Panasonic

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

2014 - 2015

FS MULTI

ECOi

ECO G

VENTILATION

heatingandcoolingsystems

FS MULTI | ECO i | ECO G

Panasonic

NEW 2014 / 2015
VRF RANGE

Summary

CE

QUALITY SYSTEM SIRIM

ISO 9000 Series Certification

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

ENVIRONMENTAL SYSTEM SIRIM

UKAS ENVIRONMENTAL MANAGEMENT 074

Enviroment Management Systems Approval Certificate

CERTIFIED TO MS ISO 14001:1997
Panasonic HA Air-Conditioning (M) Sdn. Bhd. (PHAAM)
(Fomerly know 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

NEW

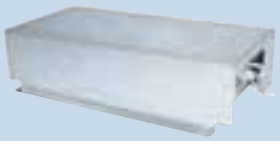
GHP + WHE heating, cooling and DHW.
The ECO G the efficient solution for gas boiler replacement.

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.

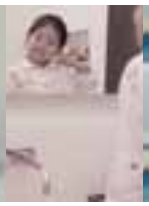
PG 127

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.

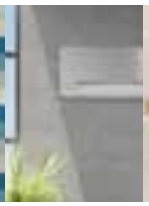
1936
First electric Fan with Automatic Oscillation (36 cm table top model).

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.

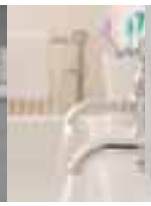


1973
Panasonic launches the first highly efficient air-to-water heat pump in Japan.

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.
Pansonic'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 booser heater. Ideal fro 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.

Checking the oil inside the compressor under extremely cold conditions.

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.

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.

Silence. That Does Not Disturb You.

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.

Sunshine simulation.

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.

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 CO_2 emissions, our kids school 'eco learning' programme and much more.

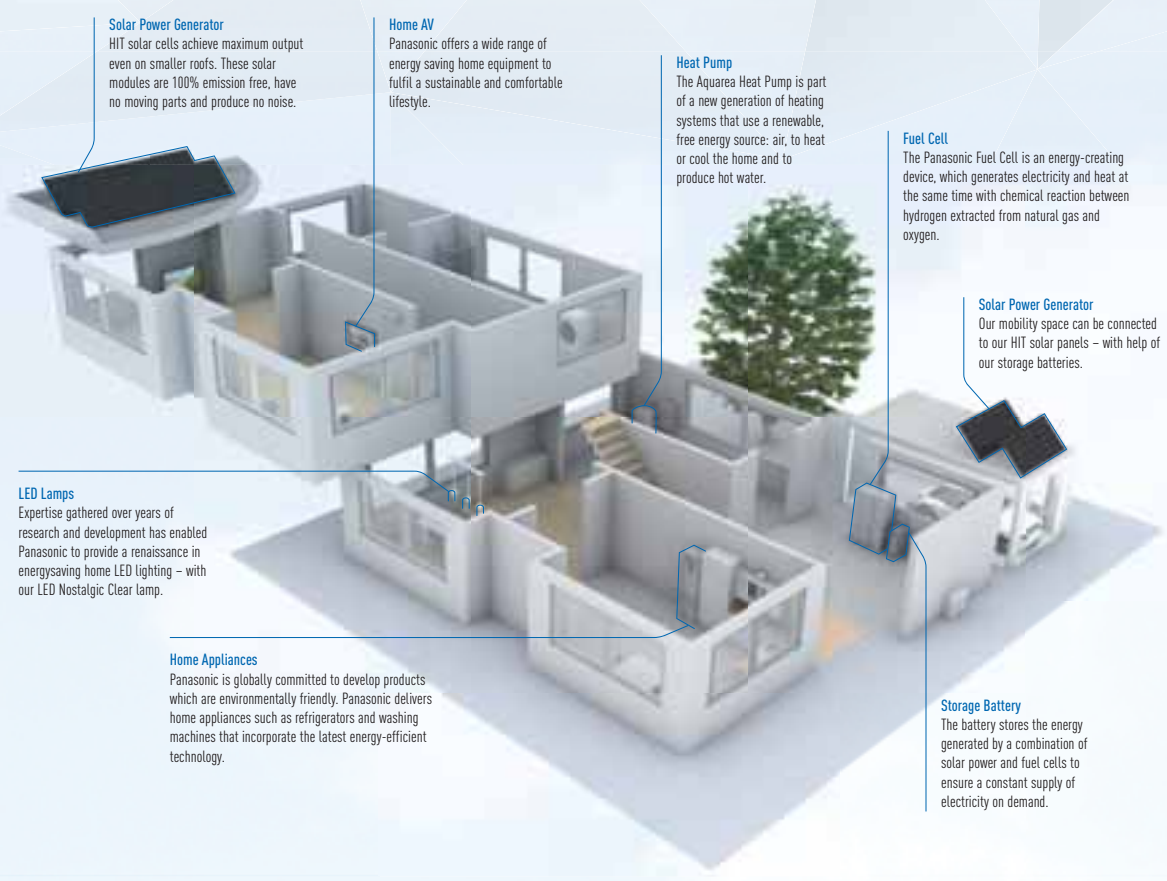
Sustainability Declaration. Berlin, Germany, 4th September 2013

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 CO_2 emissions throughout the entire home



Solar Power Generator
HIT solar cells achieve maximum output even on smaller roofs. These solar modules are 100% emission free, have no moving parts and produce no noise.

Home AV
Panasonic offers a wide range of energy saving home equipment to fulfil a sustainable and comfortable lifestyle.

Heat Pump
The Aquarea Heat Pump is part of a new generation of heating systems that use a renewable, free energy source: air, to heat or cool the home and to produce hot water.

Fuel Cell
The Panasonic Fuel Cell is an energy-creating device, which generates electricity and heat at the same time with chemical reaction between hydrogen extracted from natural gas and oxygen.

Solar Power Generator
Our mobility space can be connected to our HIT solar panels – with help of our storage batteries.

LED Lamps
Expertise gathered over years of research and development has enabled Panasonic to provide a renaissance in energysaving home LED lighting – with our LED Nostalgic Clear lamp.

Home Appliances
Panasonic is globally committed to develop products which are environmentally friendly. Panasonic delivers home appliances such as refrigerators and washing machines that incorporate the latest energy-efficient technology.

Storage Battery
The battery stores the energy generated by a combination of solar power and fuel cells to ensure a constant supply of electricity on demand.

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**

www.panasonicproclub.com
or connect simply with your smartphone to the proclub using this QR:

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

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, Etherea, 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

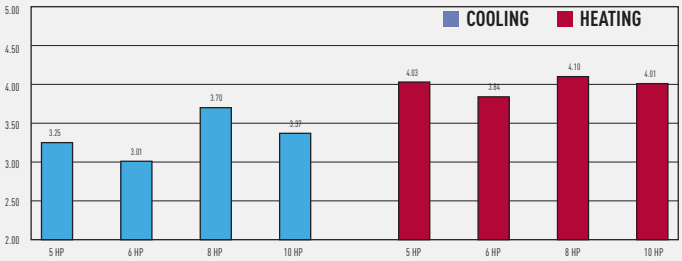
The FS Multi VRF is a refrigerant charge-free system that does not require a charge of additional refrigerant even when using a full pipe length of up to 90 m. This dramatically shortens the installation time required for charging with additional refrigerant, weight measurement and pressure judgment.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

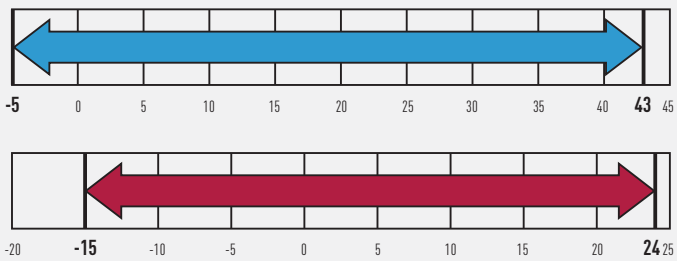
High quality features translate into savings thanks to great energy efficiency. This efficiency is due to the fact that each room is individually controlled and only the rooms that require air-conditioning are heated or cooled. Moreover, thanks to Inverter technology, the level of air conditioning can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



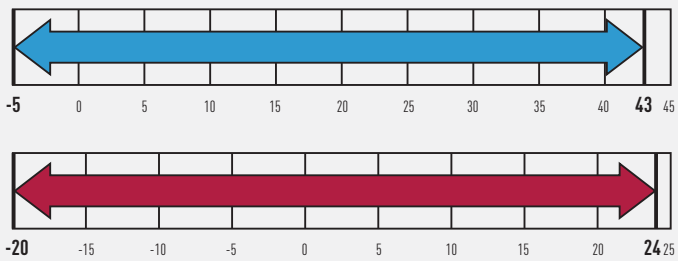
Broad Operating Range

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

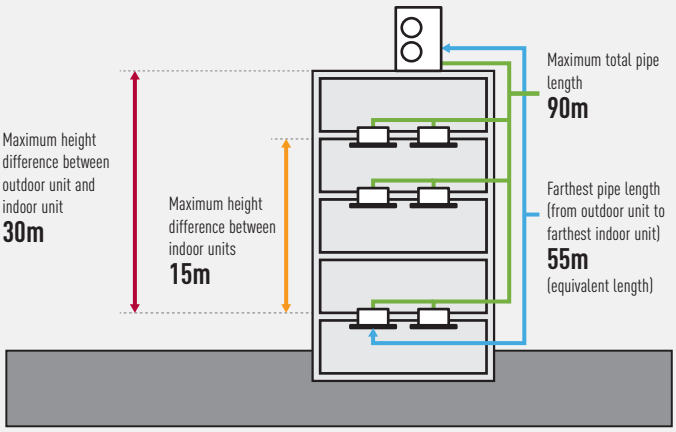


FS Multi Outdoor Units

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.



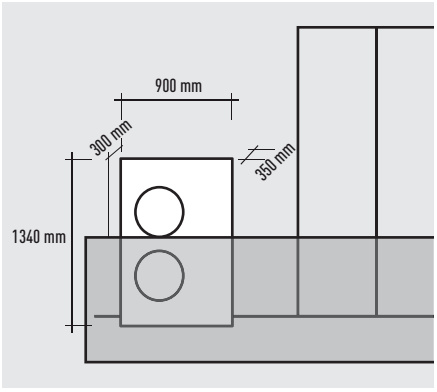
a) Maximum length from outdoor unit to farthest indoor unit (equivalent length): 55 m
b) Maximum length from first branch pipe to farthest indoor unit (equivalent length): 30 m
c) Maximum length of all main pipes: 40 m
d) Maximum length of all branch pipes: 50 m

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.

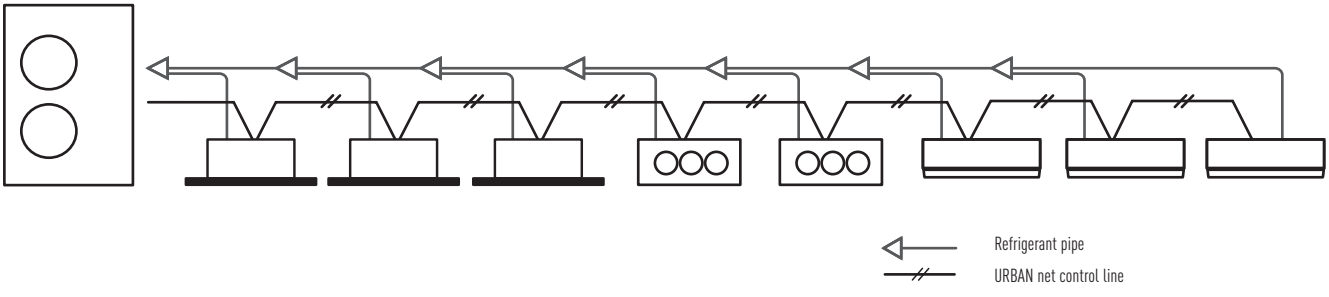
Multi-storey Apartments

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.



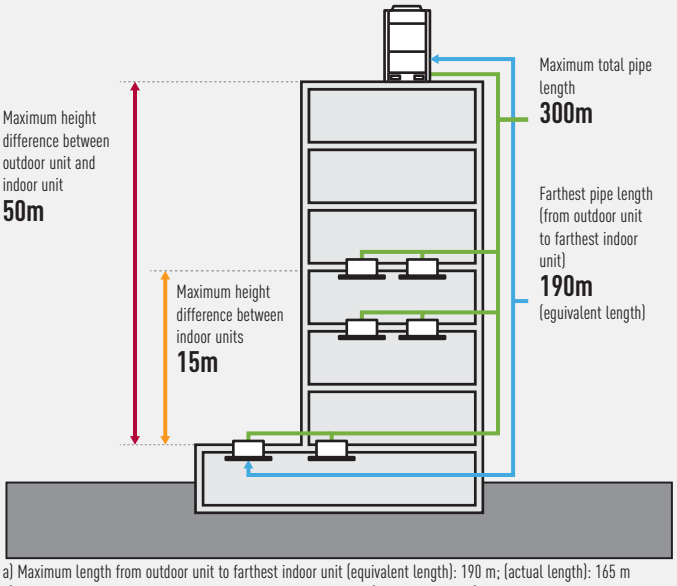
System / HP	5HP	6HP
Connectable Indoor Unit	8	8

FS Multi Outdoor Units

U-8EA1E8 / U-10EA1E8

Pipes of up to 300m

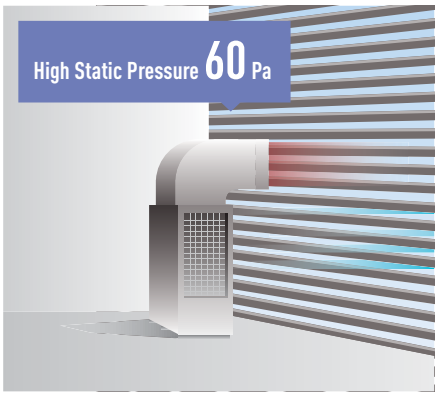
The total length of the pipe between a system's indoor and outdoor units can be extended up to 300m, with a height difference of up to 50m. These ample limits make it possible to place the outdoor unit on the roof. The maximum height difference between indoor units in the same system may be up to 15m,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

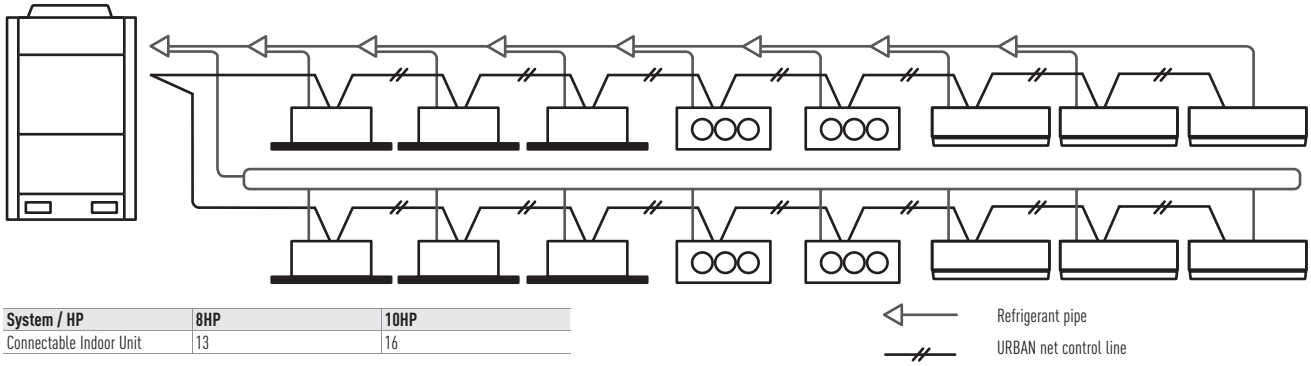
Offices, Shops and Restaurants

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.



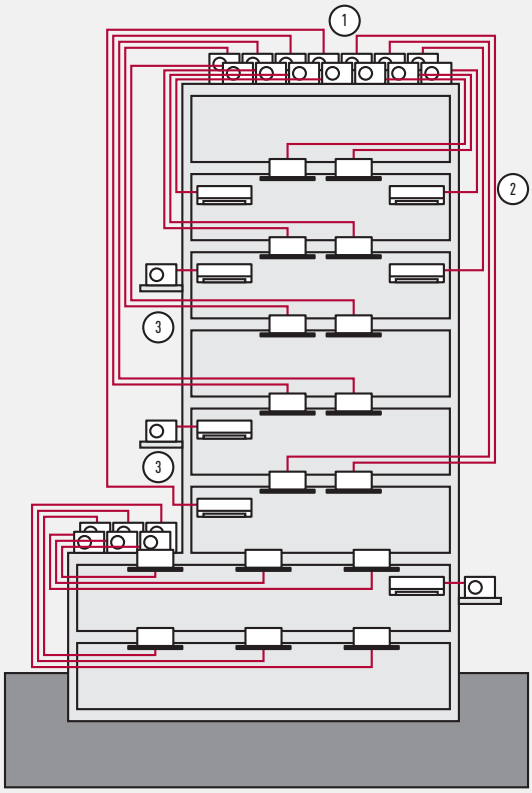
High External Static Pressure Mode

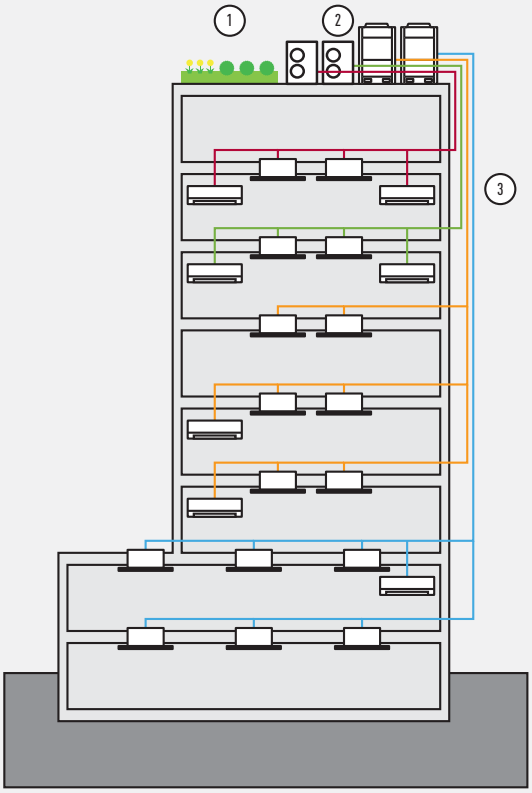
8 and 10 HP outdoor unit features a high external static pressure mode (up to 60 Pa). Select via the outdoor unit's local setting mode.



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

FS Multi Outdoor Units





Frequent Single Split System Problems

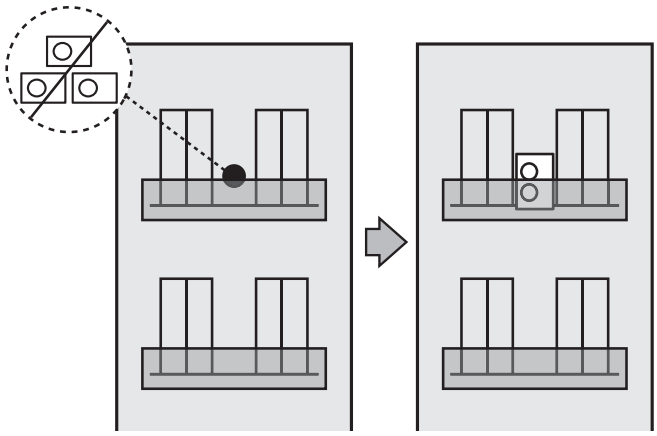
1. Requires many outdoor units and large installation space.
   Thus, spoiling the building's appearance, and the building's strength must be assessed.
2. Requires many pipe shafts.
3. Pipes are short so outdoor units have to be installed on wall surfaces.
   Insufficient pipe length makes installation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

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.

AIRZONE

Airzone. Control of the VRF Hide Aways

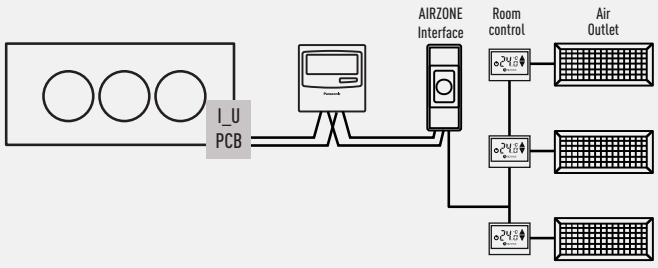
Airzone has developed interfaces to easily connect to Panasonic VRF Hide Away units. Ensuring optimum performance, comfort and energy savings, the new system is efficient and easy to install.

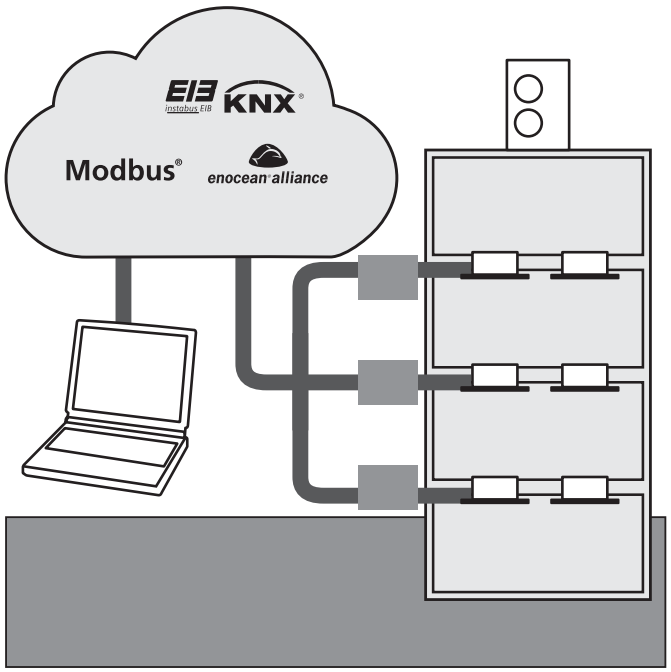
Airzone full range of accessories for any duct project


Different type of outlets


Also plenum automatic doors


Full range of RC (wired/ wireless, ...)





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.

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

EXAMPLES OF SETTING WEEKLY TIMER

Shop with regular holidays
Example: Closed Saturday afternoon and all day Sunday.

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

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

The number of persons varies depending on time zones.
Example: Set a lower temperature at lunch time when many people may visit.

Everyday
On 12:00 23°C
On 14:00 28°C

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

Not to forget to switch OFF
Example: To prevent forgetting to switch OFF weekdays

Mon-Fri
Off 20:00

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

HOW TO SET

1 Select the day

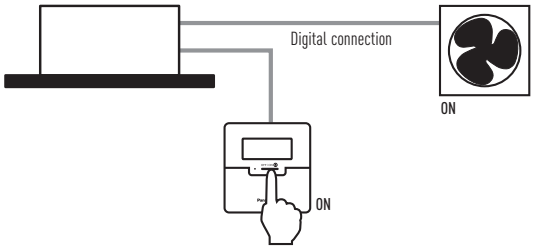
2 Enter the time

*Simple Timer Mode

2. Ventilation Interlink

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

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



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.

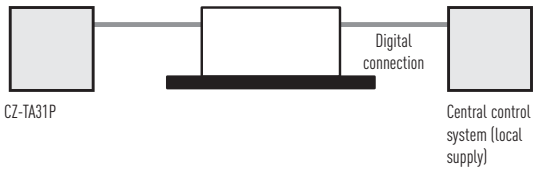
Cooling/Heating Controller for the Outdoor Unit (CZ-RD1)

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)

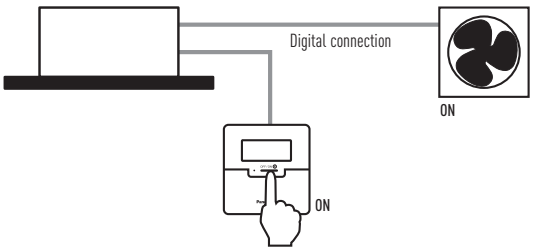
- By connecting to the indoor unit, a separately sold ventilator can be controlled
- Remote control operation of the indoor unit is enabled (ON/OFF control)
- The operating condition of the indoor unit (malfunctions, operating status) can be externally output
- Control in linkage with a Energy Recovery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

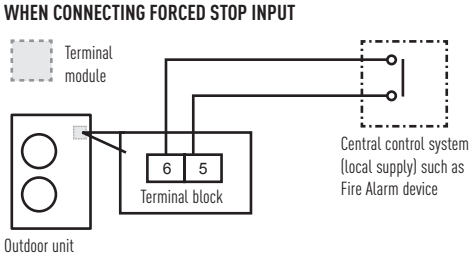
INTERLINK WITH VENTILATION OR ERV



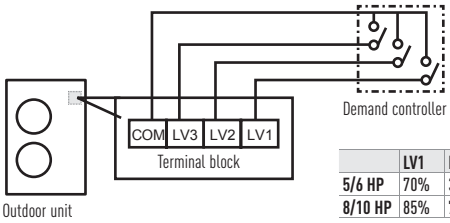
Terminal Module equipped as standard on the outdoor unit (CZ-CAP1)

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 controller
- Group control of several FS Multi VRF systems for forced stop and CZ-RD1 cooling/heating controller

WHEN CONNECTING FORCED STOP INPUT

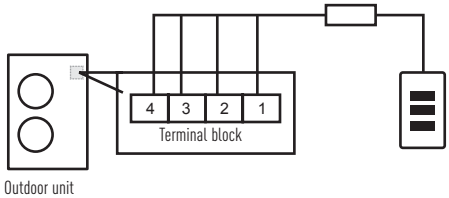


WHEN CONNECTING DEMAND CONTROLLER

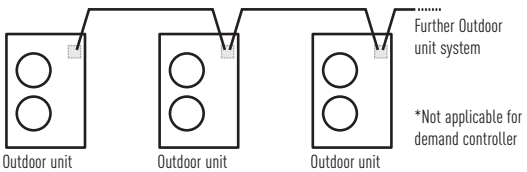


	LV1	LV2	LV3
5/6 HP	70%	30%	0%
8/10 HP	85%	70%	0%

WHEN USING CZ-RD1 (COOLING / HEATING SELECTOR)



GROUP CONNECTION

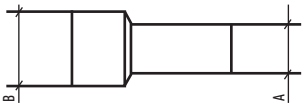


R410A Branch Pipe Kits

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)

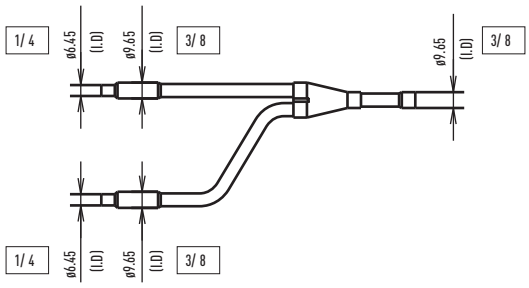
PIPE ADAPTORS ARE SUPPLIED WITH THE PACKAGE



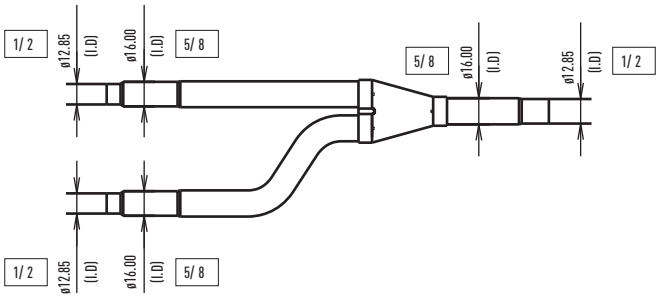
A	Ø 19,05	Ø 12,70	Ø 19,05	Ø 19,05	Ø 9,52
B	Ø 15,88	Ø 15,88	Ø 25,40	Ø 22,20	Ø 12,70
Quantity	1	2	1	3	1

CZ-P155BK1

Liquid pipe branch pipe (inner diameter)

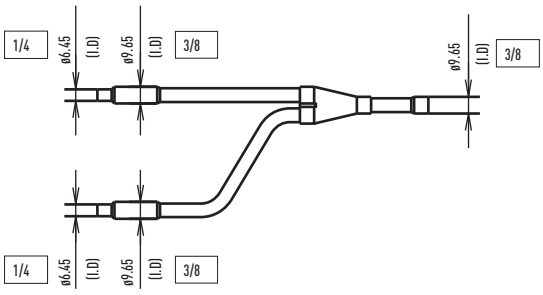


Gas pipe branch pipe (inner diameter)

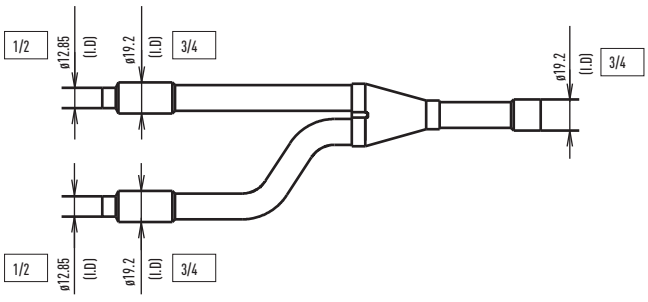


CZ-P280BK1

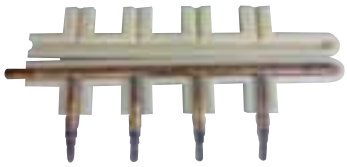
Liquid pipe branch pipe (inner diameter)



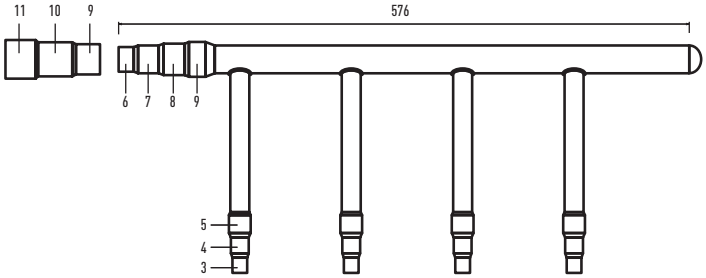
Gas pipe branch pipe (inner diameter)

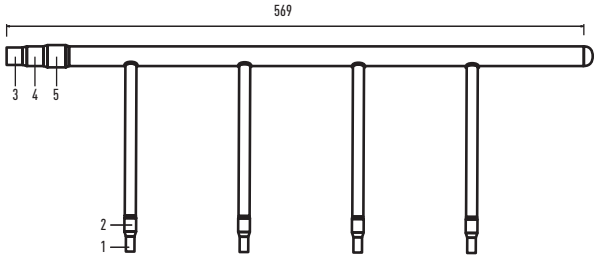


Header pipe model for 2-Pipe systems CZ-P4HP4C2BM (for 8 and 10 HP systems)



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

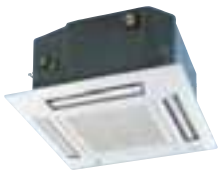
INDOOR UNITS	0,8 HP	1 HP	1,25 HP	1,5 HP
COOLING CAPACITY	2,2 kW	2,8 kW	3,2 kW	3,6 kW
HEATING CAPACITY	2,5 kW	3,2 kW	3,6 kW	4,2 kW
Wall Mounted TYPE	 S-22KA1E5	 S-28KA1E5		 S-36KA1E5
	 S-22KA1E5S	 S-28KA1E5S		 S-36KA1E5S
4 Way 90x90 CASSETTE				
4 Way 60x60 CASSETTE	 S-22YA1E5	 S-28YA1E5		 S-36YA1E5
LOW-SILHOUETTE 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	220-230-240 / 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	m^3/min	95,0	98,0
	Heating	m^3/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	50~130% of outdoor unit capacity
	Model / Quantity	unit	S-22 ~ S-90 / 2 - 8	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

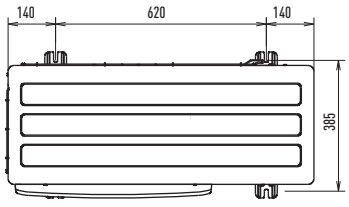
- Refrigerant charge-free system (no additional refrigerant is required)
- Very quiet outdoor units
- Flexible installation and easy setup
- Easy trouble-shooting function
- Space-saving design

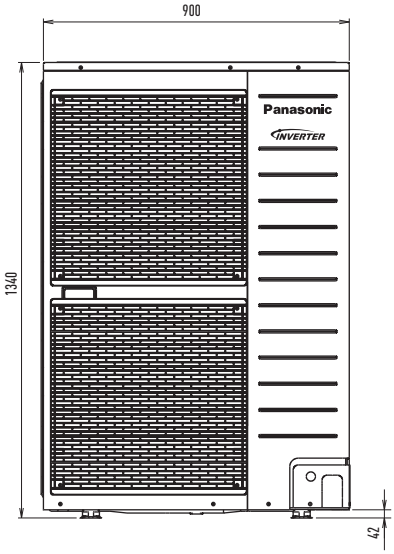
Features

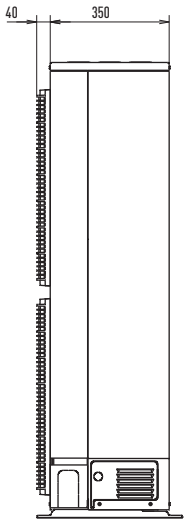
Control Flexibility
- Cooling Only Model Setting (by jumper line cut)
- Power Save Mode
- Outdoor Unit Silent Operation Mode
- Auto Restart

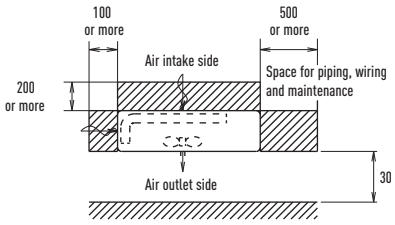
Field Service & Maintenance
- Pump Down Operation
- Cooling Operation TESTRUN
- Heating Operation TESTRUN
- Automatic Address Resetting
- Self Diagnosis Function (LED display)

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	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	m^3/min	150	154
	Heating	m^3/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

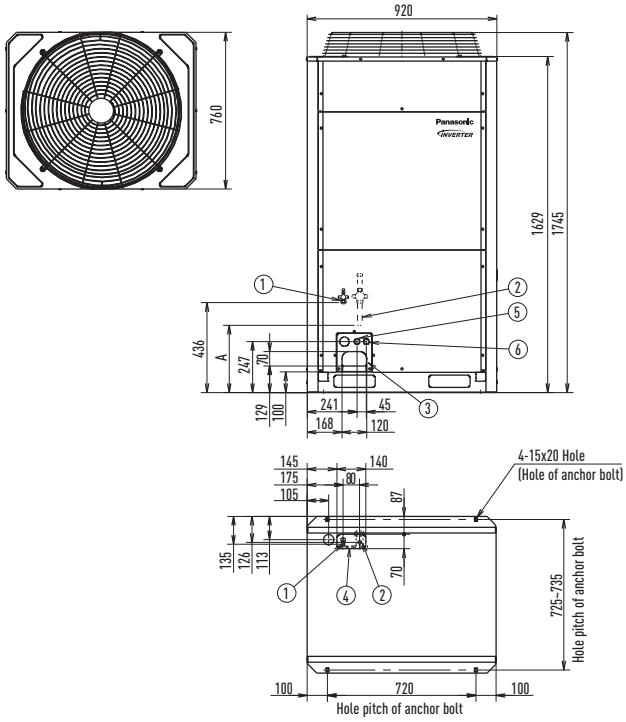
Features

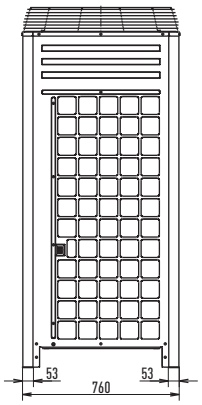
Control Flexibility

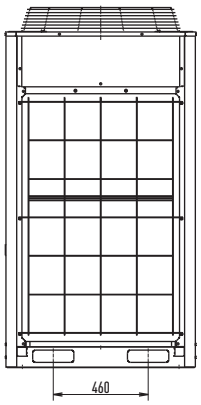
- Cooling/Heating Selector
- Demand Control Input (LV1/LV2/LV3)
- Forced STOP Input
- Cooling Only Model Setting (by jumper line cut)
- Power Save Mode
- Outdoor Unit Silent Operation Mode
- Auto Restart

Field Service & Maintenance

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







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

10 HP	326	9,52 Flare	22,22 Brazing
8 HP	196*		19,05 Brazing
Model	A	Liquid pipe	Gas pipe
	Connecting Pipe		

* Dimension when use the accessory pipe

FS Multi Indoor Units

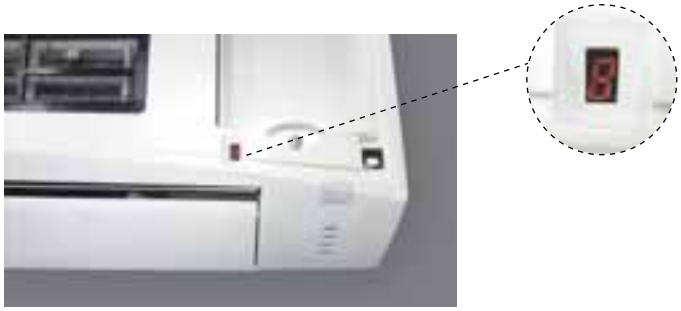
Wide choice of models depending on the indoor requirements.

ETHEREA

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.



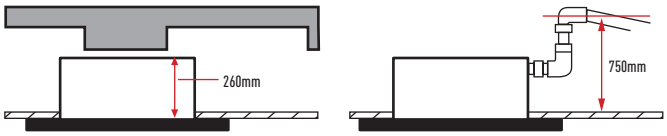
Flexible installation

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

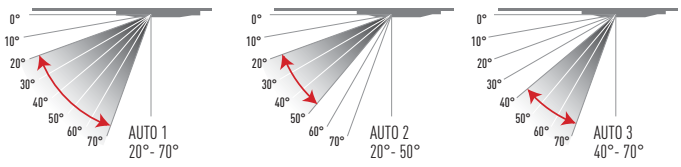


With a slim profile of only 260mm, the unit fits easily in ceiling spaces and tight spots. The internal pump allows the drain line to be elevated up to 750mm above the base of the unit.

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.

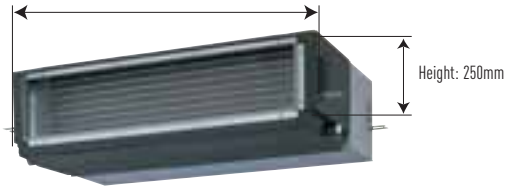
Thoroughly considered connecting flange design

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.



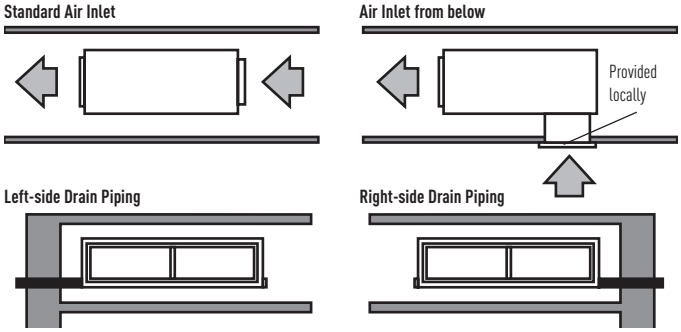
Width*: 780mm (45/56MA1E5) / 1,000mm (63/71/90MA1E5).
* Add 100mm for power supply equipment.

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	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	4,50
Current		A	0,25	0,30	0,35	0,40
Power input cooling		W	25	27	30	35
Heating capacity		kW	2,50	3,20	4,20	5,10
Current		A	0,25	0,30	0,35	0,40
Power input heating		W	25	27	30	35
Air volume	Cooling	m^3/min	9,5	9,7	10,9	11,3
	Heating	m^3/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	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 VRF | Easy control by BMS CONNECTIVITY | Environmentally friendly refrigerant R410A

WALL MOUNTED TYPE
WHITE - ALSO AVAILALBE
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	m^3/min	9,5	9,7	10,9	11,3	15,3	16,0	17,4
	Heating	m^3/min	10,3	10,9	11,6	12,1	16,7	17,1	18,3
Moisture removal volume		L/h	1,3	1,6	2,1	2,5	3,2	3,6	4,2
Sound pressure level	Cooling (Hi / Lo)	dB(A)	38 / 33	39 / 33	42 / 34	43 / 35	44 / 38	46 / 39	48 / 40
	Heating (Hi / Lo)	dB(A)	38 / 33	39 / 33	42 / 34	43 / 35	44 / 38	46 / 39	48 / 40
Sound power level	Cooling (Hi / Lo)	dB	53 / 48	54 / 48	57 / 49	58 / 50	59 / 53	61 / 54	63 / 55
	Heating (Hi / Lo)	dB	53 / 48	54 / 48	57 / 49	58 / 50	59 / 53	61 / 54	63 / 55
Dimensions	H x W x D	mm	290 x 870 x 204	290 x 870 x 204	290 x 870 x 204	290 x 870 x 204	290 x 1.070 x 235	290 x 1.070 x 235	290 x 1.070 x 235
Net weight		kg	9	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)	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)	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 VRF | Easy control by BMS CONNECTIVITY | Environmentally friendly refrigerant 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			**S-22YA1E5**	**S-28YA1E5**	**S-36YA1E5**	**S-45YA1E5**	**S-56YA1E5**
Panel			**CZ-KPY1**	**CZ-KPY1**	**CZ-KPY1**	**CZ-KPY1**	**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	m^3/min	8,3	8,6	9,0	9,3	9,9
	Heating	m^3/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 VRF | Prevention allergen filter ANTI BACTERIAL FILTER | Easy control by BMS CONNECTIVITY | Environmentally friendly refrigerant R410A

4 WAY 90x90 CASSETTE

4 Way airflow, powerful, and compact (only 246cm 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			**S-63UA1E5**	**S-71UA1E5**	**S-90UA1E5**	**S-100UA1E5**
Panel			**CZ-BT03P**	**CZ-BT03P**	**CZ-BT03P**	**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 VRF | Easy control by BMS CONNECTIVITY | Environmentally friendly refrigerant 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

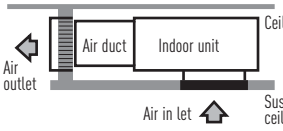
Field service & maintenance
- Indoor Unit Address Setting
- Outdoor Unit Address Setting
- Automatic Address Resetting for Group Control (Wired Only)
- Indoor Unit Test Run Mode
- Emergency Operation (Infrared Only)
- Self Diagnosis Function
- Self Diagnosis Records (Wired Only)

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

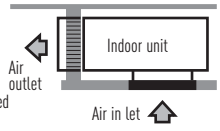
Built-in selectable static pressure settings
Our ultra thin duct-type indoor units have two static pressure settings: 0Pa and 29Pa. In situations without ducting, the 0Pa* static pressure setting is applicable. Where ducting is present, set the unit to 29Pa* static pressure.

*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 — VRF
Easy control by BMS — CONNECTIVITY
Environmentally friendly refrigerant — R410A

LOW-SILHOUETTE DUCT TYPE MID STATIC PRESSURE

Duct type with a maximum of 7mmaq 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

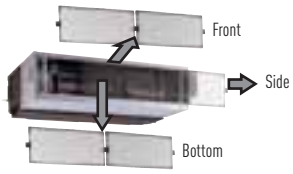
Control flexibility
- 24-Hours ON/OFF Real Setting Timer
- Weekly Timer (Wired Only)
- Group Control by Single Remote Controller
- Outdoor Unit Silent Operation Mode
- Indoor Unit Thermistor Switching (Wired Only)
- Ventilation Unit Control (Wired Only)
- Digital Input/Output Contact - with CZ-TA31P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

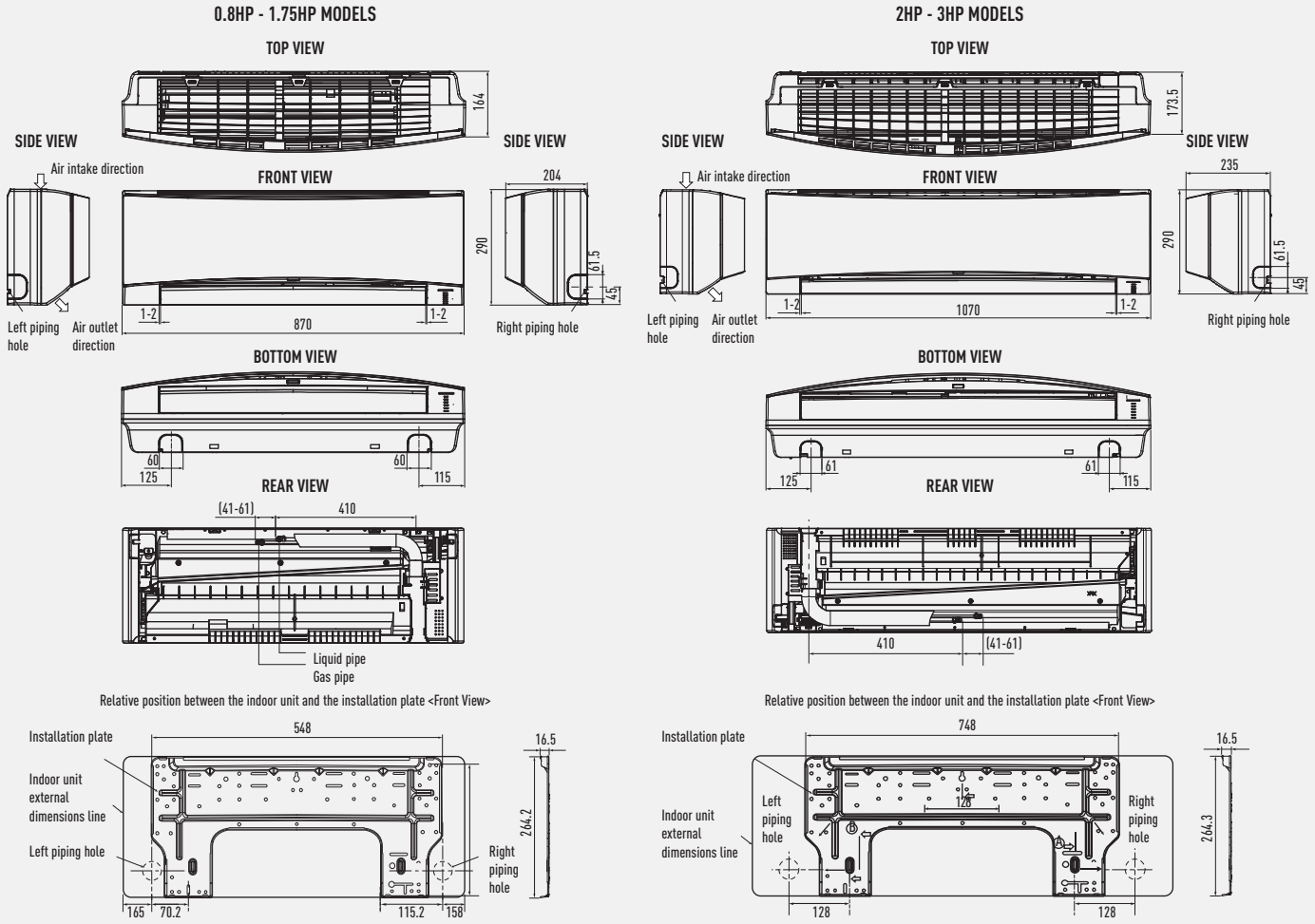
Rating Conditions: Cooling Indoor 27°C DB / 19°C WB. Cooling Outdoor 35°C DB / 24°C WB. Heating Indoor 20°C DB. Cooling Outdoor 7°C DB / 6°C WB.
DB: Dry Bulb; WB: Wet Bulb

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.

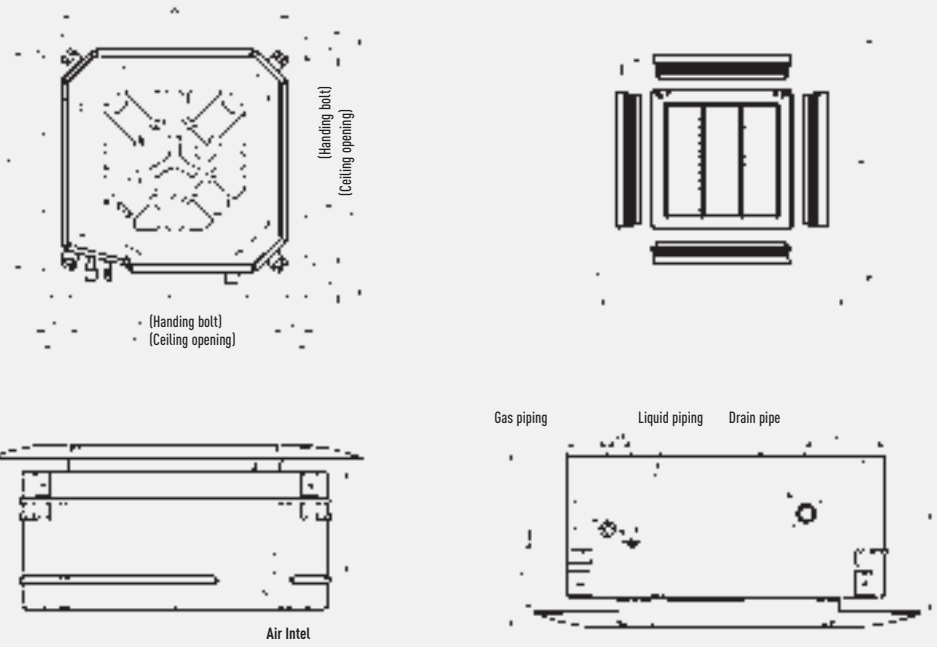
Maximum flexibility VRF | Easy control by BMS CONNECTIVITY | Environmentally friendly refrigerant R410A

Dimensions

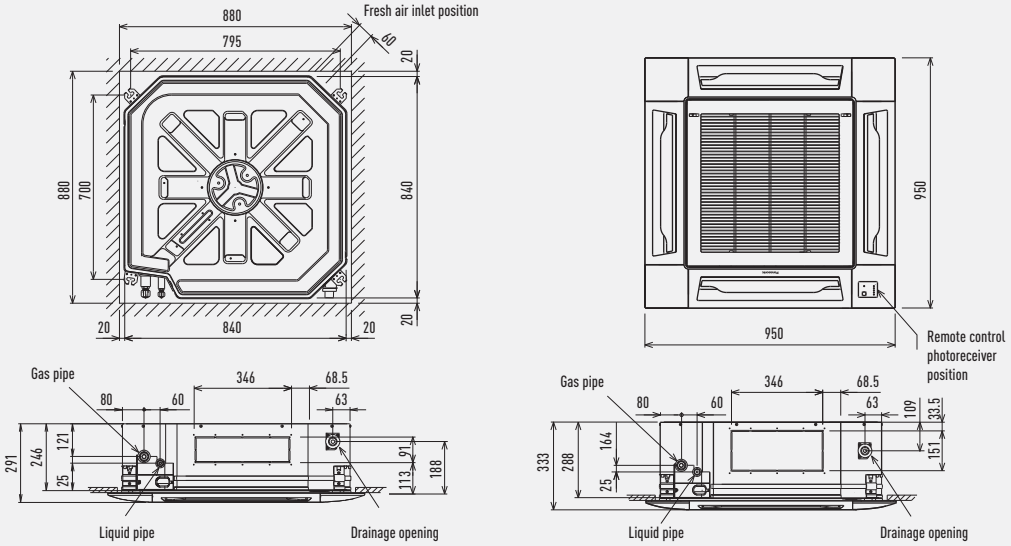
Wall Mounted Type



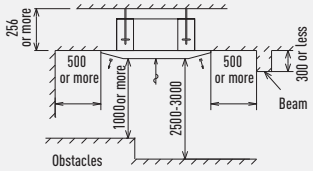
4 Way 60x60 Cassette



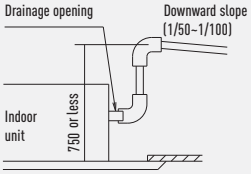
4 Way 90x90 Cassette



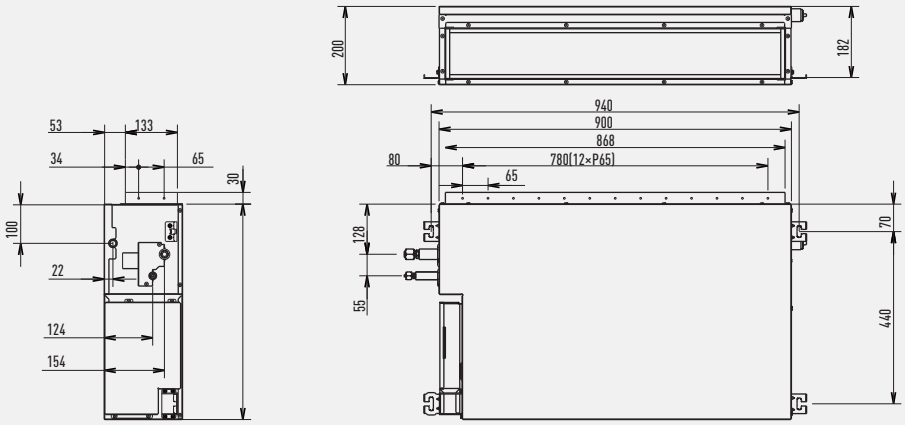
SPACE NEEDED FOR INSTALLATION



DRAINAGE

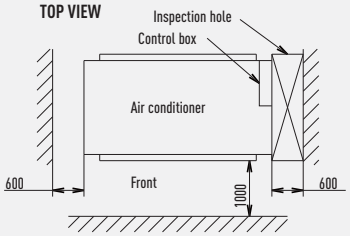


Low-Silhouette Duct Type Low Static Pressure

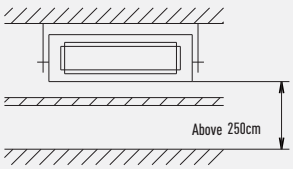


SPACE NEEDED FOR INSTALLATION

TOP VIEW



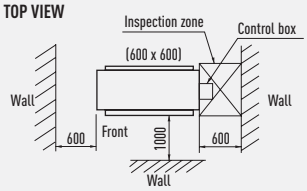
FRONT VIEW



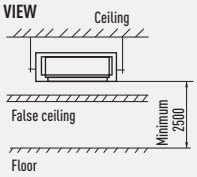
Low-Silhouette Duct Type Mid Static Pressure

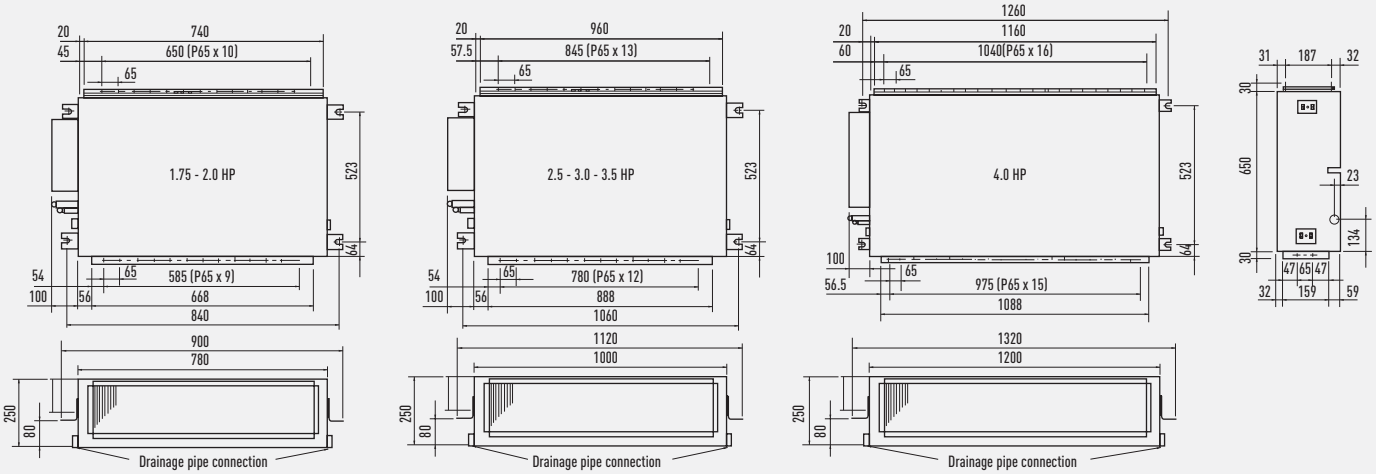
SPACE NEEDED FOR INSTALLATION

TOP VIEW



FRONT VIEW





Internet Control Ready
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.

Energy saving
INVERTER+

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.

High savings
ECO G

GHP technology offer the best primay energy efficiency.

Down to -25 ºC 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.

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 | ECO G | VENTILATION

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 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°C). Example applications: Complexes. High Rise Buildings. Commercial Buildings. Hotels.

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

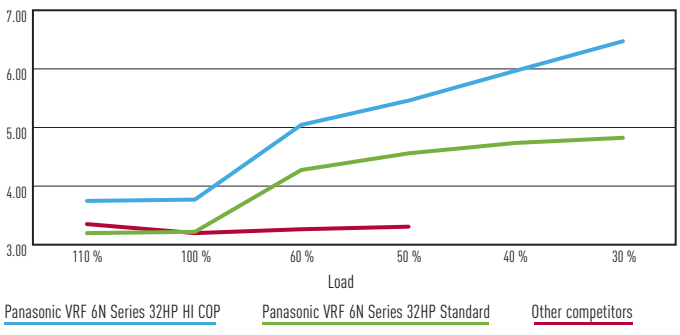
1. Super high efficiency at part load conditions:

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.

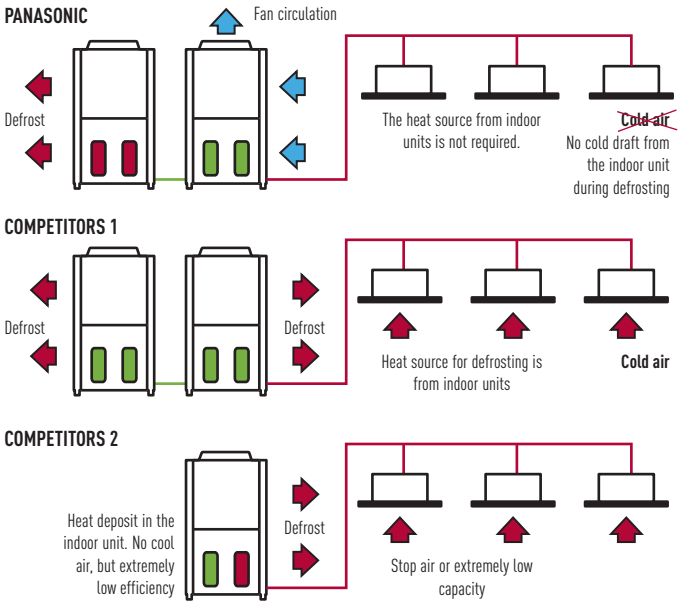
- Indoor temperature: 27°C DB / 19°C WB
- Outdoor temperature conditions

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 x EER (100%) + 0,33 x EER

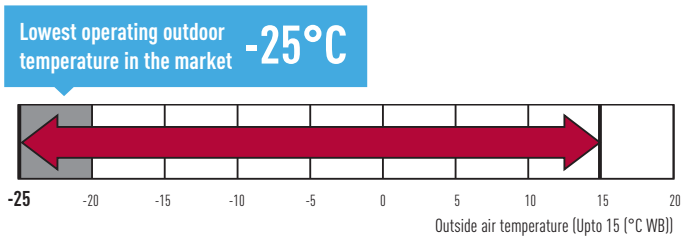
3. Efficient defrost operation

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



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

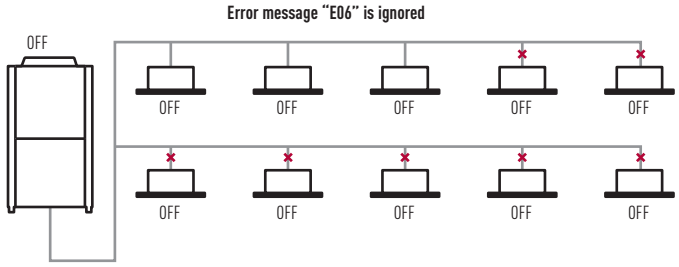
Panasonic use the second unit to defrost the first unit. This makes the system more efficient during defrost and does not affect the comfort.



Wide temperature setting range.

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

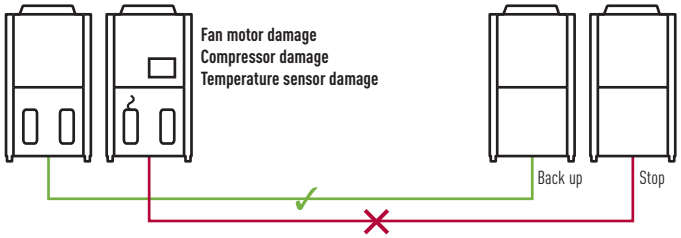
System will not stop when up to 25% of indoor units have power supply breakdown when they are ON Mode.

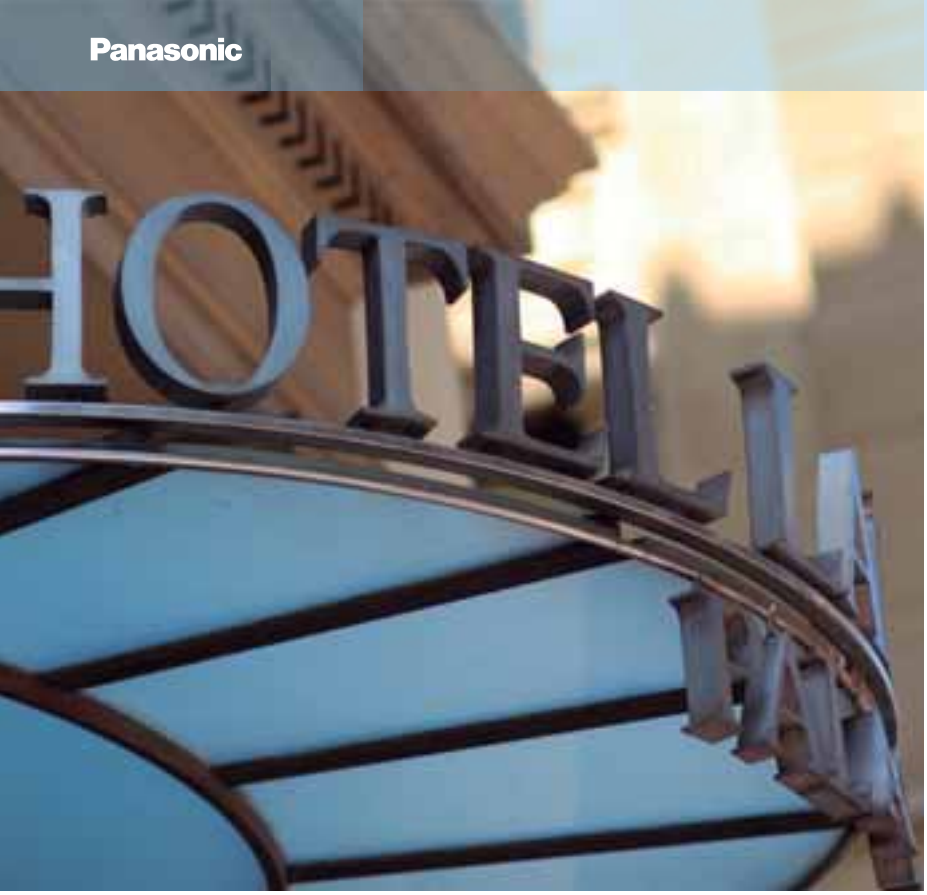


6. High safety operation in case of breakdown! Ensures heating and cooling

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).



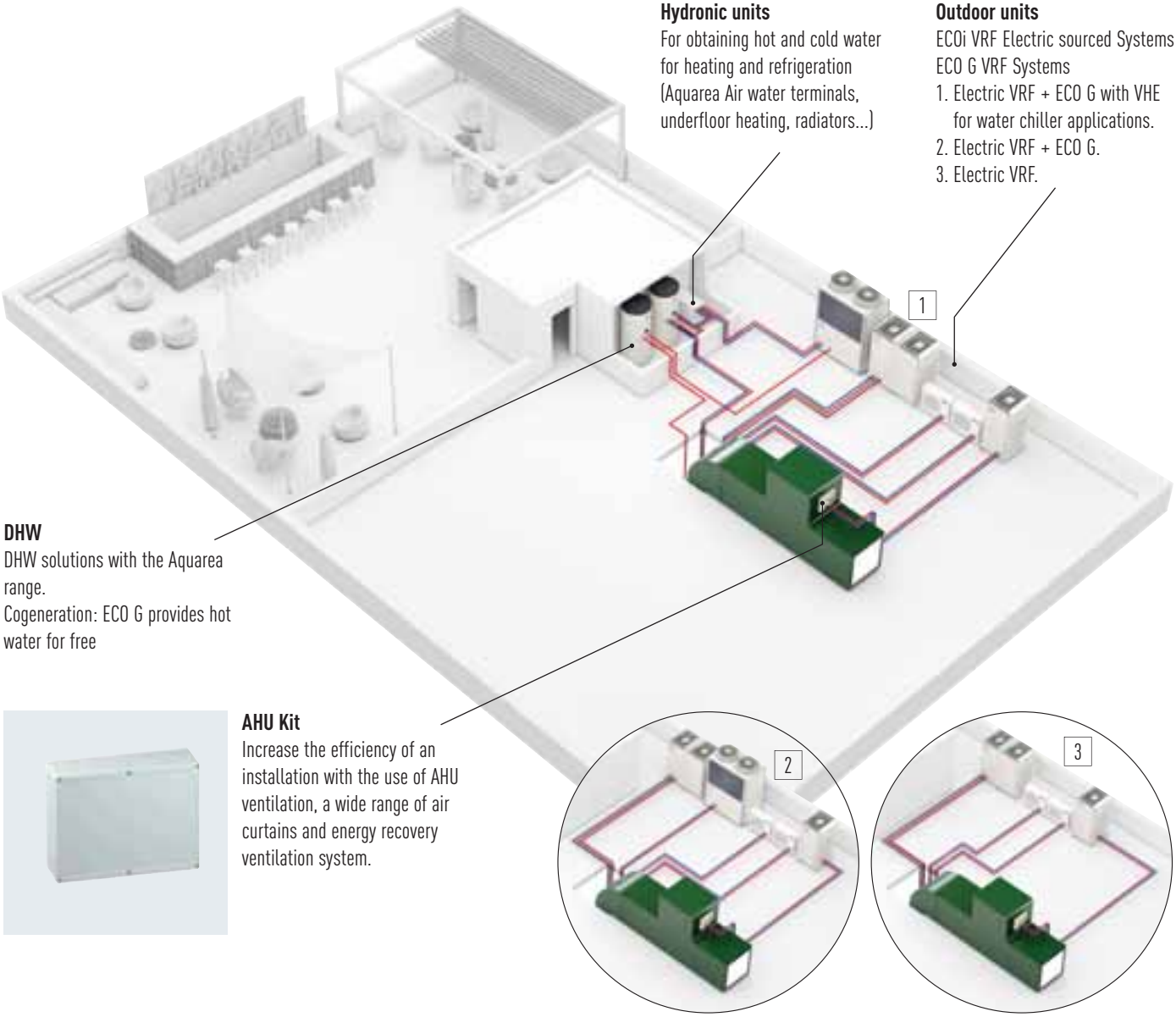


Your entire hotel with maximum savings, maximum control and maximum comfort

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 CO_2 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

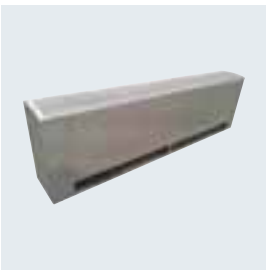
AHU Kit
Increase the efficiency of an installation with the use of AHU ventilation, a wide range of air curtains and energy recovery ventilation system.

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.

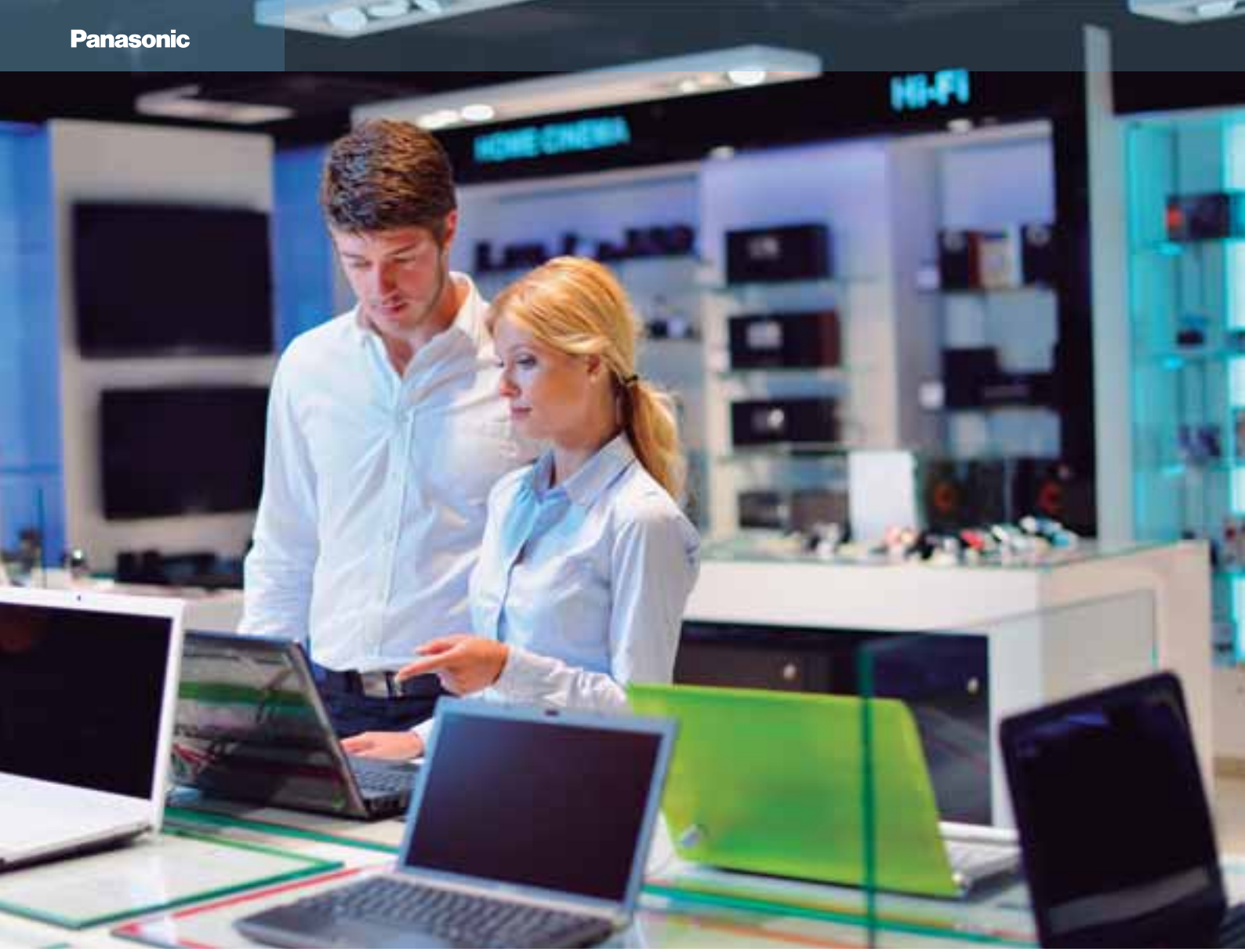
Indoor units
A complete range of indoor units for air conditioning any hotel premises, from 1.5 up to 30 kW Units tailored for rooms, quiet and fitted with a probe for flow temperature and with a height of 200mm only.

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

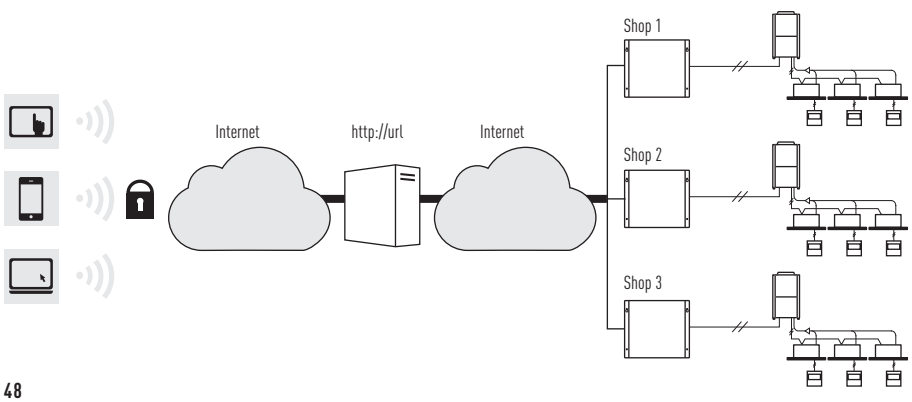


New innovative solutions for retail

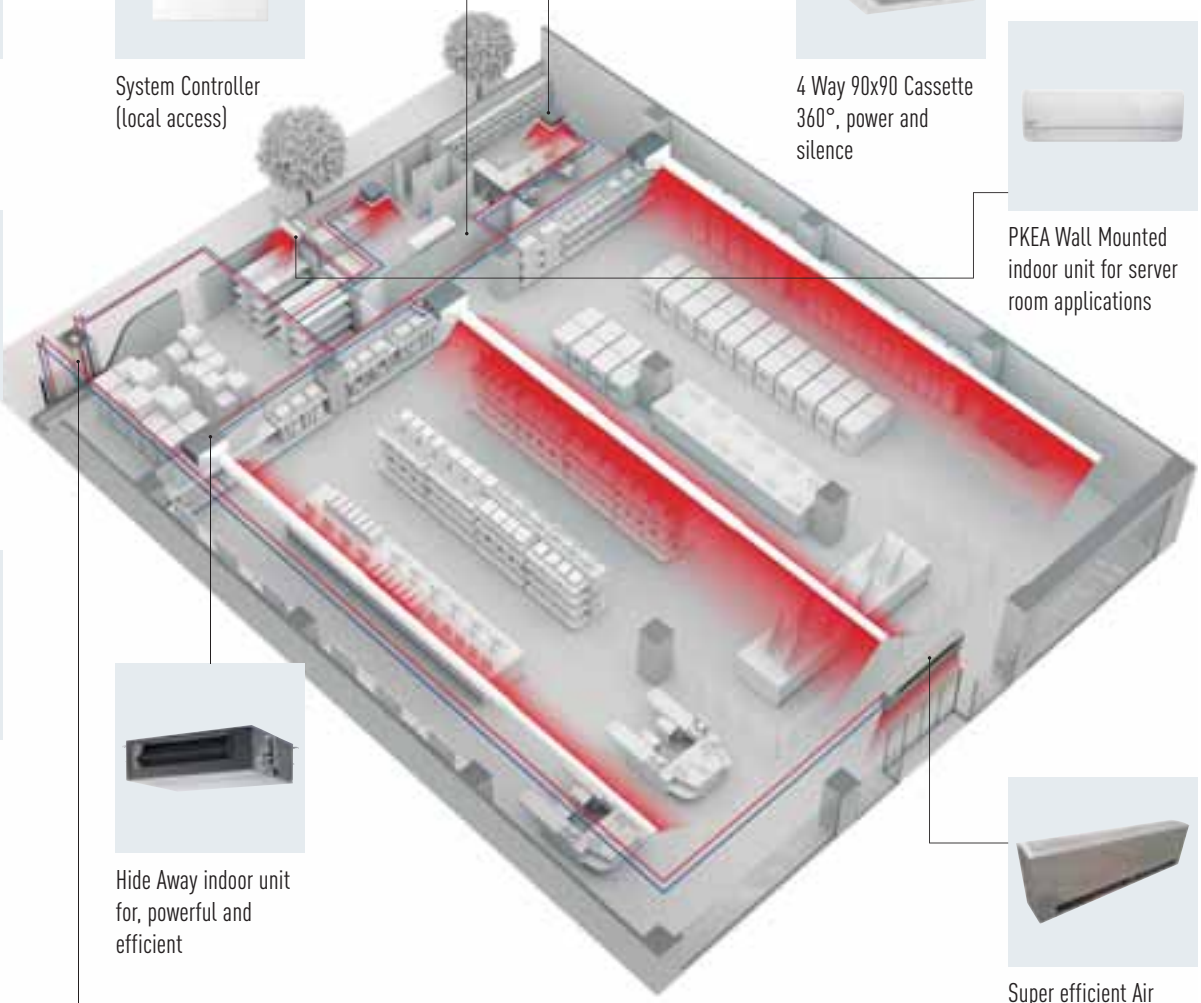
Heating and cooling solutions for retail applications

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 Could system from Panasonic is allowing to have a deep control of yours 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.



Web Interface Device (remote access from internet)

System Controller (local access)

4 Way 90x90 Cassette 360°, power and silence

PKEA Wall Mounted indoor unit for server room applications

Air Handling unit kit connected to the ECOi and PACi system.

Energy Recovery unit connected to the ECOi system for high efficiency of the system

Hide Away indoor unit for, powerful and efficient

Super efficient Air Curtain with DX Coil, connected to the ECOi or PACi system

ECO G

ECOi

Mini ECOi

PACi

Aquarea

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

Wired remote controller CZ-RTC3
with Econavi Sensor Control

New Econavi Sensor for VRF and PACi

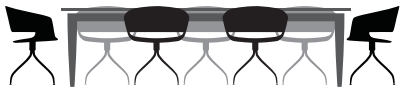
The all new Econavi Sensor detects presence in the room, and quietly adapts the PACi or VRF air conditioning system in order to improve comfort and maximise energy savings.

- 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. +/-0°C	Cooling Set Temp. +1°C	Cooling Set Temp. +2°C	Cooling Thermo OFF
Heating Set Temp. -1°C	Heating Set Temp. +/-0 °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

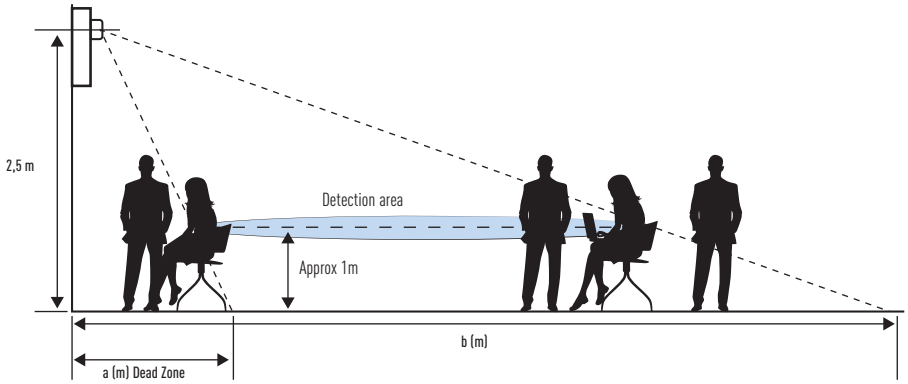
- Analyses room activity: Human activities and human heat
- Modifies the capacity to adapt in real-time to the needs of the room

Key points

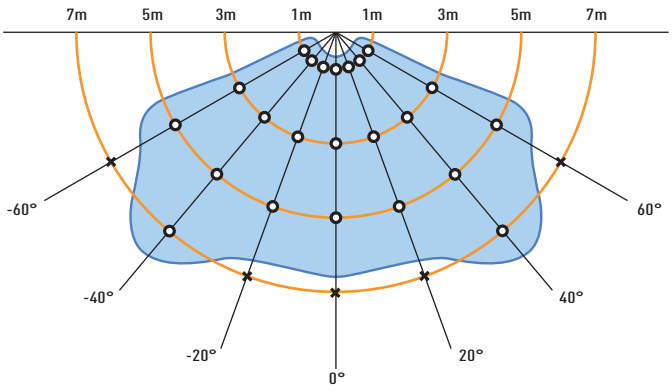
- Compatible with Cassette, Wall Mounted, Hide Away and Ceiling
- Sensor
- Improves efficiency
- Better Comfort
- Can be installed in the best place of the room for detection purposes

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!

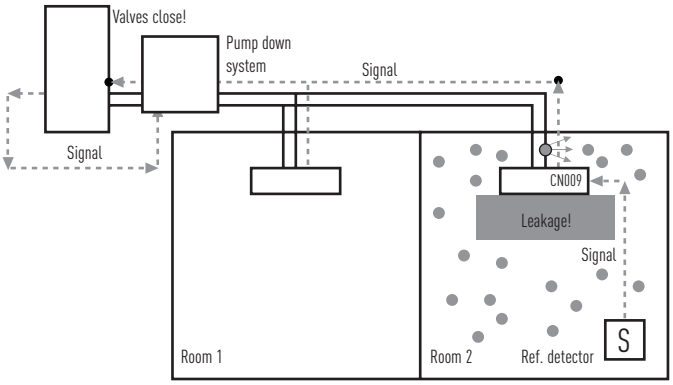
Panasonic has developed two innovative solutions to detect refrigerant leaks that offer complete assurance and protection for end users, building occupiers and the environment.

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/m^3.

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:

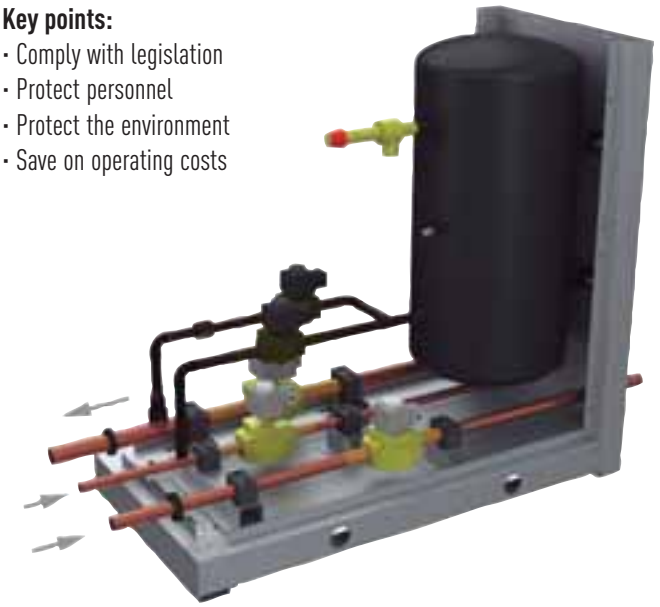
- High pressure
- Low pressure
- Discharge temperature

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.

Key points:

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



Pump down system

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

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

Basic pump down function:

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

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.

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
INVERTER+

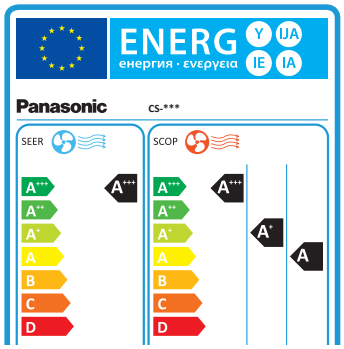
Environmentally friendly refrigerant
R410A

Down to -20 °C in heating mode
OUTDOOR TEMPERATURE

5 year compressor warranty

Energy saving concept

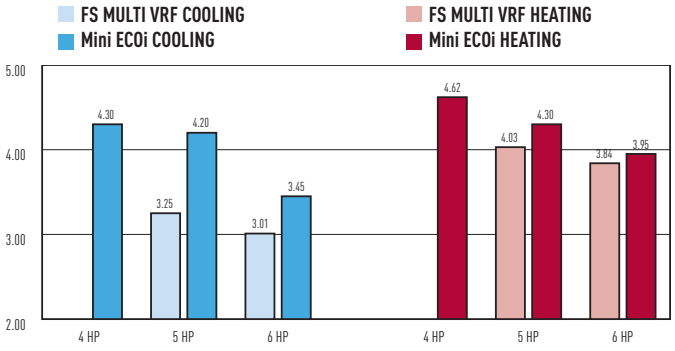
The energy saving designs for the structure of fans, fan motors, compressors and heat exchangers has resulted in high COP values, which rank as one of the top classed in the industry. In addition, use of highly efficient R410A refrigerant reduces CO_2 emission and lowers operating costs.



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

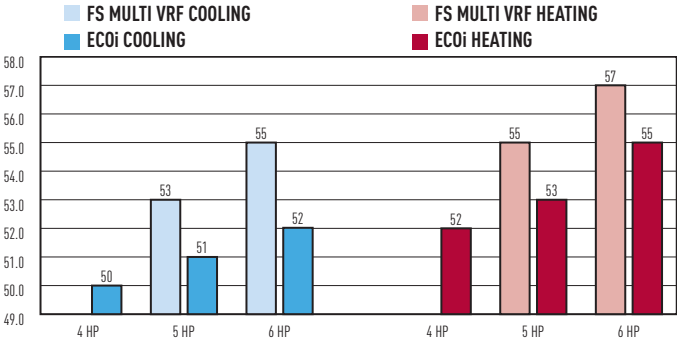
The operation efficiency has been improved using highly efficient R410A refrigerant, new DC inverter compressor, new DC motor and new design of heat exchanger.



2-Pipe Mini ECOi LE1 Series

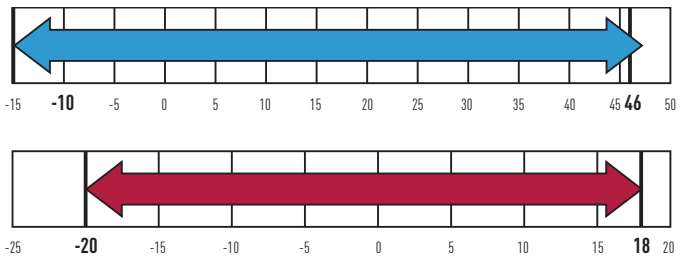
Drastically reduced sound level

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.



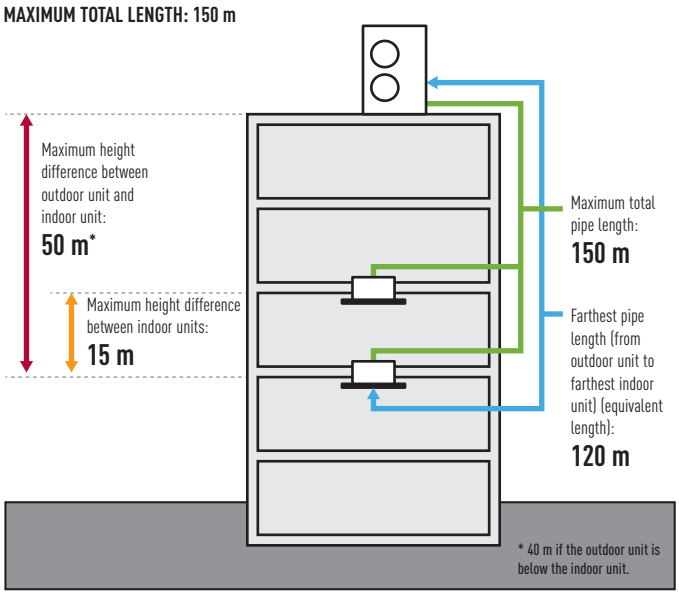
Cooling: -10°C DB ~ 46°C DB // Heating: -20~18 (WB)

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.

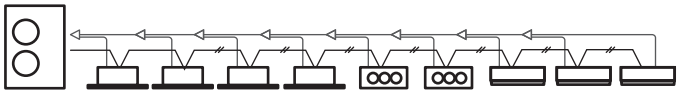


Silent mode

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

Up to 9 indoor units per system

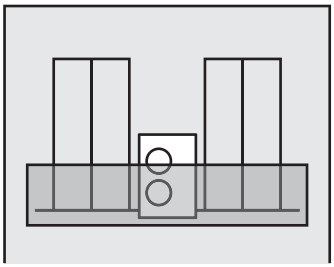
System / HP	4 HP	5 HP	6 HP
Connectable Indoor Unit	6	8	9



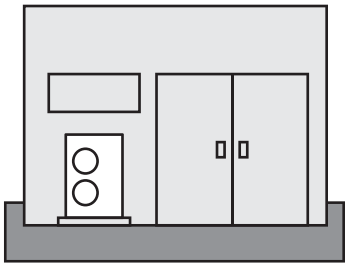
Compact & Flexibility-design

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

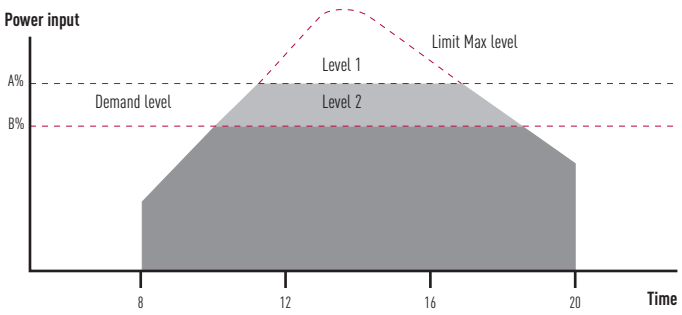
Function of Demand control

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

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

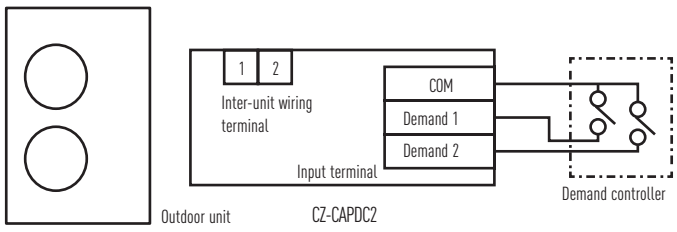
	Power input level (vs. rated condition)	
Level 1	100% (at ship)	From 40%-100% setting can be changed (by 5% step)
Level 2	70% (at ship)	
Level 3	0% (Forcible thermo-OFF)	

OPERATING IMAGE



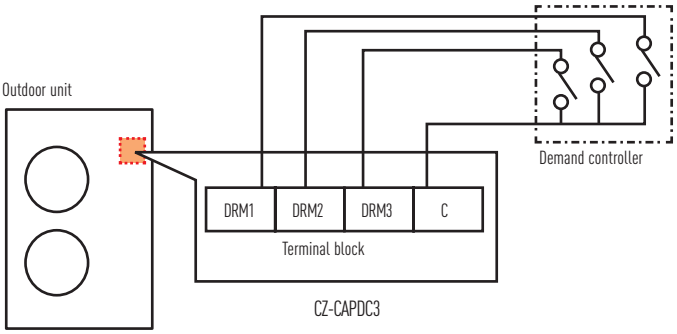
CZ-CAPDC2

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	380	400	415
			Three Phase / 50Hz			Three Phase / 50Hz			Single Phase / 50Hz			Three Phase / 50Hz			Single Phase / 50Hz			Three 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	m^3/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

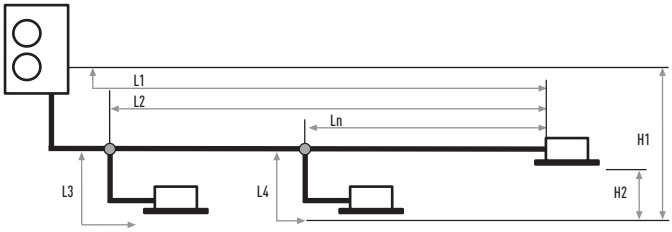
U-4LE1E5 // U-4LE1E8 // U-5LE1E5 // U-5LE1E8 // U-6LE1E5 // U-6LE1E8

Technical focus

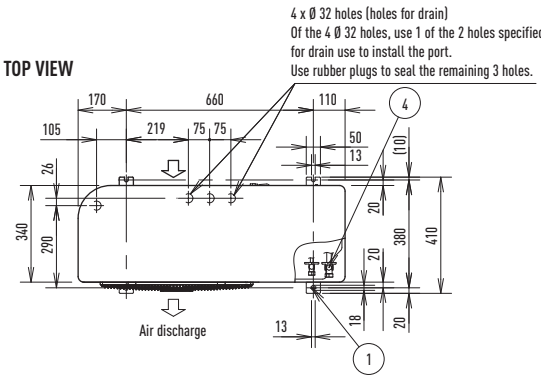
- Single Phase or Three Phase power supply
- One AMP start current
- DC inverter technology combined with R410A
- Diversity ratio 50-130%
- Cooling operation to -10°C
- Compact outdoor unit 1,330 x 940 x 410mm

Flexible pipework

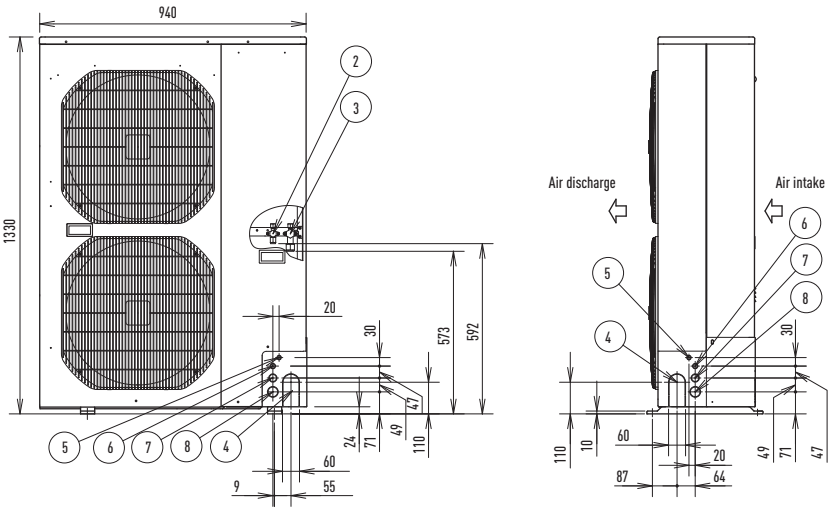
Category	Item	Description		Max length (m)
Allowable pipework length	L1	Maximum pipe run	Actual length	120
			Equivalent length	140
	L2-L3	Difference between maximum length and minimum length from the first distribution joint		40
	L3 L4 Ln	Maximum length of each distribution joint		30
	L1+L3+L4	Maximum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



TOP VIEW



FRONT VIEW



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

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

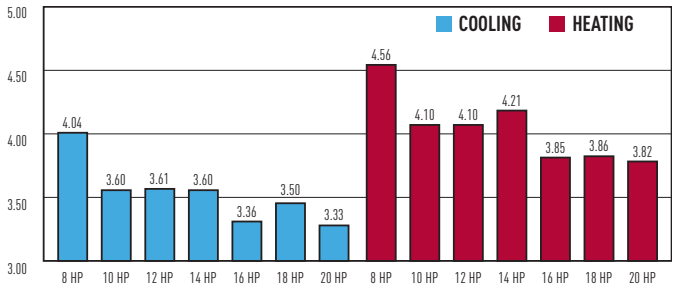
Large-capacity VRF systems using R410A with advanced technology.
Newly designed next generation VRF!

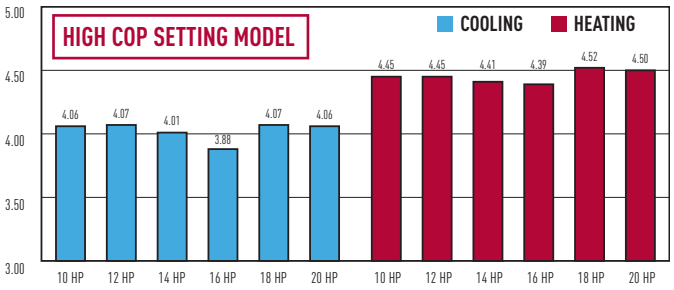
Energy saving
INVERTER+
Environmentally friendly refrigerant
R410A
Down to -25 °C in heating mode
OUTDOOR TEMPERATURE
5 year compressor warranty

HIGH EFFICIENCY

Energy savings

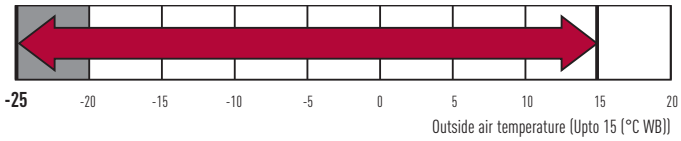
The operation efficiency has been improved using highly efficient R410A refrigerant, new DC inverter compressor, new DC motor and new design of heat exchanger.



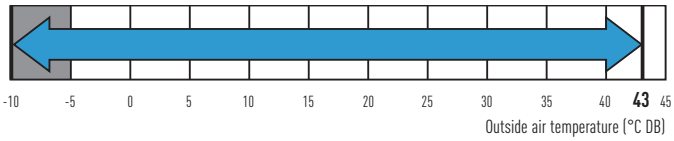


Extended operating range

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%

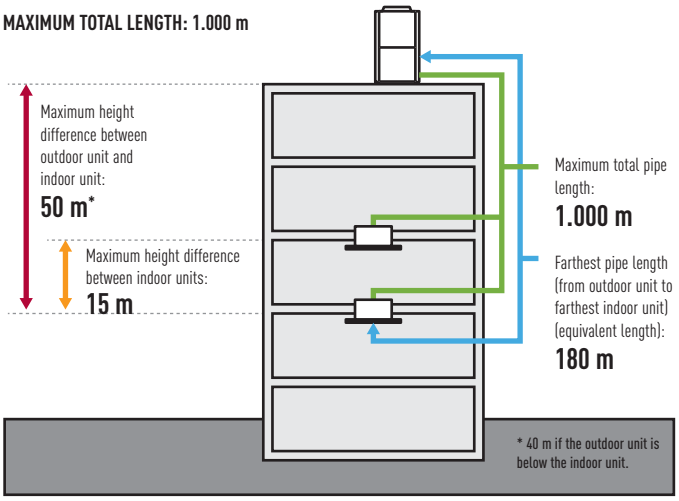
VRF systems attain maximum indoor unit connection capacity of up to 200 % of the unit's connection range, depending on the outdoor and indoor models selected. So for a reasonable investment, VRF systems provide an ideal air conditioning solution for locations where full cooling/heating are not always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

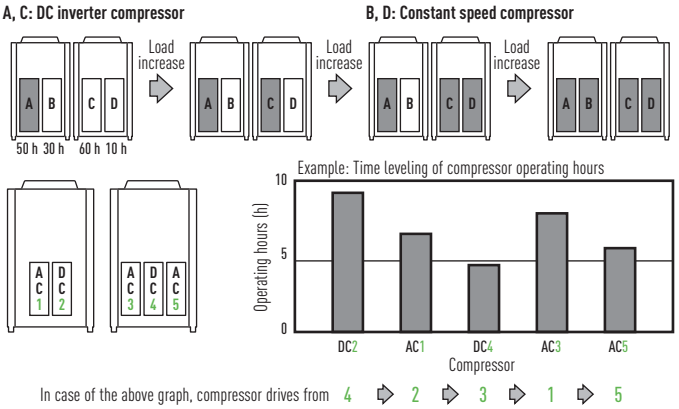
Increased piping lengths and design flexibility

Adaptable to various building types and sizes. Actual piping length: 180m.
Maximum piping length: 1.000m.



Extended compressor life by uniform compressor operation times

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



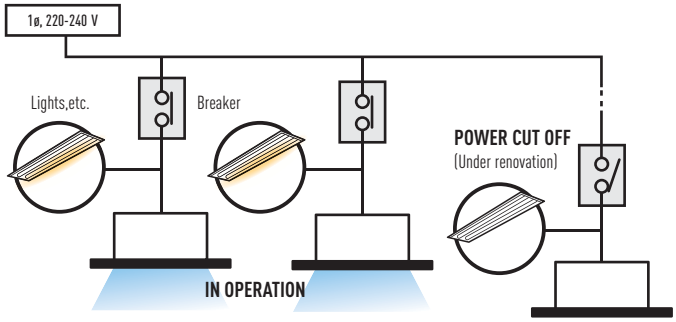
Newly designed fan. Optimized air flow and noise reduction

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


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.

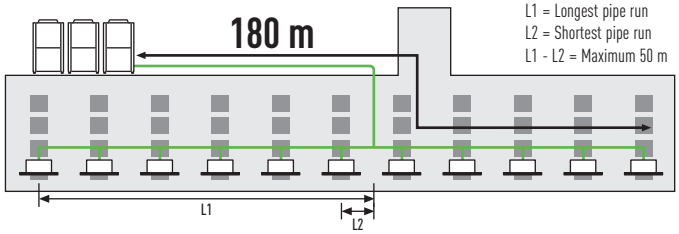


Automatic Backup operation in the case of compressor and outdoor units malfunction

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).

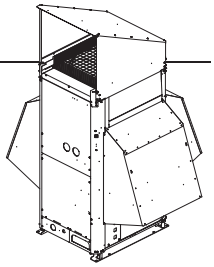
Easy to design solutions for schools, hotels, hospitals and other large buildings

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

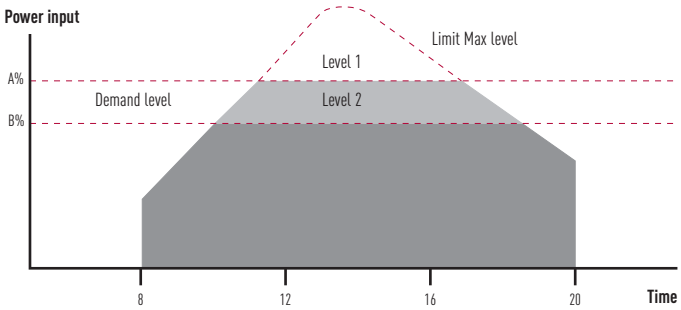
Function of Demand control

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

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

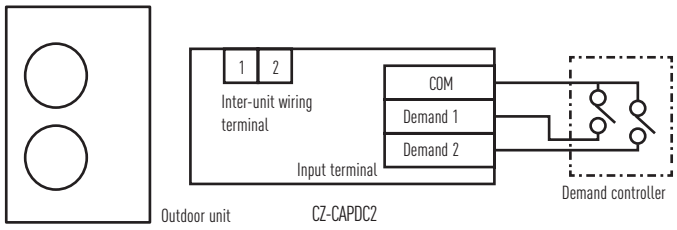
	Power input level (vs. rated condition)	
Level 1	100% (at ship)	From 40%-100% setting can be changed (by 5% step)
Level 2	70% (at ship)	
Level 3	0% (Forcible thermo-OFF)	

OPERATING IMAGE



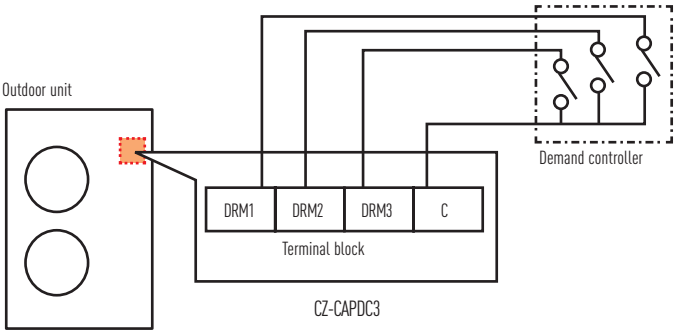
CZ-CAPDC2

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.



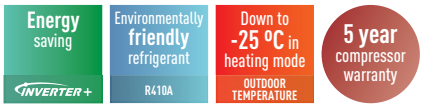
* Only for 6N series ECO-i outdoor unit, "Regular Demand control" setting is available. (The system will be limited the maximum input level for all the time without any signal input.) (The setting to be done at the time of system start-up or service by maintenance remote controller.)

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	400 V / Three Phase / 50 Hz	400 V / Three Phase / 50 Hz
Cooling capacity		kW	22,4	28,0	33,5
EER [1]	**Nominal**	**W/W**	**4,04**	**3,60**	**3,61**
ESEER					
Operating current		A	8,5	12,2	14,6
Power input cooling		kW	5,54	7,78	9,29
Heating capacity		kW	25,0	31,5	37,5
COP [1]	**Nominal**	**W/W**	**4,56**	**4,10**	**4,10**
SCOP					
Operating current		A	8,4	12,1	14,4
Power input heating		kW	5,48	7,68	9,15
Starting current		A	1	1	1
External static pressure		Pa	80	80	80
Air volume		m^3/h	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	Normal mode	dB	71,0	73,5	75,5
Dimensions	H x W x D	mm	1.758 x 770 x 930	1.758 x 770 x 930	1.758 x 770 x 930
Net weight		kg	234	234	281
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		kg	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

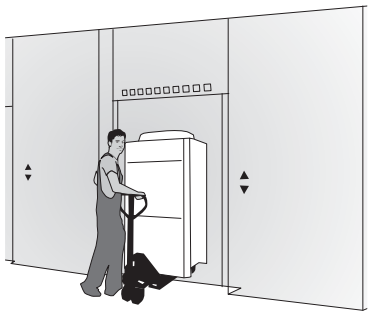
U-8ME1E81 // U-10ME1E81 // U-12ME1E81

Technical focus

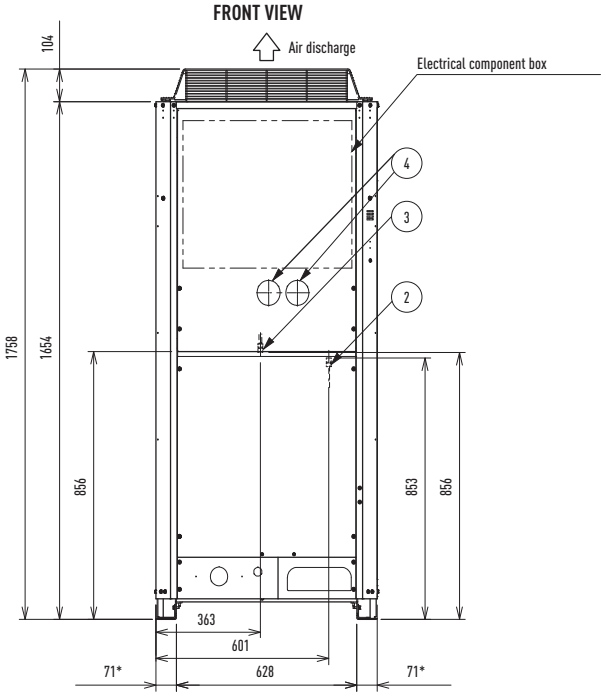
- Compact casing
- Longer maximum piping length up to 1,000m
- Extended operating range to provide heating at outdoor temperature as low as -25°C
- Suitable for refurbishment projects (Refer to technical data book)

Compact design

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

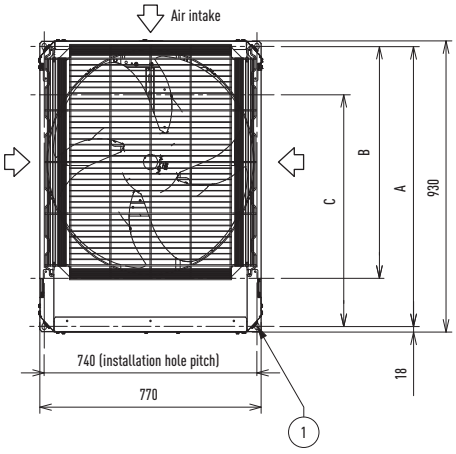


FRONT VIEW



* Installation fixing bracket, installation side.

TOP VIEW



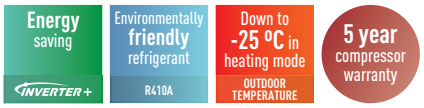
A	894 (installation hole pitch). The tubing is routed out frpm the front
B	730 (installation hole pitch). The tubing is routed out frpm the front
C	730 (installation hole pitch)
1	Installation holes (8-15x21 elongated holes) anchor bolts M12 or larger
2	Pressure outlet port (for high pressure: Ø 7.94 Scrader-type connection)
3	Pressure outlet port (for low pressure: Ø 7.94 Scrader-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



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	45,0
EER [1]	**Nominal**	**W/W**	**3,60**	**3,36**
ESEER				
Operating current		A	17,1	20,7
Power input cooling		kW	11,1	13,4
Heating capacity		kW	45,0	50,0
COP [1]	**Nominal**	**W/W**	**4,21**	**3,85**
SCOP				
Operating current		A	16,5	20,1
Power input heating		kW	10,7	13,0
Starting current		A	77	81
External static pressure		Pa	80	80
Air volume		m^3/h	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	Normal mode	dB	76,5	76,5
Dimensions	H x W x D	mm	1.758 x 1.000 x 930	1.758 x 1.000 x 930
Net weight		kg	309	309
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	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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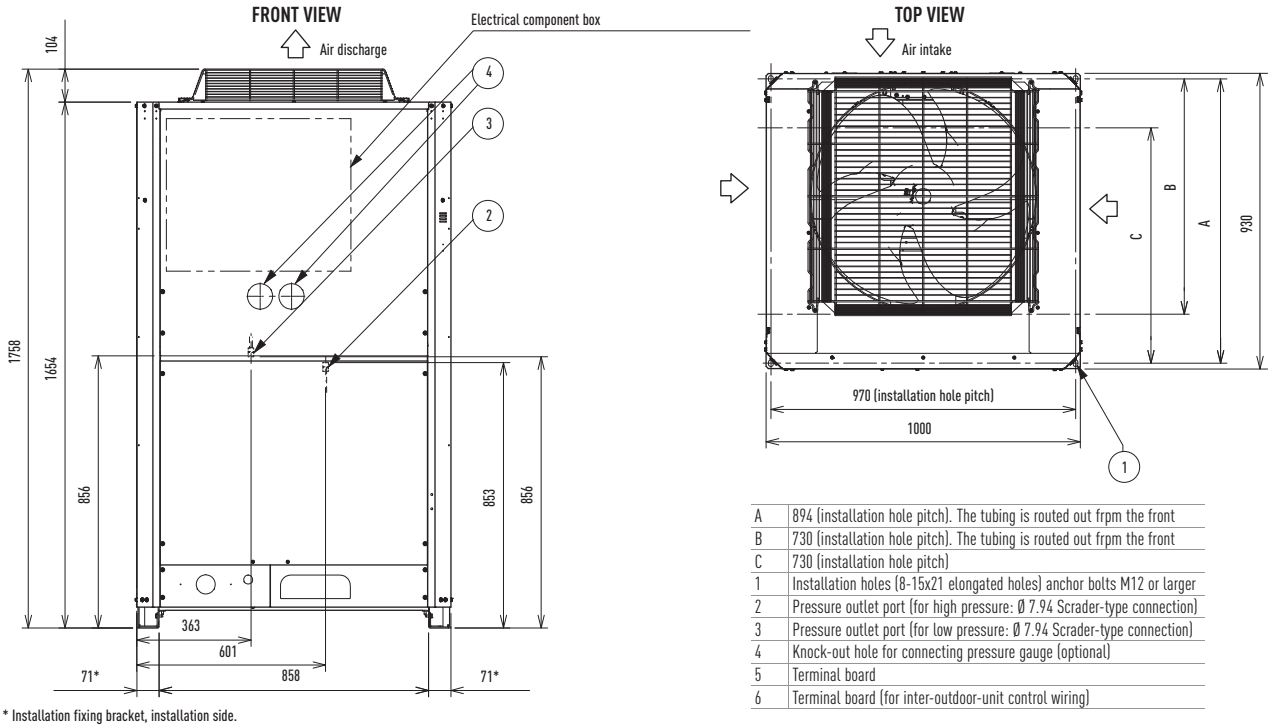
U-14ME1E81 // U-16ME1E81

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.

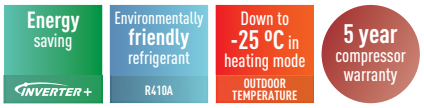
A	894 (installation hole pitch). The tubing is routed out frpm the front
B	730 (installation hole pitch). The tubing is routed out frpm the front
C	730 (installation hole pitch)
1	Installation holes (8-15x21 elongated holes) anchor bolts M12 or larger
2	Pressure outlet port (for high pressure: Ø 7.94 Scrader-type connection)
3	Pressure outlet port (for low pressure: Ø 7.94 Scrader-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		kW	50,0	56,0
EER [1]	**Nominal**	**W/W**	**3,50**	**3,33**
ESEER				
Operating current		A	22,8	26,8
Power input cooling		kW	14,3	16,8
Heating capacity		kW	56,0	63,0
COP [1]	**Nominal**	**W/W**	**3,86**	**3,82**
SCOP				
Operating current		A	23,1	26,3
Power input heating		kW	14,5	16,5
Starting current		A	93	101
External static pressure		Pa	80	80
Air volume		m^3/h	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	Normal mode	dB	74,5	77,5
Dimensions	H x W x D	mm	1.758 x 1.540 x 930	1.758 x 1.540 x 930
Net weight		kg	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		kg	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

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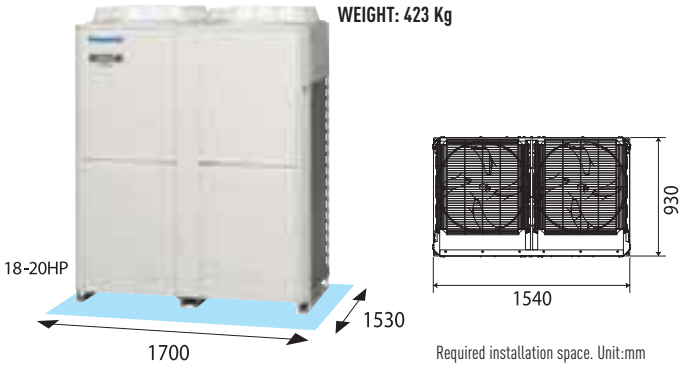
U-18ME1E81 // U-20ME1E81

Technical focus

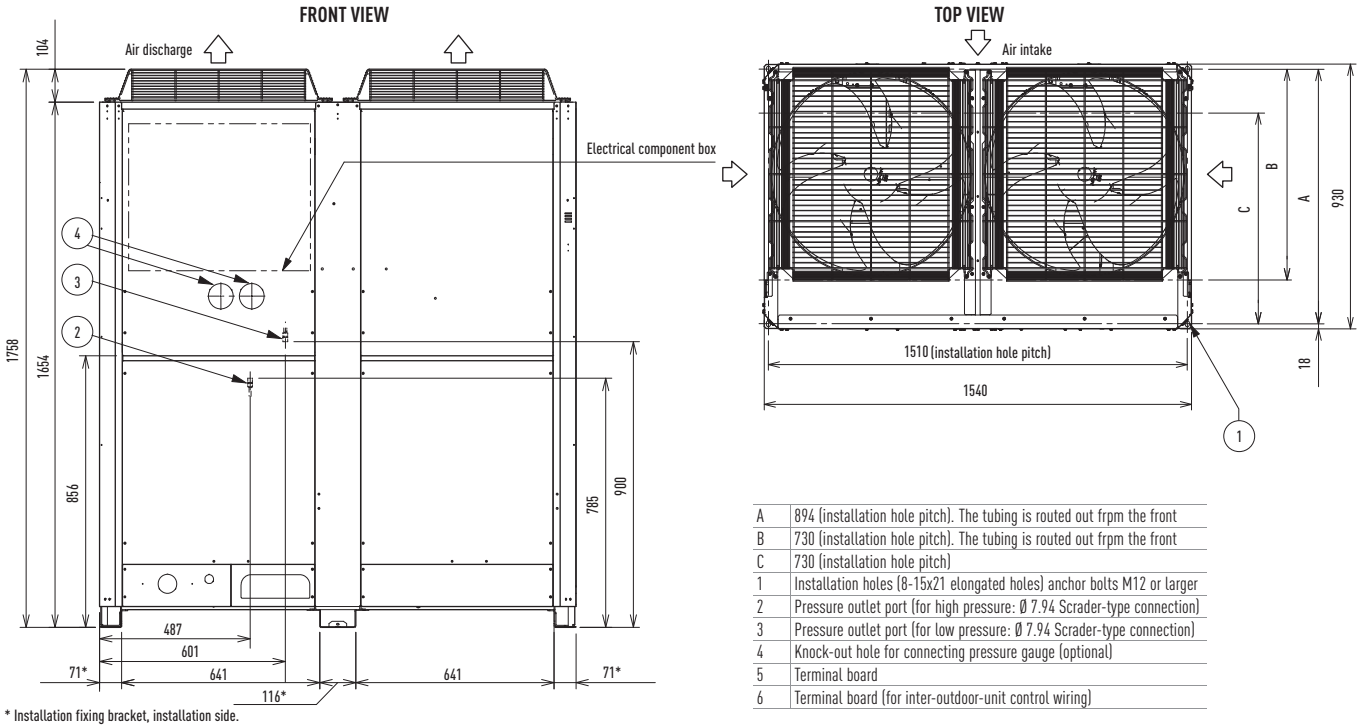
- Bigger capacity in one casing
- Longer Max piping length up to 1,000 m
- Extended operating range to provide heating at outdoor temperature as low as -25°C
- Suitable for refurbishment projects (Refer to technical data book)

Compact design

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



Required installation space. Unit:mm



* Installation fixing bracket, installation side.

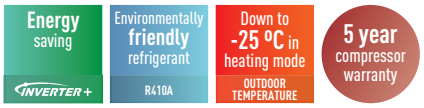
A	894 (installation hole pitch). The tubing is routed out frpm the front
B	730 (installation hole pitch). The tubing is routed out frpm the front
C	730 (installation hole pitch)
1	Installation holes (8-15x21 elongated holes) anchor bolts M12 or larger
2	Pressure outlet port (for high pressure: Ø 7.94 Scrader-type connection)
3	Pressure outlet port (for low pressure: Ø 7.94 Scrader-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
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		m^3/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

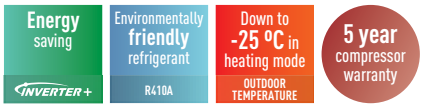
Technical focus

- Increased connectable I_U/O_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

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		kW	28,0	33,5
EER [1]	**Nominal**	**W/W**	**4,06**	**4,07**
ESEER				
Operating current		A	10,7	12,7
Power input cooling		kW	6,90	8,23
Heating capacity		kW	31,5	37,5
COP [1]	**Nominal**	**W/W**	**4,45**	**4,45**
SCOP				
Operating current		A	10,9	13,0
Power input heating		kW	7,08	8,43
Starting current		A	77	81
External static pressure		Pa	80	80
Air volume		m^3/h	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	Normal mode	dB	76,5	76,5
Dimensions	H x W x D	mm	1.758 x 1.000 x 930	1.758 x 1.000 x 930
Net weight		kg	307	307
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		kg	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.
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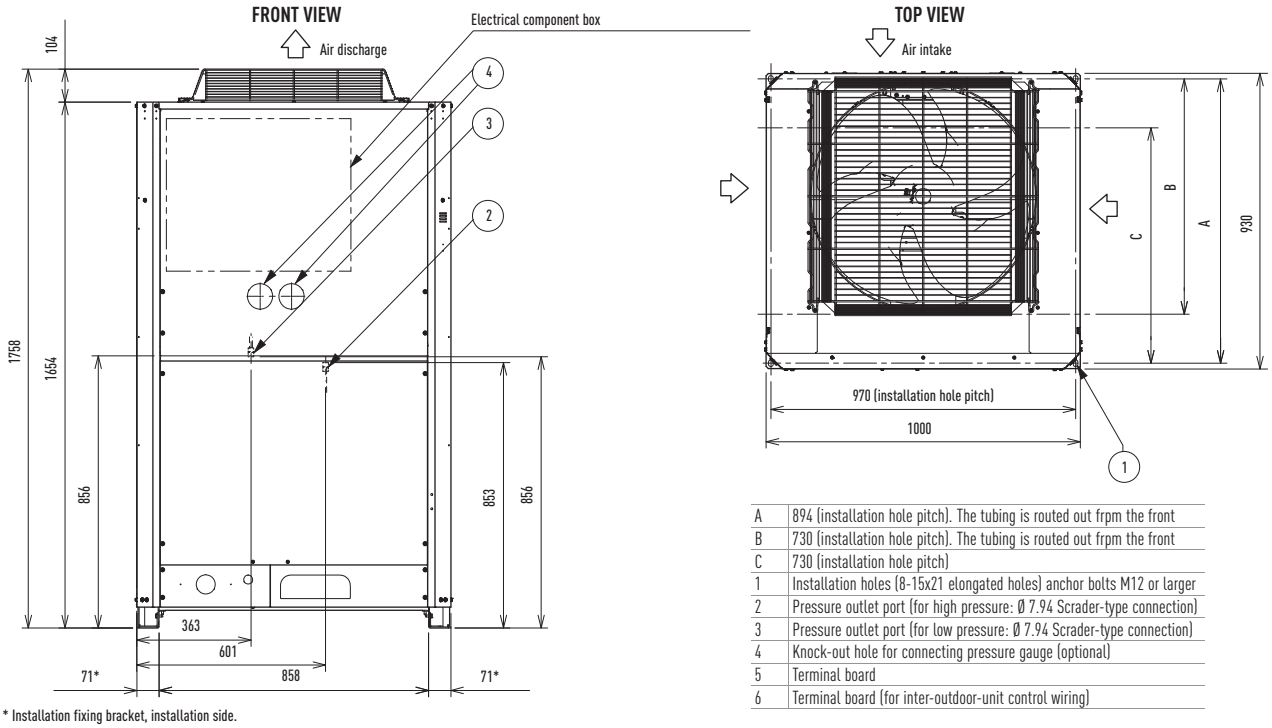
U-14ME1E81 // U-16ME1E81

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.



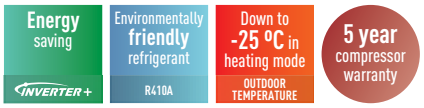
A	894 (installation hole pitch). The tubing is routed out frpm the front
B	730 (installation hole pitch). The tubing is routed out frpm the front
C	730 (installation hole pitch)
1	Installation holes (8-15x21 elongated holes) anchor bolts M12 or larger
2	Pressure outlet port (for high pressure: Ø 7.94 Scrader-type connection)
3	Pressure outlet port (for low pressure: Ø 7.94 Scrader-type connection)
4	Knock-out hole for connecting pressure gauge (optional)
5	Terminal board
6	Terminal board (for inter-outdoor-unit control wiring)

* Installation fixing bracket, installation side.

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	45,0
EER [1]	**Nominal**	**W/W**	**4,01**	**3,88**
ESEER				
Operating current		A	15,4	17,9
Power input cooling		kW	9,98	11,6
Heating capacity		kW	45,0	50,0
COP [1]	**Nominal**	**W/W**	**4,41**	**4,39**
SCOP				
Operating current		A	15,8	17,6
Power input heating		kW	10,2	11,4
Starting current		A	92	98
External static pressure		Pa	80	80
Air volume		m^3/h	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	Normal mode	dB	74,5	77,5
Dimensions	H x W x D	mm	1.758 x 1.540 x 930	1.758 x 1.540 x 930
Net weight		kg	423	423
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	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

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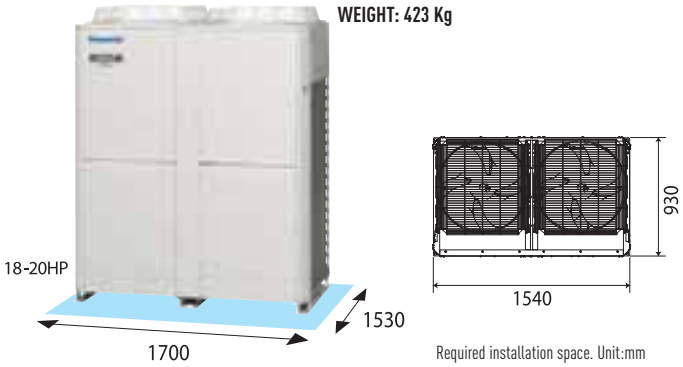
U-18ME1E81 // U-20ME1E81

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)

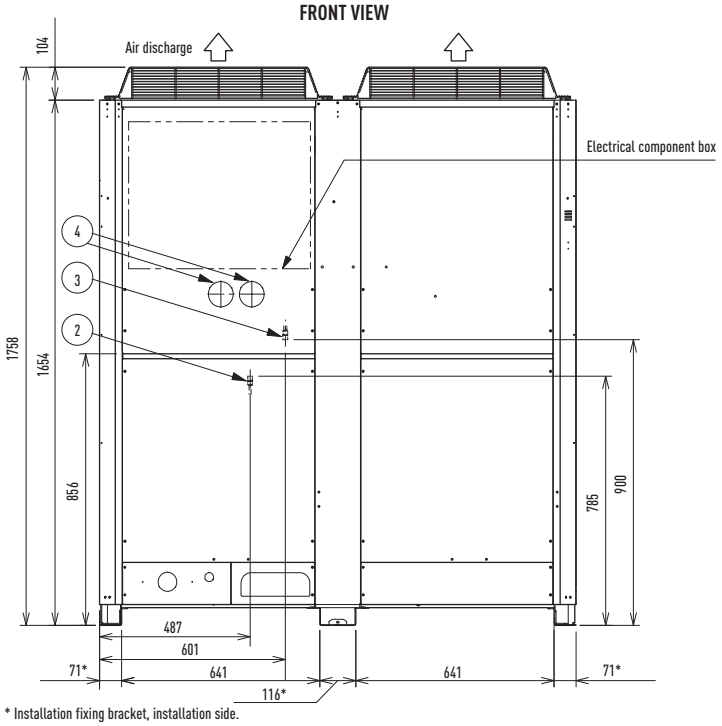
Compact design

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



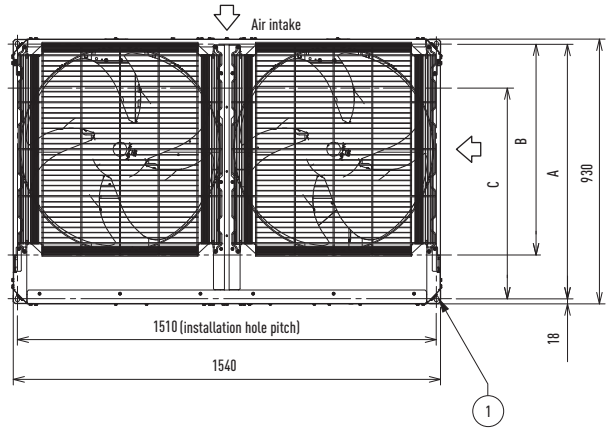
Required installation space. Unit:mm

FRONT VIEW



* Installation fixing bracket, installation side.

TOP VIEW

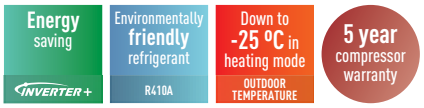


A	894 (installation hole pitch). The tubing is routed out frpm the front
B	730 (installation hole pitch). The tubing is routed out frpm the front
C	730 (installation hole pitch)
1	Installation holes (8-15x21 elongated holes) anchor bolts M12 or larger
2	Pressure outlet port (for high pressure: Ø 7.94 Scrader-type connection)
3	Pressure outlet port (for low pressure: Ø 7.94 Scrader-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
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		m^3/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

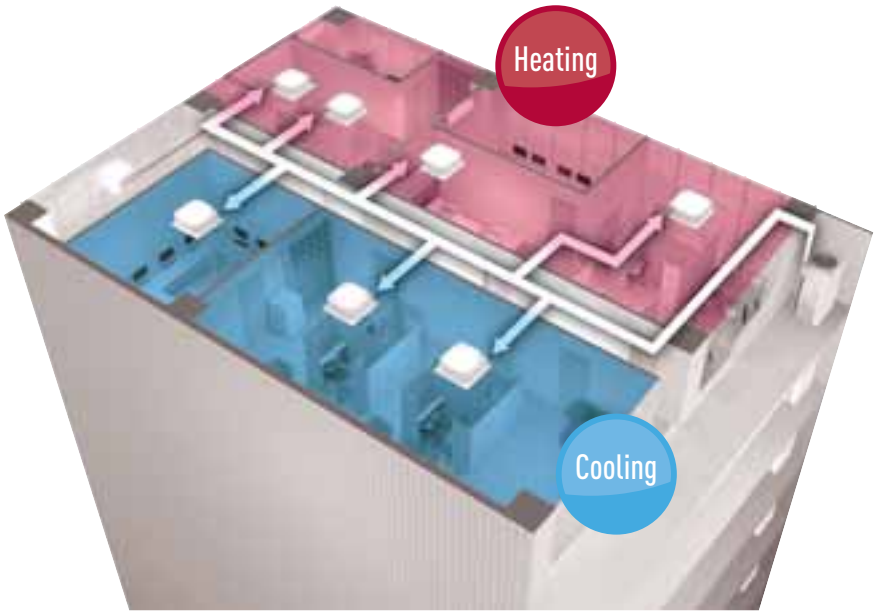
1) EER and COP classification is at 400 V in accordance with EU directive 2002/31/EC.
Specifications subject to change without notice.
For detailed information about ErP, please visit our page http://www.doc.panasonic.de

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



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 m^2)
- 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
- Maximun capacity ratio of 150%

Large combination of outdoor units, up to 48 HP

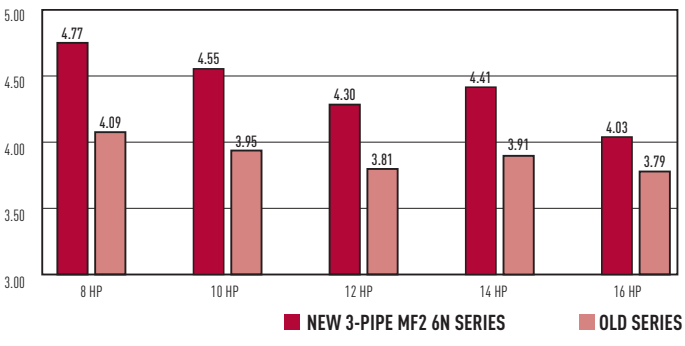
	System (HP)																			
Inverter unit	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
8	1					1	1	1	1					1	1	1	1				
10		1				1	1														
12			1							1				1							
14				1				1		1	2	1		1	2	1		3	2	1	
16					1				1			1	2			1	2		1	2	3

High efficiency combination

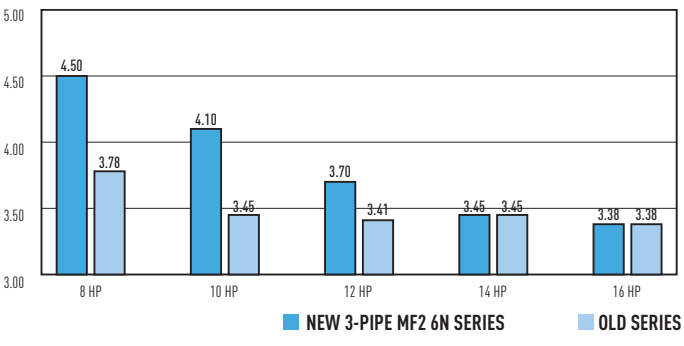
	System (HP)					
Inverter unit	16	24	26	28	30	32
8	2	3	2	2	2	1
10			1			
12				1		2
14					1	

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

COP



EER

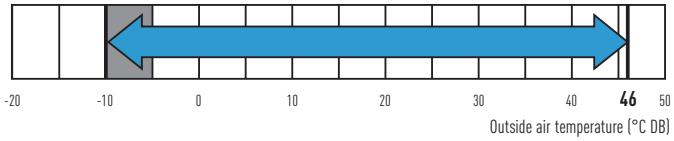


3-Pipe ECOi MF2 6N Series

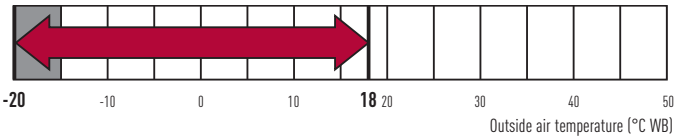
Connectable indoor/outdoor unit capacity ratio up to 150%

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.



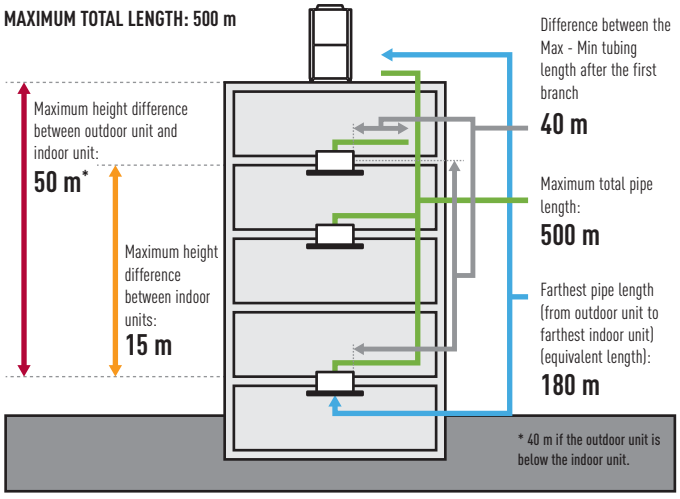
Wide temperature setting range

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.

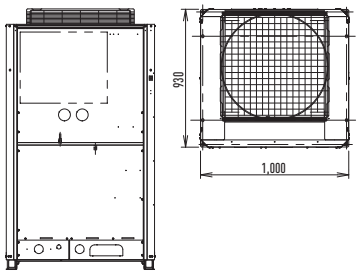
MAXIMUM TOTAL LENGTH: 500 m



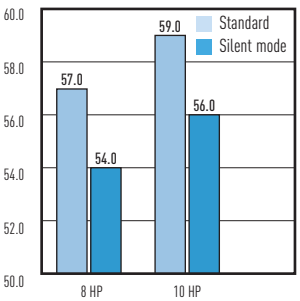
Compact design for superb space saving and low noise level

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

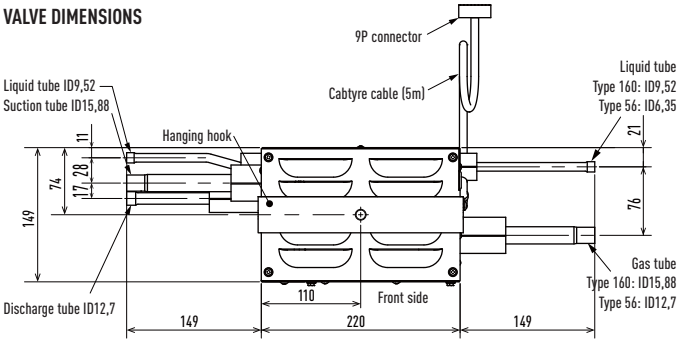
CZ-P56HR3
Up to 5.6 kW
CZ-P160HR3
From 5.7 to 16 kW

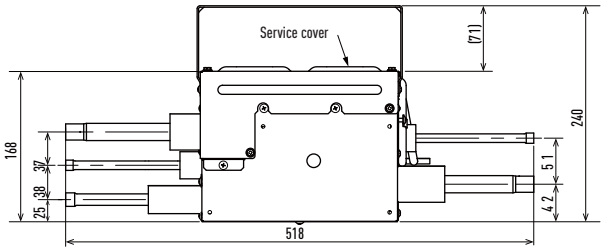
KIT-P56HR3
(CZ-P56HR3+CZ-CAPE2)
KIT-P160HR3
(CZ-P160HR3+CZ-CAPE2)

3-PIPE CONTROL PCB

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

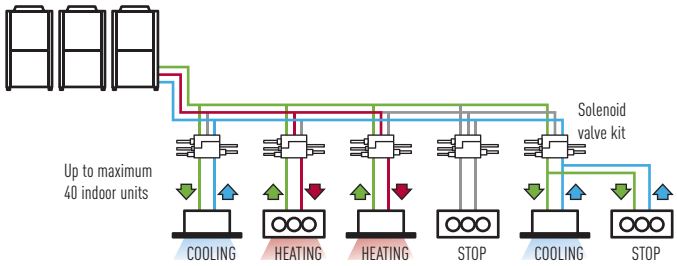
VALVE DIMENSIONS





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.



Liquid pipe (medium-temperature, medium-pressure liquid pipe)
Discharge pipe (high-temperature, high-pressure gas pipe)
Suction pipe (low-temperature, low-pressure gas pipe)
Individual control

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)

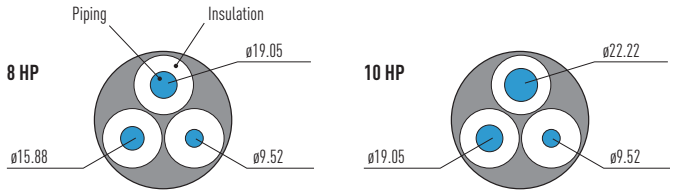
Power suppression control for energy saving (Demand control)[1]

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 operation[2] 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

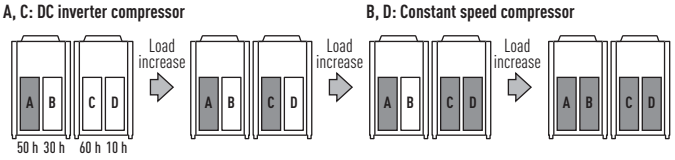
By using R410a with low pressure loss, pipe sizes for discharge, suction and liquid are all reduced.
This makes it possible to aim for reduced piping space, improved workability at the site, and reduction of the piping material costs.



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

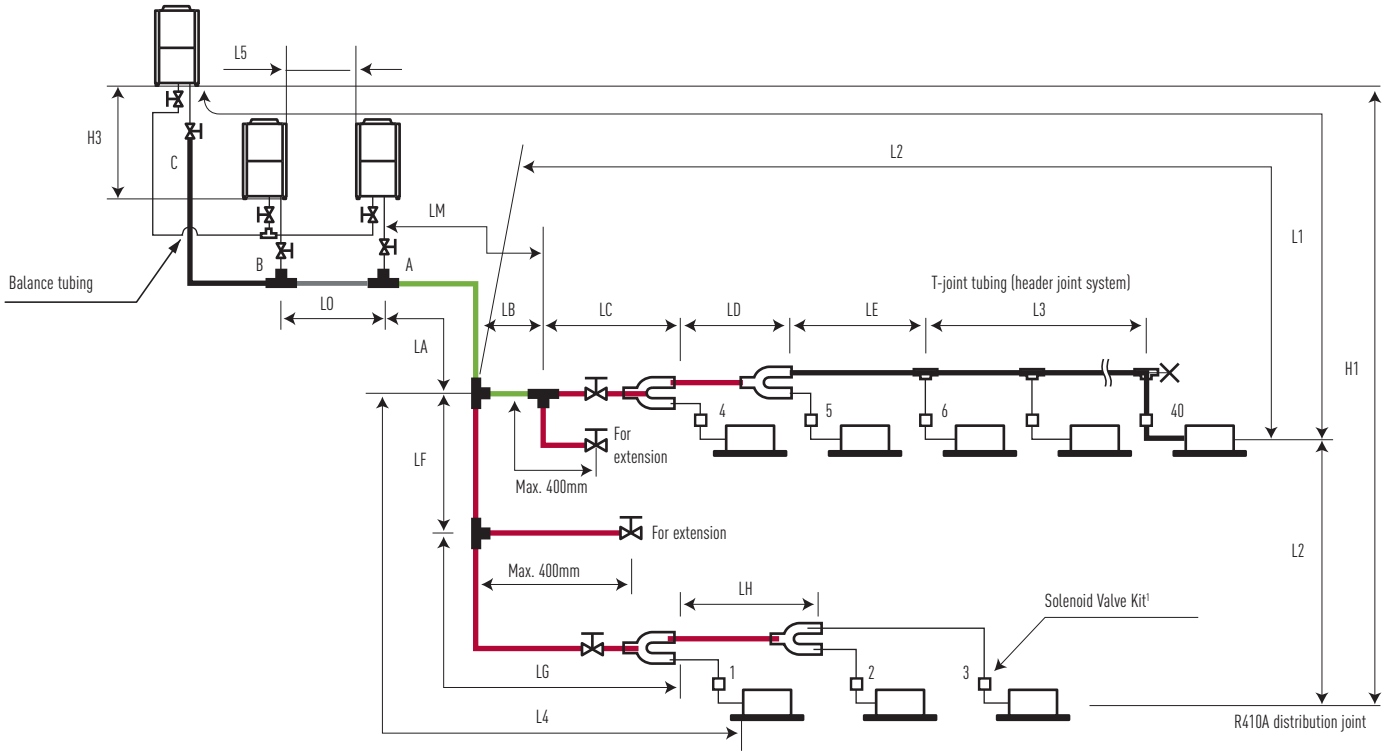
The total operation time of the compressors is monitored by a microcomputer, so that there is no imbalance for the operation times of all compressors in the same refrigerant system, and compressors with a shorter operation time are operated with preference.



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	Actual piping length	≤180[1]
			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]
	ℓ1, ℓ2~ℓ40	Maximum length of each distribution		≤30
	L1+ℓ1+ℓ2...ℓ39+ℓA+ℓB+LF+LG+LH	Total Maximum piping length including length of each distribution (only liquid tubing)		≤500[3]
	L5	Distance between outdoor units		≤10
Allowable elevation difference	H1	When outdoor unit is installed higher than indoor unit		≤50
		When outdoor unit is installed lower than indoor unit		≤40
	H2	Maximum difference between indoor units		≤15
	H3	Maximum difference between outdoor units		≤4
Allowable length of joint tubing	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		m^3/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

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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%

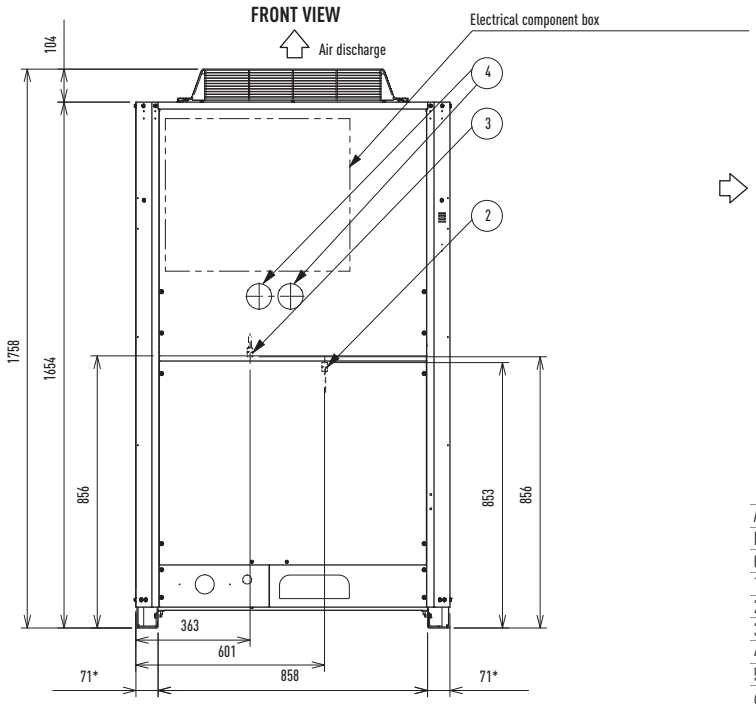
Additional refrigerant charge

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

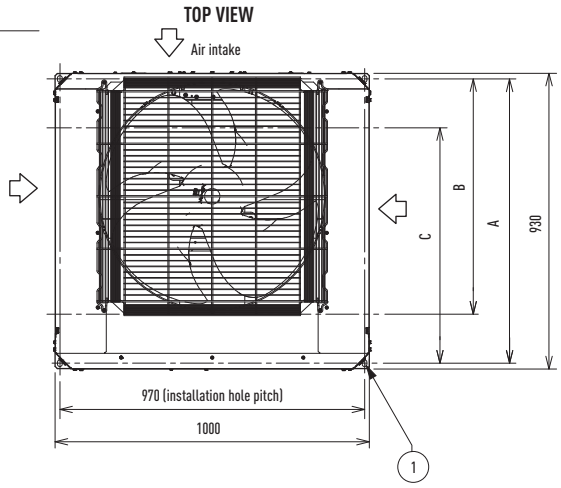
Refrigerant piping

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 frpm the front
B	730 (installation hole pitch). The tubing is routed out frpm 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 Scrader-type connection)
3	Pressure outlet port (for low pressure: Ø 7.94 Scrader-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-14MF2E8**	**U-14MF2E8 U-16MF2E8**
Power supply			380 / 400 / 415 V - Three Phase / 50 Hz						
Cooling capacity		kW	50,4	56,0	61,5	68,0	73,0	78,5	85,0
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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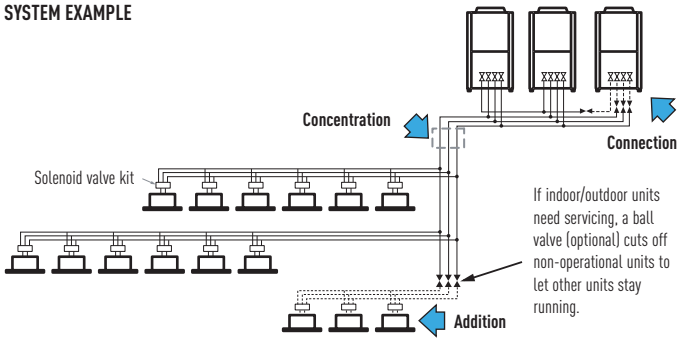
32 HP	34 HP	36 HP	38 HP	40 HP	42 HP	44 HP	46 HP	48 HP
U-16MF2E8	U-8MF2E8 U-12MF2E8 U-14MF2E8	U-8MF2E8 U-14MF2E8 U-14MF2E8	U-8MF2E8 U-14MF2E8 U-16MF2E8	U-8MF2E8 U-16MF2E8 U-16MF2E8	U-14MF2E8 U-14MF2E8 U-14MF2E8	U-14MF2E8 U-14MF2E8 U-16MF2E8	U-14MF2E8 U-16MF2E8 U-16MF2E8	U-16MF2E8 U-16MF2E8 U-16MF2E8
380 / 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.
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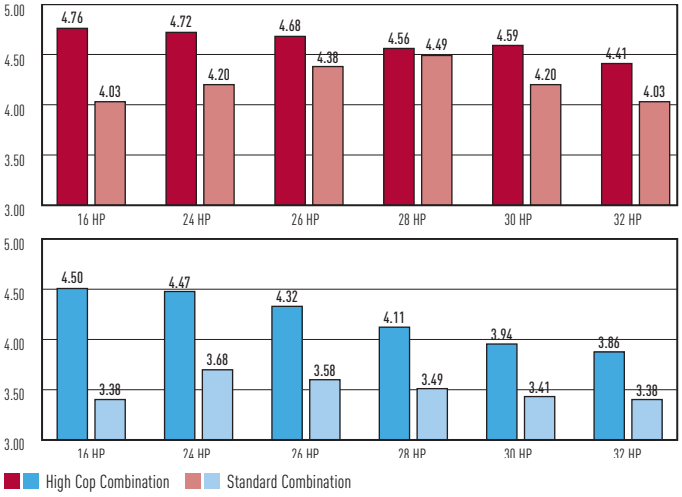
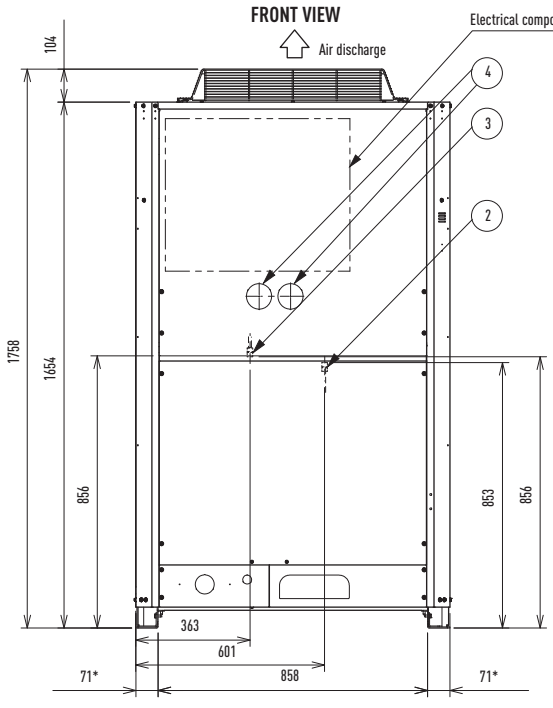
U-8MF2E8 // U-10MF2E8 // U-12MF2E8 // U-14MF2E8 // U-16MF2E8 COMBINATION

Technical focus

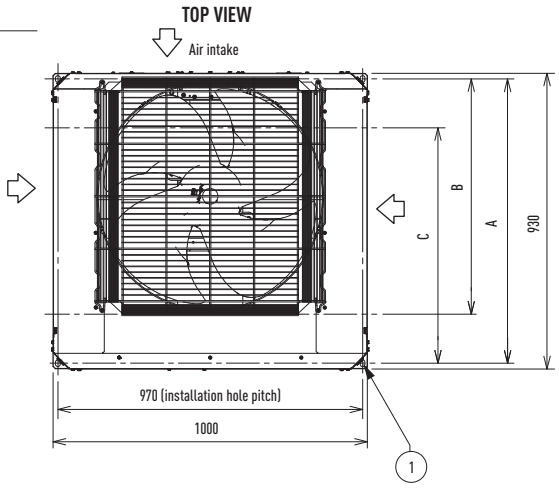
- Standardization of O_U to one compact casing size
- Improved operation efficiency
- The constant-speed compressor adopts a high-performance internal high-pressure scroll
- Improvement of the heat exchanger
- Redesign of structural parts
- Close side-by-side installation is possible

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

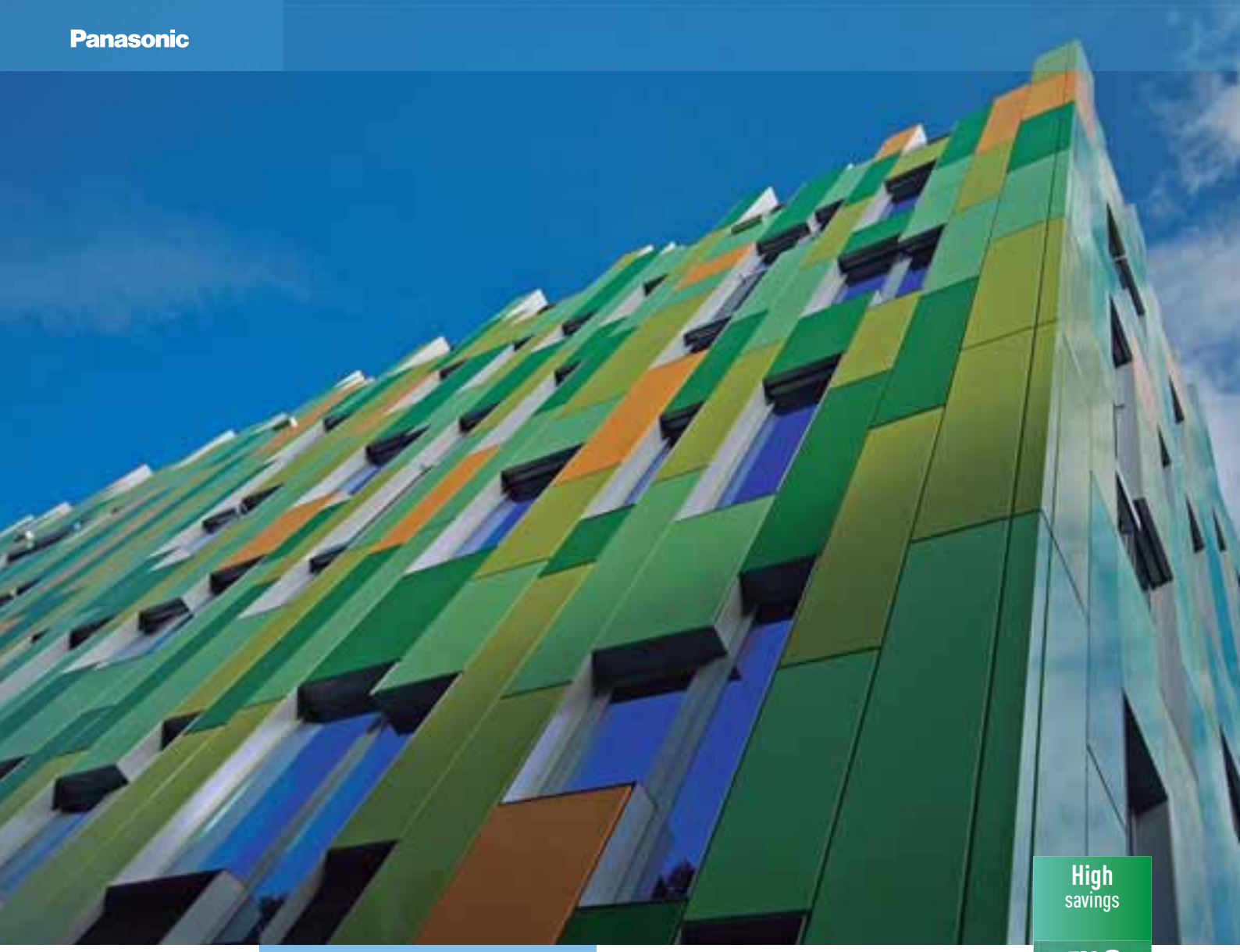




* Installation fixing bracket, installation side.



A	894 (installation hole pitch). The tubing is routed out frpm the front
B	730 (installation hole pitch). The tubing is routed out frpm 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 Scrader-type connection)
3	Pressure outlet port (for low pressure: Ø 7.94 Scrader-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 CO_2 emissions