

Panasonic

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

2014 - 2015



FS MULTI



ECO i



ECO G



VENTILATION

NEW VRF SYSTEMS 2014 - 2015

heating and cooling systems

FS MULTI

ECO i

ECO G

NEW 2014 / 2015

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 known 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 known as Matsushita Industrial Corp. Sdn. Bhd.)
 Certification No.: M015802127

NEW

New 1,5kW indoor units. This new indoor unit is the perfect solution for small rooms or low consumption buildings requiring low energy to heat or cool the space.

PG 118



NEW

New Econavi for ECOi. The Econavi Sensor system tracks occupancy and room activity to reduce - or even stop - energy consumption.

PG 50



NEW

New Refrigerant Pump Down System. Complete solution to ensure: compliance with EN378/2008; safety for building occupiers and environment.

PG 52



NEW

Analyses room activity and modifies the system capacity for real-time adaptation for the needs of the room (optional).

PG 148



Nº1
FOR HOTEL APPLICATIONS
ONE FOR ALL!

NEW

GHP + WHE heating, cooling and DHW.
The ECO G the efficient solution for gas boiler replacement.

PG 108



NEW

New 0-10V Demand Control interface.
New analogue input for demand control of the outdoor capacity in 17 steps (from 40% to 120%) by 0-10V.

PG 156



NEW

New Heat Recovery with DX coil with purifying system Bioxigen®.
Increase efficiency of the installation while renewing the air.

PG 127



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.



1936
First electric Fan with Automatic Oscillation (36 cm table top model).



1958
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.



1973
Panasonic launches the first highly efficient air-to-water heat pump in Japan.



1975
Panasonic becomes the first Japanese air conditioner manufacturer in Europe.



2008
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.



2010
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.



2011
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.



2012
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.



2013
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!



2014
New Aquarea 16kW T-CAP. Improvements deliver impressive, high efficiencies at low ambient temperatures. T-CAP stands for Total Capacity and is capable of maintaining the same nominal capacity even at -15°C without the help of an electric booster heater. Ideal for retrofit and commercial applications.



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.

100% Panasonic: 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



RELIABILITY FACTS

Reliable comfort comes from reliable technologies

Today, Panasonic air conditioners have earned widespread acclaim throughout the world. A rugged design ensures that the air conditioner will continue to keep the room comfortable, and operate trouble-free for many years. Panasonic believes this is the true value of an air conditioner. And this is why we subject them to a wide range of stringent tests.

Durability. 10,000 Hour Continuous Operation Simulation.



Long-term Durability Test

The air conditioner's main mission is to provide a level of durability that allows it to operate reliably for years. In order to achieve this, we conduct an accelerated test for 10,000 hours of continuous operation. The results of this test, which is conducted under conditions that are much more severe than actual operating conditions, prove the rugged strength of Panasonic air conditioners.



Compressor Disassembly Test

After a test with 10,000 hours of continuous operation, we remove the compressor from a randomly selected outdoor unit, disassemble it, then examine the internal mechanisms and parts for possible failure. Panasonic air conditioners continue to provide their designed performance for many years even after prolonged operation under harsh conditions.



Operating Test in Harsh Conditions

In addition to normal operating conditions, an operating durability test is conducted in a high-temperature, high humidity test chamber at a temperature of 55 °C. For use in cold climates, the test is also conducted in a low temperature test chamber at -20 °C. This test assures that the oil inside the compressor will not freeze during use and interrupt operation.



Waterproof Test

The outdoor unit, which is subjected to rain and wind, is provided with IPX4 waterproof compliance. Contact sections on printed circuit boards are also resin-potted to prevent adverse effects caused by an unlikely exposure to droplets of water.



Checking the oil inside the compressor under extremely cold conditions.



A resin-potted circuit board.



Shock Resistance

Panasonic simulates impacts, vibrations and other environmental conditions that air conditioners might be subjected to during transport. We promise that the quality and performance at the time of the final product inspection are unchanged when the product reaches the user's home.

No Breaking. When Dropped onto Sides or Corners.



Drop Test

Even with the large impacts that may occur due to improper handling during transportation, the product packaging has been strengthened to prevent it from being damaged. In addition to conventional vertical dropping, more severe conditions in which the sides or corners hit the floor first are carefully tested to ensure that the product's rigidity and shock-absorbing materials work to prevent problems.



Vibration Test

Preventing damage that would hinder the product's performance due to vibration during transport is a major role of the packaging. Panasonic confirms that the product operates properly even after applying vibrations in both horizontal and vertical directions.



Warehouse Storage Test

During distribution, products may be subjected to extended warehouse storage under unfavourable conditions. To simulate these conditions, we place a weight equal to a stack of five product packages on top of the test package, and leave it in that condition in a room at a temperature of 27°C and a humidity level of 85%. Then, the product is checked for proper operation.



Comfort

Air conditioners should keep each person in the room comfortable without making their presence known. They should work totally in the background, using their strength to create and maintain a comfortable environment. We build this hidden strength into our air conditioners, and test them repeatedly from this viewpoint.



Noise Test

The operating noise of the indoor and outdoor units is measured in an echo-free chamber. The noise test verifies that the operating noise is low enough so that the product operation will not disturb daily activities including conversations and sleep.



Amenity Test

An actual air conditioner is operated in a test room that simulates an ordinary living room. Conditions such as the amount of sunlight entering the room from outside are changed while measuring a variety of parameters, such as cooling speed, cooling efficiency, and temperature and humidity differences throughout the room. This makes it possible to confirm whether the air conditioner is operating at its designed performance level under ordinary conditions.



Sunshine simulation.



EMC (Electromagnetic Compatibility) Test

This test determines whether electromagnetic waves emitted during operation are sufficiently low to prevent adverse effects, i.e., electrical noise, on signals such as TV and radio broadcasts.



Remote Control Drop Test

Because the remote control is the main interface between people and the air conditioner, it is naturally subjected to frequent impacts - such as drops and bumps - when it is passed from person to person during normal operation. Panasonic drops the remote control from a height of 1.5 metres at various angles to ensure that no problems in basic performance will result from accidental dropping.



World Standard Quality

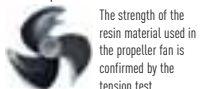
Over the years, Panasonic air conditioners have continued to offer the highest possible quality with the lowest environmental impact worldwide. Naturally, the fundamental production principles that are common to all Panasonic products apply to air conditioners as well. The fact that these principles actively support every product, rather than simply serving as slogans, is the result of the endless repetition of challenges and trial-and-error efforts that are conducted at our production bases all over the world.

Quality. Is at the Core of All Our Manufacturing.



Reliable Parts with Major Standards Approval

Panasonic air conditioners comply with all of the major standards that maintain high reliability in the countries and regions where they are marketed. To ensure this, we conduct a variety of tests to examine the quality of materials used in parts.



The strength of the resin material used in the propeller fan is confirmed by the tension test.



RoHS/REACH Compliant Parts

All parts and materials comply with RoHS/REACH, Europe's world-leading environmental regulations. Stringent inspections of more than 100 materials are conducted to ensure that no hazardous substances are included during parts development.



Sophisticated Production Process

The air conditioner production line uses advanced, state-of-the-art factory automation technologies to produce products with higher reliability. Products are efficiently manufactured with high and uniform quality.



Eco Activities

Panasonic has set up eco ideas factories around the globe. While developing and manufacturing energy-saving products based on original environmental technologies, these factories reduce CO2 emissions from manufacturing processes and conduct regional-based environmental communication activities to contribute to both the global environment and the local communities that they serve.



Panasonic Europe announces Sustainability Declaration

Panasonic establishes new targets for the business' environmental performance and CSR initiatives

Best Global Green Brand 2013

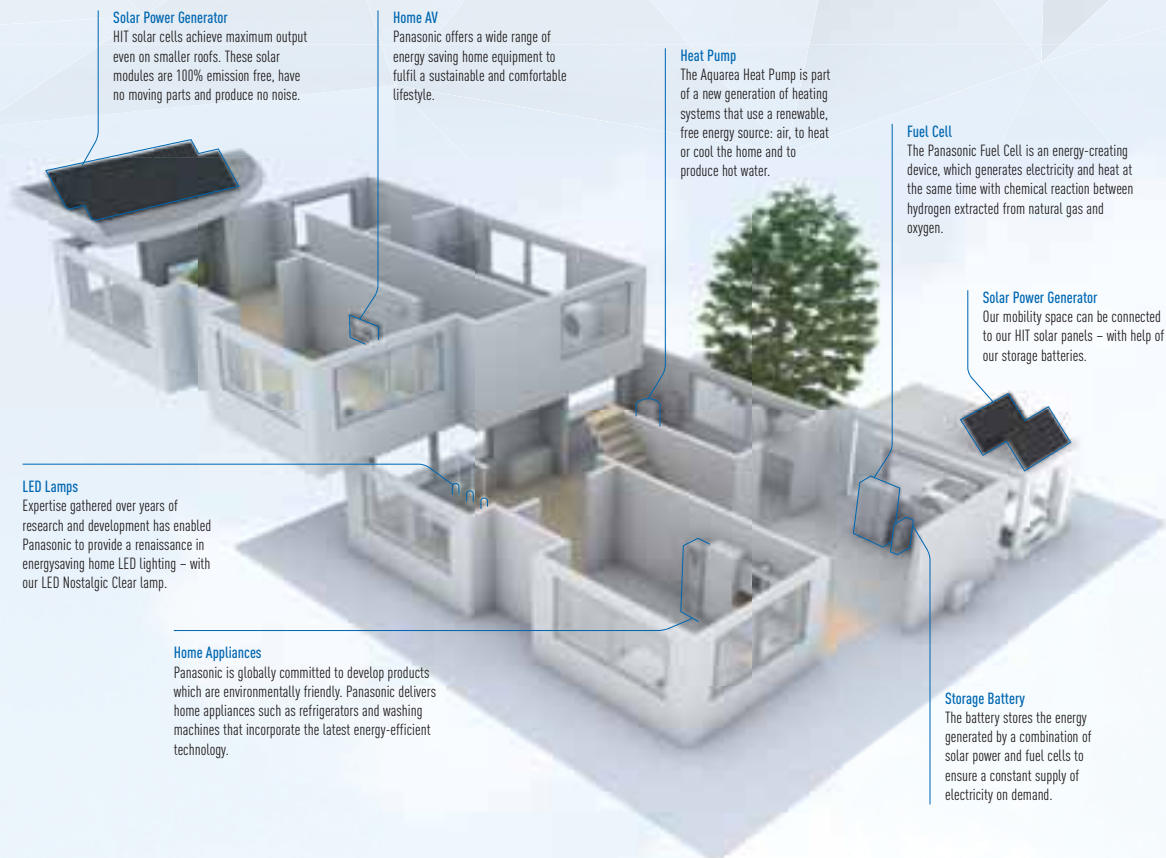
We were recently awarded Interbrand's 4th Best Global Green Brand 2013 – the highest of any consumer electronics brands. This is the result of our commitment to energy efficient products, reduction in CO₂ emissions, our kids school 'eco learning' programme and much more.

Sustainability Declaration. Berlin, Germany, 4th September 2013

Panasonic Europe announces today its new Sustainability Declaration for Europe and CIS, extending its current initiatives to ensure all business activities lead to a more sustainable society.

The Sustainability Declaration unites Panasonic's new brand direction towards 'A Better Life, A Better World' with a series of environmental and CSR initiatives contributing to the progress and development of society. Recognising the impact on the environment and society through its products and practices, Panasonic aims to deliver on specified targets by March 2016. The European Sustainability Declaration is in accordance with Panasonic's Global Sustainability Policy, which has been rolled out globally in recent weeks.

We aim to realise a lifestyle with virtually zero CO₂ emissions throughout the entire home



Exemplary sustainable projects



Fujisawa Sustainable Smart Town

Homes will employ the full range of Panasonic's most advanced systems for energy production, storage and management.

In this project, a new concept and process will be adopted to build the town by designing spaces with a primary focus on services based on people's lifestyles and creating an optimal smart infrastructure. In Fujisawa SST, Panasonic will offer its unique solutions from an Eco & Smart perspective. With bringing energy to life for residents as the town concept, we will provide services that enhance people's lives with photovoltaic power, security, mobility, community, and healthcare.

The unparalleled town building, where as many as 1,000 families will live, will serve as a new business model both within Japan and overseas.



SMART ELECTRIC LYON

Panasonic joins Smart Electric Lyon consortium

What is Smart Electric Lyon?

Smart Electric Lyon is a project that looks at electricity consumption as a key part of the building energy solutions of tomorrow. The project aims to develop a wide range of innovative facilities and services through real-life experiments to test energy saving technologies and to measure how consumers can control energy consumption.

This experiment, unprecedented in scale in Europe, will be conducted for four years in more than 25,000 homes, businesses and communities of Grand Lyon. It is intended to test innovative solutions that will consume less and better.

Panasonic will provide the project with a variety of its energy efficient heating and cooling products, including the Aquarea Air Source Heat Pump – a super-efficient system for providing heating and / or cooling facilities, as well as the production of domestic hot water. These heat pumps are especially equipped with connectivity solutions from Panasonic to ensure the systems are easy to use, and collect the vital, accurate data. The company will also integrate other home equipment solutions such as LED white lighting products to optimize the overall energy management of the project's properties. This project is particularly apt for Panasonic, as heating and hot water occupy a prominent place in household energy consumption. Panasonic plans to make its European and French resources available for Smart Electric Lyon. The company has involved for the project a dedicated and experienced R&D team from Panasonic's European technical centre in Frankfurt.



The connected home of the future





PRO Club: the professional website of Panasonic

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

Panasonic announces a new initiative for all professionals involved in the heating and cooling business - the Panasonic PRO Club (www.panasonicproclub.com). Panasonic PRO Club is the online tool which makes your life easier! You just have to register and a lot of functionalities are freely available to you, where ever you are, from your computer or smart phone!

- **Print catalogues with your logo and your address**
- **Download the latest VRF designer with PACi units and Autocad reader**
- **Get Documents of conformity and all other documents you may need**
- **Download all the service manuals, end user manuals and installation manuals**
- **Know what to do with error codes**
- **Know before anybody the latest news**
- **Register on trainings and online trainings**

Highlighted Features

- Extensive library of resources
- Tools & Apps for end users. Check availability in your country:
 - My Home: sizing wizard for domestic and A2W range
 - My Project: Contact form to Panasonic team
 - iFinder: Lists of installers displayed by postcode
- Special offers & promotions
- Training PRO Academy
- Catalogues (Commercial documentation)
- Marketing (Images in high resolution, advertisements, deco guidelines)
- Tools (Professional software, sizing tools...)

NEW Highlighted Features

- NEW! Installers customize leaflets in PDF format with their logo & contact details
- NEW! Energy label generator. Download energy labels of any device in PDF format
- NEW! Heating calculator demand
- NEW! Noise calculator for outdoor unit
- NEW! Aquarea Radiator calculator
- NEW! Error Code App. Search by error code or unit ref. Compatible with iPhone and iPad
- NEW! Revit / CAD Images / Spec texts
- NEW! Access to Pananet, online library of technical documentation
- NEW! Download Documents of Conformity and other Certifications
- NEW! Commissioning online



www.panasonicproclub.com

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



NEW! Easy download Panasonic service documentation and brochures



NEW! Customize leaflets with your logo & contact details. Save and print the PDF



NEW! Energy label generator. Download Energy labels of any device in PDF format



NEW! Error Code App: Search by error code or model reference. Online version + downloadable version for offline use



Panasonic PRO Club is fully compatible with iPad and smartphone



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:

- Domestic applications Air to Air
- Aquarea air source heat pumps
- VRF ECOi

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, Ethernia, GHP and Aquarea ranges.

Energy saving

INVERTER+

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.

Maximum flexibility

VRF

VRF. The Inverter plus range provides greater efficiency.

Down to -20 °C in heating mode

OUTDOOR TEMPERATURE

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 by BMS

CONNECTIVITY

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

R410A. Environmentally friendly refrigerant.

5 year compressor warranty

5 Years warranty. We guarantee the compressors in the entire range for five years.



FS Multi VRF Systems

The FS Multi VRF lineup is a full Electrical VRF line up specially designed for small to medium installations. Easy to install units. No additional gas needed (for 5 and 6 HP). Indoor units match Etherea wall mounted designs. Self diagnostic function with 7-digit code for easy set up and repair. Example applications: Apartments. Bungalows. Offices. Shops & Restaurants.



PANASONIC INDUSTRIAL FS MULTI VRF SYSTEM

Professional solutions for all types of projects

The Panasonic FS Multi VRF system is specifically designed for energy saving, easy installation and high efficiency performance.



Maximum
flexibility

VRF

FS MULTI



FS Multi VRF from Panasonic

Easy to install VRF, specially designed for homes and small commercial buildings: large lineup of indoor units, Etherea 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.

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

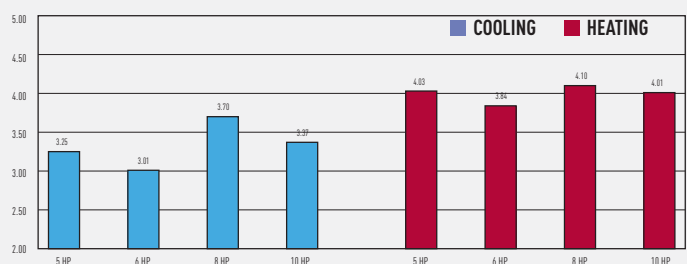
The FS Multi VRF is a refrigerant charge-free system that does not require a charge of additional refrigerant even when using a full pipe length of up to 90 m. This dramatically shortens the installation time required for charging with additional refrigerant, weight measurement and pressure judgment. 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.

Energy Saving

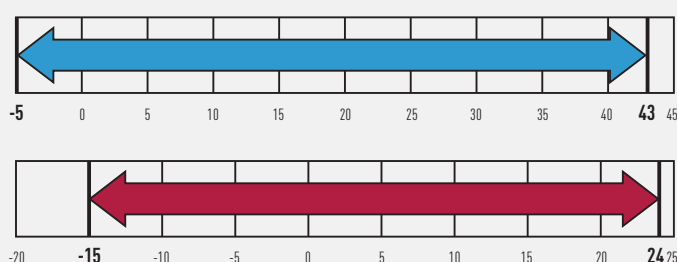
High quality features translate into savings thanks to great energy efficiency. This efficiency is due to the fact that each room is individually controlled and only the rooms that require air-conditioning are heated or cooled. Moreover, thanks to Inverter technology, the level of air conditioning can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



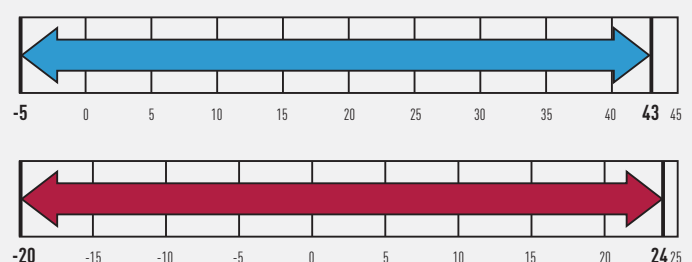
Broad Operating Range

The heating function will remain stable indoors even when the temperature outside drops to -15°C for 5/6 HP and to -20°C for 8/10 HP, thus meeting users different needs. Moreover, the cooling function operates from -5°C to 43°C.

5/6 HP



8/10 HP



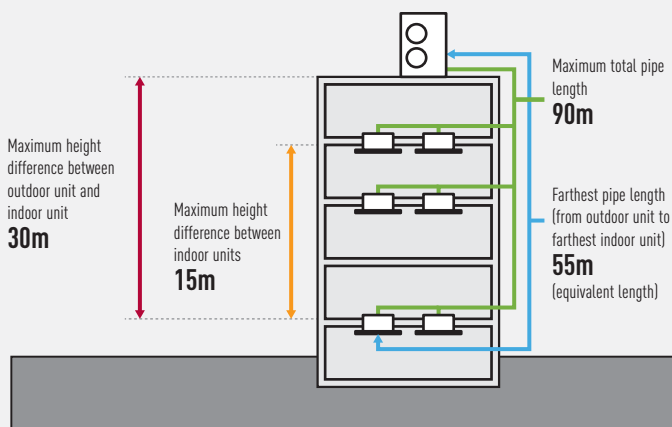
FS Multi Outdoor Units

U-5LA1E5 / U-6LA1E5



Pipes of up to 90m

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.



- a) Maximum length from outdoor unit to farthest indoor unit (equivalent length): 55 m
- b) Maximum length from first branch pipe to farthest indoor unit (equivalent length): 30 m
- c) Maximum length of all main pipes: 40 m
- d) Maximum length of all branch pipes: 50 m



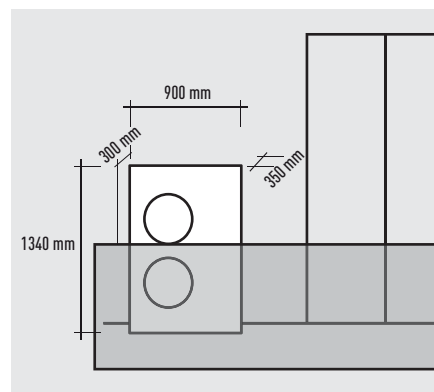
Residences

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.



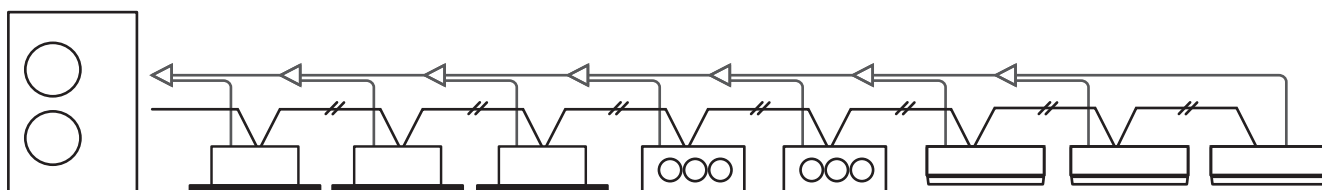
Multi-storey Apartments

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

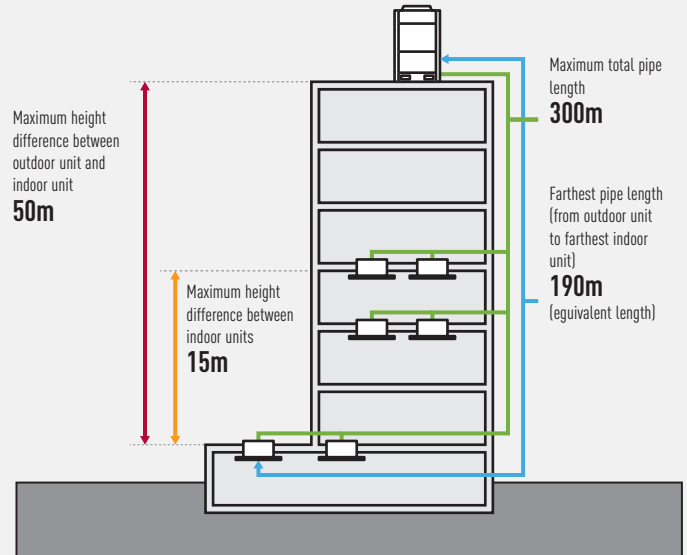
FS Multi Outdoor Units

U-8EA1E8 / U-10EA1E8

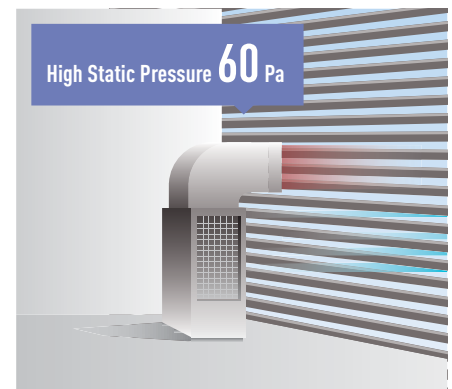


Pipes of up to 300m

The total length of the pipe between a system's indoor and outdoor units can be extended up to 300m, with a height difference of up to 50m. 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 15m, thus covering 4 or 5 floors in the same system.



- a) Maximum length from outdoor unit to farthest indoor unit (equivalent length): 190 m; (actual length): 165 m
- b) Maximum length from first branch pipe to farthest indoor unit (equivalent length): 40 m
- c) Maximum length of all main pipes: 135 m

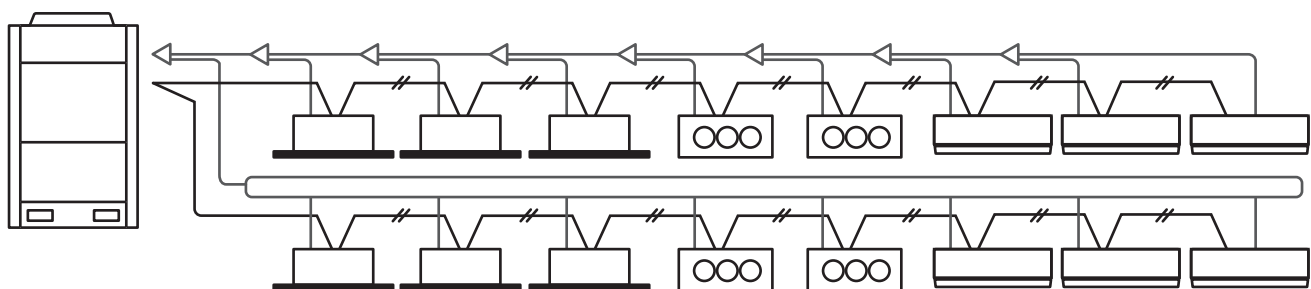


Offices, Shops and Restaurants

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

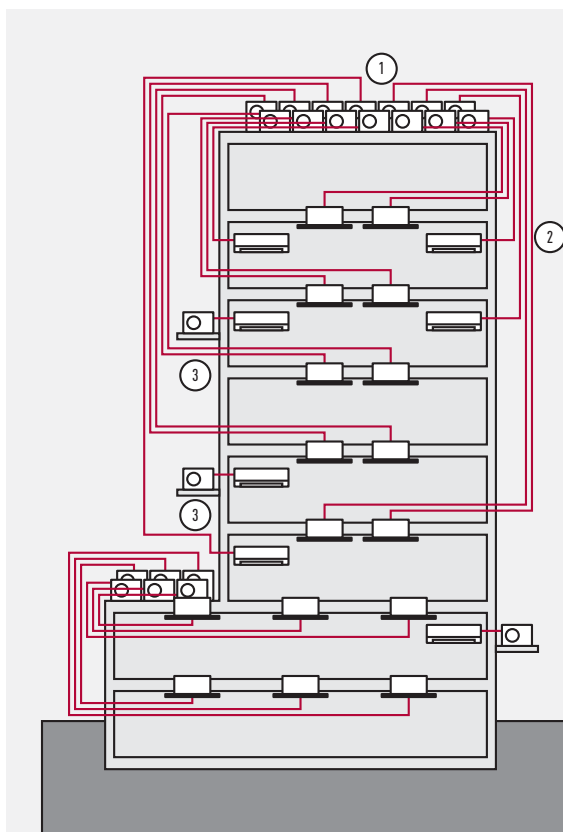
8 and 10 HP outdoor unit features a high external static pressure mode (up to 60 Pa). Select via the outdoor unit's local setting mode.



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

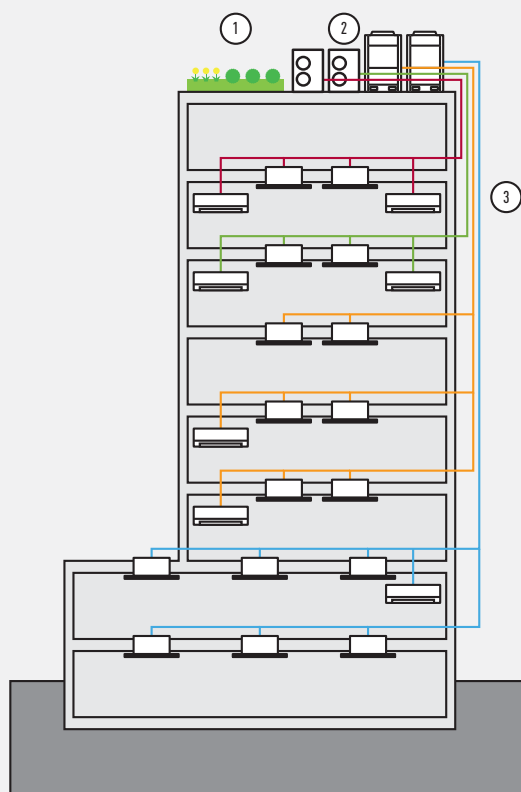
- ← Refrigerant pipe
- //— URBAN net control line

FS Multi Outdoor Units



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.

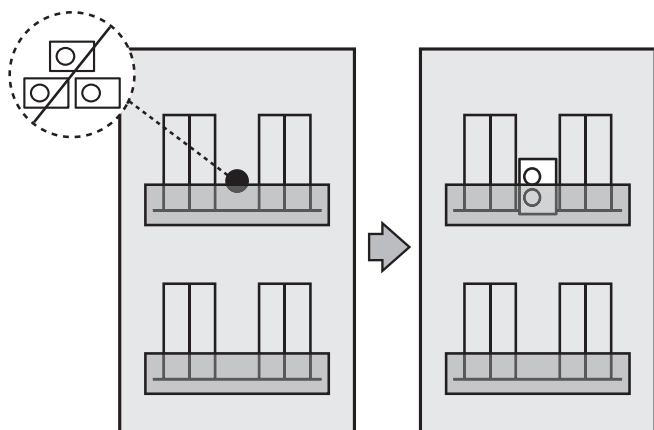


FS Multi VRF System Solution

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.

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.



SINGLE SPLIT

FS MULTI VRF

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.)

Quiet Operation

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



Noise-Suppressing Winglet Fan

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



DC Inverter Compressor



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.

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.

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, 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 HP/ 14,0 kW	8	14,0 kW	18,20 kW	7,0 kW
U-6LA1E5	6 HP/ 15,5 kW	8	15,5 kW	20,15 kW	7,75 kW
U-8EA1E8	8 HP/ 22,4 kW	13	22,4 kW	29,12 kW	11,2 kW
U-10EA1E8	10 HP/ 28,0 kW	16	28,0 kW	36,4 kW	14,0 kW
			100%	130%	50%

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

Combination Example

Correct

	Reference	Quantity	Capacity	Min. combination capacity	Max. 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	(3,6 x 2) 7,2 kW	-	-
	S-22NA1E5	1	2,2 kW	-	-
	S-28NA1E5	3	(2,8 x 3) 8,4 kW	-	-
Total indoor capacity		7	20,0 kW (129%)		

Incorrect

	Reference	Quantity	Capacity	Min. combination capacity	Max. 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	(3,6 x 2) 7,2 kW	-	-
	S-45KA1E5	1	4,5 kW	-	-
	S-22NA1E5	1	2,2 kW	-	-
	S-28NA1E5	3	(2,8 x 3) 8,4 kW		
Total indoor capacity		8	24,5 kW (158%)		

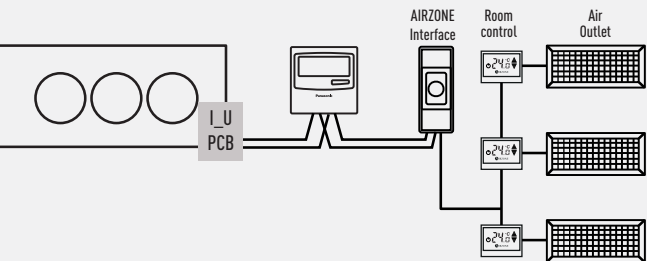
*Standard combination capacity is the system's maximum cooling capacity.

FS Multi Connectivity. Increased flexibility for integration into your projects



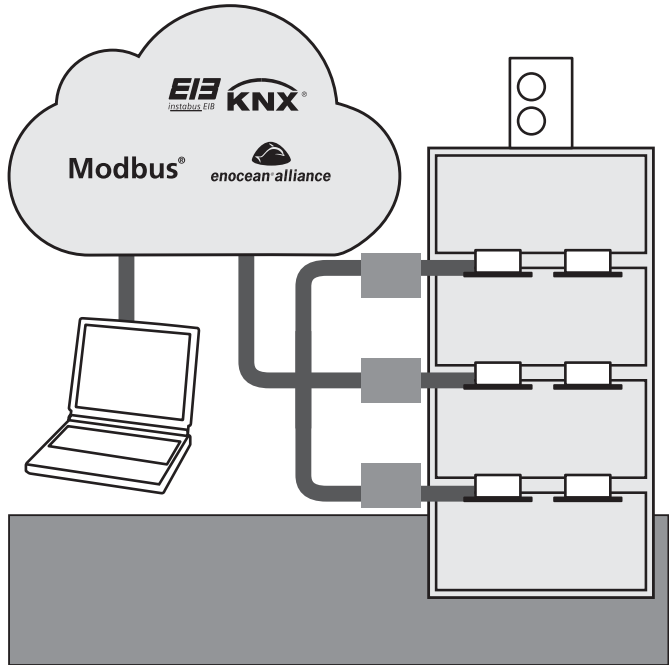
Airzone. Control of the VRF Hide Aways
Airzone has developed interfaces to easily connect to Panasonic VRF Hide Away units. Ensuring optimum performance, comfort and energy savings, the new system is efficient and easy to install.

Airzone full range of accessories for any duct project



Great flexibility for integration into your KNX / Modbus / EnOcean / IntesisHome 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 FS Multi line-up from KNX / Modbus / EnOcean / IntesisHome installations.

For more information, contact Panasonic.



Panasonic Model name	PAW-RC-KNX-1i	PAW-RC-MBS-1	PAW-RC-ENO-1i
Interface	KNX	Modbus RTU	EnOcean
Connected on P-link or in the indoor unit	Indoor unit	Indoor unit	Indoor unit
Maxumim number of indoor units connected	1 (1 group of indoor units)	1 (1 group of indoor units)	1 (1 group of indoor units)
Possible to connect more than 1 indoor unit (group of indoors)	No	No	No

FS Multi 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

1. Weekly Timer

Weekly timer setting (each day of the week) is available to control the air conditioner. Maximum 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.

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

HOW TO SET

1 Select the day



2 Enter the time



*Simple Timer Mode

Not to forget to switch OFF

Example: To prevent forgetting to switch OFF weekdays

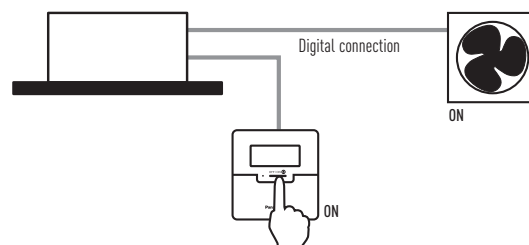
Mon-Fri
Off 20:00

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

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.



Wireless Remote Controller (CZ-RWS1 for Heat Pump models and CZ-RWC1 for 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

FS Multi Individual Control Systems

Wireless Controller Receiver (CZ-RWRU1 for Cassette Type and CZ-RWRM1 for Duct Type)



CZ-RWRU1



CZ-RWRM1

Wireless receivers for Wall Mounted and 60x60 Cassette types are equipped as standard.

Cooling/Heating Controller for the Outdoor Unit (CZ-RD1)



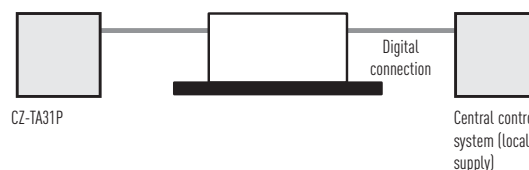
Enables the cooling, heating and ventilating operating mode for each outdoor unit. Allows the operating mode to be changed for several outdoor units at the same time by means of a single remote control.

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
- CZ-TA31P Not applicable for Wall Mounted indoor unit

CONNECTION WITH EXTERNAL CENTRAL SYSTEM



OPERATING

- Remote ON/OFF

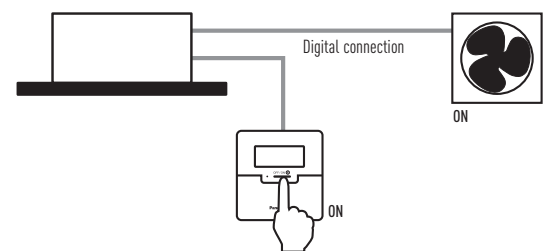
- Remote /Local Selection

- ON/OFF Monitor Signal

- Malfunction Signal

- Fan Operation Signal

INTERLINK WITH VENTILATION OR ERV



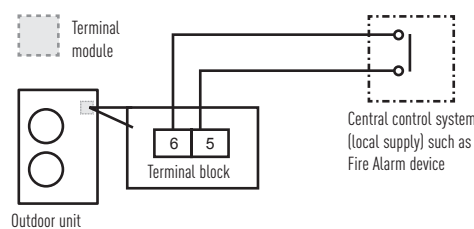
Terminal Module equipped as standard on the outdoor unit (CZ-CAP1)



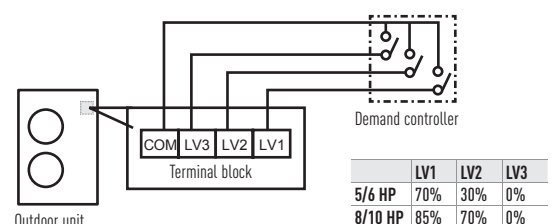
Control terminal to be connected with outside devices or CZ-RD1 controller

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

WHEN CONNECTING FORCED STOP INPUT

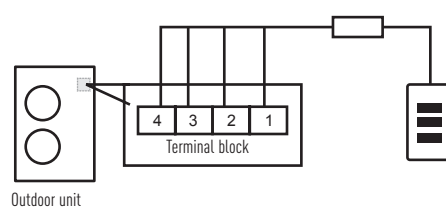


WHEN CONNECTING DEMAND CONTROLLER

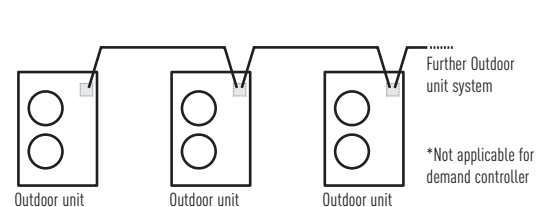


	LV1	LV2	LV3
5/6 HP	70%	30%	0%
8/10 HP	85%	70%	0%

WHEN USING CZ-RD1 (COOLING / HEATING SELECTOR)



GROUP CONNECTION

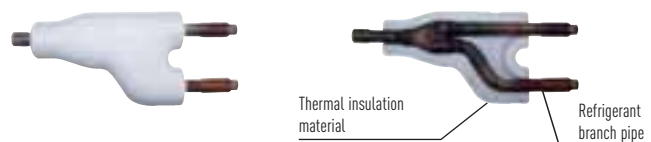


*Not applicable for demand controller

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 (for 5 and 6 HP systems) and CZ-P280BK1 (for 8 and 10 HP systems)

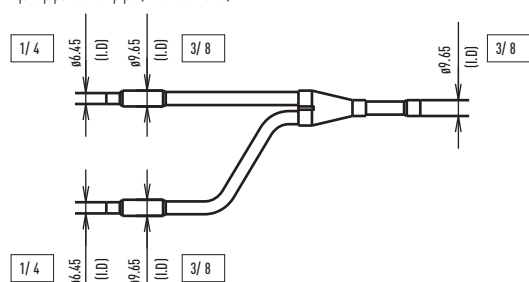


PIPE ADAPTORS ARE SUPPLIED WITH THE PACKAGE

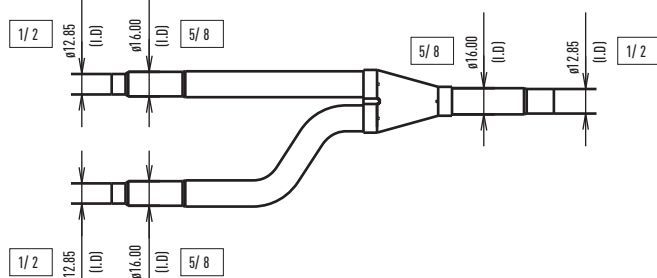
A	Ø 19,05	Ø 12,70	Ø 19,05	Ø 19,05	Ø 9,52
B	Ø 15,88	Ø 15,88	Ø 25,40	Ø 22,20	Ø 12,70
Quantity	1	2	1	3	1

CZ-P155BK1

Liquid pipe branch pipe (inner diameter)

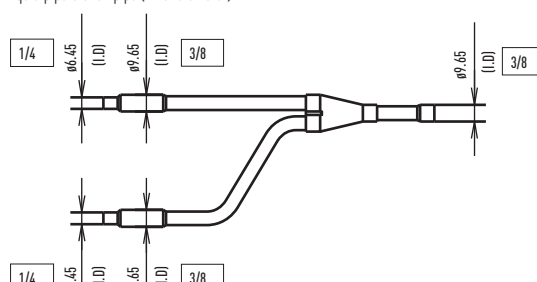


Gas pipe branch pipe (inner diameter)

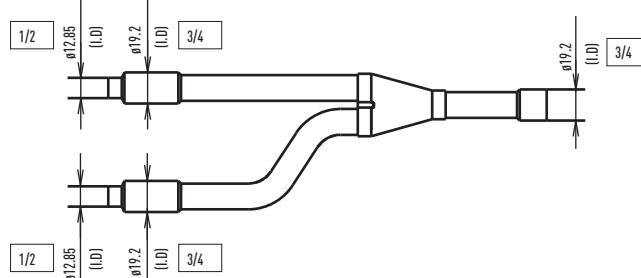


CZ-P280BK1

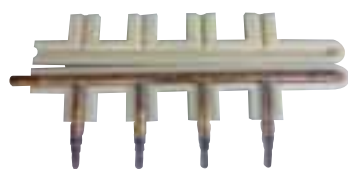
Liquid pipe branch pipe (inner diameter)



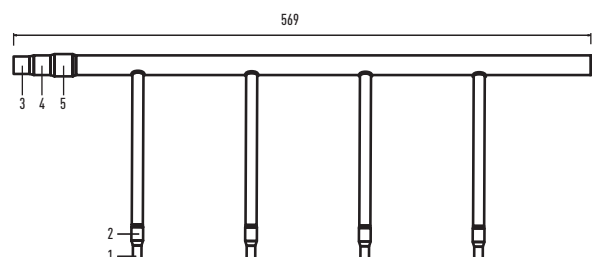
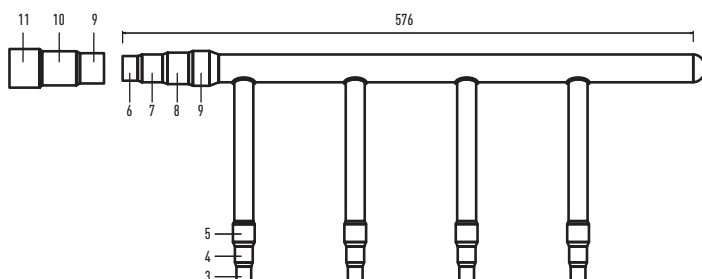
Gas pipe branch pipe (inner diameter)



Header pipe model for 2-Pipe systems CZ-P4HP4C2BM (for 8 and 10 HP systems)


















CZ-P4HP4C2BM
























Diameters	1	2	3	4	5	6	7	8	9	10	11
mm	6,35	9,52	12,70	15,88	19,05	22,40	25,40	28,57	31,75	34,92	38,10
Inches	1/4	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2

Range of FS Multi VRF units


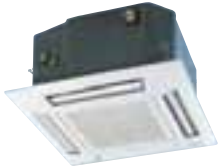
INDOOR UNITS	0,8 HP	1 HP	1,25 HP	1,5 HP
COOLING CAPACITY	2,2 kW	2,8 kW	3,2 kW	3,6 kW
HEATING CAPACITY	2,5 kW	3,2 kW	3,6 kW	4,2 kW
Wall Mounted TYPE				
	S-22KA1E5	S-28KA1E5		S-36KA1E5
				
	S-22KA1E5S	S-28KA1E5S		S-36KA1E5S
4 Way 90x90 CASSETTE				
4 Way 60x60 CASSETTE				
	S-22YA1E5	S-28YA1E5		S-36YA1E5
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	5 HP	6 HP
COOLING CAPACITY	14,0 kW	15,5 kW
HEATING CAPACITY	16,0 kW	18,0 kW
		
	U-5LA1E5	U-6LA1E5

	1,75 HP	2 HP	2,5 HP	3 HP	3,5 HP	4 HP
	4,5 kW	5,6 kW	6,3 kW	7,1 kW	9,0 kW	10,0 kW
	5,1 kW	6,4 kW	7,1 kW	8,0 kW	10,0 kW	11,2 kW
						
	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 HP	10 HP
22,4 kW	28,0 kW
25,0kW	31,5kW
	
U-8EA1E8	U-10EA1E8

Feature Comparison

Indoor Unit		Wall Mounted		4 Way 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	✗	✗	✗	✗
	O_U Silent operation mode (3-Level)	✗	✗	✗	✗
	I_U Thermistor switching (I_U or RC)	✗		✗	
	Ventilation unit control	✗		✗	
	Digital input / Output contact			with CZ-TA31P	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	✗	✗
	O_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	✗	✗

4 Way 90x90 Cassette		Low Static Pressure Hide Away		Low-Silhouette Mid Static Pressure Hide Away	
					
Wired remote controller	Infrared remote controller	Wired remote controller	Infrared remote controller	Wired remote controller	Infrared remote controller
×	×	×	×	×	×
×		×		×	
×	×	×	×	×	×
×	×	×	×	×	×
×		×		×	
×		×		×	
with CZ-TA31P	with CZ-TA31P	with CZ-TA31P	with CZ-TA31P	with CZ-TA31P	with CZ-TA31P
×	×	×	×	×	×
×	×	×	×	×	×
×	×	×	×		
×	×	×	×	×	×
×	×	×	×	×	×
×	×	×	×	×	×
	×		×		×
×	×	×	×	×	×
×		×		×	

5 AND 6 HP OUTDOOR UNITS

The Single Phase 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 compressors for the higher energy saving operation. The new design not only achieves quite and highly efficient operation, but it also reduces running costs.



HP			5HP	6HP
Model			U-5LA1E5	U-6LA1E5
Power source			220-230-240 V / Sinle Phase / 50Hz	
Cooling capacity	kW		14,00	15,50
EER	W/W		3,25	3,01
Current ¹	A		19,80	23,50
Power input cooling	W		4.310	5.150
Heating capacity	kW		16,00	18,00
COP	W/W		4,03	3,84
Current ¹	A		18,10	21,40
Power input heating	W		3.970	4.690
Air volume	Cooling	m³/min	95,0	98,0
	Heating	m³/min	95,0	98,0
Moisture removal volume	L/h		9,0	10,3
Sound pressure level	Cooling (Hi / Lo)	dB(A)	53 / -	55 / -
	Heating (Hi / Lo)	dB(A)	55 / -	57 / -
Sound power level	Cooling (Hi / Lo)	dB	71 / -	73 / -
	Heating (Hi / Lo)	dB	72 / -	74 / -
Dimensions	H x W x D	mm	1.340 x 900 x 350 (+40) ²	1.340 x 900 x 350 (+40) ²
Net weight	kg		123	123
Connectable indoor unit	Total capacity		50~130% of outdoor unit capacity	
	Model / Quantity	unit	S-22 ~ S-90 / 2 - 8	
Piping connections	Liquid pipe	mm (inch)	9,52 (3/8)	9,52 (3/8)
	Gas pipe	mm (inch)	15,88 (5/8)	15,88 (5/8)
Maximum total piping length	Min - Max	m	20 - 90	20 - 90
Elevation difference (in/out)	Max	m	30	30
Max charge less length	Max	m	90	90
Refrigerant loading	R410A	kg	8	8
Operating range	Cooling Min / Max	°C	-5 / 43	-5 / 43
	Heating Min / Max	°C	-15 / 24	-15 / 24

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

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

2) Add 40mm for discharge grille.

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

Technical focus

- Refrigerant charge-free system (no additional refrigerant is required)
- Very quiet outdoor units
- Flexible installation and easy setup
- Easy trouble-shooting function
- Space-saving design

Features

Control Flexibility

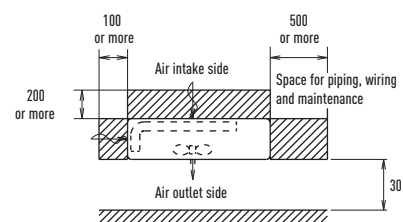
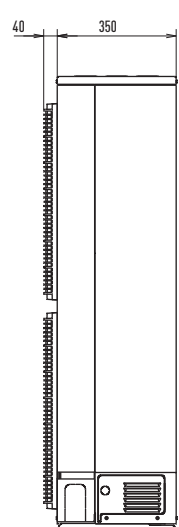
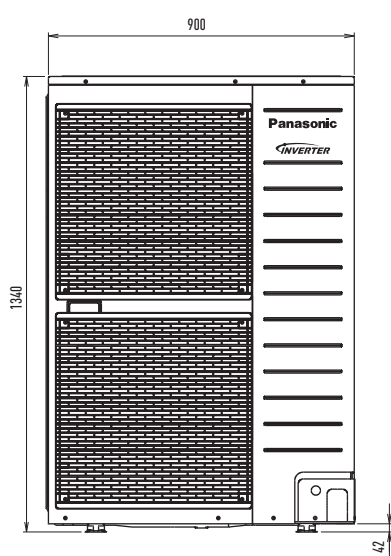
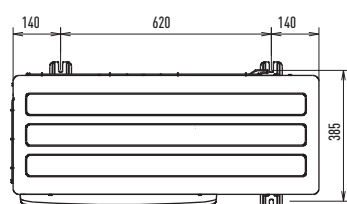
- Cooling Only Model Setting (by jumper line cut)
- Power Save Mode
- Outdoor Unit Silent Operation Mode
- Auto Restart

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



8 AND 10 HP OUTDOOR UNITS

Three Phase 8 and 10 HP outdoor units. Easy to install, high performances!

All Panasonic FS Multi VRF series modules are equipped with DC inverter compressors for the higher energy saving operation. The new design not only achieves quite and highly efficient operation, but it also reduces running costs.



HP			8HP	10HP
Model			U-8EA1E8	U-10EA1E8
Power source			380-400-415 V / Three Phase / 50Hz	
Cooling capacity	kW		22,40	28,00
EER	W/W		3,70	3,37
Current ¹	A		9,40	12,80
Power input cooling	W		6.050	8.310
Heating capacity	kW		25,00	31,50
COP	W/W		4,10	4,01
Current ¹	A		9,40	12,10
Power input heating	W		6.100	7.860
Air volume	Cooling	m³/min	150	154
	Heating	m³/min	150	154
Sound pressure level	Cooling (Hi / Lo)	dB(A)	58 / -	59 / -
	Heating (Hi / Lo)	dB(A)	59 / -	60 / -
Sound power level	Cooling (Hi / Lo)	dB	78 / -	79 / -
	Heating (Hi / Lo)	dB	79 / -	80 / -
Dimensions	H x W x D	mm	1.745 x 920 x 760 (+40) ²	1.745 x 920 x 760 (+40) ²
Net weight		kg	195	210
Connectable indoor unit	Total Capacity		50-130% of outdoor unit capacity	50-130% of outdoor unit capacity
	Model / Quantity	unit	S-22 ~ S-125 / 2 - 13	S-22 ~ S-125 / 2 - 16
Piping connection	Liquid pipe	mm (inch)	9,52 (3/8)	9,52 (3/8)
	Gas pipe	mm (inch)	19,05 (4/3)	22,22 (7/8)
Maximum total piping length	Min - Max	m	15 - 300	15 - 300
Elevation difference (in/out)	Max	m	50	50
Refrigerant loading	R410A	kg	8,5	11,0
Operating range	Cooling Min / Max	°C	-5 / 43	-5 / 43
	Heating Min / Max	°C	-20 / 24	-20 / 24

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

1) These values are at 400 V only. For 380 V and 415 V specifications, please refer to the technical data book.

2) Add 40mm for discharge grille.

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

Technical focus

- Very quiet outdoor units
- Flexible installation and easy setup
- Easy trouble-shooting function
- Space-saving design

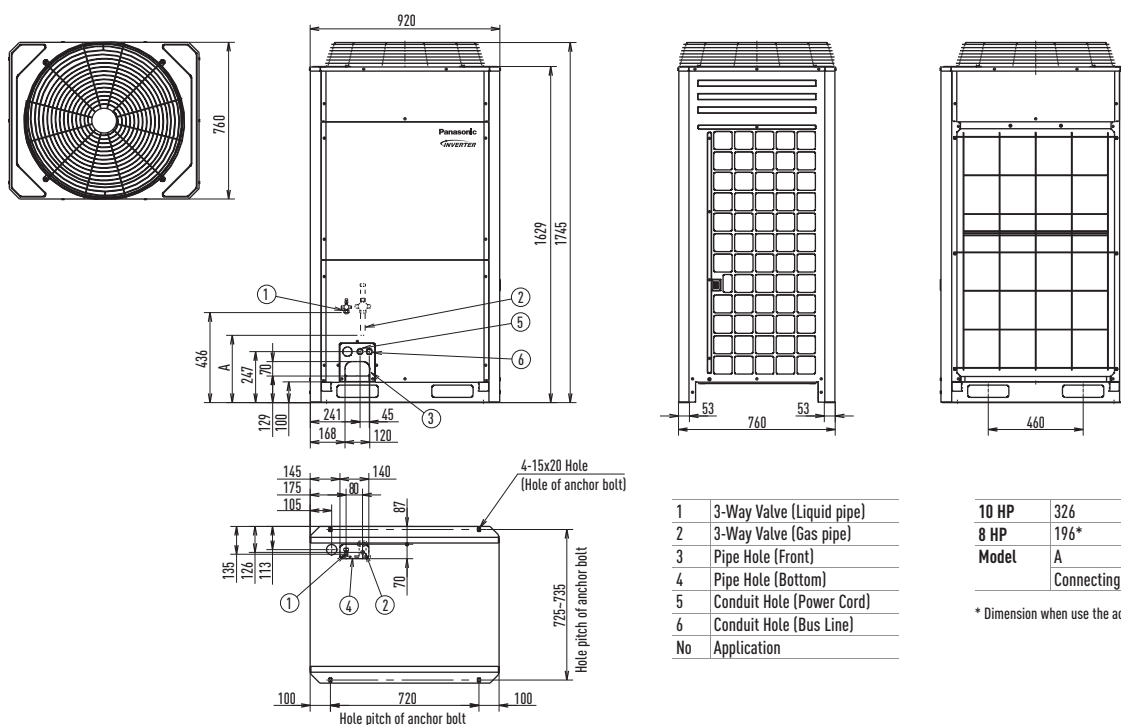
Features

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)





FS Multi Indoor Units

Wide choice of models depending on the indoor requirements.



Wall Mounted Type

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.



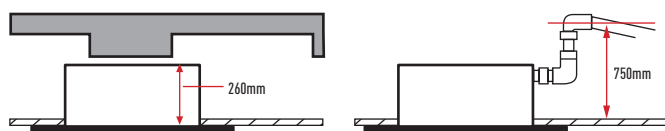
Flexible installation

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.

4 Way 60x60 Cassette

Compact design allows space saving!

The panel is a compact 70x70cm so it can be installed even in a small room where space is limited. The ceiling space required is 65x65cm. Only 260mm thin and 750mm drain-up mechanism

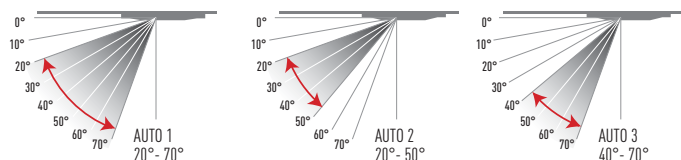


With a slim profile of only 260mm, the unit fits easily in ceiling spaces and tight spots. The internal pump allows the drain line to be elevated up to 750mm above the base of the unit.

4 Way 90x90 Cassette

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.

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.

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 possibility of damage during transportation.



1. Refrigerant pipe / 2. Drainpipe

Low-Silhouette Duct Type Low Static Pressure

Ultra-thin 20cm design: fits in even where ceiling height is limited

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.

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 20cm of vertical space and projecting only 55cm, the unit can be installed in semi-dropped ceiling situations, thus helping to create spacious and comfortable surroundings.

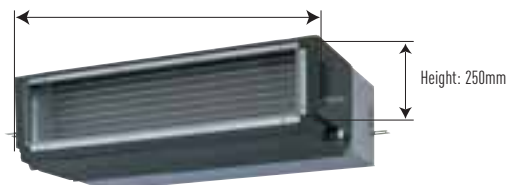
Thoroughly considered connecting flange design

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.

Low-Silhouette Duct Type Mid Static Pressure

Compact, lightweight design for easy installation

Thin and only 250mm 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.



Width*: 780mm (45/56MA1E5) / 1,000mm (63/71/90MA1E5).

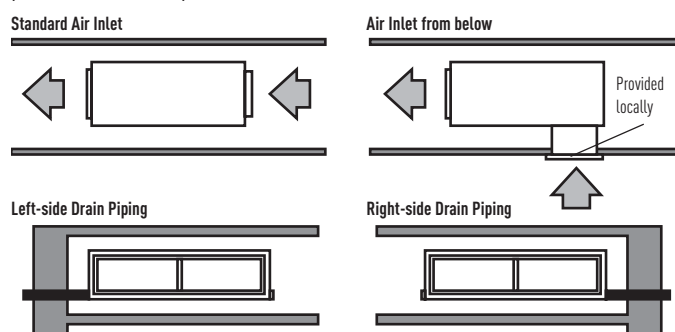
* Add 100mm for power supply equipment.

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 7mmAq according to the condition of the duct. For short ducts, the lower pressure of 5mmAq provides efficient operation.



WALL MOUNTED TYPE

SILVER



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.

Technical focus

- Flexible installation
- Effective long-life filter
- Self diagnosis function with 7-seg code display

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)

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.

Effective long-life filter

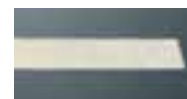
This long-life filter can trap dust mites, tobacco smoke and other common pollutants effectively. When it catches certain airborne particles, the clean-indicator will remind you to clean. You can remove the filter quickly with a simple one step operation, after cleaning, it can be re-fitted.



Optional Controller
Wired Remote Controller
CZ-RT1



Optional Controller
Wireless Remote Controller
CZ-RWS1 (Heat Pump Models)
CZ-RWC1 (Cooling Only Models)



Optional Accessories
CZ-SA16P
Anti Bacterial Filter: 10 year filter life

			0,8 HP	1,0 HP	1,5 HP	1,75 HP
Indoor			S-22KA1E5S	S-28KA1E5S	S-36KA1E5S	S-45KA1E5S
Power source			220-230-240 V / Single Phase / 50 Hz		220-230-240 V / Single Phase / 50 Hz	
Cooling capacity	kW	2,20	2,80		3,60	
Current	A	0,25	0,30		0,35	
Power input cooling	W	25	27		30	
Heating capacity	kW	2,50	3,20		4,20	
Current	A	0,25	0,30		0,35	
Power input heating	W	25	27		30	
Air volume	Cooling	m³/min	9,5	9,7	10,9	11,3
	Heating	m³/min	10,3	10,9	11,6	12,1
Moisture removal volume		L/h	1,3	1,6	2,1	2,5
Sound pressure level	Cooling (Hi / Lo)	dB(A)	38 / 33	39 / 33	42 / 34	43 / 35
	Heating (Hi / Lo)	dB(A)	38 / 33	39 / 33	42 / 34	43 / 35
Sound power level	Cooling (Hi / Lo)	dB	53 / 48	54 / 48	57 / 49	58 / 50
	Heating (Hi / Lo)	dB	53 / 48	54 / 48	57 / 49	58 / 50
Dimensions	H x W x D	mm	290 x 870 x 204		290 x 870 x 204	
Net weight		kg	9	9	9	9
Piping connection	Liquid pipe	mm (inch)	6,35 (1/4)	6,35 (1/4)	6,35 (1/4)	6,35 (1/4)
	Gas pipe	mm (inch)	12,7 (1/2)	12,7 (1/2)	12,7 (1/2)	12,7 (1/2)

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

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

Maximum flexibility	Easy control by BMS	Environmentally friendly refrigerant
VRF	CONNECTIVITY	R410A

WALL MOUNTED TYPE WHITE - ALSO AVAILABLE IN WIDE OPTION



S-56KA1E5 // S-63KA1E5 // S-71KA1E5



S-22KA1E5 // S-28KA1E5 // S-36KA1E5 // S-45KA1E5

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. This model is also available in Wide option. 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.

Technical focus

- Flexible installation
- Effective long-life filter
- Self diagnosis function with 7-seg code display

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)

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.

Effective long-life filter

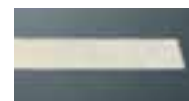
This long-life filter can trap dust mites, tobacco smoke and other common pollutants effectively. When it catches certain airborne particles, the clean-indicator will remind you to clean. You can remove the filter quickly with a simple one step operation, after cleaning, it can be re-fitted.



Optional Controller
Wired Remote Controller
CZ-RT1



Optional Controller
Wireless Remote Controller
CZ-RWS1 (Heat Pump Models)
CZ-RWC1 (Cooling Only Models)



Optional Accessories
CZ-SA16P
Anti Bacterial Filter: 10 year filter life

		0,8 HP	1,0 HP	1,5 HP	1,75 HP	2,0 HP	2,5 HP	3,0 HP
Indoor		S-22KA1E5	S-28KA1E5	S-36KA1E5	S-45KA1E5	S-56KA1E5	S-63KA1E5	S-71KA1E5
Power source		220-230-240 V / Single Phase / 50 Hz						
Cooling capacity	kW	2,20	2,80	3,60	4,50	5,60	6,30	7,10
Current	A	0,25	0,30	0,35	0,40	0,40	0,45	0,50
Power input cooling	W	25	27	30	35	45	50	55
Heating capacity	kW	2,50	3,20	4,20	5,10	6,40	7,10	8,00
Current	A	0,25	0,30	0,35	0,40	0,40	0,45	0,50
Power input heating	W	25	27	30	35	45	50	55
Air volume	Cooling	m³/min	9,5	9,7	10,9	11,3	15,3	16,0
	Heating	m³/min	10,3	10,9	11,6	12,1	16,7	17,1
Moisture removal volume		L/h	1,3	1,6	2,1	2,5	3,2	4,2
Sound pressure level	Cooling (Hi / Lo)	dB(A)	38 / 33	39 / 33	42 / 34	43 / 35	44 / 38	46 / 39
	Heating (Hi / Lo)	dB(A)	38 / 33	39 / 33	42 / 34	43 / 35	44 / 38	46 / 39
Sound power level	Cooling (Hi / Lo)	dB	53 / 48	54 / 48	57 / 49	58 / 50	59 / 53	61 / 54
	Heating (Hi / Lo)	dB	53 / 48	54 / 48	57 / 49	58 / 50	59 / 53	61 / 54
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
Net weight		kg	9	9	9	11	12	12
Piping connection	Liquid pipe	mm (inch)	6,35 (1/4)	6,35 (1/4)	6,35 (1/4)	6,35 (1/4)	6,35 (1/4)	9,52 (3/8)
	Gas pipe	mm (inch)	12,7 (1/2)	12,7 (1/2)	12,7 (1/2)	12,7 (1/2)	12,7 (1/2)	15,88 (5/8)

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

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

Maximum flexibility	Easy control by BMS	Environmentally friendly refrigerant
VRF	CONNECTIVITY	R410A

4 WAY 60x60 CASSETTE



4 Way airflow comfort with elegant, compact panel.

Technical focus

- Compact design allows space saving!
- Self diagnosis function with 7-seg code display
- Only 260mm thin
- 750mm drain-up mechanism
- Anti-mould long-life air filter

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.

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.



Optional Controller
Wired Remote Controller
CZ-RT1



Optional Controller
Wireless Remote Controller
CZ-RWS1 (Heat Pump Models)
CZ-RWC1 (Cooling Only Models)



Optional Accessories
CZ-SA13P
Anti Bacterial Filter.
Replacement: every 3 years

			0,8 HP	1,0 HP	1,5 HP	1,75 HP	2,0 HP
Indoor Panel			S-22YA1E5 CZ-KPY1	S-28YA1E5 CZ-KPY1	S-36YA1E5 CZ-KPY1	S-45YA1E5 CZ-KPY1	S-56YA1E5 CZ-KPY1
Power source			220-230-240 V / Single Phase / 50 Hz				
Cooling capacity	kW		2,20	2,80	3,60	4,50	5,60
Current	A		0,30	0,30	0,35	0,35	0,35
Power input cooling	W		35	35	40	40	45
Heating capacity	kW		2,50	3,20	4,20	5,10	6,40
Current	A		0,30	0,30	0,35	0,35	0,35
Power input heating	W		35	35	40	40	45
Air volume	Cooling	m³/min	8,3	8,6	9,0	9,3	9,9
	Heating	m³/min	9,3	9,6	9,9	10,3	10,6
Moisture removal volume	L/h		1,3	1,6	2,1	2,5	3,2
Sound pressure level	Cooling (Hi / Lo)	dB(A)	36 / 33	37 / 33	38 / 34	39 / 35	40 / 36
	Heating (Hi / Lo)	dB(A)	36 / 33	37 / 33	38 / 34	39 / 35	40 / 36
Sound power level	Cooling (Hi / Lo)	dB	51 / 48	52 / 48	53 / 49	54 / 50	55 / 51
	Heating (Hi / Lo)	dB	51 / 48	52 / 48	53 / 49	54 / 50	55 / 51
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
	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		18	18	18	18	18
Piping connection	Liquid pipe	mm (inch)	6,35 (1/4)	6,35 (1/4)	6,35 (1/4)	6,35 (1/4)	6,35 (1/4)
	Gas pipe	mm (inch)	12,7 (1/2)	12,7 (1/2)	12,7 (1/2)	12,7 (1/2)	12,7 (1/2)

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

Maximum flexibility	Prevention allergen filter	Easy control by BMS	Environmentally friendly refrigerant
VRF	ANTI BACTERIAL FILTER	CONNECTIVITY	R410A

4 WAY 90x90 CASSETTE



4 Way airflow, powerful, and compact (only 246mm high)

Technical focus

- Self diagnosis function with 7-seg code display
- Only 246mm thin
- 750mm drain-up mechanism
- Elegant panel, 4-direction blow
- Three airflow patterns for extra comfort
- Flexible piping layout
- Innovative design creates extra quiet operation

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.

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 246mm thin and 750mm drain-up mechanism



Optional Controller
Wired Remote Controller
CZ-RT1



Optional Controller
Wireless Remote Controller
CZ-RWS1 (Heat Pump Models)
CZ-RWC1 (Cooling Only Models)

			2,5 HP	3,0 HP	3,5 HP	4,0 HP
Indoor Panel			S-63UA1E5 CZ-BT03P	S-71UA1E5 CZ-BT03P	S-90UA1E5 CZ-BT03P	S-100UA1E5 CZ-BT03P
Power source			220-230-240 V / Single Phase / 50 Hz	220-230-240 V / Single Phase / 50 Hz	220-230-240 V / Single Phase / 50 Hz	220-230-240 V / Single Phase / 50 Hz
Cooling capacity	kW		6,30	7,10	9,00	10,00
Current ¹	A		0,50	0,55	0,55	1,05
Power input cooling ¹	W		110	115	115	205
Heating capacity	kW		7,10	8,00	10,00	11,20
Current ¹	A		0,50	0,55	0,55	1,05
Power input heating ¹	W		110	115	115	205
Air volume	Cooling	m³/min	21	22	22	30
	Heating	m³/min	21	22	22	30
Moisture removal volume	L/h		3,6	4,2	5,4	6,0
Sound pressure level ¹	Cooling (Hi / Lo)	dB(A)	41 / 35	42 / 36	42 / 36	48 / 43
	Heating (Hi / Lo)	dB(A)	41 / 35	42 / 36	42 / 36	48 / 43
Sound power level ¹	Cooling (Hi / Lo)	dB	56 / 50	57 / 51	57 / 51	63 / 58
	Heating (Hi / Lo)	dB	56 / 50	57 / 51	57 / 51	63 / 58
Dimensions (H x W x D)	Indoor unit / Panel	mm	246 x 840 x 840 / 45 x 950 x 950	246 x 840 x 840 / 45 x 950 x 950	246 x 840 x 840 / 45 x 950 x 950	288 x 840 x 840 / 45 x 950 x 950
Net weight		kg	26	26	26	30
Piping connection	Liquid pipe	mm (inch)	6,35 (1/4)	9,52 (3/8)	9,52 (3/8)	9,52 (3/8)
	Gas pipe	mm (inch)	12,7 (1/2)	15,88 (5/8)	15,88 (5/8)	15,88 (5/8)

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

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

Maximum flexibility	Easy control by BMS	Environmentally friendly refrigerant
VRF	CONNECTIVITY	R410A

LOW-SILHOUETTE DUCT TYPE LOW STATIC PRESSURE



Offers maximum installation flexibility with lightweight design
Only 200mm tall! Ideal for hotels and offices.

Technical focus

- Ultra-thin, Duct-type indoor unit
- Ultra-thin 200mm design: fits in even where ceiling height is limited
- Built-in selectable static pressure settings
- Thoroughly considered connecting flange design

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)

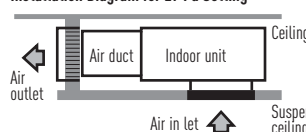
* Wired: Wired Remote Controller / Infrared: Infrared Remote Controller.

Built-in selectable static pressure settings

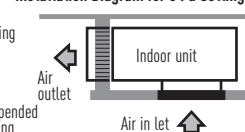
Our ultra thin duct-type indoor units have two static pressure settings: 0Pa and 29Pa. In situations without ducting, the 0Pa* static pressure setting is applicable. Where ducting is present, set the unit to 29Pa* static pressure.

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

Installation Diagram for 29 Pa Setting



Installation Diagram for 0 Pa Setting



Optional Controller
Wired Remote Controller
CZ-RT1



Optional Controller
Wireless Remote Controller
CZ-RWS1 (Heat Pump Models)
CZ-RWC1 (Cooling Only Models)

			0,8 HP	1,0 HP	1,25 HP	1,5 HP	1,75 HP	2,0 HP
Indoor			S-22NA1E5	S-28NA1E5	S-32NA1E5	S-36NA1E5	S-45NA1E5	S-56NA1E5
Power source			220-230-240 V / Single Phase / 50 Hz					
Cooling capacity	kW		2,20	2,80	3,20	3,60	4,50	5,60
Current ¹	A		0,40	0,45	0,45	0,45	0,50	0,50
Power input cooling ¹	W		75	80	85	85	95	105
Heating capacity	kW		2,50	3,20	3,60	4,20	5,10	6,40
Current ¹	A		0,40	0,45	0,45	0,45	0,50	0,50
Power input heating ¹	W		75	80	85	85	95	105
Air volume	Cooling	m ³ /min	10	11	11	11	12	12,5
	Heating	m ³ /min	10	11	11	11	12	12,5
Moisture removal volume	L/h		1,3	1,6	1,8	2,1	2,5	3,2
Sound pressure level ¹	Cooling (Hi / Lo)	dB(A)	36 / 30	37 / 30	38 / 31	38 / 31	39 / 32	39 / 32
	Heating (Hi / Lo)	dB(A)	36 / 30	37 / 30	38 / 31	38 / 31	39 / 32	39 / 32
Sound power level ¹	Cooling (Hi / Lo)	dB	51 / 45	52 / 45	53 / 46	53 / 46	54 / 47	54 / 47
	Heating (Hi / Lo)	dB	51 / 45	52 / 45	53 / 46	53 / 46	54 / 47	54 / 47
External static pressure ²	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
Net weight	kg		21	21	22	22	22	22
Piping connection	Liquid pipe	mm (inch)	6,35 (1/4)	6,35 (1/4)	6,35 (1/4)	6,35 (1/4)	6,35 (1/4)	6,35 (1/4)
	Gas pipe	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)

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

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 0Pa at factory default setting.

Maximum flexibility	Easy control by BMS	Environmentally friendly refrigerant
VRF	CONNECTIVITY	R410A

LOW-SILHOUETTE DUCT TYPE MID STATIC PRESSURE



Duct type with a maximum of 7mmq of static pressure with slim profile of only 250mm.

Compact and powerful!

Technical focus

- Compact, Lightweight Design for Easy Installation
- 3-Way Removable Air Filter
- Versatile Air Inlet and Drain Installation
- Static Pressure Selection

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

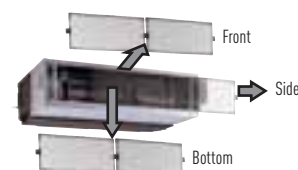
Field service & maintenance

- 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.

3-Way Removable Air Filter

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



Air Outlet Plenum (without regulation adaptor)

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



Air Inlet Plenum

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



Optional Controller
Wired Remote Controller
CZ-RT1



Optional Controller
Wireless Remote Controller
CZ-RWS1 (Heat Pump Models)
CZ-RWC1 (Cooling Only Models)

			1,75 HP	2,0 HP	2,5 HP	3,0 HP	3,5 HP	4,0 HP
Indoor			S-45MA1E5	S-56MA1E5	S-63MA1E5	S-71MA1E5	S-90MA1E5	S-100MA1E5
Power source			220-230-240 V / Single Phase / 50 Hz					
Cooling capacity	kW		4,50	5,60	6,30	7,10	9,00	10,00
Current ¹	A		0,60	0,60	0,60	0,60	0,80	1,35
Power input cooling ¹	W		135	135	135	135	175	300
Heating capacity	kW		5,10	6,40	7,10	8,00	10,00	11,20
Current ¹	A		0,60	0,60	0,60	0,60	0,80	1,35
Power input heating ¹	W		135	135	135	135	175	300
Air volume	Cooling	m³/min	15	15	17	17	19	34
	Heating	m³/min	15	15	17	17	19	34
Moisture removal volume		L/h	2,5	3,2	3,6	4,2	5,4	6,0
Sound pressure level ¹	Cooling (Hi / Lo)	dB(A)	42/35	42/35	43/36	43/36	44/37	47/43
	Heating (Hi / Lo)	dB(A)	42/35	42/35	43/36	43/36	44/37	47/43
Sound power level ¹	Cooling (Hi / Lo)	dB	57/50	57/50	58/51	58/51	59/52	62/58
	Heating (Hi / Lo)	dB	57/50	57/50	58/51	58/51	59/52	62/58
External static pressure ²		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 ³	H x W x D	mm	250 x 780 x 650	250 x 780 x 650	250 x 1.000 x 650	250 x 1.000 x 650	250 x 1.000 x 650	250 x 1.200 x 650
Net weight		kg	28	28	32	32	32	41
Piping connection	Liquid pipe	mm (inch)	6,35 (1/4)	6,35 (1/4)	6,35 (1/4)	9,52 (3/8)	9,52 (3/8)	9,52 (3/8)
	Gas pipe	mm (inch)	12,7 (1/2)	12,7 (1/2)	12,7 (1/2)	15,88 (5/8)	15,88 (5/8)	15,88 (5/8)

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.

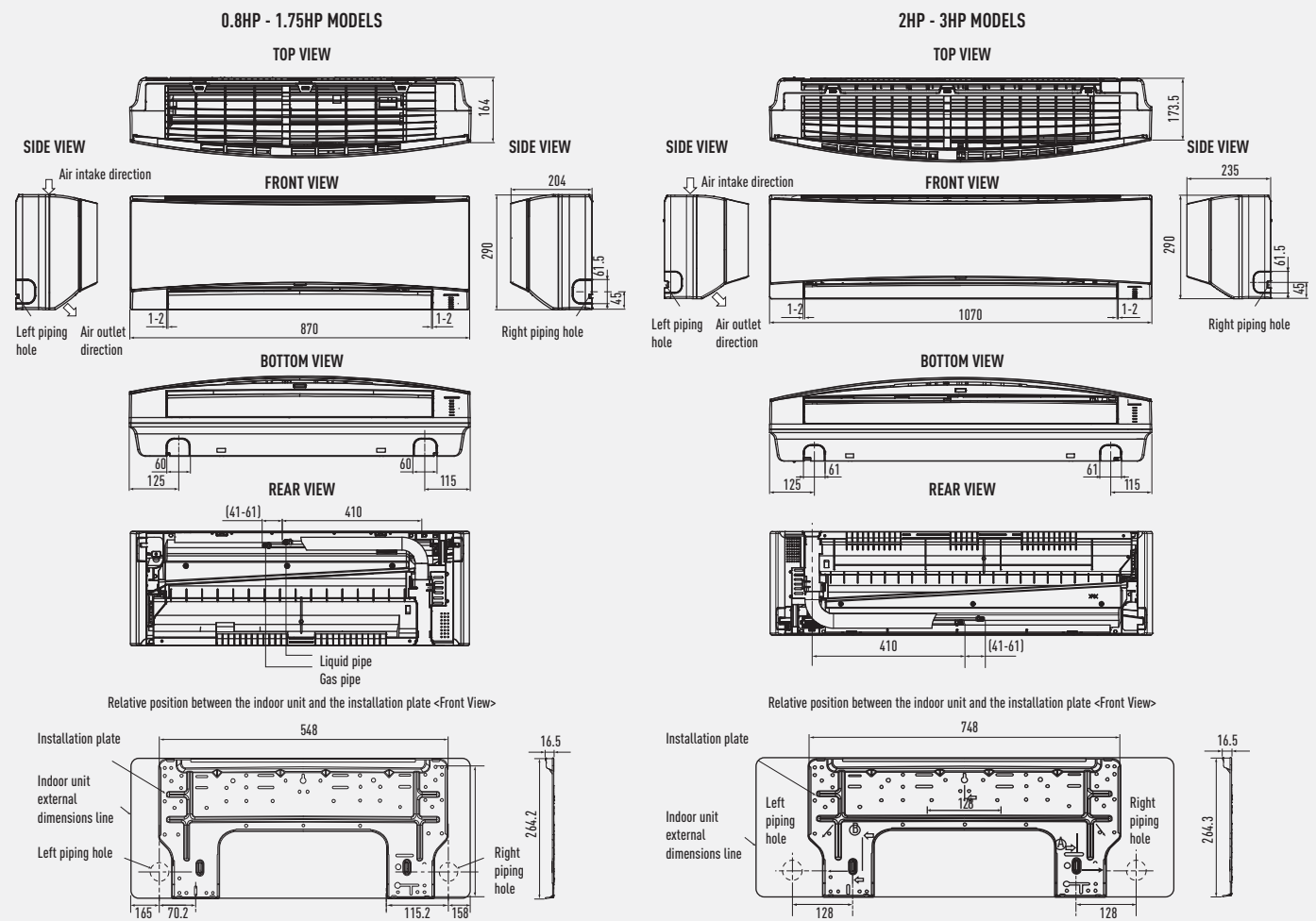
DB: Dry Bulb; WB: Wet Bulb

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 100mm for piping port.

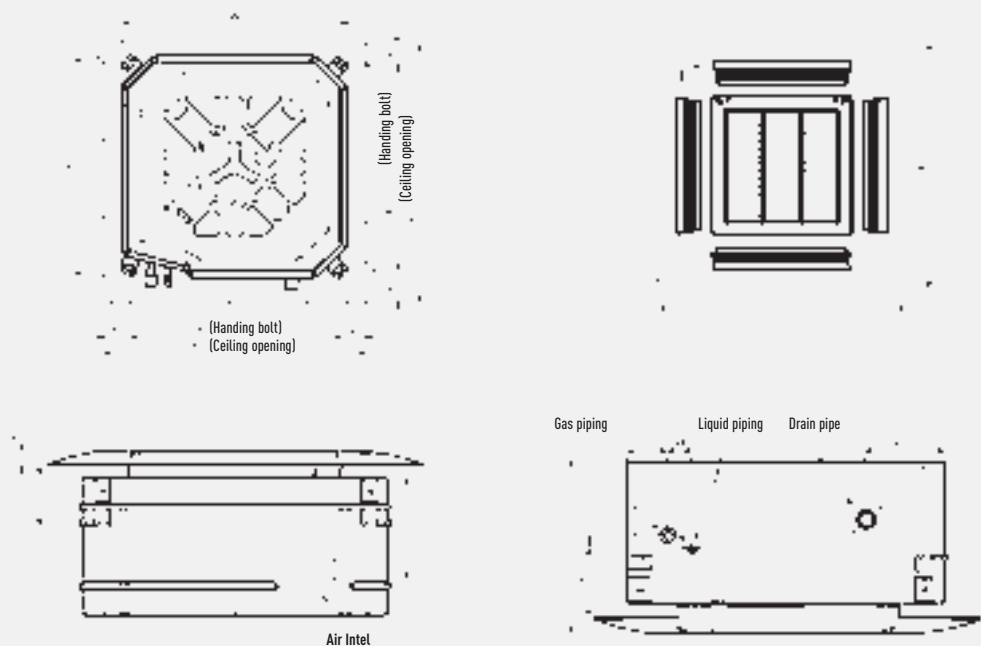
Maximum flexibility	Easy control by BMS	Environmentally friendly refrigerant
VRF	CONNECTIVITY	R410A

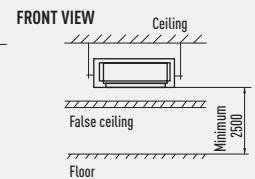
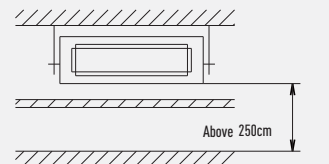
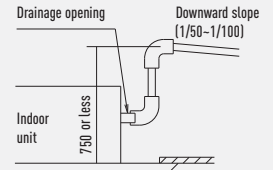
Dimensions

Wall Mounted Type



4 Way 60x60 Cassette







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.



The Inverter range provides greater efficiency, more comfort, 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.



GHP technology offer the best primary energy efficiency.



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).



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.



R410A. Environmentally friendly refrigerant.



5 Years warranty. We guarantee the compressors in the entire range for five years.



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.

*ECO i***ECOi VRF Systems**

ECOi VRF Systems: 2-Pipe Mini ECOi 6 Series
2-Pipe ECOi 6N Series 3-Pipe ECOi MF2 6N
Series.

ECOi electrical VRF is specifically designed for the most demanding offices and big buildings. 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. Example applications: Complexes. High Rise Buildings Commercial Buildings. Hotels.

*ECO G***ECO G VRF Systems**

ECO G gas VRF is specially designed for buildings where the electricity is restricted or CO_2 emissions must be reduced. Very high primary energy efficiency ratio. Very low electrical consumption. Compatible with all ECOi indoor units and remote controls. Sanitary hot water is produced freely in summer and winter (outside temperature $>7^{\circ}\text{C}$). Example applications: Complexes. High Rise Buildings. Commercial Buildings. Hotels.

VENTILATION

Ventilation VRF Systems

Increase the efficiency of an installation with the use of AHU ventilation, a wide range of air curtains and energy recovery ventilation system.



Panasonic is definitely the most efficient system throughout the years

And highly adapted to retail, hotels and offices applications

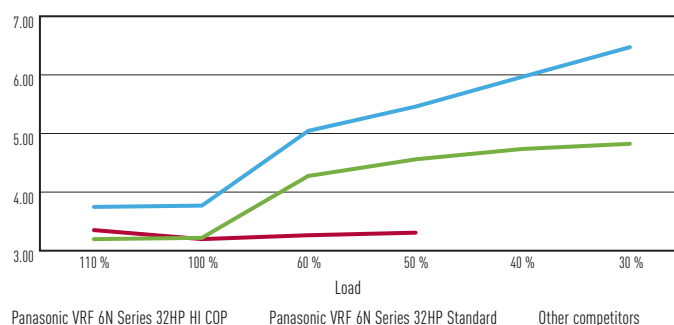
1. Super high efficiency at part load conditions:

Comparison with competitors: When many others do not declare performance data under 50% part load, Panasonic covers up to 30% part load with extremely high efficiency.

Load %	110 %	100 %	60 %	50 %	40 %	30 %
Other competitors	3.52	3.38	3.45	3.50		
Panasonic VRF 6N Series 32HP Standard	3.38	3.41	4.41	4.69	4.85	4.93
Panasonic VRF 6N Series 32HP HI COP	3.91	3.94	5.14	5.54	6.03	6.51

Conditions Outdoor temp 0°C DB, Room Temp 20°C DB.

COP COMPARISON PANASONIC VS OTHER COMPETITORS AT DIFFERENT LOAD



Conditions Outdoor temp 0°C DB, Room Temp 20°C DB. Data extracted by Panasonic and competitor official technical data book.

2. Excellent SEER and SCOP values for 2 and 3 way

Panasonic have the highest SEER and SCOP values of the market following the SBEM method (some other competitors may use another non official calculation method).

2-Pipe			3-Pipe		
Model	SEER	SCOP	Model	SEER	SCOP
U-8ME1E81	7,77	5,83	U-8MF2E8	7,09	5,74
U-10ME1E81	7,45	5,33	U-10MF2E8	7,06	5,40
U-12ME1E81	7,02	4,69	U-12MF2E8	7,15	5,25
U-14ME1E81	7,06	5,11	U-14MF2E8	6,80	5,63
U-16ME1E81	6,61	4,73	U-16MF2E8	6,96	4,88
U-18ME1E81	7,02	5,09			
U-20ME1E81	6,77	4,94			

Developed by BRE, SBEM (Simplified Building Energy Model) is the basis of non-domestic building energy calculations. Based on the National calculation method (NCM), it is used to determine compliance with Part L of the Building Regulations and is also used to provide Energy Performance Certification.

Non-Domestic Building Services Compliance Guide provides information on various aspects of the calculation method, including those of Heat Pumps (Section 3), and Comfort Cooling (Section 9).

SCOP - Seasonal Coefficient of Performance				
Part Load COP	25%	50%	75%	100%
Ambient conditions	15°C	7°C	1°C	-5°C
Weighting factor	0.20 (a)	0.36 (b)	0.32 (c)	0.12 (d)

UK winter -5°C DB (outdoor temperature), 20°C WB (indoor temperature)

SEER - Seasonal Energy Efficiency Rating				
Part Load COP	25%	50%	75%	100%
Ambient conditions	20°C	25°C	30°C	35°C
Weighting factor	0.20 (a)	0.36 (b)	0.32 (c)	0.12 (d)

UK summer 21°C DB (outdoor temperature), 16°C WB (indoor temperature)

ESEER calculation corresponds with below conditions and power input of indoor units is not included.

- Indoor temperature: 27°C DB / 19°C WB
- Outdoor temperature conditions

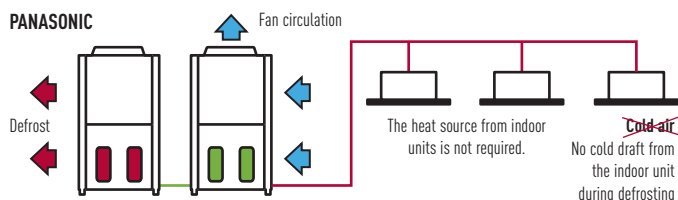
Part load ratio	25%	50%	75%	100%
Outdoor air temperature (°C DB)	20	25	30	35
Weighting coefficients	0,23	0,41	0,33	0,03

Formula: $0,03 \times \text{EER (100\%)} + 0,33 \times \text{EER}$

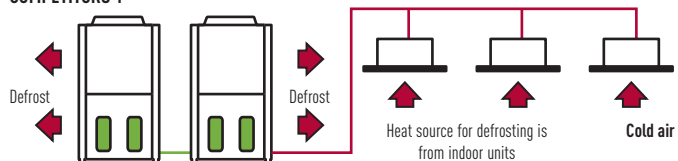
3. Efficient defrost operation

Panasonic use the second unit to defrost the first unit. This makes the system more efficient during defrost and does not affect comfort.

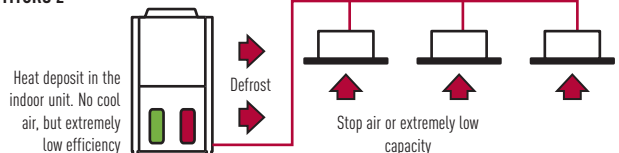
PANASONIC



COMPETITORS 1



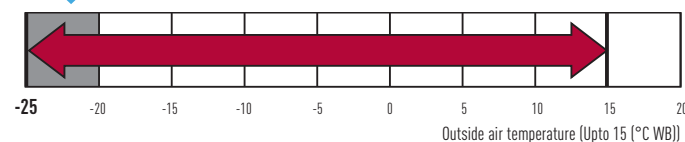
COMPETITORS 2



4. Panasonic ECOi operates up to -25°C. This unique feature demonstrate the supremacy of Panasonic ECOi 6N Series

Panasonic use the second unit to defrost the first unit. This makes the system more efficient during defrost and does not affect the comfort.

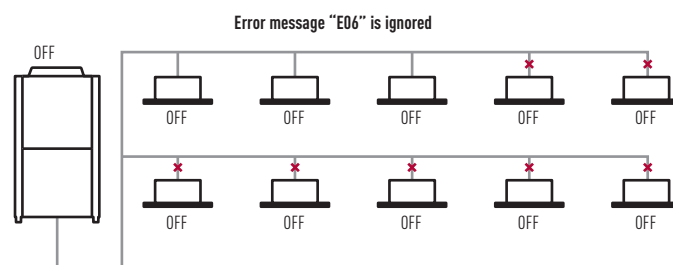
Lowest operating outdoor temperature in the market **-25°C**



Wide temperature setting range.

5. The system will still operate up to 25% of the connected indoor units

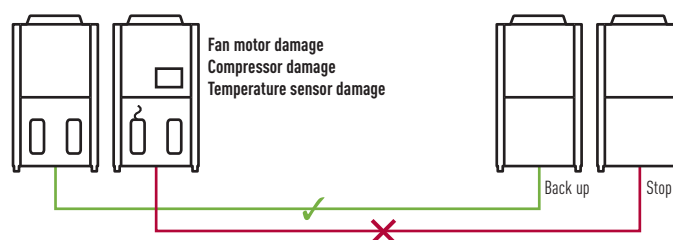
System will not stop when up to 25% of indoor units have power supply breakdown when they are ON Mode.

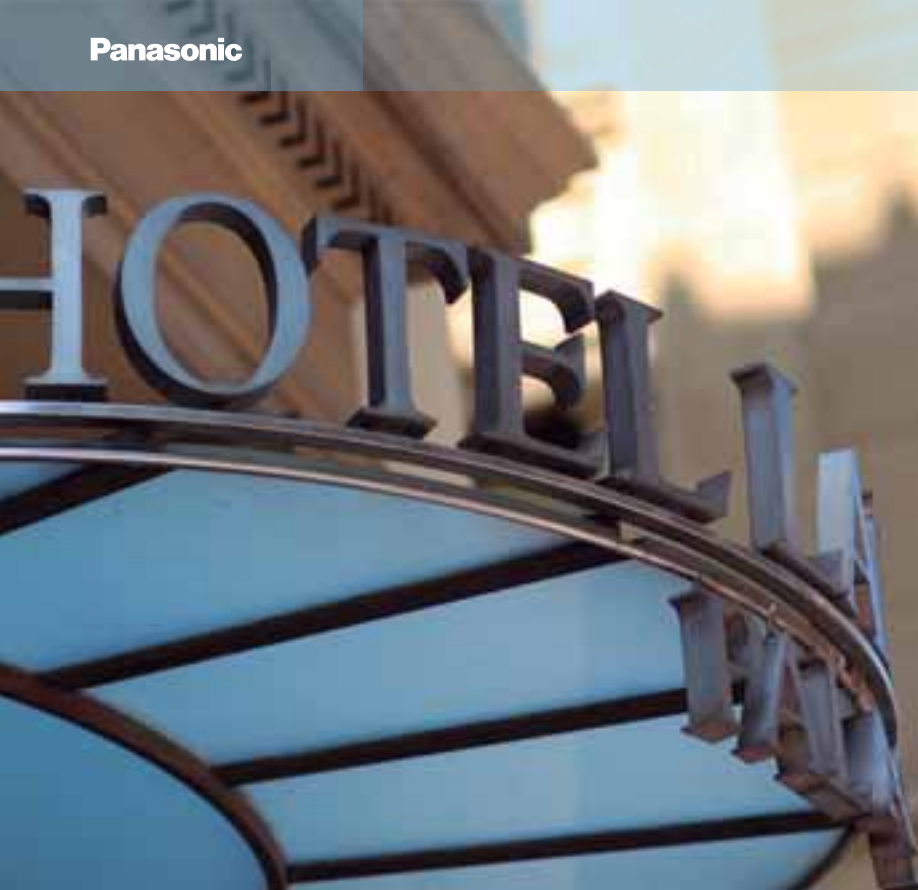


6. High safety operation in case of breakdown! Ensures heating and cooling

AUTOMATIC BACK-UP OPERATION

It is possible for the system to keep working, even if the compressors, fan motor and the temperature sensor are damaged (even when compressor fails in single unit with 2 or more compressor inside).





Your entire hotel with maximum savings, maximum control and maximum comfort

Your entire hotel with maximum savings, maximum control and maximum comfort
Panasonic offers the widest range in HVAC, DHW and ventilation available. That enables us to offer the most suitable solution to ANY project. And this all with the peace of mind provided by a fast customer service which is available 24 hours a day, 365 days a year.
The energy savings provided by our solutions, plus the available choice between electricity and gas, will enable you to reduce your CO₂ emissions.
Panasonic solutions not only ensure a higher customer satisfaction but also the peace of mind that the wide Panasonic experience brings about in this field, plus a lower energy bill.

Hydronic units

For obtaining hot and cold water for heating and refrigeration (Aquarea Air water terminals, underfloor heating, radiators...)

Outdoor units

ECOi VRF Electric sourced Systems
ECO G VRF Systems

1. Electric VRF + ECO G with VHE for water chiller applications.
2. Electric VRF + ECO G.
3. Electric VRF.

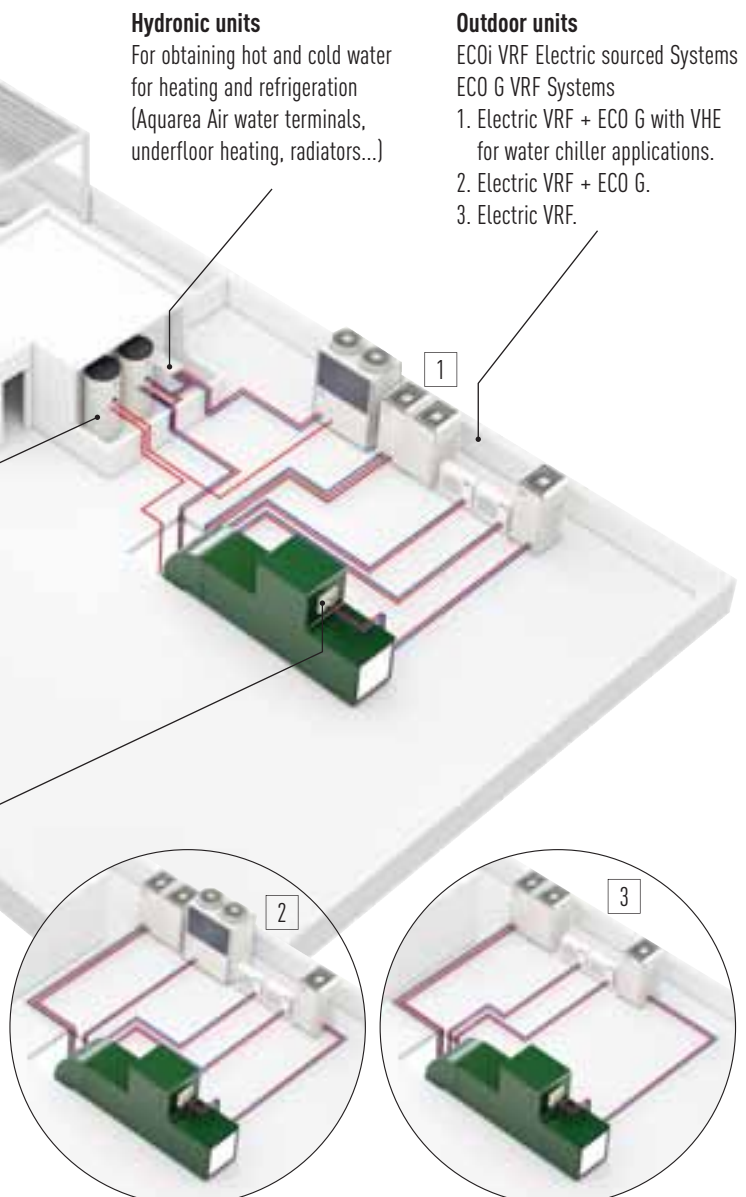
DHW

DHW solutions with the Aquarea range.
Cogeneration: ECO G provides hot water for free



AHU Kit

Increase the efficiency of an installation with the use of AHU ventilation, a wide range of air curtains and energy recovery ventilation system.



Additional available space

Due to the modularity applied to our systems, our customers have freed space for public use: Terraces, swimming pools, meeting rooms, parkings.

Cutoff valves

When there are plans for future expansion, the installation can be built using the units sized for future expansion requirements.

Indoor units

A complete range of indoor units for air conditioning any hotel premises, from 1.5 up to 30 kW. Units tailored for rooms, quiet and fitted with a probe for flow temperature and with a height of 200mm only.

**PKEA indoor unit**

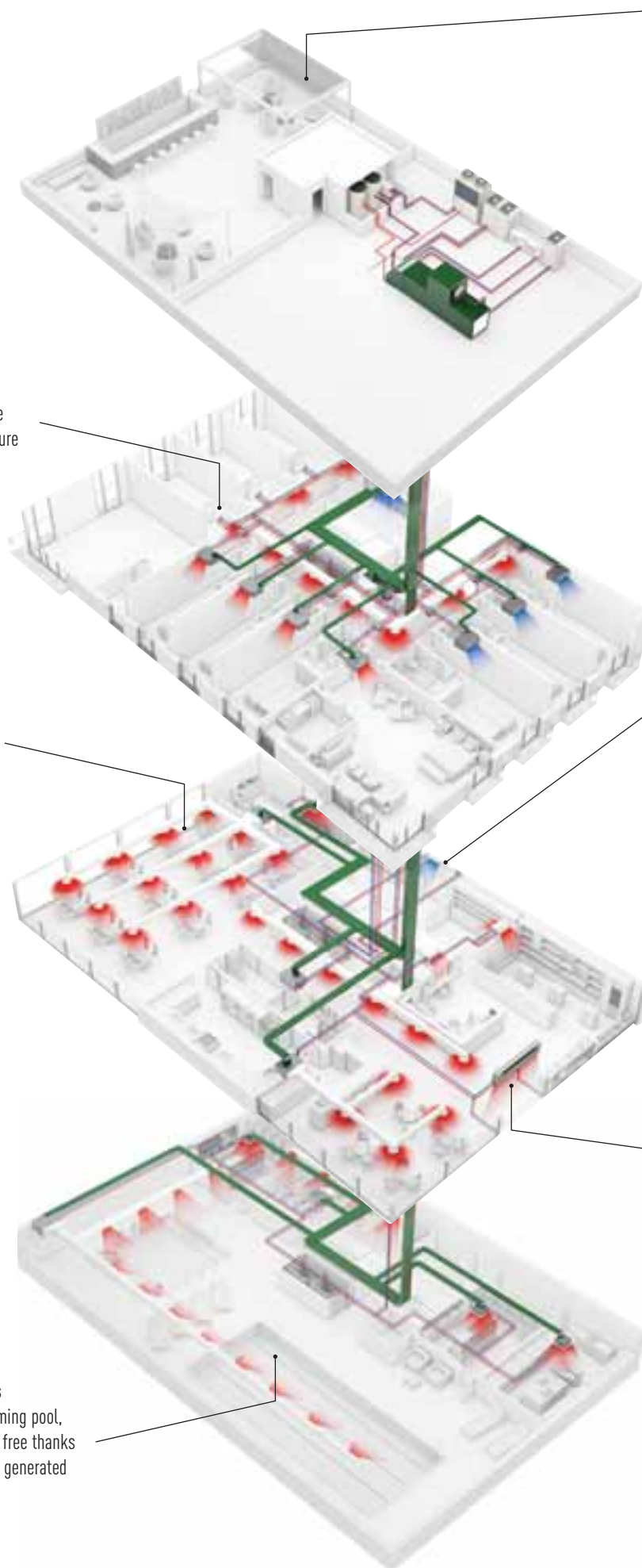
Steady cooling, nonstop, even at -15°C for server rooms

**Air Curtain with HEX**

The Panasonic range of air curtains is designed for smooth operation and efficient performance.

Maximum savings

Hot water for swimming pool, spa and laundry for free thanks to the residual heat generated by the ECO G units





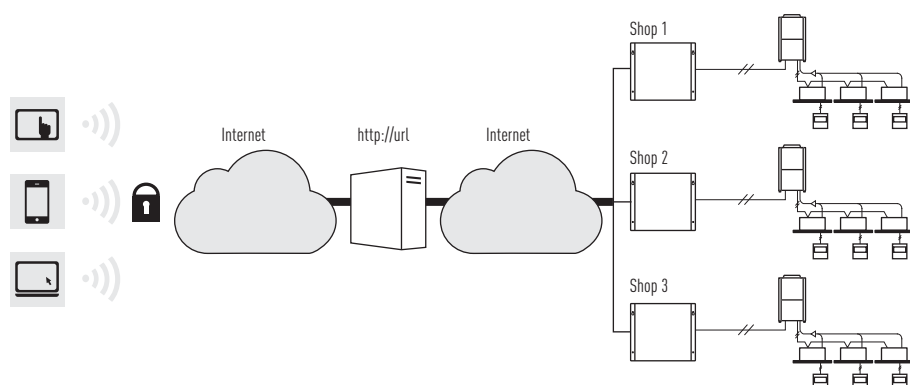
New innovative solutions for retail

Heating and cooling solutions for retail applications

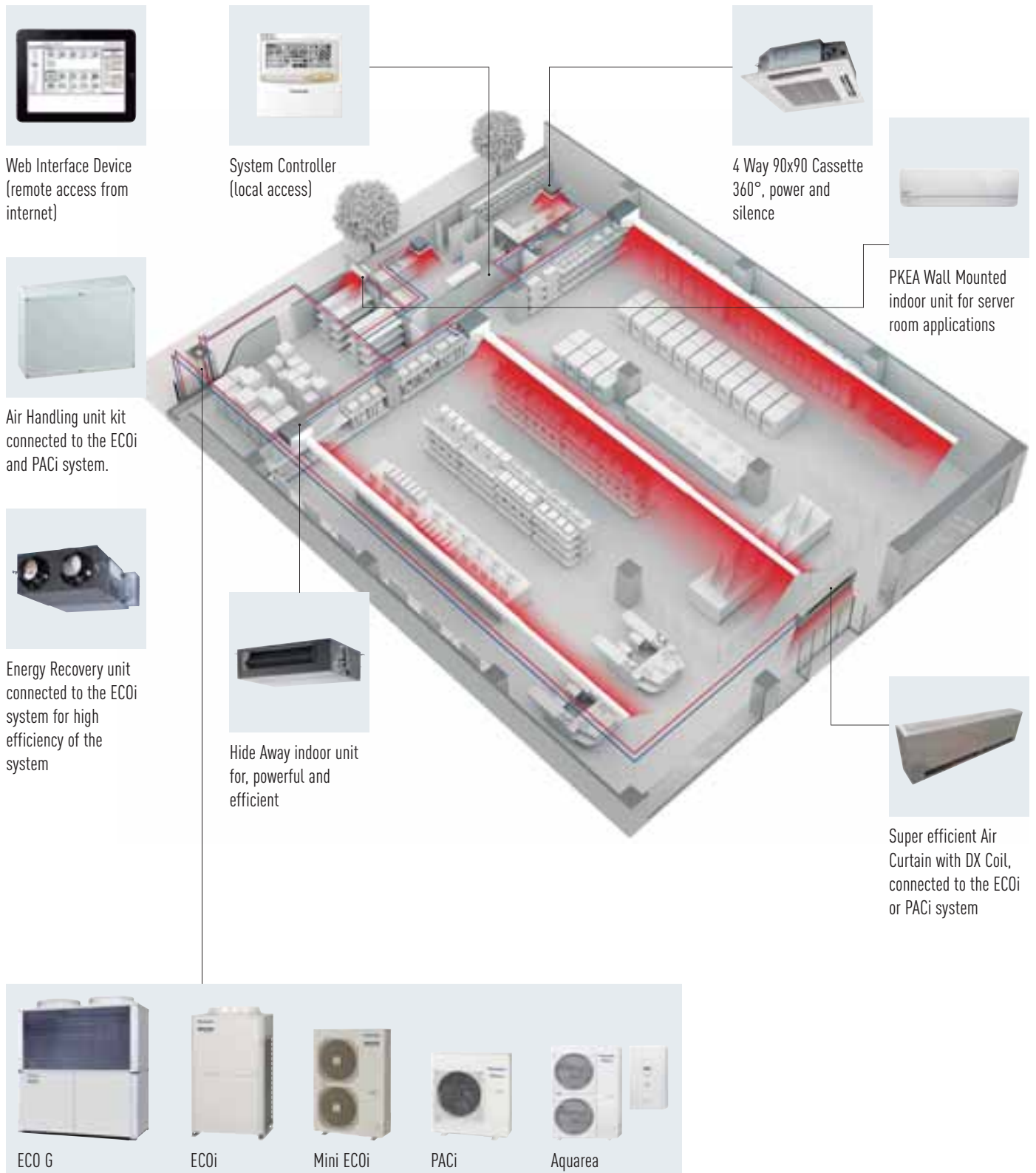
Panasonic has developed solutions for retail applications and offices applications where return on investment is a key factor! The comfort inside the shop is key for a good customer experience in the shop.

From local control or from Panasonic new cloud control system, a detail status of the heating and cooling system can be display, analyze and optimized in order to improve the efficiency, reduce the running time and increase the life time of the units.

Control your business 24h/7



The new Cloud system from Panasonic is allowing to have a deep control of your installations everywhere you are, from your smart phone or from your computer. In a simple click, all the units from several locations, get inform in real time of the status of all your installations, prevent breakdowns and optimize the costs.



Outdoor units

Multi energy solution (Gas and Electric) to give the best of the energy saving and on the flexibility of the installation. Panasonic solutions can be connect to direct expansion systems or water chiller installations

ECONAVI



Wired remote controller CZ-RTC3
with Econavi Sensor Control



New Econavi Sensor for VRF and PACi



The all new Econavi Sensor detects presence in the room, and quietly adapts the PACi or VRF air conditioning system in order to improve comfort and maximise energy savings.

- Detects human activity and adjusts temperature by 2 degrees (up or down) to optimize comfort and efficiency
- If there is no activity detected for a set time, the Econavi will stop the unit or move to a new temperature previously set
- The Econavi device is installed independently of the indoor unit, and is located in the area best suited for detection



**INCREASE
EFFICIENCY
INCREASE
COMFORT**

Presence detection and human activity possible

Activity detection		Presence detection	
HIGHER ACTIVITY	LOWER ACTIVITY	After 20 mins absence	After 3 hours absence
Cooling Set Temp. $\pm 0^{\circ}\text{C}$	Cooling Set Temp. $+1^{\circ}\text{C}$	Cooling Set Temp. $+2^{\circ}\text{C}$	Cooling Thermo OFF
Heating Set Temp. -1°C	Heating Set Temp. $\pm 0^{\circ}\text{C}$	Heating Set Temp. -2°C	Heating Thermo OFF
Each 2 min		After 3 hours set up can be change to stop or temp shift	
			

Applications

Saving Energy for Offices: if the air conditioning is left on after the last employee leaves the office, Econavi will automatically react, reducing or stopping the system.

Increased comfort in hotel rooms: when presence is detected in the room, the temperature is automatically adjusted to achieve best comfort.

Econavi function

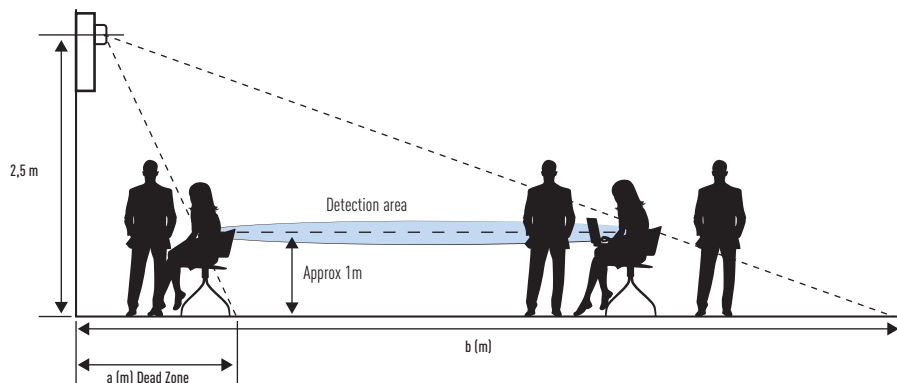
- Analyses room activity: Human activities and human heat
- Modifies the capacity to adapt in real-time to the needs of the room

Key points

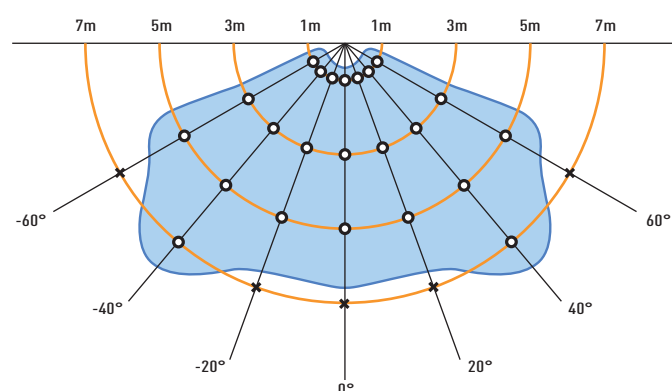
- Compatible with Cassette, Wall Mounted, Hide Away and Ceiling
- Sensor
- Improves efficiency
- Better Comfort
- Can be installed in the best place of the room for detection purposes

Available in October 2014.

Sensor location image



Human detection area (2,5m height angle 30°)



Sensor set up height and detection area chart

		Area					
		30°		37°		45°	
		a (m)	b (m)	a (m)	b (m)	a (m)	b (m)
Height	1,5m	1,1	6,8	0,8	4,2	0,6	2,8
	2,0m	1,4	9,1	1,1	5,7	0,8	3,8
	2,5m	1,8	11,3	1,4	7,1	1	4,8
	3,0m	2,2	13,6	1,7	8,5	1,2	5,7
	3,5m	2,5	15,8	1,9	9,9	1,4	6,7
	4,0m	2,9	18,1	2,2	11,3	1,5	7,6

Actual detection area need to consider human height, so need to deduct 1m height.



New Panasonic Pump Down System

Improving security, detect refrigerant leaks early!

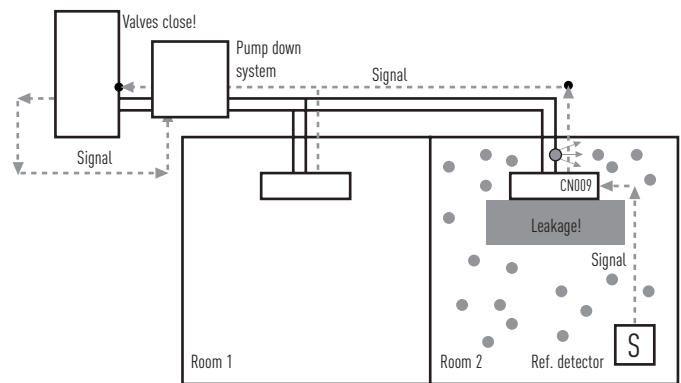
Panasonic has developed two innovative solutions to detect refrigerant leaks that offer complete assurance and protection for end users, building occupiers and the environment.

Panasonic's innovative Pump Down Systems help buildings equipped with this system qualify for additional BREEAM points and help to achieve compliance with current EN378 2008 standard, where refrigeration concentration levels exceed practical safety limits of 0,44 kg/m³.

No additional communication network is needed to connect the sensors to Pump Down System

Option 1: With Leak detector: the safest solution for small rooms

Thanks to the exclusive software of Panasonic ECOi the sensors communicate with Pump Down System directly through P-Link connection. Very cost effective solution, very easy installation. The leak detector is connected through PAW-EXCT connector directly to the indoor unit and the pump down system is directly connected to the main outdoor unit. The pump down system will activate when a leak is detected in the rooms. Refrigerant collection will be immediate. Offering the best of safety for the end users, building occupiers and the environment. All the refrigerant will be collected in the outdoor units and for bigger systems in an optional receiver tank.



Option 2: Unique innovative algorithm to determine refrigerant leakage

Panasonic has developed a new innovative algorithm which is able to detect leakage of R410A based on the following conditions:

- High pressure
- Low pressure
- Discharge temperature

This solution is ideal for hotels, offices and public buildings where safety of the end users, building occupiers are a must!

This solution is extremely cost effective as does not need expensive leakage sensor.

Pump down system

This innovative pump down system can be connected in two ways:

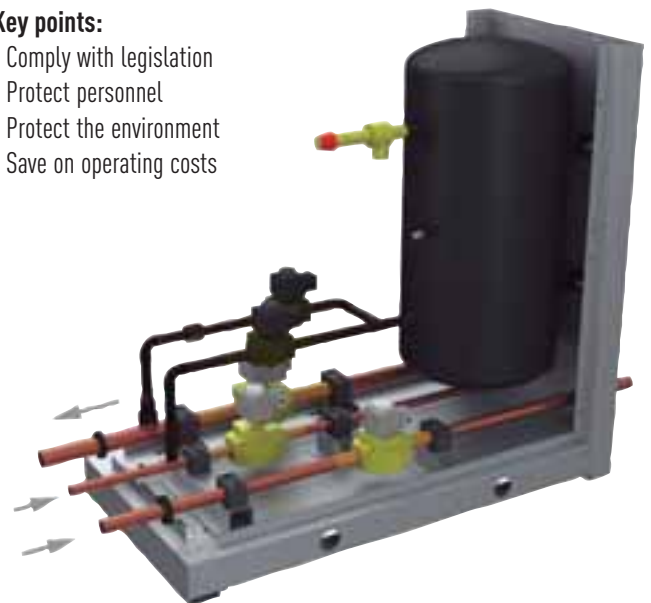
- With sensor leakage
- Without sensor leakage, using only the innovative algorithm.

Basic pump down function:

- Detect the leakage
- Activate pump down process
- Collect the gas on the tank
- Close the valves to isolate the gas

Key points:

- Comply with legislation
- Protect personnel
- Protect the environment
- Save on operating costs



Pump Down system in case of leakage

Number of outdoor units	2-Pipe without receiver	2-Pipe with receiver	3-Pipe without receiver	3-Pipe with receiver
1	✓	✓	✓	✓
2	✓	✓	✓	✓
3	✓	✓	✓	✓

**Energy
saving****INVERTER+****ECO *i***

Best efficiency ECOi series from Panasonic

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 14 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.

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.

Mini ECOi 6 Series

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



2-Pipe ECOi 6N Series

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



3-Pipe ECOi MF2 6N Series

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.



* At full load

ECOi 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.

Easy to control

A wide variety of control options are available to ensure that the ECOi 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 ECOi 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 ECOi 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 2°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, ECOi 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 ECOi MF2 6N 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 ECOi 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.

ECOi 6N 2-Pipe with Water Heat Exchanger for chilled and hot water production

For hydronic applications.





2-Pipe Mini ECOi LE1 Series

Cooling and Heating type Single Phase
Cooling and Heating type Three Phase

For small-scale commercial and residential use

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).

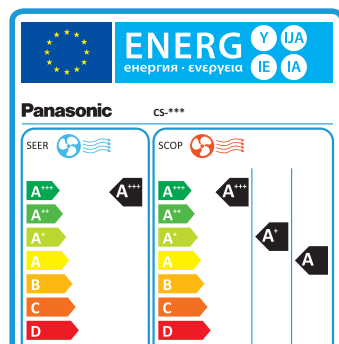
An expansion from the Panasonic VRF line up, the Mini ECOi is compatible with the same indoor units and controls as the rest of the ECOi range.





Energy saving concept

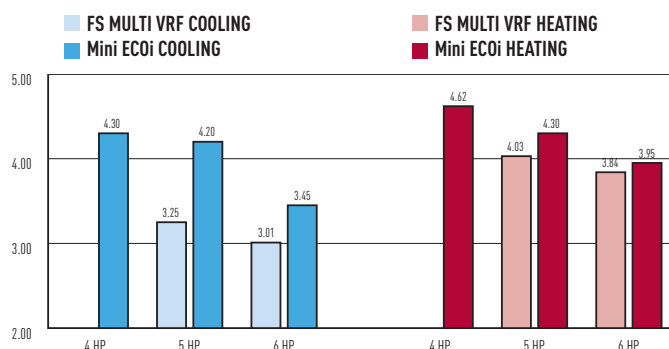
The energy saving designs for the structure of fans, fan motors, compressors and heat exchangers has resulted in high COP values, which rank as one of the top classed in the industry. In addition, use of highly efficient R410A refrigerant reduces CO₂ emission and lowers operating costs.



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

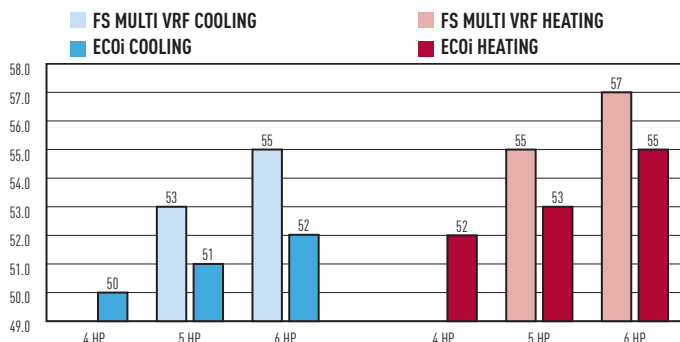
The operation efficiency has been improved using highly efficient R410A refrigerant, new DC inverter compressor, new DC motor and new design of heat exchanger.



2-Pipe Mini ECOi LE1 Series

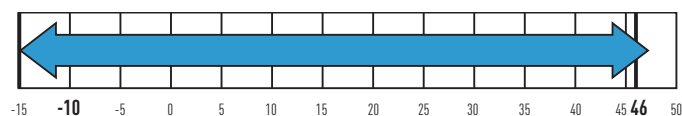
Drastically reduced sound level

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.



Cooling: -10°C DB ~ 46°C DB // Heating: -20~18 (WB)

Lightweight

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



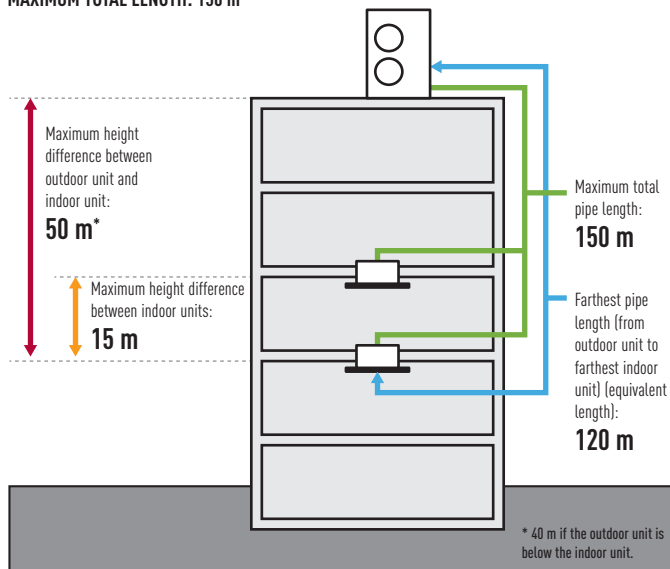
Increased piping length for Greater design flexibility

Adaptable to various building types and sizes.

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

Maximum piping length: 150 m.

MAXIMUM TOTAL LENGTH: 150 m

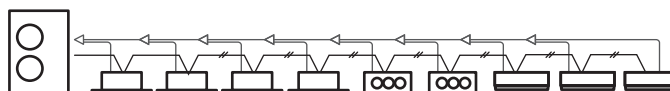


Silent mode

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

Up to 9 indoor units per system

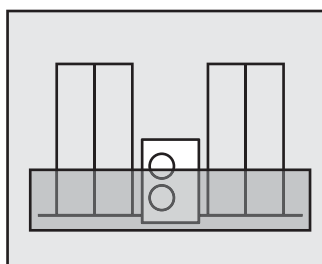
System / HP	4 HP	5 HP	6 HP
Connectable Indoor Unit	6	8	9



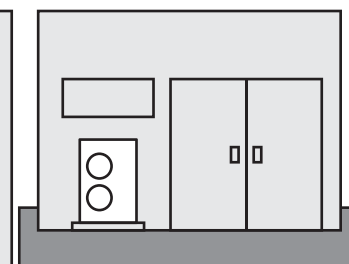
Compact & Flexibility-design

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

FOR BALCONIES

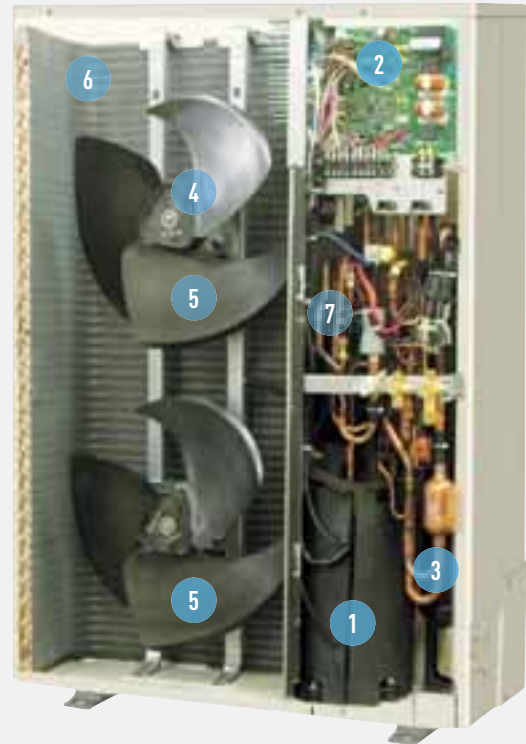


FOR NARROW SPACES



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 maximum 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 490mm, 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

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

Function of Demand control

This function limits the maximum operating input at peak time.

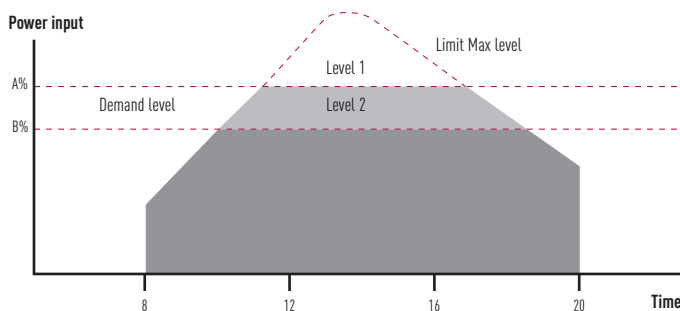
3 levels as 100%/70%/0% is set at the factory¹.

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.)

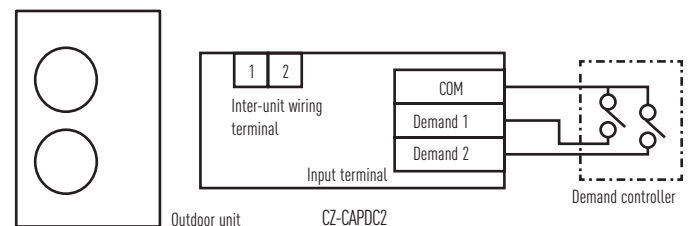
	Power input level (vs. rated condition)	
Level 1	100% (at ship)	From 40%-100% setting can be changed (by 5% step)
Level 2	70% (at ship)	
Level 3	0% (Forcible thermo-OFF)	

OPERATING IMAGE



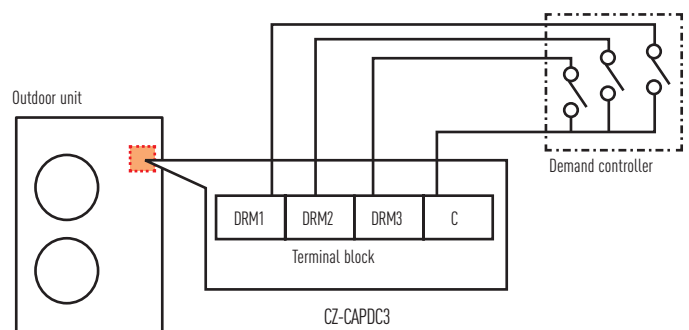
CZ-CAPDC2

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. Up to 4 systems can be connected and controlled independently or all together by one interface.



CZ-CAPDC3 for PACi and Mini ECOi

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 12,1 kW and 15,5 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.



HP			4 HP						5 HP						6 HP					
Model			U-4LE1E5			U-4LE1E8			U-5LE1E5			U-5LE1E8			U-6LE1E5			U-6LE1E8		
Power supply			V			380 400 415			380 400 415			220 230 240			380 400 415			220 230 240		
						Three Phase / 50Hz			Three Phase / 50Hz			Single Phase / 50Hz			Three Phase / 50Hz			Single Phase / 50Hz		
Cooling capacity	Nominal	kW	12,1			12,1			14,0			14,0			15,5			15,5		
EER ¹⁾	Nominal	W/W	4,30			4,30			4,20			4,20			3,45			3,45		
ESEER																				
Running amperes		A	13,9	12,7	13,3	4,9	4,5	4,7	16,3	14,9	15,6	5,7	5,4	5,2	21,5	19,7	20,5	7,5	7,1	6,9
Power input cooling	Nominal	kW	2,81			2,81			3,33			3,33			4,49			4,49		
Heating capacity	Nominal	kW	12,5			12,5			16,0			16,0			18,0			18,0		
COP ¹⁾	Nominal	W/W	4,62			4,62			4,30			4,30			3,95			3,95		
SCOP																				
Running amperes		A	13,2	12,1	12,7	4,7	4,3	4,5	18,0	16,5	17,2	6,3	6,0	5,8	21,6	19,8	20,7	7,5	7,2	6,9
Power input heating	Nominal	kW	2,71			2,71			3,72			3,72			4,56			4,56		
Starting amperes		A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Maximum amperes		A	21,0	21,0	21,0	8,5	8,5	8,5	24,5	24,5	24,5	10,0	10,0	10,0	28,0	28,0	28,0	12,0	12,0	12,0
Maximum power input		kW	4,44	4,64	4,84	5,15	5,62	5,42	5,17	5,64	5,41	6,06	6,37	6,61	5,91	6,45	6,18	7,27	7,65	7,94
Maximum number of connectable indoor units			6			6			8			9			9			9		
Air volume	Cooling / Heating	m³/h	95			95			104			104			104			104		
Sound pressure level	Cooling (Hi / Lo)	dB(A)	50 / 47			50 / 47			51 / 48			51 / 48			52 / 49			52 / 49		
	Heating (Hi / Lo)	dB(A)	52 / 49			52 / 49			53 / 50			53 / 50			55 / 52			55 / 52		
Sound power level	Cooling (Hi)	dB	68			68			69			69			70			70		
	Heating (Hi)	dB	70			70			71			71			73			73		
Dimensions	H x W x D	mm	1.330 x 940 x 340			1.330 x 940 x 340			1.330 x 940 x 340			1.330 x 940 x 340			1.330 x 940 x 340			1.330 x 940 x 340		
Net weight		kg	103			103			104			103			104			103		
Piping connections	Liquid pipe	inch (mm)	9,52 (3/8)			9,52 (3/8)			9,52 (3/8)			9,52 (3/8)			9,52 (3/8)			9,52 (3/8)		
	Gas pipe	inch (mm)	15,88 (5/8)			15,88 (5/8)			15,88 (5/8)			15,88 (5/8)			19,05 (3/4)			19,05 (3/4)		
Refrigerant loading	R410A	kg	3,5			3,5			3,5			3,5			3,5			3,5		
Operating range	Cooling Min / Max	°C	-10 / 46°C DB			-10 / 46°C DB			-10 / 46°C DB			-10 / 46°C DB			-10 / 46°C DB			-10 / 46°C DB		
	Heating Min / Max	°C	20 / 24°C DB -20 / 18°C WB			20 / 24°C DB -20 / 18°C WB			20 / 24°C DB -20 / 18°C WB			20 / 24°C DB -20 / 18°C WB			20 / 24°C DB -20 / 18°C WB			20 / 24°C DB -20 / 18°C WB		

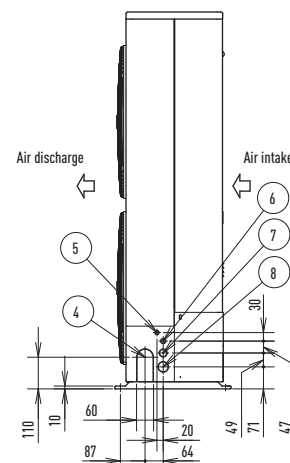
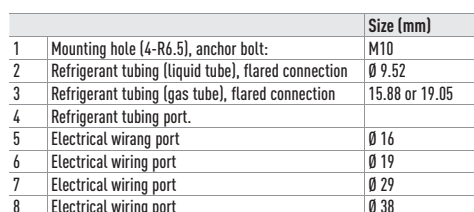
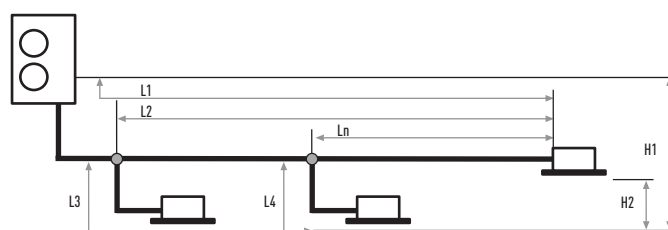
Rating Conditions: Cooling Indoor 27°C DB / 19°C WB. Cooling Outdoor 35°C DB / 24°C WB. Heating Indoor 20°C DB. Heating Outdoor 7°C DB / 6°C WB.
DB: Dry Bulb; WB: Wet Bulb

¹⁾ EER and COP classification is at 400 V in accordance with EU directive 2002/31/EC.
Specifications subject to change without notice.
For detailed information about ErP, please visit our page <http://www.doc.panasonic.de>



- 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 410mm

Category	Item	Description	Max length (m)
Allowable pipework length	L1	Maximum pipe run	120
		Actual length	140
	L2-L3	Equivalent length	40
		Difference between maximum length and minimum length from the first distribution joint	
	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
	H2	When outdoor unit installed lower	40
		Maximum difference between indoor units	15





2-Pipe ECOi 6N series. High-efficiency and large-capacity VRF system

Large-capacity VRF systems using R410A with advanced technology.

Newly designed next generation VRF!

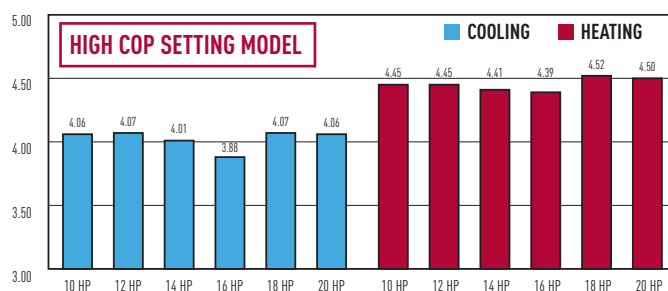
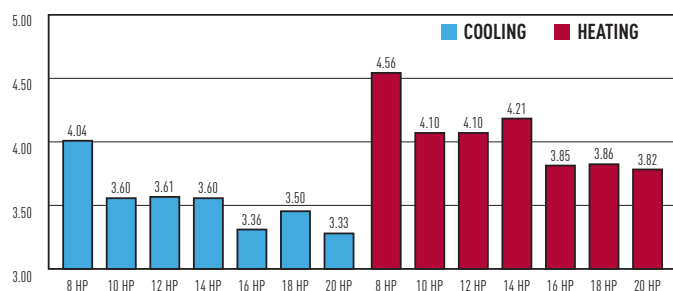




**HIGH
EFFICIENCY**

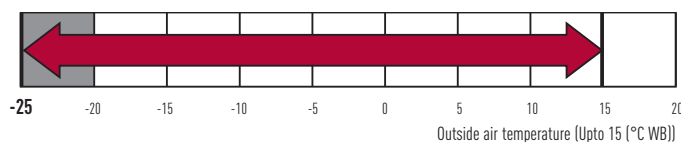
Energy savings

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

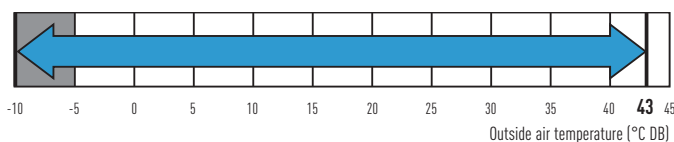


Extended operating range

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.

2-Pipe ECOi 6N series

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.

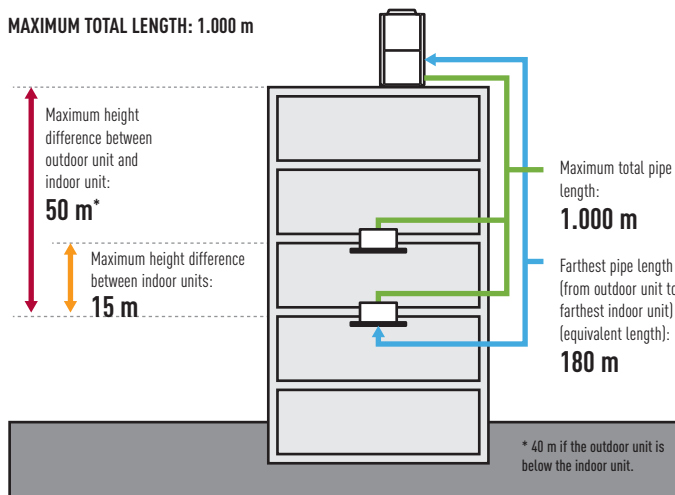
System (HP)	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60
Connectable indoor units: 130%	13	16	19	23	26	29	33	36	40	43	47	50	53	56	59							64					
Connectable indoor units: 200%	20	25	30	35	40	45	50	55	60													64					

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: 180m.
Maximum piping length: 1.000m.

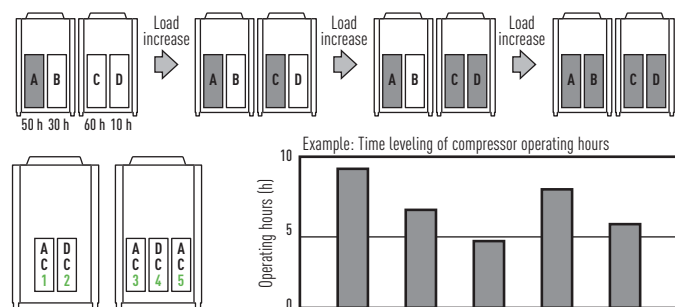
MAXIMUM TOTAL LENGTH: 1.000 m



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.

A, C: DC inverter compressor



In case of the above graph, compressor drives from 4 → 2 → 3 → 1 → 5

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.

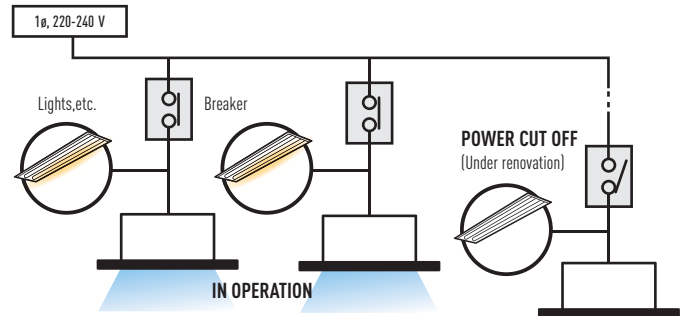
The turbulent flow (blue part) can be suppressed and the noise can be reduced. Even though the high speed circulation is utilized, the noise level is held at the same level as normal.



Smaller hub diameter

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.



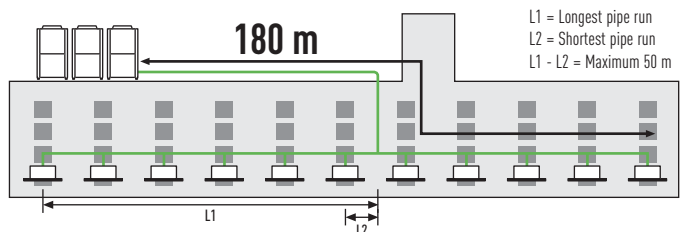
Automatic Backup operation in the case of compressor and outdoor units malfunction

Backup operation is applied in the case of emergencies. If error message is displayed, please contact your local service office. (Except for 8 and 10 HP single unit installation).



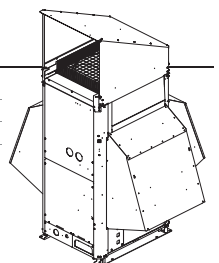
Easy to design solutions for schools, hotels, hospitals and other large buildings

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



ECOi 2-Pipe and 3-Pipe wind protection shield

PAW-WPH1	1 long side of the outdoor unit (624 x 983 x 489)
PAW-WPH2	1 long side of the outdoor units (853 x 983 x 489)
PAW-WPH3	2 long sides of the outdoor units (744 x 983 x 289) (2ER SET)





Anti-corrosion model available for all ECOi and ECO G models

For bespoke projects: for use in coastal areas and other locations where sea air can easily cause salt damage to units. The unit is treated with anti-corrosion solution to provide exceptional durability in adverse salty environments.

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

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

Function of Demand control

This function limits the maximum operating input at peak time.

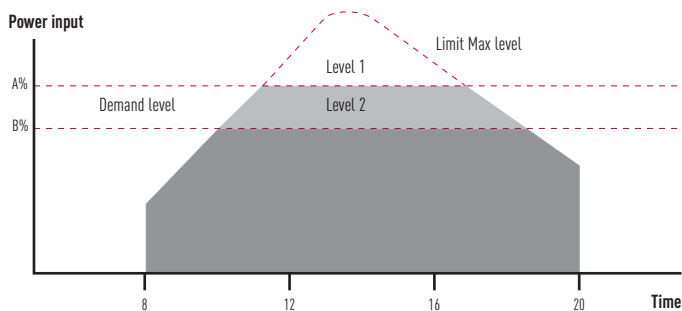
3 levels as 100%/70%/0% is set at the factory¹.

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.)

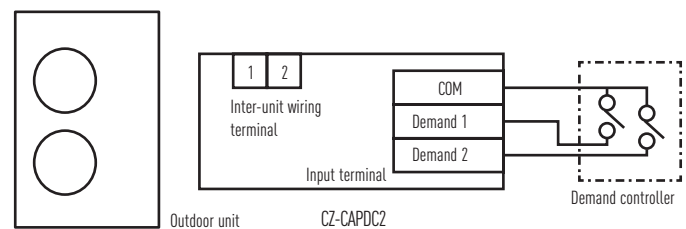
	Power input level (vs. rated condition)	
Level 1	100% (at ship)	From 40%-100% setting can be changed (by 5% step)
Level 2	70% (at ship)	
Level 3	0% (Forcible thermo-OFF)	

OPERATING IMAGE



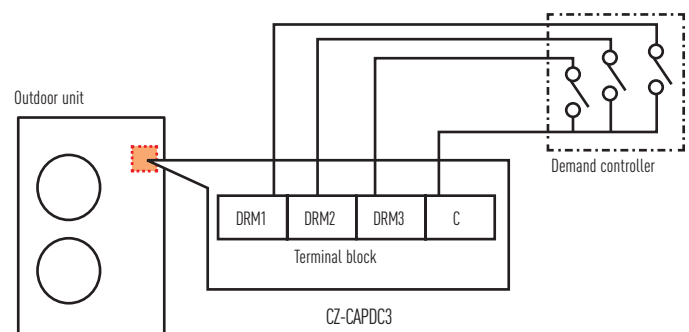
CZ-CAPDC2

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. Up to 4 systems can be connected and controlled independently or all together by one interface.



CZ-CAPDC3 for PACi and Mini ECOi

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.)

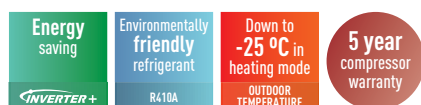
2-PIPE ECOi 6N SERIES

8-12 HP

Next generation VRF newly-redesigned!

At start up stage a unit can have Hi COP function selected - this lowers capacity but 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



HP			8 HP	10 HP	12 HP
Standard model			U-8ME1E81	U-10ME1E81	U-12ME1E81
Power supply			400 V / Three Phase / 50 Hz		
Cooling capacity			22,4	28,0	33,5
EER ¹⁾	Nominal	W/W	4,04	3,60	3,61
ESEER					
Operating current			8,5	12,2	14,6
Power input cooling			5,54	7,78	9,29
Heating capacity			25,0	31,5	37,5
COP ¹⁾	Nominal	W/W	4,56	4,10	4,10
SCOP					
Operating current			8,4	12,1	14,4
Power input heating			5,48	7,68	9,15
Starting current			1	1	1
External static pressure			80	80	80
Air volume			8.820	9.180	11.400
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			71,0	73,5	75,5
Dimensions			1.758 x 770 x 930	1.758 x 770 x 930	1.758 x 770 x 930
Net weight			234	234	281
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
Refrigerant amount at shipment			6,5	6,8	6,8
Demand control			13 steps (0 – 100 %)	13 steps (0 – 100 %)	13 steps (0 – 100 %)
Operating range	Cooling Min / Max	°C	-10°C DB / +43°C DB	-10°C DB / +43°C DB	-10°C DB / +43°C DB
	Heating Min / Max	°C	-25°C WB / +15°C WB	-25°C WB / +15°C WB	-25°C WB / +15°C WB

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

1) EER and COP classification is at 400 V in accordance with EU directive 2002/31/EC.
Specifications subject to change without notice.

For detailed information about ErP, please visit our page <http://www.doc.panasonic.de>



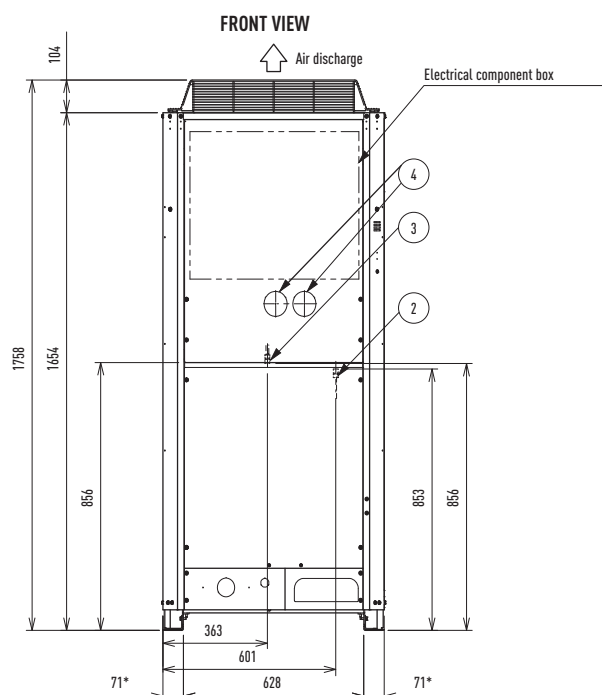
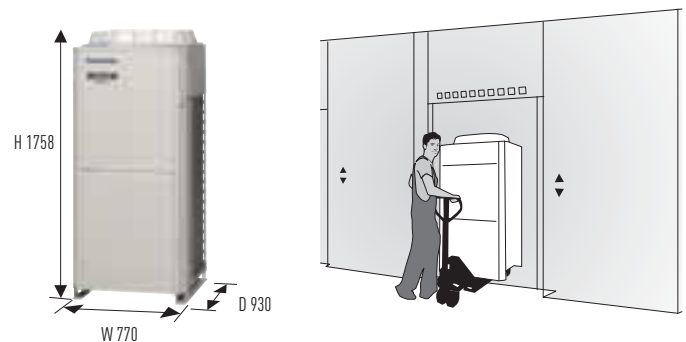
U-8ME1E81 // U-10ME1E81 // U-12ME1E81

Technical focus

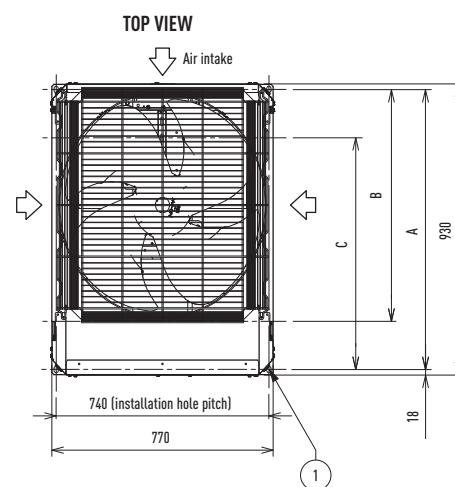
- Compact casing
- Longer maximum piping length up to 1,000m
- Extended operating range to provide heating at outdoor temperature as low as -25°C
- Suitable for refurbishment projects (Refer to technical data book)

Compact design

The 8-12 HP unit is designed to fit inside a lift for easy on-site handling.



* Installation fixing bracket, installation side.



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 Schrader-type connection)
3	Pressure outlet port (for low pressure: Ø 7.94 Schrader-type connection)
4	Knock-out hole for connecting pressure gauge (optional)
5	Terminal board
6	Terminal board (for inter-outdoor-unit control wiring)

2-PIPE ECOi 6N SERIES

14-16 HP

Next generation VRF newly-redesigned!

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

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



5 year
compressor
warranty

HP			14 HP	16 HP
Standard model			U-14ME1E81	U-16ME1E81
Power supply			400 V / Three Phase / 50 Hz	400 V / Three Phase / 50 Hz
Cooling capacity			kW	40,0
EER ¹⁾	Nominal	W/W	3,60	3,36
ESEER				
Operating current			A	17,1
Power input cooling			kW	11,1
Heating capacity			kW	45,0
COP ¹⁾	Nominal	W/W	4,21	3,85
SCOP				
Operating current			A	16,5
Power input heating			kW	10,7
Starting current			A	77
External static pressure			Pa	80
Air volume			m³/h	12.720
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
Dimensions			H x W x D	mm
Net weight			kg	309
Piping connections	Gas pipe	mm	25,4	28,58
	Liquid pipe	mm	12,7	12,7
	Balance pipe	mm	6,35	6,35
Refrigerant amount at shipment			kg	8,5
Demand control			13 steps (0 – 100 %)	13 steps (0 – 100 %)
Operating range	Cooling Min / Max	°C	-10°C DB / +43°C DB	-10°C DB / +43°C DB
	Heating Min / Max	°C	-25°C WB / +15°C WB	-25°C WB / +15°C WB

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

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U-14ME1E81 // U-16ME1E81

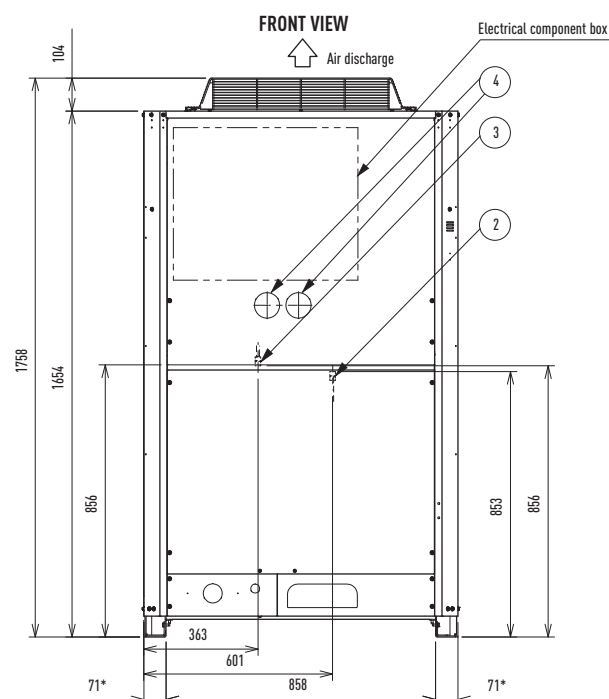
Technical focus

- 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)

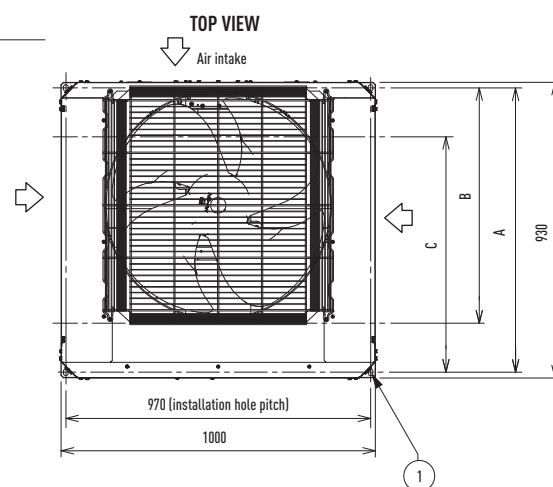
High external static pressure

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



* Installation fixing bracket, installation side.



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 Schrader-type connection)
3	Pressure outlet port (for low pressure: Ø 7.94 Schrader-type connection)
4	Knock-out hole for connecting pressure gauge (optional)
5	Terminal board
6	Terminal board (for inter-outdoor-unit control wiring)

2-PIPE ECOi 6N SERIES

18-20 HP

Next generation VRF newly-redesigned!

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

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



HP			18 HP	20 HP
Standard model			U-18ME1E81	U-20ME1E81
Power supply			400 V / Three Phase / 50 Hz	400 V / Three Phase / 50 Hz
Cooling capacity			50,0	56,0
EER ¹⁾	Nominal	W/W	3,50	3,33
ESEER				
Operating current			22,8	26,8
Power input cooling			14,3	16,8
Heating capacity			56,0	63,0
COP ¹⁾	Nominal	W/W	3,86	3,82
SCOP				
Operating current			23,1	26,3
Power input heating			14,5	16,5
Starting current			93	101
External static pressure			80	80
Air volume			14,640	16,980
Sound pressure level	Normal mode	dB(A)	60,0	63,0
	Silent mode	dB(A)	57,0	60,0
Sound power level			74,5	77,5
Dimensions			1.758 x 1.540 x 930	1.758 x 1.540 x 930
Net weight			421	421
Piping connections	Gas pipe	mm	28,58	28,58
	Liquid pipe	mm	15,88	15,88
	Balance pipe	mm	6,35	6,35
Refrigerant amount at shipment			9,0	9,0
Demand control			13 steps (0 – 100 %)	13 steps (0 – 100 %)
Operating range	Cooling Min / Max	°C	-10°C DB / +43°C DB	-10°C DB / +43°C DB
	Heating Min / Max	°C	-25°C WB / +15°C WB	-25°C WB / +15°C WB

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

¹⁾ EER and COP classification is at 400 V in accordance with EU directive 2002/31/EC.
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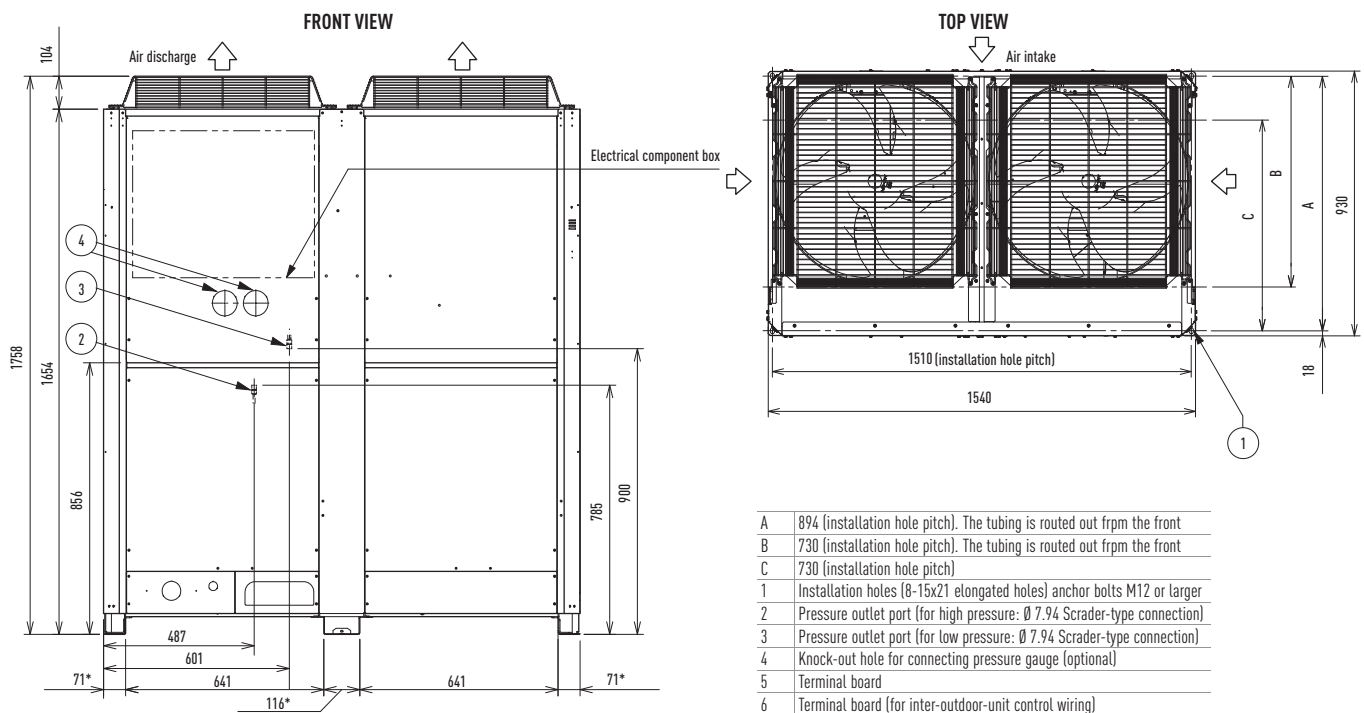
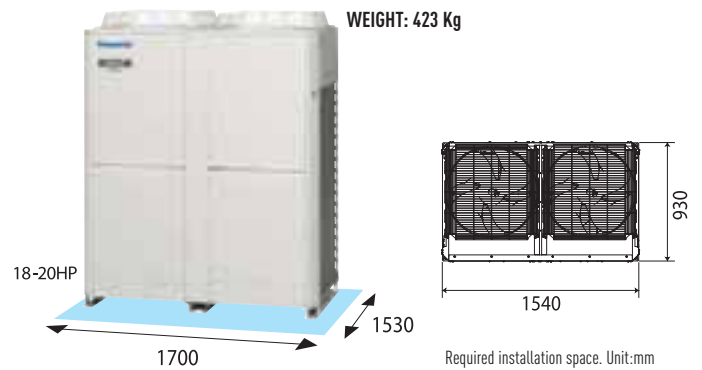
U-18ME1E81 // U-20ME1E81

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)

Compact design

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



2-PIPE ECOi 6N SERIES

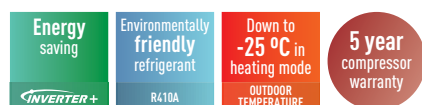
COMBINATION FROM

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



HP		22 HP	24 HP	26 HP	28 HP	30 HP	32 HP	34 HP	36 HP
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 / Three Phase / 50 Hz							
Cooling capacity	kW	61,5	68,0	73,0	78,5	85,0	90,0	96,0	101,0
EER ¹⁾	Nominal W/W	3,75	3,60	3,60	3,47	3,47	3,35	3,43	3,34
ESEER									
Operating current	A	25,2	29,4	31,6	35,2	37,8	41,5	44,0	47,5
Power input cooling	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 ¹⁾	Nominal W/W	4,34	4,09	4,12	3,96	4,03	3,86	3,86	3,83
SCOP									
Operating current	A	24,5	29,1	30,8	34,4	36,4	40,0	44,0	46,4
Power input heating	kW	15,9	18,7	19,8	22,1	23,6	25,9	28,0	29,5
Starting current	A	86	94	98	102	98	102	114	122
External static pressure	Pa	80	80	80	80	80	80	80	80
Air volume	m³/h	21.540	21.900	24.120	24.120	25.440	25.440	27.360	29.700
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
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
Piping connections	Gas pipe mm	28,58	28,58	31,75	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	19,05
	Balance pipe mm	6,35	6,35	6,35	6,35	6,35	6,35	6,35	6,35
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%)
Operating range	Cooling Min / Max °C	-10°C DB / +43°C DB							
	Heating Min / Max °C	-25°C WB / +15°C WB							

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

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38 HP	40 HP	42 HP	44 HP	46 HP	48 HP	50 HP	52 HP	54 HP	56 HP	58 HP	60 HP
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 / Three 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
123	127	119	122	119	122	134	142	144	146	149	153
80	80	80	80	80	80	80	80	80	80	80	80
31.620	33.960	36.840	36.840	38.160	38.160	40.080	42.420	44.340	46.260	48.600	50.940
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
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
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
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%)
-10°C DB / +43°C DB											
-25°C WB / +15°C WB											

U-8ME1E81 // U-10ME1E81 // U-12ME1E81 // U-14ME1E81 // U-16ME1E81 // U-18ME1E81 // U-20ME1E81 COMBINATION

Technical focus

- Increased connectable I_{U/O} 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

2-PIPE ECOi 6N SERIES

10-12 HP

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



HP			10 HP	12 HP
High COP setting model			U-14ME1E81	U-16ME1E81
Power supply			400 V / Three Phase / 50 Hz	400 V / Three Phase / 50 Hz
Cooling capacity			28,0	33,5
EER ¹⁾	Nominal	W/W	4,06	4,07
ESEER				
Operating current			10,7	12,7
Power input cooling			6,90	8,23
Heating capacity			31,5	37,5
COP ¹⁾	Nominal	W/W	4,45	4,45
SCOP				
Operating current			10,9	13,0
Power input heating			7,08	8,43
Starting current			77	81
External static pressure			80	80
Air volume			12.720	12.720
Sound pressure level	Normal mode	dB(A)	62,0	62,0
	Silent mode	dB(A)	59,0	59,0
Sound power level			76,5	76,5
Dimensions			1.758 x 1.000 x 930	1.758 x 1.000 x 930
Net weight			307	307
Piping connections	Gas pipe	mm	22,22	25,40
	Liquid pipe	mm	9,52	12,70
	Balance pipe	mm	6,35	6,35
Demand control			13 steps (0 – 100 %)	13 steps (0 – 100 %)
Refrigerant amount at shipment			8,5	8,5
Operating range	Cooling Min / Max	°C	-10°C DB / +43°C DB	-10°C DB / +43°C DB
	Heating Min / Max	°C	-25°C WB / +15°C WB	-25°C WB / +15°C WB

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

1) EER and COP classification is at 400 V in accordance with EU directive 2002/31/EC.
Specifications subject to change without notice.
For detailed information about ErP, please visit our page <http://www.doc.panasonic.de>



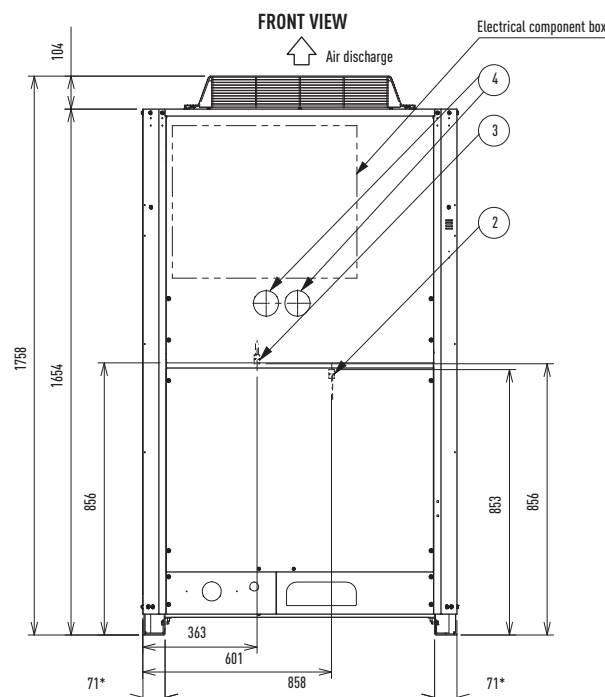
U-14ME1E81 // U-16ME1E81

Technical focus

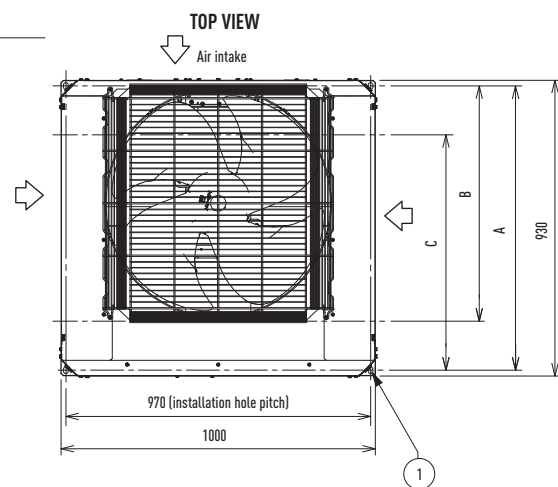
- Longer Max piping length up to 1,000 m
- Extended operating range to provide heating at outdoor temperature as low as -25°C
- Suitable for refurbishment projects (Refer to technical data book)

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



* Installation fixing bracket, installation side.



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 Schrader-type connection)
3	Pressure outlet port (for low pressure: Ø 7.94 Schrader-type connection)
4	Knock-out hole for connecting pressure gauge (optional)
5	Terminal board
6	Terminal board (for inter-outdoor-unit control wiring)

2-PIPE ECOi 6N SERIES

14-16 HP

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



HP			14 HP	16 HP
High COP setting model			U-18ME1E81	U-20ME1E81
Power supply			400 V / Three Phase / 50 Hz	400 V / Three Phase / 50 Hz
Cooling capacity			kW	40,0
EER ¹⁾	Nominal	W/W	4,01	3,88
ESEER				
Operating current			A	15,4
Power input cooling			kW	9,98
Heating capacity			kW	45,0
COP ¹⁾	Nominal	W/W	4,41	4,39
SCOP				
Operating current			A	15,8
Power input heating			kW	10,2
Starting current			A	92
External static pressure			Pa	80
Air volume			m³/h	14.640
Sound pressure level	Normal mode	dB(A)	60,0	63,0
	Silent mode	dB(A)	57,0	60,0
Sound power level			dB	74,5
Dimensions			H x W x D	1.758 x 1.540 x 930
Net weight			kg	423
Piping connections	Gas pipe	mm	25,40	28,58
	Liquid pipe	mm	12,70	12,70
	Balance pipe	mm	6,35	6,35
Demand control			13 steps (0 – 100 %)	13 steps (0 – 100 %)
Refrigerant amount at shipment			kg	9,0
Operating range	Cooling Min / Max	°C	-10°C DB / +43°C DB	-10°C DB / +43°C DB
	Heating Min / Max	°C	-25°C WB / +15°C WB	-25°C WB / +15°C WB

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

1) EER and COP classification is at 400 V in accordance with EU directive 2002/31/EC.
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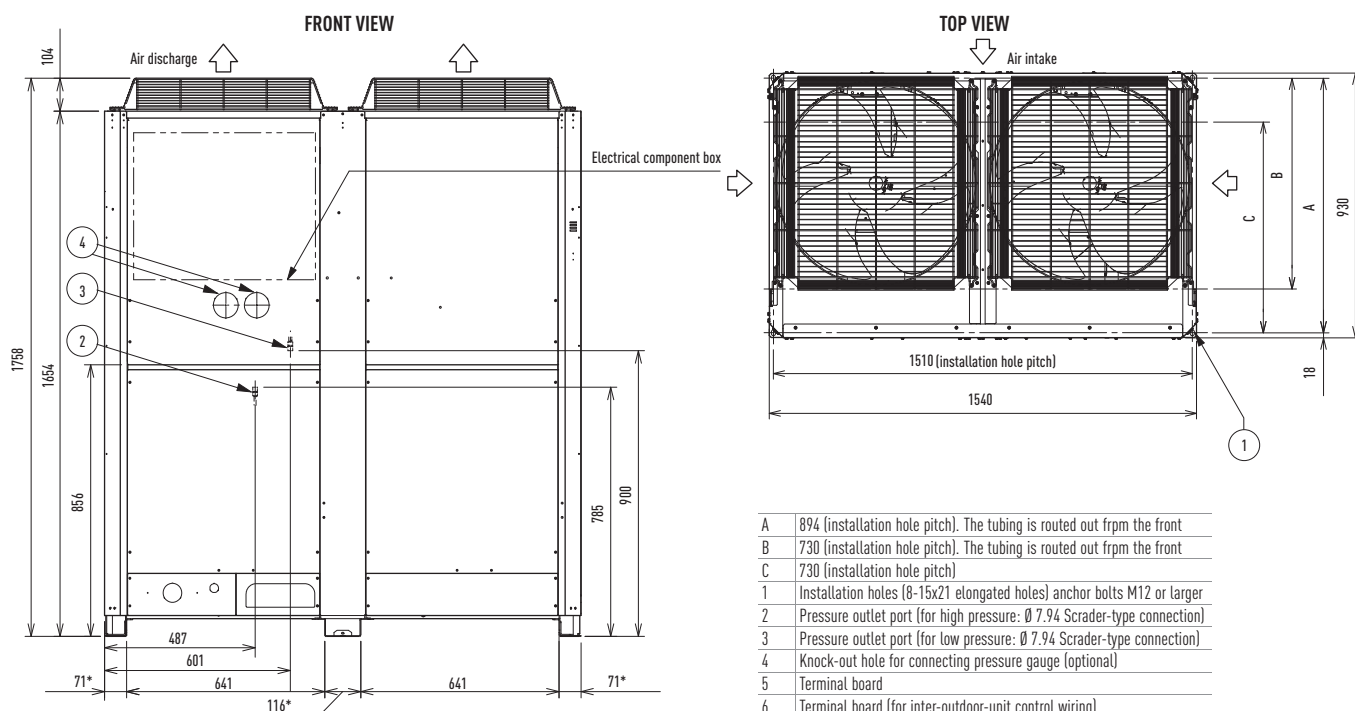
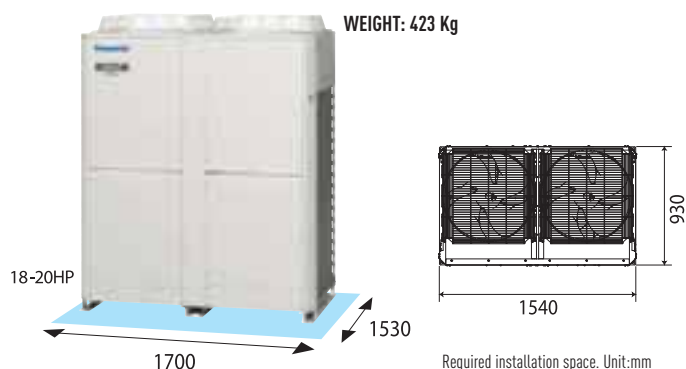
U-18ME1E81 // U-20ME1E81

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)

Compact design

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



2-PIPE ECOi 6N SERIES

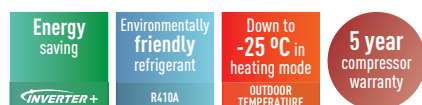
HIGH COP SETTING MODEL

COMBINATION FROM

18 TO 48 HP

Next generation VRF newly-redesigned!

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



HP			18 HP	20 HP	22 HP	24 HP	26 HP	28 HP	30 HP
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 / Three Phase / 50 Hz						
Cooling capacity		kW	50,0	56,0	61,5	68,0	73,0	78,5	85,0
EER ¹⁾	Nominal	W/W	4,07	4,06	3,97	4,07	4,01	3,96	3,94
ESEER									
Operating current		A	18,9	21,2	23,9	25,8	28,1	30,6	33,4
Power input cooling		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 ¹⁾	Nominal	W/W	4,52	4,50	4,39	4,45	4,38	4,42	4,40
SCOP									
Operating current		A	19,1	21,5	24,2	26,6	28,7	30,6	33,4
Power input heating		kW	12,4	14,0	15,7	17,2	18,6	19,8	21,6
Starting current		A	86	90	101	94	105	111	114
External static pressure		Pa	80	80	80	80	80	80	80
Air volume		m³/h	21.540	21.540	23.460	25.440	27.360	29.700	31.620
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
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
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
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 %)
Refrigerant amount at shipment		kg	15,0	15,0	15,5	17,0	17,5	17,5	18,0
Operating range	Cooling Min / Max	°C	-10°C DB / +43°C DB						
	Heating Min / Max	°C	-25°C WB / +15°C WB						

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

¹⁾ EER and COP classification is at 400 V in accordance with EU directive 2002/31/EC.
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32 HP	34 HP	36 HP	38 HP	40 HP	42 HP	44 HP	46 HP	48 HP
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 / Three 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
116	113	107	118	124	127	130	131	134
80	80	80	80	80	80	80	80	80
33.960	36.180	38.160	40.080	42.420	44.340	46.260	48.600	50.940
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
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
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
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 %)
18,0	24,0	25,5	26,0	26,0	26,5	27,0	27,0	27,0
-10°C DB / +43°C DB								
-25°C WB / +15°C WB								

U-8ME1E81 // U-12ME1E81 // U-14ME1E81 // U-16ME1E81 // U-18ME1E81 // U-20ME1E81 COMBINATION

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



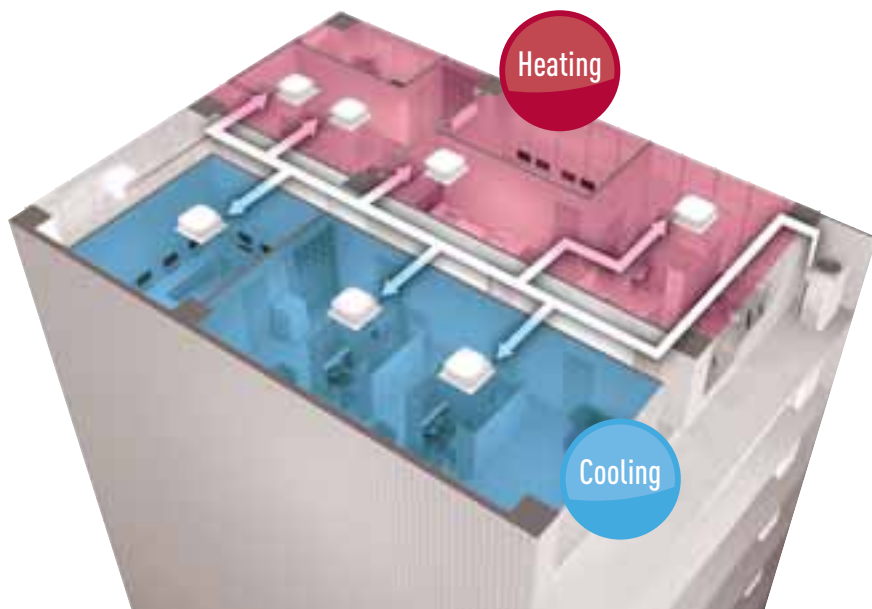
**HIGH
EFFICIENCY**

3-Pipe ECOi MF2 6N Series

Simultaneous heating and cooling VRF system

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

- The new 3-Pipe units have only one chassis size, with a very small footprint (only 0.93 m²)
- 1 body for all sizes: H1.758 x W1.000 x D930mm, 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%





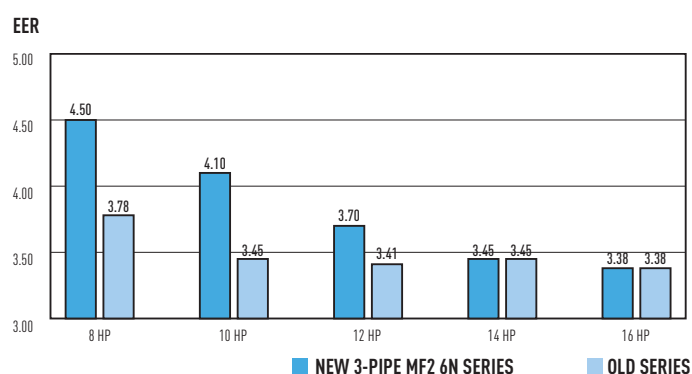
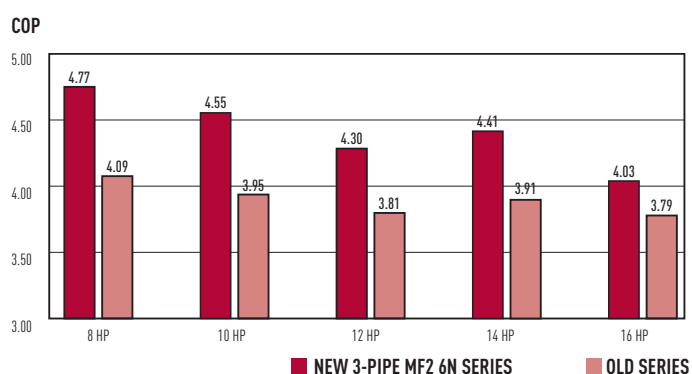
Large combination of outdoor units, up to 48 HP

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

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	

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

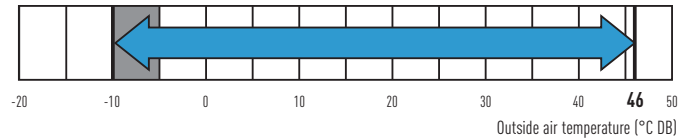


3-Pipe ECOi MF2 6N Series

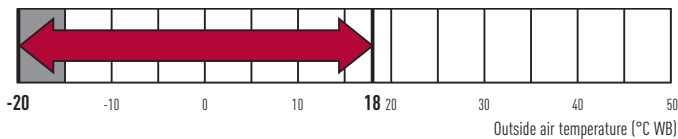
Connectable indoor/outdoor unit capacity ratio up to 150%

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.

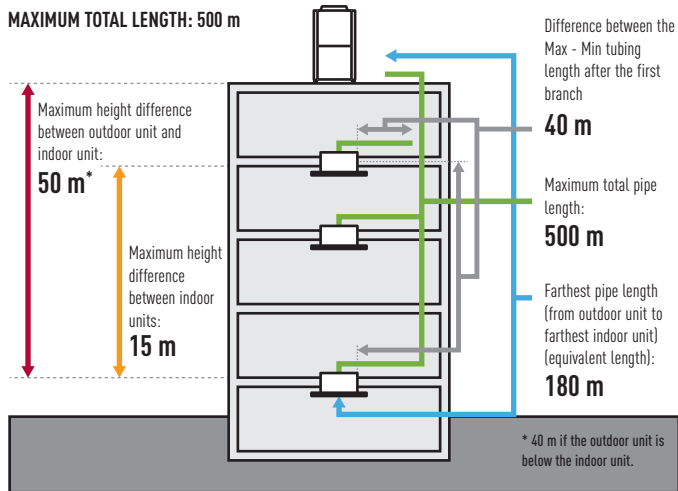


Wide temperature setting range

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

Increased piping lengths and design flexibility

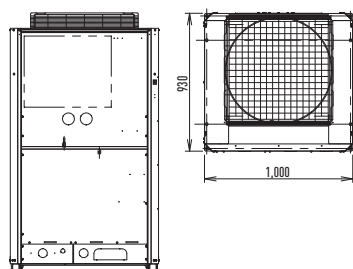
Adaptable to various building types and sizes. Actual piping length: 180 m. Maximum piping length: 500 m.



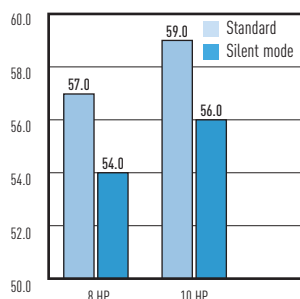
Compact design for superb space saving and low noise level

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.

INSTALLATION SPACE: 0.93 m²



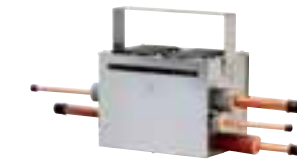
OPERATING SOUND dB(A)



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

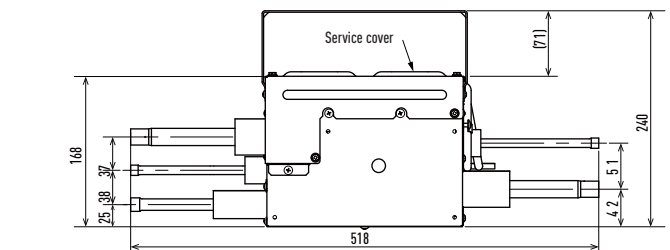
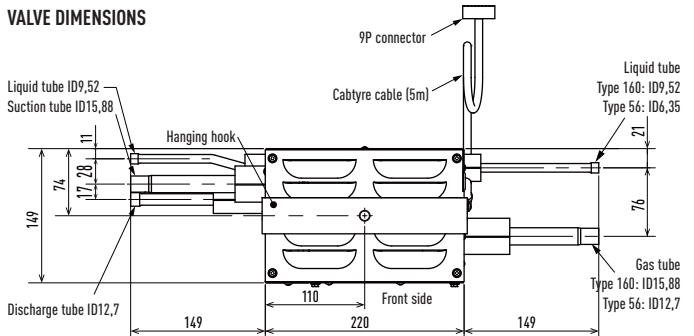
KIT-P56HR3
(CZ-P56HR3+CZ-CAPE2)
KIT-P160HR3
(CZ-P160HR3+CZ-CAPE2)

3-PIPE CONTROL PCB



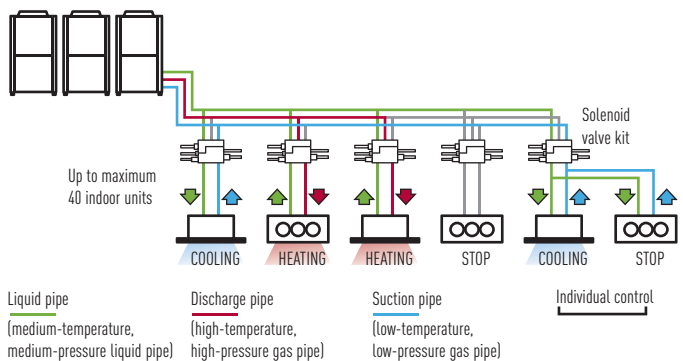
3-Pipe control PCB CZ-CAPE2*.
Must be added to the CZ-P56HR3 OR CZ-P160HR3.
* For wall mounted.

VALVE DIMENSIONS



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.



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)¹

The 3-Pipe ECOi MF2 6N 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 operation² 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.

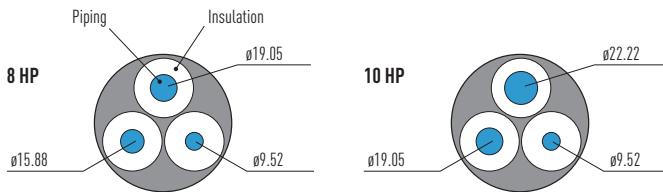
¹ An outdoor Seri-Para I/O unit is required for demand input.

² 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%.

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.



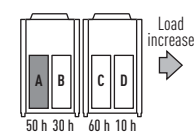
3-Pipe ECOi MF2

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

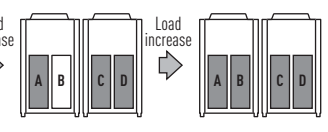
Extended compressor life

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.

A, C: DC inverter compressor



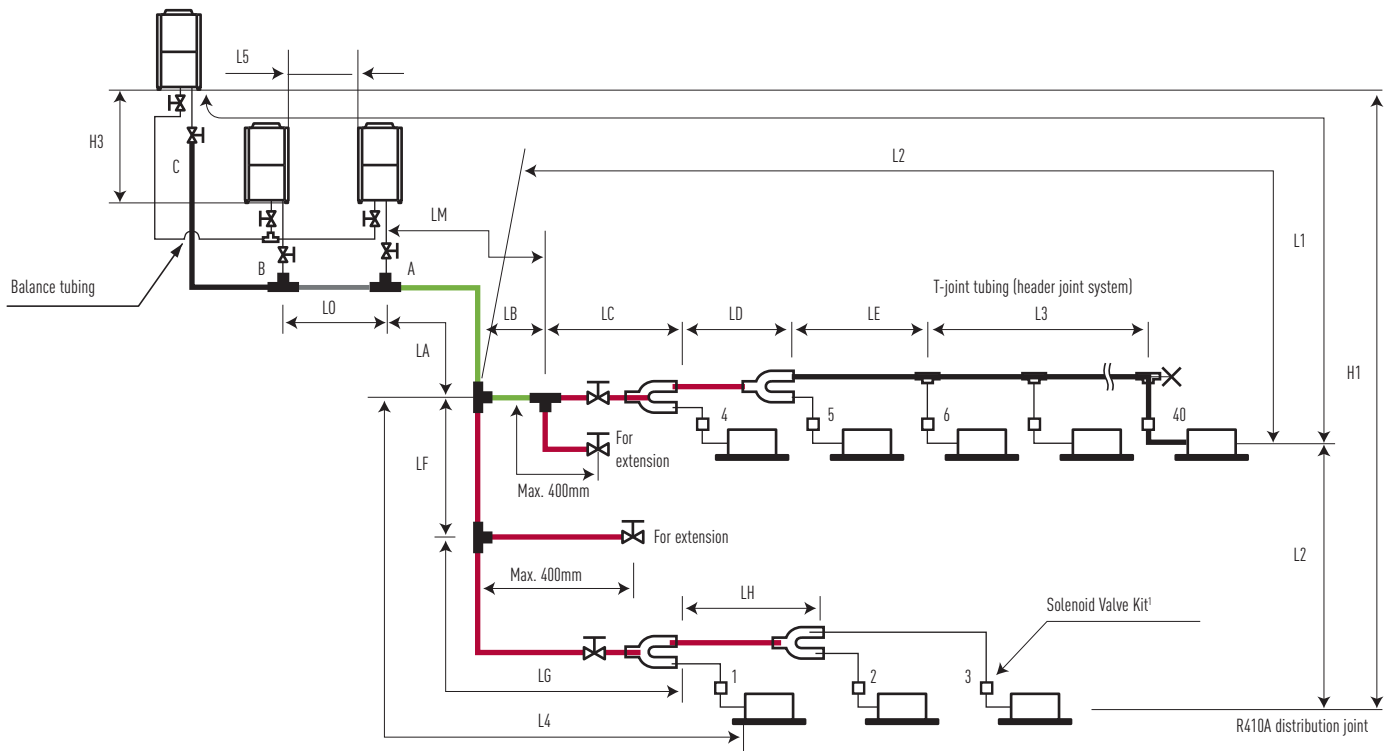
B, D: Constant speed compressor



ECOi 2-Pipe and 3-Pipe wind protection shield

PAW-WPH1	1 long side of the outdoor unit (624 x 983 x 489)
PAW-WPH2	1 long side of the outdoor units (853 x 983 x 489)
PAW-WPH3	2 long sides of the outdoor units (744 x 983 x 289) (2ER SET)

Piping design



Main piping length
LM = LA + LB...

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.

Distribution joint (CZ, option).

Ball valve (BV, option)

T-joint (field supply)

Solidly welded shut (pinch weld)

The outdoor connection main tubing (LO portion) is determined by the total capacity of the outdoor units that are connected to the tube end.

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

Ranges that apply to refrigerant piping lengths and to differences in installation heights

Items	Marks	Contents	Length (m)
Allowable piping length	L1	Maximum piping length	≤180 ¹
		Actual piping length	≤200
		Equivalent piping length	≤200
	Δ L (L2-L4)	Difference between the Maximum length and the minimum length from the No. 1 distribution	≤40
	LM	Maximum length of main piping (at Maximum diameter)	≤2
Allowable elevation difference	Q1, Q2-Q40	Maximum length of each distribution	≤30
	L1+Q1+Q2...Q39+Q40+Q41+Q42+Q43+Q44+Q45+Q46+Q47+Q48+Q49+Q50+Q51+Q52+Q53+Q54+Q55+Q56+Q57+Q58+Q59+Q60+Q61+Q62+Q63+Q64+Q65+Q66+Q67+Q68+Q69+Q70+Q71+Q72+Q73+Q74+Q75+Q76+Q77+Q78+Q79+Q80+Q81+Q82+Q83+Q84+Q85+Q86+Q87+Q88+Q89+Q90+Q91+Q92+Q93+Q94+Q95+Q96+Q97+Q98+Q99+Q100	Total Maximum piping length including length of each distribution (only liquid tubing)	≤500 ³
	L5	Distance between outdoor units	≤10
	H1	When outdoor unit is installed higher than indoor unit	≤50
	H2	When outdoor unit is installed lower than indoor unit	≤40
Allowable length of joint tubing	H3	Maximum difference between indoor units	≤15
		Maximum difference between outdoor units	≤4
	L3	T-joint tubing (field-supply); Maximum tubing length between the first T-joint and solidly welded-shut end point	≤2

L = Length, H = Height

1) 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).

2) 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).

3) 24 HP - 30HP of high efficiency combination is 300 m.

3-PIPE ECOi MF2

6N SERIES

8-16 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 4.77 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 52 indoor units.
- Small installation space, top class in the industry.
- Rotation operation function and back-up operation function provided.



HP			8 HP	10 HP	12 HP	14 HP	16 HP
Standard model			U-8MF2E8	U-10MF2E8	U-12MF2E8	U-14MF2E8	U-16MF2E8
Power supply			380 / 400 / 415 V - Three Phase / 50 Hz	380 / 400 / 415 V - Three Phase / 50 Hz	380 / 400 / 415 V - Three Phase / 50 Hz	380 / 400 / 415 V - Three Phase / 50 Hz	380 / 400 / 415 V - Three Phase / 50 Hz
Cooling capacity		kW	22,4	28,0	33,5	40,0	45,0
EER ¹⁾	Nominal	W/W	4,50	4,10	3,70	3,45	3,38
ESEER							
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
COP ¹⁾	Nominal	W/W	4,77	4,55	4,30	4,41	4,03
SCOP							
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
Air volume		m³/min	158	178	212	212	212
Sound pressure level	High / Low	dB(A)	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
Dimensions	H x W x D	mm	1.758 x 1.000 x 930	1.758 x 1.000 x 930	1.758 x 1.000 x 930	1.758 x 1.000 x 930	1.758 x 1.000 x 930
Net weight		kg	269	269	314	322	322
Piping connections	Suction pipe	mm (Inch)	19,05 (3/4)	22,22 (7/8)	25,40 (1)	25,40 (1)	28,58 (1-1/8)
	Discharge pipe	mm (Inch)	15,88 (5/8)	19,05 (3/4)	19,05 (3/4)	22,22 (7/8)	22,22 (7/8)
	Liquid pipe	mm (Inch)	9,52 (3/8)	9,52 (3/8)	12,70 (1/2)	12,70 (1/2)	12,70 (1/2)
	Balance pipe	mm (Inch)	6,35 (1/4)	6,35 (1/4)	6,35 (1/4)	6,35 (1/4)	6,35 (1/4)
Refrigerant amount at shipment		kg	8,3	8,5	8,8	9,3	9,3
Operating range	Cooling Min / Max	°C	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB
	Heating Min / Max	°C	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB
	Simultaneous operation	°C	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB

Solenoid valve kit		
KIT-P56HR3	KIT-P56HR3	3-Pipe control Solenoid valve kit (up to 5,6kW)
	CZ-P56HR3	Solenoid valve kit (up to 5,6kW)
	CZ-CAPE2	3-Pipe control PCB
KIT-P160HR3	KIT-P160HR3	3-Pipe control Solenoid valve kit (from 5,6kW to 10,6kW)
	CZ-P160HR3	Solenoid valve kit (from 5,6kW to 10,6kW)
	CZ-CAPE2	3-Pipe control PCB
CZ-CAPEK2		3-Pipe control PCB for wall mounted

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

1) EER and COP classification is at 400 V in accordance with EU directive 2002/31/EC.
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U-8MF2E8 // U-10MF2E8 // U-12MF2E8 // U-14MF2E8 // U-16MF2E8

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

System limitations

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

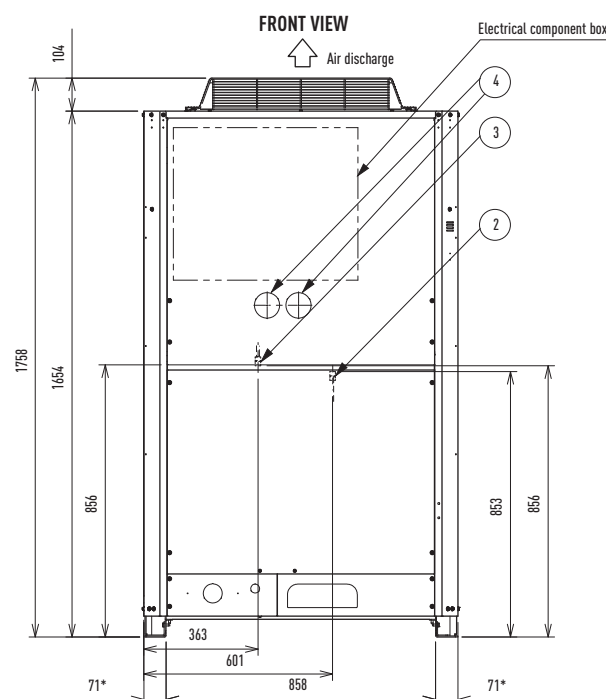
Additional refrigerant charge

Liquid piping size	6.35	9.52	12.7	15.88	19.05	22.22	25.40
Amount of refrigerant charge (g/m)	26	56	128	185	259	366	490

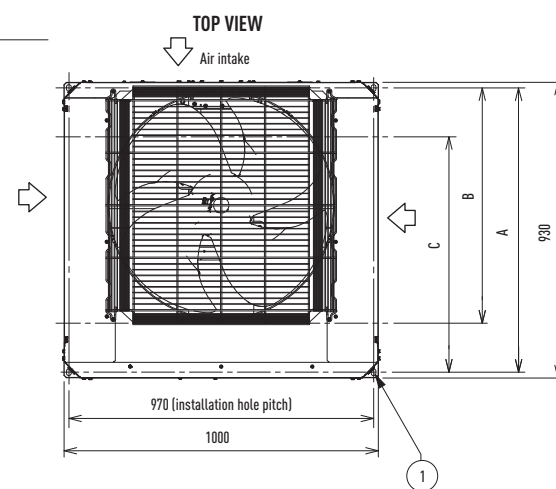
Refrigerant piping

Piping size (mm)							
O material	Outer diameter	6.35	9.52	12.70	15.88	19.05	22.22
	Wall thickness	0.80	0.80	0.80	1.00	1.00	1.15
1/2 H, H material	Outer diameter	25.40	28.58	31.75	38.10	41.28	
	Wall thickness	1.00	1.00	1.10	over 1.35	over 1.45	

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.



* Installation fixing bracket, installation side.



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 Schrader-type connection)
3	Pressure outlet port (for low pressure: Ø 7.94 Schrader-type connection)
4	Knock-out hole for connecting pressure gauge (optional)
5	Terminal board
6	Terminal board (for inter-outdoor-unit control wiring)

3-PIPE ECOi MF2 6N 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 18 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.



HP			18 HP	20 HP	22 HP	24 HP	26 HP	28 HP	30 HP
Standard model			U-8MF2E8 U-10MF2E8	U-8MF2E8 U-12MF2E8	U-8MF2E8 U-14MF2E8	U-8MF2E8 U-16MF2E8	U-12MF2E8 U-14MF2E8	U-14MF2E8 U-16MF2E8	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
EER ¹⁾	Nominal	W/W	4,27	3,97	3,80	3,68	3,58	3,49	3,41
ESEER									
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
COP ¹⁾	Nominal	W/W	4,63	4,47	4,57	4,20	4,38	4,49	4,20
SCOP									
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
Air volume		m ³ /min	336	370	370	370	424	424	424
Sound pressure level	High / Low	dB(A)	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
Dimensions	H x W x D	mm	1.758 x 2.060 x 930	1.758 x 2.060 x 930	1.758 x 2.060 x 930	1.758 x 2.060 x 930	1.758 x 2.060 x 930	1.758 x 2.060 x 930	1.758 x 2.060 x 930
Net weight		kg	538	538	591	591	636	644	644
Piping connections	Suction pipe	mm (Inch)	28,58 (1-1/8)	28,58	28,58	28,58	31,75 (1-1/4)	31,75	31,75
	Discharge pipe	mm (Inch)	22,22 (7/8)	22,22	25,40 (1)	25,40	25,40	28,58	28,58
	Liquid pipe	mm (Inch)	15,88 (5/8)	15,88	15,88	15,88	19,05 (3/4)	19,05	19,05
	Balance pipe	mm (Inch)	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)
Refrigerant amount at shipment		kg	16,8	17,1	17,6	17,6	18,1	18,6	18,6
Operating range	Cooling Min / Max	°C	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB
	Heating Min / Max	°C	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB
	Simultaneous operation	°C	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB

Solenoid valve kit		
KIT-P56HR3	KIT-P56HR3	3-Pipe control Solenoid valve kit (up to 5,6kW)
	CZ-P56HR3	Solenoid valve kit (up to 5,6kW)
	CZ-CAPE2	3-Pipe control PCB
KIT-P160HR3	KIT-P160HR3	3-Pipe control Solenoid valve kit (from 5,6kW to 10,6kW)
	CZ-P160HR3	Solenoid valve kit (from 5,6kW to 10,6kW)
	CZ-CAPE2	3-Pipe control PCB
CZ-CAPEK2		3-Pipe control PCB for wall mounted

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

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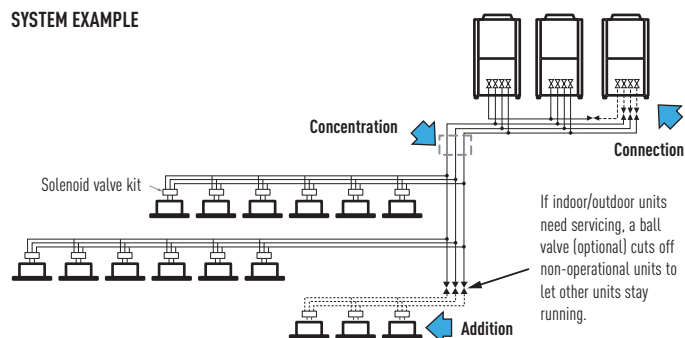
32 HP	34 HP	36 HP	38 HP	40 HP	42 HP	44 HP	46 HP	48 HP
U-16MF2E8 U-16MF2E8	U-8MF2E8 U-12MF2E8 U-14MF2E8	U-8MF2E8 U-14MF2E8 U-14MF2E8	U-8MF2E8 U-14MF2E8 U-16MF2E8	U-8MF2E8 U-16MF2E8 U-16MF2E8	U-14MF2E8 U-14MF2E8 U-14MF2E8	U-14MF2E8 U-14MF2E8 U-16MF2E8	U-14MF2E8 U-16MF2E8 U-16MF2E8	U-16MF2E8 U-16MF2E8 U-16MF2E8
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
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
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
424	582	582	582	582	636	636	636	636
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
1.758 x 2.060 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930
644	905	913	913	913	966	966	966	966
31,75	31,75	38,10 (1-1/2)	38,10	38,10	38,10	38,10	38,10	38,10
28,58	28,58	28,58	31,75	31,75	31,75	31,75	31,75	31,75
19,05	19,05	19,05	19,05	19,05	19,05	19,05	19,05	19,05
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 (1/4)	6,35 (1/4)
18,6	26,4	26,9	26,9	26,9	27,9	27,9	27,9	27,9
-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB
-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB
-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB

U-8MF2E8 // U-10MF2E8 // U-12MF2E8 // U-14MF2E8 // U-16MF2E8 COMBINATION

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

SYSTEM EXAMPLE



- Panasonic make it possible to link outdoor units together for a large capacity (48 HP)
- Since all pipes are concentrated into one pipe shaft, you can minimise pipe space and construction labour.
- 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 6N 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 also 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.



HP			16 HP	24 HP	26 HP	28 HP	30 HP	32 HP
High Efficiency model			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	380 / 400 / 415 V - Three Phase / 50 Hz	380 / 400 / 415 V - Three Phase / 50 Hz	380 / 400 / 415 V - Three Phase / 50 Hz	380 / 400 / 415 V - Three Phase / 50 Hz	380 / 400 / 415 V - Three Phase / 50 Hz
Cooling capacity		kW	45,0	68,0	73,0	78,5	85,0	90,0
EER ¹⁾	Nominal	W/W	4,50	4,47	4,32	4,11	3,94	3,86
ESEER								
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
COP ¹⁾	Nominal	W/W	4,76	4,72	4,68	4,56	4,59	4,41
SCOP								
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
Air volume		m ³ /min	316	474	494	528	528	582
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
Dimensions (Combination)	H x W x D	mm	1.758 x 2.060 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930
Net weight		kg	538	807	807	852	860	897
Piping connections	Suction pipe	mm	28,58	28,58	31,75	31,75	31,75	31,75
	Discharge pipe	mm	22,22	25,40	25,40	28,58	28,58	28,58
	Liquid pipe	mm	12,70	15,88	19,05	19,05	19,05	19,05
	Balance pipe	mm	6,35	6,35	6,35	6,35	6,35	6,35
Refrigerant amount at shipment		kg	16,6	24,9	25,1	25,4	25,9	25,9
Operating range	Cooling Min / Max	°C	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB	-10°C DB / +46°C DB
	Heating Min / Max	°C	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB	-20°C WB / +18°C WB
	Simultaneous operation	°C	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB	-10°C DB / +24°C DB

Solenoid valve kit		
KIT-P56HR3	KIT-P56HR3	3-Pipe control Solenoid valve kit (up to 5,6kW)
	CZ-P56HR3	Solenoid valve kit (up to 5,6kW)
	CZ-CAPE2	3-Pipe control PCB
KIT-P160HR3	KIT-P160HR3	3-Pipe control Solenoid valve kit (from 5,6kW to 10,6kW)
	CZ-P160HR3	Solenoid valve kit (from 5,6kW to 10,6kW)
	CZ-CAPE2	3-Pipe control PCB
CZ-CAPEK2		3-Pipe control PCB for wall mounted

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

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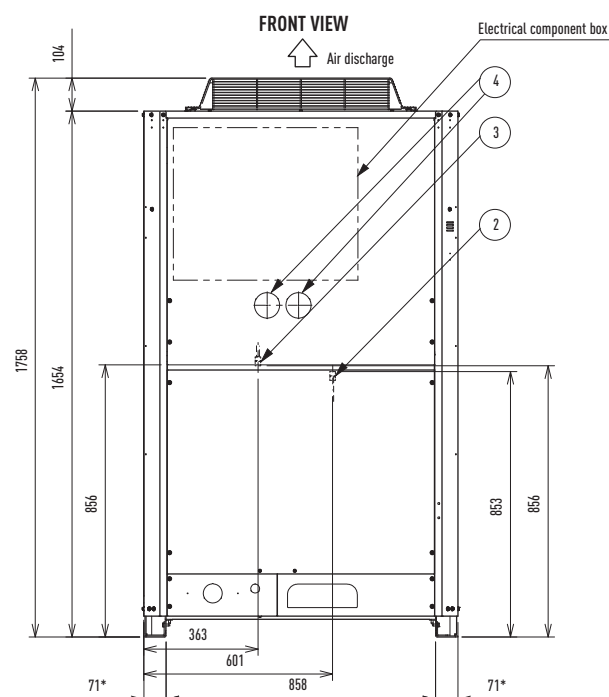
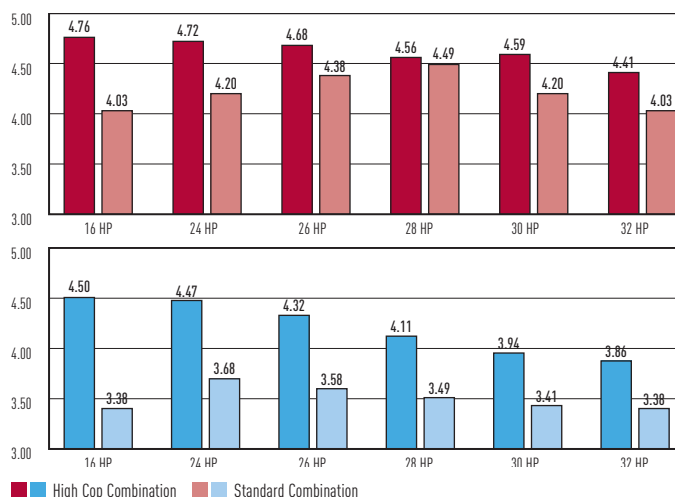


U-8MF2E8 // U-10MF2E8 // U-12MF2E8 // U-14MF2E8 // U-16MF2E8 COMBINATION

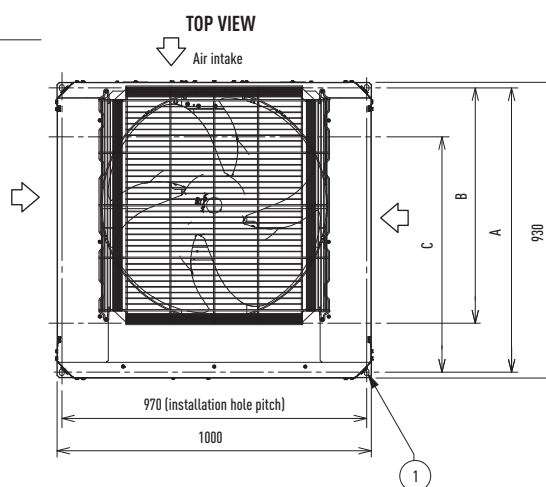
Technical focus

- 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

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



* Installation fixing bracket, installation side.



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 Schrader-type connection)
3	Pressure outlet port (for low pressure: Ø 7.94 Schrader-type connection)
4	Knock-out hole for connecting pressure gauge (optional)
5	Terminal board
6	Terminal board (for inter-outdoor-unit control wiring)

**High
savings****ECO G****ECO G**

Panasonic introducing the gas driven VRF

Panasonic's GHP range is extensive and covers the 2-Pipe and 3-Pipe system. 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

- Up to 71 kW of cooling from a current consumption of 0,1 kW/h
- Single Phase power supply across the range
- The option of natural gas or LPG as its main power source
- Embedded 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 CO₂ emissions

ECO G and ECO G Multi, S Series

The advanced Gas Driven VRF system 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.

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

3 Way heat recovery system with simultaneous heating & cooling.



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. 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.

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 35°C – +55°C.

No defrost requirements




Below 4°C ambient in heating mode, the outdoor fans switch off, saving further running costs and CO₂ emissions.

ECO G with Water Heat Exchanger for chilled and hot water production

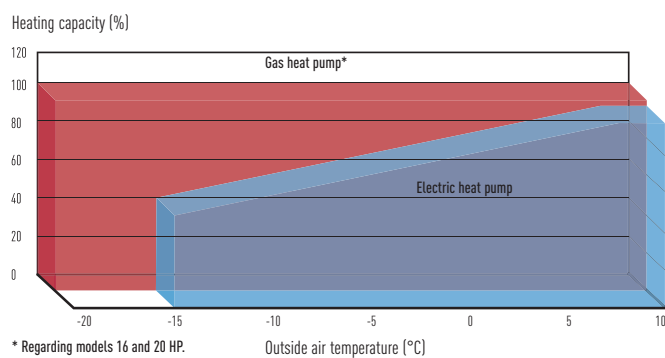
For hydronic applications.



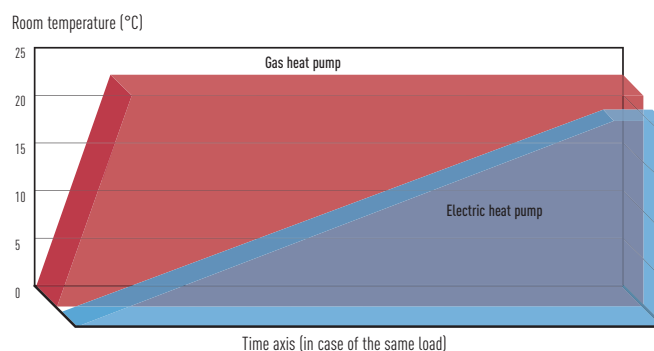
ECO G Outdoor Units Range

	16 HP	20 HP	25 HP	30 HP	32 HP	36 HP	40 HP	45 HP	50 HP
Capacity (Cooling / Heating)	45.00 / 50.00 kW	56.00 / 63.00 kW	71.00 / 80.00 kW	85.00 / 95.00 kW	90.00 / 100.00 kW	101.00 / 113.00 kW	112.00 / 126.00 kW	127.00 / 143.00 kW	142.00 / 160.00 kW
									
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	U-16GF2E5	U-20GF2E5	U-25GF2E5						

Comparison of heating capacity

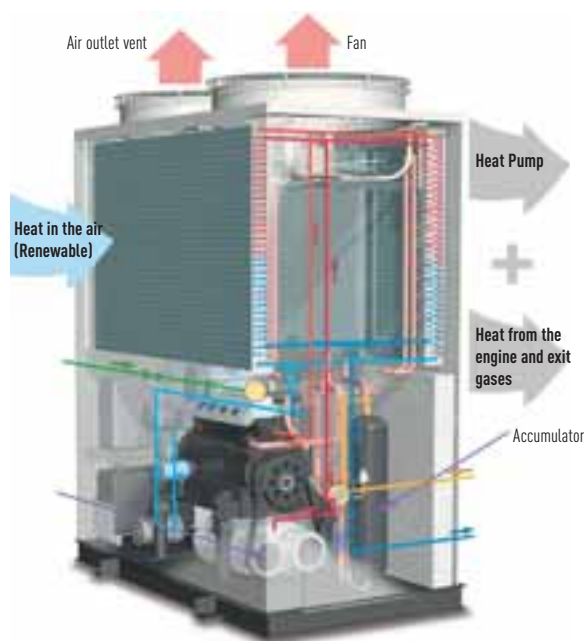


Comparison of the start times for heating operation



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.



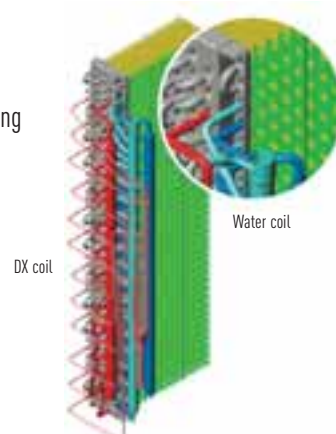
Power supply problems?

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 High Power

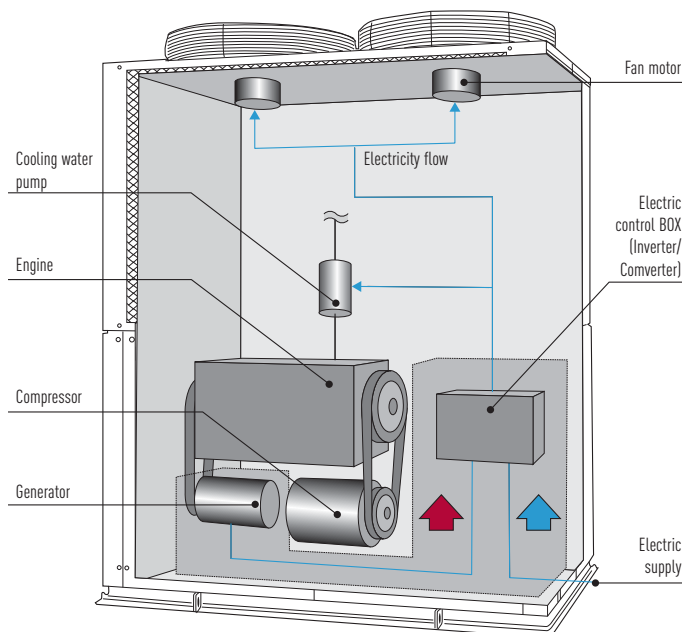
2-Pipe Heat Pump System with Electrical Power Generator

Production of electricity

Generates up to 2 kW depending on air conditioning load.

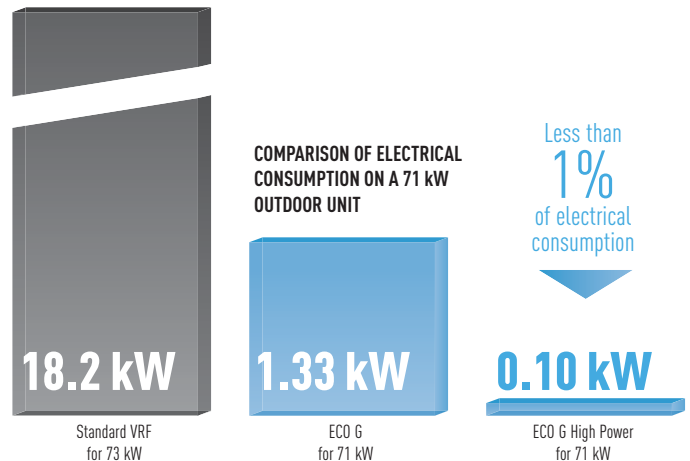
Panasonic innovates again introducing a new GHP producing his own electricity.

Equipped with a small, high-performance generator. 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

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



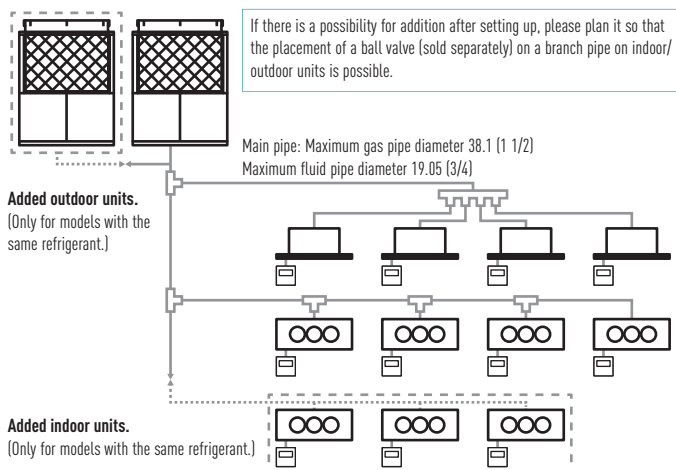
ECO G High Power, ECO G and ECO G Multi

2-Pipe Heat Pump System

Easy to add additional units in the future

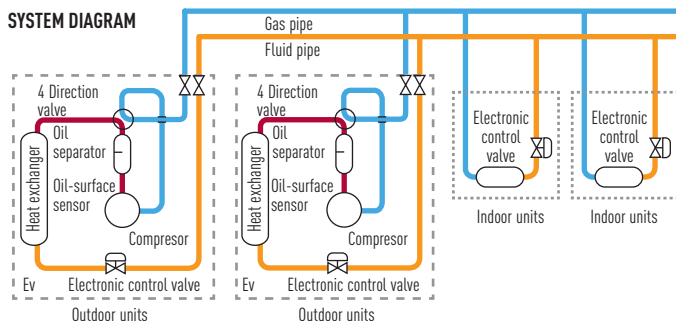
Load can easily be increased in the future by the addition of indoor and outdoor units without having to plumb pipe shafts.

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



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 ¹
Indoor/outdoor units capacity ratio	50%~130% ²

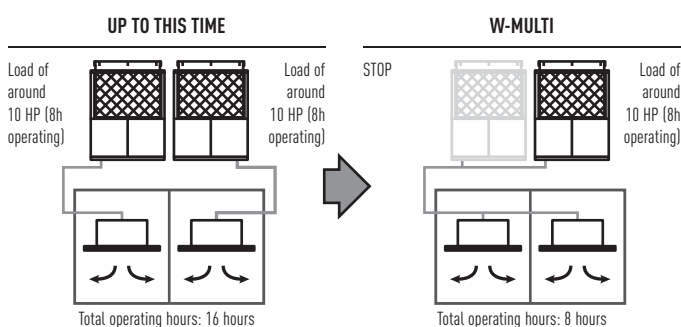
1) When 2 outdoor units are connected. 2) Capacity of indoor units connection is: Minimum; 50% of the capacity of the smallest outdoor unit within the system, Maximum; 130%: total capacity of the system outdoor units.
Indoor units are same as multi series for buildings.



Saving Energy

- Energy savings achieved by the appropriate capacity.
- Equational program function.

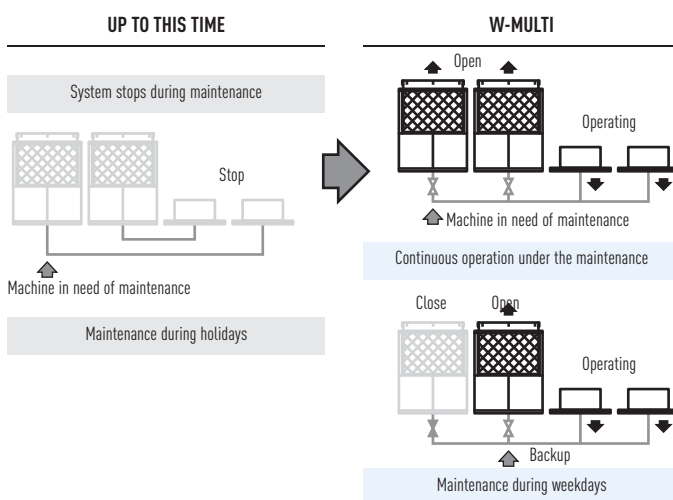
Energy savings are achieved by the appropriate load divider function, which enables efficient operation by concentrating the cooling/heating capacity to one outdoor unit and stopping the other. Compared to conventional machines with a similar COP, this function allows energy savings and thus reduces 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.

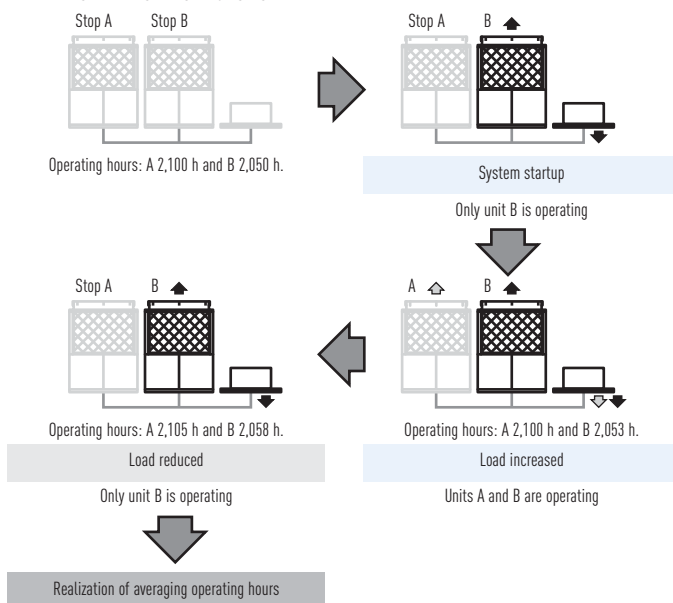
If one outdoor unit stops the backup function will automatically start on the remaining unit and continue operating. During service intervals, the system being serviced can be isolated by a closing valve in the outdoor unit, enabling continuous operation with the still operative outdoor unit.



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.

EXAMPLE OF THE ROTATION FUNCTION



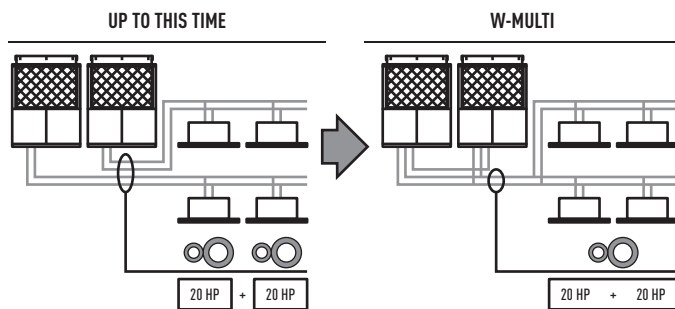
ECO G 3 Way

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

*System with approximately 40HP (20HP x 2 units)

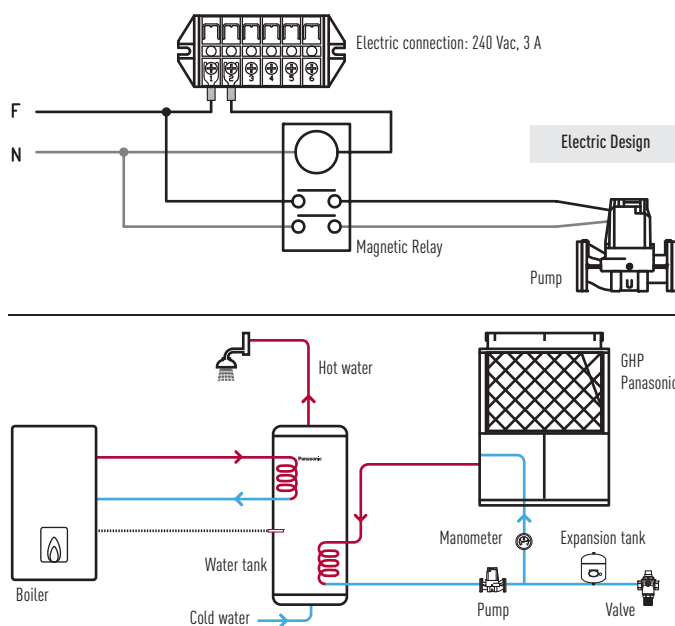
EXAMPLE OF A SYSTEM WITH APPROXIMATELY 40 HP



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 to heat water, so the GHP Chiller acts as embedded 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	



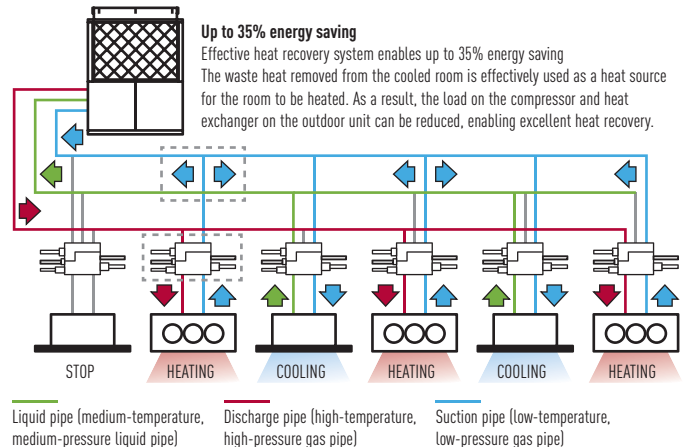
- All the items illustrated in this drawing (except the outdoor unit) are not supplied by Panasonic.
- During start up, set temperature value of the water in the outdoor unit's parameter.

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.

System example

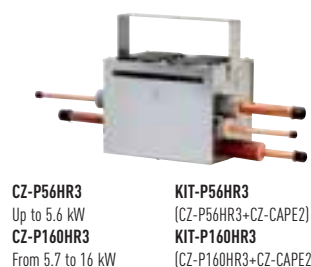
Improved maintenance intervals. The unit only needs to be serviced every 10,000 hours. This is the best in the industry.



Solenoid valve kit

To be fitted on all 'zones' to allow simultaneous heating and cooling. Up to 36 indoor units are capable of simultaneous heating/cooling operation. Oil-recovery operation to gives more stable comfort air-conditioning control.

3-PIPE CONTROL SOLENOID VALVE KIT

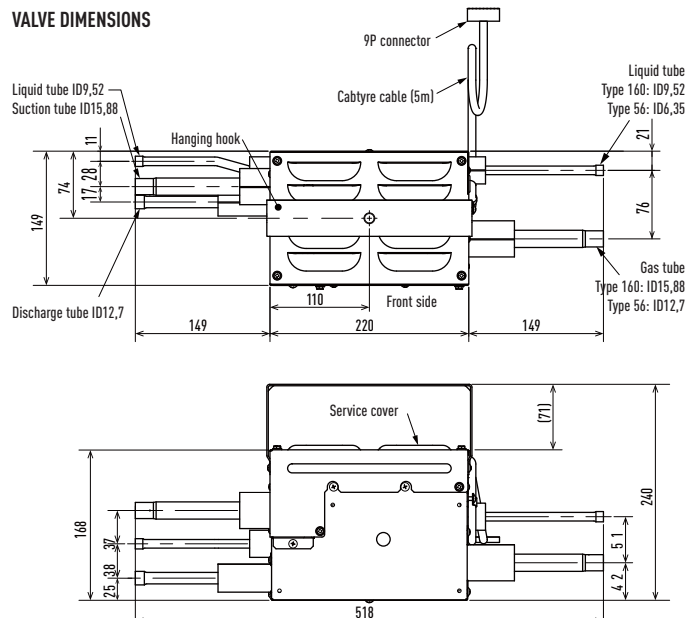


3-PIPE CONTROL PCB



3-Pipe control PCB CZ-CAPE2*. Must be added to the CZ-P56HR3 OR CZ-P160HR3. * For wall mounted.

VALVE DIMENSIONS





ECO G Water Heat Exchanger for hydronic applications

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

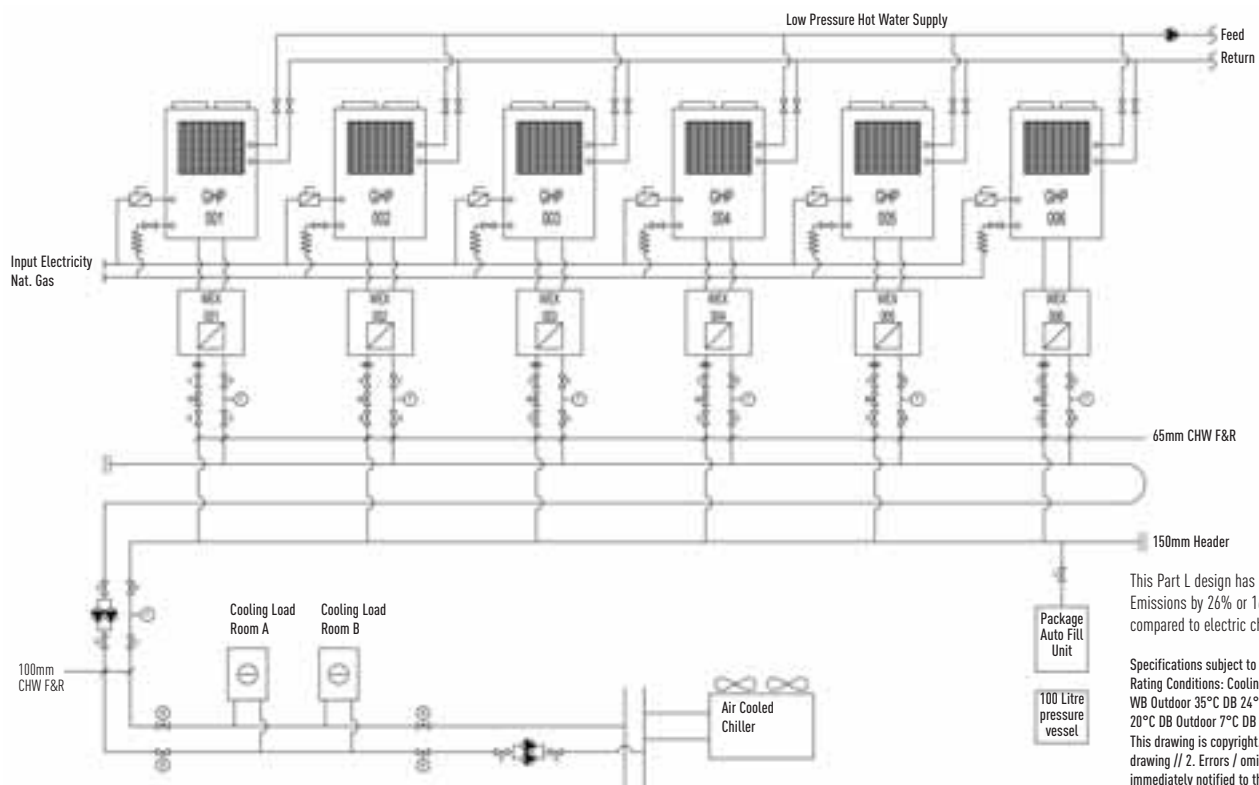
When some old chillers needed replacing at the end of their operational lifetime, GHPs with Water Heat Exchangers enabled the project to be carried out in stages whilst still utilising the existing water pipe work and fan coils. This enabled the project to be delivered on time, to a restricted budget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



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 CO₂ savings is ensured.



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.



HP			16 HP	20 HP	25 HP
Model			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	Nominal	W/W			
ESEER					
Max COP (inc hot water)					
Gas consumption		kW	31,3	41,4	63,5
Heating capacity	STD / Low temp ¹	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	Nominal	W/W			
SCOP					
Gas consumption	STD	kW	33,8	43,9	55,1
	Low temperature ¹	kW			
COP	Average				
Starter amperes		A	30	30	30
Sound pressure level		dB(A)	57	58	62
Dimensions	H x W x D	mm	2.273 x 1.650 x 1.000 (+80)	2.273 x 1.650 x 1.000 (+80)	2.273 x 1.650 x 1.000 (+80)
Net weight		kg	770	795	825
Pipe Connections	Gas	Inch (mm)	1 1/8 (28,58)	1 1/8 (28,58)	1 1/8 (28,58)
	Liquid	Inch (mm)	1/2 (12,70)	5/8 (15,88)	5/8 (15,88)
	Fuel gas		R3/4 (bolt thread)	R3/4 (bolt thread)	R3/4 (bolt thread)
	Exhaust drain port	mm	25	25	25
Indoor/outdoor capacity ratio			50-200% ²	50-200% ²	50-200% ²
Number of connections indoor ²			24	24	24

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

Rating Conditions: Cooling Indoor 27°C DB / 19°C WB. Cooling Outdoor 35°C DB. Heating (standard) Indoor 20°C DB. Heating (standard) Outdoor 7°C DB / 6°C WB. Heating (low temp.) Indoor 20°C DB / 15°C WB or less. Heating (low temp.) Outdoor 2°C DB / 1°C WB. DB: Dry Bulb; WB: Wet Bulb

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

2) Indoor unit can be connected to up to 16 kW model (model size 160)

Specifications subject to change without notice.

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.

- 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. - Specifications are subject to change without notice. - Hot water heating capacity is applicable during cooling operation. - 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.



U-16GEP2E5 // U-20GEP2E5 // U-25GEP2E5

Technical focus

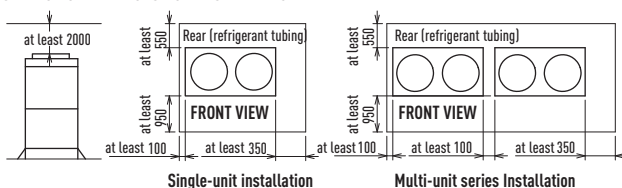
- 2-Pipe air conditioning system providing cooling or heating
- Up to 2 kW electricity generated (used on the outdoor unit)
- Very efficient generator
- Can connect to up to 24 indoor units
- IU/OU capacity ratio 50–200%
- 15 to 30 kW hot water generation capacity
- Free Hot water provided when in cooling throughout temperature range and in heating when the ambient is above 7°C
- 200 m maximum allowable piping length (L1)

* Referring to outside temperature.

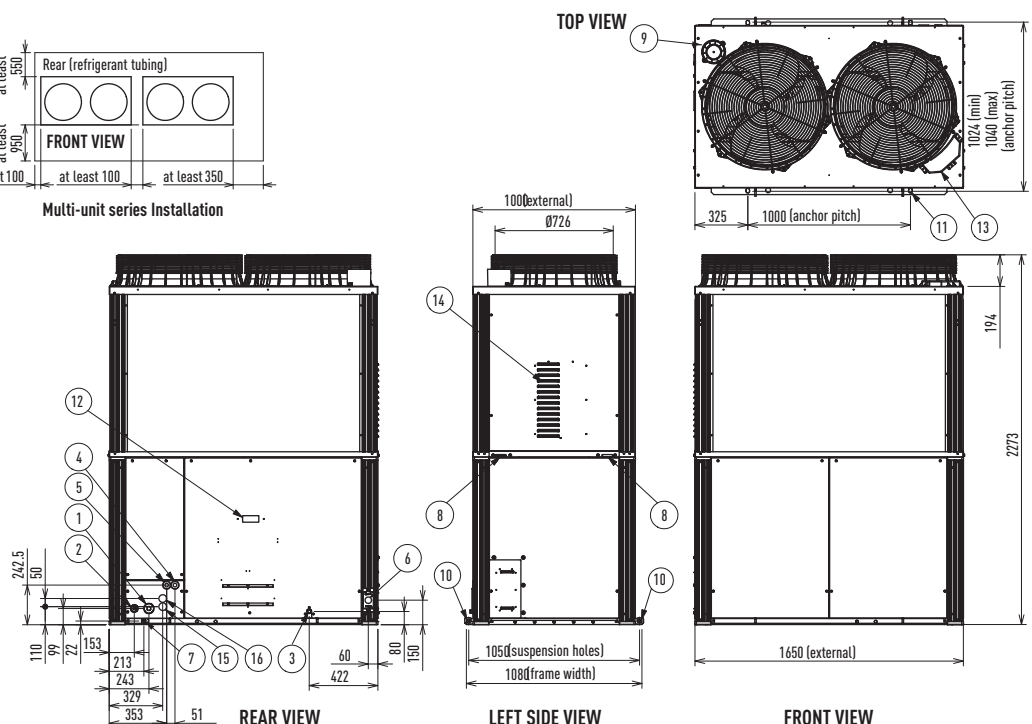
Generates electricity during heating or cooling operation

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%.

SERVICE CLEARANCES FOR INSTALLATION



kW	45.0	56.0-71.0
1 Suction refrigerant pipe	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.



HP			16 HP	20 HP	25 HP	30 HP	32 HP	36 HP*	40 HP*	45 HP*	50 HP
Model			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 (Caloric Value)	High / Low	W/W	1,48 / 1,64	1,40 / 1,55	1,15 / 1,28	1,22 / 1,35	1,48 / 1,64	1,43 / 1,59	1,40 / 1,55	1,25 / 1,39	1,15 / 1,28
ESEER											
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 ¹	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 (Caloric Value)	High / Low	W/W	1,51 / 1,68	1,46 / 1,62	1,48 / 1,64	1,37 / 1,52	1,51 / 1,68	1,48 / 1,64	1,46 / 1,62	1,47 / 1,63	1,48 / 1,64
SCOP											
Gas consumption	STD	kW	32,50	42,50	53,20	68,10	65,00	75,00	85,00	95,70	106,40
	Low temperature ¹	kW	41,50	56,40	62,30	78,00	83,00	97,90	112,80	118,70	124,60
COP	Average		1,50	1,43	1,32	1,29	1,50	1,46	1,43	1,36	1,32
Starter amperes	A		30	30	30	30	30	30	30	30	30
Sound pressure level	dB(A)		57	58	62	63	60	61	61	63	65
Dimensions	Height	mm	2.273	2.273	2.273	2.273	2.273	2.273	2.273	2.273	2.273
	Width	mm	1.650	1.650	1.650	2.026	1.650+100+1.650	1.650+100+1.650	1.650+100+1.650	1.650+100+1.650	1.650+100+1.650
	Depth	mm	1.000 (+80)	1.000 (+80)	1.000 (+80)	1.000 (+80)	1.000 (+80)	1.000 (+80)	1.000 (+80)	1.000 (+80)	1.000 (+80)
Net weight	kg		755	780	810	840	755 + 775	755 + 780	780 + 780	780 + 810	810 + 810
Pipe Connections	Gas	Inch (mm)	1 1/8 (28,58)	1 1/8 (28,58)	1 1/8 (28,58)	1 1/4 (31,75)	1 1/4 (31,75)	1 1/4 (31,75)	1 1/2 (38,10)	1 1/2 (38,10)	1 1/2 (38,10)
	Liquid	Inch (mm)	1/2 (12,70)	5/8 (15,88)	5/8 (15,88)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (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)	R3/4 (bolt thread)
	Exhaust drain port	mm	25 rubber hose	25 rubber hose	25 rubber hose	25 rubber hose	25 rubber hose	25 rubber hose	25 rubber hose	25 rubber hose	25 rubber hose
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

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

Rating Conditions: Cooling Indoor 27°C DB / 19°C WB. Cooling Outdoor 35°C DB. Heating (standard) Indoor 20°C DB. Heating (standard) Outdoor 7°C DB / 6°C WB. Heating (low temp.) Indoor 20°C DB / 15°C WB or less. Heating (low temp.) Outdoor 2°C DB / 1°C WB.
DB: Dry Bulb; WB: Wet Bulb

* In these combinations, GEP2E5 is able to connect to a W-multi system Specifications subject to change without notice instead of a 6E2E5.

1) Low temp condition: outdoor temperature 2°C.
Specifications subject to change without notice.

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.

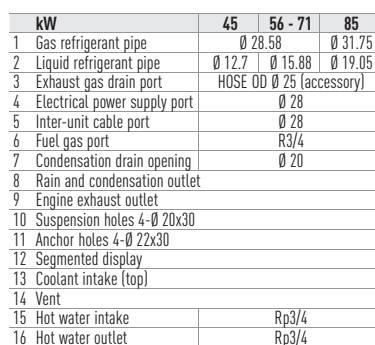
- Gas consumption is the total (high) calorific value standard. - Outdoor unit operating sound is measured 1 meter from the front and 1.5 meters above the floor (in an anechoic environment). Actual installations may have larger values due to ambient noise and reflections. - Specifications are subject to change without notice. - Hot water heating capacity is applicable during cooling operation. - 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.



- Reduced gas consumption by Miller-cycle engine
- Reduced electrical power consumption by using DC Motors
- Lightweight design reduces weight
- Capacity ratio 50-130% (single models only)
- Quiet mode offers a further 2 dB(A) reduction
- Part load efficiencies increased
- Connectivity increased - now up to 48 indoor units
- Multi-systems with combinations from 13 HP up to 50 HP
- 10,000 run hours between engine service intervals (equivalent to one maintenance every 3.2 years*)
- 200 m maximum allowable piping length (L1)
- Extended pipe runs (total 780 m)

- Full heating capacity down to -20°C
- No defrost cycle

Sample installation



Single-unit installation

at least 2000

550

at least 550

at least 950

Rear (refrigerant tubing)

Front View

at least 100

at least 350

242.5

Multi-unit series Installation

at least 550

at least 950

Rear (refrigerant tubing)

Front View

at least 100

at least 100

at least 350

[illegible][illegible]

ECO G 3 WAY

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.



HP			16 HP	20 HP	25 HP
Model			U-16GF2E5	U-20GF2E5	U-25GF2E5
Cooling capacity		kW	45,00	56,00	71,00
Power input cooling		kW	0,71	1,02	1,33
EER (Calorific Value)	High / Low	W/W	1,48 / 1,64	1,40 / 1,55	1,15 / 1,28
ESEER					
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
Power input heating		kW	0,60	0,64	0,83
COP (Calorific Value)	High / Low	W/W	1,51 / 1,68	1,46 / 1,62	1,48 / 1,64
SCOP					
Gas consumption	STD	kW	32,5	42,5	53,2
	Low temperature ¹	kW	41,5	56,4	62,3
COP		Average	1,50	1,43	1,32
Starter amperes		A	30	30	30
Operation sound		dB(A)	57	58	62
Dimensions	H x W x D	mm	2,273 x 1,650 x 1,000 (+80)	2,273 x 1,650 x 1,000 (+80)	2,273 x 1,650 x 1,000 (+80)
Net weight		kg	775	775	805
Pipe Connections	Gas	Inch (mm)	1 1/8 (28,58)	1 1/8 (28,58)	1 1/8 (28,58)
	Liquid	Inch (mm)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)
	Discharge	Inch (mm)	7/8 (22,22)	1 (25,40)	1 (25,40)
	Fuel gas		R3/4	R3/4	R3/4
	Exhaust drain port	mm	25	25	25
Indoor/outdoor capacity ratio			50-200% ²	50-200% ²	50-200% ²
Number of connected indoor units			24	24	24

Solenoid valve kit		
KIT-P56HR3	KIT-P56HR3	3-Pipe control Solenoid valve kit (up to 5,6kW)
	CZ-P56HR3	Solenoid valve kit (up to 5,6kW)
	CZ-CAPE2	3-Pipe control PCB
KIT-P160HR3	KIT-P160HR3	3-Pipe control Solenoid valve kit (from 5,6kW to 10,6kW)
	CZ-P160HR3	Solenoid valve kit (from 5,6kW to 10,6kW)
	CZ-CAPE2	3-Pipe control PCB
CZ-CAPEK2		3-Pipe control PCB for wall mounted

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

Rating Conditions: Cooling Indoor 27°C DB / 19°C WB. Cooling Outdoor 35°C DB. Heating (standard) Indoor 20°C DB. Heating (standard) Outdoor 7°C DB / 6°C WB. Heating (low temp.) Indoor 20°C DB / 15°C WB or less. Heating (low temp.) Outdoor 2°C DB / 1°C WB. DB: Dry Bulb; WB: Wet Bulb

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.

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.

- 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. - Specifications are subject to change without notice. - Hot water heating capacity is applicable during cooling operation. - 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.



U-16GF2E5 // U-20GF2E5 // U-25GF2E5

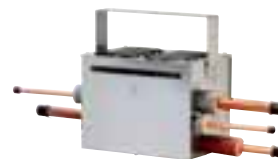
Technical focus

- Simultaneous heating and cooling for total control
- Reduced gas consumption by Miller-cycle engine
- Reduced electrical power consumption by using DC Motors
- Part load efficiencies increased
- Connectability increased to up to 24 indoor units
- 145 m maximum allowable piping length, L1
- Capacity 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
- 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 CO₂ emissions)

- No defrost cycle
- 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



3-Pipe control 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)

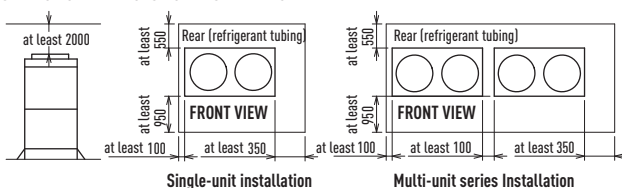
* For conference rooms and other locations where low noise is required, pay attention to the installation location and install in a corridor etc.



3-Pipe control PCB CZ-CAPE2*.

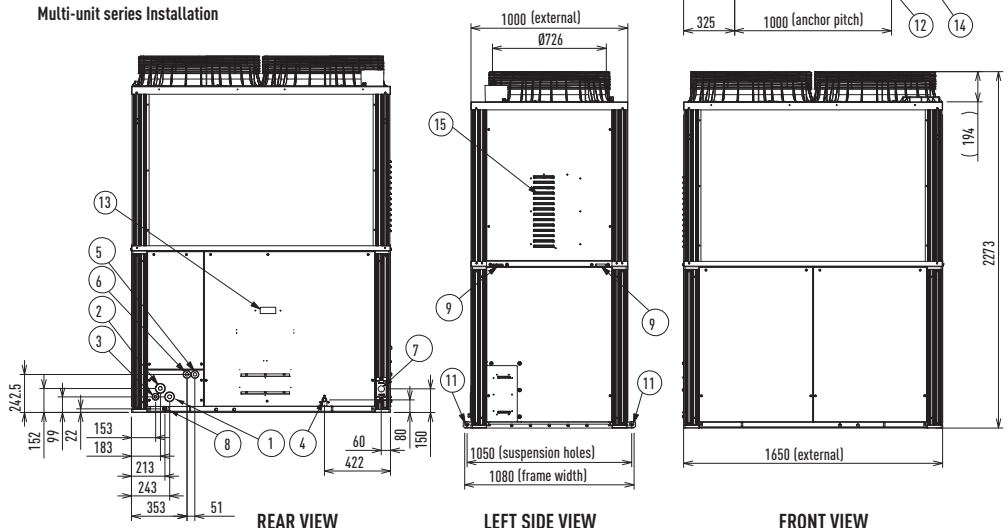
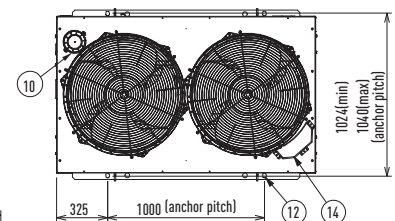
Must be added to the CZ-P56HR3 OR CZ-P160HR3.
* For wall mounted.

SERVICE CLEARANCES FOR INSTALLATION



	kW	45.0	56.0-71.0
1	Suction refrigerant pipe	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 ØD 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		

TOP VIEW





- A CLASS PUMP INCLUDED
- 4 WAY VALVE INCLUDED
- OPTIMIZED HEAT EXCHANGER
- 1056 x 570 x 1010 (H x W x D)
- WATER CONNECTIONS R2" F

The 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
- 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

INVERTER +

Environmentally
friendly
refrigerant

R410A



With ECOi outdoor units

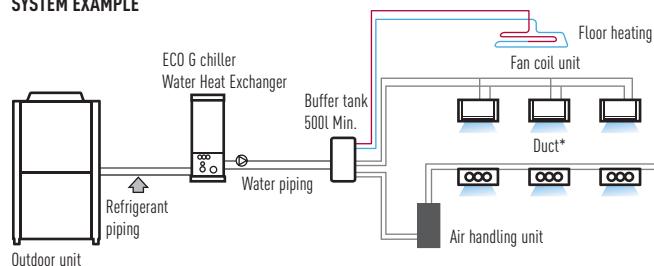
- Maximum hot water outlet temperature: 45°C
- Minimum chilled water outlet temperature: 5°C
- Outdoor temperature range in cooling mode: +5°C to +43°C
- Outdoor temperature range in heating mode: -11°C to +15°C

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.

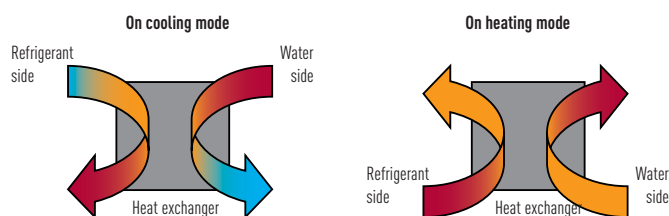
SYSTEM EXAMPLE



A Buffer Tank of minimum 500L is always needed.

New Electrical panel with new algorithm

- Optimized heat exchanger to increase drastically the efficiency
- Liquid receiver to outperform the functionality of the WHE
- Unique 4 way valve in order always have counterflow fluid circulation in heating and cooling fluid circulation on both sides of the cross flow. This optimizes efficiency!



Built in A class water pump with high efficiency and capacity

WHE	Power consumption	Water flow
S-250 / S-500	9 - 130W	4,3 / 8,6
S-710	12 - 310W	12,2

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

For hydronic Applications

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.



Water Heat Exchanger*			PAW-250WX2E5	PAW-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			28,0	51,3
COP at +7°C with heating water temperature at 45°C			3,25	3,10
Dimensions	H x W x D	mm	1.000 x 395 x 965	1.000 x 395 x 965
Net weight			165	190
Water pipe connector			Rp2 Nut thread (50A)	Rp2 Nut thread (50A)
Pump			Field supply	Field supply
Heating water flow ($\Delta T=5$ K, 35°C)			4,3	8,6
Capacity of integrated electric heater			Not equipped	Not equipped
Input power			0,01	0,01
Maximum current			0,07	0,07
Outdoor unit			U-10ME1E81	U-20ME1E81
Sound pressure level			59	63
Sound power level			73,5	77,5
Dimensions	H x W x D	mm	1.758 x 770 x 930	1.758 x 1.540 x 930
Net weight			283	423
Piping connections	Liquid pipe	mm	22,22	28,58
	Gas pipe	mm	9,52	15,88
Refrigerant (R410A)			6,3 *Need Additional charge at site	9,0 *Need Additional charge at site
Pipe length range	Max.	m	170	170
Pipe length for nominal capacity			7,5	7,5
Pipe length for additional gas			0 <	0 <
Additional charge (R410A)			Reffer to Manual	Reffer to Manual
Elevation difference (in/out)			50 (OD above) 35 (OD below)	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

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

Performance calculation in agreement with Eurovent.
Sound pressure measured at 1 m from the outdoor unit and at 1.5-m height.



PAW-250WX2E5 // PAW-500WX2E5

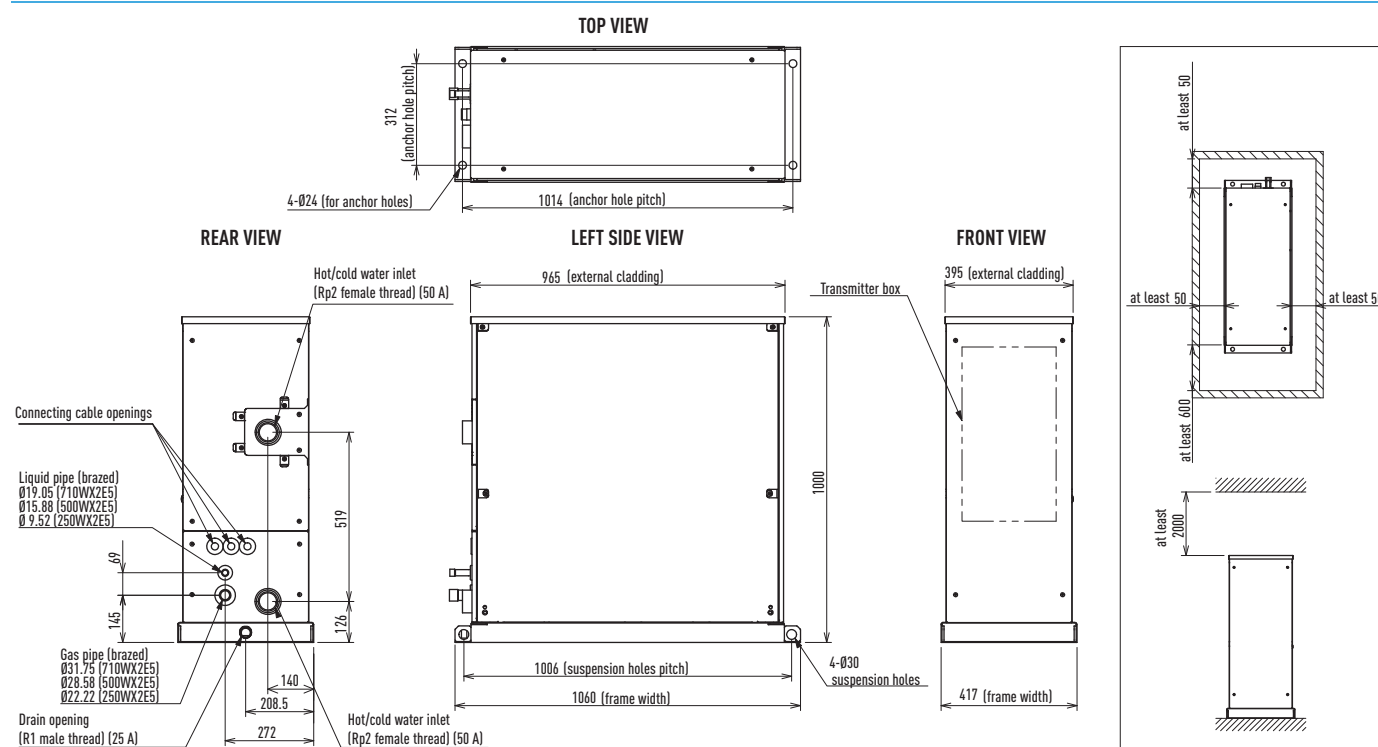
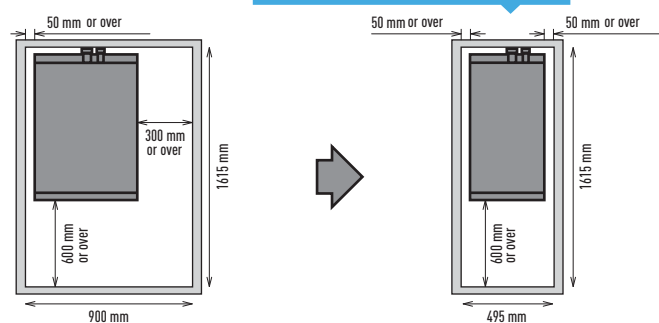
Technical focus

- 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 temperature range in cooling mode: +5°C to +43°C
- Outdoor temperature range in heating mode: -20°C to +15°C

Slim & Light design

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

Installation space **45%** reduction





- MORE EFFICIENT THAN GAS BOILERS AND CHILLERS
- HEATING, COOLING AND DHW
- INCREASED ENERGY EFFICIENCY AND LOW CO₂ EM

GHP + WHE heating, cooling and DHW

The ECO G solution for gas boiler replacement

- Combined with a Water Heat Exchanger unit, the Panasonic GHP can create a flexible system, the ideal replacement for existing chiller and boiler systems in order to increase efficiency and reduce CO₂ emissions.
- Reused heat from the engine is an alternative to thermal solar energy
- No defrost cycle
- Super silent outdoor units
- No glycol needed as the hydromodule can be placed on the heated part of building
- Keep existing water installation and fan coils
- Oversizing is reduced by keeping the power at a low temperature.
- No need for cooling towers
- Electrical demand spikes or possible costs derived from investments in new electrical infrastructures are lowered.

Excellent applicability when there is a thermal demand for heat, DHW and cooling, as well as additional thermal usages such as swimming pools, SPA, laundries: Hotels, sports centers, hospitals, gymnasiums, homes, shopping centers, etc.

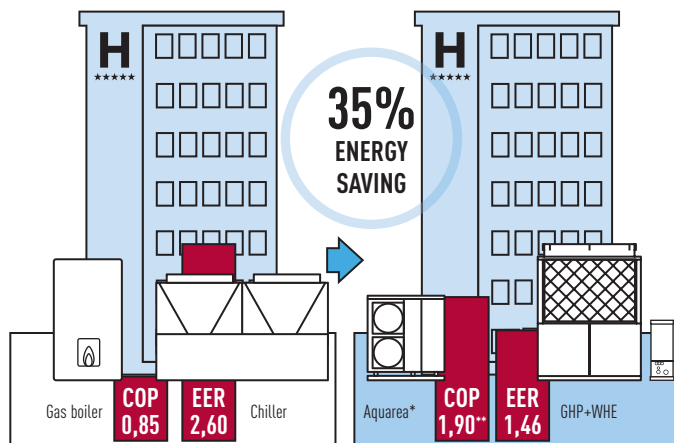
**35%
SAVINGS
BEST ECO
SOLUTION**

High savings
ECO G

Environmentally friendly refrigerant
R410A



Case Study, Hotel Application



* Electric to support pick of consumption on domestic hot water. ** COP including HSW (U-20GE2E8). EER and COP calculated in primary energy.

Example of Hotel renewal of existing Chiller and Boiler system with Panasonic GHP and Aquarea mixed solution

GHP and Aquarea are the smart solution for renewal Chiller/Boiler applications with annual running cost savings around 13.600€.

			Load kW/h year	Power Input	Running cost €
Cooling	Chiller+Boiler	Chiller	231.653	89.097	12.474
	GHP+AZW	GHP	231.653	183.852	7.354
Heating	Chiller+Boiler	Boiler	96.749	113.823	4.553
	GHP+AZW	GHP	96.749	73.630	2.945
HSW	Chiller+Boiler	Boiler	204.213	240.251	9.610
	GHP+AZW	GHP (*)	118.225	0	0
		Aquarea	77.031	16.390	2.295
		Back up Boiler	8.957	10.538	422
Total	Chiller+Boiler		532.616	443.171	26.637
	GHP+AZW		532.616	284.409	13.015
	GHP+AZW savings			158.762	13.621

Hotel example: 2.000 m² Hotel 4*, 75 rooms, in Barcelona. Cooling load 170 kWh, Heating Load 142 kWh, HSW 204 kWh/year. Part load calculation at 70%, and 33% of total year at heating mode. Including 10% capacity drop with Water Heat Exchanger. 3 units GHP U-20GE2E5 and Aquarea 9 kW.

With GHP outdoor units:

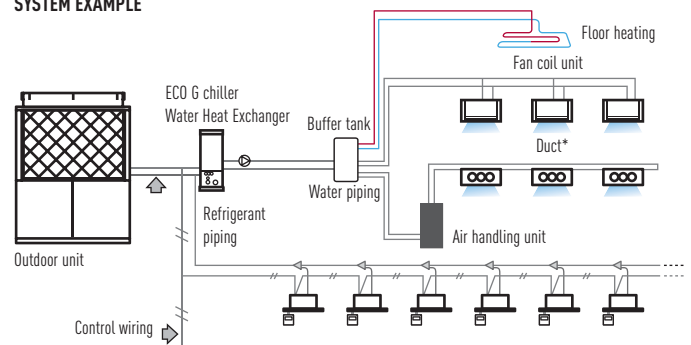
In heating mode, at very low outdoor temperature -21°C, the available power is maintained. No defrost cycle happens and stable heating comfort is guaranteed.

- Hot water outlet temperatures from 35°C to 55°C
- Chilled water outlet temperatures from -15°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

- 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 inquire details of this system design of Panasonic. * Standard DX type indoor unit system.

ECO G WITH WATER HEAT EXCHANGER

FOR CHILLED AND HOT WATER PRODUCTION

For hydronic applications

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.



Water Heat Exchanger*			PAW-250WX2E5	PAW-500WX2E5	PAW-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	H x W x D	mm	1.000 x 395 x 965	1.000 x 395 x 965	1.000 x 395 x 965
Weight		kg	110	130	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	kW		Not equipped	Not equipped	Not equipped
Input Power	kW		0,01	0,01	0,01
Maximum Current	A		0,07	0,07	0,07
Outdoor unit			-	U-20GE2E5	U-30GE2E5
Sound pressure		dB(A)		58	63
Sound power level		dB		83	86
Dimensions	H x W x D	mm		2.273 x 1.650 x 1.000	2.273 x 2.026 x 1.000
Weight		kg		780	840
Piping connections	Liquid pipe	mm		28,58	31,75
	Gas pipe	mm		15,88	19,05
Refrigerant (R410A)		kg		11,5 (Need additional charge at site)	11,5 (Need additional charge at site)
Pipe length range	Max.	m		170	170
Pipe length for nominal capacity		m		7	7
Pipe length for additional gas		m		0<	0<
Additional charge (r410a)		g/m		Refer to Manual	Refer to Manual
Elevation difference (in/out)		m	50 (OD above) 35 (OD below)	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)²	°C		35 — 55	35 — 55

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

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.



PAW-250WX2E5 // PAW-500WX2E5 // PAW-710WX2E5

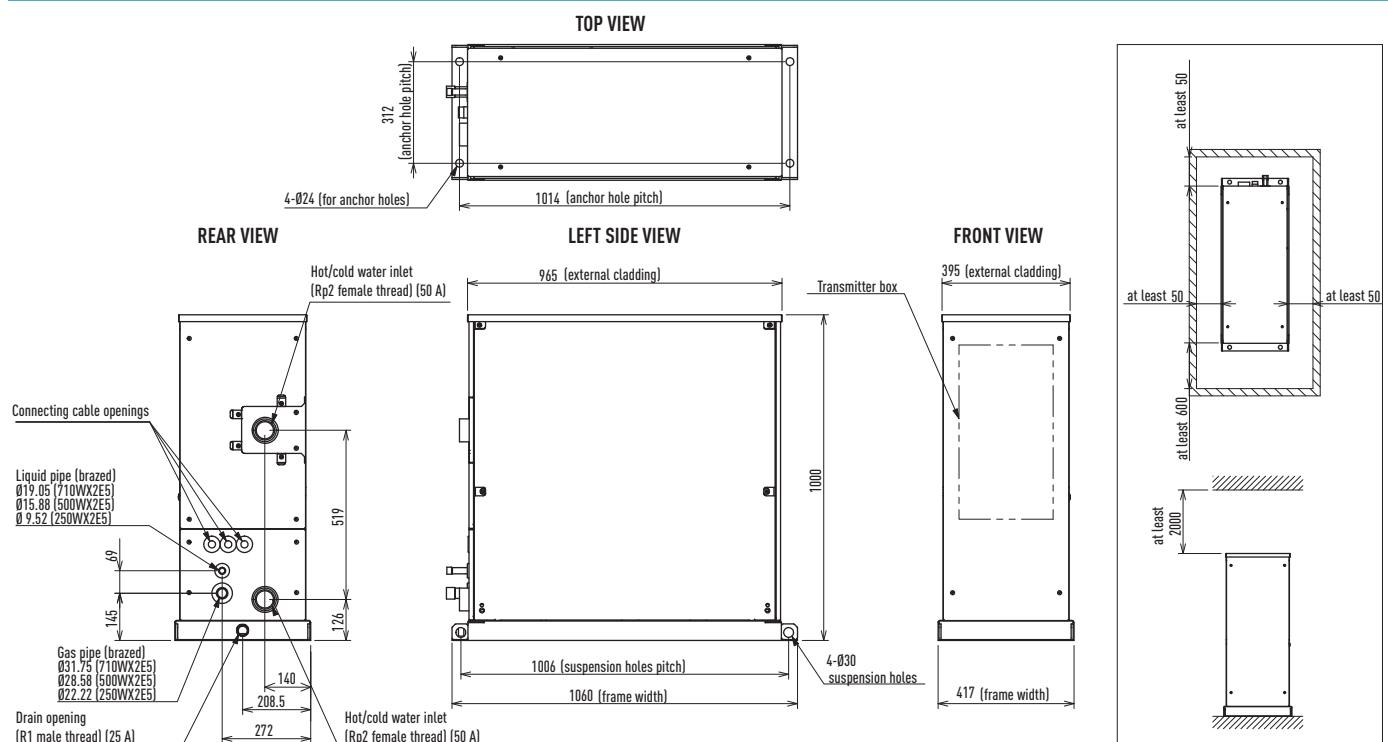
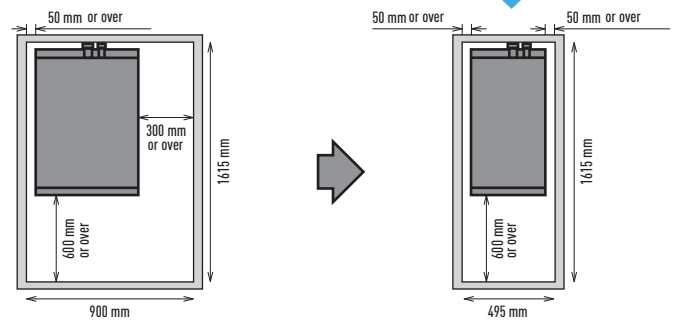
Technical focus

- Maximum distance between O_U and WHE: 170 m
- Possibility to mix DX and Water Heat Exchanger systems
- Hot water outlet temperatures from 35°C to 55°C
- Chilled water outlet temperatures from -15°C to +15°C
- Outdoor temperature range in cooling mode: -10°C to +43°C
- Minimum outdoor temperature in heating mode: -21°C

Slim & Light design

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

Installation space **45%** reduction



AQUAREA AIR RADIATORS

New line up of Super low temperature radiators for Heat Pump application: Aquarea Air 200/700/900 with radiating effect

The slimline Panasonic Aquarea Air radiators deliver high efficiency climate control. 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.

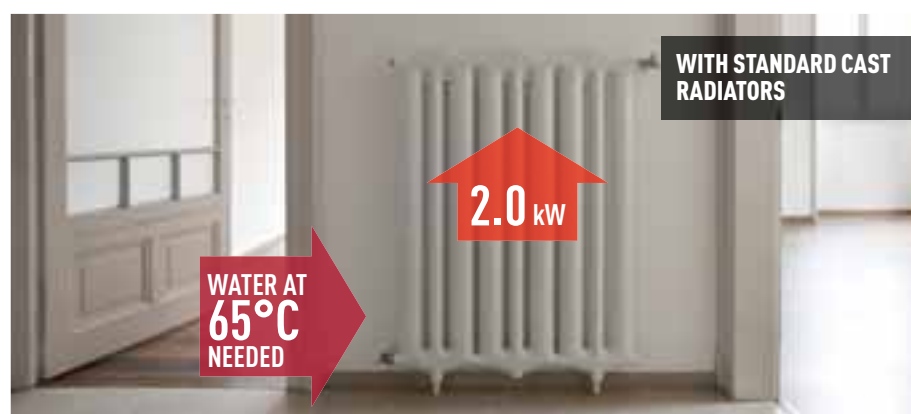
The Aquarea Air's slimline profile has been achieved thanks to the innovative layout of the ventilation unit and the heat exchanger. The fan is tangential with asymmetric blades and the large surface heat exchanger enables high airflows to be achieved with low pressure loss and low noise levels. Exceptional 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.

All temperature curves and capacity are available on www.panasonicproclub.com

Fan Coils for Heat Pump application		PAW-AAIR-200					PAW-AAIR-700					PAW-AAIR-900				
Without radiant heating		PAW-AAIR-200L					PAW-AAIR-700L					PAW-AAIR-900L				
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	Min	Med	Max	Main Fan Off	Super Min	Min	Med	Max	Main Fan Off	Super Min	Min	Med	Max
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
Dimentions (H x W x D)	mm	735 x 576 x 129					935 x 579 x 129					1.135 x 579 x 129				
Weight	kg	17					20					23				
3 ways valve included		Yes					Yes					Yes				
Touch schreen thermostat		Yes					Yes					Yes				



WITH AQUAREA AIR



WITH STANDARD CAST RADIATORS





PAW-AAIR-900



PAW-AAIR-700

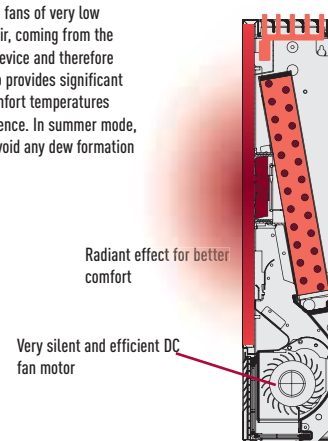
PAW-AAIR-200

PAW-250WX2E5 // PAW-500WX2E5 // PAW-710WX2E5

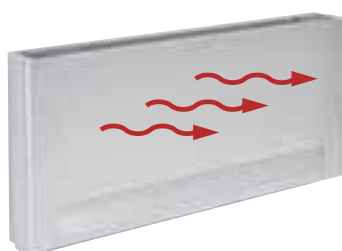
Technical focus

- Front panel heating with radiant effect
- High heating capacity (without main fan running)
- 4 fan speeds and capacities
- Exclusive design
- Extremely compact (only 12.9cm 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

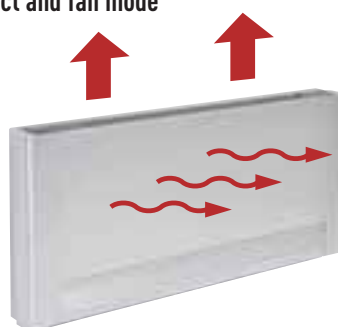
During winter, the operating principle is based on micro fans of very low power consumption and minimum noise that send hot air, coming from the heat exchanger, to the inside of the front panel of the device and therefore heat it effectively. With this principle, the terminal also provides significant 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.



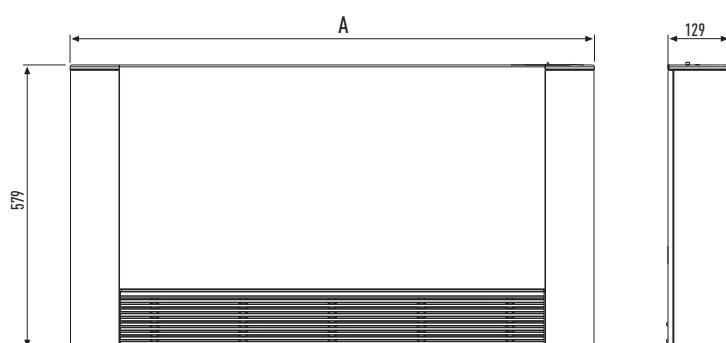
Operating on heating mode with radiator using only radiant effect



Operating on heating mode with radiant effect and fan mode



Operating on cooling mode with fan



	200	700	900
A	735	935	1.135

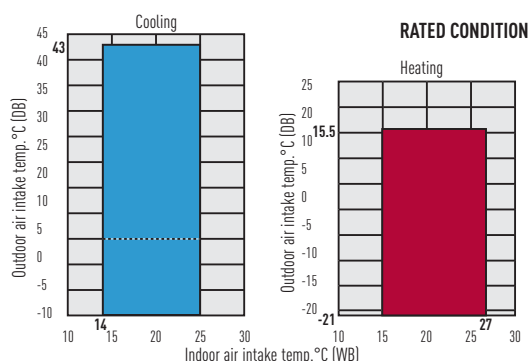
Features

High technology features

Down to
-25 °C in
heating mode
OUTDOOR
TEMPERATURE

Wider operation

Thanks to wide operation range of Panasonic ECOi and ECOg systems with Aquarea Air fan coils is possible to cover outdoor temperatures of 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 50cm (or 75cm for U type) from the bottom of the unit.

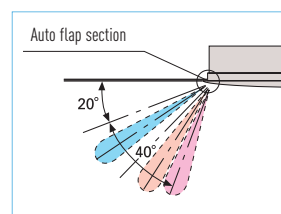
Further
comfort



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.

Maintenance and inspection

Fixing problems

Efficient operation

Preserving durability

Safe and reliable operation

Energy saving

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 software

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's Advanced VRF software with AutoCAD® compatibility makes design easier than ever

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.



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 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 from your service partner.



Interface Box





Indoor units for ECOi and ECO G

Wide choice of models depending on the indoor requirements.

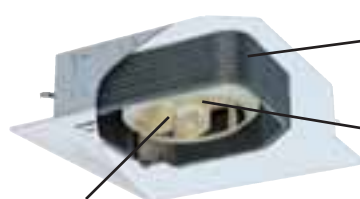


4 Way 90x90 Cassette

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.

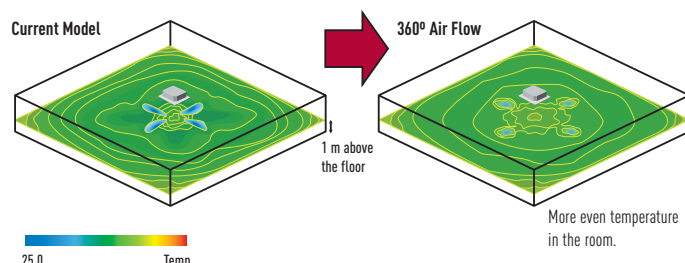
Flexible Air flow direction control by individual flap control is possible. 4 Flaps can be controlled individually by setting on wired timer remote controller. Several demands can be accommodated in one space.

High-efficient & Silent turbo Fan.

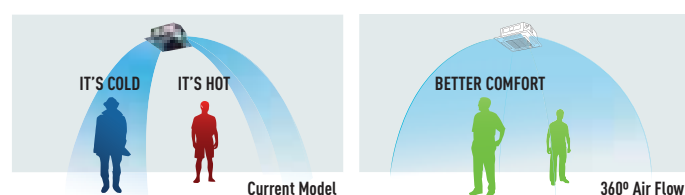
It is realized more air volume and more silent due to new development of a bigger fan chassis than previous one and optimization design of airflow path.

New 360° Air Flow for better comfort

By redesigning the air-outlet and flap, Soft & 3D air flow circulates whole space and provides even temperature distribution in the room.



Simulated condition: Floor area: 225 m². Ceiling height: 3 m, Unit 5 HP type.

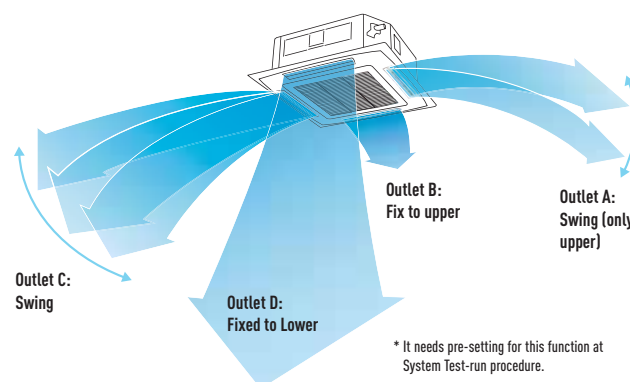


360°
air flow

Flexible 3D air-flow control

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

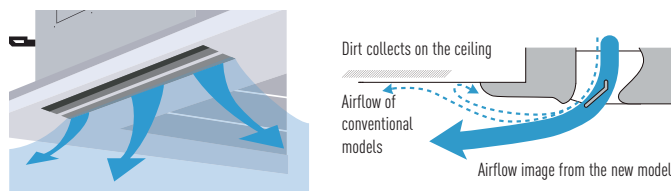
- 4 Flaps can be controlled individually (by standard wired remote controller*).
- It can make more flexible Air-flow control to be matched to several demands can be accommodated in one space.





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.




































ECOi and ECO G systems indoor units range

	1,5 kW	2,2 kW	2,8 kW	3,0 kW	3,6 kW	4,0 kW	4,5 kW
U1 Type // 4 Way 90x90 Cassette		 S-22MU1E5A	 S-28MU1E5A		 S-36MU1E5A		 S-45MU1E5A
Y2 TYPE // 4 Way 60x60 Cassette	 S-15MY2E5A	 S-22MY2E5A	 S-28MY2E5A		 S-36MY2E5A		 S-45MY2E5A
L1 Type // 2 Way Cassette		 S-22ML1E5	 S-28ML1E5		 S-36ML1E5		 S-45ML1E5
D1 Type // 1 Way Cassette			 S-28MD1E5		 S-36MD1E5		 S-45MD1E5
F2 Type // Variable Static Pressure Hide Away	 S-15MF2E5A	 S-22MF2E5A	 S-28MF2E5A		 S-36MF2E5A		 S-45MF2E5A
M1 Type // Slim Variable Static Pressure Hide Away	 S-15MM1E5A	 S-22MM1E5A	 S-28MM1E5A		 S-36MM1E5A		 S-45MM1E5A
E1 Type // High Static Pressure Hide Away							
Heat Recovery With DX Coil				 PAW-500ZDX2		 PAW-800ZDX2	 PAW-01KZDX2
T2 TYPE // Ceiling					 S-36MT2E5A		 S-45MT2E5A
K2/K1 Type // Wall Mounted	 S-15MK2E5A	 S-22MK2E5A	 S-28MK2E5A		 S-36MK2E5A		 S-45MK1E5A
P1 Type // Floor Standing		 S-22MP1E5	 S-28MP1E5		 S-36MP1E5		 S-45MP1E5
R1 Type // Concealed Floor Standing		 S-22MR1E5	 S-28MR1E5		 S-36MR1E5		 S-45MR1E5

Wide choice of models depending on the indoor requirements.

	16,0 kW	28,0 kW	56,0 kW	84,0 kW	112,0 kW	140,0 kW	168,0 kW
AHU Connection Kit 16, 28 and 56 kW for ECOi and ECO G	 PAW-160MAH2	 PAW-280MAH2	 PAW-560MAH2	 PAW-280MAH2 + PAW-560MAH2	 PAW-560MAH2 x 2	 PAW-280MAH2 + PAW-560MAH2 x 2	 PAW-560MAH2 x 3

5,6 kW	6,0 kW	7,3 kW	9,0 kW	10,6 kW	14,0 kW	16,0 kW	22,4 kW	28,0 kW
 S-56MU1E5A	 S-60MU1E5A	 S-73MU1E5A	 S-90MU1E5A	 S-106MU1E5A	 S-140MU1E5A	 S-160MU1E5A		
 S-56MY2E5A								
 S-56ML1E5		 S-73ML1E5						
 S-56MD1E5		 S-73MD1E5						
 S-56MF2E5A	 S-60MF2E5A	 S-73MF2E5A	 S-90MF2E5A	 S-106MF2E5A	 S-140MF2E5A	 S-160MF2E5A		
 S-56MM1E5A								
							 S-224ME1E5A	 S-280ME1E5
 S-56MT2E5A		 S-73MT2E5A		 S-106MT2E5A	 S-140MT2E5A			
 S-56MK1E5A		 S-73MK1E5A		 S-106MK1E5A				
 S-56MP1E5		 S-71MP1E5						
 S-56MR1E5		 S-71MR1E5						

	11,4 kW	25,0 kW	31,5 kW	37,5 kW
Air Curtain Jet-Flow with DX Coil	 PAW-10EAIRC-MJ	 PAW-15EAIRC-MJ	 PAW-20EAIRC-MJ	 PAW-25EAIRC-MJ
Air Curtain Standard with DX Coil	 PAW-10EAIRC-MS		 PAW-20EAIRC-MS	

U1 TYPE

4 WAY 90X90 CASSETTE

SEMI CONCEALED CASSETTE



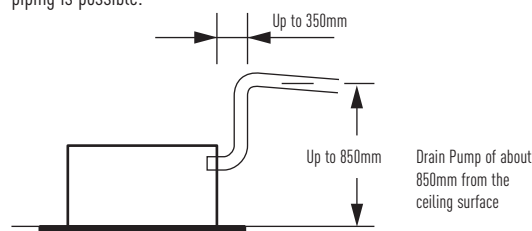
The award winning range of U1 type cassettes are smaller, shallower and lighter than previous models and feature a 950 x 950mm panel throughout. The DC fan motor and air discharge louvre ensure quiet, optimum air distribution.

Technical focus

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

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

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



Air intake chamber

1. Air intake box CZ-BCU2 for main unit.
2. Air intake box CZ-ATU2* for Air intake plenum. CZ-CFU2 Part to close air flow for the cassette 90x90 series U1.

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



Panel
CZ-KPU21



Optional Controller
Wired remote controller
CZ-RTC3



Optional Controller
Wired remote controller
CZ-RTC2



Optional Controller
Wireless remote controller
CZ-RWSU2
CZ-RWSC2



Optional Controller
Simplified remote controller
CZ-RE2C2

Model		S-22MU1E5A	S-28MU1E5A	S-36MU1E5A	S-45MU1E5A	S-56MU1E5A	S-60MU1E5A	S-73MU1E5A	S-90MU1E5A	S-106MU1E5A	S-140MU1E5A	S-160MU1E5A
Power source		230 V / Single 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
Power input cooling	W	20	20	20	20	25	35	40	40	95	100	115
Operating current cooling	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
Power input heating	W	20	20	20	20	25	35	40	40	85	100	105
Operating current heating	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	Turbo fan	Turbo fan	Turbo fan	Turbo fan	Turbo fan	Turbo fan	Turbo fan	Turbo fan	Turbo fan	Turbo fan
Air volume	Hi / Med / Lo	m³/h	840/720/660	840/720/660	840/720/660	900/780/720	960/810/720	1.260/1.020/840	1.320/1.020/840	1.380/1.140/900	1.980/1.620/1.260	2.100/1.680/1.320
Sound pressure level	L1 / Lo / Med / Hi	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
Dimensions	H x W x D	mm	256 (+33,5) x 840 (950) x 840 (950)									
Pipe connections	Liquid	inch (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	inch (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	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.

1) Sound pressure level with fan only.

Optional

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

Y2 TYPE

4 WAY 60X60 CASSETTE

MINI SEMI CONCEALED

CASSETTE



Designed to fit exactly into a 600 x 600mm 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 600 x 600mm ceiling grid
- Fresh air knock out
- Multidirectional air flow
- Anti-mould and anti-bacteria washable filters
- Powerful drain pump gives 850mm 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

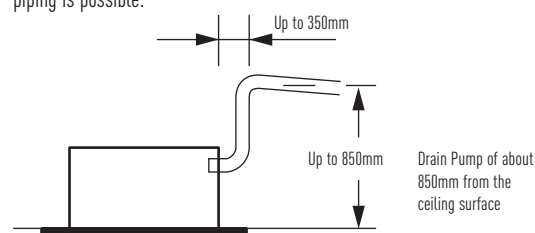
Special designed flap

The flap can be removed easily for washing with water.

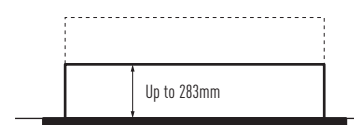


A drain height of approx. 850mm from the ceiling surface

The drain height can be increased by approximately 350mm 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 283mm, making installation possible even in narrow ceilings.



Panel
CZ-KPY3A



Optional Controller
Wired remote controller
CZ-RTC3



Optional Controller
Wired remote controller
CZ-RTC2



Optional Controller
Wireless remote controller
CZ-RWSK2



Optional Controller
Simplified remote controller
CZ-RE2C2

Model ¹			S-15MY2E5A	S-22MY2E5A	S-28MY2E5A	S-36MY2E5A	S-45MY2E5A	S-56MY2E5A
Power source			230 V / Single Phase / 50 Hz					
Cooling capacity	kW		1,5	2,2	2,8	3,6	4,7	5,6
Power input cooling	W		35	25	25	27	31	38
Operating current cooling	A		0,30	0,16	0,16	0,18	0,21	0,29
Heating capacity	kW		1,7	2,5	3,2	4,2	5,0	6,3
Power input heating	W		30	15	15	17	21	29
Operating current heating	A		0,25	0,13	0,13	0,15	0,18	0,26
Fan type				Centrifugal fan	Centrifugal fan	Centrifugal fan	Centrifugal fan	Centrifugal fan
Air volume	Cooling	m ³ /h	534 / 492 / 336	546 / 492 / 336	558 / 504 / 336	582 / 522 / 360	600 / 558 / 492—	624 / 588 / 510
	Heating	m ³ /h	546 / 504 / 336	558 / 504 / 336	576 / 522 / 336	594 / 546 / 360	618 / 576 / 492	666 / 588 / 522
Sound pressure level (LL ² / Lo / Med / Hi)	Cooling	dB(A)	— / 25 / 33 / 34	— / 25 / 33 / 35	— / 25 / 33 / 35	— / 26 / 34 / 36	— / 33 / 36 / 38	— / 34 / 37 / 40
	Heating	dB(A)	— / 25 / 33 / 34	— / 25 / 33 / 35	— / 25 / 33 / 35	— / 26 / 34 / 36	— / 32 / 36 / 38	— / 34 / 37 / 40
Dimensions	H x W x D	mm	288 (+31)x583 (700)x583 (700)	288 (+31)x583 (700)x583 (700)	288 (+31)x583 (700)x583 (700)	288 (+31)x583 (700)x583 (700)	288 (+31)x583 (700)x583 (700)	288 (+31)x583 (700)x583 (700)
Pipe connections	Liquid	inch (mm)		1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)
	Gas	inch (mm)		1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)
	Drain piping		VP-25	VP-25	VP-25	VP-25	VP-25	VP-25
Net weight	kg		20,4 (18 + 2,4)	20,4 (18 + 2,4)	20,4 (18 + 2,4)	20,4 (18 + 2,4)	20,4 (18 + 2,4)	20,4 (18 + 2,4)

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.

1) Available from May 2014.

2) Sound pressure level with fan only.

Optional

Internet Control Ready INTERNET CONTROL	Energy saving INVERTER+	Environmentally friendly refrigerant R410A	Easy maintenance SELF-DIAGNOSING	For more comfort AUTOMATIC FAN	Perfect humidity control MILD DRY	Further comfort AUTO-FLAP CONTROL	Practical operation AUTOMATIC RESTART	Comfort everywhere AIR SWEEP	Easy to install BUILT-IN DRAIN PUMP	Easy control by BMS CONNECTIVITY
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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.

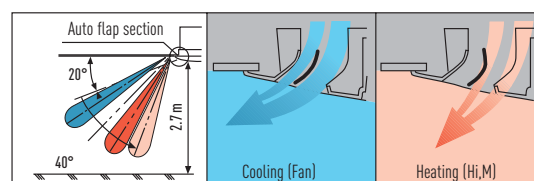
Technical focus

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

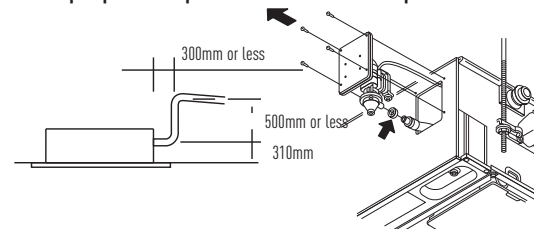
Simple maintenance

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 500mm 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
CZ-03KPL2 (for S-73ML1E5)



Optional Controller
Wired remote controller
CZ-RTC3



Optional Controller
Wired remote controller
CZ-RTC2



Optional Controller
Wireless remote controller
CZ-RWSL2
CZ-RWSC2



Optional Controller
Simplified remote controller
CZ-RE2C2

Model		S-22ML1E5	S-28ML1E5	S-36ML1E5	S-45ML1E5	S-56ML1E5	S-73ML1E5
Power source					230 V / Single Phase / 50 Hz		
Cooling capacity	kW	2,2	2,8	3,6	4,5	5,6	7,3
Power input cooling	W	90	92	93	97	97	145
Operating current cooling	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
Power input heating	W	58	60	61	65	65	109
Operating current heating	A	0,29	0,29	0,29	0,29	0,29	0,48
Fan type		Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan
Air volume	Hi / Med / Lo	m³/h	480 / 420 / 360	540 / 480 / 420	580 / 520 / 460	660 / 540 / 480	1.140 / 960 / 840
Sound pressure level	Lo / Med / Hi	dB(A)	24 / 27 / 30	26 / 29 / 33	28 / 31 / 34	29 / 33 / 35	33 / 35 / 38
Dimensions	H x W x D	mm	350(+8)x840 (1.060)x600 (680)	350(+8)x840 (1.060)x600 (680)	350(+8)x840 (1.060)x600 (680)	350(+8)x840 (1.060)x600 (680)	350(+8)x1.140 (1.360)x600 (680)
Pipe connections	Liquid	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	3/8 (9,52)
	Gas	inch (mm)	1/2 (12,7)	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	VP-25
Net weight	kg	28,5 (23 + 5,5)	28,5 (23 + 5,5)	28,5 (23 + 5,5)	28,5 (23 + 5,5)	28,5 (23 + 5,5)	39 (30 + 9)

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.

Optional

Internet Control Ready	Energy saving	Environmentally friendly refrigerant	Easy maintenance	For more comfort	Perfect humidity control	Further comfort	Practical operation	Comfort everywhere	Easy to install	Easy control by BMS
INTERNET CONTROL	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

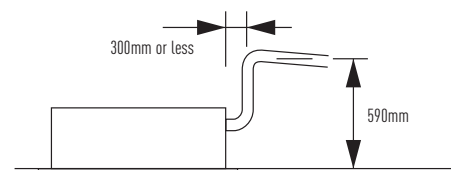


Designed for installation within the ceiling void, the D1 range of slimline 1 way blow cassettes feature powerful yet quiet fans for up to 4.2 m.

Technical focus

- Ultra-Slim
- Suitable for standard and high ceilings
- Built-in drain pump provides 590mm 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-KPD2



Optional Controller
Wired remote controller
CZ-RTC3



Optional Controller
Wired remote controller
CZ-RTC2



Optional Controller
Wireless remote controller
CZ-RWST2
CZ-RWSC2



Optional Controller
Simplified remote controller
CZ-RE2C2

Model		S-28MD1E5	S-36MD1E5	S-45MD1E5	S-56MD1E5	S-73MD1E5
Power source		230 V / Single Phase / 50 Hz				
Cooling capacity	kW	2,8	3,6	4,5	5,6	7,3
Power input cooling	W	51	51	51	60	87
Operating current cooling	A	0,39	0,39	0,39	0,46	0,7
Heating capacity	kW	3,2	4,2	5,0	6,3	8,0
Power input heating	W	40	40	40	48	76
Operating current heating	A	0,35	0,35	0,35	0,41	0,65
Fan type		Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan
Air volume	Hi / Med / Lo	m ³ /h	720 / 600 / 540	720 / 660 / 600	780 / 690 / 600	1.080 / 900 / 780
Sound pressure level	Lo / Med / Hi	dB(A)	33 / 34 / 36	34 / 35 / 36	34 / 36 / 38	36 / 40 / 45
Dimensions	H x W x D	mm	200 (+20)x1.000 (1.230)x710 (800)	200 (+20)x1.000 (1.230)x710 (800)	200 (+20)x1.000 (1.230)x710 (800)	200 (+20)x1.000 (1.230)x710 (800)
Pipe connections	Liquid	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	3/8 (9,52)
	Gas	inch (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	26,5 (21 + 5,5)	26,5 (21 + 5,5)	26,5 (21 + 5,5)	26,5 (21 + 5,5)	27,5 (22 + 5,5)

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.

Optional

Internet Control Ready INTERNET CONTROL	Energy saving INVERTER+	Environmentally friendly refrigerant R410A	Easy maintenance SELF-DIAGNOSING	For more comfort AUTOMATIC FAN	Perfect humidity control MILD DRY	Further comfort AUTO-FLAP CONTROL	Practical operation AUTOMATIC RESTART	Comfort everywhere AIR SWEEP	Easy to install BUILT-IN DRAIN PUMP	Easy control by BMS CONNECTIVITY
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F2 TYPE VARIABLE STATIC PRESSURE HIDE AWAY



S-15MF2E5A // S-22MF2E5A // S-28MF2E5A //
S-36MF2E5A // S-45MF2E5A // S-56MF2E5A

S-60MF2E5A // S-73MF2E5A // S-90MF2E5A

S-106MF2E5A // S-140MF2E5A // S-160MF2E5A



Optional Controller
Wired remote controller
CZ-RTC3



Optional Controller
Wired remote controller
CZ-RTC2



Optional Controller
Wireless remote controller
CZ-RWSC2



Optional Controller
Simplified remote controller
CZ-RE2C2

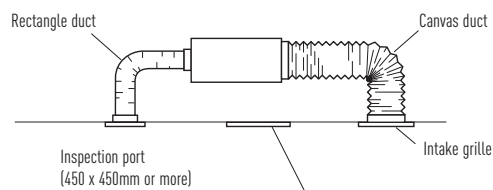
The new F2 type is designed specifically for applications requiring fixed square ducting. The internal filter is equipped as standard.

Technical focus

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

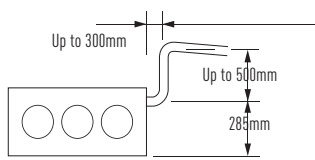
System example

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



More powerful drain pump

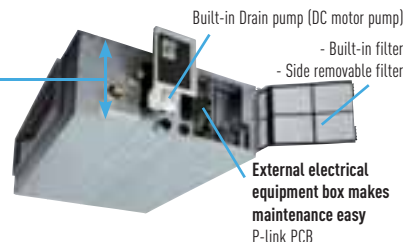
Using a high-lift drain pump, drain piping can be elevated up to 785mm from the base of the unit.



New Variable Static Pressure Hide Away MF2 series

Standardized height of 290mm 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-...MF2E5A	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 ¹⁾		S-15MF2E5A	S-22MF2E5A	S-28MF2E5A	S-36MF2E5A	S-45MF2E5A	S-56MF2E5A	S-60MF2E5A	S-73MF2E5A	S-90MF2E5A	S-106MF2E5A	S-140MF2E5A	S-160MF2E5A
Power source		230 V / Single 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
Power input cooling	W		70	70	70	70	100	120	120	135	195	215	225
Operating current cooling	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
Power input heating	W		70	70	70	100	100	120	120	135	200	210	225
Operating current heating	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	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan
Air volume	Hi	m ³ /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	Lo / Med / Hi	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	Lo / Med / Hi	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	mm	290x800x700	290x800x700	290x800x700	290x800x700	290x800x700	290x1.000x700	290x1.000x700	290x1.000x700	290x1.400x700	290x1.400x700	290x1.400x700
Pipe connections	Liquid	inch (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)	3/8 (9,52)
	Gas	inch (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		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.

1) Available from May 2014.

Optional



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 200mm 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: 200mm 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

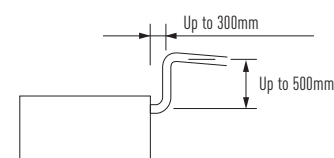
S-...MM1E5A	Diameters	Air Outlet Plenum	Diameters	Air Inlet Plenum
22, 28 & 36	2 x Ø 200	CZ-DUMPA22MMS2	2 x Ø 200	CZ-DUMPA22MMR2
45 & 56	3 x Ø 160	CZ-DUMPA45MMS3	2 x Ø 200	CZ-DUMPA22MMR3

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 785mm from the lower surface of the body.



Optional Controller
Wired remote controller
CZ-RTC3



Optional Controller
Wired remote controller
CZ-RTC2



Optional Controller
Wireless remote controller
CZ-RWSC2



Optional Controller
Simplified remote controller
CZ-RE2C2

Model ¹	S-15MM1E5A		S-22MM1E5A	S-28MM1E5A	S-36MM1E5A	S-45MM1E5A	S-56MM1E5A
Power source	230 V / Single Phase / 50 Hz						
Cooling capacity	kW		2,2	2,8	3,6	4,5	5,6
Power input cooling	W						
Operating current cooling	A						
Heating capacity	kW						
Power input heating	W						
Operating current heating	A						
Fan type							
Air volume	Hi / Med / Lo	m ³ /h					
External static pressure		Pa					
Sound pressure level	Lo / Med / Hi (2)	dB(A)					
Dimensions	H x W x D	mm					
Pipe connections	Liquid	inch (mm)					
	Gas	inch (mm)					
	Drain piping						
Net weight	kg						

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.

1) Available from November 2014. 2) With booster cable using short circuit connection.

Optional

Internet Control Ready	Energy saving	Environmentally friendly refrigerant	Easy maintenance	For more comfort	Perfect humidity control	Practical operation	Comfort everywhere	Easy to install	Easy control by BMS
INTERNET CONTROL	INVERTER+	R410A	SELF-DIAGNOSING	AUTOMATIC FAN	MILD DRY	AUTOMATIC RESTART	AIR SWEEP	BUILT-IN DRAIN PUMP	CONNECTIVITY

E1 TYPE

HIGH STATIC PRESSURE

HIDE AWAY



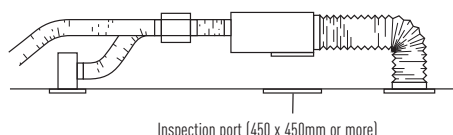
The E1 range of ducted units offers improved design flexibility for extended duct layouts as a result of their increased external static pressures.

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



Plenums

Air Outlet Plenum (suitable for rigid + flexible duct)		
	N. of exits with diameters	Model
S-224ME1E5A / S-280ME1E5	1 x 500mm	CZ-TREMIESPW706



Optional Controller
Wired remote controller
CZ-RTC3



Optional Controller
Wired remote controller
CZ-RTC2



Optional Controller
Wireless remote controller
CZ-RWSC2



Optional Controller
Simplified remote controller
CZ-RE2C2

Model		S-224ME1E5A	S-280ME1E5
Power source		230 V / Single Phase / 50 Hz	230 V / Single Phase / 50 Hz
Cooling capacity	kW	22,4	28,0
Power input cooling	W	1.310	1.330
Operating current cooling	A	5,98	6,06
Heating capacity	kW	25,0	31,5
Power input heating	W	1.310	1.330
Operating current heating	A	5,98	6,06
Fan type		Sirocco fan	Sirocco fan
Air volume	Hi / Med / Lo	m³/h	4.320 / 4.200 / 3.960
External static pressure		Pa	216 (235) ¹⁾
Sound pressure level	Lo / Med / Hi	dB(A)	49 / 50 / 51 (50 / 51 / 52) ¹⁾
Dimensions	H x W x D	mm	479 x 1.428 x 1.230
Pipe connections	Liquid	inch (mm)	3/8 (9,52)
	Gas	inch (mm)	7/8 (22,22)
	Drain piping		VP-25
Net weight	kg	120	120

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.

1) With booster cable.

Optional

Internet Control Ready	Energy saving	Environmentally friendly refrigerant	Easy maintenance	For more comfort	Perfect humidity control	Practical operation	Easy control by BMS
INTERNET CONTROL	INVERTER+	R410A	SELF-DIAGNOSING	AUTOMATIC FAN	MILD DRY	AUTOMATIC RESTART	CONNECTIVITY

HEAT RECOVERY WITH DX COIL



Optional Controller
Wired remote controller
CZ-RTC3



Optional Controller
Wired remote controller
CZ-RTC2

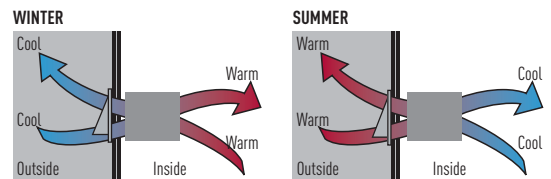
Technical focus

- Motorised heat recovery by-pass device automatically controlled by unit control to use fresh air free-cooling when convenient
- The Bioxygen® purifying system, activates when the fan runs, provides an efficient antibacterial treatment, ensuring optimum health of supplied air

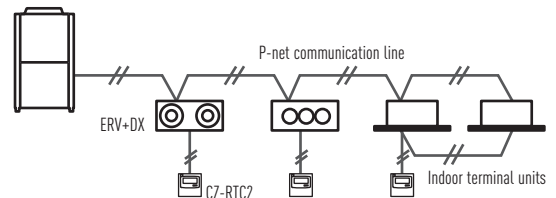
General characteristics

- Galvanized steel self-supporting panels, internally and externally insulated
- Counterflow air-to-air heat recovery device, made of sheets of special paper with special sealing to keep airflows separate and only permeable to water vapor. Total heat exchange with temperature efficiency up to 77% and enthalpy efficiency up to 63%, also at high level during summer season
- G4 efficiency class filters with synthetic cleanable media, both on fresh air and return air intake
- Removable side panel to access filters and heat recovery in the event of scheduled maintenance
- Low consumption, high efficiency & low noise direct driven fans with 3-speed EC motors
- Supply section complete with DX coil (R410A) fitted with solenoid control valve, freon filter, contact temperature sensors on liquid and gas line, NTC sensors upstream and downstream airflow
- Built-in electric box equipped with PCB to control internal fan speed and to interconnect outdoor/indoor units
- Duct connection by circular plastic collars
- CZ-RTC2 remote control panel (option)

Balanced Ventilation

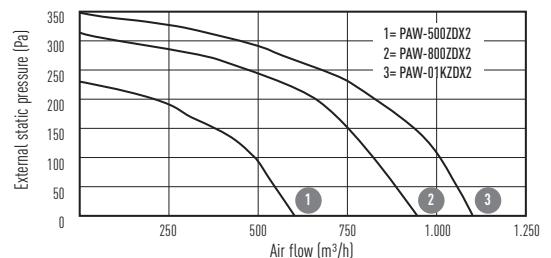


Interconnection to outdoor/indoor units



Characteristic curves

The following curves show the unit external static pressure at maximum fan speed for each model.



Model ¹			PAW-500ZDX2		PAW-800ZDX2		PAW-01KZDX2	
Power source			230 V / Single Phase / 50 Hz		230 V / Single Phase / 50 Hz		230 V / Single Phase / 50 Hz	
Air volume	Hi / Med / Lo	m³/h	500 / 500 / 360		800 / 800 / 625		1.000 / 780 / 650	
External static pressure ²	Hi / Med / Lo	Pa	85 / 45 / 21		117 / 68 / 18		104 / 69 / 17	
Maximum current		A	1,1		2,3		2,5	
Maximum power input		W	135		300		310	
Sound pressure level ³	Hi / Med / Lo	dB(A)	33 / 31 / 27		38 / 36 / 32		39 / 37 / 33	
Pipe connections	Liquid / Gas	inch (mm)	1/4 (6,35) / 1/2 (12,7)		1/4 (6,35) / 1/2 (12,7)		1/4 (6,35) / 1/2 (12,7)	
HEAT RECOVERY								
Temperature efficiency summer mode		%	62,5		59		59,5	
Enthalpy efficiency summer mode		%	60		57		57,5	
Saved power summer mode		kW	1,7		2,5		3,2	
Temperature efficiency winter mode		%	76,5 (76,5)		73 (73)		73,5 (73,5)	
Enthalpy efficiency winter mode		%	62,3 (64,1)		59 (60,8)		59,5 (61,2)	
Saved power winter mode		kW	4,3 (4,8)		6,5 (7,3)		8,2 (9,0)	
DX COIL								
Total cooling capacity		kW	3,7		4,9		5,6	
Sensible cooling capacity		kW	2,3		3,3		3,8	
Off temperature	Cooling	°C	14,4		16,2		17,0	
Off relative humidity	Cooling	%	87		83		82	
Total heating capacity		kW	3,9 (4,1)		5,4 (5,7)		6,3 (6,7)	
Off temperature	Heating	°C	35,4 (34,6)		32,6 (31,7)		31,3 (30,3)	
Off relative humidity	Heating	%	11 (11)		12 (13)		13 (14)	

Nominal summer conditions: Outside air: 32°C DB, RH 50%. Ambient air: 26°C DB, RH 50%. Nominal winter conditions: Outside air: -5°C (-10°C) DB, RH 80%. Ambient air: 20°C DB, RH 50%. Cooling mode air inlet condition: 28.5°C DB, RH 50%; evaporating temp. 4°C. Heating mode air inlet condition: 13°C DB, RH 40% (11°C DB, RH 45%); condensating temperature 49°C. DB: Dry Bulb; RH: Relative Humidity.

¹) Available in December 2014. ²) Referred to the nominal air flow after filter and plate heat exchanger. ³) Referred to 1.5 meters from inlet in free field condition.

Optional

Internet Control Ready	Energy saving	Environmentally friendly refrigerant	Easy maintenance	For more comfort	Perfect humidity control	Further comfort	Practical operation	Comfort everywhere	Easy control by BMS
INTERNET CONTROL	INVERTER+	R410A	SELF-DIAGNOSING	AUTOMATIC FAN	MILD DRY	AUTO-FLAP CONTROL	AUTOMATIC RESTART	AIR SWEEP	CONNECTIVITY

T2 TYPE
CEILING

S-36MT2E5A // S-45MT2E5A // S-56MT2E5A // S-73MT2E5A



S-106MT2E5A // S-140MT2E5A

The T2 TYPE ceiling mounted units 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.

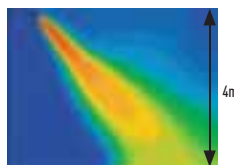
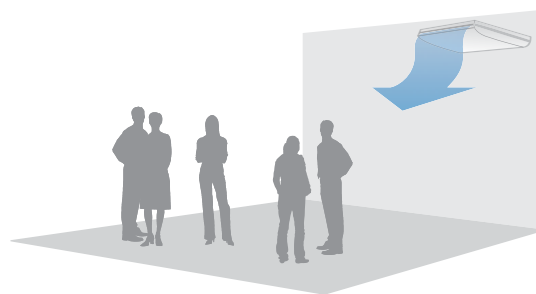
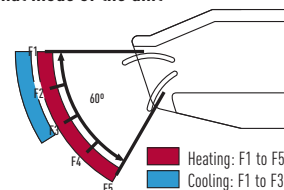
Technical focus

- Low sound levels
- New design, all units just 210mm 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
Wired remote controller
CZ-RTC3



Optional Controller
Wired remote controller
CZ-RTC2



Optional Controller
Wireless remote controller
CZ-RWST2
CZ-RWSC2



Optional Controller
Simplified remote controller
CZ-RE2C2

Model ¹⁾			S-36MT2E5A	S-45MT2E5A	S-56MT2E5A	S-73MT2E5A	S-106MT2E5A	S-140MT2E5A
Power source			230 V / Single Phase / 50 Hz					
Cooling capacity	kW	3,6	4,5	5,6	7,3	10,6	14,0	
Power input cooling	W	35	40	40	55	80	110	
Operating current cooling	A							
Heating capacity	kW	4,2	5,0	6,3	8,0	11,4	16,0	
Power input heating	W	35	40	40	55	80	110	
Operating current heating	A							
Fan type			Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan
Air volume	Hi / Med / Lo	m³/h						
Sound pressure level	L1² / Lo / Med / Hi	dB(A)	— / 30 / 32 / 36	— / 30 / 33 / 37	— / 30 / 33 / 37	— / 33 / 35 / 39	— / 36 / 37 / 42	— / 37 / 40 / 46
Dimensions	H x W x D	mm	235 x 960 x 690	235 x 960 x 690	235 x 960 x 690	235 x 1.275 x 690	235 x 1.590 x 690	235 x 1.590 x 690
Pipe connections	Liquid	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	3/8 (9,52)	3/8 (9,52)	3/8 (9,52)
	Gas	inch (mm)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	5/8 (15,88)	5/8 (15,88)	5/8 (15,88)
	Drain piping		VP-20	VP-20	VP-20	VP-20	VP-20	VP-20
Net weight	kg	27	27	27	33	40	40	

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.

1) Available from June 2014.

2) Sound pressure level with fan only.

Optional

Internet Control Ready	Energy saving	Environmentally friendly refrigerant	Easy maintenance	For more comfort	Perfect humidity control	Further comfort	Practical operation	Comfort everywhere	Easy control by BMS
INTERNET CONTROL	INVERTER+	R410A	SELF-DIAGNOSING	AUTOMATIC FAN	MILD DRY	AUTO-FLAP CONTROL	AUTOMATIC RESTART	AIR SWEEP	CONNECTIVITY

K2/K1 TYPE WALL MOUNTED



S-15MK2E5A // S-22MK2E5A // S-28MK2E5A // S-36MK2E5A



S-45MK1E5A // S-56MK1E5A // S-73MK1E5A // S-106MK1E5A



Optional Controller
Wired remote controller
CZ-RTC3



Optional Controller
Wired 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

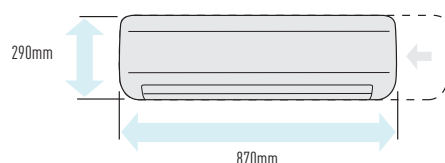
- Closed discharge port
- Lighter and smaller units make the installation easy
- Quiet operation
- Smooth and durable design
- Piping outlet in three directions
- Washable front panel
- Air distribution is automatically altered depending on the operational mode of the unit
- Anti-mould filters are standard

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.

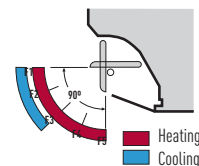
Piping outlet in three directions

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



External valve (Optional)

CZ-P56SVK2 (model sizes 22 to 56)
CZ-P160SVK2 (model sizes 73 to 106)



Model ¹		S-15MK2E5A	S-22MK2E5A	S-28MK2E5	S-36MK2E5	S-45MK1E5A	S-56MK1E5A	S-73MK1E5A	S-106MK1E5A
Power source						230 V / Single Phase / 50 Hz			
Cooling capacity	kW	1,5	2,2	2,8	3,6	4,5	5,6	7,3	10,6
Power input cooling	W	25	25	25	30	20	30	57	60
Operating current cooling	A	0,20	0,21	0,23	0,25	0,26	0,35	0,58	0,62
Heating capacity	kW	1,7	2,5	3,2	4,2	5,0	6,3	8,0	11,4
Power input heating	W	25	25	25	30	20	30	57	68
Operating current heating	A	0,20	0,21	0,23	0,25	0,26	0,35	0,58	0,70
Fan type		Cross flow	Cross flow	Cross flow	Cross flow	Cross flow	Cross flow	Cross flow	Cross flow
Air volume	Hi / Med / Lo	m ³ /h	474 / 444 / 390	540/450/390	570/498/390	654/540/390	720 / 630 / 510	840 / 720 / 630	1.080 / 870 / 690
		m ³ /h	540 / 462 / 408	552/498/408	582/510/408	672/570/408			
Sound pressure level	L ₁ ² / L ₀ / Med / Hi	dB(A)	— / 29 / 32 / 34	— / 29 / 33 / 36	— / 29 / 34 / 37	— / 29 / 36 / 40	— / 30 / 34 / 38	— / 32 / 36 / 40	— / 40 / 44 / 47
Dimensions	H x W x D	mm	290 x 870 x 214	290 x 870 x 214	290 x 870 x 214	290 x 870 x 214	300 x 1.065 x 230	300 x 1.065 x 230	300 x 1.065 x 230
Pipe connections	Liquid	inch (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)
	Gas	inch (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)
Drain piping (O.D.)		φ	φ 16	φ 16	φ 16	φ 16	φ 18	φ 18	φ 18
Net weight	kg	9	9	9	9	13	13	14,5	14,5

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.

1) Available from June 2014.

2) Sound pressure level with fan only.

Optional

Internet Control Ready INTERNET CONTROL	Energy saving INVERTER+	Environmentally friendly refrigerant R410A	Easy maintenance SELF-DIAGNOSING	For more comfort AUTOMATIC FAN	Perfect humidity control MILD DRY	Further comfort AUTO-FLAP CONTROL	Practical operation AUTOMATIC RESTART	Comfort everywhere AIR SWEEP	Easy control by BMS CONNECTIVITY
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P1 TYPE FLOOR STANDING



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.

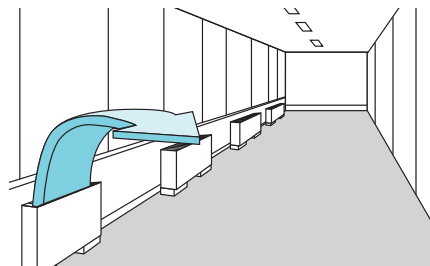
Technical focus

- 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

A standard wired remote control can be installed in the body



Effective perimeter handling



Optional Controller
Wired remote controller
CZ-RTC3



Optional Controller
Wired remote controller
CZ-RTC2



Optional Controller
Wireless remote controller
CZ-RWSC2

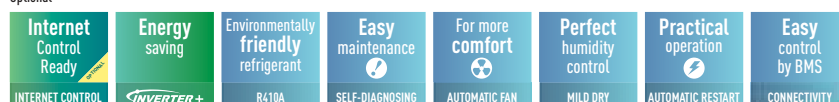


Optional Controller
Simplified remote controller
CZ-RE2C2

Model		S-22MP1E5	S-28MP1E5	S-36MP1E5	S-45MP1E5	S-56MP1E5	S-71MP1E5
Power source				230 V / Single Phase / 50 Hz			
Cooling capacity	kW	2,2	2,8	3,6	4,5	5,6	7,1
Power input cooling	W	56	56	85	126	126	160
Operating current cooling	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
Power input heating	W	40	40	70	91	91	120
Operating current heating	A	0,18	0,18	0,31	0,41	0,41	0,54
Fan type		Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan
Air volume	Hi / Med / Lo	m ³ /h	420 / 360 / 300	420 / 360 / 300	540 / 420 / 360	720 / 540 / 480	900 / 780 / 660
Sound pressure level	Lo / Med / Hi	dB(A)	28 / 30 / 33	28 / 30 / 33	29 / 35 / 39	31 / 35 / 38	31 / 36 / 39
Dimensions	H x W x D	mm	615 x 1.065 x 230	615 x 1.065 x 230	615 x 1.065 x 230	615 x 1.380 x 230	615 x 1.380 x 230
Net weight		kg	29	29	39	39	39
Pipe connections	Liquid	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	3/8 (9,52)
	Gas	inch (mm)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	5/8 (15,88)
Drain piping			VP-20	VP-20	VP-20	VP-20	VP-20

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.

Optional



R1 TYPE CONCEALED FLOOR STANDING

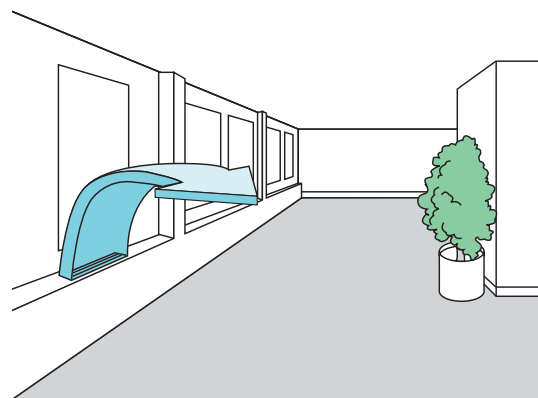


At just 229mm deep, the R1 unit can be easily concealed in perimeter areas to provide powerful and effective air conditioning.

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
Wired remote controller
CZ-RTC3



Optional Controller
Wired remote controller
CZ-RTC2



Optional Controller
Wireless remote controller
CZ-RWSC2



Optional Controller
Simplified remote controller
CZ-RE2C2

Model		S-22MR1E5	S-28MR1E5	S-36MR1E5	S-45MR1E5	S-56MR1E5	S-71MR1E5
Power source		230 V / Single Phase / 50 Hz					
Cooling capacity	kW	2,2	2,8	3,6	4,5	5,6	7,1
Power input cooling	W	56	56	85	126	126	160
Operating current cooling	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
Power input heating	W	40	40	70	91	91	120
Operating current heating	A	0,18	0,18	0,31	0,41	0,41	0,54
Fan type		Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan
Air volume	Hi / Med / Lo	m ³ /h	420 / 360 / 300	420 / 360 / 300	540 / 420 / 360	720 / 540 / 480	900 / 780 / 660
Sound pressure level	Lo / Med / Hi	dB(A)	28 / 30 / 33	28 / 30 / 33	29 / 35 / 39	31 / 35 / 38	31 / 36 / 39
Dimensions	H x W x D	mm	616 x 904 x 229	616 x 904 x 229	616 x 904 x 229	616 x 1.219 x 229	616 x 1.219 x 229
Net weight		kg	21	21	28	28	28
Pipe connections	Liquid	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	3/8 (9,52)
	Gas	inch (mm)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	5/8 (15,88)
	Drain piping		VP-20	VP-20	VP-20	VP-20	VP-20

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.

Optional

Internet Control Ready	Energy saving	Environmentally friendly refrigerant	Easy maintenance	For more comfort	Perfect humidity control	Practical operation	Easy control by BMS
INTERNET CONTROL	INVERTER+	R410A	SELF-DIAGNOSING	AUTOMATIC FAN	MILD DRY	AUTOMATIC RESTART	CONNECTIVITY



Panasonic Ventilation Solutions

For maximum savings and easy integration.

Air Handling Unit Kit

Connects easily to your ECOi and ECO G 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.

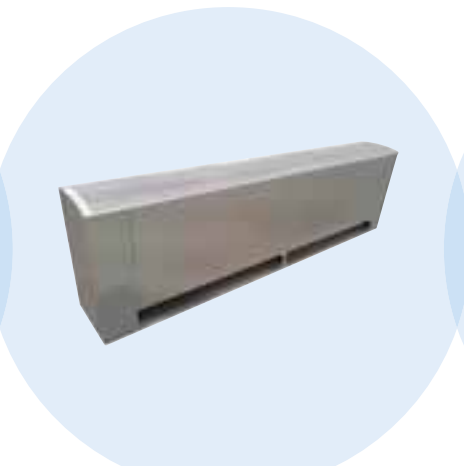
Air Handling Unit Kit

New AHU Kits connect ECOi and GHP systems to air handling unit systems, using the same refrigerant circuit as the VRF system.



Air Curtain with DX Coil

High efficiency Air curtain connected to your VRF installation. EC Fan motor for a smooth operation and efficient performance.



Energy Recovery Ventilator

Suppresses indoor temperature changes while providing fresh air.



AHU connection kit 16 kW, 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 (field supplied) AHU Kit system. (Contents of kit: Control for 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 just one solution.

Air Curtain with DX Coil

Highly efficient heating effect

The combined air stream, which has a desirable low air current induction factor (mixing factor), can carry the selected initial temperature effect over long distances, and will reach the floor area while still at room temperature. This is necessary to avoid cooling down the interior spaces.

Energy Recovery Ventilator

- 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)



Air Handling Unit Kit

New AHU Kits connect ECOi and ECO G 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



Expansion
valve



Thermistor x2
(Refrigerant: E1, E3)



Thermistor x2
(Air: Tf, Tb)

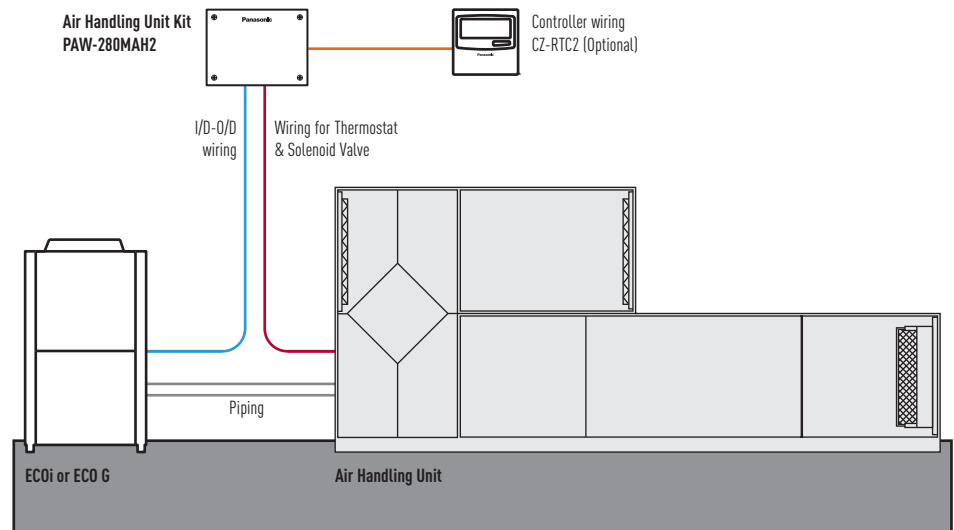
Remote controller



Standard wired remote controller (optional).
Can be installed inside the box.

Panasonic AHU Kit, 16-56 kW connected to ECOi or ECO G outdoor unit

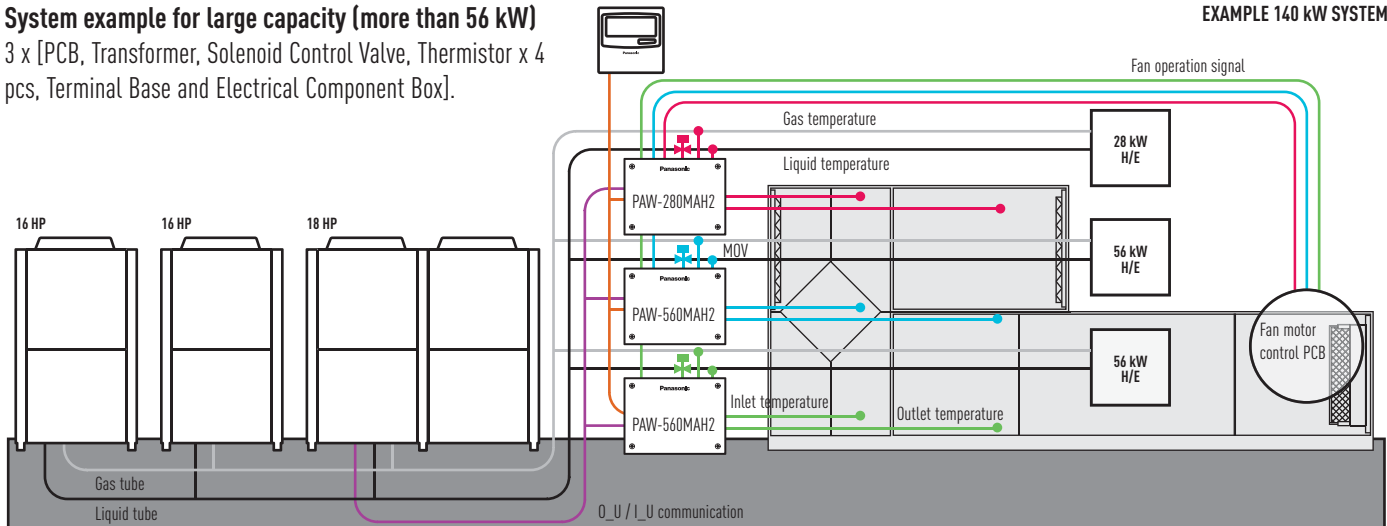
PCB, Transformer, Solenoid Control Valve, Thermistor x 4 pcs, Terminal Base and Electrical Component Box.



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

PAW-T10

- Input signal operation ON/OFF
- Remote control prohibition
- Output signal Operation ON status maximum 230 V 5 A (NO/NC)
- Output signal Alarm status maximum 230 V 5 A (NO/NC)
- Additional available contacts:
 - External Humidifier control (ON/OFF) 230 VAC 3 A
 - External Fan control (ON/Off) 12V DC
 - External filter status signal potential free
 - External Drain pump (ON/OFF) 230 VAC 3 A
 - External float switch signal potential free
 - External Leakage detection sensor or Th. Off contact potential free (possible usage for external blow out temperature control)

CZ-CAPBC2 Mini seri-para I/O unit

- Demand control 40% to 120% (5% steps) by 0-10V input signal
- 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
- Thermostat ON/OFF control

AHU CONNECTION KIT

16, 28 AND 56 KW FOR ECOi AND GHP

6N series 2-Pipe ECOi outdoor unit shall be used for AHU connection KIT.

3 models for VRF system: 5 HP (PAW-160MAH2), 10 HP (PAW-280MAH2) and 20 HP (PAW-560MAH2).

With GHP outdoor units:

- One AHU kit may be used for one GHP unit (2 way, 56 kW). Multiple AHU kits cannot be used
- Mixed with standard indoor units is not allowed
- Power specifications are Single Phase 220 V to 240 V

HP			5 HP	10 HP	20 HP	30 HP	40 HP	50 HP	60 HP
Model			PAW-160MAH2	PAW-280MAH2	PAW-560MAH2	PAW-280MAH2 + PAW-560MAH2	PAW-560MAH2 + PAW-560MAH2	PAW-560MAH2 + PAW-560MAH2 + PAW-280MAH2	PAW-560MAH2 + PAW-560MAH2 + PAW-560MAH2
Nominal cooling capacity @ 50Hz			kW	14,0	28,0	56,0	84,0	112,0	140,0
Nominal heating @ 50Hz			kW	16,0	31,5	63,0	95,0	127,0	155,0
Cooling airflow	High	m³/min	2.160	5.000	10.000	15.000	20.000	25.000	30.000
	Low	m³/min	1.140	3.500	7.000	10.500	14.000	17.500	21.000
Bypass factor			0,9 (recommended)		0,9 (recommended)	0,9 (recommended)	0,9 (recommended)	0,9 (recommended)	0,9 (recommended)
Dimensions of the box	H x W x D	mm	303 x 232 x 110		404 x 425 x 78	404 x 425 x 78	404 x 425 x 78	404 x 425 x 78	404 x 425 x 78
Weight			kg	3,2	6,3	6,3	6,3	6,3	6,3
Piping length	Min / Max	m	10 / 100		10 / 100	10 / 100	10 / 100	10 / 100	10 / 100
Elevation difference (in/out)	Max	m	10		10	10	10	10	10
Piping connections	Liquid pipe	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)
	Gas pipe	Inch (mm)	5/8 (15,88)		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	Cooling (Min / Max)	°C	18-32°C DB (13-23°C WB)		18 - 32°C DB (13 - 23°C WB)	18 - 32°C DB (13 - 23°C WB)	18 - 32°C DB (13 - 23°C WB)	18 - 32°C DB (13 - 23°C WB)	18 - 32°C DB (13 - 23°C WB)
	Heating (Min / Max)	°C	16-30°C DB		16 - 30°C TK	16 - 30°C TK	16 - 30°C TK	16 - 30°C TK	16 - 30°C TK
Ambient temperature of outdoor unit	Cooling (Min / Max)	°C	-10 - 34°C DB		-10 - 34°C DB	-10 - 34°C DB	-10 - 34°C DB	-10 - 34°C DB	-10 - 34°C DB
	Heating (Min / Max)	°C	-10 - 15°C WB		-10 - 15°C WB	-10 - 15°C WB	-10 - 15°C WB	-10 - 15°C WB	-10 - 15°C WB

AHU connection kit / System combination						
Capacity (HP)	Outdoor unit combination			AHU kit combination		
28 kW (10 HP)	U-10ME1E81			PAW-280MAH2		
56 kW (20 HP)	U-20ME1E81			PAW-560MAH2		
84 kW (30 HP)	U-16ME1E81	U-14ME1E81		PAW-560MAH2	PAW-280MAH2	
112 kW (40 HP)	U-20ME1E81	U-20ME1E81		PAW-560MAH2	PAW-560MAH2	
140 kW (50 HP)	U-18ME1E81	U-16ME1E81	U-16ME1E81	PAW-560MAH2	PAW-560MAH2	PAW-280MAH2
168 kW (60 HP)	U-20ME1E81	U-20ME1E81	U-20ME1E81	PAW-560MAH2	PAW-560MAH2	PAW-560MAH2
56 kW (20 HP)	U-20GE2E5			PAW-560MAH2		

NEW



Optional
Standard wired remote
controller CZ-RTC2

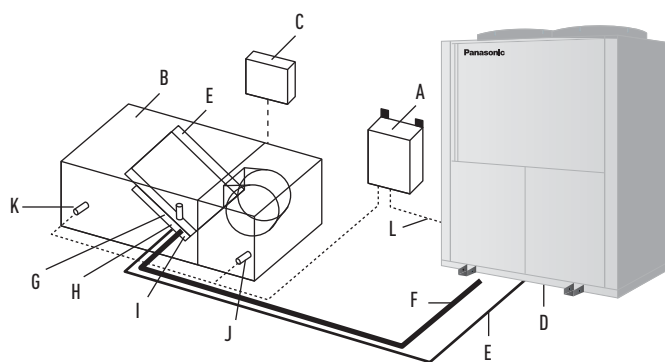
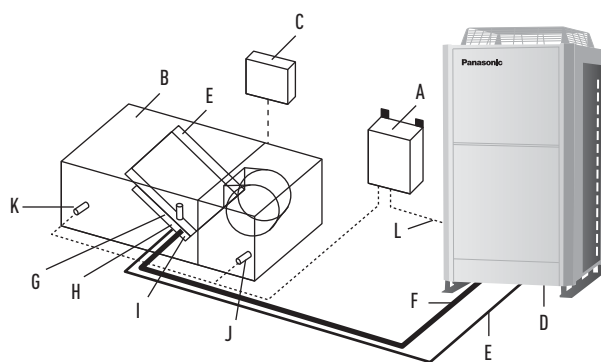
PAW-160MAH2 // PAW-280MAH2 // PAW-560MAH2

Technical focus

- Maximum capacity: 60HP (168 kW)
- Maximum piping length: 100 m (120 m equivalent)
- Elevation difference (O_U~I_U): 50 m (O_U above)
- Elevation difference (I_U~I_U): 4 m
- In/Out capacity ratio: 50~100%
- Maximum I_U number: 3 units*
- Outdoor temperature range in Heating: -20 - 15°C
- Available temperature range for the suction air at AHU Kit:
Cool: 18 - 32°C / Heat: 16 - 30°C

* To be simultaneous operation controlled by one remote controller sensor.

- The systems is controlled by the suction air (or room return air) temperature (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)
- 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)
- Demand control 40% to 120% (5% steps) by 0-10V input signal
- Connectable with P-LINK system. Special care for electrical noise may be necessary depending on the on-side system
- 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
- E: Gas piping (Field supplied)
- F: Liquid piping (Field supplied)
- G: Electronic expansion valve
- H: Thermistor for Gas pipe
- I: Thermistor for Liquid pipe
- J: Thermistor for Suction air
- K: Thermistor for Discharge air
- L: Inter-unit wiring

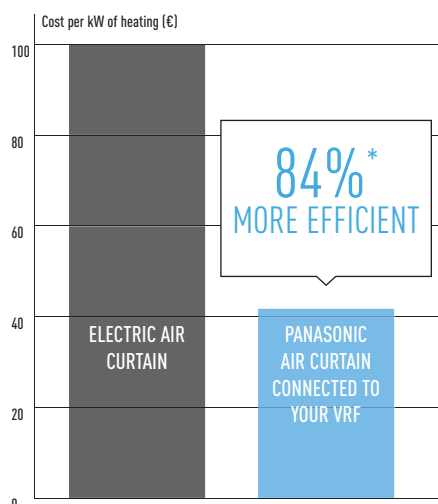


Air Curtain with DX Coil, connected to the VRF or PACi Systems

The Panasonic range of air curtains is designed for smooth operation and efficient performance. Air curtains produce a continuous stream of air blown from the top to the bottom of an open doorway and create a barrier that people and products can flow across, but air can't. Designed to improve energy efficiency, minimise heat loss from a building, and to allow retailers to keep doors open to encourage customers, our Air Curtains are suitable for connection to both VRF and PACi Systems.

- Super-efficient with new EC fan motor (40% lower running costs compared to a standard AC fan motor)
- Easy Cleaning and Servicing
- Can be connected to either Panasonic VRF or PACi systems
- Built-in drain for cooling operation
- Standard and Jet Flow air curtains can be controlled via Panasonic's range of remote internet controls

The new standard and jet-flow models are ideal for connection to a ECOi or PACi system. With simple 'plug and play' installation, both are fitted with an EC fan motor for a smooth operation and efficient performance. This new fan guarantees 40% lower running cost than with a standard AC fan motor. With air curtains often running for 12 hours a day as a minimum, this can lead to considerable savings.

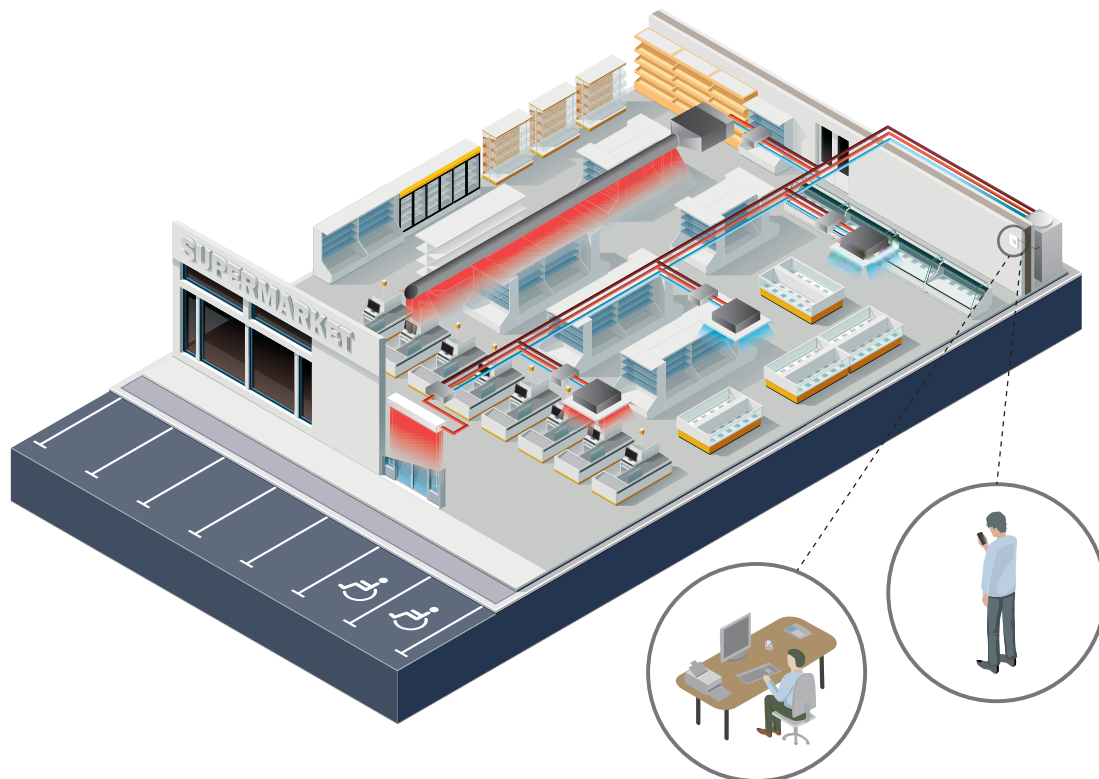


Highly efficient heating effect

The combined air stream, which has a desirable low air current induction factor (mixing factor), can carry the selected initial temperature effect over long distances, and will reach the floor area while still at room temperature. This is necessary to avoid cooling down the interior spaces.

Available in different lengths to suit requirements between 1 and 2,5m, both air curtains have outlet grilles that can be adjusted to five different positions. The jet flow model can be installed up to a height of 3,5m with the standard model up to 3,0m. The outlet grilles can be easily adjusted into five positions to suit different installations requirements and the air filter can be accessed without the need for specialist tools.

* With the U-100PE1E5 on the PAW-20PAIRC-MS.

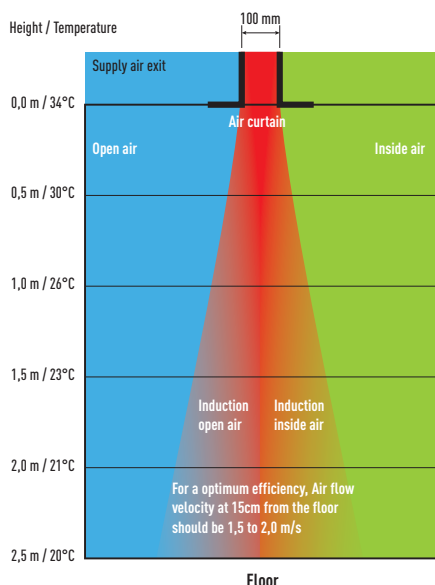


Intelligent Operation

Our air curtains combine air flow and heating / cooling technology to ensure optimum comfort and energy efficiency whilst also creating an effective barrier between indoor and outdoor environments. Design and installation is key to achieving the correct height / temperature settings to achieve optimum performance. Our air curtains are designed to answer the demands of the retail, commercial and industrial markets.

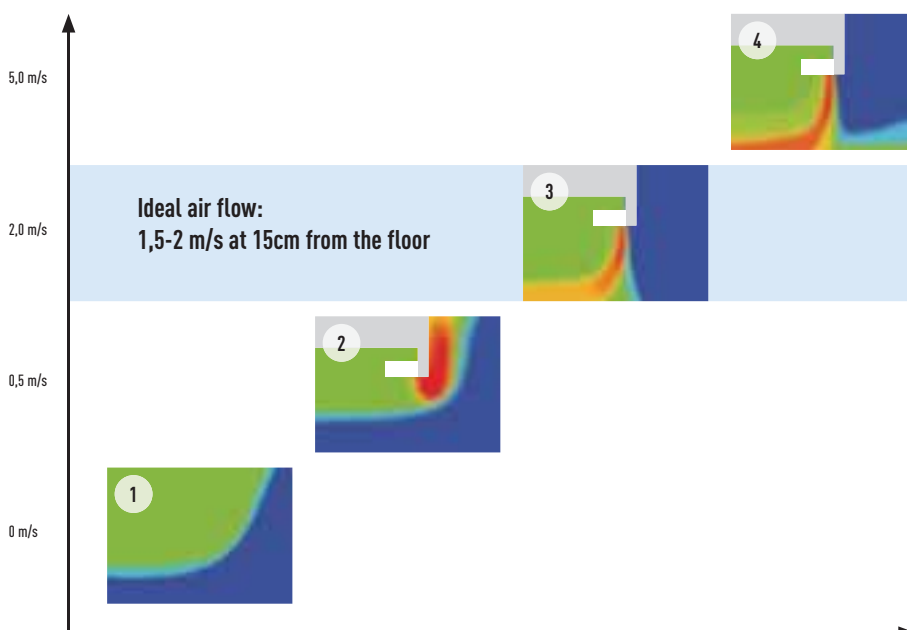
Internet Control

An app added to your tablet or smartphone or via the Internet allows you to control and manage the system remotely. There is also the option to integrate into existing BMS systems by using other Panasonic interfaces.



Optimised air flow velocity

1. Energy losses, no air curtain installed
2. Too low velocity air curtain – Air Curtain not efficient
3. Optimum results with the Tekadoor Air Curtain connected to Panasonic VRF
4. Too high velocity air curtain – considerable turbulence, energy lost to the outside, Air Curtain not efficient



How does it work?

Stale air from the room is taken in and ejected near the door. This creates a 'roll of air' that shields the door area, mixing with the colder incoming air. It then turns away from the door, back into the room and toward the intake screen, where it is partly drawn in again. This flow of air helps to create a barrier for heat loss yet at the same time refreshes room air.

AIR CURTAIN WITH DX COIL

High efficiency Air curtain connected to your VRF installation. EC Fan motor for a smooth operation and efficient performance.

2 types of Air flow available: Jet-Flow and Standard.

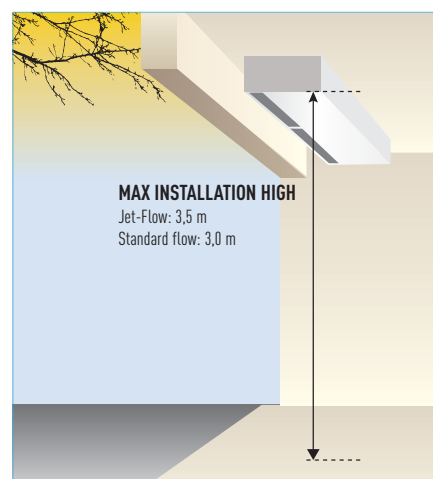
2015 Fan Standard available today.

Easy Cleaning and Servicing.



Easy
control
by BMS

CONNECTIVITY



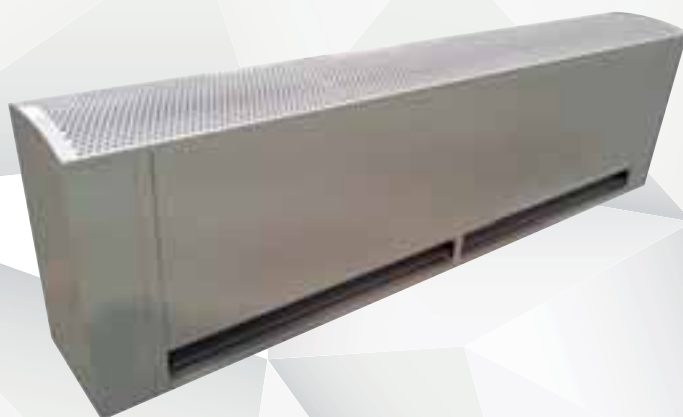
HP			4 HP	8 HP	10 HP	14 HP	4 HP	10 HP	
Air Curtain			PAW-10EAIRC-MJ	PAW-15EAIRC-MJ	PAW-20EAIRC-MJ	PAW-25EAIRC-MJ	PAW-10EAIRC-MS	PAW-20EAIRC-MS	
Air flow type			Jet-flow				Standard		
Air Flow Length (A)			m	1,0	1,5	2,0	2,5	1,0	2,0
Air volume	High	m²/h	1.800	2.700	3.600	4.500	1.800	2.700	
	Medium	m²/h	1.500	2.300	3.000	3.800	1.500	2.300	
	Low	m²/h	1.200	1.900	2.500	3.100	1.200	1.900	
Cooling capacity nominal²			kW	9,2	23,1	24,4	9,2	17,5	
Heating capacity nominal			kW	11,4	25,0	31,5	11,4	31,5	
Heating capacity with air in 20°C, air out 40°C			kW	11,9	17,9	23,9	29,9	11,9	17,9
Heating capacity with air in 20°C, air out 35°C			kW	8,9	13,4	17,9	22,4	8,9	13,4
Heating capacity with air in 20°C, air out 30°C			kW	5,9	8,9	11,9	14,9	5,9	8,9
Max installation height	Good condition	m	3,5	3,5	3,5	3,5	3	3	
	Normal condition	m	3,1	3,1	3,1	3,1	2,7	2,7	
	Bad condition	m	2,7	2,7	2,7	2,7	2,4	2,4	
Refrigerant			R410A	R410A	R410A	R410A	R410A	R410A	
Hot gas temperature			°C	70	70	70	70	70	
Condensing temperature			°C	50	50	50	50	50	
Subcooling			K	5	5	5	5	5	
Pressure			bar	45	45	45	45	45	
Tubing suction			mm	16	18	22	22	16	22
Tubing pressure			mm	10	10	10	10	10	10
Fan			230V / 50Hz / 1 / N / PE	230V / 50Hz / 1 / N / PE	230V / 50Hz / 1 / N / PE	230V / 50Hz / 1 / N / PE	230V / 50Hz / 1 / N / PE	230V / 50Hz / 1 / N / PE	
Fan type			EC	EC	EC	EC	EC	EC	
Currency	High	A	2,1	2,8	4,2	4,9	2,1	4,2	
	Med	A	0,8	1,1	1,6	1,9	0,8	1,6	
	Low	A	0,3	0,4	0,6	0,7	0,3	0,6	
Electrical Consumption	High	kW	0,44	0,59	0,89	1,03	0,44	0,89	
	Med	kW	0,17	0,23	0,34	0,4	0,17	0,34	
	Low	kW	0,06	0,08	0,12	0,14	0,06	0,12	
Protecting Fuse			A	M16A	M16A	M16A	M16A	M16A	
Noise			dB(A)	40-55	40-56	40-57	40-58	40-55	40-57
Dimensions	W x H x D	mm	1.210 x 260 x 590	1.710 x 260 x 590	2.210 x 260 x 590	2.710 x 260 x 590	1.210 x 260 x 490	2.210 x 260 x 490	
Weight		kg	70	100	138	160	60	128	

Mini ECOi with air out 40°C	U-4LE1E5/8 ¹	U-6LE1E5/8 ¹	—	—	U-4LE1E5/8 ¹	U-6LE1E5/8 ¹
Mini ECOi with air out 35°C	U-4LE1E5/8 ¹	U-4LE1E5/8 ¹	U-6LE1E5/8 ¹	—	U-4LE1E5/8 ¹	U-4LE1E5/8 ¹
Mini ECOi with air out 30°C	U-4LE1E5/8 ¹	U-4LE1E5/8 ¹	U-4LE1E5/8 ¹	U-5LE1E5/8 ¹	U-4LE1E5/8 ¹	U-4LE1E5/8 ¹
ECOi with air out 40°C	All models	All models	All models	All models without 8HP	All models	All models
ECOi with air out 30°C or 35°C	All models	All models	All models	All models	All models	All models
GHP all temperatures	All models	All models	All models	All models	All models	All models

1) or bigger size.

All combinations under rated conditions: Heating Outdoor +7°C DB/+6°C WB Indoor +20°C DB. In case of lower outdoor temperatures a higher capacity outdoor unit model may be necessary.

2) Rated Conditions Cooling Outdoor +35°C DB Indoor +27°C DB/+19°C WB, Discharge temperature ³ 16°C.



JET-FLOW: PAW-10EAIRC-MJ // PAW-15EAIRC-MJ // PAW-20EAIRC-MJ // PAW-25EAIRC-MJ

STANDARD: PAW-10EAIRC-MS // PAW-20EAIRC-MS

Technical focus

- Save up to 40% Energy Costs by use of the integrated EC Fan Technology (Higher efficiency than conventional AC fan, softstart and longer motor duration)
- 3 Lengths of Air Curtains Jet-Flow, from 1.0 to 2.0 m and 2 lengths of Air Curtains Standard, 1.0 and 2.0 m
- Installation Height up to 3,5 m (Jet-Flow) and 3,0 m (Standard)
- Outlet Grilles can be adjusted in five positions, to suite different Indoor and installation requirements (Jet-Flow)
- 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)

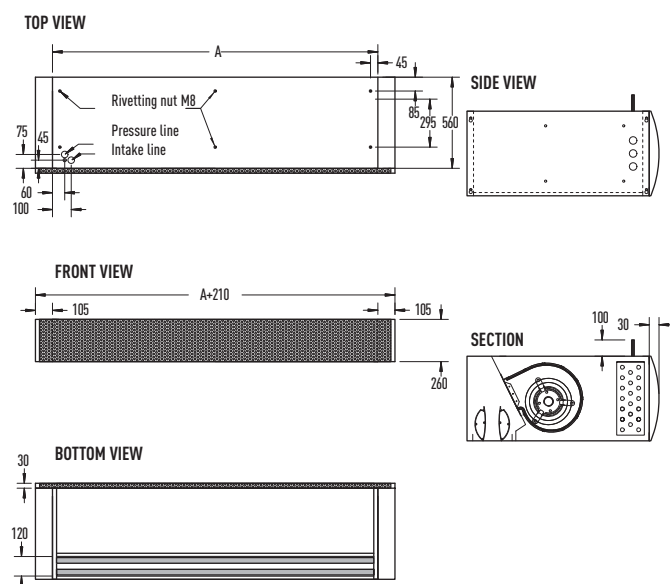
EASE OF USE

- Speed selector (high and low) on the unit itself

EASY INSTALLATION AND MAINTENANCE

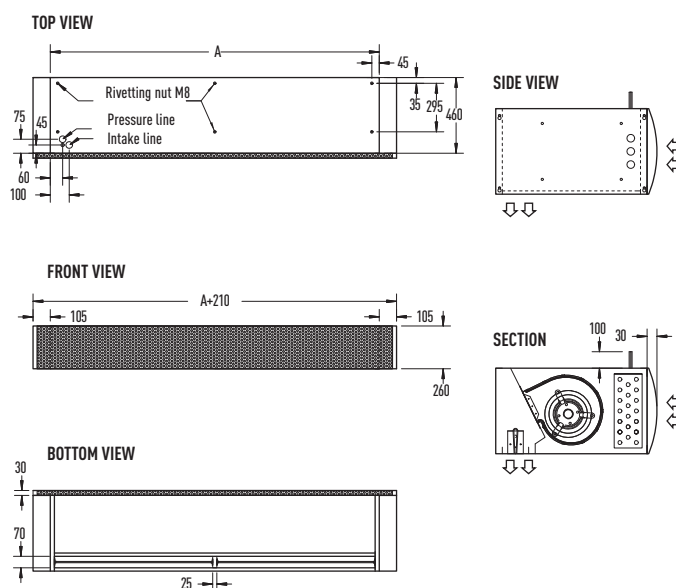
- Easy installation
- Compact dimensions improve installation and positioning (Jet-Flow)
- Easy cleaning of grid without opening of the unit

JET-FLOW DIMENSIONS



	PAW-10PAIRC-MJ	PAW-15PAIRC-MJ	PAW-20PAIRC-MJ	PAW-25EAIRC-MJ
A	1.000	1.500	2.000	2.500

STANDARD DIMENSIONS



	PAW-10PAIRC-MS	PAW-20PAIRC-MS
A	1.000	2.000



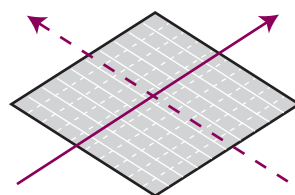
Energy Recovery Ventilator

Suppresses indoor temperature changes while providing fresh air

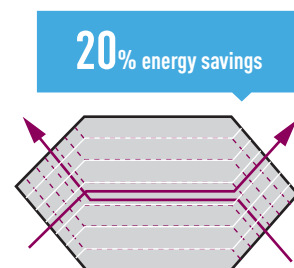
Energy efficiency and ecology

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.

HEAT EXCHANGER CHARACTERISTICS



Former (cross-flow element)



New (counter-flow element)

Heat exchange ventilation and normal ventilation

Heat exchange ventilation

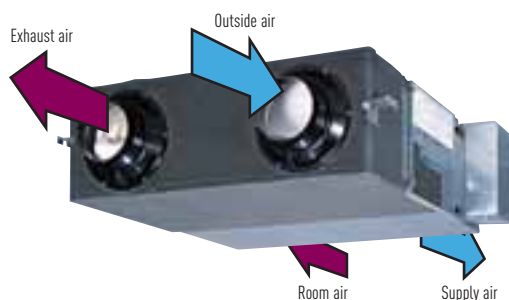
When a room is cooled or heated, the exhausted cooling / heating energy is recovered by heat-exchange ventilation.

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.

ADOPTS A HIGHLY EFFICIENT COUNTER-FLOW HEAT EXCHANGE 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.

More Comfort

Quiet operation

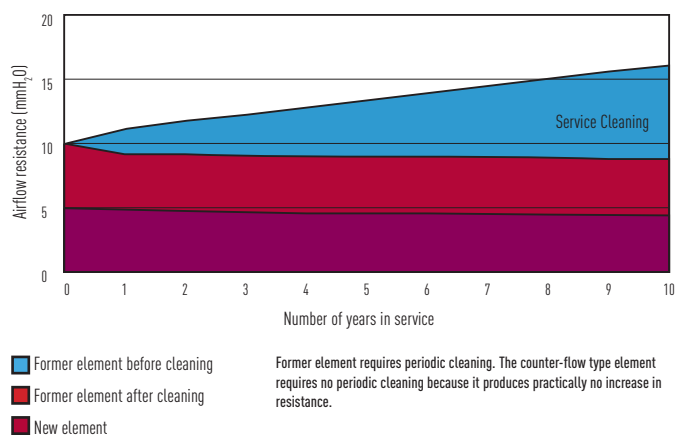
Low noise operation results in noticeably quieter units. All models with capacities below 500 m³/h run at noise levels below 32 dB (High setting) and even our largest 1,000 m³/h-capacity model runs at only 37.5 dB (High setting).

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.

CHANGES IN AIRFLOW RESISTANCE BASED ON NUMBER OF YEARS IN SERVICE



Easy Installation and Maintenance

Slim shape and easier installation

Counter-flow heat exchange element used for reduced noise and slimmer, more compact body shape.

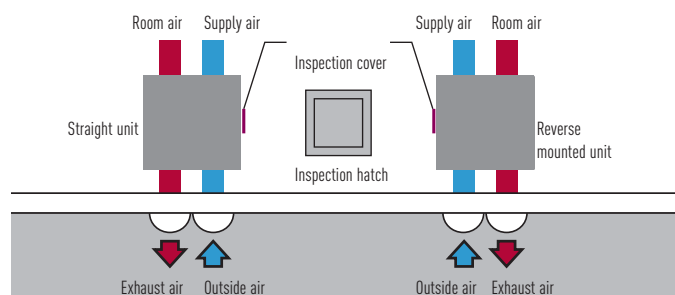
270mm Height: FY-250ZDY8 // FY-350ZDY8 // FY-500ZDY8

388mm Height: FY-650ZDY8 // FY-800ZDY8 // FY-01KZDY8A

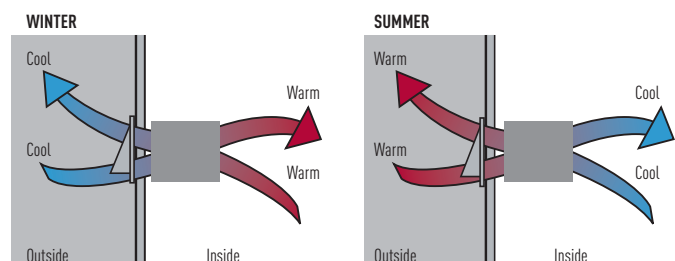
Reverse mountable direct air supply / exhaust system

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-650ZDY8



FY-800ZDY8

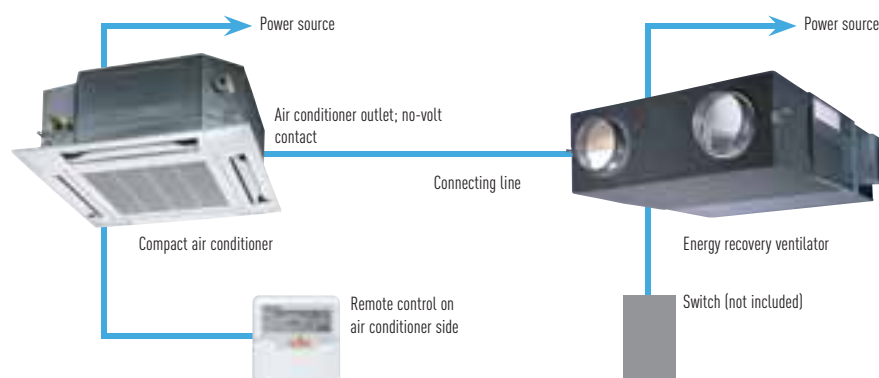


FY-01KZDY8A

Rated flow rate		250 m³/h			350 m³/h			500 m³/h			650 m³/h			800 m³/h			1000 m³/h		
Models		FY-250ZDY8			FY-350ZDY8			FY-500ZDY8			FY-650ZDY8			FY-800ZDY8			FY-01KZDY8A		
Power Source		220-240 V - 50 Hz			220-240 V - 50 Hz			220-240 V - 50 Hz			220-240 V - 50 Hz			220-240 V - 50 Hz			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
Input	W	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	250	250	190	350	350	240	500	500	440	650	650	460	800	800	630	1.000	1.000	700
External Static Pressure	Pa	105	95	45	140	60	45	120	60	35	65	40	40	140	110	55	105	80	75
Noise	dB	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	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
Input	W	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	250	250	190	350	350	240	500	500	440	650	650	460	800	800	630	1000	1000	700
External Static Pressure	Pa	105	95	45	140	60	45	120	60	35	65	40	40	140	110	55	105	80	75
Noise	dB	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	882 x 599 x 270			1.050 x 804 x 317			1.090 x 904 x 317			1.204 x 884 x 388			1.322 x 884 x 388			1.322 x 1134 x 388		
Weight	kg	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.



FY-250ZDY8 // FY-350ZDY8 // FY-500ZDY8 // FY-650ZDY8 // FY-800ZDY8 // FY-01KZDY8A

Technical focus

- 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

Features

HEALTHY AIR

- The filter guarantees healthier air

ENERGY EFFICIENCY AND ECOLOGY

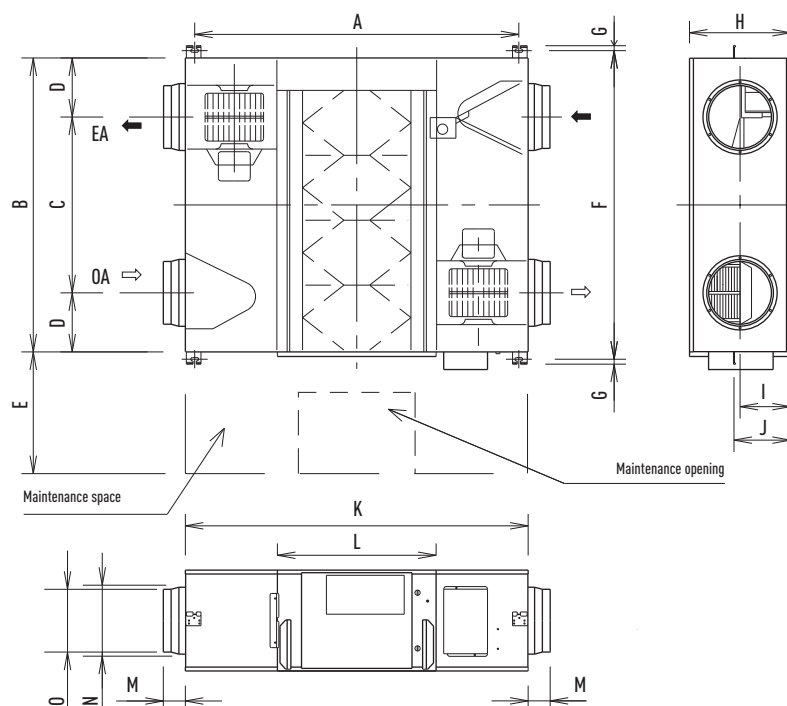
- Up to 20% energy saving in the installation
- Recovers up to 77% of the heat in the outgoing air

COMFORT

- Cleaning reduced due to the revolutionary structure of the exchanger (recommended every 6 months)
- Ideal for indoor spaces without windows







EASY INSTALLATION AND MAINTENANCE

- 6 models for easier selection
- Reduced system height (270mm and 388mm)
- 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-650ZDY8	FY-800ZDY8	FY-01KZDY8A
A	810	810	890	1,132	1,250	1,250
B	599	804	904	884	884	1,134
C	315	480	500	620	428	678
D	142	162	202	132	228	228
E	600	600	600	600	600	600
F	655	860	960	940	940	1,190
G	19	19	19	19	19	19
H	270	270	270	388	288	388
I	135	145	145	194	194	194
J	159	159	159	218	218	218
K	882	882	962	1,204	1,322	1,322
L	414	414	414	560	612	612
M	95	95	107	70	85	85
N	219	219	246	210	258	258
O	144	144	194	194	242	242








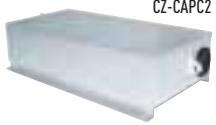





Operation System	Individual Control Systems				
Requirements	Normal operation	High spec wired remote controller	Operation from each seat	High spec wireless remote controller	Quick and easy operation
External appearance					 
Type, model name	Wired remote controller	Wired remote controller ECONAVI	Wireless remote controller	Wireless remote controller ECONAVI	Simplified remote controller
	CZ-RTC2	CZ-RTC3 NEW	CZ-RWSU2 // CZ-RWSY2 // CZ-RWSL2 // CZ-RWSC2 // CZ-RWST2 // CZ-RWSK2	CZ-RWST3 NEW	CZ-RE2C2
Econavi Control	—	✓	—	✓	—
Energy consumption	—	✓	—	—	—
Built-in Thermostat	✓	✓	✓	✓	✓
I/O which can be controlled	1 group, 8 units	1 group, 8 units	1 group, 8 units	1 group, 8 units	1 group, 8 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.	• Up to 2 controllers can be connected per group.	• Up to 2 controllers can be connected per group.
Function ON/OFF	✓	✓	✓	✓	✓
Mode setting	✓	✓	✓	✓	✓
Fan speed setting	✓	✓	✓	✓	✓
Temperature setting	✓	✓	✓	✓	✓
Air flow direction	✓	✓	✓ ¹	✓ ¹	✓ ¹
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 ECOi, ECO G and PACi

A wide variety of control options to meet the requirements of different applications.

	Timer Operation	Centralized Control Systems				
	Daily and weekly program	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
					P-AIMS. Basic Software 	Seri-Para I/O unit for outdoor unit CZ-CSWKC2 
	Schedule timer	System controller	ON/OFF Controller	Intelligent Controller (Touch screen panel)	CZ-CSWKC2	
	CZ-ESWC2	CZ-64ESMC2	CZ-ANC2	CZ-256ESMC2 (CZ-CFUNC2)	Optional software 	Local adaptor for ON/OFF control CZ-CAPC2 
	—	—	—	—		
	—	—	—	—		
	—	—	—	—		
	64 groups, maximum 64 units	64 groups, maximum 64 units	16 groups, maximum 64 units	64 units x 4 systems, max. 256 units	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)	MINI Seri-Para I/O Unit CZ-CAPBC2 
	<ul style="list-style-type: none"> Required power supply from the system controller When there is no system controller, connection is possible to the T10 terminal of an indoor unit. 	<ul style="list-style-type: none"> Up to 10 controllers, can be connected to one system. Main unit/sub unit (1 main unit + 1 sub unit) connection is possible. Use without remote controller is possible. 	<ul style="list-style-type: none"> Up to 8 controllers (4 main units + 4 sub units) can be connected to one system. Use without remote controller is impossible. 	<ul style="list-style-type: none"> A communication adaptor (CZ-CFUNC2) must be installed for three or more systems. 	Web Interface Systems CZ-CWIBC2 *PC required (field supply) 	Communication Adaptor CZ-CFUNC2 
	—	✓	✓	✓		
	—	✓	—	✓		
	—	✓	—	✓		
	—	✓	—	✓		
	—	✓ ¹	—	✓ ¹		
	—	✓	✓	✓		
	✓	—	—	✓		

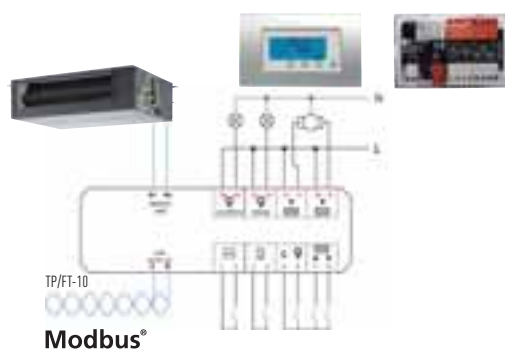


New control for hotel application:
Nice, easy and cost effective!

Panasonic has developed an innovative line up of remote controls specially designed for applications:

- Easy to install (standard dimensions for EU electrical boxes)
- Cost effective installation as all electrical cable are centralized on this remote
- Architect inspired attractive design
- Direct connection to the Indoor unit with most of the functions of the indoor unit
- 2 options are available: Independent or with Lonworks
- 2 frame colours: White and Grey

Model: e-Room Panasonic LonWorks TP/FT-10



Terminals	Description	Type
A, B	Lon TP/FT-10	Bi-directional
R1, R2	Indoor Unit	Bi-directional
1, 2	Card contact	Digital Input
3, 4	Window Contact	Digital Input
5	Common	Common
6	Lighting Room	Digital Input
7, 8	Blinds Up/Down	Digital Input
9, 10	Blinds Down	Relay Output
11, 12	Blinds Up	Relay Output
13, 14	Lighting Room	Relay Output
15, 16	Lighting Courtesy	Relay Output

PAW-RE2C3-WH	Remote control with dry contact with white frame
PAW-RE2C3-LON-WH	Remote control with dry contact with white frame and LonWorks connection
PAW-RE2C3-G3	Remote control with dry contact with grey frame
PAW-RE2C3-LON-G3	Remote control with dry contact with grey frame and LonWorks connection

Nº1

FOR HOTEL APPLICATIONS
ONE FOR ALL!



More easier to install, cheaper to integrate
one only control to integrate all devices

From this remote control

The lighting, card reader, motion detector, window contact and the air conditioning are controlled.

Easy remote control

The hotel customer will have access to limited functions to control the air conditioning:

- On/off
- Temperature (under a certain limit fixed during the start up)
- Fan speed
- Heating/cooling and auto mode

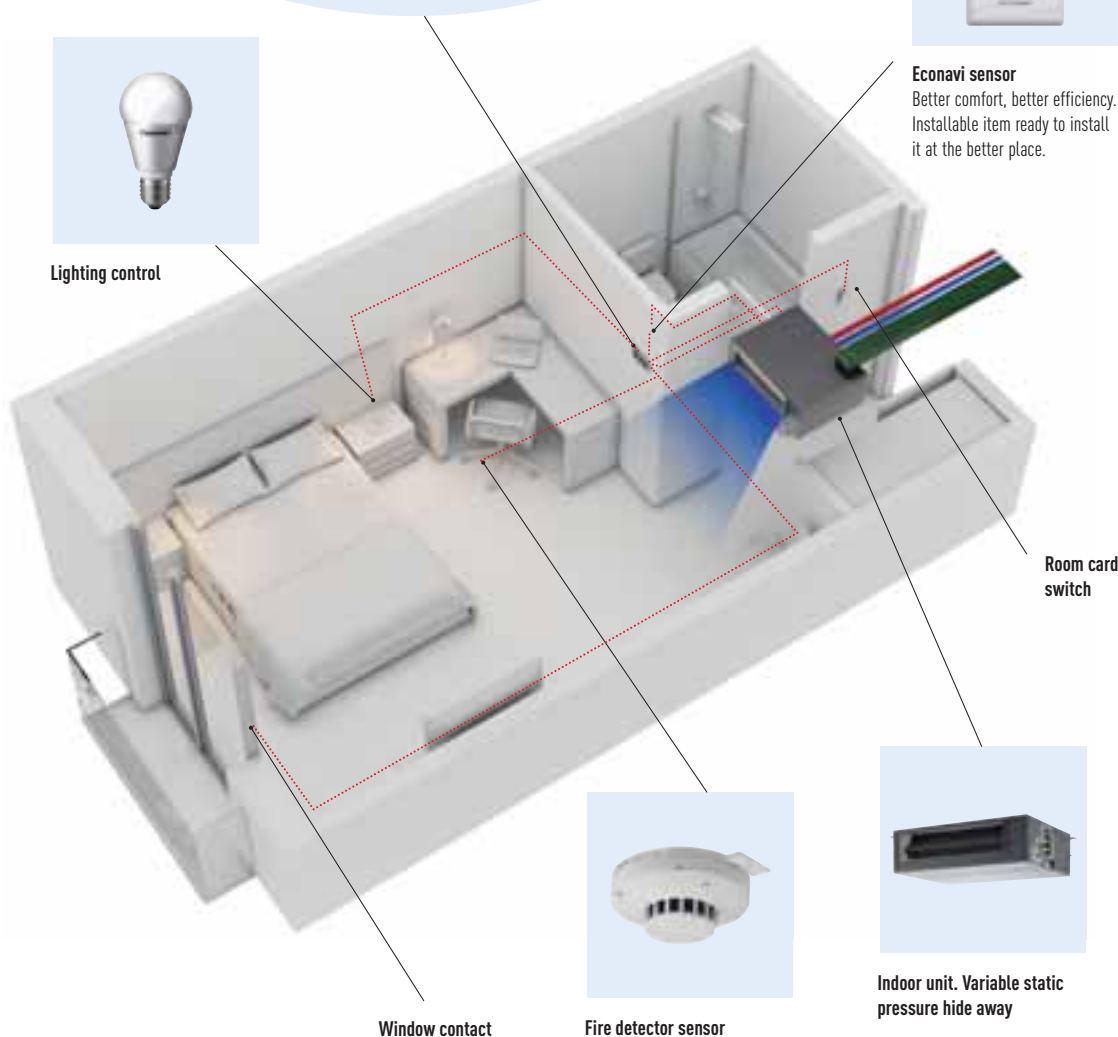
Easy set up

The installation is simplified as all the cables should arrive to the remote control.

A pre-define scenario can be uploaded on the remote control connected to a computer to make installation on site plug and play (only on the Lon works model).



Lighting control



Econavi sensor

Better comfort, better efficiency.
Installable item ready to install it at the better place.

Room card switch

Window contact

Fire detector sensor

Indoor unit. Variable static pressure hide away

Individual Control Systems

Wired Remote Controller (CZ-RTC3)

NEW



- Energy consumption
- Flat face design & Touch sensor switch for stylish design and operating usability
- New functions such as for Energy saving & monitoring and for Service use are available on the Full dot LCD (3.5" display)
- Improved illumination than current model
- White LED backlight
- Blink when alarm occurs

BASIC OPERATION

- Operation
- Mode
- Temperature setting
- Airflow volume
- Airflow direction

TIMER FUNCTION

- Outing function
- Weekly Program timer
- Easy ON/OFF timer
- Time display

ENERGY SAVING

- Outing function
- Temperature setting range limitation
- Temperature auto return
- OFF remind
- Schedule demand control
- Energy saving mode
- Energy monitoring

OTHERS

- Key lock
- Ventilation fan control
- Display contrast adjustment
- Remote controller sensor
- Quiet operation mode
- Prohibit setting control from Central controller

Wired remote controller (CZ-RTC2)



- Time Function 24 hours real time clock (week day indicator)
- Weekly programme function (a maximum of 6 actions can be programmed for each day)
- Sleeping function (this function controls the room temperature for comfortable sleeping)
- Maximum 8 indoor units can be controlled from one remote controller
- Remote control by main remote controller and sub controller is possible (maximum 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

- Outing function (this function can prevent the room temperature from dropping or rising when the occupants are out for a long time)

Basic remote controller ON/OFF

- Operation mode changeover (Cooling, Heating, Dry, Auto, Fan)
- Temperature setting (Cooling / Dry: 18-30°C Heating: 16-30°C)
- Fan speed setting High / Medium / Low and Auto
- Air flow direction adjustment

Dimensions (H x W x D): 120 x 120 x 16mm

Wireless remote controller



CZ-RWSU2
For 4 Way 90x90 Cassette.



CZ-RWSL2
For 2 Way Cassette.



CZ-RWSK2
For Wall Mounted and 4 Way 60x60 Cassette (with panel CZ-KPY3A).



CZ-RWST2
For 2 Way Cassette and Ceiling.



CZ-RWSC2
For all indoor units.

- 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 (1: when a separate receiver is set up in a different room, control from that room also becomes possible. 2: 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))

Wireless remote controller (CZ-RWST3)

NEW



- 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-RWST3 is used, wireless control becomes possible for all indoor units (1: when a separate receiver is set up in a

different room, control from that room also becomes possible. 2: 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)

Simplified remote controller (CZ-RE2C2)



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)

Dimensions (H x W x D): 120 x 70 x 16mm

Backlight remote controller (CZ-RELC2)



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.

Dimensions (H x W x D): 120 x 70 x 16mm

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
Standard Control	Control of the various operations of the indoor unit by wired or wireless remote controller. Cooling or heating mode of the outdoor unit is decided by the first priority of the remote controller. Switching between remote controller sensor and body sensor is possible.	Wired remote controller: CZ-RTC2 // CZ-RE2C2 // CZ-RELC2 Wireless remote controller: CZ-RWSY2 // CZ-RWSU2 // CZ-RWSL2 // CZ-RWSG2 // CZ-RWSK2 // CZ-RE2C2 1 unit each
(1) Group control	Batch remote control on all indoor units. Operation of all indoor cells in the same mode. Up to 8 units can be connected.	Wired remote controller: CZ-RTC2 // CZ-RE2C2 Wireless remote controller: CZ-RWSY2 // CZ-RWSU2 // CZ-RWSL2 // CZ-RWSG2 // CZ-RWSK2 // CZ-RE2C2 1 unit
(2) Main/sub remote control	Max 2 remote controllers per indoor unit. The button pressed last has priority. Timer setting is possible even with the sub remote controller.	Main or sub. Wired remote controller: CZ-RTC2 Wireless remote controller: CZ-RWSY2 // CZ-RWSU2 // CZ-RWSL2 // CZ-RWSG2 // CZ-RWSK2 // CZ-RE2C2 As required

Centralised Control Systems

Schedule timer (CZ-ESWC2)



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).

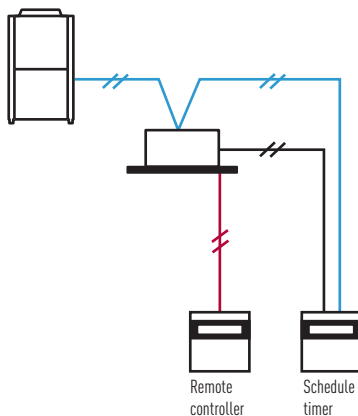
When the power supply for the schedule timer is taken from the control circuit board of the indoor unit, that indoor unit cannot be used with other control devices using the CZ-T10 terminal. As operation mode and temperature settings are not possible with the schedule timer, it must be used together 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 (maximum 64 indoor units) can be controlled divided into 8 timer groups

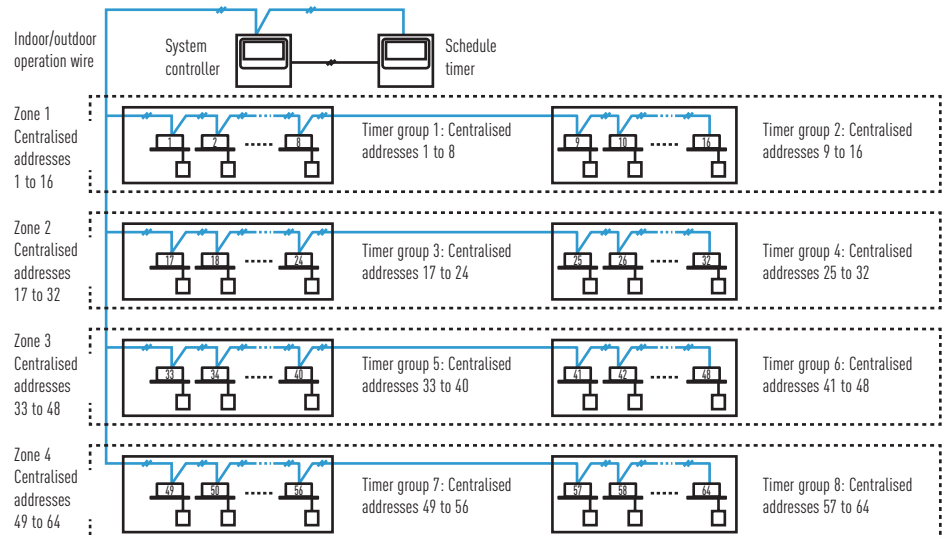
- Six program operations (Operation/Stop/Local permission/Local prohibition) per day can be set in a program for one week
- Only operation or stop, remote controller local permission or remote controller local prohibition, and their respective combinations are possible. (Operation + local permission, 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.)

Dimensions (H x W x D): 120 x 120 x 16mm.

Connection example 1 (power supply from the indoor unit)



Connection example 2 (power supply from the central controller)



ON/OFF controller (CZ-ANC2)



- 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.

Dimensions (H x W x D): 121 x 122 x 14 + 52mm (embedding dimension).

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.

System controller (CZ-64ESMC2)



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

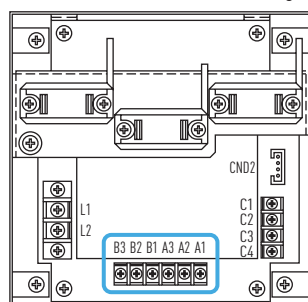
(The maximum number of connectable system controllers is 10, including other central controllers on the same circuit.)

(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	
B Controlled unit number mode		Central control mode	Remote control 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

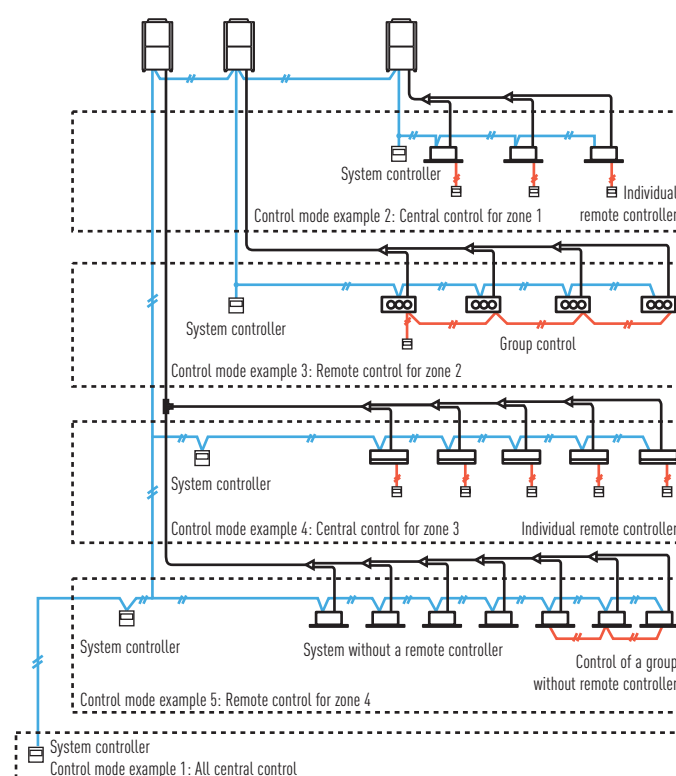
Dimensions (H x W x D): 120 x 120 x 21 + 69mm (embedding dimension).

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, maximum 1 A).

Total wiring length: 1 km.



Centralised Control Systems

Intelligent controller (CZ-256ESMC2)

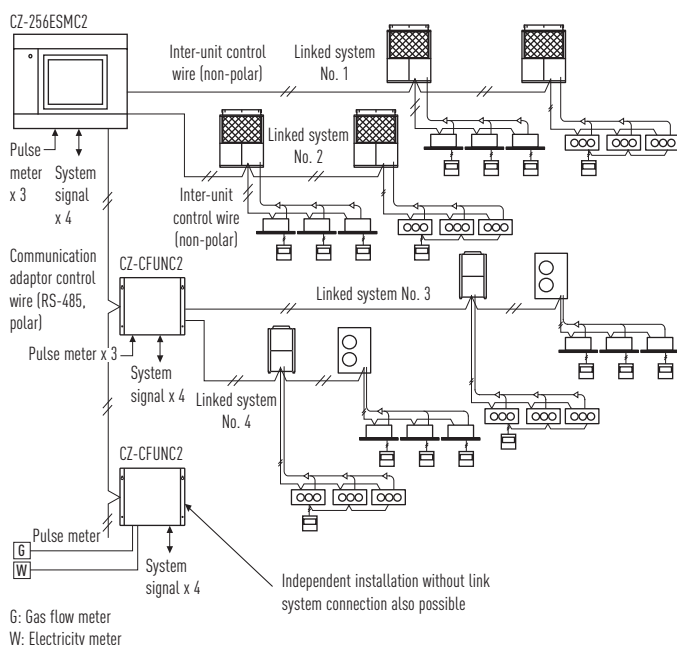


TOUCH
PANEL

Web application



System Configuration Example



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)
- 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".

Dimensions (H x W x D): 240 x 280 x 138mm.

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.

CZ-CBPCC2: Additional back up memory for CZ-256ESMC2.

Maximum number of connections	Indoor units: 256 (64/link x 4)
	Outdoor units: 120 (30/link x 4)
	Communication adaptors: 7
	Link systems (Inter-unit control wires): 4

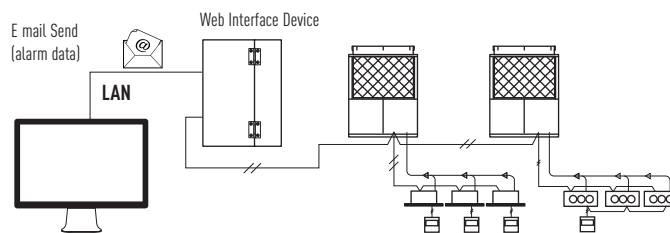
Web Interface (CZ-CWEBC2)

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): 248x185x80mm
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.

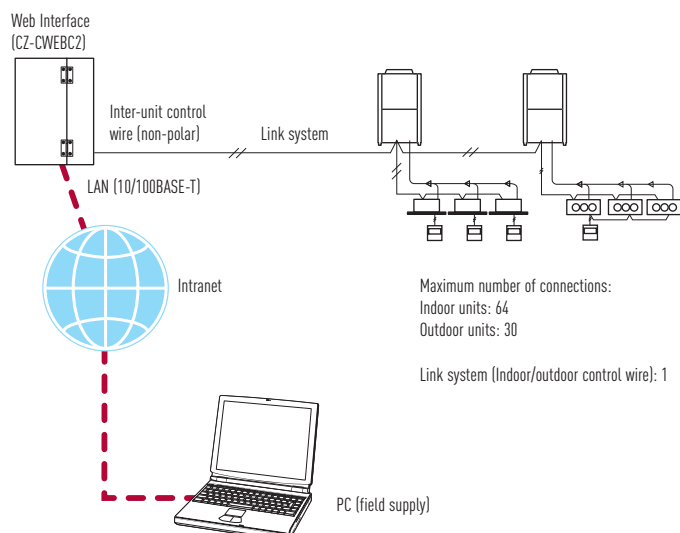
Easy to manage and monitor each tenant use*

- 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.



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.

Centralised Control Systems

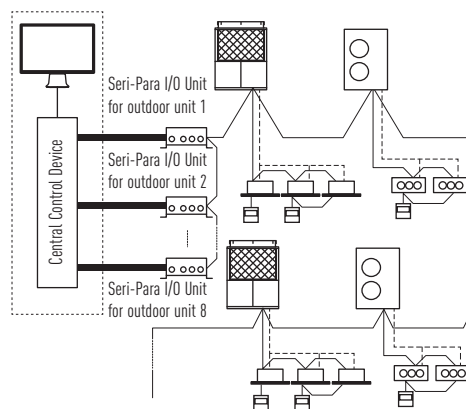
Seri-Para I/O unit for outdoor unit (CZ-CAPDC2)



- 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.

Dimensions (H x W x D): 80 x 290 x 260mm.
 Power supply: Single Phase 100/200V (50/60Hz), 18W.
 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)

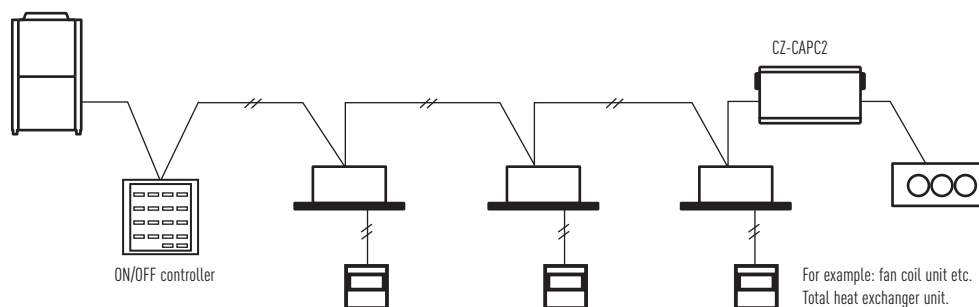
Wiring length: Indoor/Outdoor operation lines: Total length 1 km. Digital signal: 100 m or shorter



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.

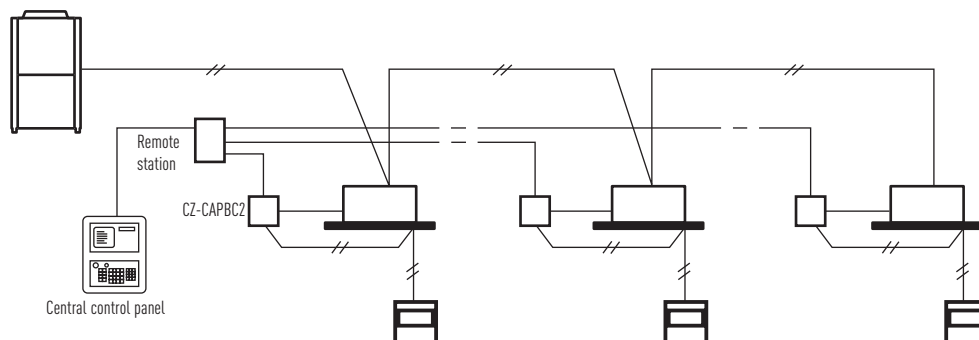


Demand Control 0 -10 V (CZ-CAPBC2)

NEW



- 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.
- **NEW!** The analog input for demand of the outdoor capacity by 17 steps (from 40% to 120%) by 0-10V.
- 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-CSWK2

Up to 1024 indoor units can be controlled by one PC.

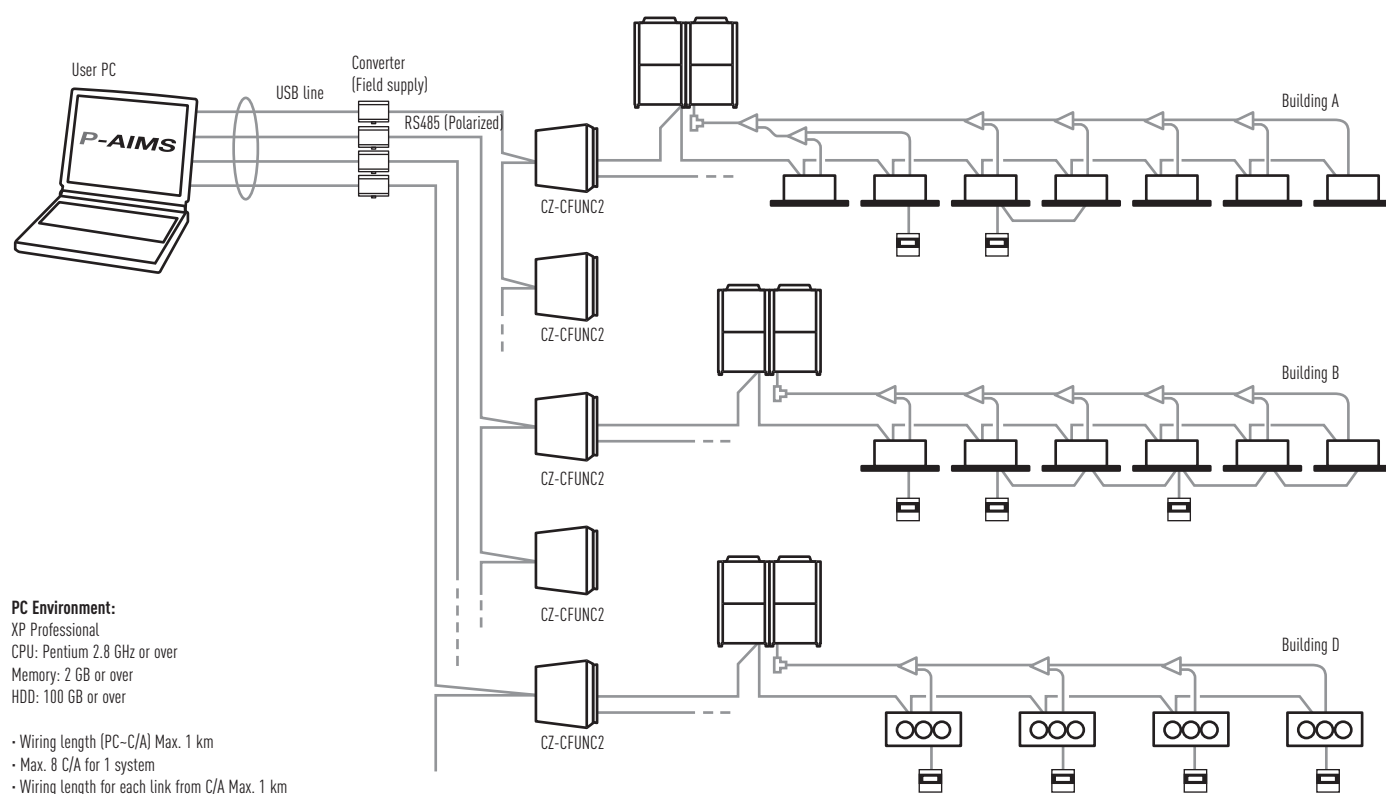
Functions of basic software

- 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 (m³, 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).

Centralised Control Systems

NEW



NEW Web Interface. Centralised Control Systems

A custom web application to manage the centralized operation of A2W and GHP systems.

Operation and monitoring of devices connected to the new Management System can be realized both remotely/locally from any device with connection to the internet (Laptop, Tablet, Mobile)

The new system will make the interaction with air conditioning systems easier, improving the operation set as well as the global control of installations.

The application will act with various CZ-CWEBC2, regardless of whether they are available in the same intranet or in different locations, transparently to users at any time. In this way, our solution allows to overcome main restrictions like onsite maintenance or the lack of centralization (need to connect to every CZ-CWEBC2 individually to manage a complete installation).

In addition, the application offers significant improvements in terms of control:

- Aicon units can be grouped in a totally custom way
- Possibility to realize group commands and batch commands (in succession)
- Alarms and events can be controlled more efficiently and a lot more...

Features of current system

Operation Functions

- Start & Stop
- Temperature settings
- Operation mode selection
- Fan speed, Fan direction settings
- Prohibition of use of remote controller

Operation Monitoring

- Monitoring of operation status and alarms
- Monitoring of filter cleaning signs
- Display of alarm logs

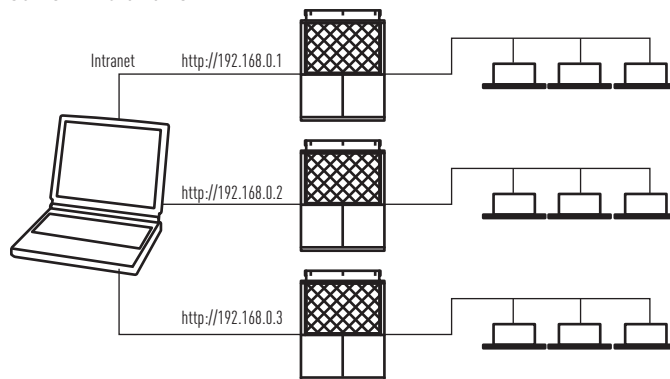
Program Timers

- Up to 50 types of weekly timer
- Holiday and Special Days

Offer reliable solution to improve existing CZ-CWEBC2 functionalities

- Running timer
- Remote control through Web Cloud Application or local. Accessible anytime, anywhere, via a device with internet connection
- Centralized Control: Manage SEVERAL installations in one single interface. Ideal for multi-site organizations
- Easy monitoring and maintenance thanks to group commands, and batch commands. Easy supervision of complex installations
- Secure Remote Access. Powerful identity protection and convenient access control

Current installation



Main restrictions: Decentralization: need to connect to every CZ-WEB one by one to manage installation.
On-site maintenance: Access limited to local network.

Benefits

The new solution for the centralized control of air conditioning systems offers significant benefits for the different actors involved in its management:

For the building Ownership:

- Maximum equipment performance
- Energy saving
- Increased lifetime of equipment
- Savings in maintenance costs

For Maintenance companies:

- Instant knowledge of any incident
- Possibility of preventive alarms
- Reduction of systematic visits (warning and remote control)
- More effective maintenance support

Internet Control. Control your air conditioning system with your smart device -smartphone & internet for VRF Systems



KX-UT670 Smart Desktop Phone from Panasonic.

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

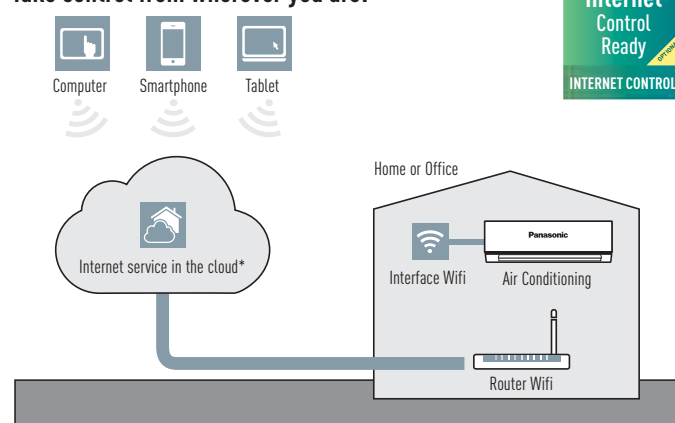
Offering the same functions as if you were at home or office: start/stop, Mode Operation, Set Temperature, Room Temperature etc as well as the new, advanced functionality provided by Internet Control to achieve the best comfort and efficiency with the lowest energy consumption.



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."

Take control from wherever you are!



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

ECOi and GHP Connectivity. New Plug and play interface connected directly to the P-Link

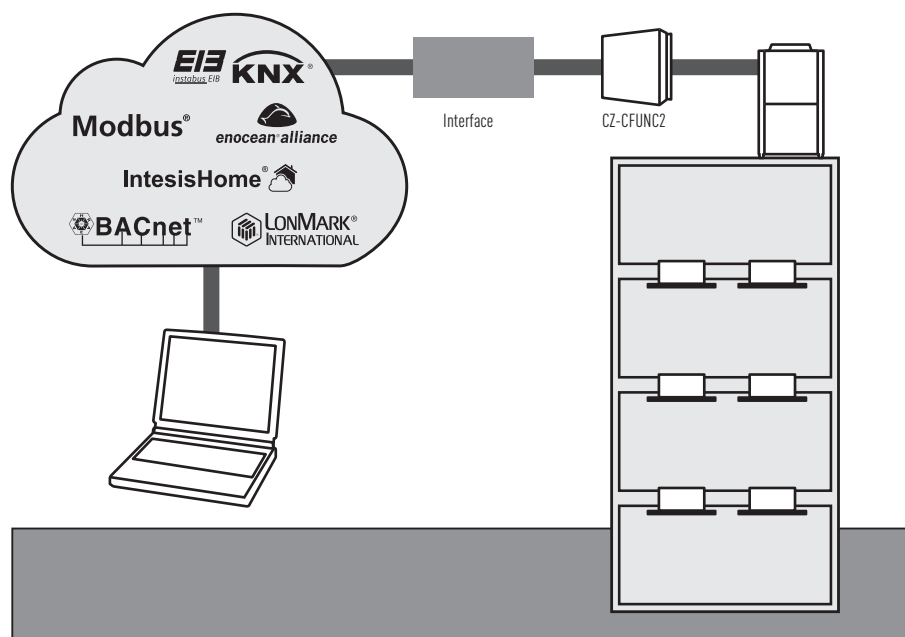


Great flexibility for integration into your KNX / EnOcean / Modbus / LonWorks / BACnet projects allows fully bi-directional monitoring and control of all the functioning parameters. Panasonic Partners have designed solutions specifically for Panasonic air conditioners, and provide complete monitoring,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

For more information, contact Panasonic.

Easy
control
by BMS

CONNECTIVITY



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 68mm

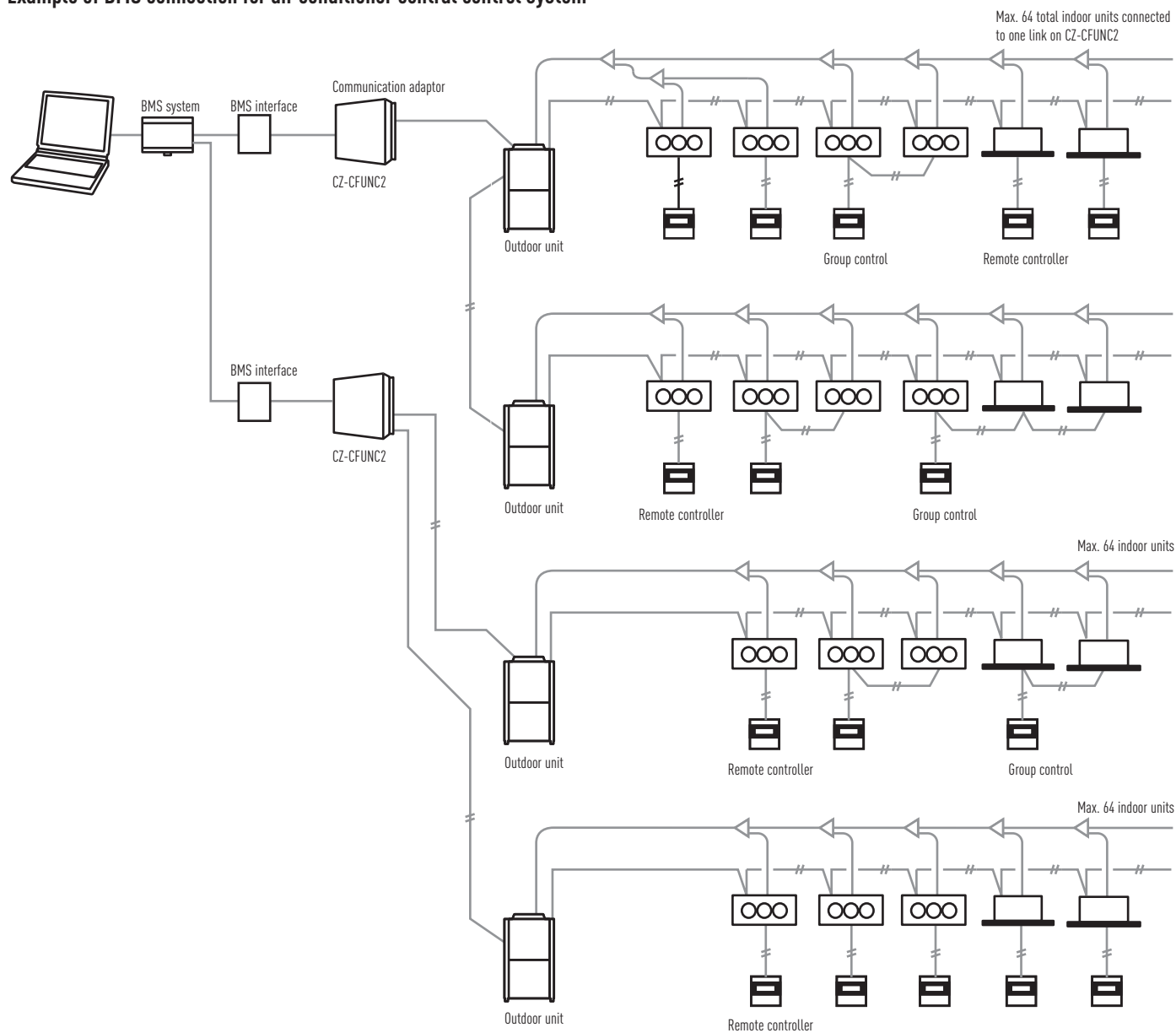
* As this is not a splash-proof design, it must be installed indoors or in the control panel, etc.

	Panasonic Model name	Interface	Connected on P-link or in the indoor unit	Maximum 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

* Interface Modbus RTU/TCP is needed in case if Modbus TCP connection. PAW-MBS-TCP2RTU (Modbus RTU Slave devices).

** Interface CZ-CFUNC2 needed.

Example of BMS connection for air conditioner central control system



	Unit ON/OFF
A/C unit settings	Mode-change
	Room temperature setting
	Fan speed setting
	Flap setting
	Central control setting
	Filter-sign clear
	Alarm reset

	Unit ON/OFF status
A/C unit status	Operation mode
	Setting temperature
	Fan speed status
	Flap status
	Central control setting
	Filter-sign situation
	Correct/incorrect status
	Alarm code

ECOi, ECO G and PACi Connectivity indoor units

PCB's and cables for ECOi, ECO G and PACi 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-PACR3	Redundancy of 3 systems; for ECOi and PACi	Redundancy of 3 ECOi or PACi systems including temperature monitoring, error indication, backup, alternative run
PAW-PKEA-Server	Redundancy of 2 units PKEA	Redundancy of 2 units PKEA including temperature monitoring, error indication, backup, alternative run

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.



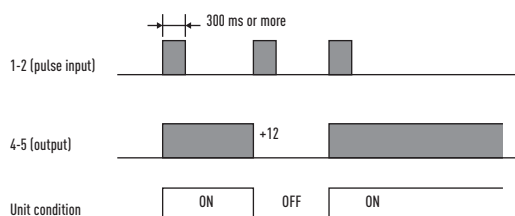
Connecting an ECOi indoor unit to an external device is easy. The T10 terminal featured in the electronic circuit board of all indoor units enables digital connection to external devices.

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

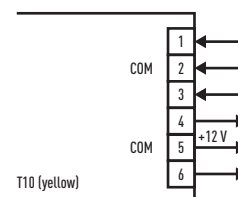


NOTE: The wire length from indoor unit to the Relay must be within 2.0 m. Pulse signal changeable to static with JP cutting. (Refer to JP001)

Condition

- 1-2 (Pulse input): Unit ON/OFF condition switching with a pulse signal. (1 pulse signal: shortage status more than 300 msec. or more)
- 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

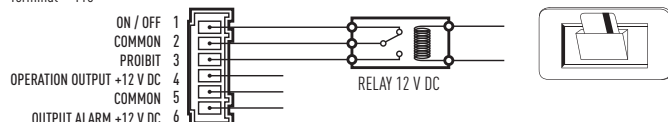


Usage Example Forced OFF control

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).

Terminal = T10

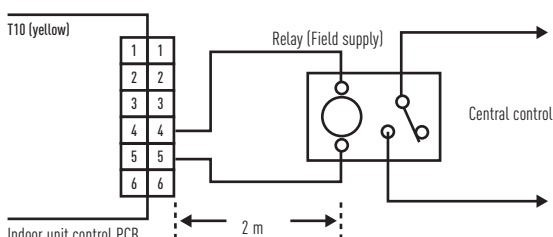


Operation ON/OFF signal output

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)

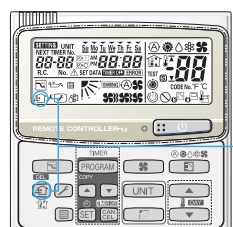
Fan Drive Connector (CN017)

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).



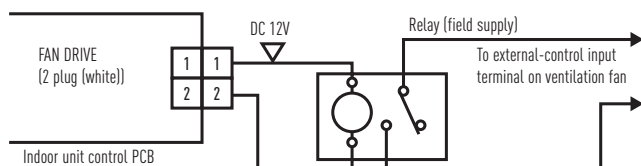
Operating the ventilation fan from the remote controller

- 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

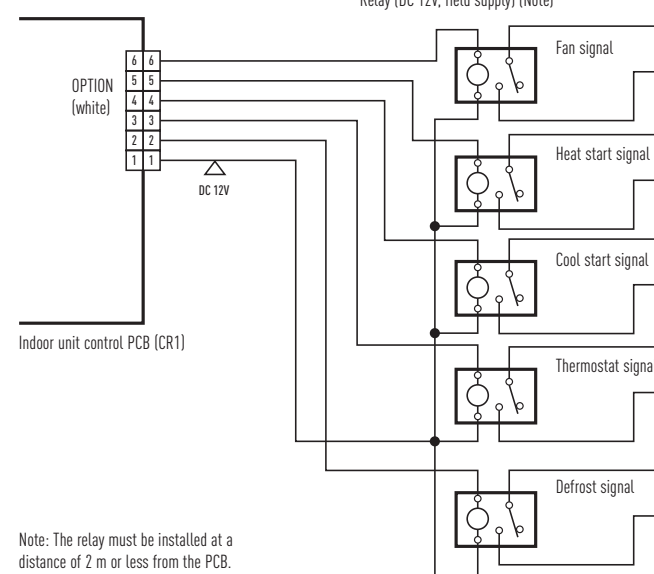


PAW-OCT: Panasonic has developed an optional accessory (consisting of plug + wires) called PAW-OCT to enable an easy connection to this Option Connector (CN060).

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.

Relay (DC 12V, field supply) (Note)



Note: The relay must be installed at a distance of 2 m or less from the PCB.

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).

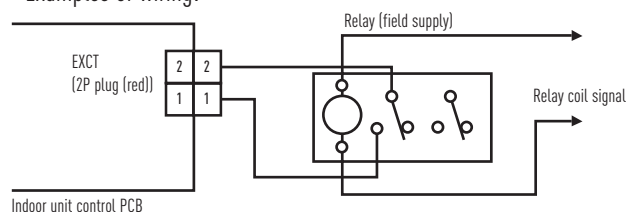
A) With static input

→ 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.

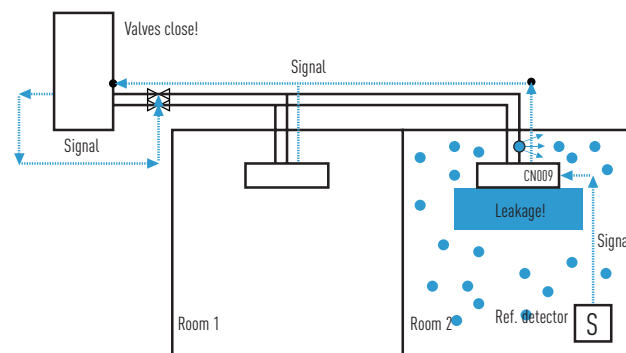
Note: The length of the wiring from the indoor unit control PCB to the relay must be 2m or less.
* Lead wire with 2P plug (special—order part: WIRE K/854 05280 75300)

• 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



Possible
to use on
R22 pipings

R22 RENEWAL

R22 Renewal

An important drive to further reduce the potential damage to our ozone

Unique R22 Renewal from Panasonic: Fast, easy to install and cost effective

- Panasonic refrigerant oil that doesn't react to the most common oil types used in air-conditioning systems. This make the mix of oil does not damage the units. The installations is easier
- All Panasonic ECOi units can be install in R22 pipings, no specific models are available
- Up to 33 Bar! When there is any doubt about the strength of the piping, the maximum working pressure can be reduced to 33 bar with a setting in the software of the outdoor unit

Required Parameter setting for the renewal system			
Model type	Item code	Setting data	Remarks
3-Pipe VRF System	4B	Set to 0001 = Renewal system operation (Factory set = 0000)	Setting only for Master unit
2-Pipe VRF System (ME1E81 series only)	4B	Set to 0000 = Renewal system operation (Factory set = 0002)	Setting only for Master unit
Mini VRF System	4B	Set to -001 = Renewal system operation (Factory set = 0000)	

Depending on the outdoor unit type to be used for renewal installation, one additional setting has to be changed properly before starting a test-run operation of the new system. The renewal system operating condition (design pressure: 3.3MPa) will be set by this parameter change. Refer to the following table and be sure to change the parameter accordingly. A maintenance remote controller for the outdoor unit is required to change the relevant parameter. (See the maintenance remote controller's instruction manual for further details on connections and usage methods.)

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. 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.

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.

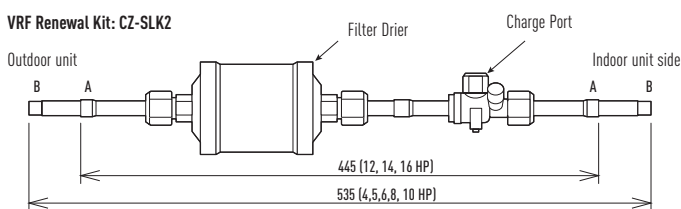
Having contacted your Panasonic supplier regarding pipe work restrictions and gained approval to use the Panasonic Renewal System there are three main tests that have to be carried out to ensure that the system can be used effectively.

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.



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.

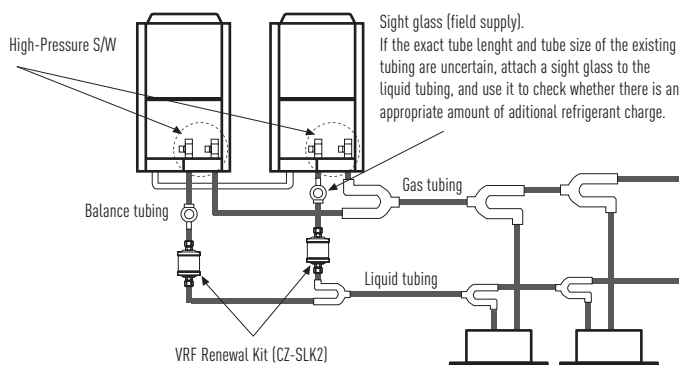
Sight glass (field supply)

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.

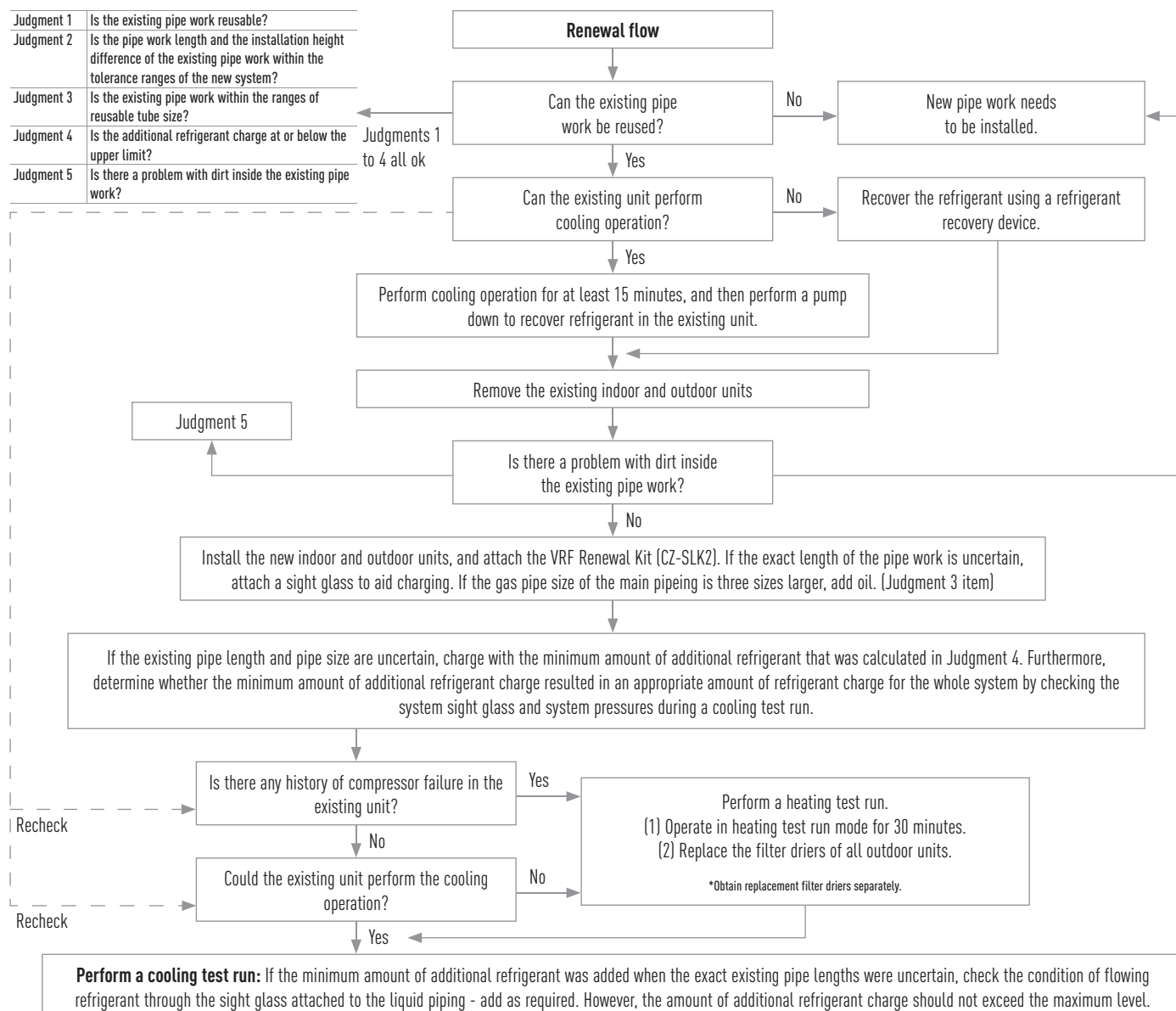
Attaching the Filter Drier Kit and sight glass

- To adjust the limited pressure level into 3.3 MPa only, 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 10mm 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).



Procedure for VRF Renewal



Branches

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.

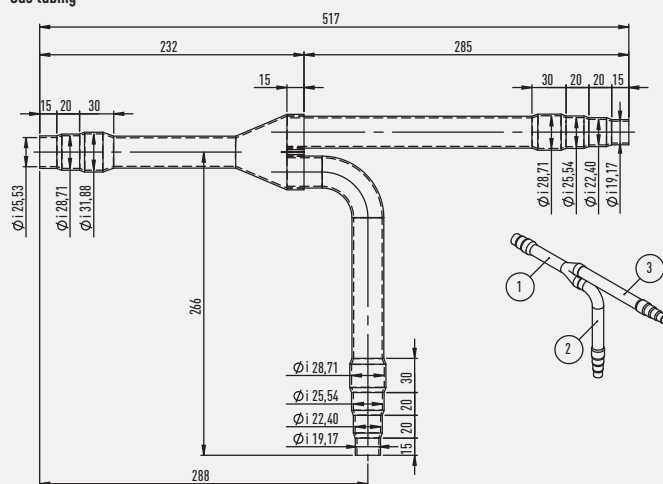
	Cooling capacity after distribution	Remarks
Outdoor unit side	68,0 kW or less	CZ-P680PH2BM
	From 68,0 kW to 168,0 kW	CZ-P1350PH2BM
Indoor unit side	22,4 kW or less	CZ-P224BK2BM
	From 22,4 kW to 68,0 kW	CZ-P680BK2BM
	From 68,0 kW 168,0 kW or less	CZ-P1350BK2BM

Tubing size (with thermal insulation)

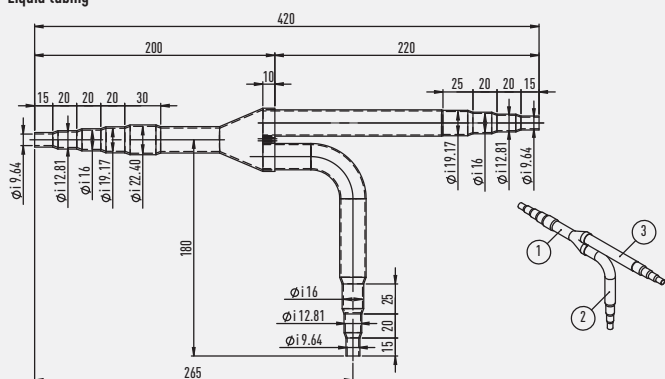
CZ-P680PH2BM

For outdoor unit side (Capacity after distribution joint is 68,0 kW or less).

Gas tubing



Liquid tubing

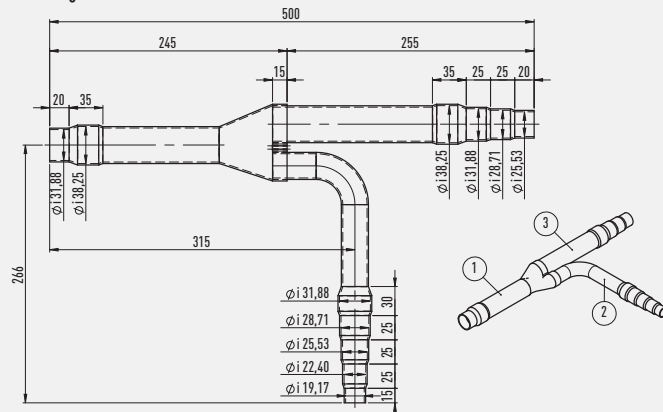


Unit:mm

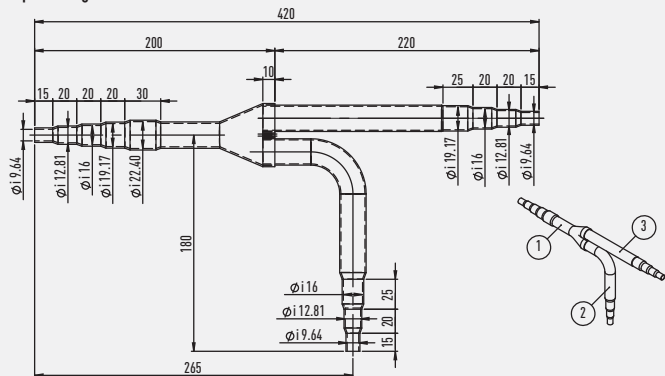
CZ-P1350PH2BM

For outdoor unit side (Capacity after distribution joint is greater than 68,0 kW and no more than 168,0 kW).

Gas tubing



Liquid tubing

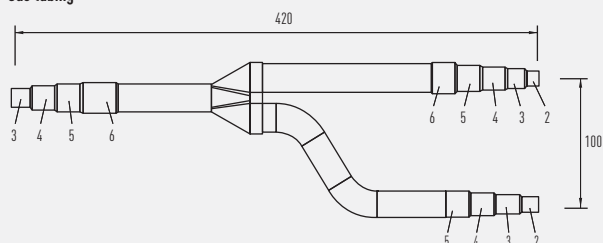


Unit:mm

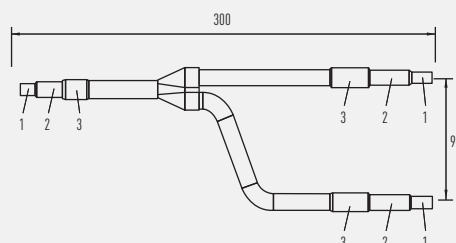
CZ-P224BK2BM

For indoor unit side (Capacity after distribution joint is 22,4 kW or less).

Gas tubing



Liquid tubing

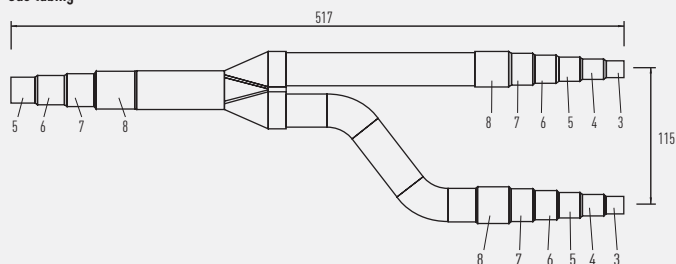


Unit:mm

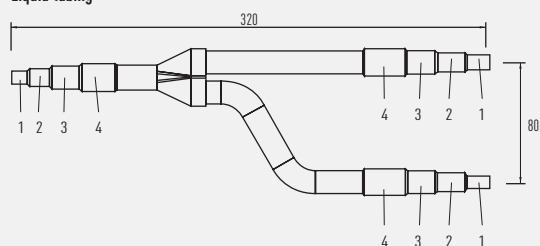
CZ-P680BK2BM

For indoor unit side (Capacity after distribution joint is greater than 22,4 kW and no more than 68,0 kW).

Gas tubing



Liquid tubing

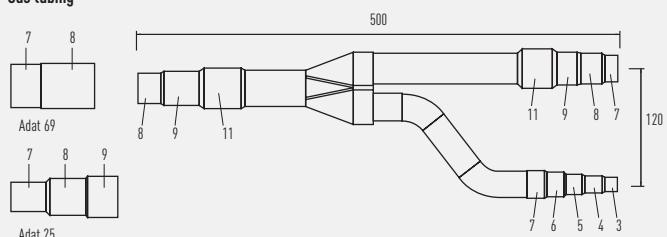


Unit:mm

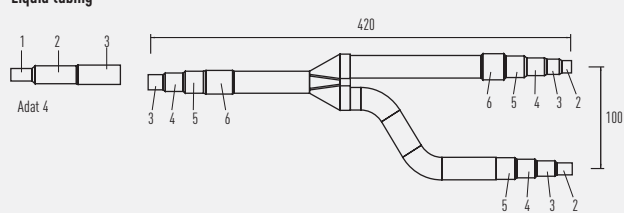
CZ-P1350BK2BM

For indoor unit side (Capacity after distribution joint is greater than 68,0 kW and no more than 168,0 kW).

Gas tubing



Liquid tubing



Unit:mm

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

Dimensions and Tube Sizes of Branches and Headers for 3-Pipe ECOi 6N Systems (MF2)

Optional Distribution Joint Kits

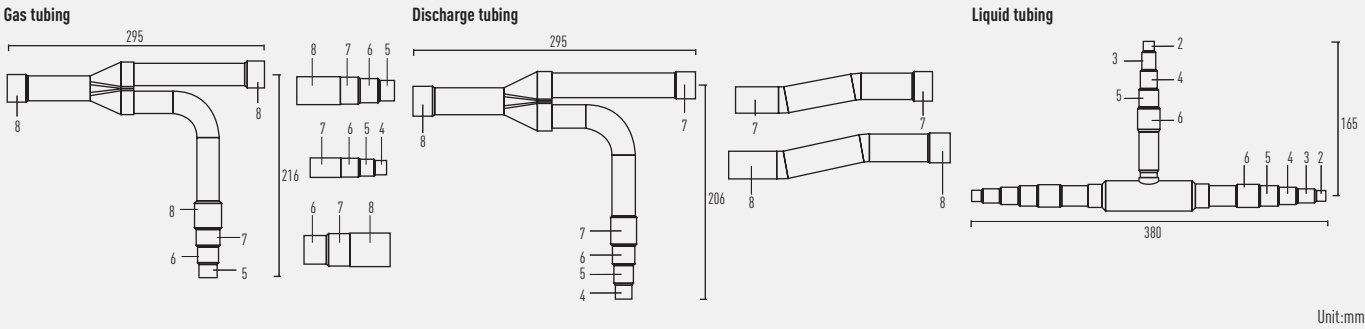
See the installation instructions packaged with the distribution joint kit for the installation procedure.

	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

Tubing size (with thermal insulation)

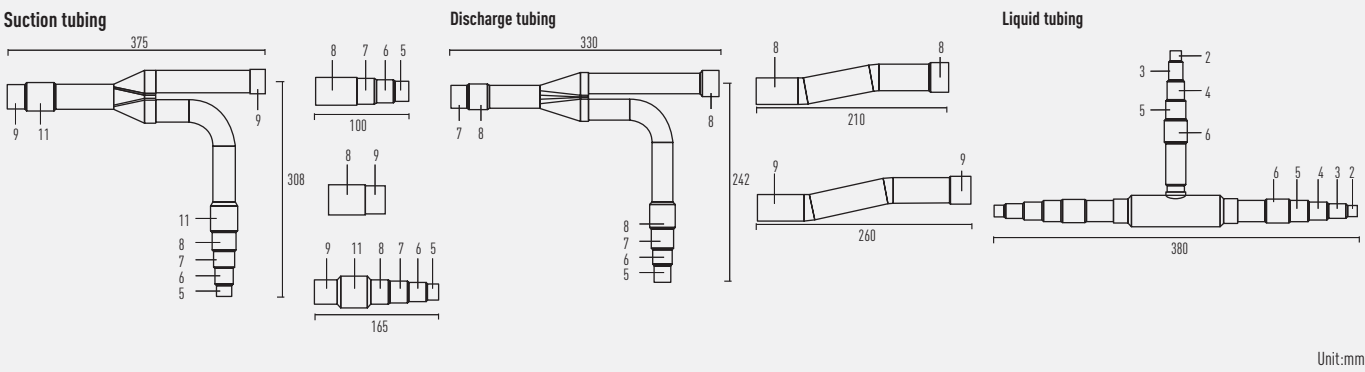
CZ-P680PJ2BM

For outdoor unit side (Capacity after distribution joint is 68,0 kW or less).



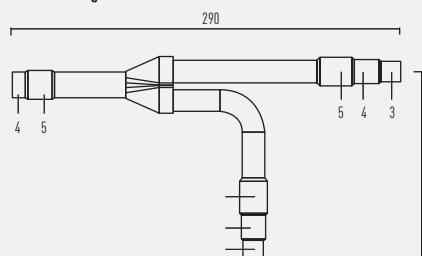
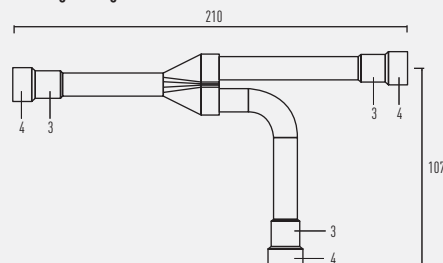
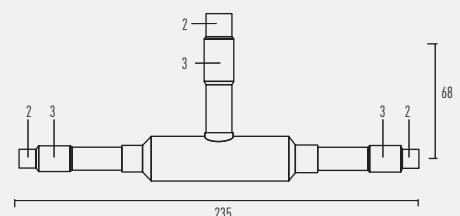
CZ-P1350PJ2BM

For outdoor unit side (Capacity after distribution joint is greater than 68,0 kW and no more than 135,0 kW).



CZ-P224BH2BM

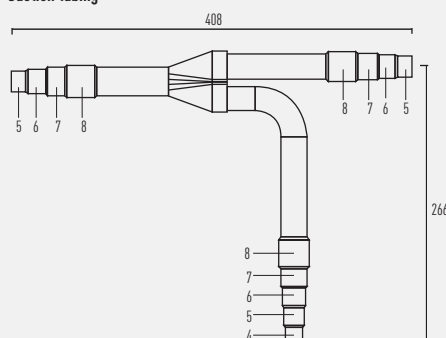
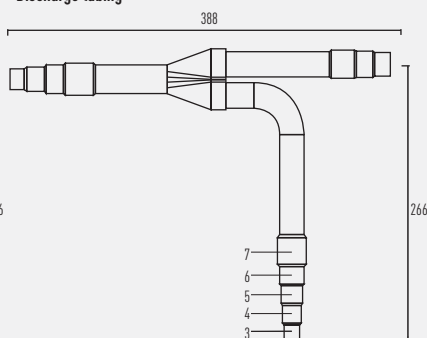
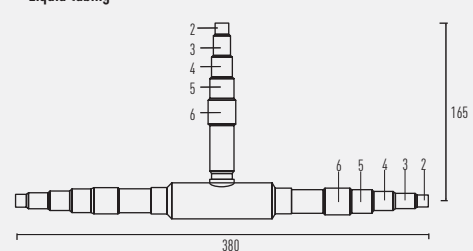
For outdoor unit side (Capacity after distribution joint is 22,4 kW or less).

Suction tubing**Discharge tubing****Liquid tubing**

Unit:mm

CZ-P680BH2BM

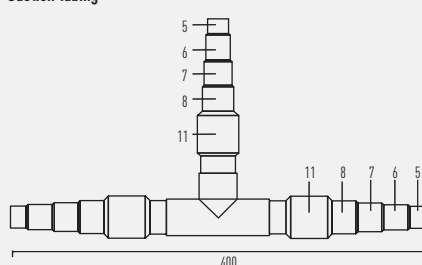
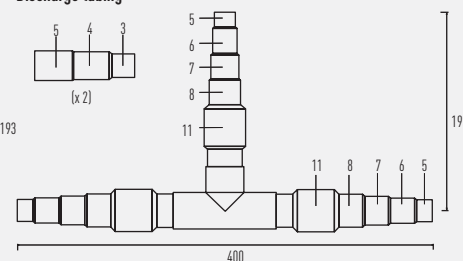
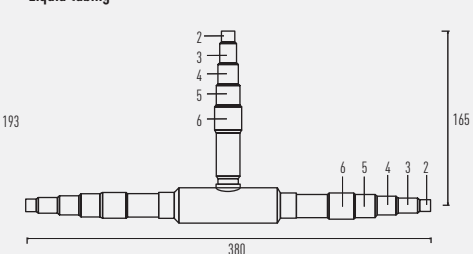
For outdoor unit side (Capacity after distribution joint is greater than 22,4 kW and no more than 68,0 kW).

Suction tubing**Discharge tubing****Liquid tubing**

Unit:mm

CZ-P1350BH2BM

For outdoor unit side (Capacity after distribution joint is greater than 68,0 kW and no more than 135,0 kW).

Suction tubing**Discharge tubing****Liquid tubing**

Unit:mm

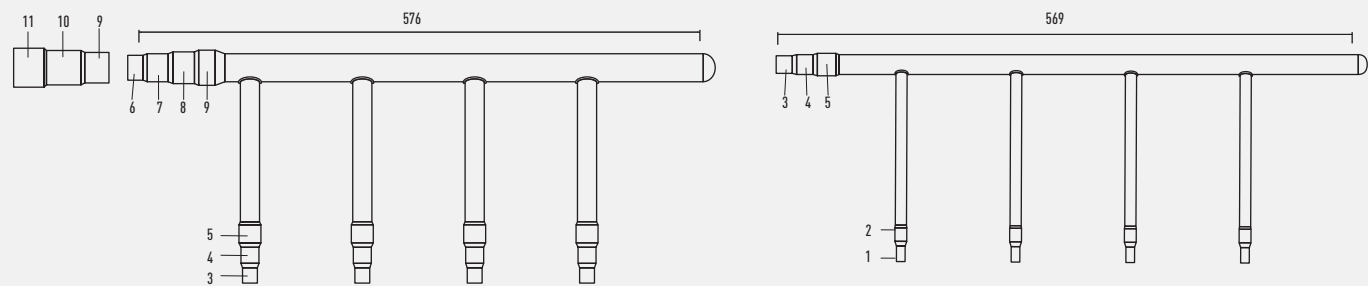
Diameters		Diameters		Diameters	
1	6,35 mm 1/4"	6	22,40 mm 7/8"	11	38,10 mm 1 1/2"
2	9,52 mm 3/8"	7	25,40 mm 1"	12	41,28 mm 1 5/8"
3	12,70 mm 1/2"	8	28,57 mm 1 1/8"	13	44,45 mm 1 3/4"
4	15,88 mm 5/8"	9	31,75 mm 1 1/4"	14	50,80 mm 2"
5	19,05 mm 3/4"	10	34,92 mm 1 3/8"		

Headers

Header pipe set for ECOi 6N 2-Pipe system

CZ-P4HP4C2BM

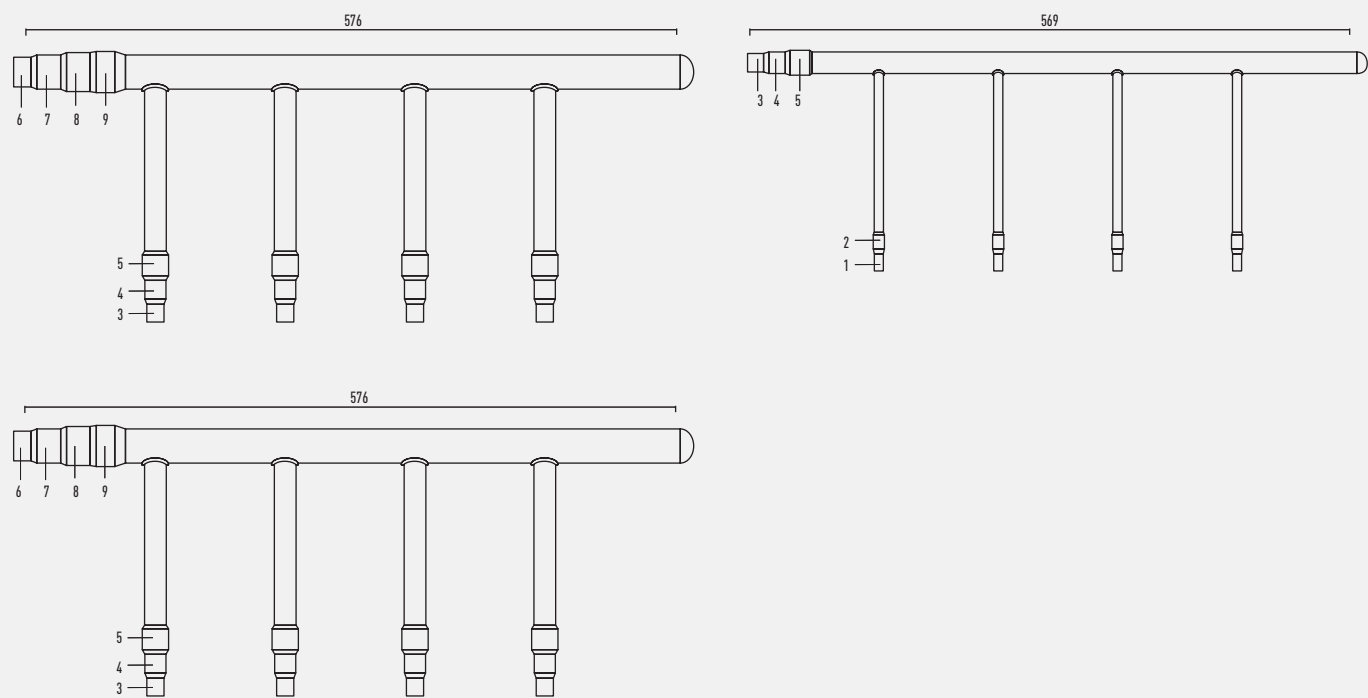
Header pipe models for 2-Pipe systems.



Header pipe set for ECOi 6N 3-Pipe system

CZ-P4HP3C2BM

Header pipe model for 3-Pipe systems.

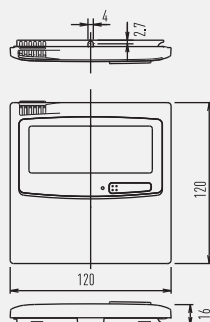


Diameters		Diameters		Diameters	
1	6,35 mm 1/4"	5	19,05 mm 3/4"	9	31,75 mm 1" 1/4
2	9,52 mm 3/8"	6	22,40 mm 7/8"	10	34,92 mm 1" 3/8
3	12,70 mm 1/2"	7	25,40 mm 1"	11	38,10 mm 1" 1/2
4	15,88 mm 5/8"	8	28,57 mm 1" 1/8		

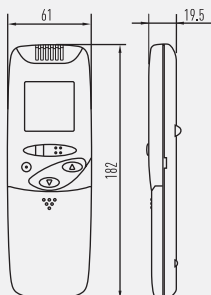
Control equipment external dimensions

Control Systems

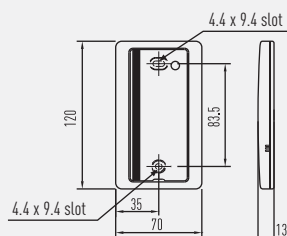
WIRED REMOTE CONTROLLER
(CZ-RTC2)



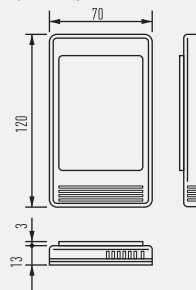
WIRELESS REMOTE CONTROLLER



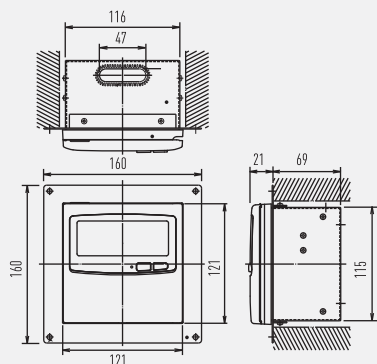
SEPARATE RECEIVER FOR WIRELESS REMOTE CONTROLLER



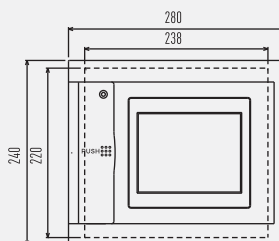
SIMPLIFIED REMOTE CONTROLLER
(CZ-RE2C2)
REMOTE SENSOR
(CZ-CSRC2)



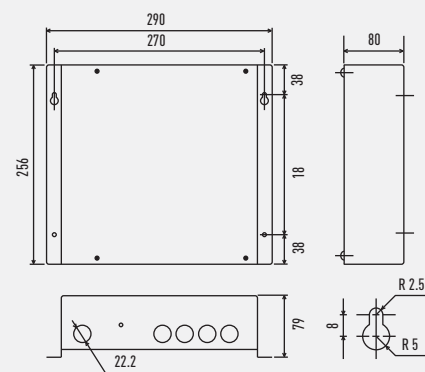
SYSTEM CONTROLLER
(CZ-64ESMC2)



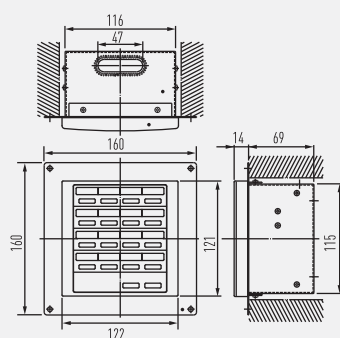
INTELLIGENT CONTROLLER
(CZ-256ESMC2)



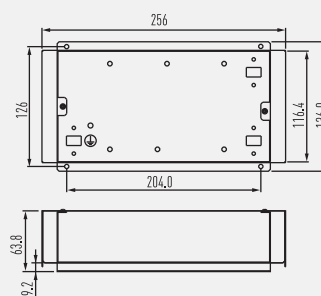
COMMUNICATION ADAPTER
(CZ-CFUNC2)



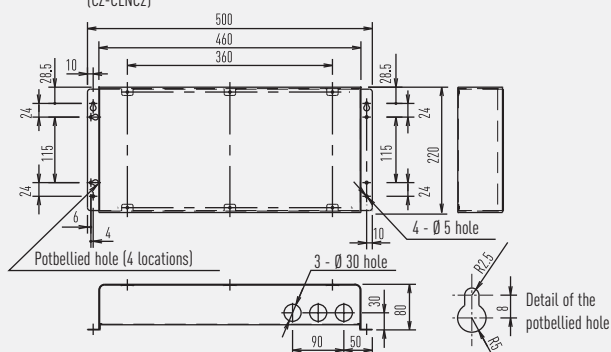
ON/OFF CONTROLLER
(CZ-ANC2)



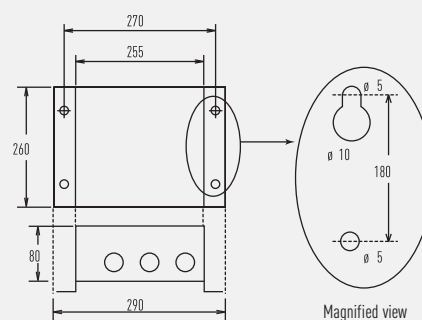
SERI-PARA I/O UNIT FOR EACH INDOOR UNIT
(CZ-CAPBC2)



LONWORKS INTERFACE
(CZ-CLNC2)



SERI-PARA I/O UNIT FOR OUTDOOR UNIT
(CZ-CAPDC2)

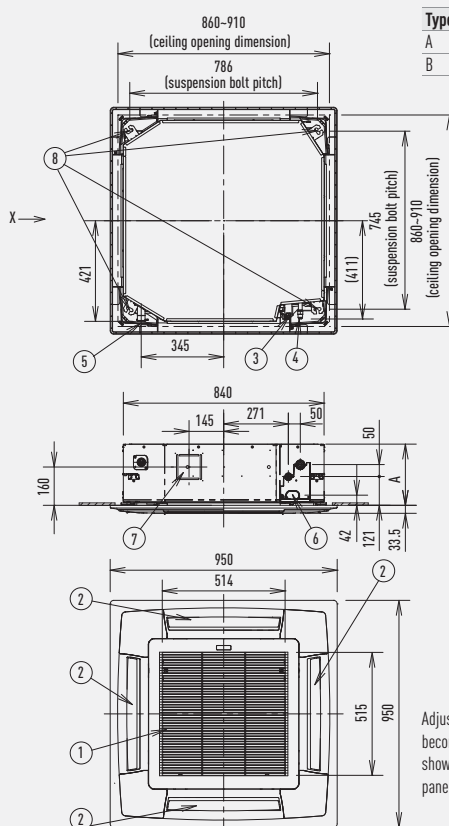
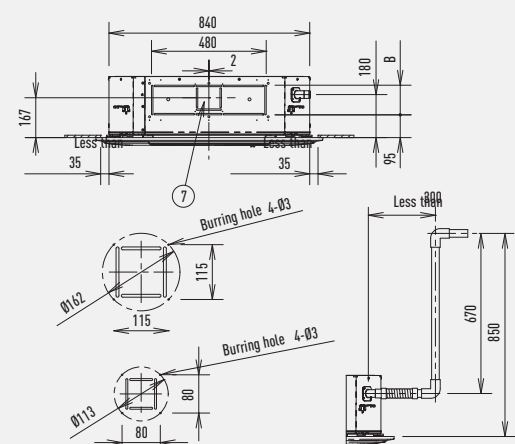


ECOi and ECO G indoor units dimensions

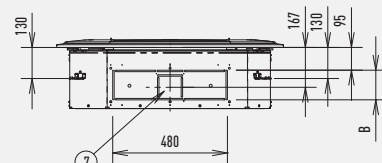
U1 Type // 4 Way 90x90 Cassette

Type	22-50	60-160
1 Air intake grill		
2 Air discharge outlet		
3 Refrigerant piping (liquid pipes)	Ø 6.35 (flared)	Ø 9.52 (flared)
4 Refrigerant piping (gas pipes)	Ø 12.7 (flared)	Ø 15.88 (flared)
5 Drain outlet VP50	Outer diameter 32mm	
6 Power supply port		
7 Discharge duct	Ø 150	
8 Suspension bolt hole	4-12x30 slot	
9 Fresh air intake duct connection port	Ø 100 ¹	

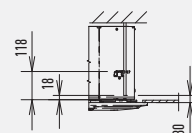
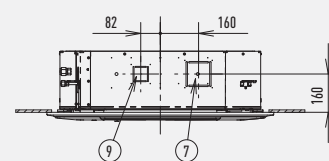
1 Air inlet kit is necessary.
Filter size: 520 x 520 x 16



Type	36-71	100-140
A	256	319
B	124	187



X VIEW

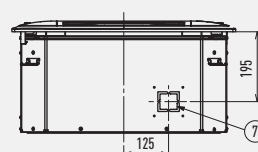
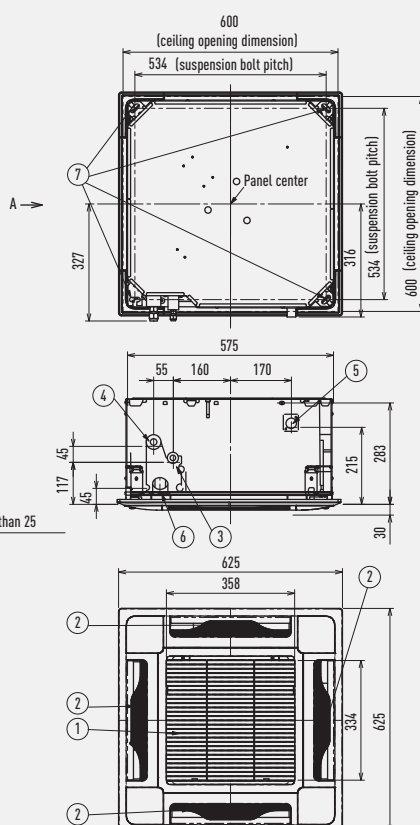
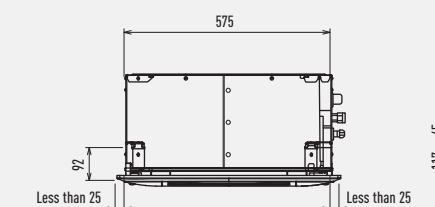


Adjust the suspension bolt length so that the gap from the lower ceiling surface becomes 30mm or more (18mm or more from the lower surface of the body) as shown in the figure. When the suspension bolt length is long, it hits the ceiling panel and installation is not possible.

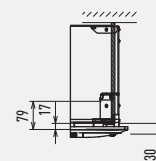
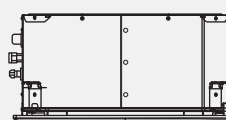
Dimensions: mm

Y2 TYPE // 4 Way 60x60 Cassette

1 Air intake	
2 Discharge outlet	
3 Refrigerant piping (liquid pipes)	Ø 6.35 (flared)
4 Refrigerant piping (gas pipes)	Ø 12.7 (flared)
5 Drain tube connection port VP20	Outer diameter 26mm
6 Power supply port	
7 Suspension bolt hole	4-12 x 30 hole
8 Fresh air intake duct connection port	Ø 100



A VIEW

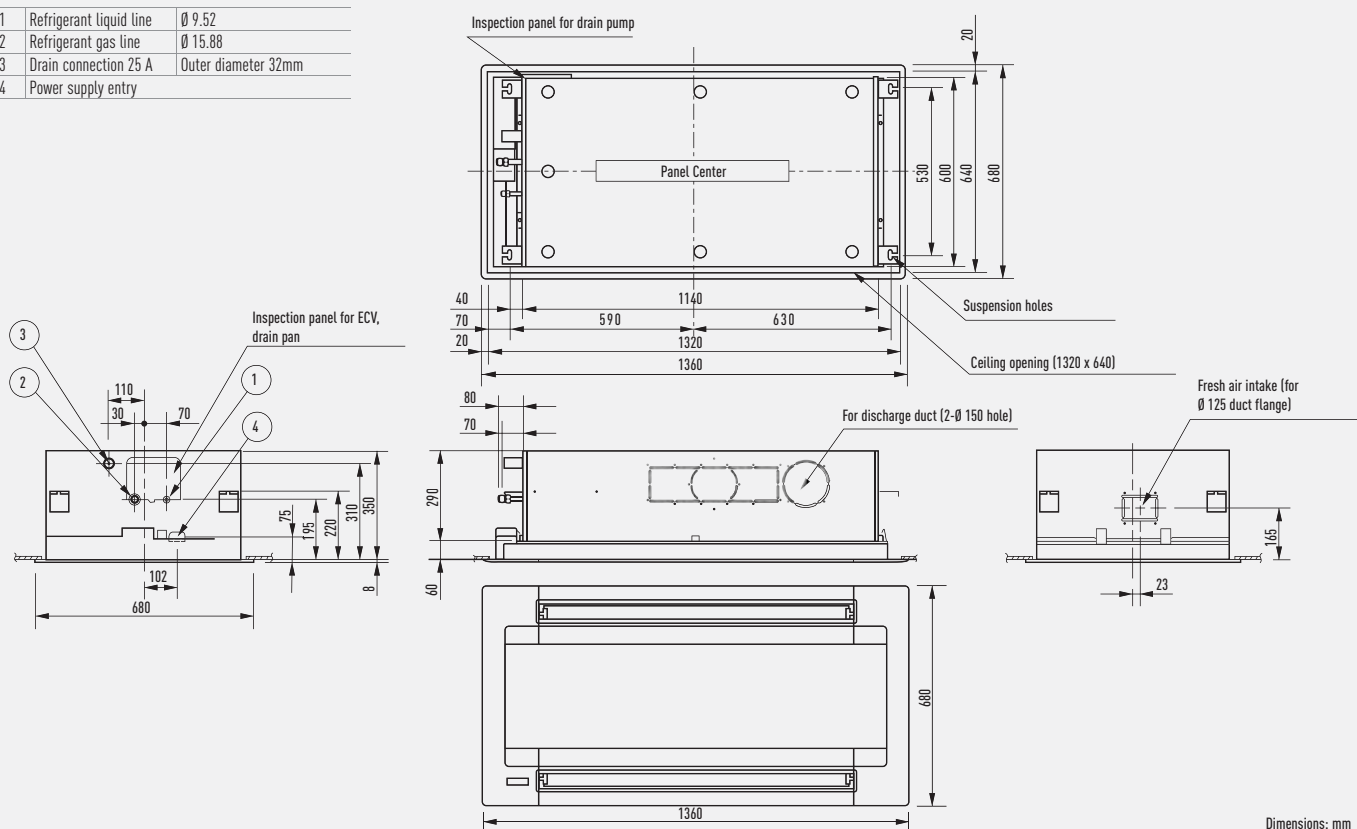


The length of the suspension bolts should be selected so that there is a gap of 30mm or the ceiling (17mm or more below the lower surface of the main unit), as shown in the figure at right. If the suspension bolt is too long, it will contact the ceiling panel and the unit cannot be installed.

Dimensions: mm

L1 Type // 2 Way Cassette

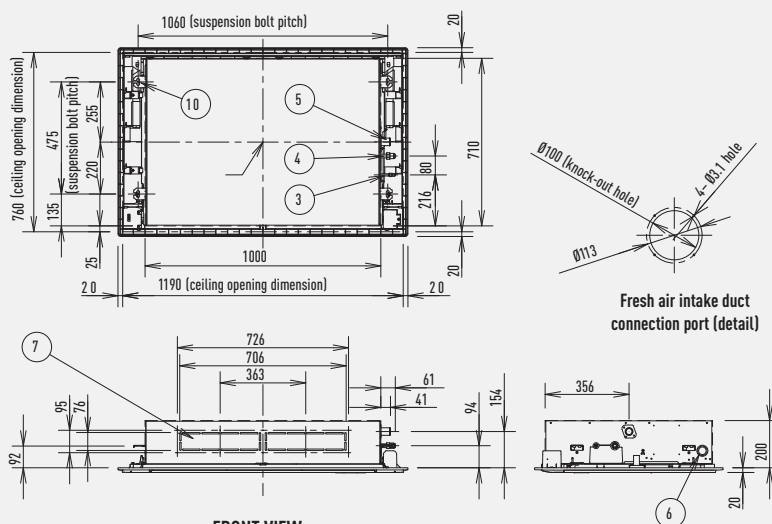
1	Refrigerant liquid line	Ø 9.52
2	Refrigerant gas line	Ø 15.88
3	Drain connection 25 A	Outer diameter 32mm
4	Power supply entry	



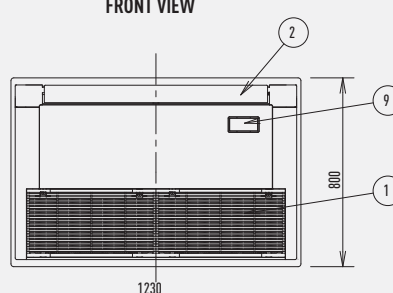
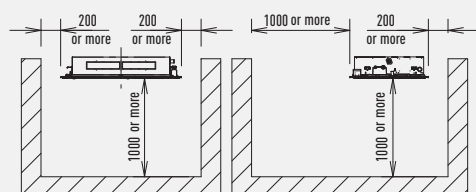
Dimensions: mm

D1 Type // 1 Way Cassette

	28-56	73
1	Air intake grille	
2	Discharge outlet	
3	Refrigerant piping (liquid pipes)	Ø 6.35 (flared) Ø 9.52 (flared)
4	Refrigerant piping (gas pipes)	Ø 12.7 (flared) Ø 15.88 (flared)
5	Drain connection VP25	Outer diameter 32
6	Power supply entry	
7	Discharge duct connection port (for descending ceiling)	
8	Fresh air intake duct connection port Ø 100	
9	Installation port for wireless remote controller receiver	
10	Suspension bolt hole 4-12 30 hole	



Required space for installation

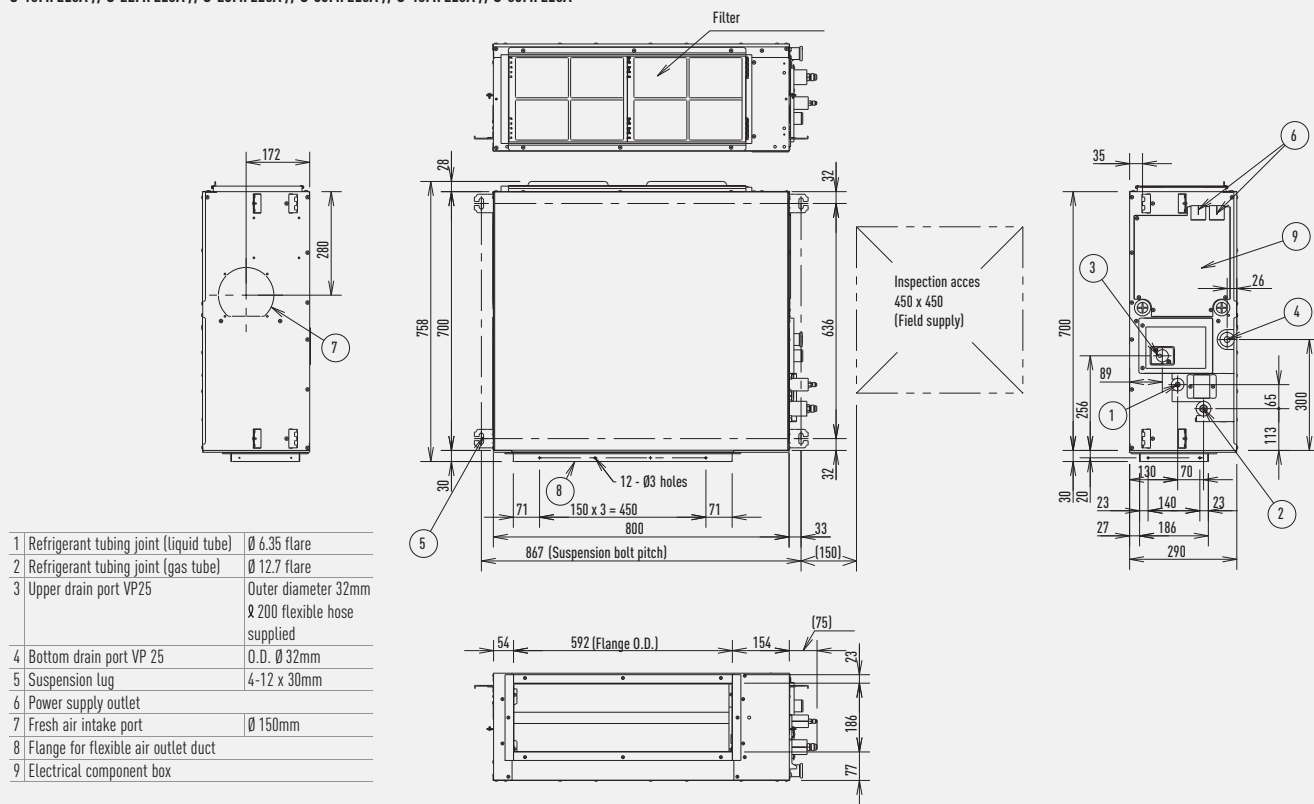


Dimensions: mm

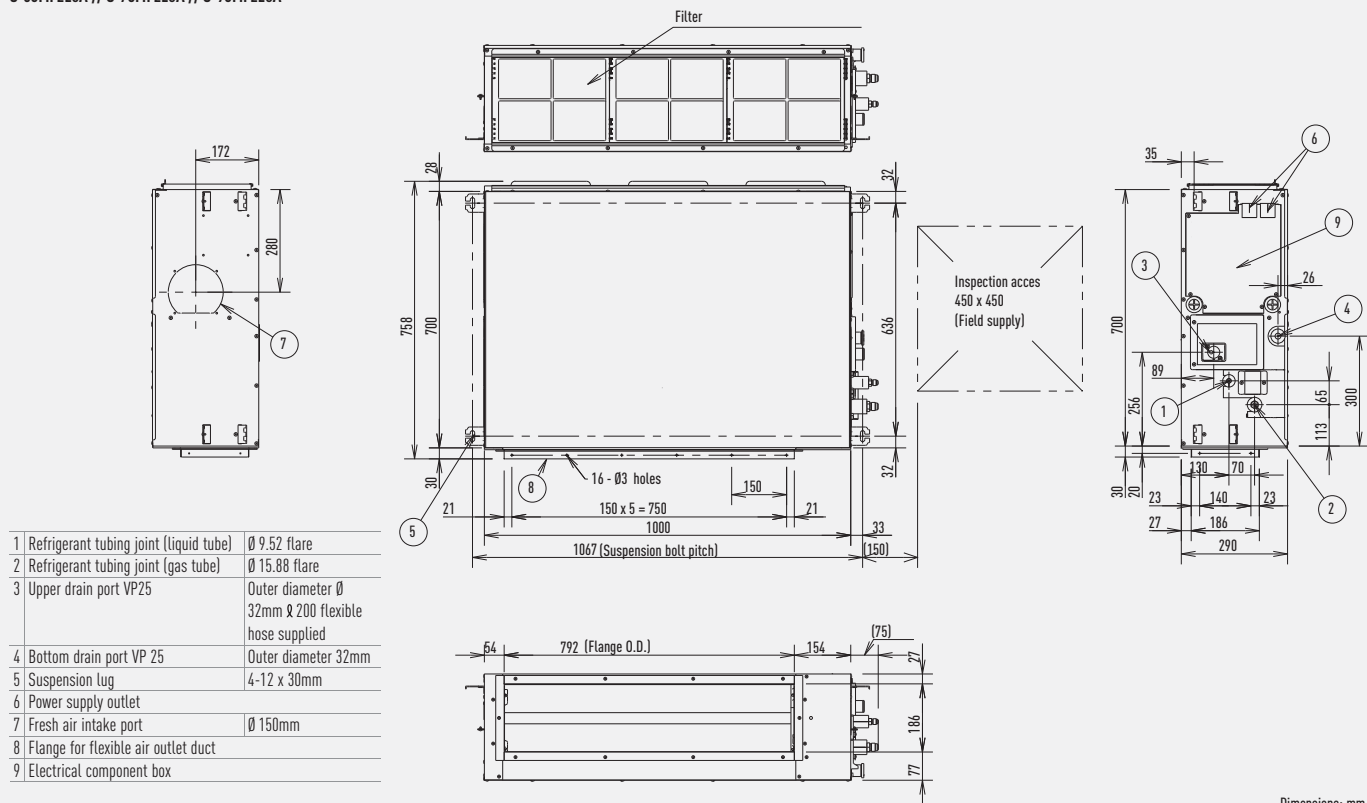
ECOi and ECO G indoor units dimensions

F2 Type // Variable Static Pressure Hide Away

S-15MF2E5A // S-22MF2E5A // S-28MF2E5A // S-36MF2E5A // S-45MF2E5A // S-56MF2E5A

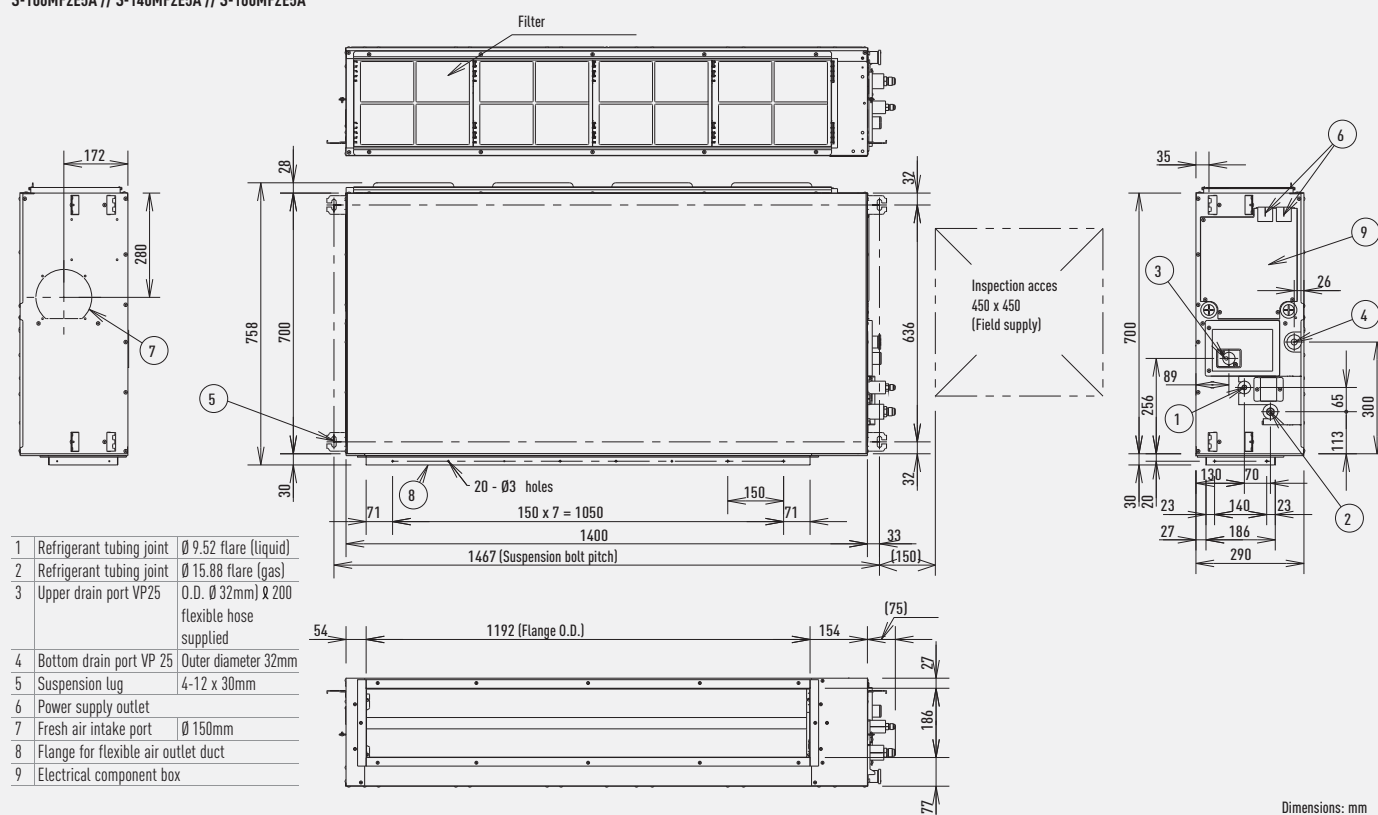


S-60MF2E5A // S-73MF2E5A // S-90MF2E5A



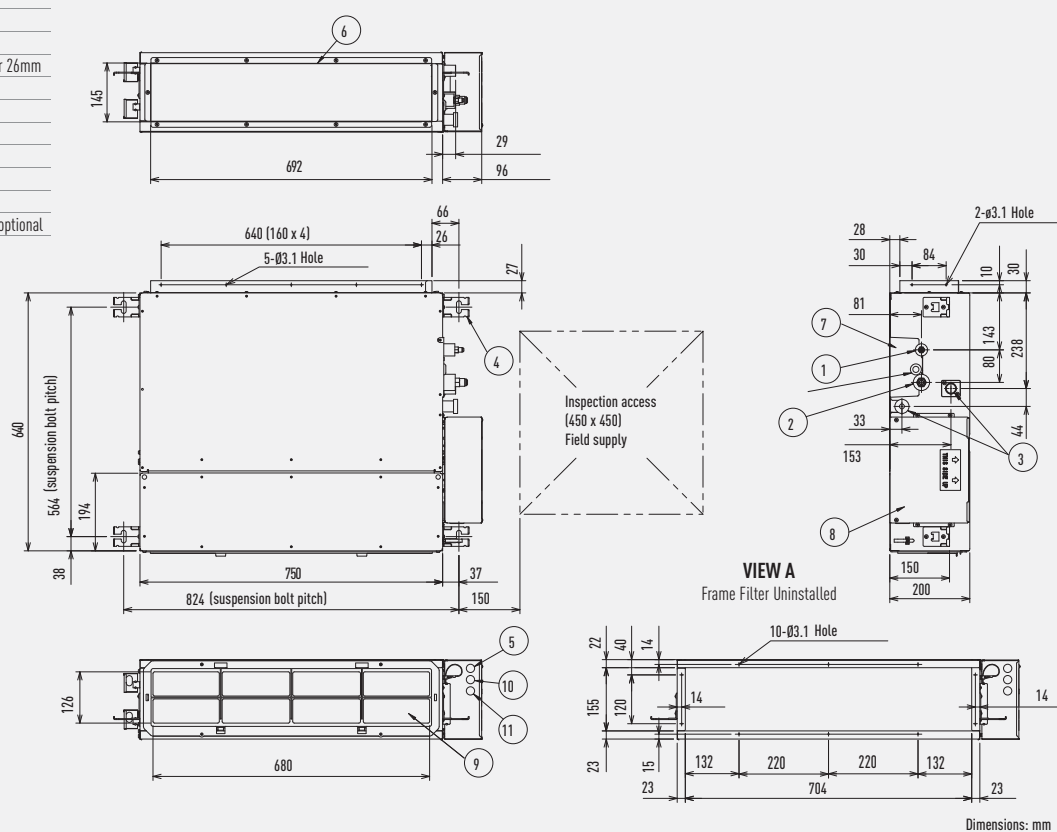
Dimensions: mm

S-106MF2E5A // S-140MF2E5A // S-160MF2E5A



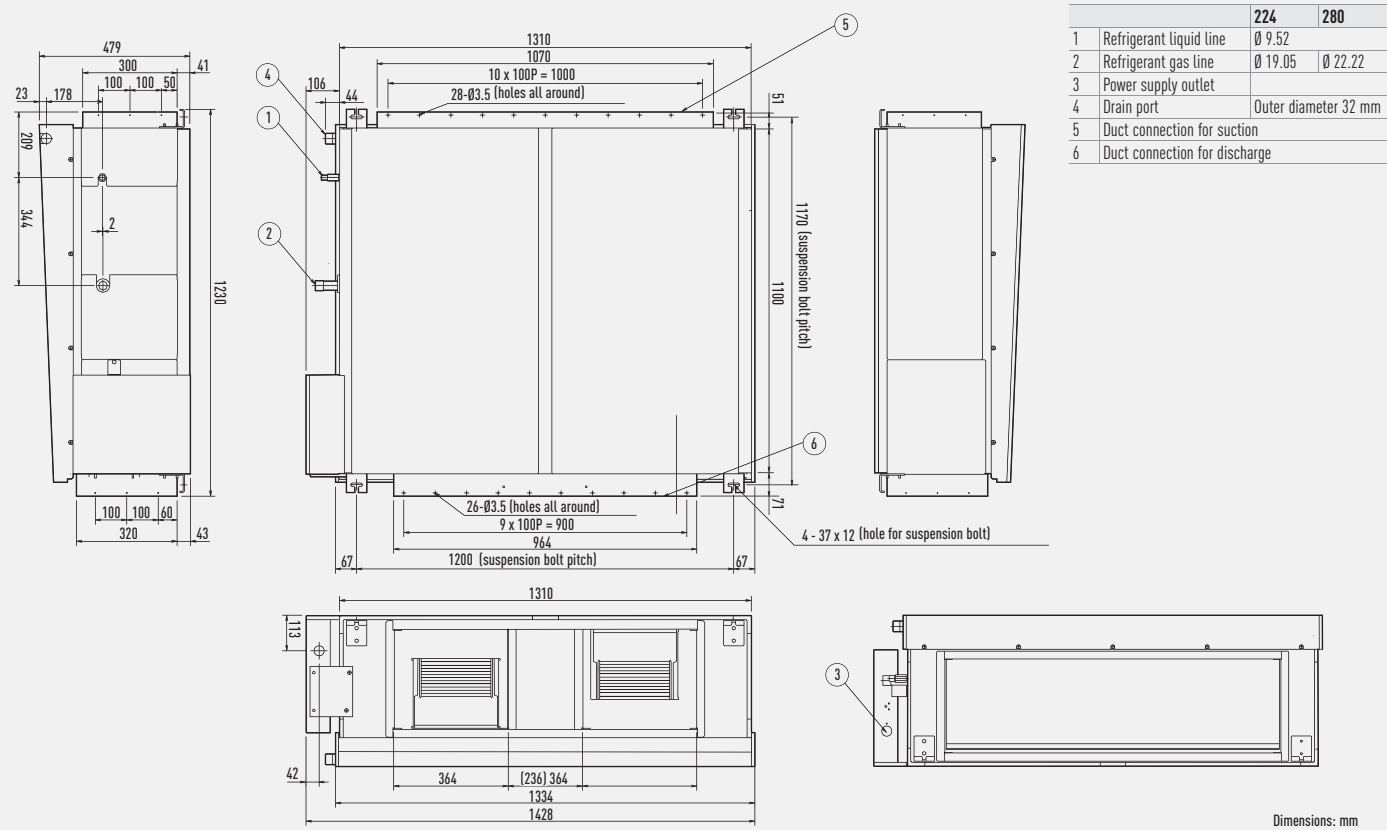
M1 Type // Slim Variable Static Pressure Hide Away

1	Refrigerant tubing joint (narrow tube)
2	Refrigerant tubing joint (wide tube)
3	Upper and bottom drain port
4	Suspension lug
5	Power supply outlet
6	Flange for air intake duct
7	PL cover
8	Electrical component box
9	Frame filter
10	Signal output board
	ACC-SG-AGB: optional



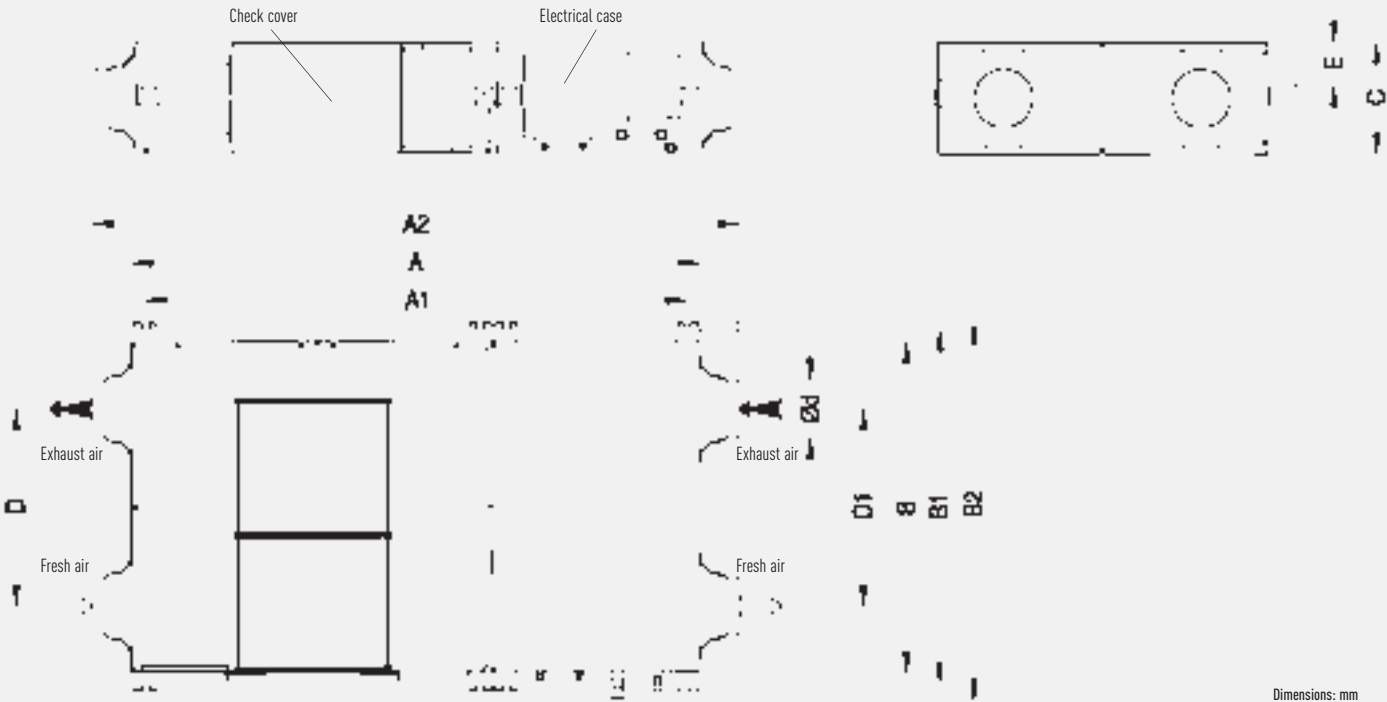
ECOi and ECO G indoor units dimensions

E1 Type // High Static Pressure Hide Away



Heat Recovery with DXCoil

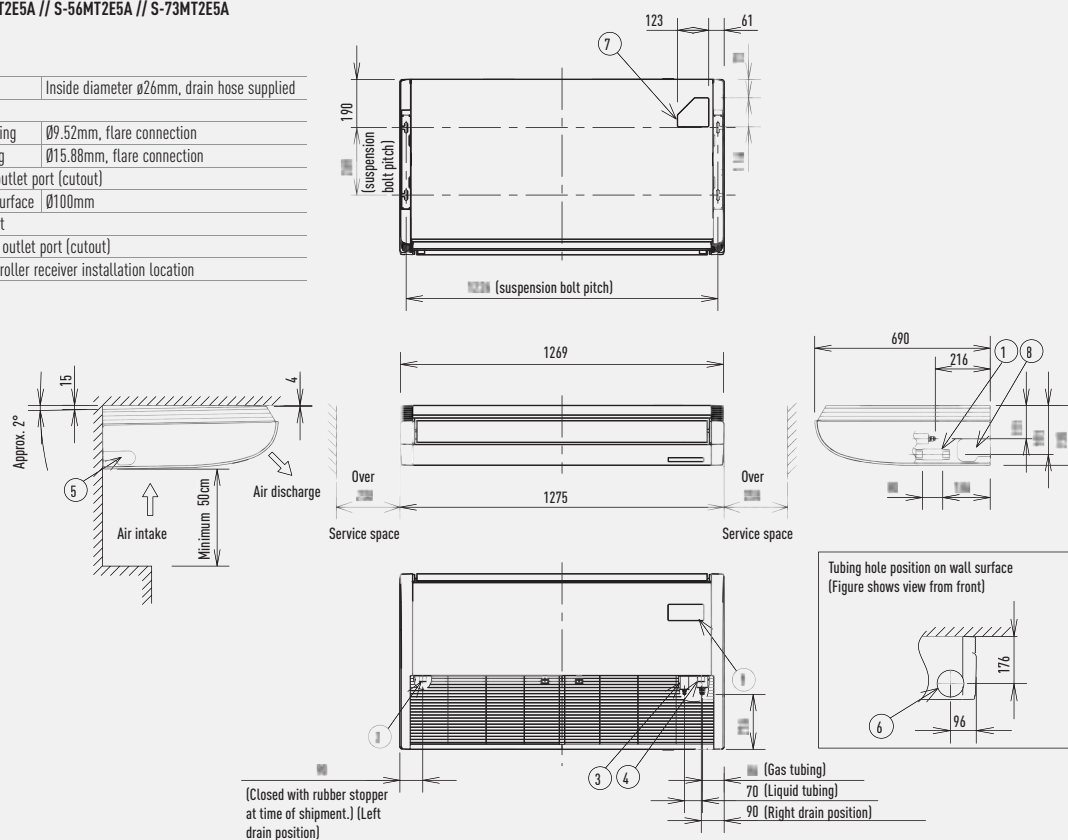
	A	A1	A2	B	B1	B2	C	D	D1	Ø d	E
PAW-500ZDX2	1470	1410	1630	997	1053	1112	312	728	497	200	38
PAW-800ZDX2	1822	1752	1986	882	936	994	390	431	431	250	169
PAW-01KZDX2	1822	1752	1986	1132	1186	1244	390	681	532	250	169



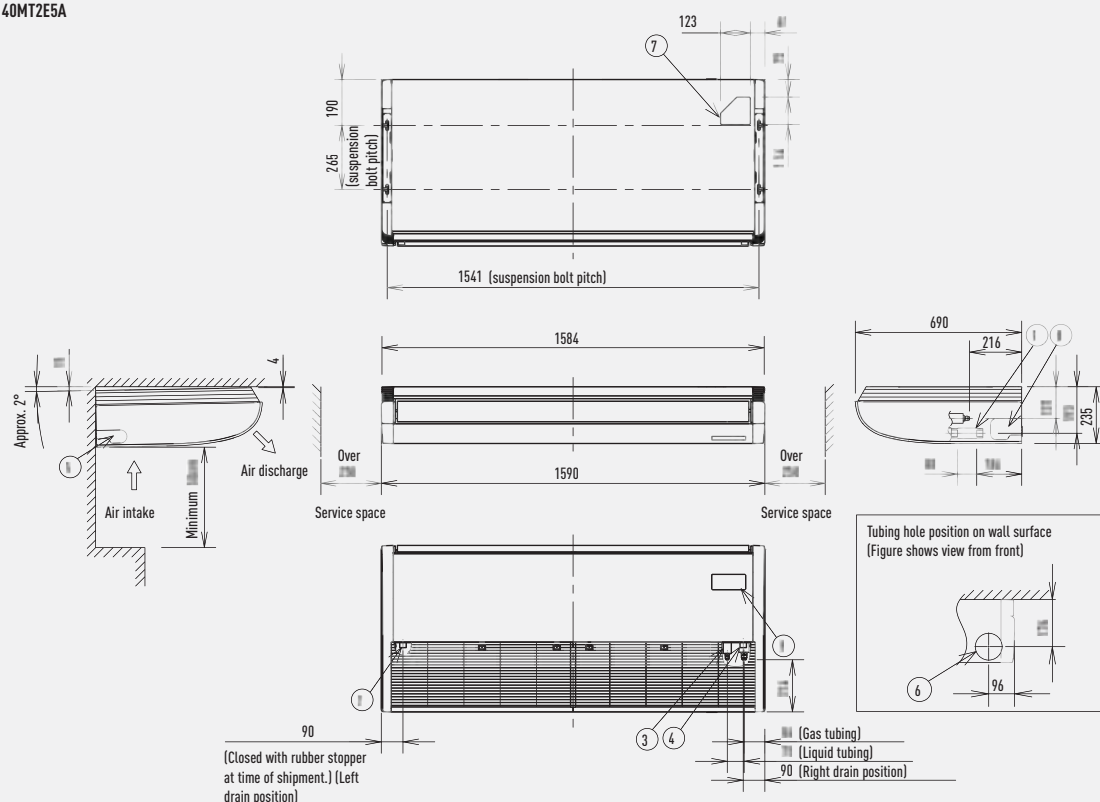
T2 Type // Ceiling

S-36MT2E5A // S-45MT2E5A // S-56MT2E5A // S-73MT2E5A

1	Drain port VP20	Inside diameter $\varnothing 26$ mm, drain hose supplied
2	Left drain position	
3	Refrigerant liquid tubing	$\varnothing 9.52$ mm, flare connection
4	Refrigerant gas tubing	$\varnothing 15.88$ mm, flare connection
5	Left side drain hose outlet port (cutout)	
6	Tubing hole on wall surface	$\varnothing 100$ mm
7	Upper side tubing port	
8	Right side drain hose outlet port (cutout)	
9	Wireless remote controller receiver installation location	



S-106MT2E5A // S-140MT2E5A

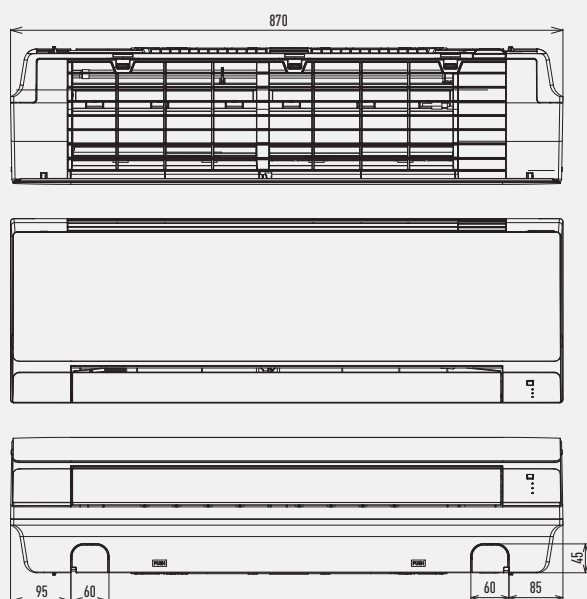


Dimensions: mm

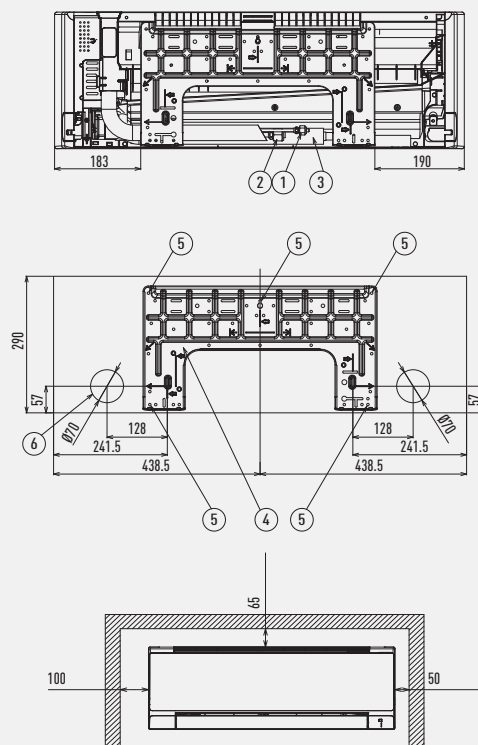
ECOi and ECO G indoor units dimensions

K2/K1 Type // Wall Mounted

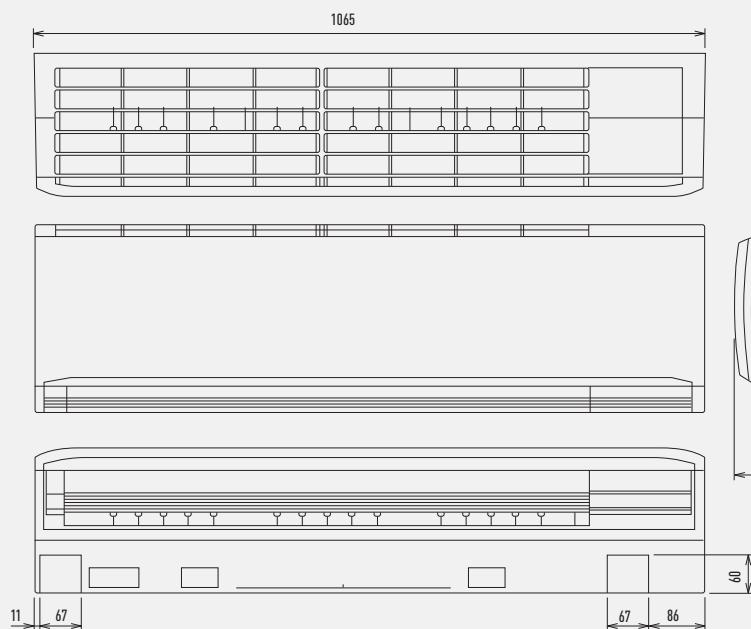
S-15MK2E5A / S-22MK2E5A / S-28MK2E5A / S-36MK2E5A



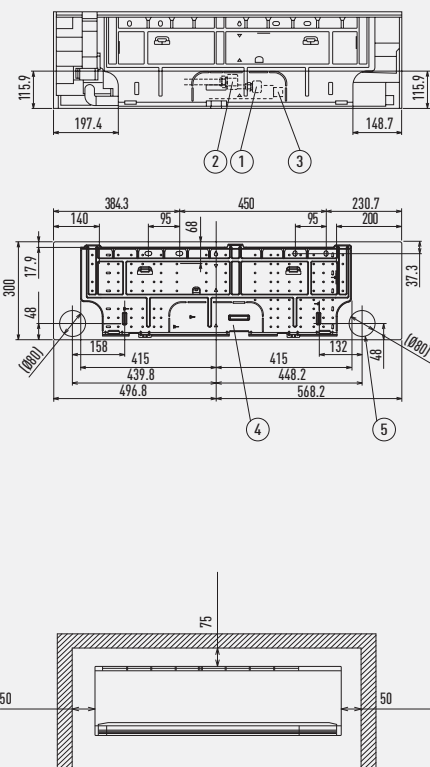
1	Refrigerant tubing (liquid tube)	Ø 6.35 (flared)
2	Drain hose	Outer diameter 16mm
3	Rear panel	PL Back
4	Refrigerant tubing (gas tube)	Ø 12.7 (flared)
5	Rear panel fixing holes	
6	Tubing and wiring holes	Ø 70



S-45MK1E5A / S-56MK1E5A / S-73MK1E5A / S-106MK1E5A



	45-56	73-106
1	Refrigerant tubing (liquid tube)	Ø 6.35 (flared) Ø 9.52 (flared)
2	Refrigerant tubing (gas tube)	Ø 12.7 (flared) Ø 15.88 (flared)
3	Drain hose VP13	Outer diameter 18mm
4	Rear panel	PL BACK
5	Tubing and wiring holes	Ø 80



Dimensions: mm

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