1 (1 Group of Indoor units)
	PAW-RC2-MBS-1	Modbus RTU*	Indoor unit	1 (1 Group of Indoor units)
	PAW-RC2-ENO-1i	EnOcean	Indoor unit	1 (1 Group of Indoor units)
	PA-RC2-WIFI-1	IntesisHome	Indoor unit	1 (1 Group of Indoor units)
ECOi P-Link	PAW-AC-KNX-64	KNX**	P-link	64
	PAW-AC-KNX-128	KNX**	P-link	128
	PAW-TM-MBS-RTU-64	Modbus RTU**	P-link	64
	PAW-TM-MBS-TCP-128	Modbus TCP**	P-link	128
	PAW-AC-BAC-64	Bacnet**	P-link	64
	PAW-AC-BAC-128	Bacnet**	P-link	128
	CZ-CLNC2	Lonworks	P-link	16 groupes of max. 8 indoor units, in total max. 64 indoor units
	PAW-AC-FIDELIO	Fidelio**	P-link	128

\* Interface Modbus RTU/TCP is needed in case if Modbus TCP connection.

\*\* Interface CZ-CFUNC2 needed.

## EXAMPLE OF BMS CONNECTION FOR AIR CONDITIONER CENTRAL CONTROL SYSTEM



A/C unit settings	Unit ON/OFF
	Mode-change
	Room temperature setting
	Fan speed setting
	Flap setting
	Central control setting
	Filter-sign clear
	Alarm reset
A/C unit status	Unit ON/OFF status
	Operation mode
	Setting temperature
	Fan speed status
	Flap status
	Central control setting
	Filter-sign situation
	Correct/incorrect status
Alarm code	

# ECOi CONNECTIVITY INDOOR UNITS

PCB'S AND CABLES FOR PACi/VRF INDOOR UNITS		
NAME OF THE CABLES	FUNCTION	COMMENT
CZ-T10	All T10 functions	Requires field supplied accessory
PAW-FDC	Operate external fan	Requires field supplied accessory
PAW-OCT	All option monitoring signals	Requires field supplied accessory
CZ-CAPE2	Option monitoring signals wo. fan	Requires additional wires from spare part supply
PAW-EXCT	Forced Thermo OFF/Leakage D.	Requires field supplied accessory
NAME OF THE PBC	FUNCTION	COMMENT
PAW-T10	All T10 functions	Allows easy connection "Plug & Play"
PAW-T10V	All T10 functions + powermonitoring	Same like PAW-T10 + monitoring the power supply of indoor unit
PAW-T10H	ON/OFF; Prohibit 5VDC & 230VAC	Specials for single hotel card or window contact
PAW-T10HW	ON/OFF; Prohibit 5VDC	For hotel card + window contact at same time
PAW-PACR2	Redundancy of 2 systems; T monitor	Redundancy of 2 PACi systems including temperature monitoring an equal operating time
PAW-PACR3	Redundancy of 3 systems; T monitor	Redundancy of 3 PACi systems including temperature monitoring an equal operating time
PAW-ECF	Fan speed control external EC fan	For external production Air Curtain units allow the EC fan control by standard VRF IU PCB

## T10 connector (CN015)

CZ-T10: Panasonic has developed an optional accessory (consisting of plug + wires) called CZ-T10 to enable an easy connection to this T10 connector.



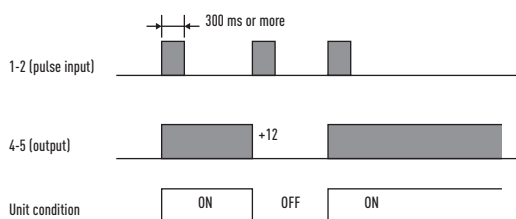
Connecting an ECOi indoor unit to an external device is easy. The T10 terminal featured in the electronic circuit board of all indoor units enables digital connection to external devices.

### EXAMPLE OF APPLICATIONS



### T10 terminal Specification (T10: CN015 at indoor unit PCB)

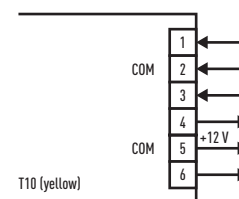
- Control items: 1. Start/stop input
- 2. Remote controller prohibit input
- 3. Start signal output
- 4. Alarm signal output



NOTE: The wire length from indoor unit to the Relay must be within 2.0 m. Pulse signal changeable to static with JP cutting. (Refer to JP001)

- Condition
- 1. 1-2 (Pulse input): Unit ON/OFF condition switching with a pulse signal. (1 pulse signal: shortage status more than 300 msec. or more)
- 2. 2-3 (Static input): Open / Operation with Remote is permitted. (Normal condition) Close / Remote controller is prohibited.
- 3. 4-5 (Static output): 12 V output during the unit ON. / No output at OFF.
- 4. 5-6 (Static output): 12 V output when some errors occur / No output at normal.

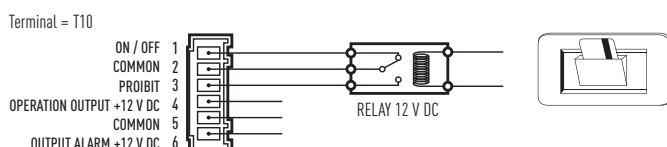
### Example of wiring



### Usage Example Forced OFF control

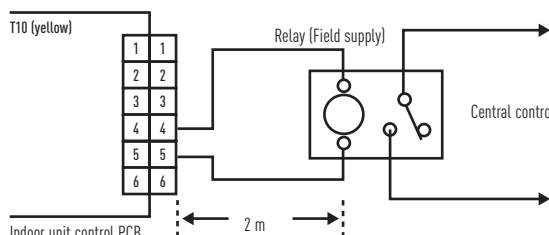
Term 1 & 2: Free contact for ON/OFF signal (cut \*JP1\* for static signal) when the hotel card is it connected the contact must be close (the unit can be used).

Term 2 & 3: Free contact to prohibit all function in the remote controller install in the room when the hotel card is it removed the contact must be closed (the unit can not work).



### Operation ON/OFF signal output

- Condition:
- 4-5 (Static output): 12 V output during the unit ON / No output at OFF
- Example of wiring



NOTE: The wire length from indoor unit to the Relay must be within 2.0 m. Pulse signal changeable to static with JP cutting. (Refer to JP001)

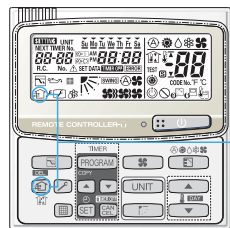
## Fan Drive Connector (CN017)

PAW-FDC: Panasonic has developed an optional accessory (consisting of plug + wires) called PAW-FDC to enable an easy connection to this Fan Drive Connector (CN017).



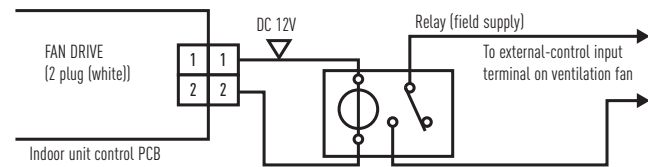
### Operating the ventilation fan from the remote controller

- Start / stop of external ventilation and total heat exchanger fans
- Works even if indoor unit is stopped
- In case of group control → all fans will operate; no individual control



### EXTERNAL FAN ON / OFF

Ventilation button



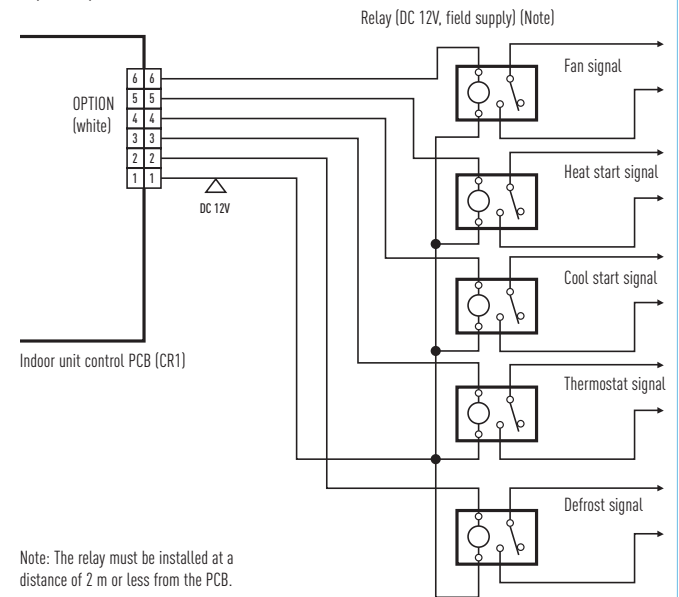
## Option Connector (CN060) Output external signals



PAW-OCT: Panasonic has developed an optional accessory (consisting of plug + wires) called PAW-OCT to enable an easy connection to this Option Connector (CN060).

With the combination of the T10 and the option CN060 an external control of the I\_U is possible!

6P (WHITE): OUTPUTS EXTERNAL SIGNALS AS SHOWN IN THE FIGURE BELOW.



## EXCT Connector (CN009)

PAW-EXCT: Panasonic has developed an optional accessory (consisting of plug + wires) called PAW-EXCT to enable an easy connection to this EXCT Connector (CN009).

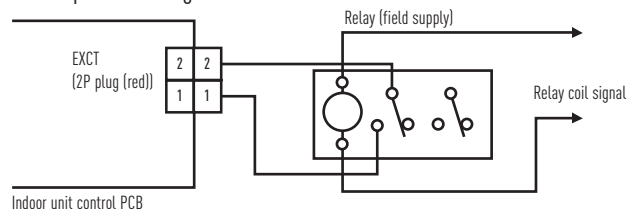
### A) With static input

→ **STATIC INPUT → THERMO OFF → ENERGY SAVING**

2P plug (red): Can be used for demand control. When input is present, forces the unit to operate with the thermostat OFF.

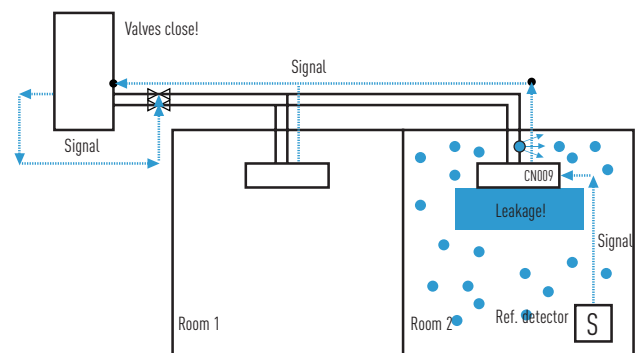
Note: The length of the wiring from the indoor unit control PCB to the relay must be 2m or less.  
\* Lead wire with 2P plug (special—order part: WIRE K/854 05280 75300)

• Examples of wiring:



### B) Example: In connection with a refrigerant sensor

- Signal from leakage detector: non voltage, static.
- Indoor unit setting: Code 0b → 1
- Connector for leak detector: EXCT
- Outdoor unit setting:
  - Code C1 → 1 power output if alarm from O2 connector 230 V
  - Code C1 → 2 power output if alarm from O2 connector 0 V
- Displayed alarm message P14





## R22 RENEWAL

AN IMPORTANT DRIVE TO FURTHER REDUCE  
THE POTENTIAL DAMAGE TO OUR OZONE

Possible  
to use on  
**R22 pipings**

R22 RENEWAL

### WHY RENEWAL?

It is often said that legislation is ruling our lives but sometimes it is there to help save lives. R22 phase out can be described as one of these and from Jan 1st 2010 the use of Virgin (new) R22 refrigerant was banned within the European Community.

### Panasonic are doing our part

We at Panasonic are also doing our part – recognising that all finances are under pressure at the moment. Panasonic have developed a clean and cost effective solution to enable this latest legislation to be introduced with as minimum an effect on businesses and cash reserves as possible.

The Panasonic renewal system allows good quality existing R22 pipe work to be re-used whilst installing new high efficiency R410A systems.

By bringing a simple solution to the problem Panasonic can renew all Split Systems and VRF systems; and depending upon certain restrictions we don't even limit the manufactures equipment we are replacing.

By installing a new high efficiency Panasonic R410A system you can benefit from around 30% running cost saving compared to the R22 system.

The installation can also qualify for the government's ECA (Enhanced Capital Allowance Scheme) which enables you to offset the cost against your Capital Gains Tax.

Yes...

1. Check the capacity of the system you wish to replace
  2. Select from the Panasonic range the best system to replace it with
  3. Follow the procedure detailed in the brochure and technical data
- Simple...

R22 - The reduction of Chlorine critical for a cleaner future

## VRF RENEWAL

Panasonic's Renewal system allows a completely new VRF system, indoor and outdoor units, to be installed using the existing systems pipe work. Panasonic's advanced technology enables the system to work with previously installed pipe work by managing the working pressure within the system down to R22 (33 bar) levels, this ensures the system works safely and efficiently without loss of capacity.

The new equipment can offer increased COP/EER by using state of the art inverter compressor and heat exchanger technology.

Having contacted your Panasonic supplier regarding pipe work restrictions and gained approval to use the Panasonic Renewal System there are three main tests that have to be carried out to ensure that the system can be used effectively.

Firstly a thorough inspection of the pipe work must be carried out and any damage must be repaired.

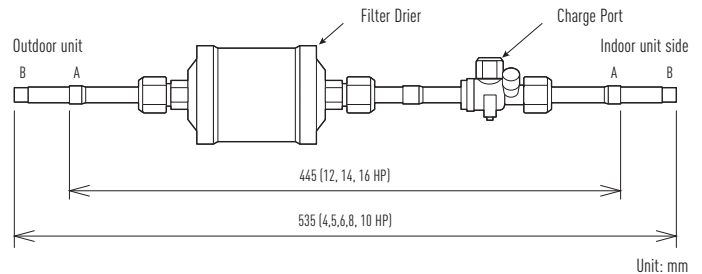
Secondly an oil test has to be carried out to ensure that the system has not been subject to a compressor burnout during its lifetime, Lastly a VRF Renewal Kit (CZ-SLK2) has to be installed within the pipe work to ensure that the system is cleaned of any remnants of oil.



### VRF Renewal Kit (CZ-SLK2) and Sight Glass

The following shows an overview of the VRF Renewal Kit (CZ-SLK2) that is required when existing tubing is reused. If the exact tube length and tube size of the existing tubing are uncertain, attach a sight glass in accordance with the figure below. It will be used for checking the amount of additional refrigerant charge.

#### VRF RENEWAL KIT: CZ-SLK2



#### Connecting tube dimensions (Inch mm)

A Ø 1/2 (12.7) (12, 14, 16 HP)

B Ø 3/8 (9.52) (4,5,6,8, 10 HP)

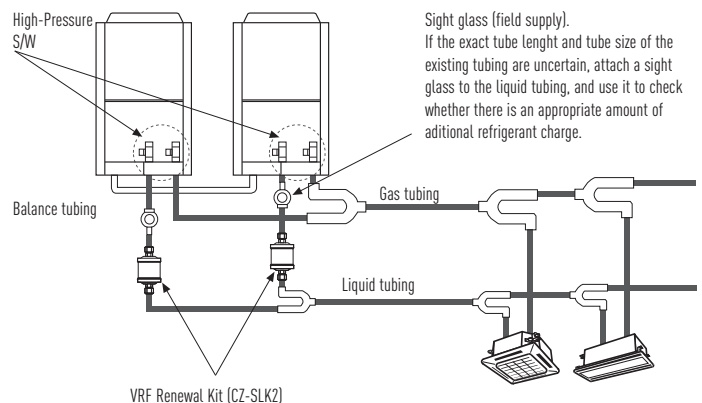
Note: If the tube size does not match that of the existing tubing, use a reducer (field supply) to adjust the tube diameter.

#### Sight glass (field supply)

If the exact tube length and tube size of the existing tubing are uncertain, attach a sight glass to the liquid tubing, and use it to check whether there is an appropriate amount of additional refrigerant charge.

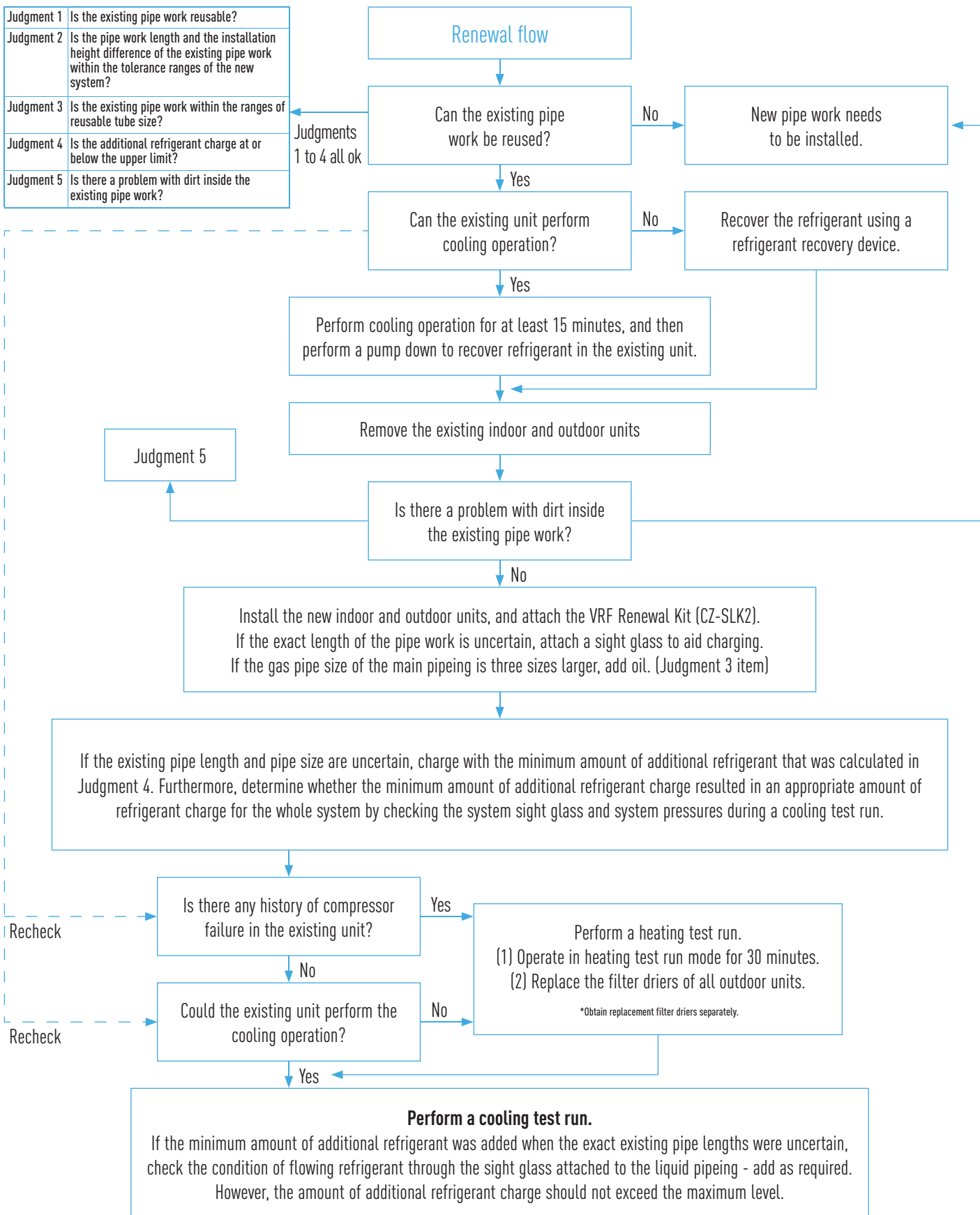
#### Attaching the Filter Drier Kit and sight glass

- To adjust the limited pressure level into 3.3 MPa, special setting is necessary at site.
- A filter Drier shall be attached to the liquid tubing of each outdoor unit.
- High-Pressure switches shall be attached to both the liquid and the gas tubings of each outdoor unit.
- There is no need to remove the Filter Drier Kit after a test run is performed because normal operation continues while it is attached. (High pressure switch kit: CZ-PSWK2 (for 2-way and 3-way)).
- When attaching the Filter Drier Kit, care shall be taken with regards to the installation location and orientation of the filter drier and ball valve. If a mistake is made, the refrigerant in the system needs to be recovered when the filter drier is replaced, which will make maintenance difficult.
- Thermal insulation material (field supply: heat resistance of 80 °C or higher and thickness of 10 mm or greater) shall be applied to the Filter Drier Kit.
- The filter drier of the Filter Drier Kit may need to be replaced depending on the condition of the existing unit. Use a Danfoss DMB 164 as the replacement filter drier (field supply).



VRF Renewal Kit (CZ-SLK2)

# PROCEDURE FOR VRF RENEWAL



# BRANCHES AND HEADERS

## Dimensions and Tube Sizes of Branches and Headers for 2-Pipe ECOi 6N Systems

### Optional Distribution Joint Kits

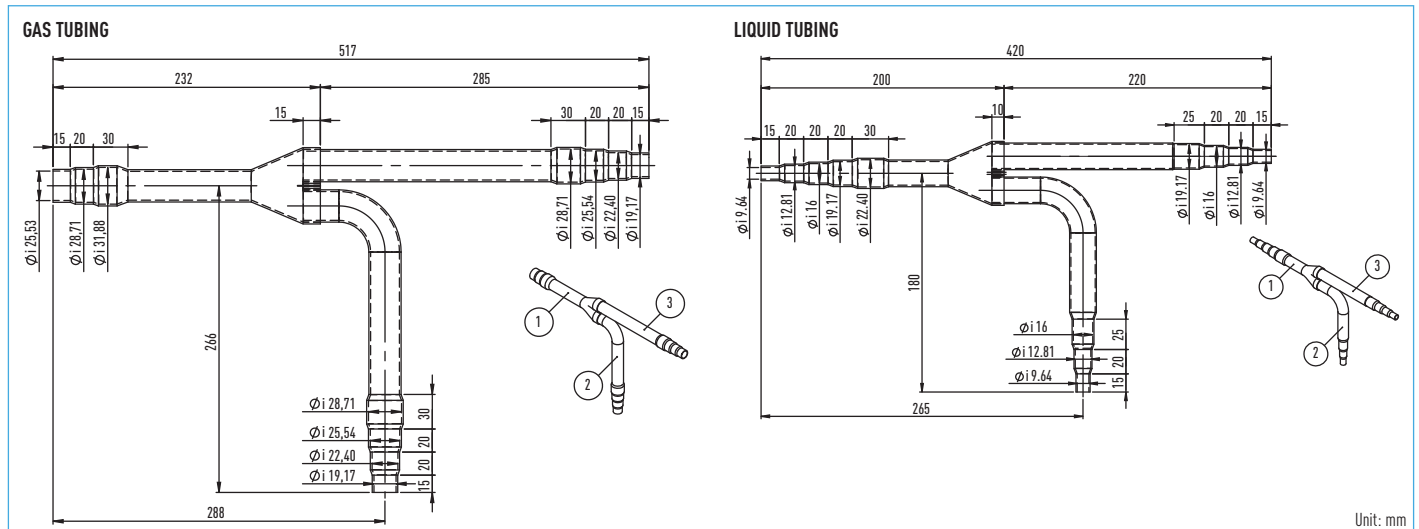
See the installation instructions packaged with the distribution joint kit for the installation procedure.

	COOLING CAPACITY AFTER DISTRIBUTION	REMARKS
Outdoor unit side	68.0 kW or less	CZ-P680PH2BM
	From 68.0 kW to 168.0 kW	CZ-P1350PH2BM
Indoor unit side	22.4 kW or less	CZ-P224BK2BM
	From 22.4 kW to 68.0 kW	CZ-P680BK2BM
	From 68.0 kW to 168.0 kW or less	CZ-P1350BK2BM

### Tube size (with thermal insulation)

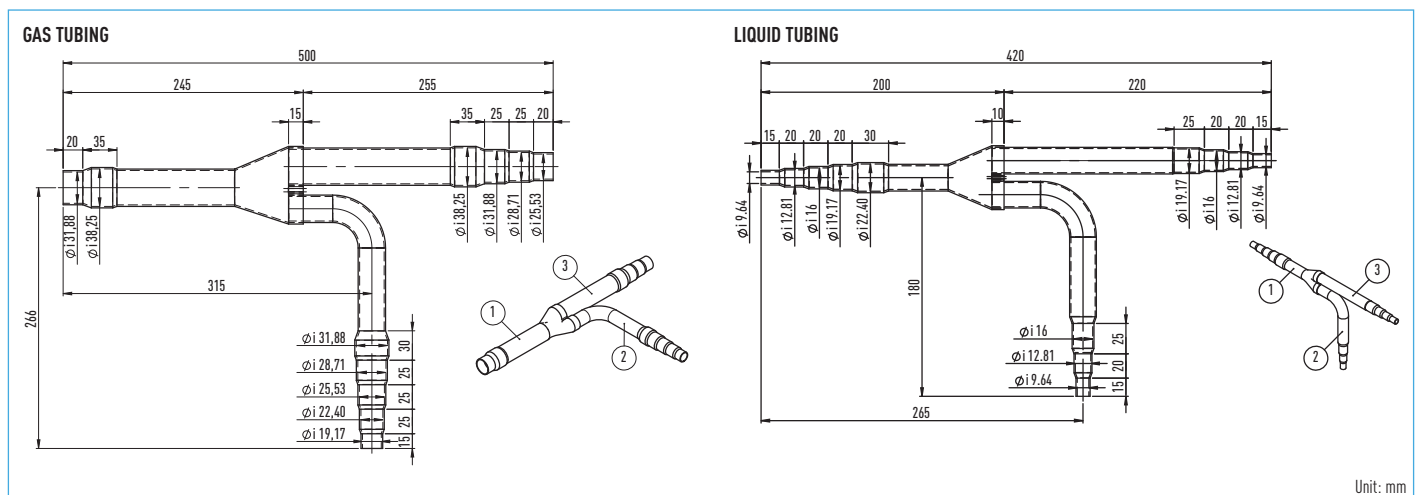
#### 1. CZ-P680PH2BM

For outdoor unit side (Capacity after distribution joint is 68.0 kW or less.)



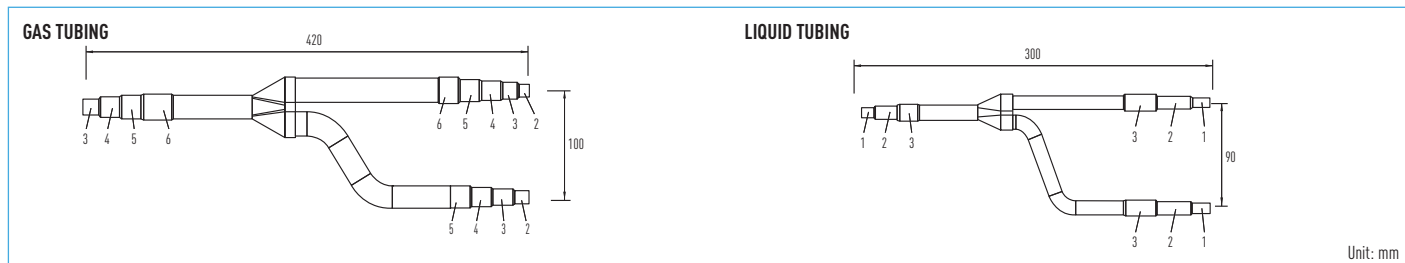
#### 2. CZ-P1350PH2BM

For outdoor unit side (Capacity after distribution joint is greater than 68.0 kW and no more than 168.0 kW.)



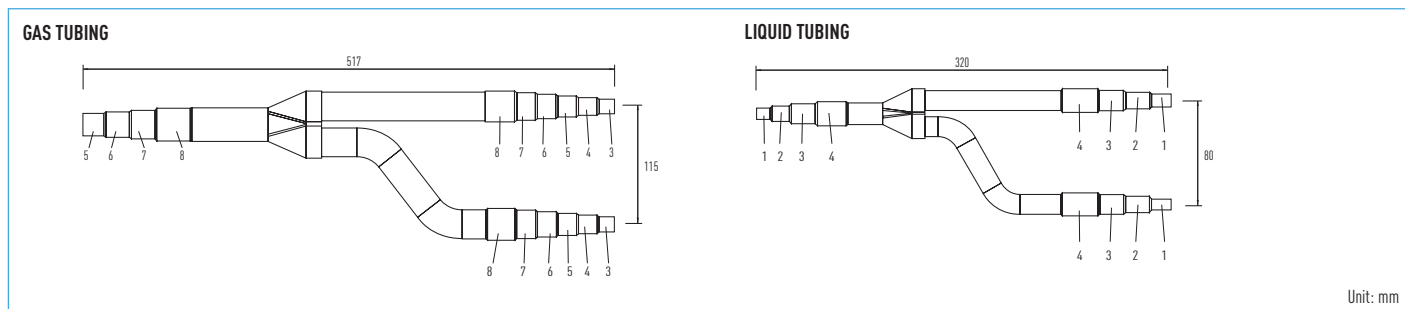
### 3. CZ-P224BK2BM

For indoor unit side (Capacity after distribution joint is 22.4 kW or less.)



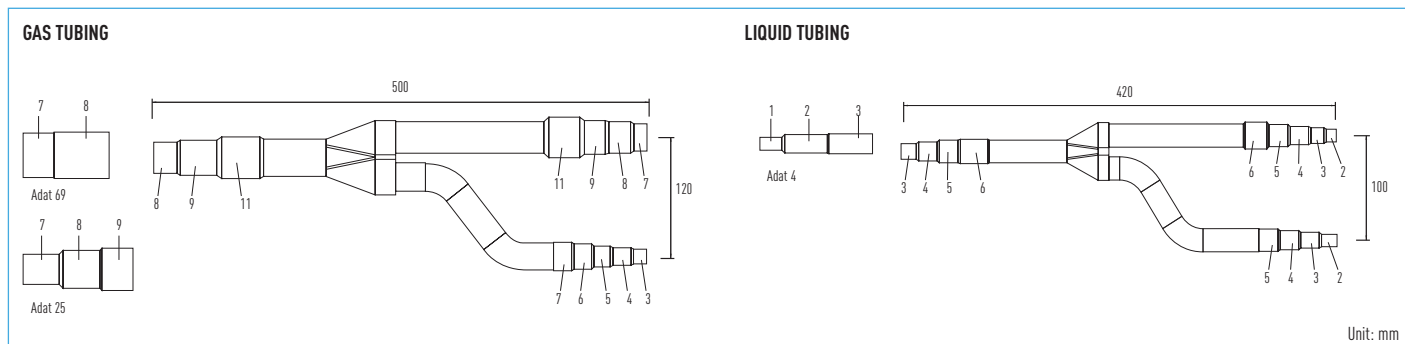
### 4. CZ-P680BK2BM

For indoor unit side (Capacity after distribution joint is greater than 22.4 kW and no more than 68.0 kW.)



### 5. CZ-P1350BK2BM

For indoor unit side (Capacity after distribution joint is greater than 68.0 kW and no more than 168.0 kW.)



DIAMETERS		DIAMETERS		DIAMETERS	
1	6.35 mm 1/4"	6	22.40 mm 7/8"	11	38.10 mm 1 1/2"
2	9.52 mm 3/8"	7	25.40 mm 1"	12	41.28 mm 1 5/8"
3	12.70 mm 1/2"	8	28.57 mm 1 1/8"	13	44.45 mm 1 3/4"
4	15.88 mm 5/8"	9	31.75 mm 1 1/4"	14	50.80 mm 2"
5	19.05 mm 3/4"	10	34.92 mm 1 3/8"		

# BRANCHES AND HEADERS

## Dimensions and Tube Sizes of Branches and Headers for 3-Pipe ECOi 6N Systems (MF2)

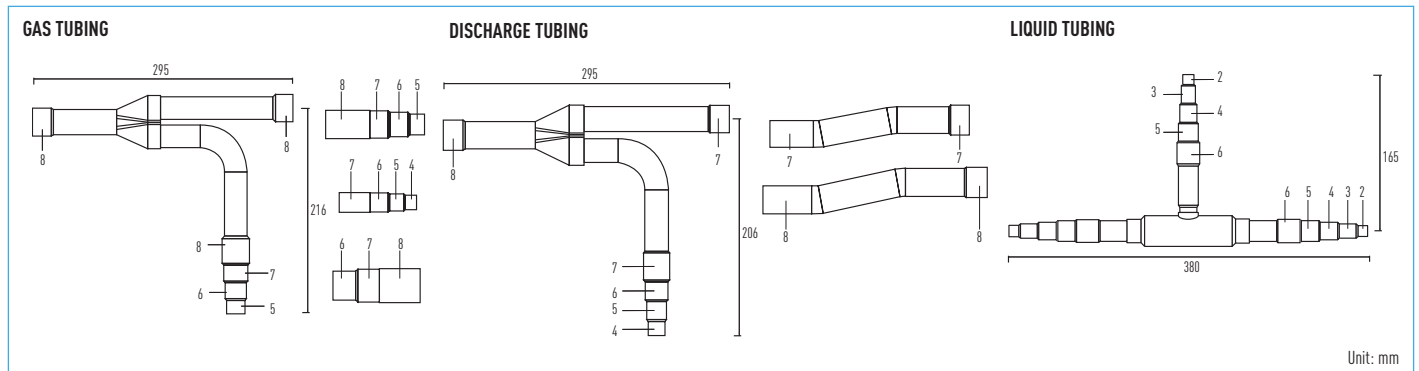
### Optional Distribution Joint Kits

See the installation instructions packaged with the distribution joint kit for the installation procedure.

MODEL NAME	CAPACITY AFTER DISTRIBUTION JOINT	REMARKS
For outdoor unit	68.0 kW or less	CZ-P680PJ2BM
	greater than 68.0 kW and no more than 135.0 kW	CZ-P1350PJ2BM
For indoor unit	22.4 kW or less	CZ-P224BH2BM
	greater than 22.4 kW and no more than 68.0 kW	CZ-P680BH2BM
	greater than 68.0 kW and no more than 135.0 kW	CZ-P1350BH2BM

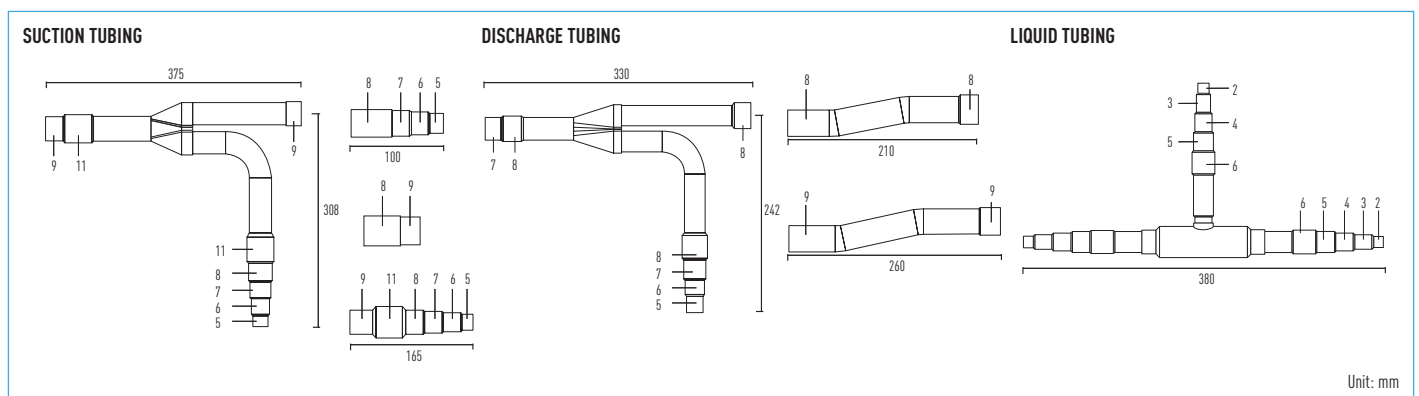
#### 1. CZ-P680PJ2BM

For outdoor unit side (Capacity after distribution joint is 68.0 kW or less.)



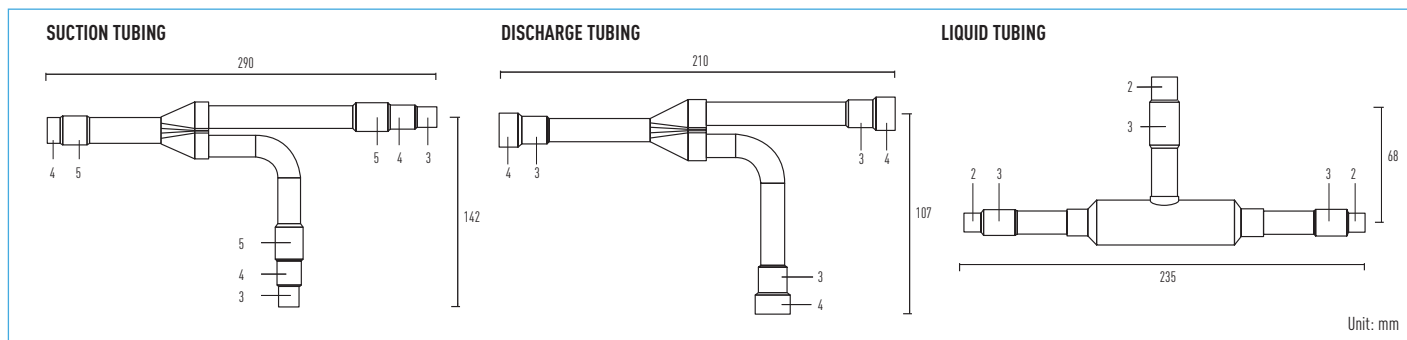
#### 2. CZ-P1350PJ2BM

For outdoor unit side (Capacity after distribution joint is greater than 68.0 kW and no more than 135.0 kW.)



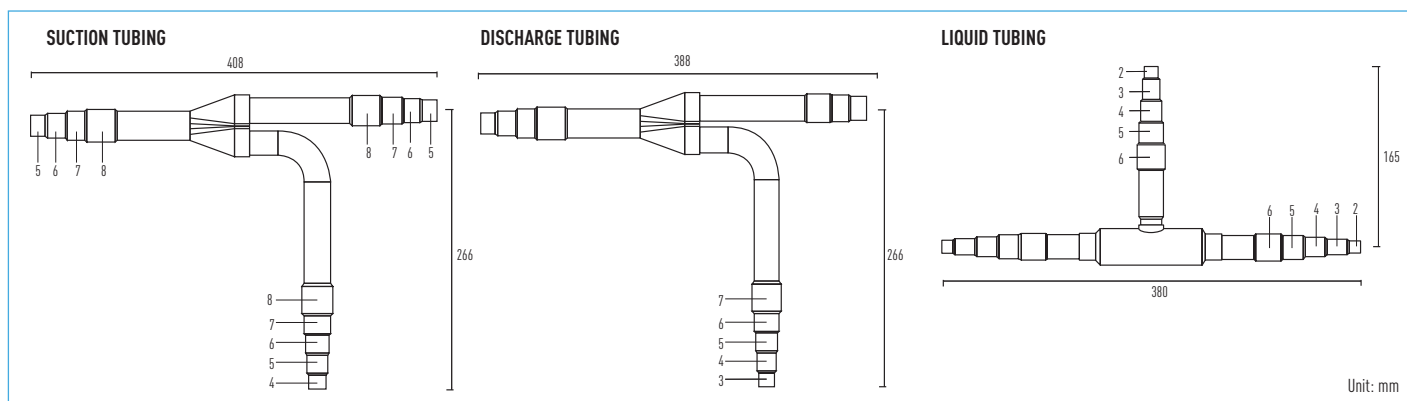
3. CZ-P224BH2BM.

For outdoor unit side (Capacity after distribution joint is 22.4 kW or less.)



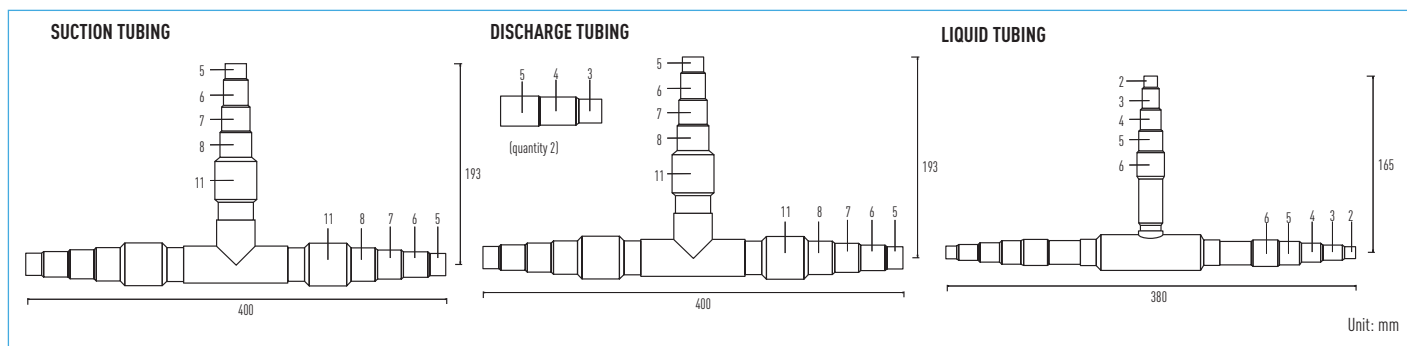
4. CZ-P680BH2BM.

For outdoor unit side (Capacity after distribution joint is greater than 22.4 kW and no more than 68.0 kW.)



5. CZ-P1350BH2BM.

For outdoor unit side (Capacity after distribution joint is greater than 68.0 kW and no more than 135.0 kW.)

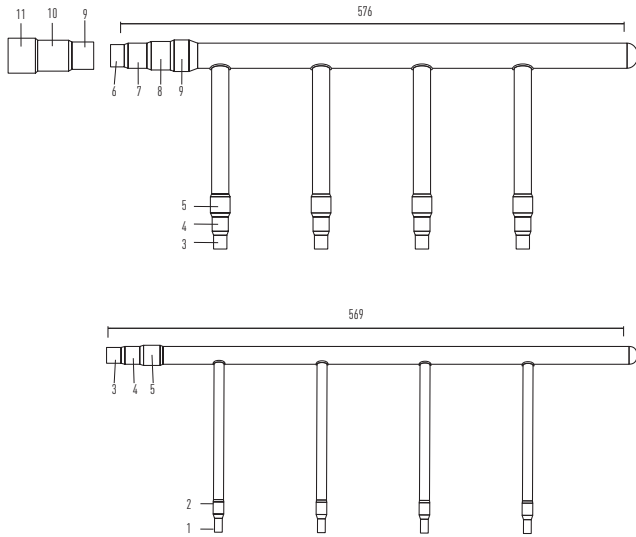


DIAMETERS		DIAMETERS		DIAMETERS	
1	6.35 mm 1/4"	6	22.40 mm 7/8"	11	38.10 mm 1 1/2"
2	9.52 mm 3/8"	7	25.40 mm 1"	12	41.28 mm 1 5/8"
3	12.70 mm 1/2"	8	28.57 mm 1 1/8"	13	44.45 mm 1 3/4"
4	15.88 mm 5/8"	9	31.75 mm 1 1/4"	14	50.80 mm 2"
5	19.05 mm 3/4"	10	34.92 mm 1 3/8"		

Header pipe set for ECOi 6N 2-Pipe system

Header pipe models for 2-Pipe systems:

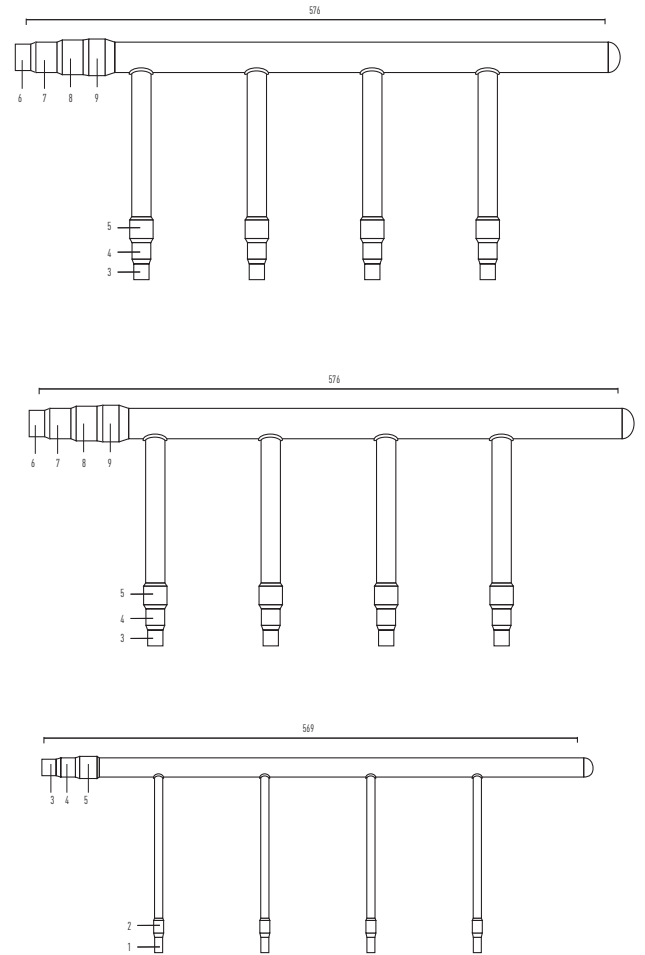
CZ-P4HP4C2BM



Header pipe set for ECOi 6N 3-Pipe system

Header pipe model for 3-Pipe systems:

CZ-P4HP3C2BM

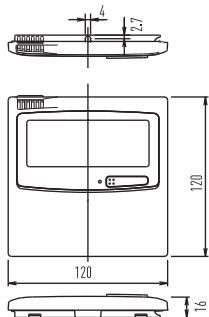


DIAMETERS		
1	6.35 mm	1/4"
2	9.52 mm	3/8"
3	12.70 mm	1/2"
4	15.88 mm	5/8"
5	19.05 mm	3/4"
6	22.40 mm	7/8"
7	25.40 mm	1"
8	28.57 mm	1" 1/8
9	31.75 mm	1" 1/4
10	34.92 mm	1" 3/8
11	38.10 mm	1" 1/2

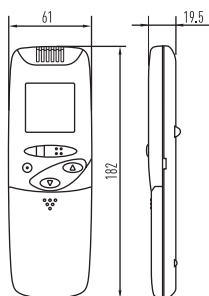


# CONTROL EQUIPMENT EXTERNAL DIMENSIONS

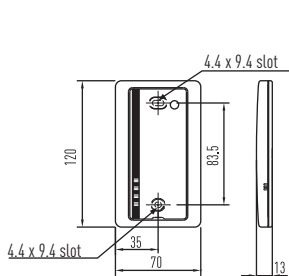
**TIMER REMOTE CONTROLLER**  
(CZ-RTC2)



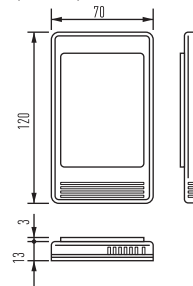
**WIRELESS REMOTE CONTROLLER**



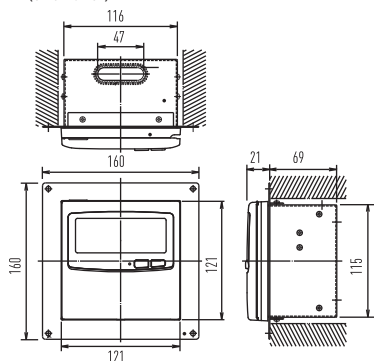
**SEPARATE RECEIVER FOR WIRELESS REMOTE CONTROLLER**



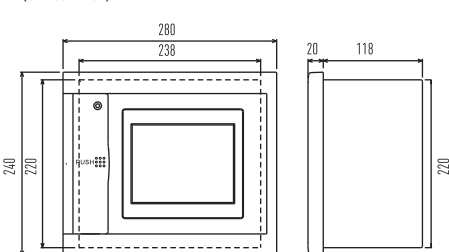
**SIMPLIFIED REMOTE CONTROLLER**  
(CZ-REZC2)  
**REMOTE SENSOR**  
(CZ-CSRC2)



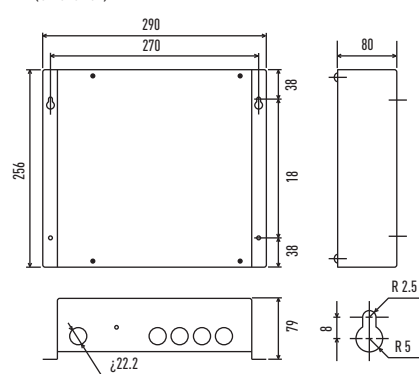
**SYSTEM CONTROLLER**  
(CZ-64ESMC2)



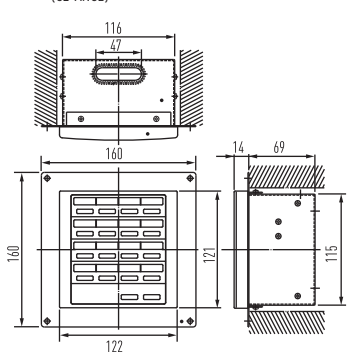
**INTELLIGENT CONTROLLER**  
(CZ-256ESMC2)



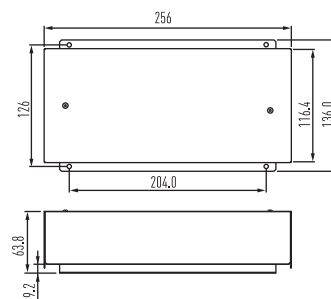
**COMMUNICATION ADAPTER**  
(CZ-CFUNC2)



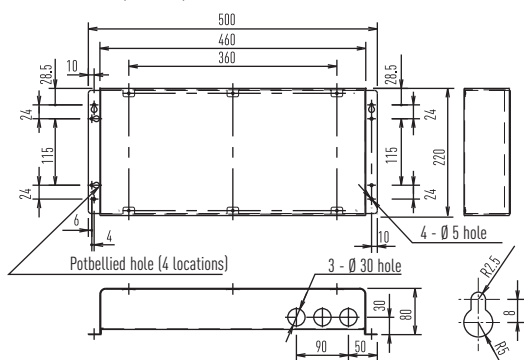
**ON/OFF CONTROLLER**  
(CZ-ANC2)



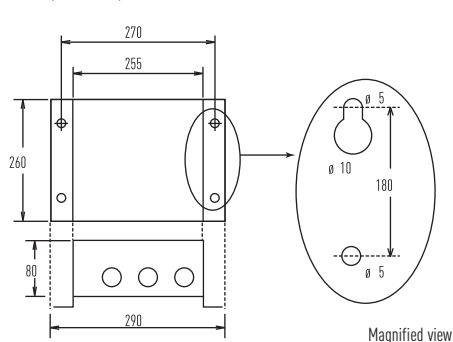
**SERI-PARA I/O UNIT FOR EACH INDOOR UNIT**  
(CZ-CAPBC2)



**LONWORKS INTERFACE**  
(CZ-CLNC2)



**SERI-PARA I/O UNIT FOR OUTDOOR UNIT**  
(CZ-CAPDC2)



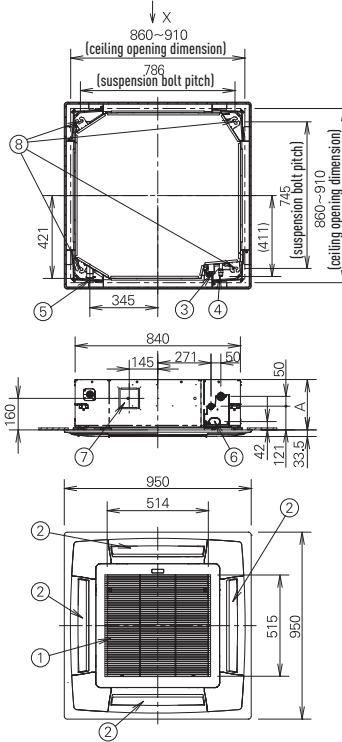
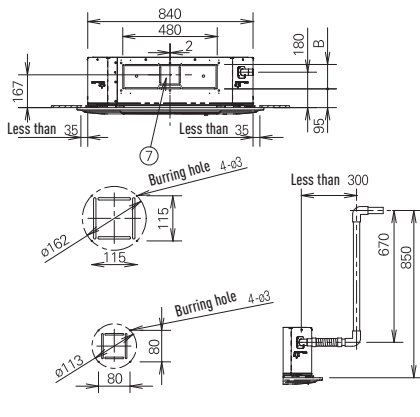
Detail of the potbellied hole

# VRF INDOOR UNITS DIMENSIONS

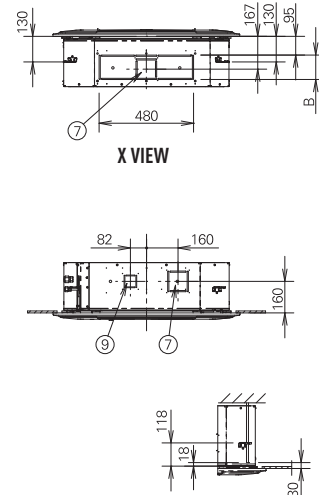
## U1 TYPE // 4-WAY 90x90 CASSETTE

Type	36-50	60-140
1 Air intake grill		
2 Air discharge outlet		
3 Refrigerant piping (liquid pipes)	Ø6.35 (flared)	Ø9.52 (flared)
4 Refrigerant piping (gas pipes)	Ø12.7 (flared)	Ø15.88 (flared)
5 Drain outlet VP50	outer Ø32	
6 Power supply port		
7 Discharge duct	Ø150	
8 Suspension bolt hole	4-12x30 slot	
9 Fresh air intake duct connection port	Ø100 <sup>1</sup>	

1 Air inlet kit is necessary.  
Filter size: 520 x 520 x 16



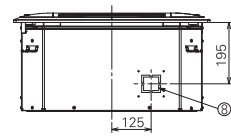
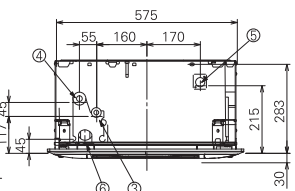
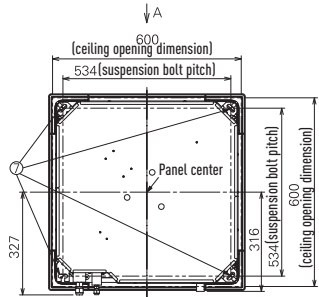
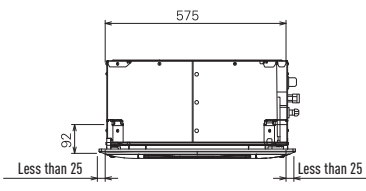
Type	36-71	100-140
A	256	319
B	124	187



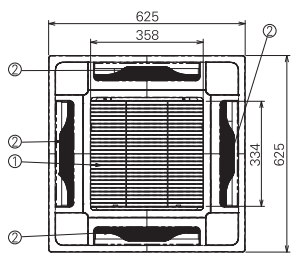
Adjust the suspension bolt length so that the gap from the lower ceiling surface becomes 30 mm or more (18 mm or more from the lower surface of the body) as shown in the figure. When the suspension bolt length is long, it hits the ceiling panel and installation is not possible.

## Y1 TYPE // 4-WAY 60x60 CASSETTE

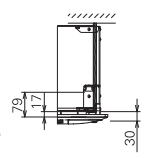
- 1 Air intake
- 2 Discharge outlet
- 3 Refrigerant piping (liquid pipes)  
Size 22 to 56: Ø 6.35 (flared)
- 4 Refrigerant piping (gas pipes)  
Size 22 to 56: Ø 12.7 (flared)
- 5 Drain tube connection port VP20 (outer Ø 26)
- 6 Power supply port
- 7 Suspension bolt hole (4-12 x 30 hole)
- 8 Fresh air intake duct connection port (Ø 100)



A view



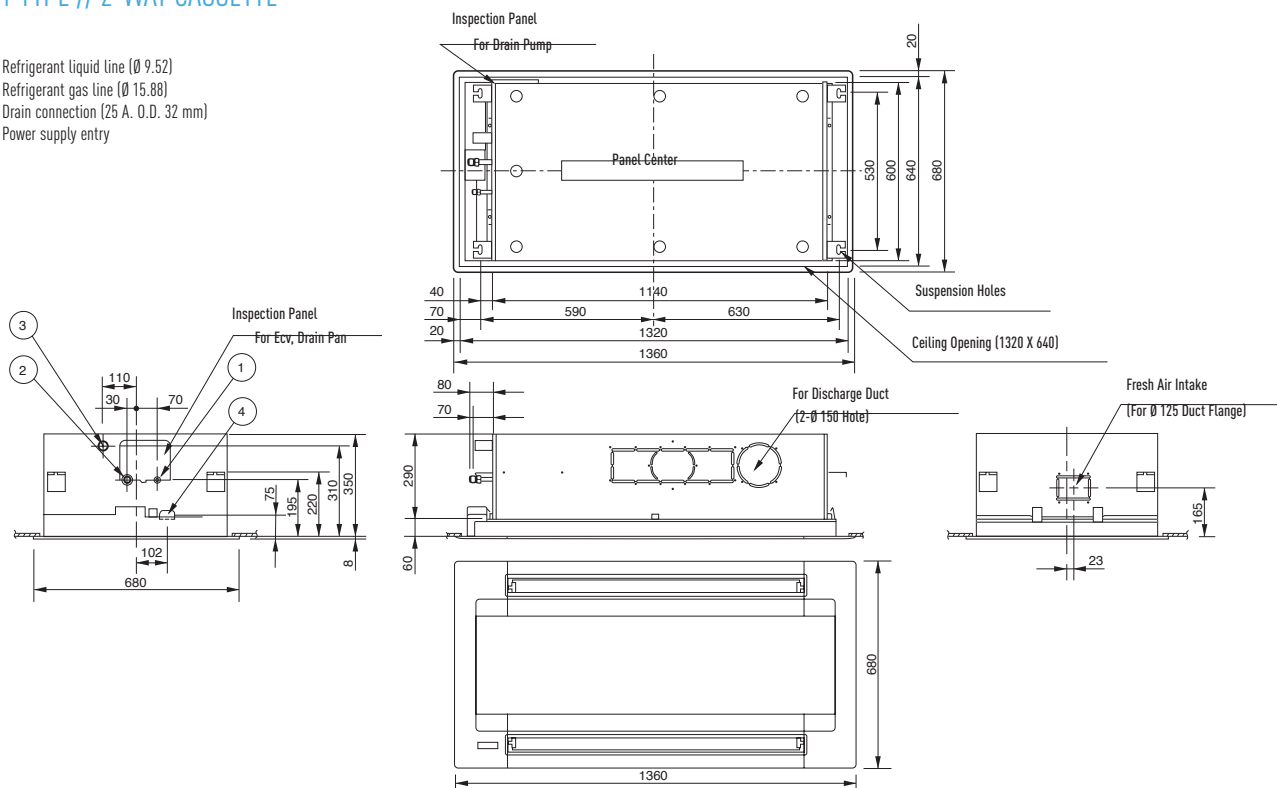
The length of the suspension bolts should be selected so that there is a gap of 30 mm or the ceiling (17 mm or more below the lower surface of the main unit), as shown in the figure at right. If the suspension bolt is too long, it will contact the ceiling panel and the unit cannot be installed.



Dimensions: mm

### L1 TYPE // 2-WAY CASSETTE

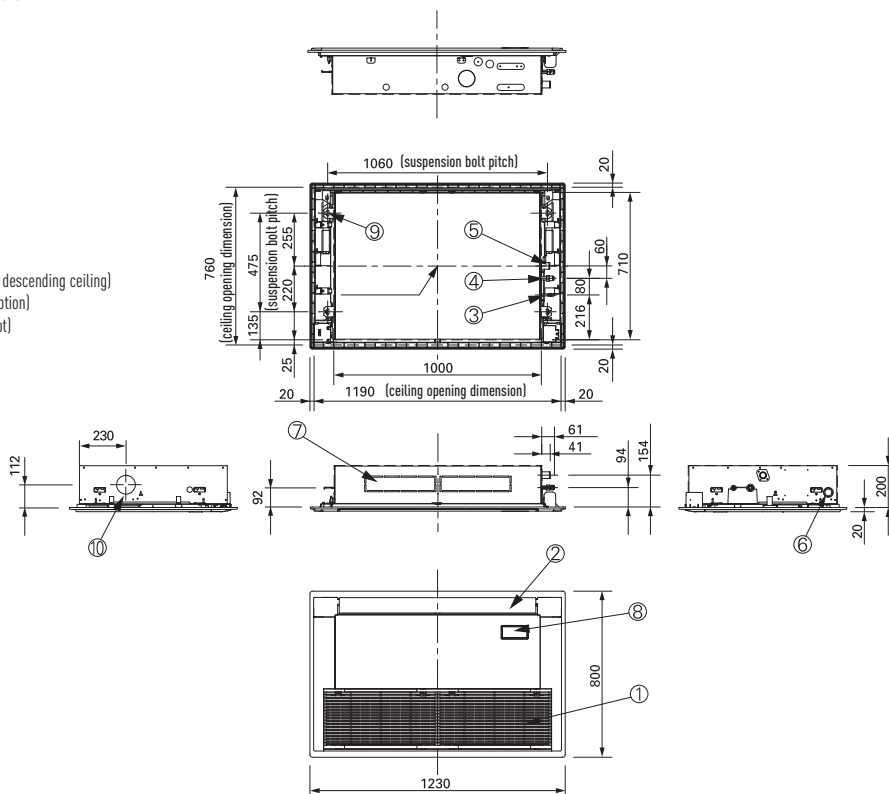
- 1 Refrigerant liquid line (Ø 9.52)
- 2 Refrigerant gas line (Ø 15.88)
- 3 Drain connection (25 A. O.D. 32 mm)
- 4 Power supply entry



Dimensions: mm

### D1 TYPE // 1-WAY CASSETTE

- 1 Air intake grille
- 2 Air outlet
- 3 Refrigerant piping (liquid pipes)  
Sizes 28 to 56: Ø 6.35 (flared)  
Size 73: Ø 9.52 (flared)
- 4 Refrigerant piping (gas pipes)  
Type 28 to 56: Ø 12.7 (flared)  
Type 73: Ø 15.88 (flared)
- 5 Drain connection VP25 (outer Ø 32)
- 6 Power supply entry
- 7 Discharge duct connection port (for descending ceiling)
- 8 Wireless remote control receiver (option)
- 9 Suspension mounting (4-12 x 30 slot)
- 10 Fresh air intake (Ø 100)

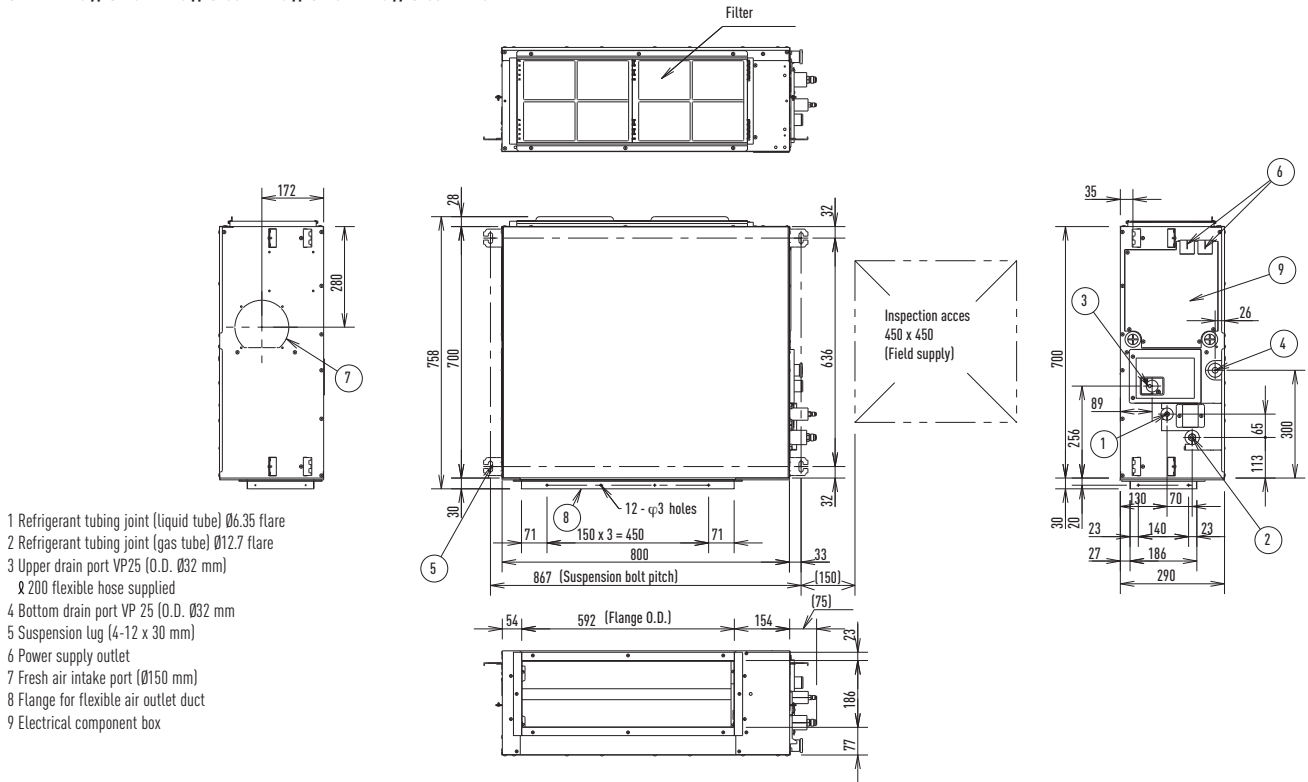


Dimensions: mm

# VRF INDOOR UNITS DIMENSIONS

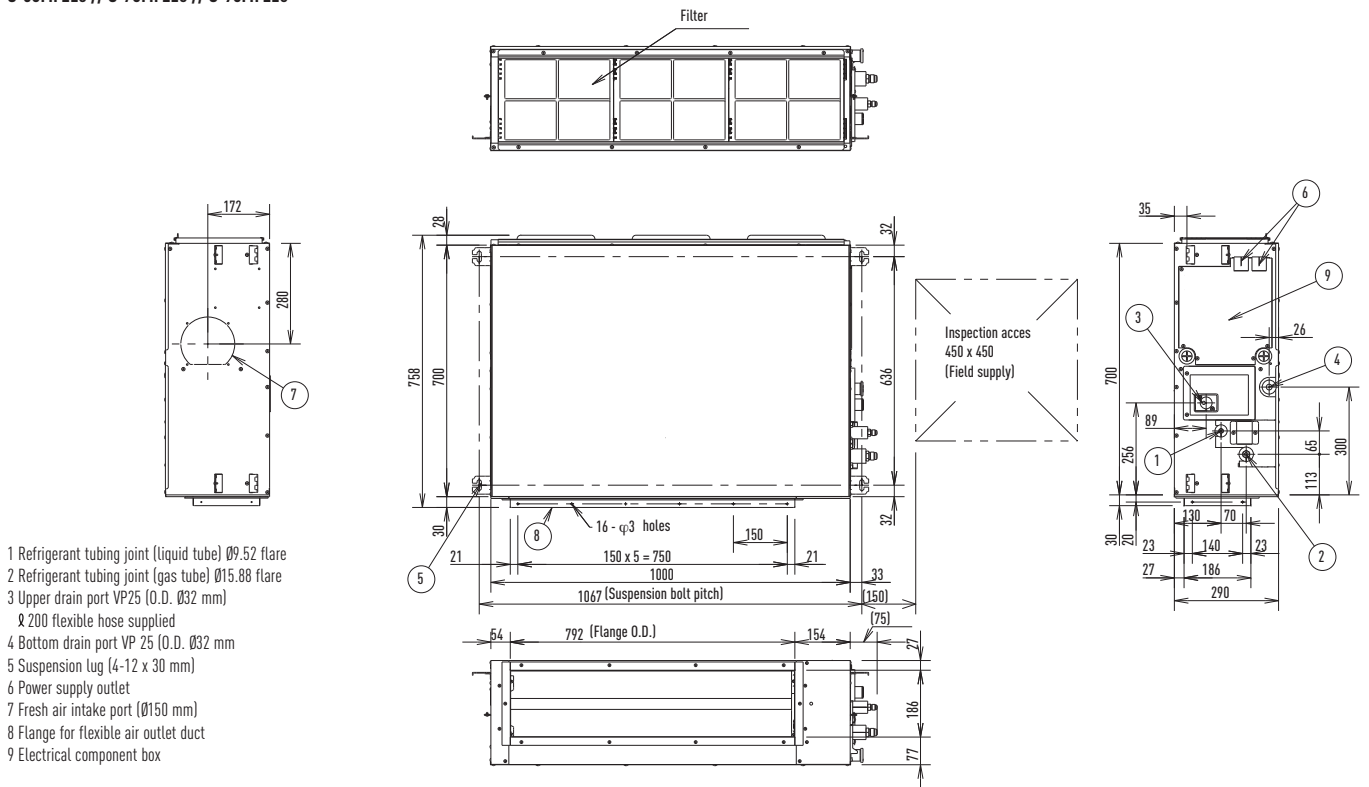
## F2 TYPE // VARIABLE STATIC PRESSURE HIDE AWAY

S-22MF2E5 // S-28MF2E5 // S-36MF2E5 // S-45MF2E5 // S-56MF2E5



- 1 Refrigerant tubing joint (liquid tube) Ø6.35 flare
- 2 Refrigerant tubing joint (gas tube) Ø12.7 flare
- 3 Upper drain port VP25 (O.D. Ø32 mm)  
 & 200 flexible hose supplied
- 4 Bottom drain port VP 25 (O.D. Ø32 mm)
- 5 Suspension lug (4-12 x 30 mm)
- 6 Power supply outlet
- 7 Fresh air intake port (Ø150 mm)
- 8 Flange for flexible air outlet duct
- 9 Electrical component box

S-60MF2E5 // S-73MF2E5 // S-90MF2E5

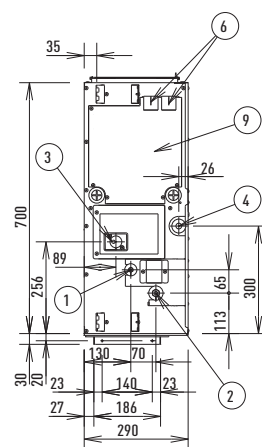
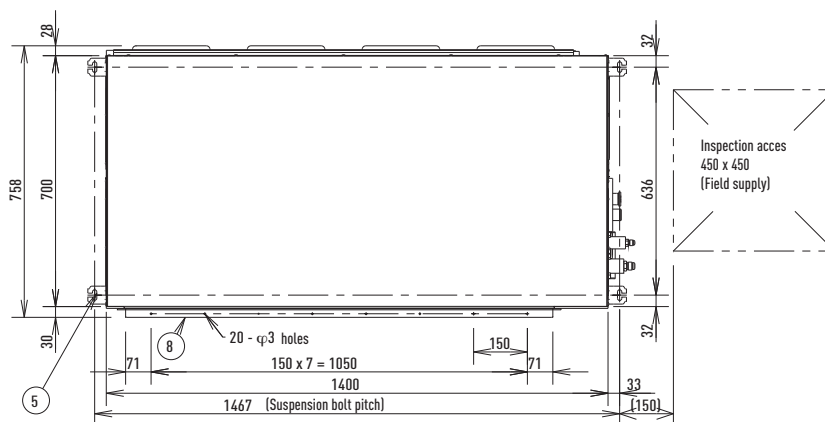
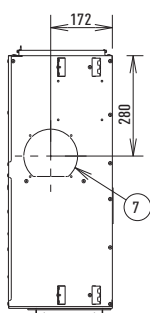
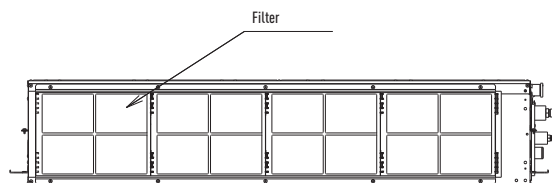


- 1 Refrigerant tubing joint (liquid tube) Ø9.52 flare
- 2 Refrigerant tubing joint (gas tube) Ø15.88 flare
- 3 Upper drain port VP25 (O.D. Ø32 mm)  
 & 200 flexible hose supplied
- 4 Bottom drain port VP 25 (O.D. Ø32 mm)
- 5 Suspension lug (4-12 x 30 mm)
- 6 Power supply outlet
- 7 Fresh air intake port (Ø150 mm)
- 8 Flange for flexible air outlet duct
- 9 Electrical component box

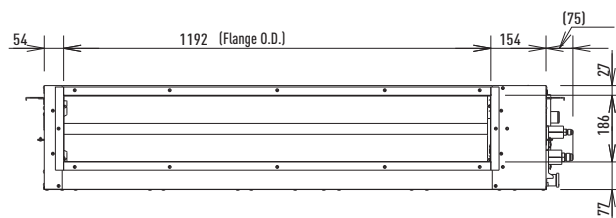
Dimensions: mm

## F2 TYPE // VARIABLE STATIC PRESSURE HIDE AWAY

S-106MF2E5 // S-140MF2E5 // S-160MF2E5



- 1 Refrigerant tubing joint (liquid tube) Ø9.52 flare
- 2 Refrigerant tubing joint (gas tube) Ø15.88 flare
- 3 Upper drain port VP25 (O.D. Ø32 mm)  
∅ 200 flexible hose supplied
- 4 Bottom drain port VP 25 (O.D. Ø32 mm)
- 5 Suspension lug (4-12 x 30 mm)
- 6 Power supply outlet
- 7 Fresh air intake port (Ø150 mm)
- 8 Flange for flexible air outlet duct
- 9 Electrical component box

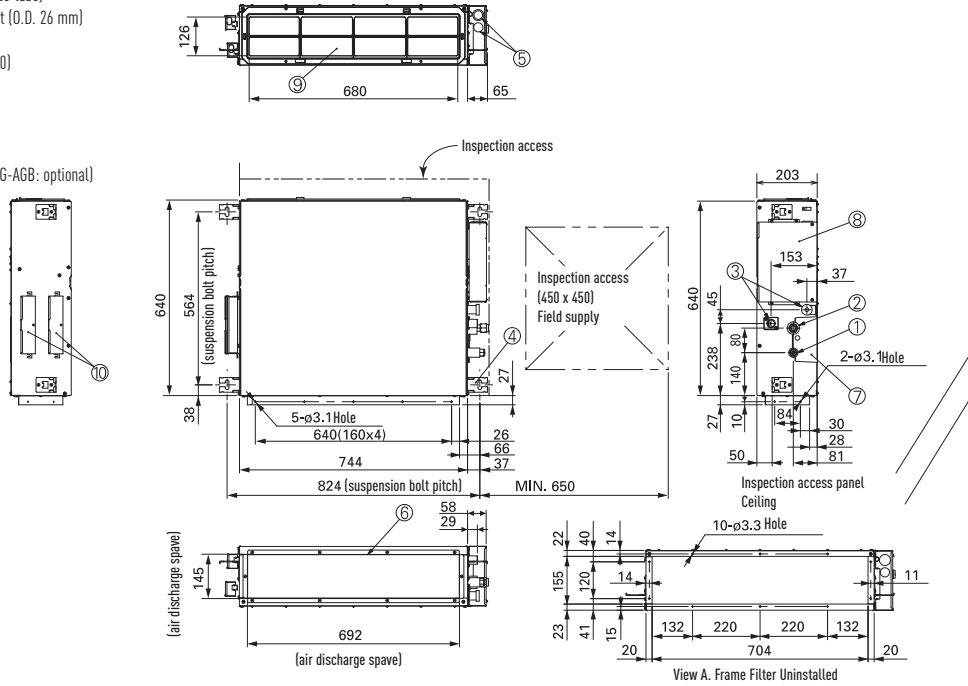


Dimensions: mm

# VRF INDOOR UNITS DIMENSIONS

## M1 TYPE // SLIM VARIABLE STATIC PRESSURE HIDE AWAY

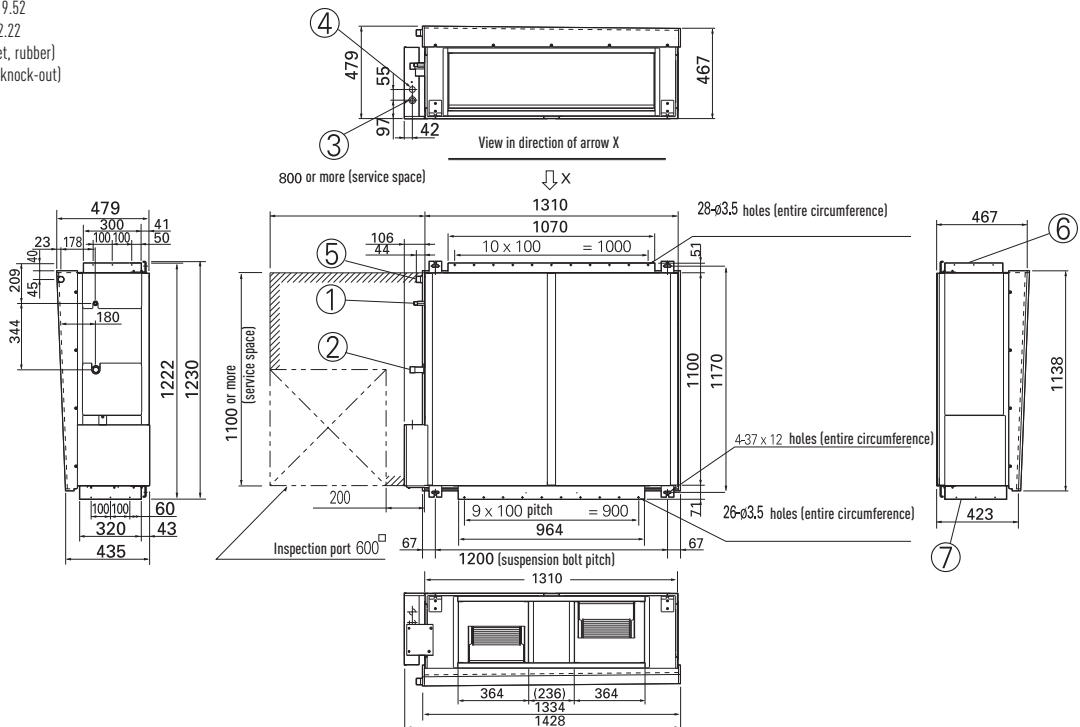
- 1 Refrigerant tubing joint (narrow tube)
- 2 Refrigerant tubing joint (wide tube)
- 3 Upper and bottom drain port (O.D. 26 mm)
- 4 Suspension lug
- 5 Power supply outlet (2- Ø 30)
- 6 Flange for air intake duct
- 7 Pl cover
- 8 Electrical component box
- 9 Frame filter
- 10 Signal output board (ACC-SG-AGB: optional)



Dimensions: mm

## E1 TYPE // HIGH STATIC PRESSURE HIDE AWAY

- 1 Refrigerant piping (liquid pipes) Ø 9.52
- 2 Refrigerant piping (gas pipes) Ø 22.22
- 3 Power supply outlet (Ø 25 grommet, rubber)
- 4 Power supply outlet (spare) (Ø 30 knock-out)
- 5 Drain port 25 A, male thread
- 6 Duct connection for suction
- 7 Duct connection for discharge



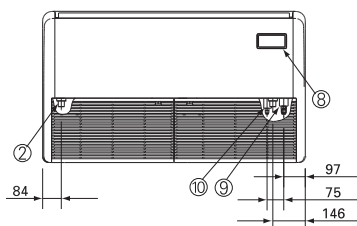
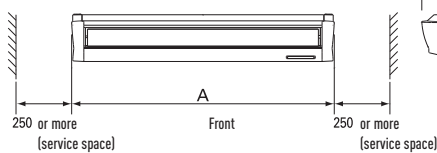
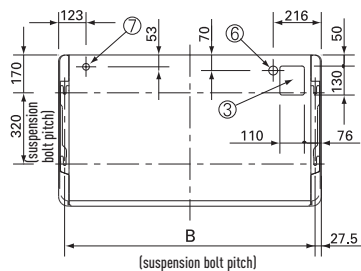
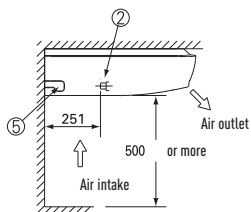
Dimensions: mm

## T1 TYPE // CEILING

- 1 Drain port VP20 (inner Ø 26, hose accessory)
- 2 Drain for left piping
- 3 Upper piping outlet port (knock-out hole)
- 4 Right piping outlet port (knock-out hole)
- 5 Drain left piping outlet port (knock-out hole)
- 6 Power supply entry port (knock-out hole Ø 40)
- 7 Remote controller wiring inlet port
- 8 Wireless remote control receiver mounting part

	36-56 type	73 type	106-140 type
A (body)	910	1,180	1,595
B (suspension bolt pitch)	855	1,125	1,540

- 9 Refrigerant gas piping  
Type 36 to 56: Ø 12.7  
Type 73 to 140: Ø 15.88
- 10 Refrigerant liquid piping  
Type 36 to 56: Ø 6.35  
Type 73 to 140: Ø 9.52

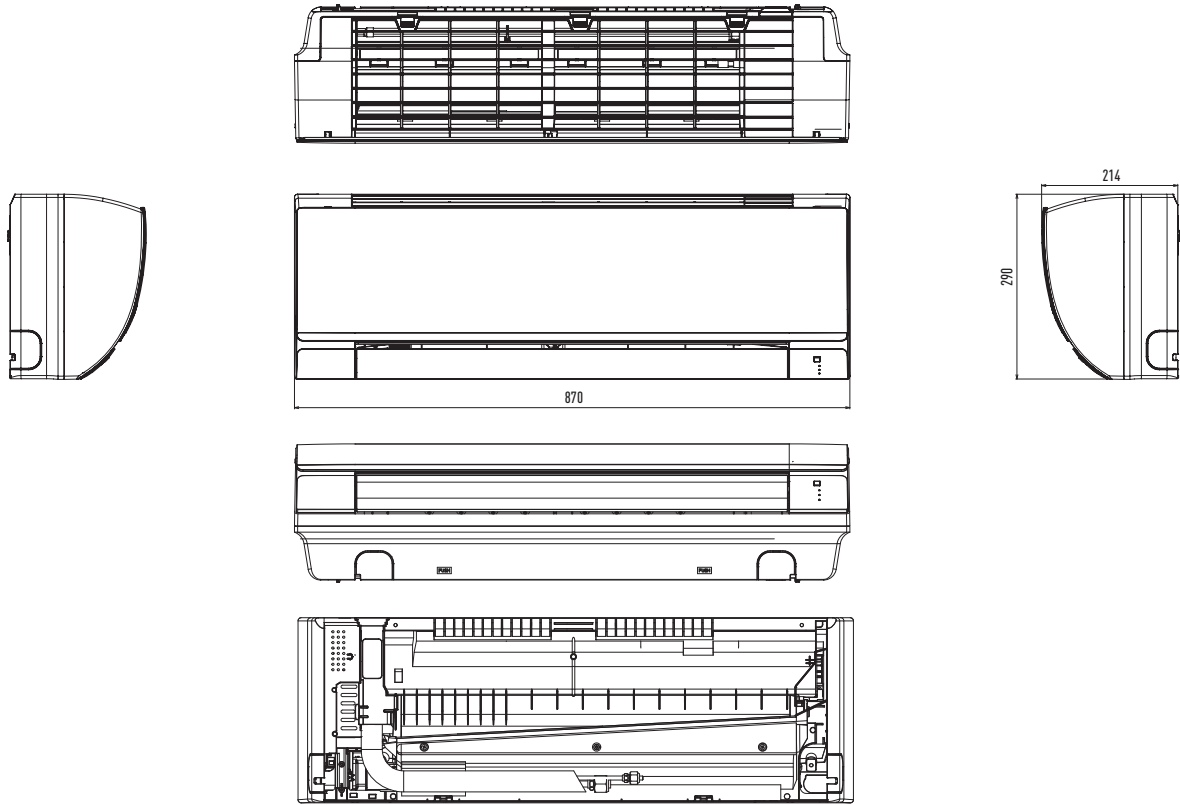


Dimensions: mm

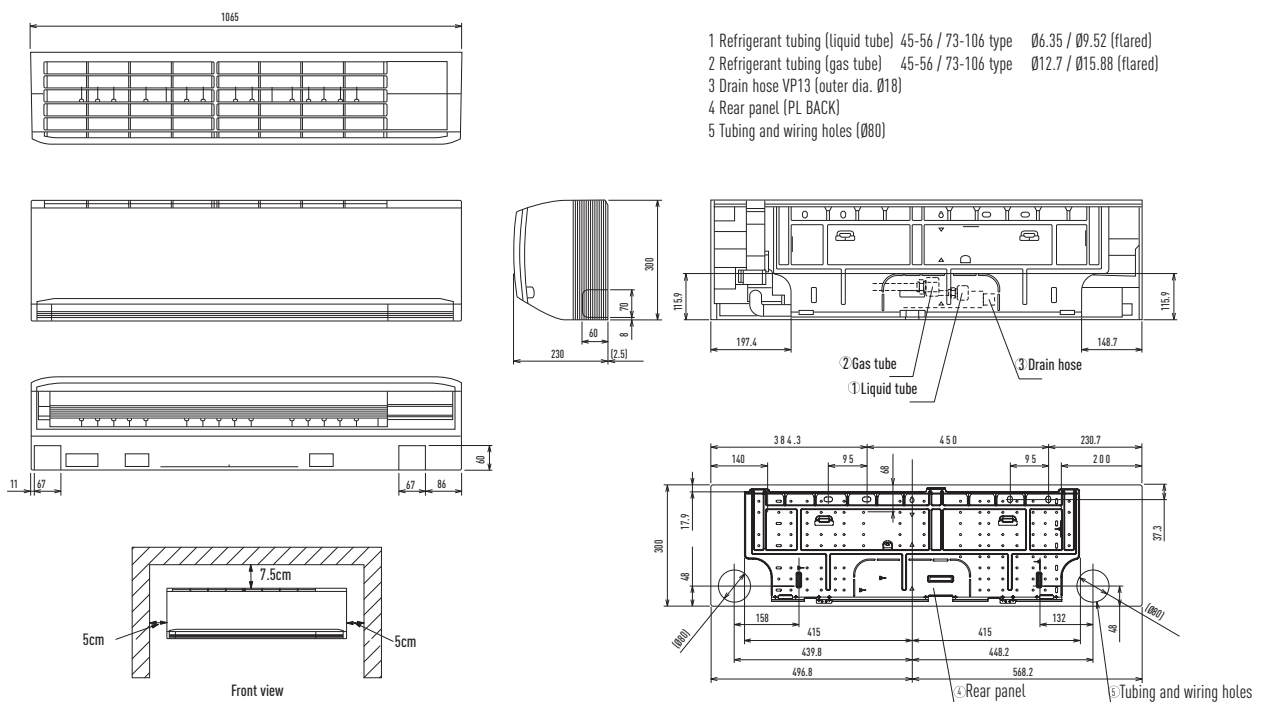
# VRF INDOOR UNITS DIMENSIONS

## K2/K1 TYPE // WALL MOUNTED

Indoor unit:  
S-22MK2E5 / S-28MK2E5 / S-36MK2E5



Indoor unit:  
S-45MK1E5 / 56MK1E5 / 73MK1E5 / 106MK1E5



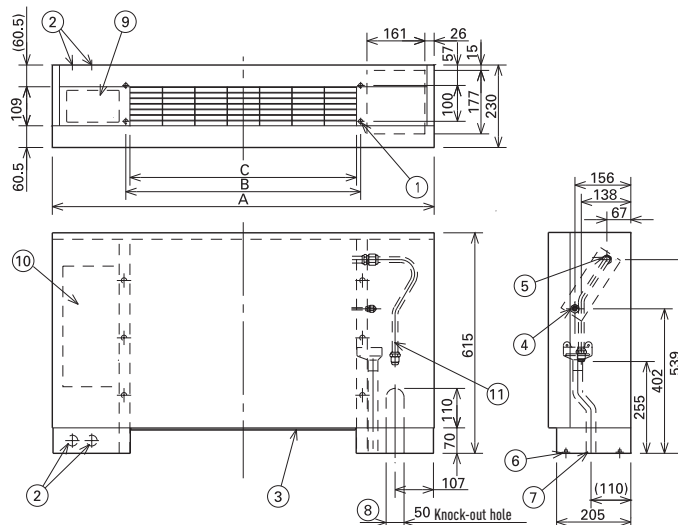
Dimensions: mm



### P1 TYPE // FLOOR STANDING

- 1 4 x Ø 12 holes (for floor fixing)
- 2 Power supply outlet
- 3 Air filter
- 4 Refrigerant piping (liquid pipes)
- 5 Refrigerant piping (gas pipes)
- 6 Level adjustment bolt
- 7 Drain outlet VP20 (with vinyl hose)
- 8 Refrigerant piping connection port (bottom or rear)
- 9 Operation switch mounting part
- 10 Electric equipment box
- 11 Accessory copper pipe for gas pipe connection

Indoor unit	A	B	C	Liquid pipes	Gas pipes
22 to 36 type	1,065	665	632		
45 type				Ø 6.35	Ø 12.7
56 type	1,380	980	947		
71 type				Ø 9.52	Ø 15.88

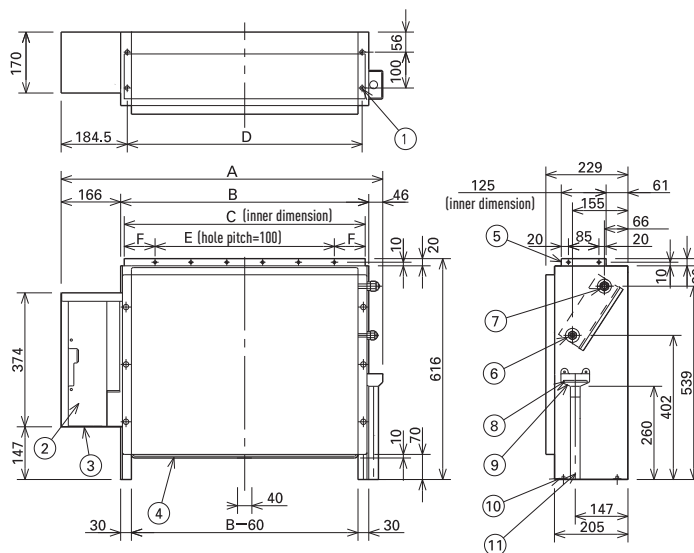


Dimensions: mm

### R1 TYPE // CONCEALED FLOOR STANDING

- 1 4 x Ø 12 holes (for floor fixing)
- 2 Electric equipment box
- 3 Power supply outlet
- 4 Air filter
- 5 Discharge duct connection flange
- 6 Refrigerant connection outlet (liquid pipes)
- 7 Refrigerant connection outlet (gas pipes)
- 8 Drain filter
- 9 Drain pan
- 10 Level adjustment bolt
- 11 Drain outlet VP20 (with vinyl hose)

Indoor unit	A	B	C	D	E	F	Liquid pipes	Gas pipes
22 to 36 type	904	692	672	665	500	86		
45 type							Ø 6.35	Ø 12.7
56 type	1,219	1,007	1,002	980	900	51		
71 type							Ø 9.52	Ø 15.88



Dimensions: mm

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