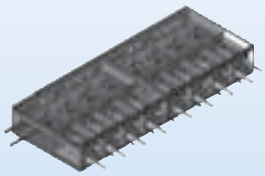
VRF Systems Range Highlights

New Hydrokit for ECOi

Procudes LT hot water it is compatible with both ECOi, heat pump and heat recovery outdoors.

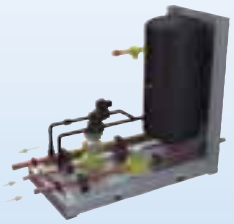
Multi port heat recovery boxes

New 3 boxes with 4, 6 and 8 ports brings to Heat Recovery systems bigger flexibility in design, and lower installation costs.



Pump down

Safer installations with refrigerant under control, meet regulations and increase your building energy class.



Hotel Remote Control

Indoor unit Hotel Remote control which integrates direct connection to: Card switch, lighting, Window contact and blinds.

Professional Climate Cloud

Centralised control of your business premises, from wherever 24/7. Smartly control, maintain, optimise and save.

Hide Away high pressure 100% Fresh air

New 8HP and 10HP ducted indoor unit with 100% fresh air.

Outstanding performance

Compressor with high capacity range and high performance even at extreme conditions.

Advanced indoors

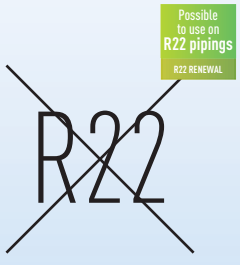
DC fan motor, discharge temperature sensor, quiet operation, fresh air intake.

ECO G

Unique GHP VRF system: Wide range up to 30HP outdoor module, full indoor and controls compatibility, free hot water up to 75°C, and heat recovery range.

R22 replacement

R22 Renewal. All Panasonic standard units can be install on existing R22 pipings.



Panasonic, the Air of your Life

Panasonic Air Conditioners have been with us since 1958. In many homes they are part of the family and are, in part, responsible for the air that each member breathes.

Many things happen in your home, and Panasonic makes sure that those moments have the best climate. Panasonic Air Conditioners were the first to produce Healthy Air, and also worry about being super-efficient and quiet. Which is why they have been among us for so long.

1958

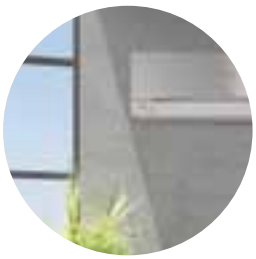
First room air conditioner launched for domestic installation.

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.

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.

2010

New Aquarea.
Panasonic has created Aquarea, an innovative new, low-energy system.

2011

The new Panasonic ECOi VRF solution for big buildings is the most efficient in the industry in more than 74% of combinations.

2012

New GHP units. Pansonic's gas-driven VRF systems are ideal for projects where power restrictions apply.

Looking ahead

By creating, storing, managing and saving energy, Panasonic aims to realize a lifestyle with virtually zero CO_2 emissions throughout the entire home.

Heating and Cooling Solutions designed and produced by Panasonic since 1958. See more information on **www.aircon.panasonic.eu**

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. Long Time 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 stably 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 subject 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.

No Breaking. When Dropped onto Sides or Corners.

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.

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.

Silence. That Does Not Disturb You.

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 relaxing environment. We build this hidden strength into our air conditioners, and test them repeatedly from this viewpoint.

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

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 Dropping 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.

Quality. Is at the Core of All Our Manufacturing.

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.

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 CO_2 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 No. 1

Interbrand Ranks Panasonic No. 1 in the Electronics Sector for the "Best Global Green Brands 2014"

Interbrand, the US brand consulting company, announced on June 24, 2014, that Panasonic ranks No. 5 in its Best Global Green Brands 2014. Although a rank lower than last year, the company has come out top in the electronics sector.
2014 marks the fourth year for this global ranking of "green brands." An Excellent Green Brand is defined as achieving a good balance between Green Perception (consumers' image of an eco-brand) and Green Performance (a company's environmental management practices). The top 50 companies are ranked based on these two elements.

Evaluation Points

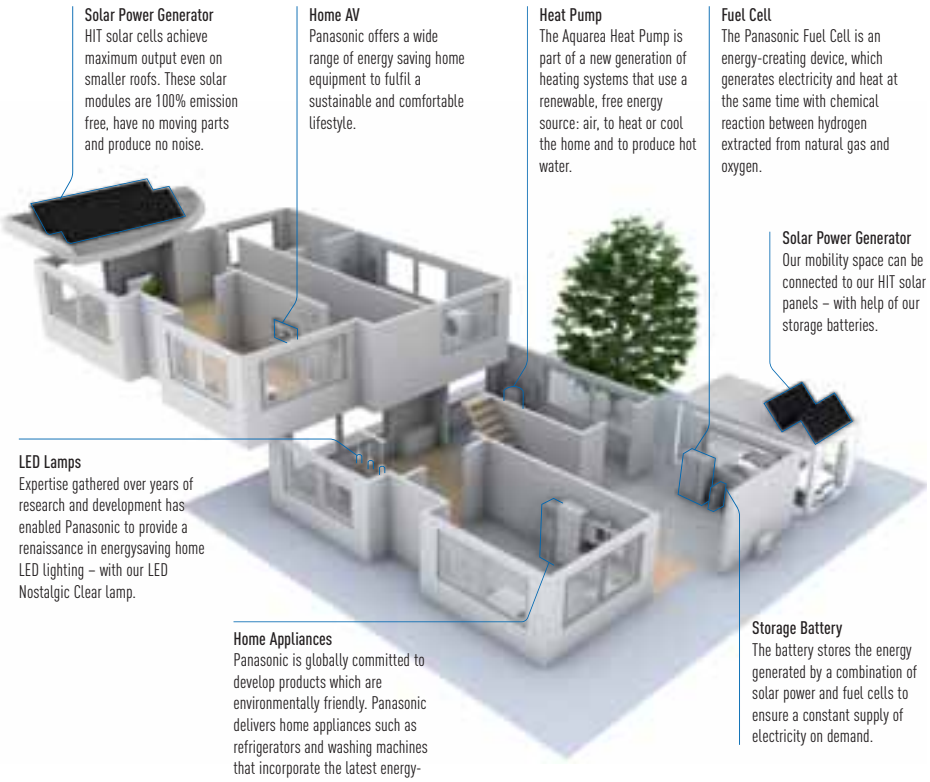
Panasonic's Green Performance was evaluated as being especially high, with excellent marks going to "Products and Services," "Governance," and "Transportation and Logistics."

Interbrand also noted the following points in its evaluation

Energy Star Award Recognitions: Panasonic has received more Energy Star awards than any other consumer electronics manufacturer.
Achieved a Recycling Rate of 99.3%: Taking steps toward zero waste, Panasonic achieved a factory waste recycling rate of 99.3% in 2013.
Improved Water Usage: In 2013, water usage at factories per basic unit of production improved by 0.7% compared with 2012.
Econavi Function: In 2009, Panasonic launched home appliances with the Econavi function, which automatically controls power and water consumption to cut losses by using sensor and other energy efficient technologies.

We aim to realize a lifestyle with virtually zero CO_2 emissions throughout the entire home

By creating, storing, managing and saving energy, Panasonic aims to realise a lifestyle with virtually zero CO_2 emissions throughout the entire home.



Exemplary sustainable projects

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.
This experiment, will be conducted for four years in more than 25,000 homes, businesses and communities of Grand Lyon.
Panasonic will provide the project with a variety of its energy efficient heating and cooling products, including the Aquarea Air Source Heat Pump. 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.
This project is particularly apt for Panasonic, as heating and hot water occupy a prominent place in household energy consumption. The company has involved for the project a dedicated and experienced R&D team from Panasonic's European technical centre in Frankfurt.

Fujisawa Sustainable Smart Town Goes Into Full-Scale Operation Near Tokyo

Fujisawa SST Council, a consortium led by Panasonic Corporation spearheading the development of the Fujisawa Sustainable Smart Town (Fujisawa SST). With its core facility supporting sustainable development of the town and its community now coming into operation, the Fujisawa SST is moving from the construction stage into a new stage where the town is nurtured to grow in full-scale into an eco and smart town that puts a high priority on the residents' lifestyles.
The Fujisawa SST Management Company is the town management company located in the SQUARE. Together with partner companies, the company provides five essential services in the town: energy, security, mobility, healthcare and community. The company will also collect and manage information pertaining to the town's overall environment, energy, security and safety to support an eco and smart life in the town.
As a fresh development in the town, the Fujisawa SST has set a detached housing zone for non car owners for the second phase of sales. By using the town's eco-car sharing and rent-a-car services, residents in the zone can enjoy their lifestyles without the need to own a car while reducing economic burden and making effective use of the lot. Preparations are also underway for a new base to provide environmentally-friendly logistic services to the residents.

100% Panasonic

heating & cooling solutions

Panasonic – leading the way in Heating and 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. These offer maximum effectiveness, comply with the strictest environmental standards and meet the most avant-garde construction requirements of our time.

Projects & Case Studies of Panasonic Heating and Cooling Solutions

Call centre retrofit. Woodhouse Environmental Services Ltd. Bourmemouth, UK. **VRF**

New residential building. 84 apartments. Barcelona, Spain. **Aquarea**

New condominium. Bergås Terasse complex. Drammen, Norway. **ECOi / Aquarea**

Hotel refurbishment. Hotel Claris 5 * Barcelona, Spain. **ECOi**

New residential building. 176 flats Xàtiva, Spain. **ECO G**

French Winery. Boutiers-Saint-Trojan, France. **ECO G**

Le Centurie Centro Commerciale. 40,000 m² with 40 commercial spaces. Padua, Italy. **ECOi**

Europa-Park is the second most popular theme park resort. 300 rooms. Germany. **ECOi**

The National Grid's. Call Center refurbishment. Hinkley, UK. **ECO G**

The exclusive Sunprime Atlantic View resort, owned by Thomas Cook. 220 rooms. Canary Islands. Spain. **ECO G**

Montcenis Nursing Home. Over 6100 m² and 85 rooms. Saône et Loire, France. **ECO-G**

Smart House. Ariake, Tokyo. **HVAC and the combination of solar power generation, fuel cells and storage batteries.**

Technopark of Nobosibirsk Academgorodok. Novosibirsk, Russia. **ECOi**

Shippensburg University. Pennsylvania, United States. **ECOi**

Urban residential Mosaic Panama Pacifico. Republic of Panama. **Mini ECOi**

Patra Jasa Bandung Hotel. Bandung, Indonesia. **ECOi**

To find out more: www.aircon.panasonic.eu

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 PRO Club (www.panasonicproclub.com) 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 Aquarea designer to define your system and select the good Aquarea Heat pump.**
- **Calculate the specs of the Aquarea Air fan coil based on the parameters of your system**
- **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**
- **Find out about the latest news first**
- **Register for training**

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 Search by error code or unit ref. Compatible with smartphone and tablet computer
- 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 on your smartphone and your PC: Search by error code or model reference. Online version + downloadable version for offline use

Panasonic PRO Club is fully compatible with tablet computer and smartphone

The Panasonic PRO Academy

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.

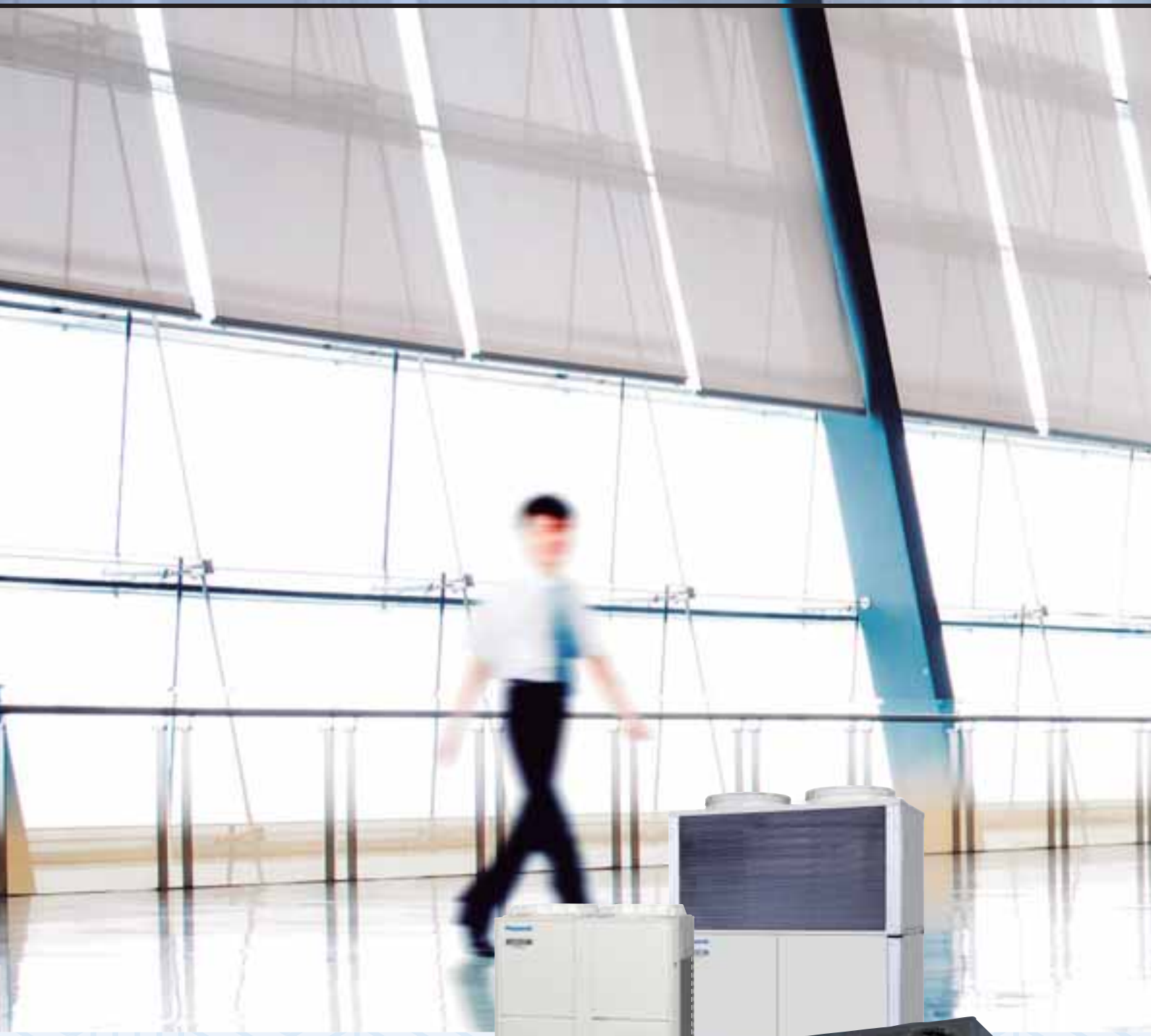
New training courses cover three levels. Design, installation, and commissioning & trouble-shooting. Training courses include:

- 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.

PRO Club

www.panasonicproclub.com
or connect simply with your smartphone to the PRO Club using this QR

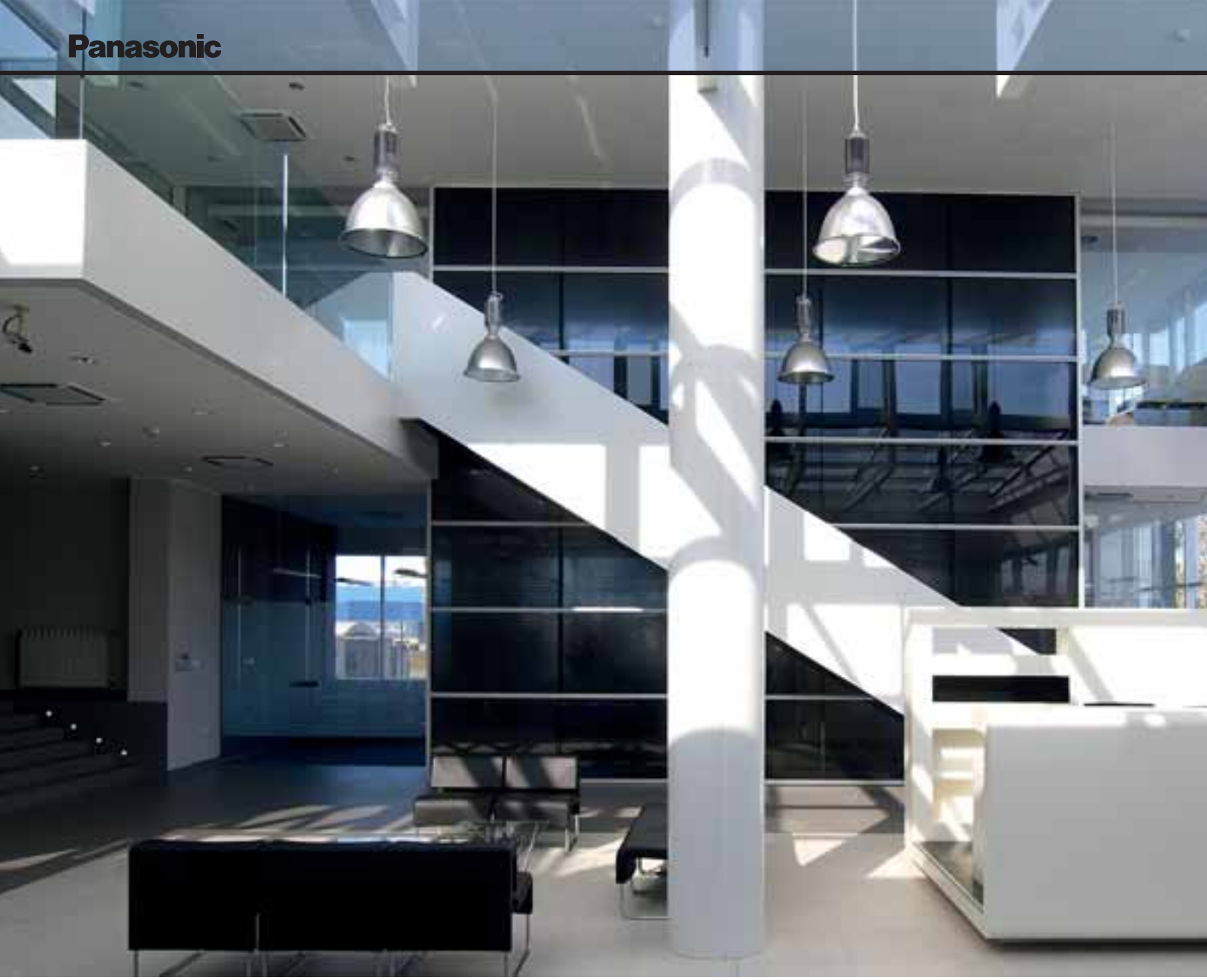


ECO i ECO G VENTILATION

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.



Highlighted Features

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.

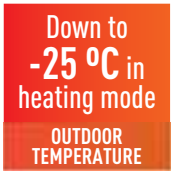
ENERGY SAVING

The new Cloud system from Panasonic allows you to have complete control of all your installations. In a simple click, all your units from several locations, receive status updates in real-time of all your installations, preventing breakdowns and optimizing costs.

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

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

GHP technology offers the best in energy efficiency.



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

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

R410A. Environmentally friendly refrigerant.

5 Years Warranty.
We guarantee the outdoor unit compressors in the entire range for five years.

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

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

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

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

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

Built-in drain pump. Maximum head 50cm (or 75cm for U type) from the bottom of the unit.

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

Panasonic is definitely the most efficient system throughout the years

And highly adapted to retail, hotels and offices applications

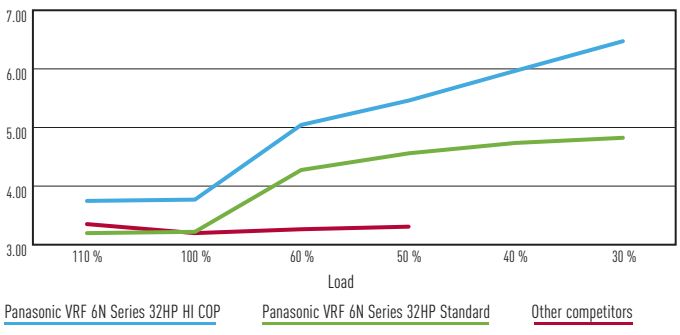
1. Super high efficiency at part load conditions:

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 temperature 0°C DB, Room temperature 20°C DB.

COP comparison Panasonic Vs Other competitors at different load



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

2. Excellent ESEER and SCOP values for 2 and 3-Pipe

Panasonic have a extremely high ESEER and SCOP values following the SBEM method (some other manufacturers may use another non official calculation method).

Mini ECOi		
Model	ESEER	SCOP
U-4LE1E5	5,77	5,43
U-4LE1E8	5,76	5,43
U-5LE1E5	5,88	5,12
U-5LE1E8	5,88	5,12
U-6LE1E5	5,20	4,86
U-6LE1E8	5,29	4,86

2-Pipe		
Model	ESEER	SCOP
U-8ME1E81	6,77	5,83
U-10ME1E81	6,40	5,33
U-12ME1E81	6,05	4,69
U-14ME1E81	6,09	5,11
U-16ME1E81	5,70	4,73
U-18ME1E81	6,08	5,09
U-20ME1E81	5,87	4,94

3-Pipe		
Model	ESEER	SCOP
U-8MF2E8	5,89	5,74
U-10MF2E8	5,96	5,40
U-12MF2E8	6,15	5,25
U-14MF2E8	5,87	5,63
U-16MF2E8	6,04	4,88

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.

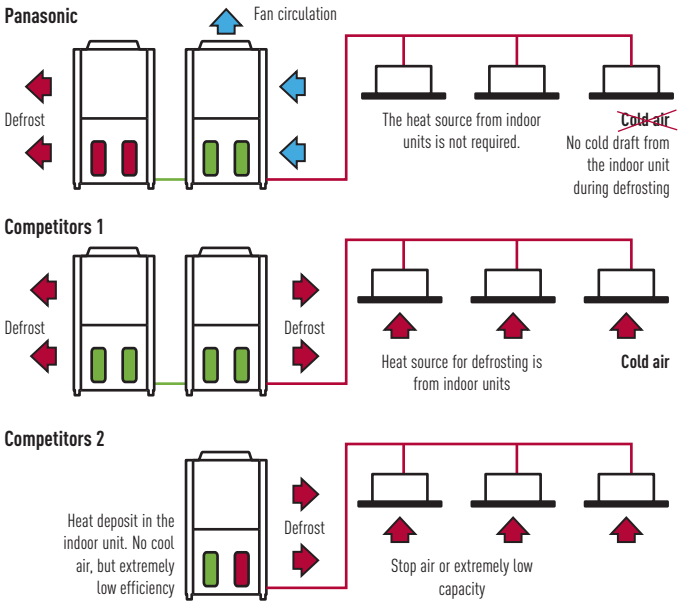
- Indoor temperature: 27°C DB / 19°C WB
- Outdoor temperature conditions

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 : 0,23 x $EER_{25\%}$ + 0,41 x $EER_{50\%}$ + 0,33 x $EER_{75\%}$ + 0,03 x $EER_{100\%}$.

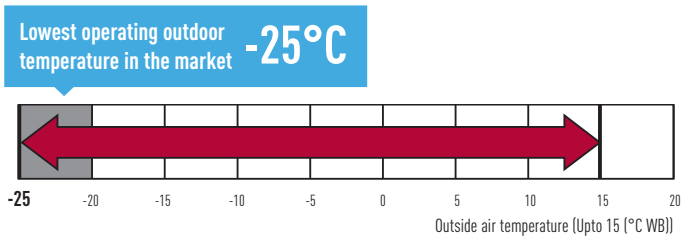
3. Efficient defrost operation

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

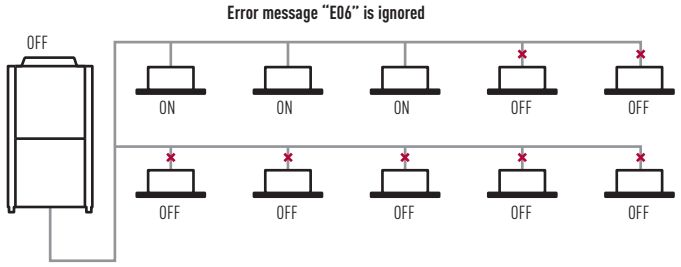
Panasonic use the second unit to defrost the first unit. This makes the system more efficient during defrost and does not affect the comfort.



Wide temperature setting range.

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

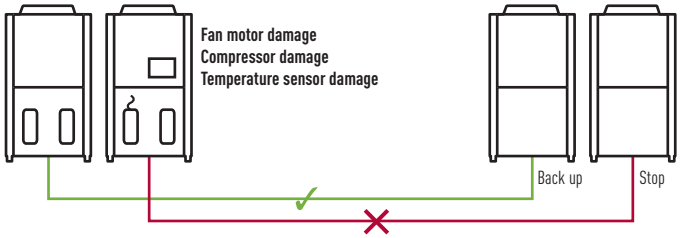
System will not stop when up to 25% of indoor units have power supply breakdown when they are ON Mode.

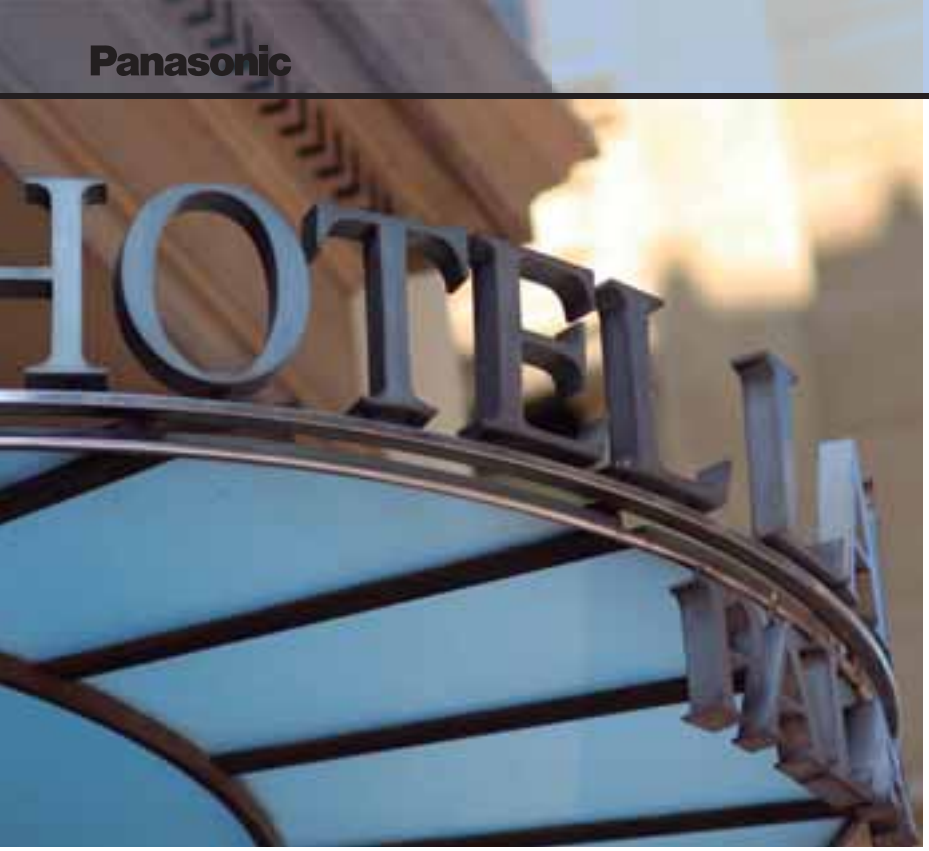


6. High safety operation in case of breakdown! Ensures heating and cooling

AUTOMATIC BACK-UP OPERATION

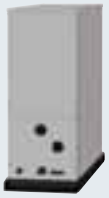
It is possible for the system to keep working, even if the compressors, fan motor and the temperature sensor are damaged (even when compressor fails in single unit with 2 or more compressor inside).





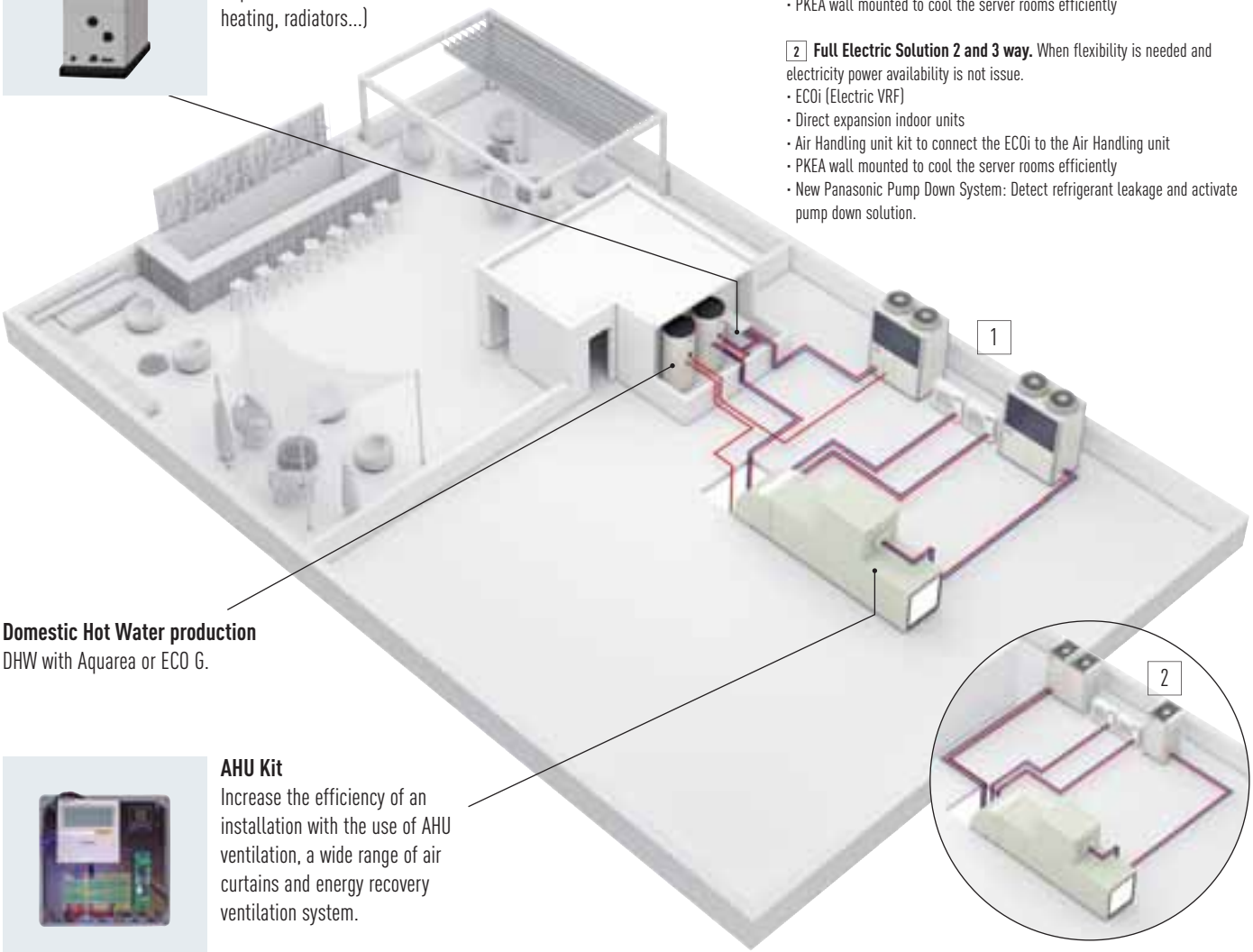
Your entire hotel with maximum savings, maximum control and maximum comfort

Panasonic helps your entire hotel achieve 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 radiators, underfloor heating, radiators...)

Domestic Hot Water production
DHW with Aquarea or ECO G.



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.

1 **Hibride Solution**
Gas + Electric: When high quantity of hot cold water is needed.
- ECO G (Gas heat pump)
- Water heat exchanger
- Aquarea HT to produce hot water up to 65°C
- Air Handling Unit kit to connect the ECO G to the Air Handling Unit
- PKEA wall mounted to cool the server rooms efficiently

2 **Full Electric Solution 2 and 3 way.** When flexibility is needed and electricity power availability is not issue.
- ECOi (Electric VRF)
- Direct expansion indoor units
- Air Handling unit kit to connect the ECOi to the Air Handling unit
- PKEA wall mounted to cool the server rooms efficiently
- New Panasonic Pump Down System: Detect refrigerant leakage and activate pump down solution.

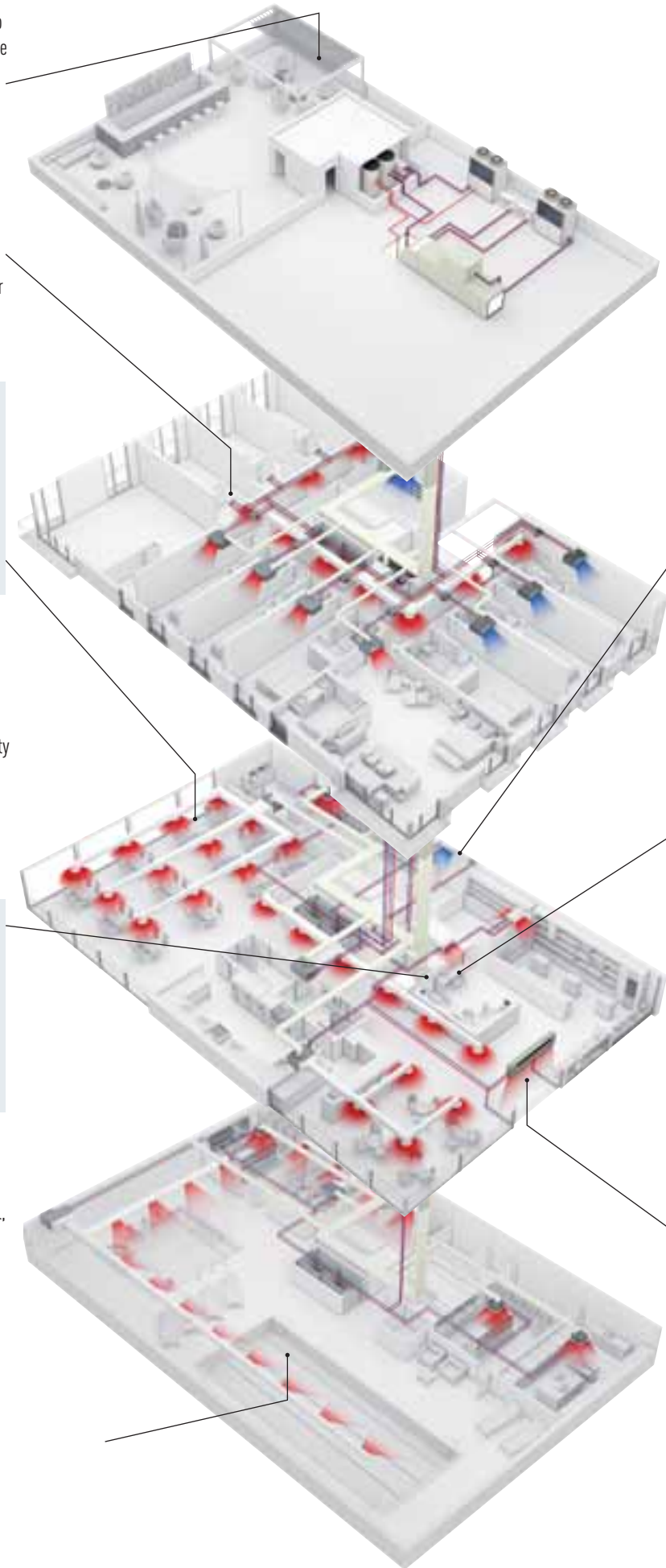
Additional available space
Due to the modularity applied to our systems, our customers have freed space for public use: Terraces, swimming pools, meeting rooms, parkings.

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

Wide range of indoor units
Complete range of indoor units that fits any need. All units provided with supply air temperature sensor and low operation sound level to warranty maximum guests comfort. From 1,5kW up to 30kW.

Control your way
Wide variety of controls, from simply user control to remotely full system control. Touch panel, web server, consumption control, smartphone control... everything is possible.

Maximum savings on hot water production
Hot water for swimming pool, spa and laundry for free thanks to the residual heat generated by the ECO G units.



PKEA indoor unit for server room
Steady cooling, nonstop, even at -20°C and still with high efficiency. Ready for continuous operation and easily to connect 2 systems to automatically alternate and smartly keep cooling server room with maximum warranties.

Protocol friendly
Great flexibility for integration into your KNX / EnOcean / Modbus / LonWorks / BACnet projects allows fully bi-directional monitoring and control of all the functioning parameters. Range of solutions to control locally or remotely the full system in bi-directional.

Air Curtain with DX Coil
The Panasonic range of air curtains is designed for smooth operation and efficient performance.

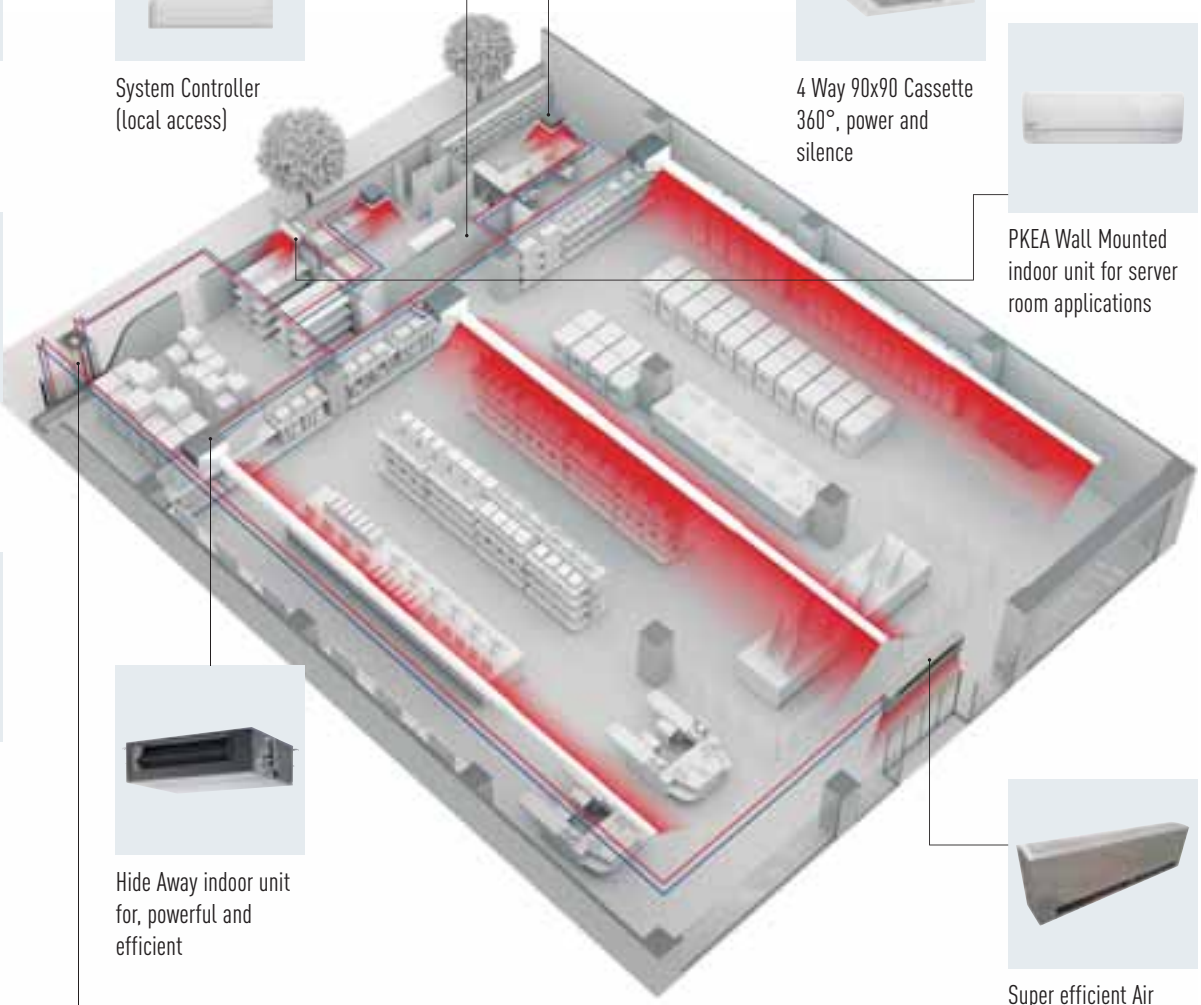
Innovative solutions for retail

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 displayed, analysed and optimized in order to improve the efficiency, reduce the running time and increase the life time of the units.

8 reason why Panasonic is the best solution for your Retail:

1. Complete solution
2. Flexibility and adaptation
3. Go green retail: lowest CO_2 emissions
4. Comfort - maximum satisfaction
5. Future expansion
6. Panasonic is definitely the most efficient system over the years
7. High quality of service with Panasonic pro-partner installation team
8. 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



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

Multi energy solutions, gas or electrical

Gas VRF

ECO G

Electrical VRF

ECOi

Mini ECOi

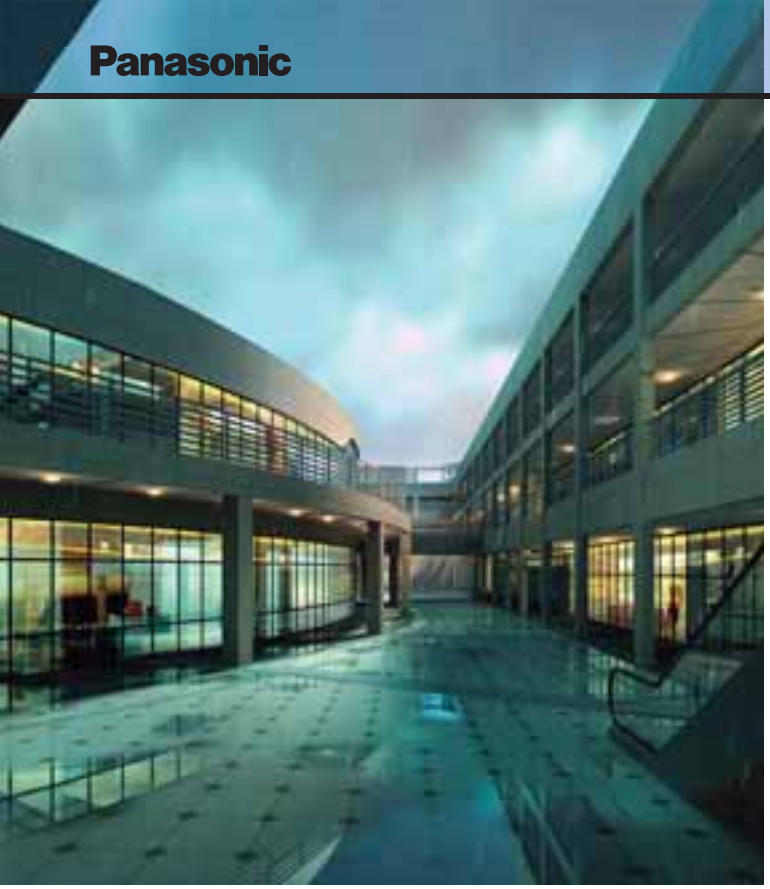
Electrical 1x1

PACi

Electrical A2W

Aquarea

The Multi energy solution (Gas and Electric) from Panasonic to gives the best of the energy saving and on the flexibility of the installation. Panasonic solutions can be connect to direct expansion systems, water chiller installations and ventilation systems as air handling units.



Panasonic offers a purposely engineered solution which allows for a quick and simple installation. The unit contains 5 actuating ball valves, a 30l storage vessel and PLC all housed in an IP54 rated container. Terminals on the front of the unit allow for easy wiring to the alarm terminal, high / low pressure transducers and discharge temperature sensor(s) of the condensing unit(s).

Leak Detection and Automatic Refrigerant Pump down

Improving Safety and the Environment

Panasonic has developed an innovative solution to detect refrigerant leaks that offer complete assurance and protection for end users, building occupiers and the environment. Panasonic's Pump Down System is ideal for hotels, offices and public buildings where safety for occupants and the building owners is of utmost importance.

The system monitors refrigerant leakage continually and provides a warning before refrigerant leaks, preventing major refrigerant loss and potentially damaging the system's efficiency. The new system can improve potential refrigerant loss to approximately 90%.

As well as ensuring safe and reliable operation, Panasonic's Pump Down System contributes to a building qualifying for additional BREEAM points and enables compliance with current EN378 2008 standards, covering applications where refrigeration concentration levels exceed practical safety limits of 0,44 kg/m^3.

Panasonic has developed two detection methods that can operate simultaneously to offer complete protection for owners, building occupiers and the environment.

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

Key points:

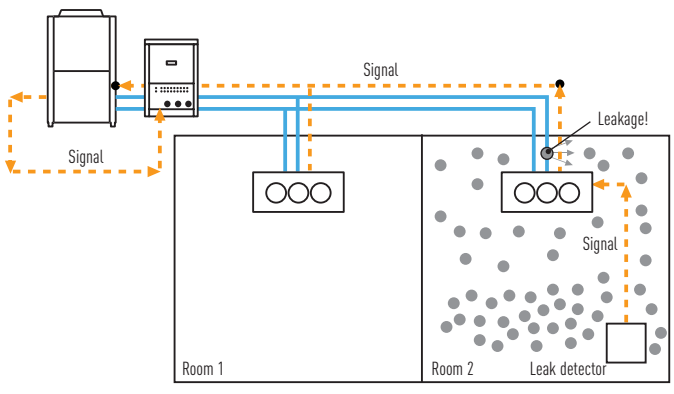
- Comply with legislation
- Protect personnel
- Protect the environment
- Save on operating costs

Direct Leak Detection Method: The Safest Solution for Small Rooms

This option should be implemented in any area in non-compliance with BS EN 378:2008. The leak detector is connected directly to the indoor unit via the dedicated PAW-EXCT connector and the Pump Down System is directly connected to the outdoor unit PCB.

The Pump Down System will activate when a leak is detected in the room and initiate a refrigerant reclaim operation immediately, the refrigerant will be collected inside the outdoor units' heat exchanger and optional receiver tank for larger systems. This immediate reaction and large refrigerant storage capacity offers very high level of safety for end users, building occupiers as well as being environmentally friendly.

Due to the exclusive ECOi software the leak detection sensors are able to communicate directly via the P-link which means no additional communication panels, cabling or software is required.



In-Direct Leak Detection Method: Unique PLC Algorithm to Determine Refrigerant Leakage

Pressure and temperature sensors constantly monitor the low / high pressure and discharge of the condensing unit to protect against potential leakage in areas not covered by leak detectors. If low pressure decreases and compressor discharge temperature increases at pre-defined values according to a pre-set algorithm then the unit will trigger a pump down sequence.
The new innovative algorithm is able to detect leakage of R410A based on abnormal changes in the following conditions, high pressure, low pressure and compressor discharge temperature.

Once initiated via either direct or in-direct detection, the unit will immediately close the liquid / discharge actuating ball valves close the alarm terminals on the Pump Down PCB allowing an alarm to be raised at any nominated location.
Reclaim of the refrigerant is via the suction line to the heat exchanger(s) of the outdoor unit(s), any surplus refrigerant is collected in the 30l receiver tank. Once fully pumped down the suction line is closed and the unit awaits a 'Reset' and 'Recharge' command.

Fig 1: Panasonic's Pump Down System

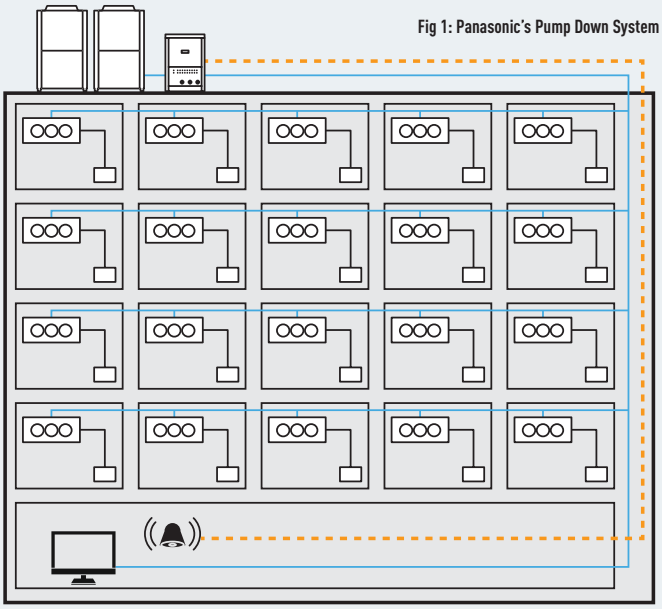
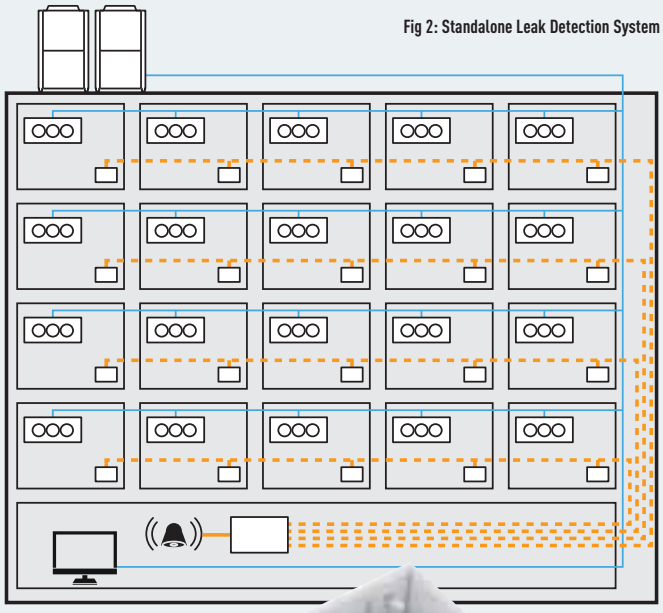
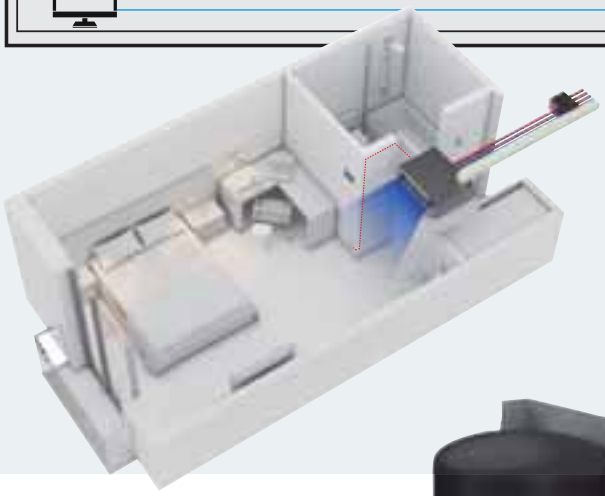
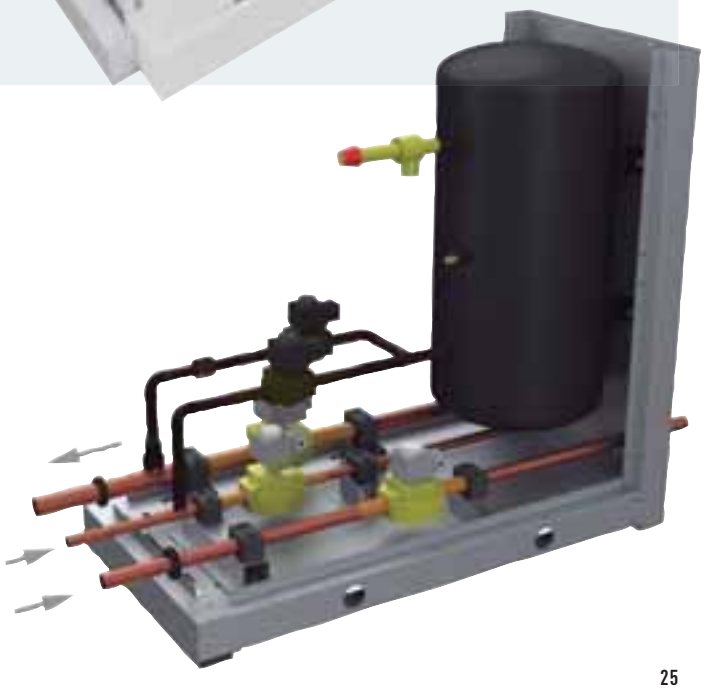


Fig 2: Standalone Leak Detection System



Due to the simplistic installation and control interfacing, shown in Fig 1, Panasonic's ECOi Pump Down System can provide dramatic reduction in capital cost and installation time when compared to a standalone leak detection system, shown in Fig 2. This option is ideal for hotels, offices and public buildings where safety of building occupiers is a must and is extremely cost effective, savings of 40% can be easily achieved.





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	✔	✔	✔	✔

ECOi System	Model code	Description
ECOi 2 Way	PAW-PUDME1A-1	Pump down for 1 outdoor unit system
	PAW-PUDME1A-2	Pump down for 2 outdoor units system
	PAW-PUDME1A-3	Pump down for 3 outdoor units system
ECOi 3 Way	PAW-PUDMF2A-1	Pump down for 1 outdoor unit system
	PAW-PUDMF2A-2	Pump down for 2 outdoor units system
	PAW-PUDMF2A-3	Pump down for 3 outdoor units system
ECOi 2 Way	PAW-PUDME1A-1R	Pump down for 1 outdoor unit system + Receiver Kit 30l
	PAW-PUDME1A-2R	Pump down for 2 outdoor units system + Receiver Kit 30l
	PAW-PUDME1A-3R	Pump down for 3 outdoor units system + Receiver Kit 30l
ECOi 3 Way	PAW-PUDMF2A-1R	Pump down for 1 outdoor unit system + Receiver Kit 30l
	PAW-PUDMF2A-2R	Pump down for 2 outdoor units system + Receiver Kit 30l
	PAW-PUDMF2A-3R	Pump down for 3 outdoor units system + Receiver Kit 30l
Accessory (common)	PAW-PUDRK30L	Receiver Kit 30l

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+

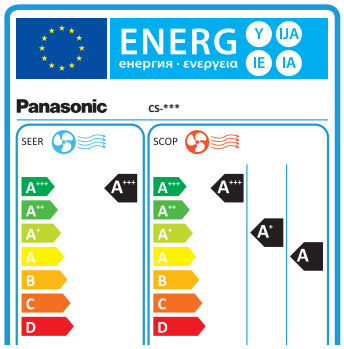
Environmentally friendly refrigerant
R410A

Down to -20 °C in heating mode
OUTDOOR TEMPERATURE

5 year compressor warranty

Energy saving concept

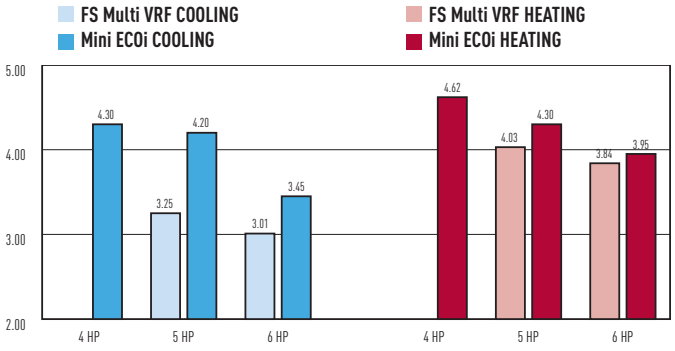
The energy saving designs for the structure of fans, fan motors, compressors and heat exchangers has resulted in high COP values, which rank as one of the top classed in the industry. In addition, use of highly efficient R410A refrigerant reduces CO_2 emission and lowers operating costs.



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

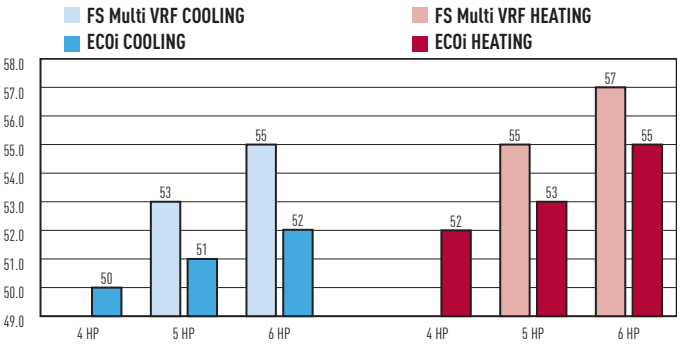
The operation efficiency has been improved using highly efficient R410A refrigerant, new DC inverter compressor, new DC motor and new design of heat exchanger.



2-Pipe Mini ECOi LE1 Series

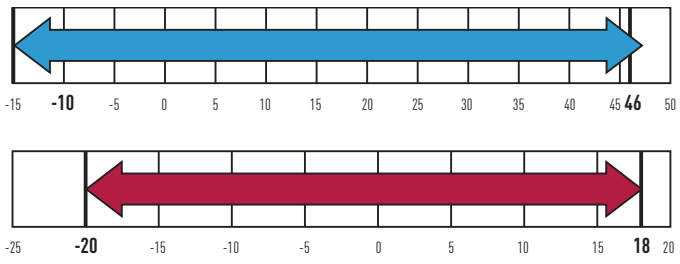
Drastically reduced sound level

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



Wide operating range

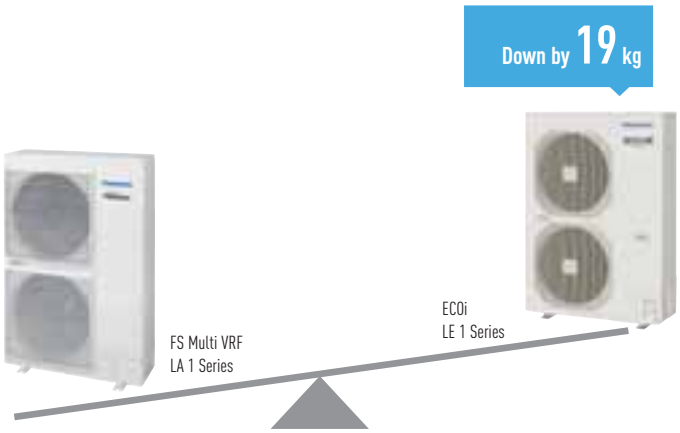
The operating range for heating operation is to -20°C, the cooling range is to -10°C. The remote controller temperature setting offers a range from 16°C to 30°C.



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

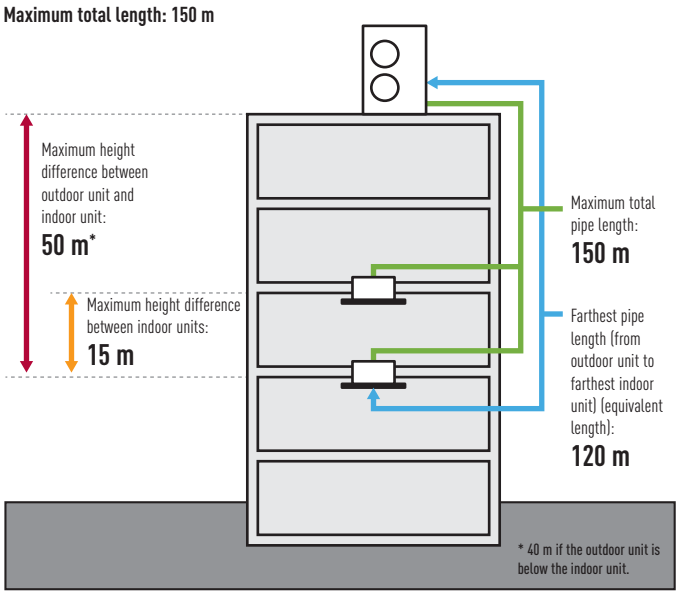
Lightweight

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.

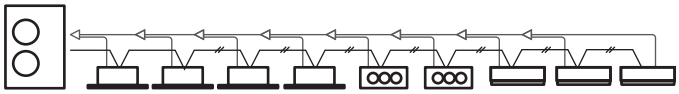


Silent mode

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

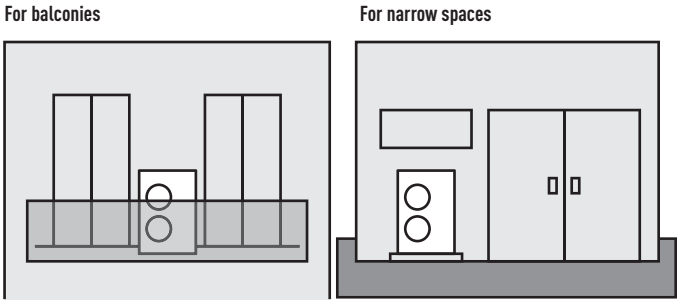
Up to 9 indoor units per system

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 in various small 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

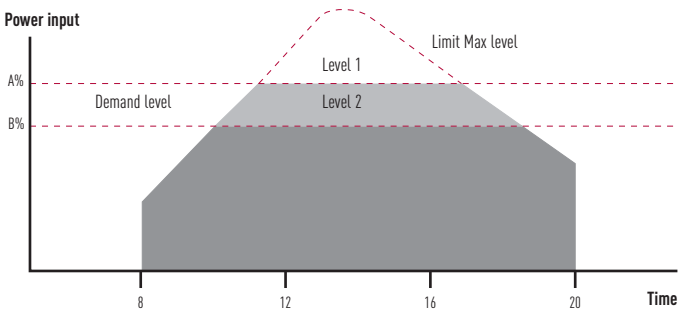
Function of Demand control

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.)

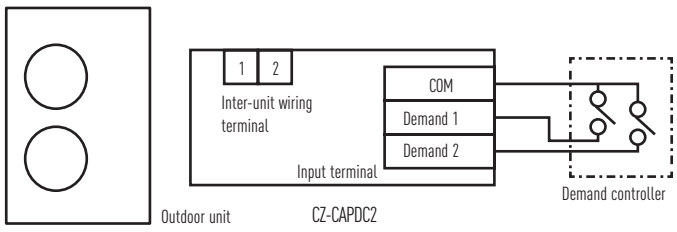
	Power input level (vs. rated condition)	
Level 1	100% (at ship)	From 40%-100% setting can be changed (by 5% step)
Level 2	70% (at ship)	
Level 3	0% (Forcible thermo-OFF)	

OPERATING IMAGE



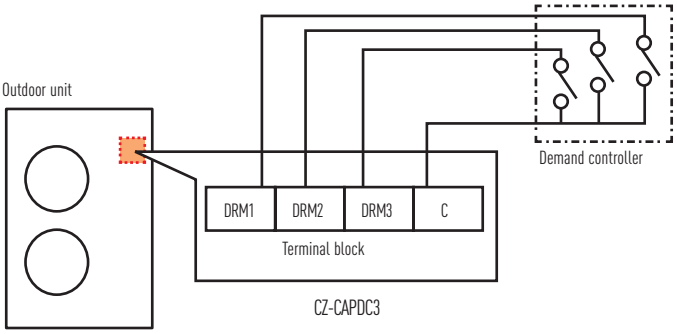
CZ-CAPDC2

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	220	230	240	380	400	415	220	230	240	380	400	415	220	230	240	380	400	415
			Single 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**		
Running amperes		A	13,9	13,3	12,7	4,9	4,7	4,5	16,3	15,6	14,9	5,7	5,4	5,2	21,5	20,5	19,7	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**		
Running amperes		A	13,2	12,7	12,1	4,7	4,5	4,3	18,0	17,2	16,5	6,3	6,0	5,8	21,6	20,7	19,8	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	5,42	5,62	5,17	5,41	5,64	6,06	6,37	6,61	5,91	6,18	6,45	7,27	7,65	7,94
Maximum number of connectable indoor units			6			6			8			8			9			9		
Air volume	Cooling / Heating	m³/min	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	104			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

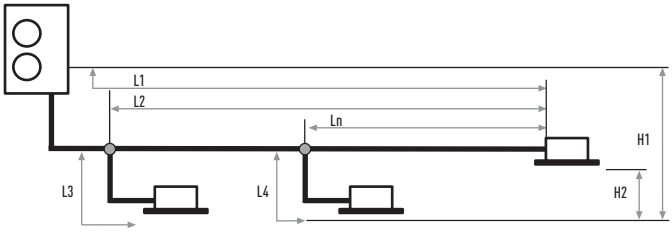
1) EER and COP classification is at 400 V in accordance with EU directive 2002/31/EC.
Specifications subject to change without notice.
For detailed information about ErP, please visit our websites www.aircon.panasonic.eu or www.ptc.panasonic.eu

Technical focus

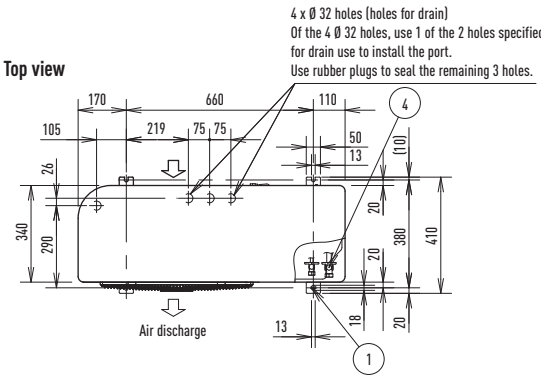
- Single Phase or Three Phase power supply
- One Amp start current
- DC inverter technology combined with R410A
- Diversity ratio 50-130%
- Cooling operation to -10°C
- Compact outdoor unit 1.330 x 940 x 410mm

Flexible pipework

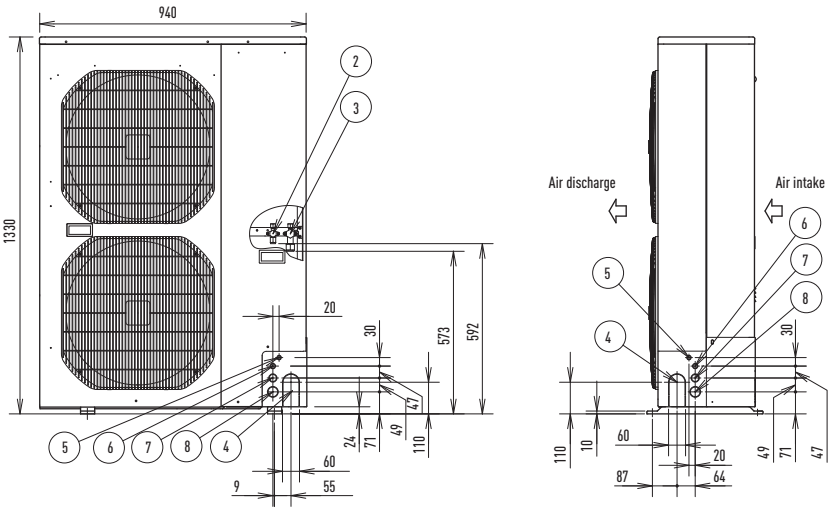
Category	Item	Description		Max length (m)
Allowable pipework length	L1	Maximum pipe run	Actual length	120
			Equivalent length	140
	L2-L3	Difference between maximum length and minimum length from the first distribution joint		40
	L3 L4 Ln	Maximum length of each distribution joint		30
	L1+L3+L4	Maximum 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

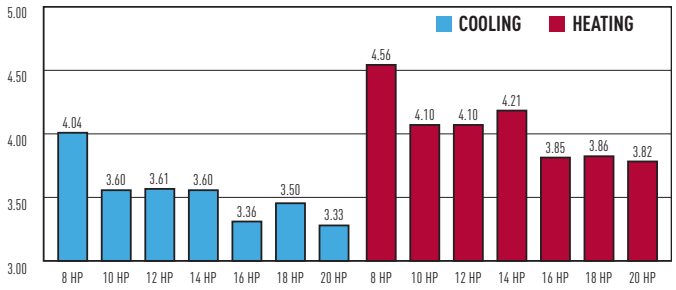
Large-capacity VRF systems using R410A with advanced technology.
Newly designed next generation VRF!

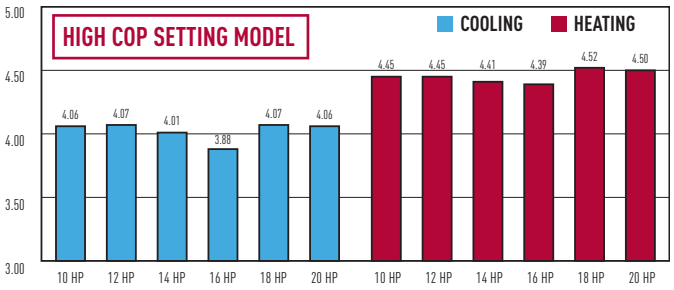
Energy saving
INVERTER+
Environmentally friendly refrigerant
R410A
Down to -25 °C in heating mode
OUTDOOR TEMPERATURE
5 year compressor warranty

HIGH EFFICIENCY

Energy savings

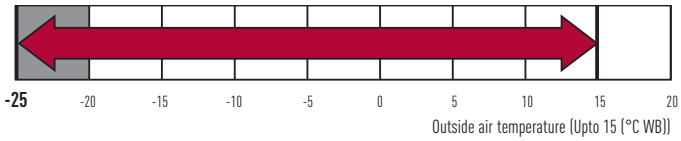
The operation efficiency has been improved using highly efficient R410A refrigerant, new DC inverter compressor, new DC motor and new design of heat exchanger.



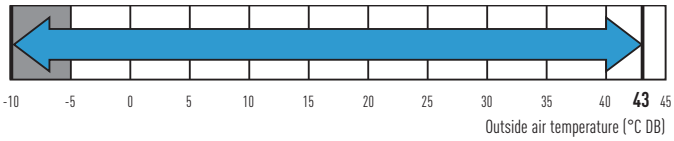


Extended operating range

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%

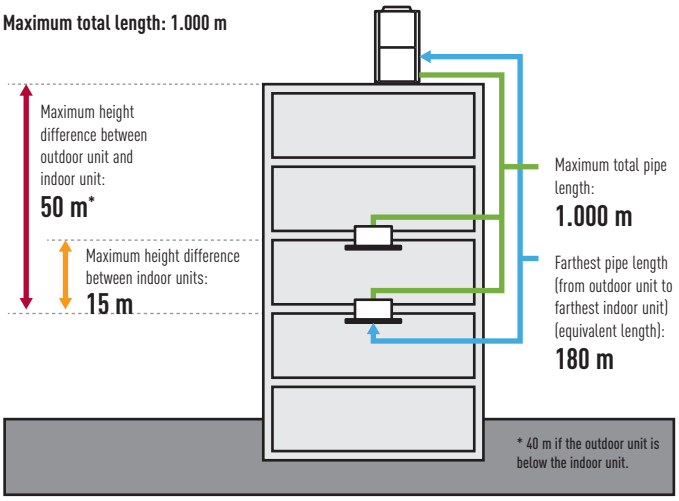
VRF systems attain maximum indoor unit connection capacity of up to 200 % of the unit's connection range, depending on the outdoor and indoor models selected. So for a reasonable investment, VRF systems provide an ideal air conditioning solution for locations where full cooling/heating are not always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

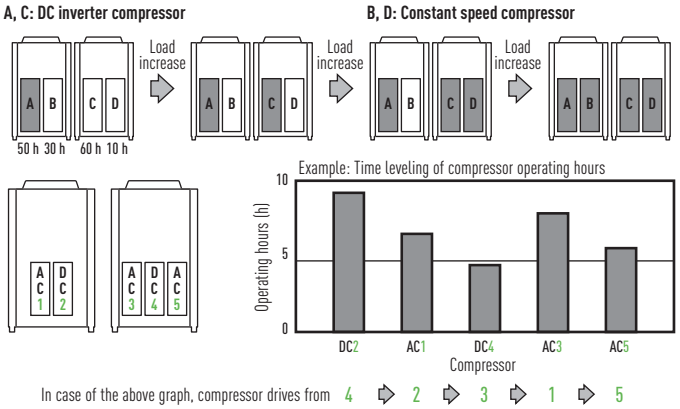
Increased piping lengths and design flexibility

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.



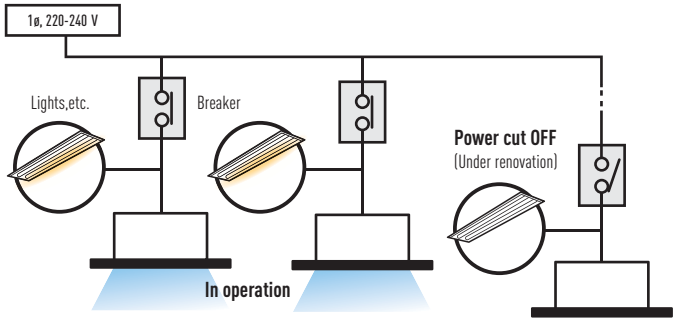
Newly designed fan. Optimized air flow and noise reduction

Newly designed fan and bell-mouth reduces stress to fan by dispersing higher wind speeds. 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

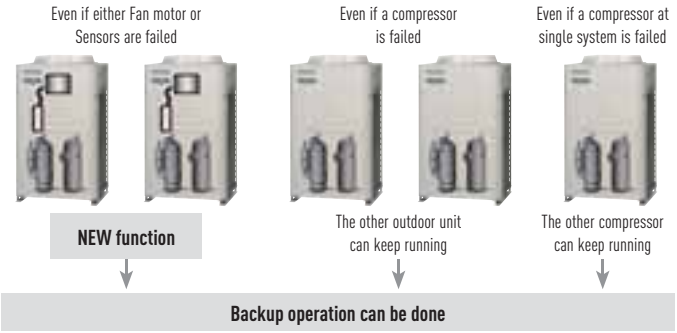
Non-stop operation during maintenance

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



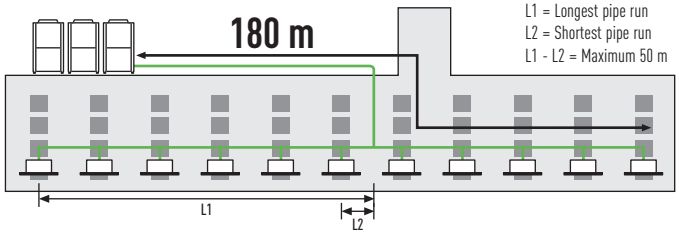
Automatic Backup operation in the case of compressor and outdoor units malfunction

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).



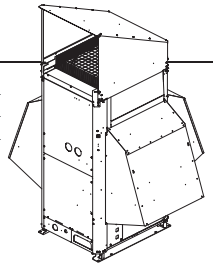
Easy to design solutions for schools, hotels, hospitals and other large buildings

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

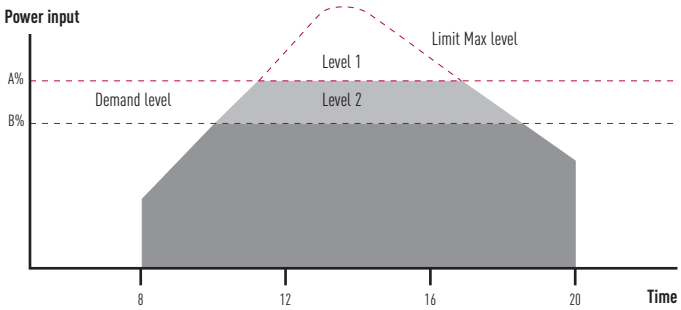
Function of Demand control

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.)

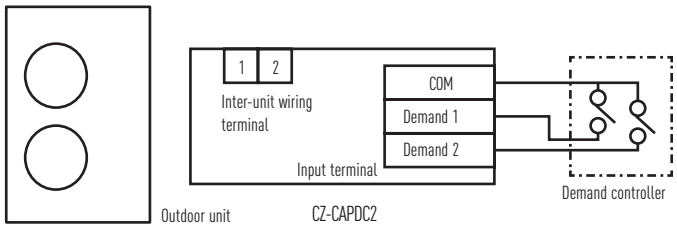
	Power input level (vs. rated condition)	
Level 1	100% (at ship)	From 40%-100% setting can be changed (by 5% step)
Level 2	70% (at ship)	
Level 3	0% (Forcible thermo-OFF)	

OPERATING IMAGE



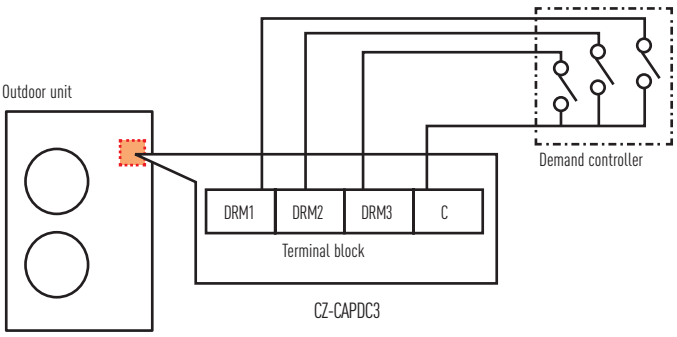
CZ-CAPDC2

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.



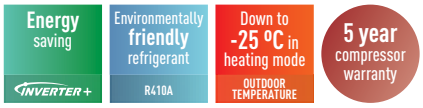
* Only for 6N series ECO-i outdoor unit, "Regular Demand control" setting is available. (The system will be limited the maximum input level for all the time without any signal input.) (The setting to be done at the time of system start-up or service by maintenance remote controller.)

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**
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**
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	inch (mm)	3/4 (19,05)	7/8 (22,22)	1 (25,40)
	Liquid pipe	inch (mm)	3/8 (9,52)	3/8 (9,52)	1/2 (12,70)
	Balance pipe	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (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 / +43	-10 / +43	-10 / +43
	Heating Min / Max	°C	-25 / +15	-25 / +15	-25 / +15

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

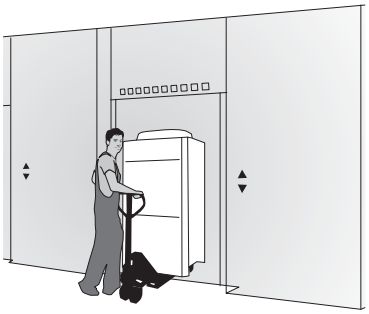
1) EER and COP classification is at 400 V in accordance with EU directive 2002/31/EC.
Specifications subject to change without notice.
For detailed information about ErP, please visit our websites www.aircon.panasonic.eu or www.ptc.panasonic.eu

Technical focus

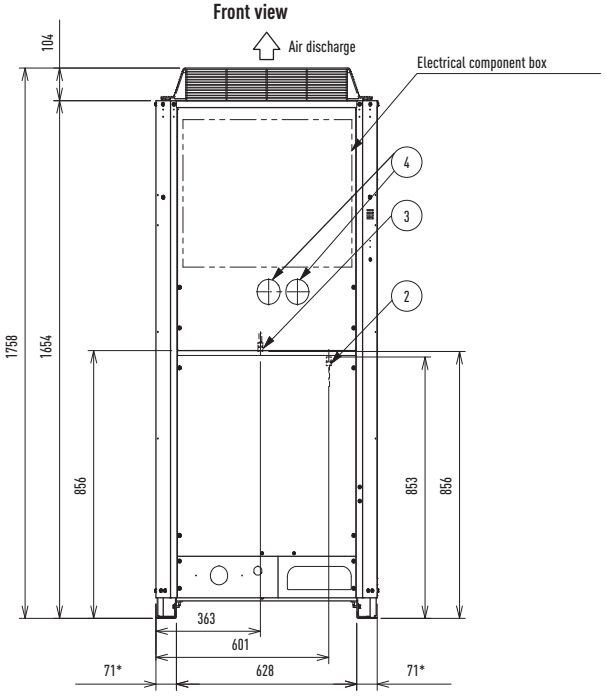
- Compact casing
- Longer maximum piping length up to 1,000m
- Extended operating range to provide heating at outdoor temperature as low as -25°C
- Suitable for refurbishment projects (Refer to technical data book)

Compact design

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

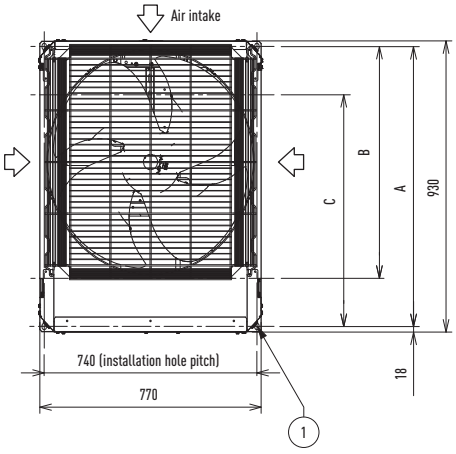


Front view



* Installation fixing bracket, installation side.

Top view



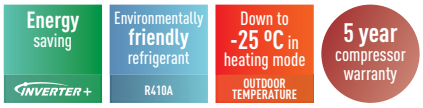
A	894 (installation hole pitch). The tubing is routed out frpm the front
B	730 (installation hole pitch). The tubing is routed out frpm the front
C	730 (installation hole pitch)
1	Installation holes (8-15x21 elongated holes) anchor bolts M12 or larger
2	Pressure outlet port (for high pressure: Ø 7.94 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**
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**
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	inch (mm)	1 (25,40)	1-1/8 (28,58)
	Liquid pipe	inch (mm)	1/2 (12,70)	1/2 (12,70)
	Balance pipe	inch (mm)	1/4 (6,35)	1/4 (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 / +43	-10 / +43
	Heating Min / Max	°C	-25 / +15	-25 / +15

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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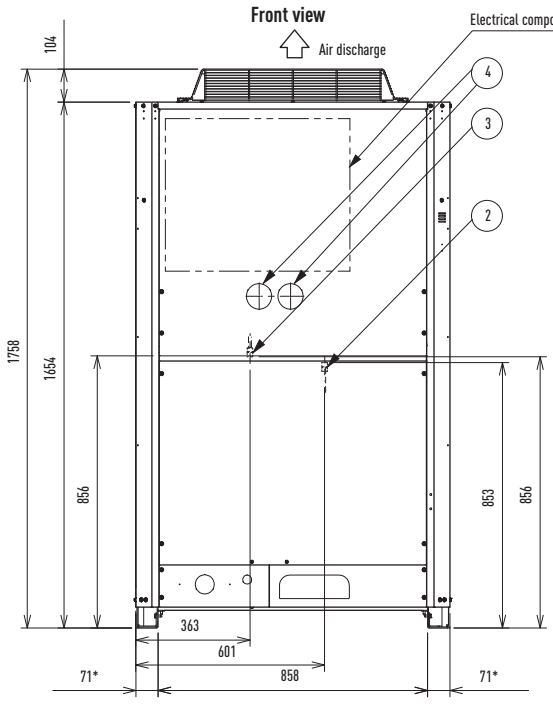
Technical focus

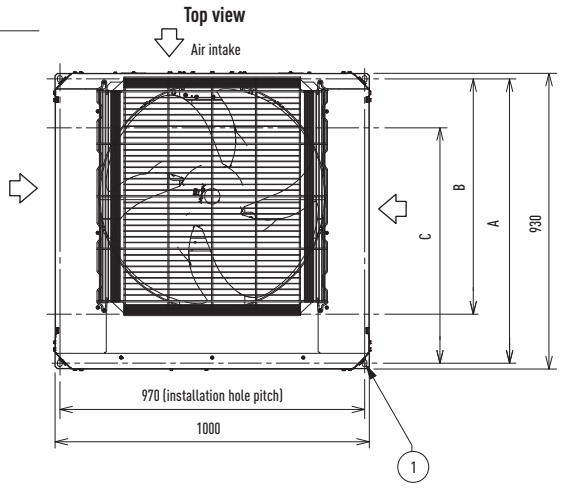
- Longer Max piping length up to 1,000 m
- Extended operating range to provide heating at outdoor temperature as low as -25°C
- Suitable for refurbishment projects (Refer to technical data book)

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.



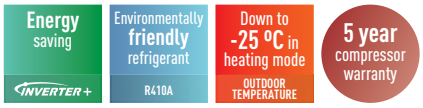
A	894 (installation hole pitch). The tubing is routed out frpm the front
B	730 (installation hole pitch). The tubing is routed out frpm the front
C	730 (installation hole pitch)
1	Installation holes (8-15x21 elongated holes) anchor bolts M12 or larger
2	Pressure outlet port (for high pressure: Ø 7.94 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**
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**
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	inch (mm)	1-1/8 (28,58)	1-1/8 (28,58)
	Liquid pipe	inch (mm)	5/8 (15,88)	5/8 (15,88)
	Balance pipe	inch (mm)	1/4 (6,35)	1/4 (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 / +43	-10 / +43
	Heating Min / Max	°C	-25 / +15	-25 / +15

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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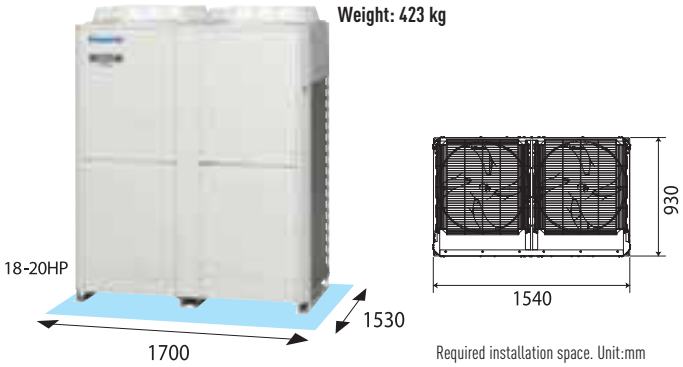
Technical focus

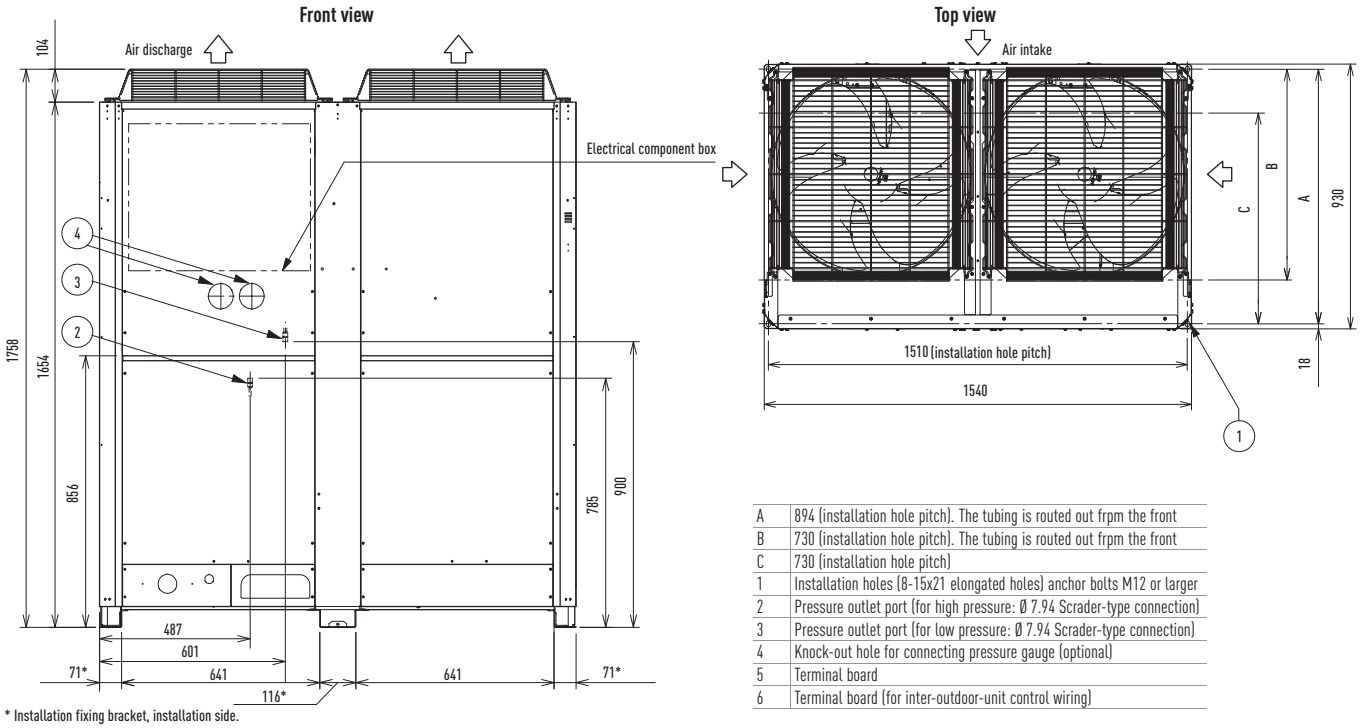
- Bigger capacity in one casing
- Longer Max piping length up to 1,000 m
- Extended operating range to provide heating at outdoor temperature as low as -25°C
- Suitable for refurbishment projects (Refer to technical data book)

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.

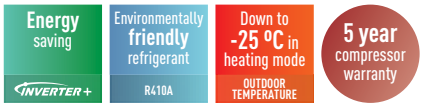
A	894 (installation hole pitch). The tubing is routed out frpm the front
B	730 (installation hole pitch). The tubing is routed out frpm the front
C	730 (installation hole pitch)
1	Installation holes (8-15x21 elongated holes) anchor bolts M12 or larger
2	Pressure outlet port (for high pressure: Ø 7.94 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**
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**
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	inch (mm)	1-1/8 (28,58)	1-1/8 (28,58)	1 1/4 (31,75)	1 1/4 (31,75)	1 1/4 (31,75)	1 1/4 (31,75)	1 1/4 (31,75)	1-1/2 (38,10)
	Liquid pipe	inch (mm)	5/8 (15,88)	5/8 (15,88)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)
	Balance pipe	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)
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 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43
	Heating Min / Max	°C	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15

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
1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)
3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)
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 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (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 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43
-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15

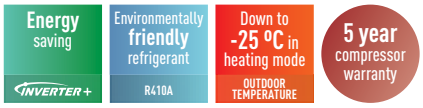
Technical focus

- Increased connectable Indoor units / outdoor units capacity ratio up to 200%
- Increased maximum number of connectable indoor units 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**
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**
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	inch (mm)	7/8 (22,22)	1 (25,40)
	Liquid pipe	inch (mm)	3/8 (9,52)	1/2 (12,70)
	Balance pipe	inch (mm)	1/4 (6,35)	1/4 (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 / +43	-10 / +43
	Heating Min / Max	°C	-25 / +15	-25 / +15

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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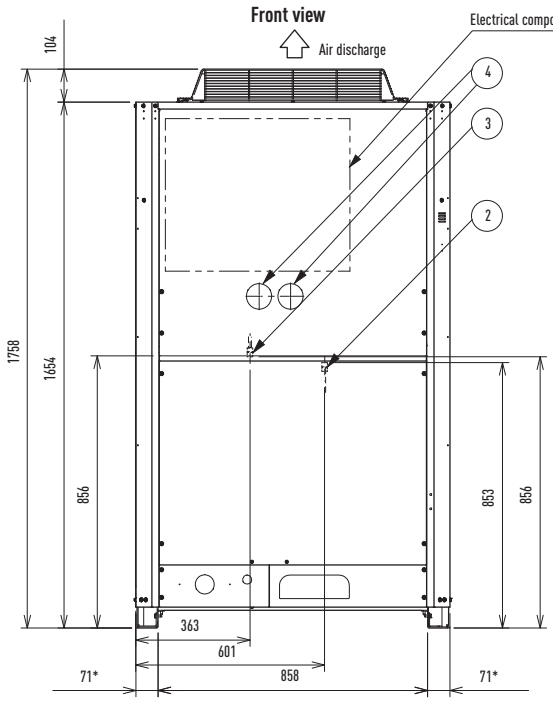
Technical focus

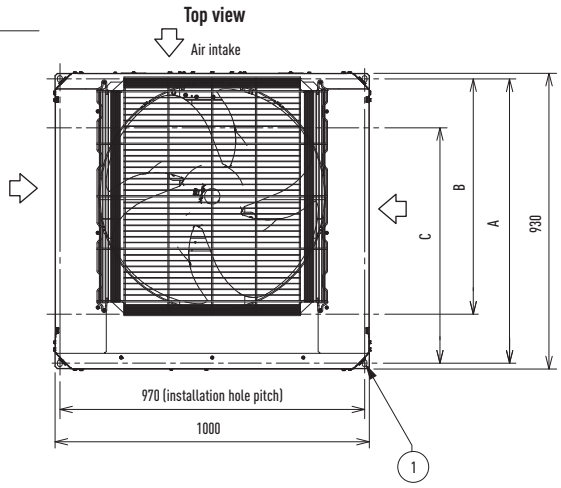
- Longer Max piping length up to 1,000 m
- Extended operating range to provide heating at outdoor temperature as low as -25°C
- Suitable for refurbishment projects (Refer to technical data book)

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.

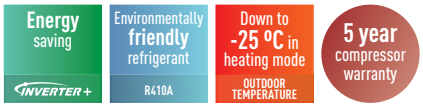


A	894 (installation hole pitch). The tubing is routed out frpm the front
B	730 (installation hole pitch). The tubing is routed out frpm the front
C	730 (installation hole pitch)
1	Installation holes (8-15x21 elongated holes) anchor bolts M12 or larger
2	Pressure outlet port (for high pressure: Ø 7.94 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
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**
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**
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	inch (mm)	1 (25,40)	1-1/8 (28,58)
	Liquid pipe	inch (mm)	1/2 (12,70)	1/2 (12,70)
	Balance pipe	inch (mm)	1/4 (6,35)	1/4 (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 / +43	-10 / +43
	Heating Min / Max	°C	-25 / +15	-25 / +15

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

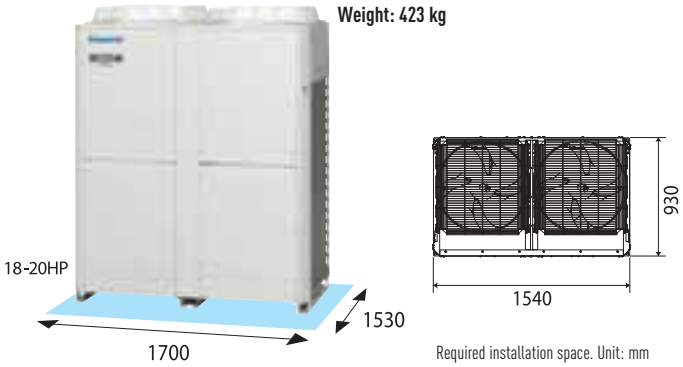
1) EER and COP classification is at 400 V in accordance with EU directive 2002/31/EC.
Specifications subject to change without notice.
For detailed information about ErP, please visit our websites www.aircon.panasonic.eu or www.ptc.panasonic.eu

Technical focus

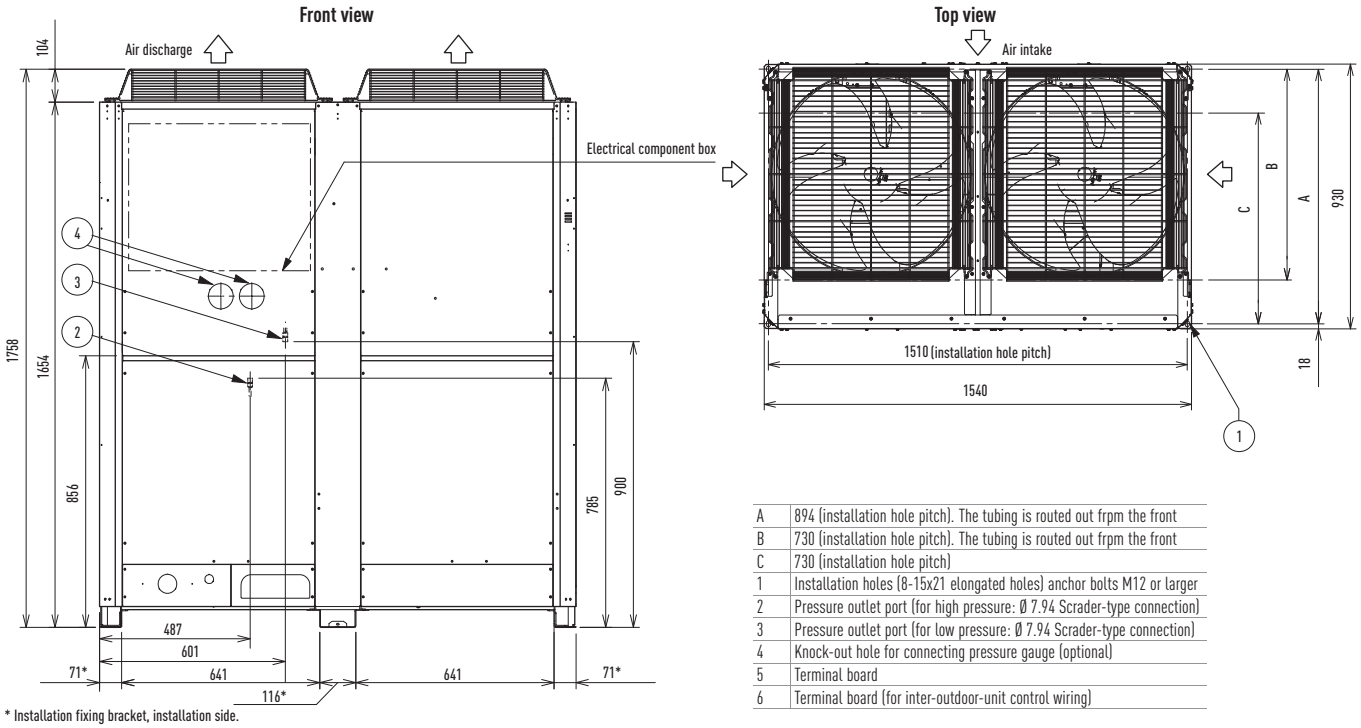
- Bigger capacity in one casing
- Longer Max piping length up to 1,000 m
- Extended operating range to provide heating at outdoor temperature as low as -25°C
- Suitable for refurbishment projects (Refer to technical data book)

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.

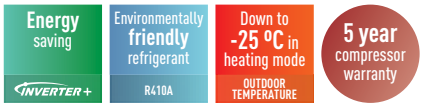
A	894 (installation hole pitch). The tubing is routed out frpm the front
B	730 (installation hole pitch). The tubing is routed out frpm the front
C	730 (installation hole pitch)
1	Installation holes (8-15x21 elongated holes) anchor bolts M12 or larger
2	Pressure outlet port (for high pressure: Ø 7.94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

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**
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**
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	inch (mm)	1-1/8 (28,58)	1-1/8 (28,58)	1-1/8 (28,58)	1-1/8 (28,58)	1 1/4 (31,75)	1 1/4 (31,75)	1 1/4 (31,75)
	Liquid pipe	inch (mm)	5/8 (15,88)	5/8 (15,88)	5/8 (15,88)	5/8 (15,88)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)
	Balance pipe	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)
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 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43
	Heating Min / Max	°C	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15

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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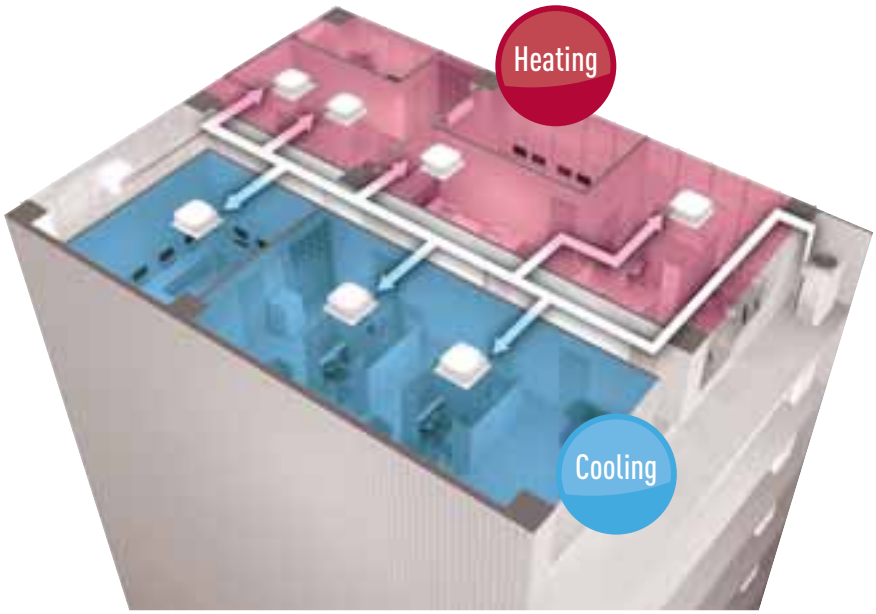
32 HP	34 HP	36 HP	38 HP	40 HP	42 HP	44 HP	46 HP	48 HP
U-20ME1E81 U-20ME1E81	U-18ME1E81 U-16ME1E81 U-8ME1E81	U-16ME1E81 U-16ME1E81 U-16ME1E81	U-18ME1E81 U-16ME1E81 U-16ME1E81	U-20ME1E81 U-16ME1E81 U-16ME1E81	U-20ME1E81 U-18ME1E81 U-16ME1E81	U-20ME1E81 U-18ME1E81 U-18ME1E81	U-20ME1E81 U-20ME1E81 U-18ME1E81	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
1 1/4 (31,75)	1 1/4 (31,75)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)
3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)
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 (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 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43
-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15	-25 / +15

Technical focus

- Increased connectable Indoor units / outdoor units capacity ratio up to 200%
- Increased maximum number of connectable indoor units 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%

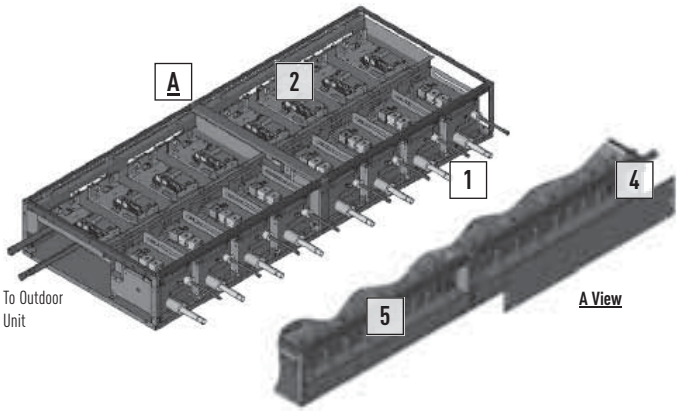
Large combination of outdoor units, up to 48 HP

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

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

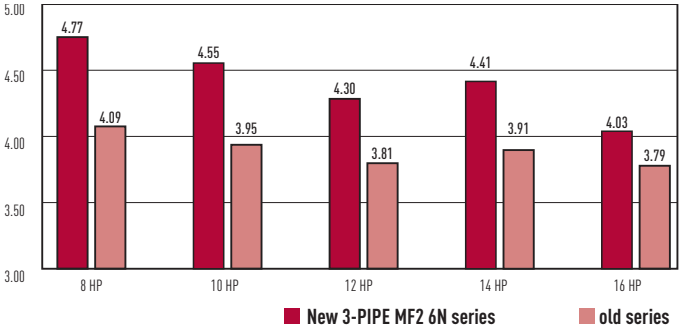
3-Pipe control box kit / Multiple connection type



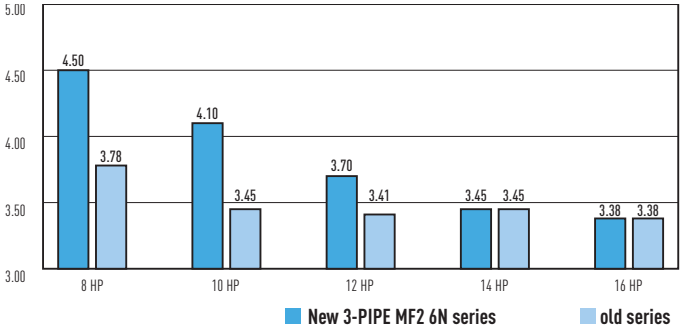
1. 8 connection port type (indoor unit side)
2. 3-Pipe control PCB included
3. Interface relay terminal included (to be mounted on indoor unit side)
4. Power supply terminal block
5. Control line wire terminal block

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

COP



EER

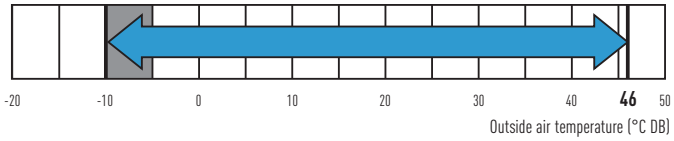


3-Pipe ECOi MF2 6N Series

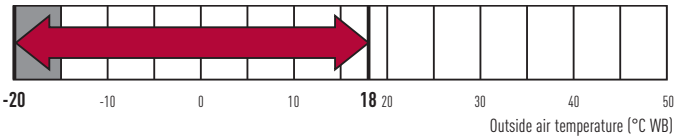
Connectable indoor/outdoor unit capacity ratio up to 150%

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.



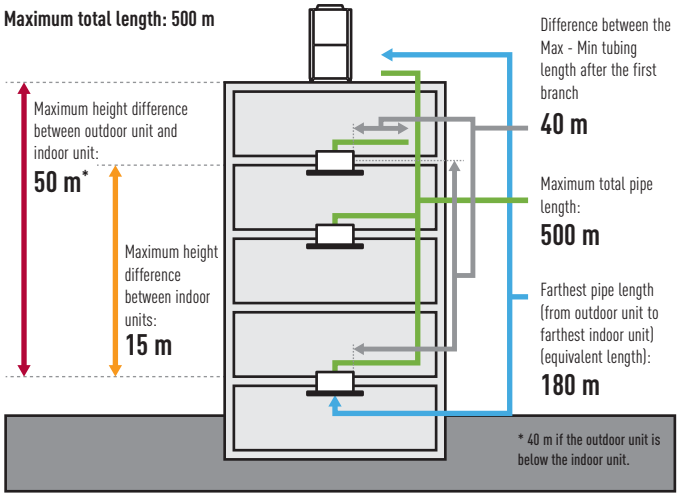
Wide temperature setting range

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.

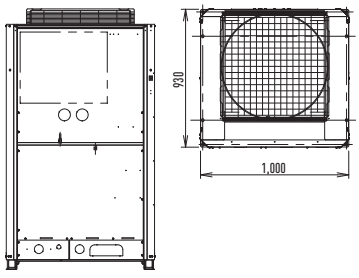
Maximum total length: 500 m



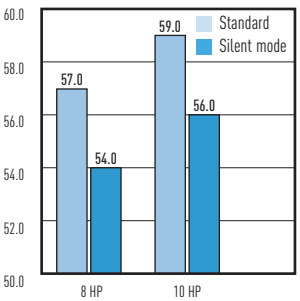
Compact design for superb space saving and low noise level

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

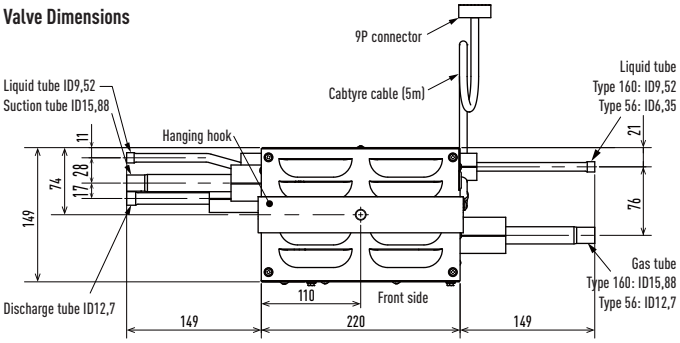
CZ-P56HR3
Up to 5.6 kW
CZ-P160HR3
From 5.7 to 16 kW

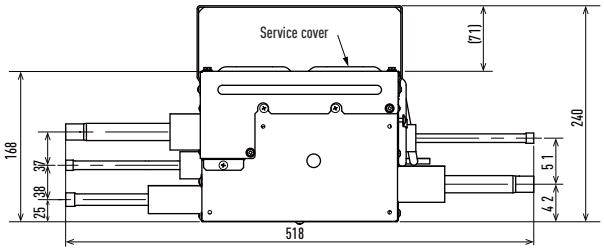
KIT-P56HR3
(CZ-P56HR3+CZ-CAPE2)
KIT-P160HR3
(CZ-P160HR3+CZ-CAPE2)

3-Pipe control PCB

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

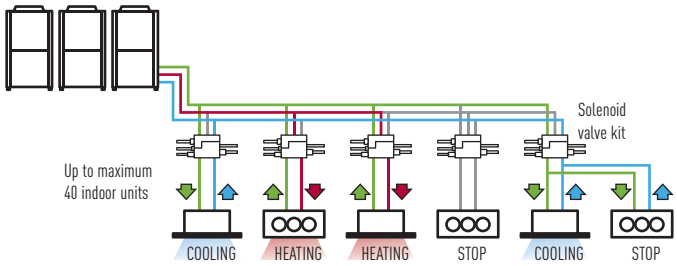
Valve Dimensions





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)

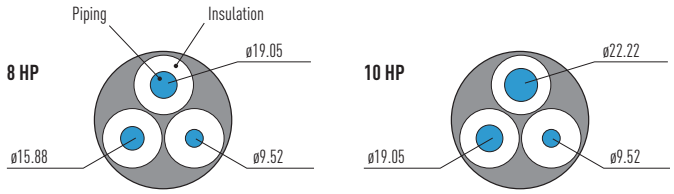
Power suppression control for energy saving (Demand control)[1]

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

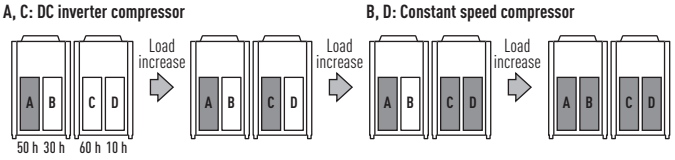
By using R410a with low pressure loss, pipe sizes for discharge, suction and liquid are all reduced.
This makes it possible to aim for reduced piping space, improved workability at the site, and reduction of the piping material costs.



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

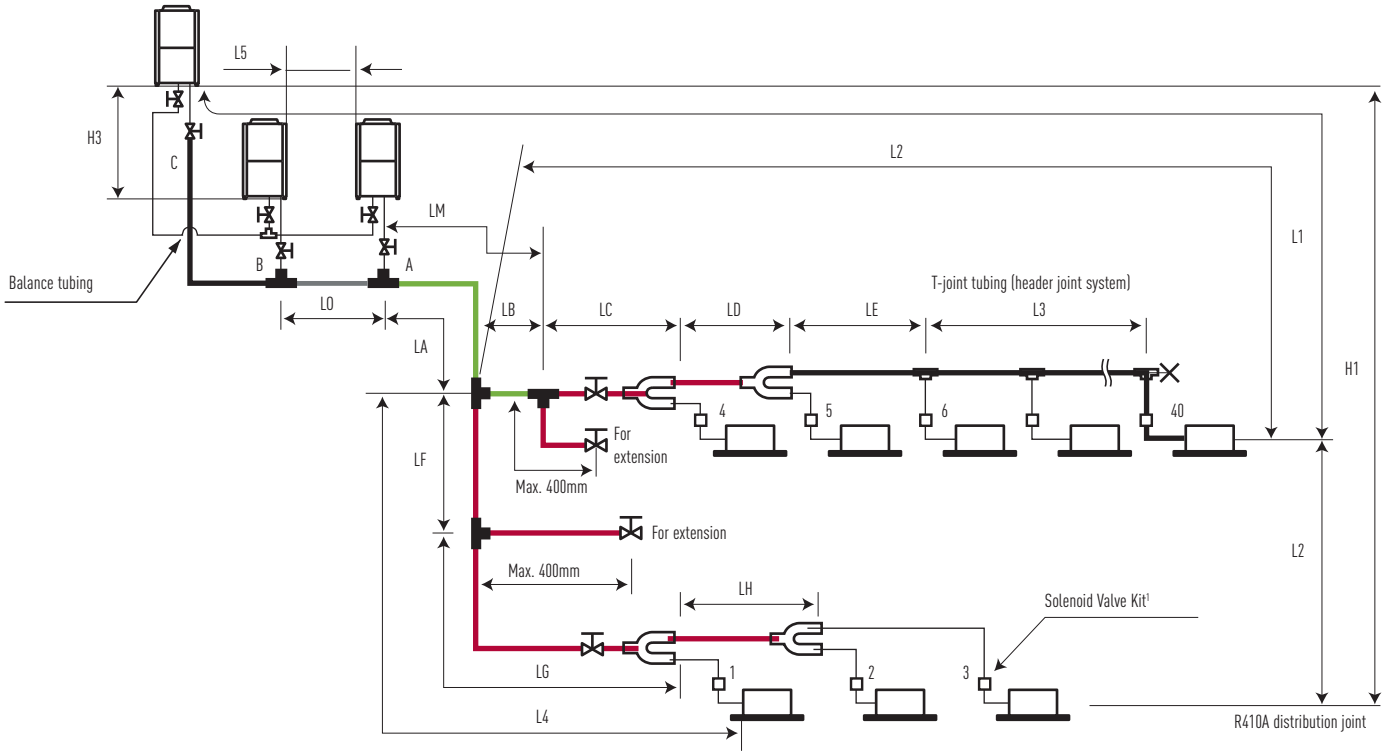
The total operation time of the compressors is monitored by a microcomputer, so that there is no imbalance for the operation times of all compressors in the same refrigerant system, and compressors with a shorter operation time are operated with preference.



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, but also its sophisticated 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
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
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	inch (mm)	3/4 (19,05)	7/8 (22,22)	1 (25,40)	1 (25,40)	1-1/8 (28,58)
	Discharge pipe	inch (mm)	5/8 (15,88)	3/4 (19,05)	3/4 (19,05)	7/8 (22,22)	7/8 (22,22)
	Liquid pipe	inch (mm)	3/8 (9,52)	3/8 (9,52)	1/2 (12,70)	1/2 (12,70)	1/2 (12,70)
	Balance pipe	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)
Refrigerant amount at shipment		kg	8,3	8,5	8,8	9,3	9,3
Operating range	Cooling Min / Max	°C	-10 / +46	-10 / +46	-10 / +46	-10 / +46	-10 / +46
	Heating Min / Max	°C	-20 / +18	-20 / +18	-20 / +18	-20 / +18	-20 / +18
	Simultaneous operation	°C	-10 / +24	-10 / +24	-10 / +24	-10 / +24	-10 / +24

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

3-Pipe control box kit*	
CZ-P456HR3	4 ports 3 pipe box (up to 5,6kW)
CZ-P656HR3	6 ports 3 pipe box (up to 5,6kW)
CZ-P856HR3	8 ports 3 pipe box (up to 5,6kW)
CZ-P4160HR3	4 ports 3 pipe box (from 5,6 to 10,6kW)

* Available from December 2015.

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.
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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%

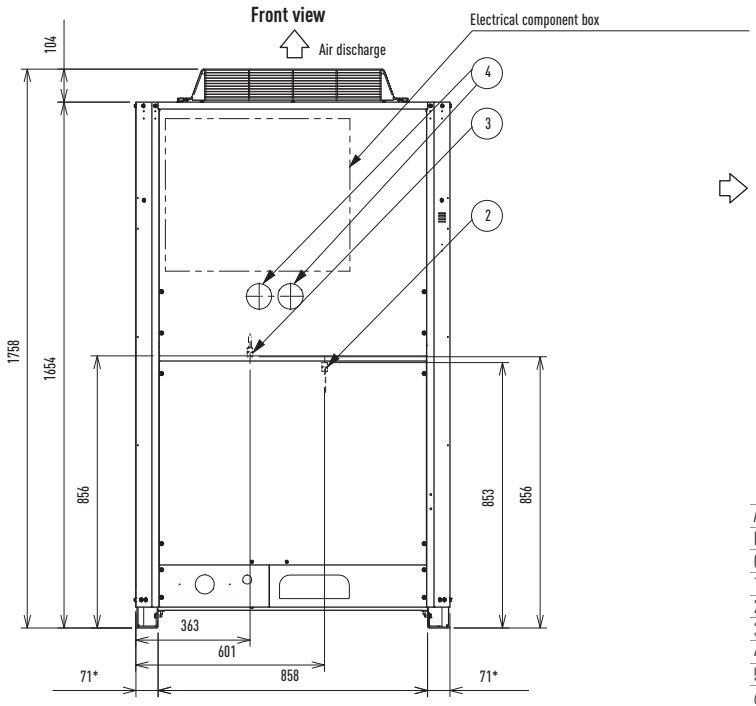
Additional refrigerant charge

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

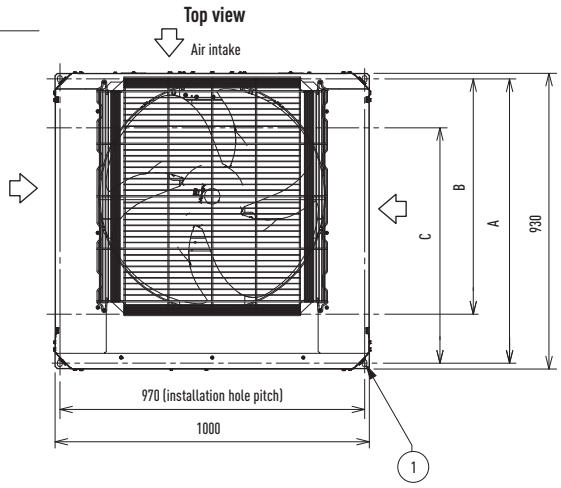
Refrigerant piping

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
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
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	inch (mm)	1-1/8 (28,58)	1-1/8 (28,58)	1-1/8 (28,58)	1-1/8 (28,58)	1 1/4 (31,75)	1 1/4 (31,75)	1 1/4 (31,75)
	Discharge pipe	inch (mm)	7/8 (22,22)	7/8 (22,22)	1 (25,40)	1 (25,40)	1 (25,40)	1-1/8 (28,58)	1-1/8 (28,58)
	Liquid pipe	inch (mm)	5/8 (15,88)	5/8 (15,88)	5/8 (15,88)	5/8 (15,88)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)
	Balance pipe	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)
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 / +46	-10 / +46	-10 / +46	-10 / +46	-10 / +46	-10 / +46	-10 / +46
	Heating Min / Max	°C	-20 / +18	-20 / +18	-20 / +18	-20 / +18	-20 / +18	-20 / +18	-20 / +18
	Simultaneous operation	°C	-10 / +24	-10 / +24	-10 / +24	-10 / +24	-10 / +24	-10 / +24	-10 / +24

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

3-Pipe control box kit*	
CZ-P456HR3	4 ports 3 pipe box (up to 5,6kW)
CZ-P656HR3	6 ports 3 pipe box (up to 5,6kW)
CZ-P856HR3	8 ports 3 pipe box (up to 5,6kW)
CZ-P4160HR3	4 ports 3 pipe box (from 5,6 to 10,6kW)

* Available from December 2015.

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

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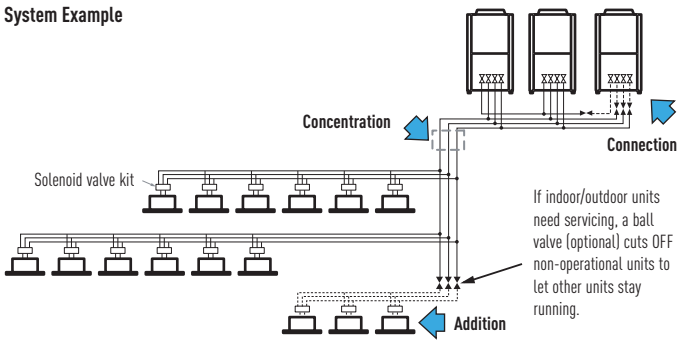
32 HP	34 HP	36 HP	38 HP	40 HP	42 HP	44 HP	46 HP	48 HP
U-16MF2E8 U-16MF2E8	U-8MF2E8 U-12MF2E8 U-14MF2E8	U-8MF2E8 U-14MF2E8 U-14MF2E8	U-8MF2E8 U-14MF2E8 U-16MF2E8	U-8MF2E8 U-16MF2E8 U-16MF2E8	U-14MF2E8 U-14MF2E8 U-14MF2E8	U-14MF2E8 U-14MF2E8 U-16MF2E8	U-14MF2E8 U-16MF2E8 U-16MF2E8	U-16MF2E8 U-16MF2E8 U-16MF2E8
380 / 400 / 415 V - Three Phase / 50 Hz								
90,0	96,0	101,0	107,0	113,0	118,0	124,0	130,0	135,0
3.38	3,74	3,66	3,60	3,55	3,48	3,43	3,40	3,38
43,9 / 42,2 / 41,1	42,9 / 41,2 / 39,7	46,1 / 44,3 / 43,1	49,6 / 47,6 / 46,4	53,1 / 51,0 / 49,7	56,0 / 53,8 / 52,4	59,6 / 57,3 / 55,8	63,8 / 61,3 / 59,7	65,9 / 63,3 / 61,7
26,6	25,7	27,6	29,7	31,8	33,9	36,1	38,2	39,9
100,0	108,0	113,0	119,0	127,0	132,0	138,0	145,0	150,0
4,03	4,44	4,52	4,33	4,12	4,46	4,30	4,14	4,03
41,7 / 40,1 / 39,1	41,0 / 39,4 / 38,4	41,6 / 39,9 / 38,9	46,1 / 44,3 / 43,1	52,2 / 49,6 / 47,8	49,3 / 47,3 / 46,1	53,8 / 51,6 / 50,3	58,8 / 56,5 / 55,0	62,6 / 60,1 / 58,6
24,8	24,3	25,0	27,5	30,8	29,6	32,1	35,0	37,2
424	582	582	582	582	636	636	636	636
65,0 / 62,0	65,0 / 62,0	65,5 / 62,5	65,5 / 62,5	65,5 / 62,5	67,0 / 64,0	67,0 / 64,0	67,0 / 64,0	67,0 / 64,0
79,5 / 76,5	79,5 / 76,5	80,0 / 77,0	80,0 / 77,0	80,0 / 77,0	81,5 / 78,5	81,5 / 78,5	81,5 / 78,5	81,5 / 78,5
1.758 x 2.060 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930	1.758 x 3.120 x 930
644	905	913	913	913	966	966	966	966
1 1/4 (31,75)	1 1/4 (31,75)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)	1-1/2 (38,10)
1-1/8 (28,58)	1-1/8 (28,58)	1-1/8 (28,58)	1 1/4 (31,75)	1 1/4 (31,75)	1 1/4 (31,75)	1 1/4 (31,75)	1 1/4 (31,75)	1 1/4 (31,75)
3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)
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 (6,35)
18,6	26,4	26,9	26,9	26,9	27,9	27,9	27,9	27,9
-10 / +46	-10 / +46	-10 / +46	-10 / +46	-10 / +46	-10 / +46	-10 / +46	-10 / +46	-10 / +46
-20 / +18	-20 / +18	-20 / +18	-20 / +18	-20 / +18	-20 / +18	-20 / +18	-20 / +18	-20 / +18
-10 / +24	-10 / +24	-10 / +24	-10 / +24	-10 / +24	-10 / +24	-10 / +24	-10 / +24	-10 / +24

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 makes 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 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
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
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	inch (mm)	1-1/8 (28,58)	1-1/8 (28,58)	1 1/4 (31,75)	1 1/4 (31,75)	1 1/4 (31,75)	1 1/4 (31,75)
	Discharge pipe	inch (mm)	7/8 (22,22)	1 (25,40)	1 (25,40)	1-1/8 (28,58)	1-1/8 (28,58)	1-1/8 (28,58)
	Liquid pipe	inch (mm)	1/2 (12,70)	5/8 (15,88)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)
	Balance pipe	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)
Refrigerant amount at shipment		kg	16,6	24,9	25,1	25,4	25,9	25,9
Operating range	Cooling Min / Max	°C	-10 / +46	-10 / +46	-10 / +46	-10 / +46	-10 / +46	-10 / +46
	Heating Min / Max	°C	-20 / +18	-20 / +18	-20 / +18	-20 / +18	-20 / +18	-20 / +18
	Simultaneous operation	°C	-10 / +24	-10 / +24	-10 / +24	-10 / +24	-10 / +24	-10 / +24

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

3-Pipe control box kit*	
CZ-P456HR3	4 ports 3 pipe box (up to 5,6kW)
CZ-P656HR3	6 ports 3 pipe box (up to 5,6kW)
CZ-P856HR3	8 ports 3 pipe box (up to 5,6kW)
CZ-P4160HR3	4 ports 3 pipe box (from 5,6 to 10,6kW)

* Available from December 2015.

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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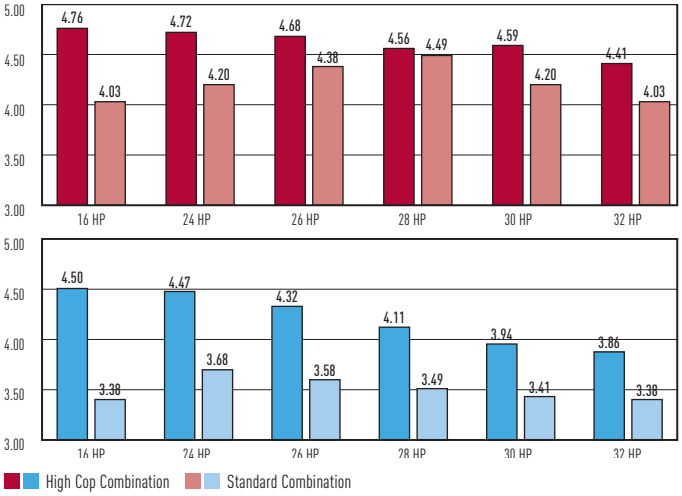
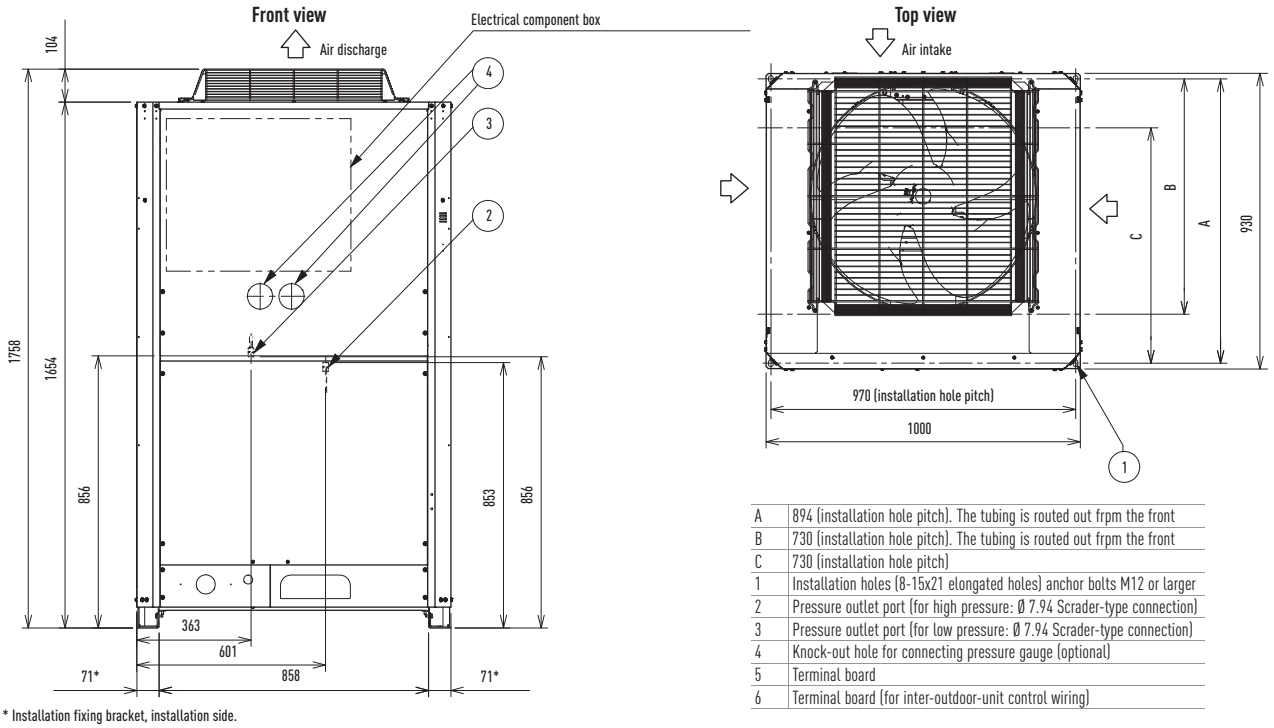
For detailed information about ErP, please visit our websites www.aircon.panasonic.eu or www.ptc.panasonic.eu

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

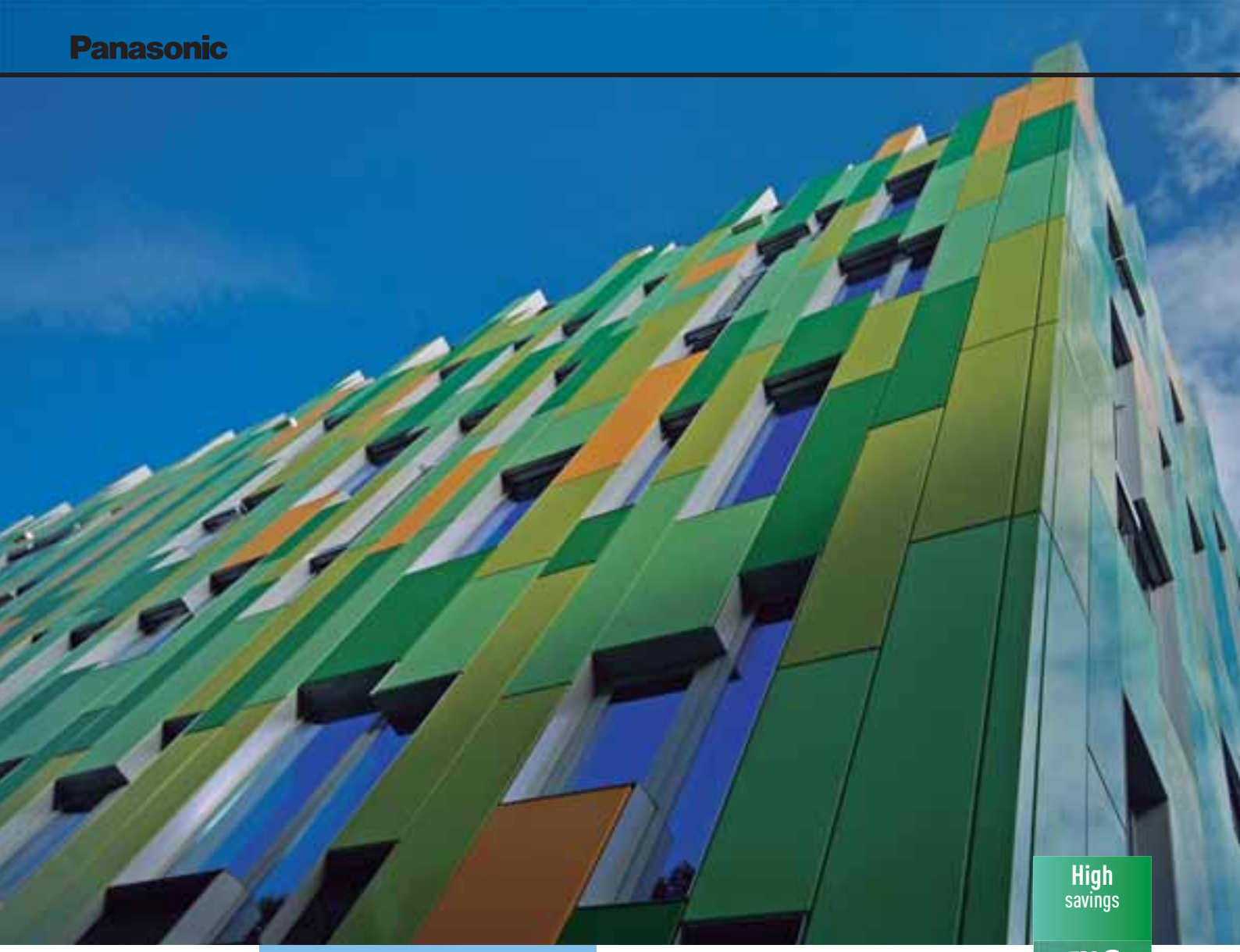
Market-leading COP (at full load), standard efficiency





* 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)



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

ECO G and ECO G Multi, S Series

The advanced Gas Driven VRF system offers increased efficiency and performance across the range. Now more powerful than ever before, it can connect up to 48 indoor units.
Improvements include increased part load performance, reduced gas consumption with a Miller-cycle engine and reduced electrical consumption by using DC fan motors.

ECO G High Power

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

ECO G and ECO G Multi

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

ECO G 3 Way

3 Way heat recovery system with simultaneous heating & cooling.

ECO G and ECO G Multi benefits

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

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

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

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

Water chiller option
Our GHP system is also available with a water chiller option, which can be combined with individual outdoor units or as part of a DX chilled water mix of indoor units. The system can be operated via a BMS system or a Panasonic supplied control panel, with chilled water set points from -15°C – +15°C and heating set points 35°C – +55°C.

No defrost requirements
Below 4°C ambient in heating mode, the outdoor fans switch OFF, saving further running costs and CO_2 emissions.

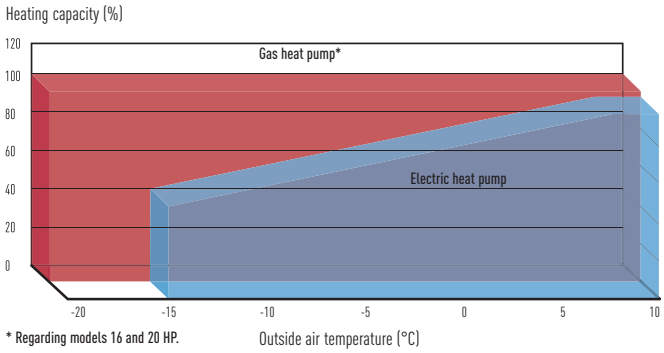
ECO G with Water Heat Exchanger for chilled and hot water production

For hydronic applications.

ECO G Outdoor Units Range

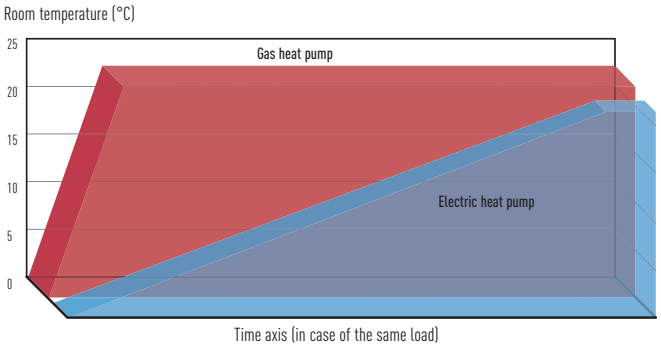
	16 HP	20 HP	25 HP	30 HP	32 HP	36 HP	40 HP	45 HP	50 HP
Capacity (Cooling / Heating)	45,00 / 50,00 kW	56,00 / 63,00 kW	71,00 / 80,00 kW	85,00 / 95,00 kW	90,00 / 100,00 kW	101,00 / 113,00 kW	112,00 / 126,00 kW	127,00 / 143,00 kW	142,00 / 160,00 kW
									
ECO G High Power	U-16GEP2E5	U-20GEP2E5	U-25GEP2E5						
ECO G and ECO G Multi	U-16GE2E5	U-20GE2E5	U-25GE2E5	U-30GE2E5	U-16GE2E5 U-16GE2E5	U-16GE2E5 U-20GE2E5	U-20GE2E5 U-20GE2E5	U-20GE2E5 U-25GE2E5	U-25GE2E5 U-25GE2E5
ECO G 3 Way	U-16GF2E5	U-20GF2E5	U-25GF2E5						

Comparison of heating capacity



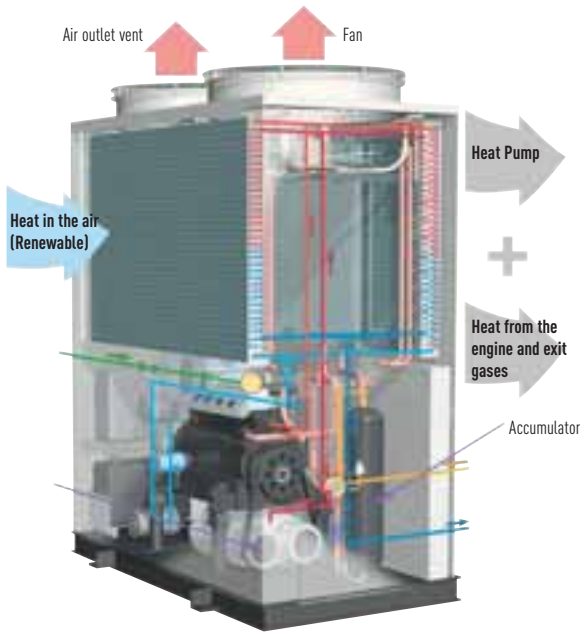
* Regarding models 16 and 20 HP.

Comparison of the start times for heating operation



The Gas Heat Pump (GHP)

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



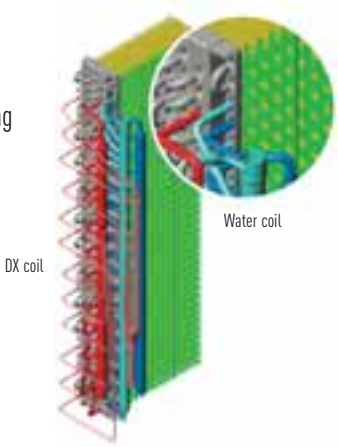
Power supply problems?

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

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

GHP Outdoor Heat Exchanger

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



ECO G High Power

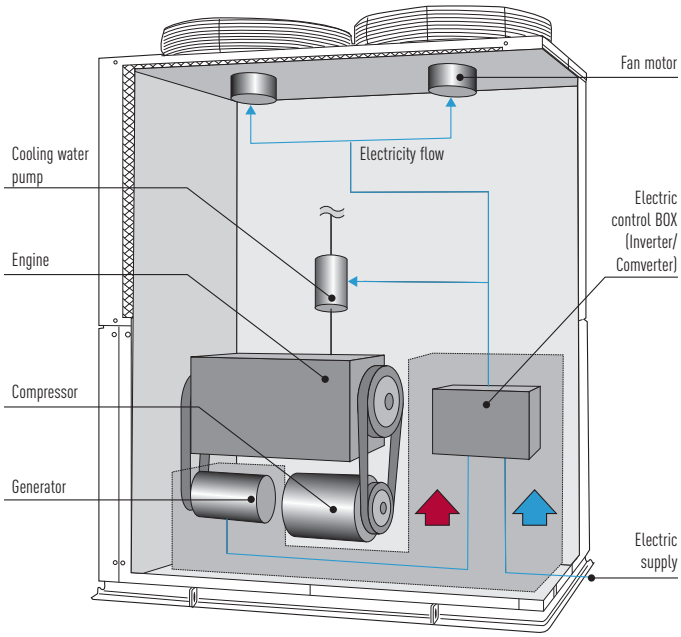
2-Pipe Heat Pump System with Electrical Power Generator

Production of electricity

Generates up to 2 kW depending on air conditioning load.

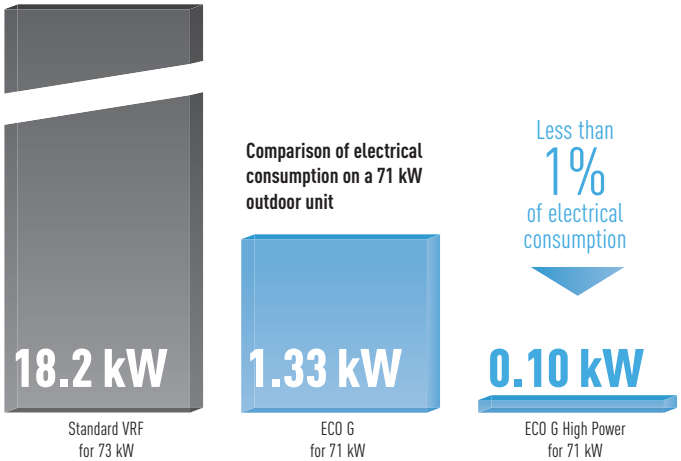
Panasonic innovates again introducing a new GHP producing his own electricity.

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



ECO G High Power

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



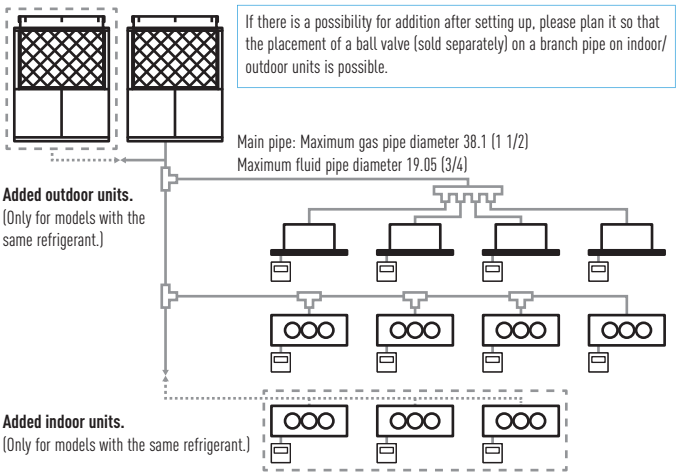
ECO G High Power, ECO G and ECO G Multi

2-Pipe Heat Pump System

Easy to add additional units in the future

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

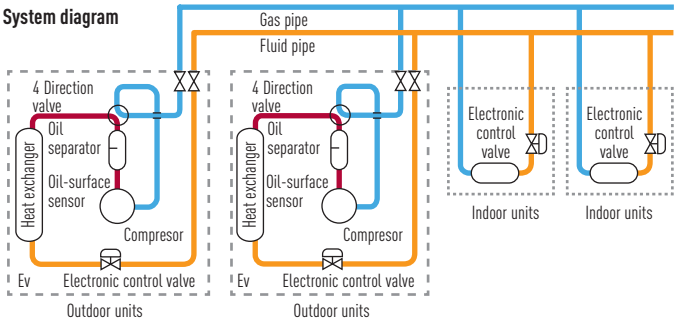
* When specifying refrigerant pipe work, please choose the size according to the horsepower after the increase of units.



Maximum possible number of outdoor units to be combined	2 units
Maximum horsepower of combined outdoor units	50 HP
Maximum possible number of indoor units to be connected	48 units[1]
Indoor/outdoor units capacity ratio	50%~130%[2]

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

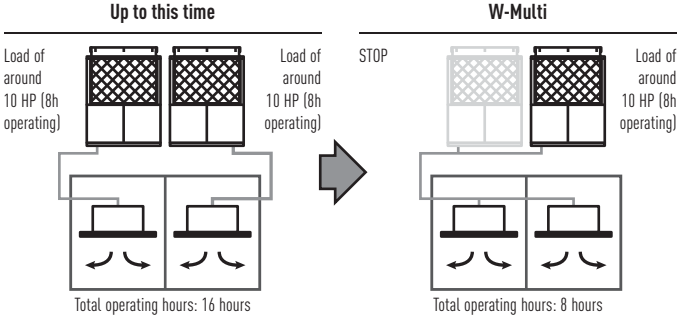
System diagram



Saving Energy

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

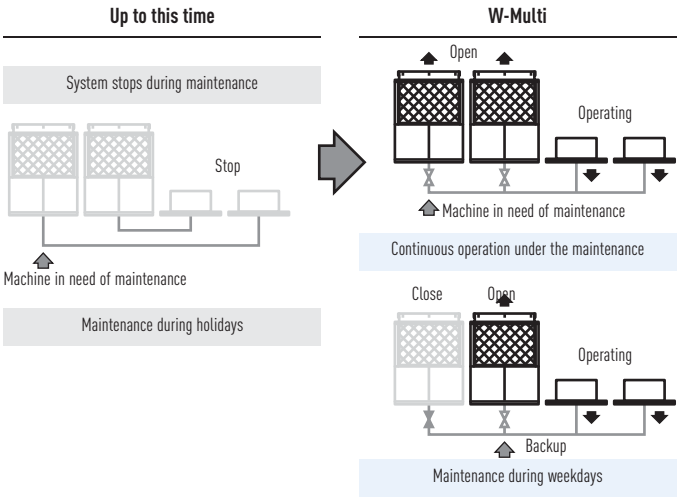
Energy savings are achieved by the appropriate load divider function, which enables efficient operation by concentrating the cooling/heating capacity to one outdoor unit and stopping the other. Compared to conventional machines with a similar COP, this function allows energy savings and thus reduces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



Non-stop operation, even during maintenance

- System will not stop even during maintenance, due to Manual Backup Operating Function.
- Maintenance is possible during weekdays because it can continue operating during maintenance.
- Automatic Backup Operating Function enables continuous operation.

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

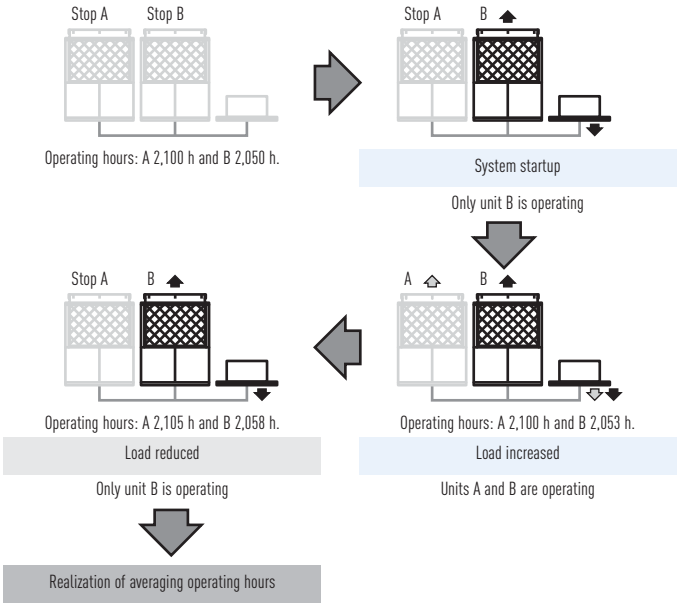


Long lifetime

- Renewal period prolonged due to rotation function.

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

Example of the rotation function



ECO G 3 Way

Ease of construction

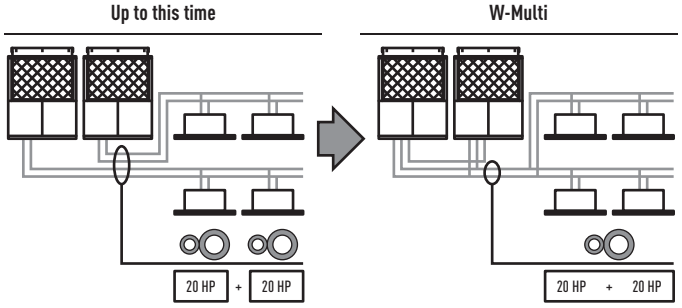
- By using common header pipe work the installation cost and time is significantly reduced.

By combining all pipes, which were needed for each indoor unit, into a common pipe in each system, the number of pipes are reduced by half* which leads to ease of construction. Furthermore, space of pipes within pipe shafts can be reduced by 2/3.*

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

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

Example of a system with approximately 40 HP

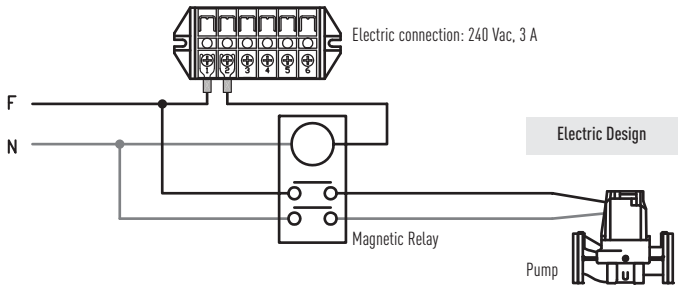


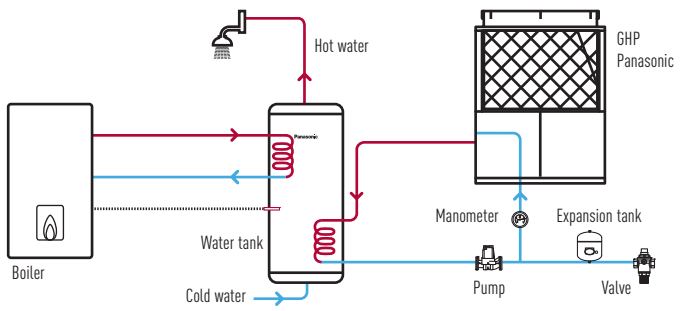
Hot Water Supply Function

- System Advantage.

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

Capacity at cooling standard point		Outlet temperature 75°C	
Outdoor unit	U-16GE2E5	kW	15,00
	U-20GE2E5		20,00
	U-25GE2E5		30,00
	U-30GE2E5		30,00
Hot water piping allowable pressure		MPa	0,7
Hot water circulation rate		m³/h	3,9
Hot water tube size			Rp 3/4





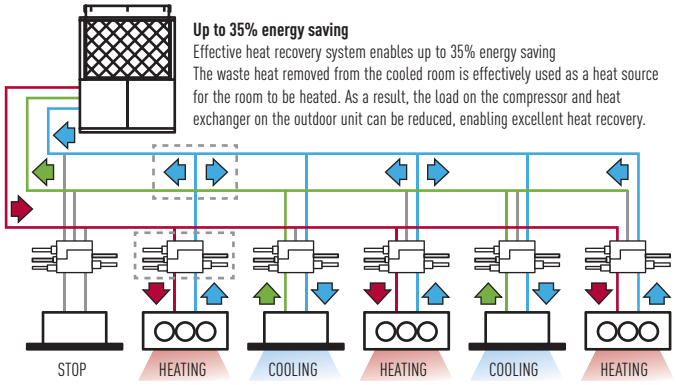
- All the items illustrated in this drawing (except the outdoor unit) are not supplied by Panasonic.
- During start up, set temperature value of the water in the outdoor unit's parameter.

Excellent performance

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

System example

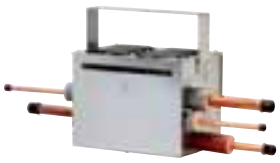
Improved maintenance intervals. The unit only needs to be serviced every 10,000 hours. This is the best in the industry.



Solenoid valve kit

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

3-Pipe control Solenoid valve kit



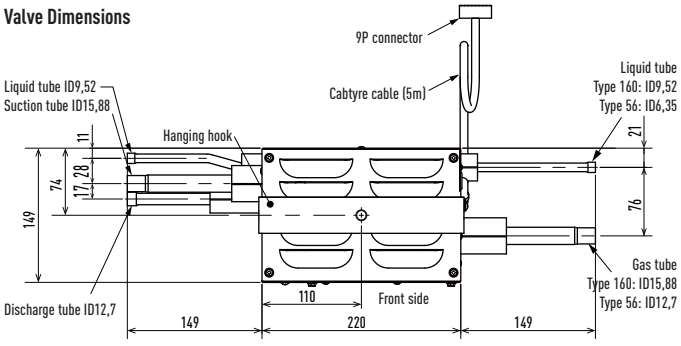
CZ-P56HR3
Up to 5.6 kW
CZ-P160HR3
From 5.7 to 16 kW

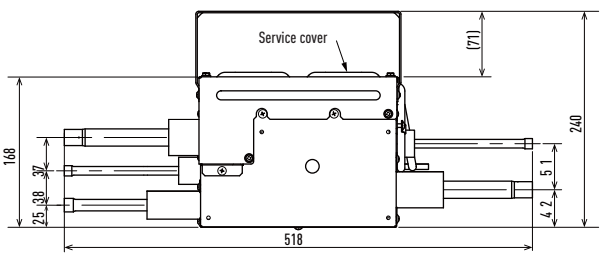
KIT-P56HR3
(CZ-P56HR3+CZ-CAPE2)
KIT-P160HR3
(CZ-P160HR3+CZ-CAPE2)

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





ECO G Water Heat Exchanger for hydronic applications

Connection to chilled water coils in air handling equipment.

Air Handling application

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

Chiller replacement. Chilled water supply to fan coils.

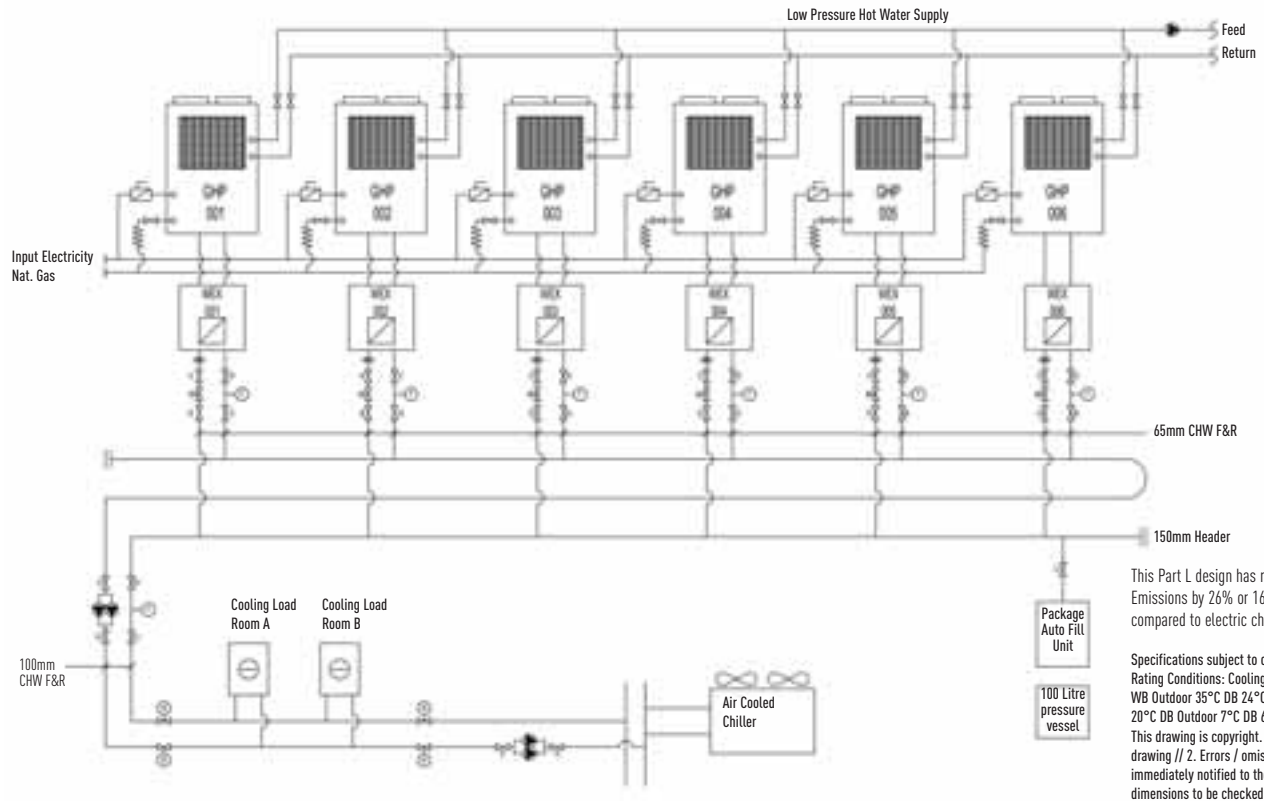
Chiller replacement

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

Connection to 'close control' computer equipment.

Computer room applications

When all available electrical power needed to be utilised for the IT equipment for a leading international bank, the cooling load of over 450 kW had to be powered by gas. The outdoor units were connected via Water Heat Exchangers to cooling coils inside the 'close control' units thereby maintaining a conditioned environment for temperature and humidity. By utilising the hot water function over 100 kW of hot water are supplied to the building and therefore the additional benefit of considerable CO_2 savings is ensured.



This Part L design has reduced CO_2 Emissions by 26% or 166 tonnes per annum compared to electric chillers.

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

ECO G HIGH POWER

The 2-Pipe Gas Driven VRF with an electrical power generator

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

HP			16 HP	20 HP	25 HP
Model			**U-16GEP2E5**	**U-20GEP2E5**	**U-25GEP2E5**
Cooling capacity		kW	45,00	56,00	71,00
Hot water (cooling mode)		kW	15,0	20,0	30,0
Power Input		kW	0,1 (220~230) 0,36 (240)	0,1 (220~230) 0,36 (240)	0,1 (220~230) 0,36 (240)
EER	Nominal	W/W			
Max COP (inc hot water)					
Gas consumption		kW	31,3	41,4	63,5
Heating capacity	STD / Low temp[1]	kW	50,0 / 53,0	63,0 / 67,0	80,0 / 78,0
Power Input		kW	0,1 (220~230) 0,36 (240)	0,1 (220~230) 0,36 (240)	0,1 (220~230) 0,36 (240)
COP	Nominal	W/W			
Gas consumption	STD	kW	33,8	43,9	55,1
	Low temperature[1]	kW			
COP	Average				
Starter amperes		A	30	30	30
Sound pressure level		dB(A)	57	58	62
Dimensions	H x W x D	mm	2.273 x 1.650 x 1.000 (+80)	2.273 x 1.650 x 1.000 (+80)	2.273 x 1.650 x 1.000 (+80)
Net weight		kg	770	795	825
Pipe Connections	Gas	inch (mm)	1 1/8 (28,58)	1 1/8 (28,58)	1 1/8 (28,58)
	Liquid	inch (mm)	1/2 (12,70)	5/8 (15,88)	5/8 (15,88)
	Fuel gas		R3/4 (bolt thread)	R3/4 (bolt thread)	R3/4 (bolt thread)
	Exhaust drain port	mm	25	25	25
Indoor/outdoor capacity ratio			50-200%[2]	50-200%[2]	50-200%[2]
Number of connections indoor[2]			24	24	24

Service kits model	Kit CZ-PSK560SP
Outdoor unit reference	U-16GEP2E5 / U-20GEP2E5 / U-25GEP2E5
Material included	
Oil Filter	1
Air Cleaner Element	1
Plug	4
V BELT (for compressor)	1
V Belt (for generator)	1
Oil Strainer	1
Drain Filter Packing	1

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

1) Low temp condition: outdoor temperture 2°C.
2) Indoor unit can be connected to up to 16 kW model (model size 160)
Specifications subject to change without notice.

Cooling and heating capacities in the tables are determined under the test conditions of JIS B 8627.
Effective heating requires that the outdoor air intake temperature be at least –20°C DB or –21°C WB.

• Gas consumption is the total (high) calorific value standard. • Outdoor unit operating sound is measured 1 meter from the front and 1.5 meters above the floor (in an anechoic environment). Actual installations may have larger values due to ambient noise and reflections. • Specifications are subject to change without notice. • Hot water heating capacity is applicable during cooling operation. • The maximum water temperature that can be obtained is 75°C. Water heating performance and temperature vary with the air conditioning load. Because the hot water heating system uses waste heat from the engine, which runs the air conditioning, its ability to heat water is not guaranteed.

Technical focus

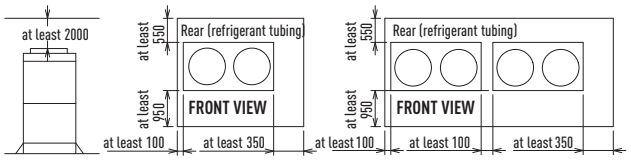
- 2-Pipe air conditioning system providing cooling or heating
- Up to 2 kW electricity generated (used on the outdoor unit)
- Very efficient generator
- Can connect to up to 24 indoor units
- IU/OU capacity ratio 50–200%
- 15 to 30 kW hot water generation capacity
- Free Hot water provided when in cooling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

* Referring to outside temperature.

Generates electricity during heating or cooling operation

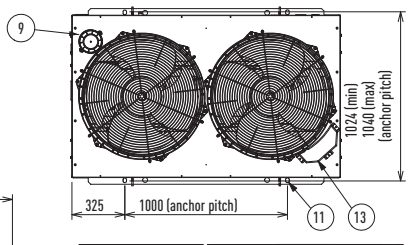
Generates electricity and air conditioning (heating or cooling) at the same time by using remaining engine power. ECO G High Power can generate 2.0 kW electricity at a generation efficiency of more than 40%.

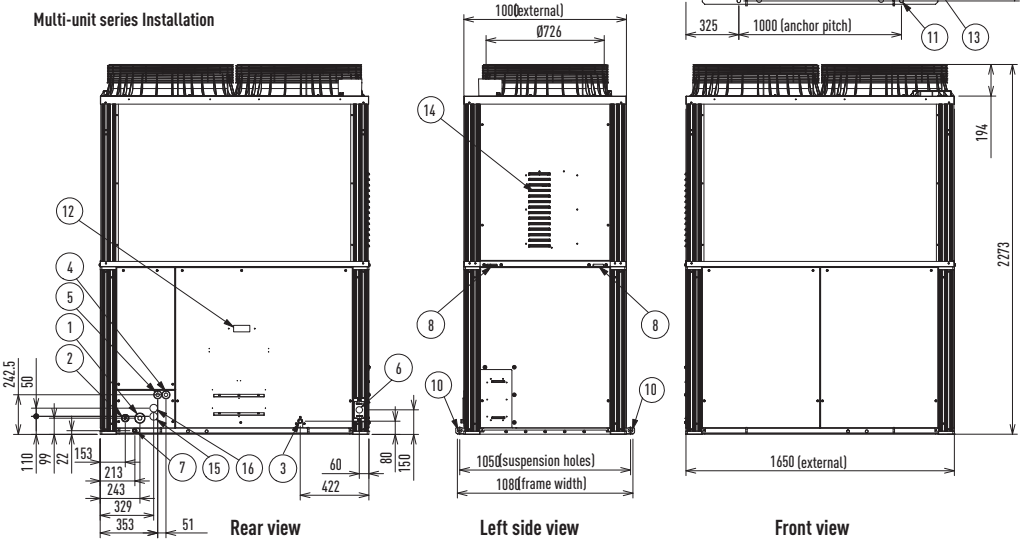
Service clearances for installation



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

Top view





ECO G AND ECO G MULTI

2-Pipe Heat Pump System

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

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

HP			16 HP	20 HP	25 HP	30 HP	32 HP	36 HP*	40 HP*	45 HP*	50 HP
Model			U-16GE2E5	U-20GE2E5	U-25GE2E5	U-30GE2E5	U-16GE2E5 U-16GE2E5	U-16GE2E5 U-20GE2E5	U-20GE2E5 U-20GE2E5	U-20GE2E5 U-25GE2E5	U-25GE2E5 U-25GE2E5
Cooling capacity		kW	45,00	56,00	71,00	85,00	90,00	101,00	112,00	127,00	142,00
Hot water (cooling mode)		kW	15,00	20,00	30,00	30,00	30,00	35,00	40,00	50,00	60,00
Power Input		kW	0,71	1,02	1,33	1,70	1,42	1,73	2,04	2,35	2,66
EER (Calorific Value)[1]	High / Low	W/W	1,48 / 1,64	1,40 / 1,55	1,15 / 1,28	1,22 / 1,35	1,48 / 1,64	1,43 / 1,59	1,40 / 1,55	1,25 / 1,39	1,15 / 1,28
Max COP (inc hot water)			1,97	1,89	1,64	1,65	1,97	1,93	1,89	1,74	1,64
Gas consumption		kW	29,70	39,10	60,40	67,9	59,40	68,80	78,20	99,50	120,80
Heating capacity	STD / Low temperature[2]	kW	50,00 / 53,00	63,00 / 67,00	80,00 / 78,00	95,00 / 90,00	100,00 / 106,00	113,00 / 120,00	126,00 / 134,00	143,00 / 145,00	160,00 / 156,00
Power Input		kW	0,60	0,64	0,83	1,45	1,20	1,24	1,28	1,47	1,66
COP (Calorific Value)[1]	High / Low	W/W	1,51 / 1,68	1,46 / 1,62	1,48 / 1,64	1,37 / 1,52	1,51 / 1,68	1,48 / 1,64	1,46 / 1,62	1,47 / 1,63	1,48 / 1,64
Gas consumption	STD	kW	32,50	42,50	53,20	68,10	65,00	75,00	85,00	95,70	106,40
	Low temperature[2]	kW	41,50	56,40	62,30	78,00	83,00	97,90	112,80	118,70	124,60
COP	Average		1,50	1,43	1,32	1,29	1,50	1,46	1,43	1,36	1,32
Starter amperes		A	30	30	30	30	30	30	30	30	30
Sound pressure level		dB(A)	57	58	62	63	60	61	61	63	65
Dimensions	Height	mm	2.273	2.273	2.273	2.273	2.273	2.273	2.273	2.273	2.273
	Width	mm	1.650	1.650	1.650	2.026	1.650+100+1.650	1.650+100+1.650	1.650+100+1.650	1.650+100+1.650	1.650+100+1.650
	Depth	mm	1.000 (+80)	1.000 (+80)	1.000 (+80)	1.000 (+80)	1.000 (+80)	1.000 (+80)	1.000 (+80)	1.000 (+80)	1.000 (+80)
Net weight		kg	755	780	810	840	755 + 775	755 + 780	780 + 780	780 + 810	810 + 810
Pipe Connections	Gas	inch (mm)	1 1/8 (28,58)	1 1/8 (28,58)	1 1/8 (28,58)	1 1/4 (31,75)	1 1/4 (31,75)	1 1/4 (31,75)	1 1/2 (38,10)	1 1/2 (38,10)	1 1/2 (38,10)
	Liquid	inch (mm)	1/2 (12,70)	5/8 (15,88)	5/8 (15,88)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)
	Fuel gas		R3/4 (bolt thread)	R3/4 (bolt thread)	R3/4 (bolt thread)	R3/4 (bolt thread)	R3/4 (bolt thread)	R3/4 (bolt thread)	R3/4 (bolt thread)	R3/4 (bolt thread)	R3/4 (bolt thread)
	Exhaust drain port	mm	25 rubber hose	25 rubber hose	25 rubber hose	25 rubber hose	25 rubber hose	25 rubber hose	25 rubber hose	25 rubber hose	25 rubber hose
Indoor/outdoor capacity ratio			50-200 %	50-200 %	50-200 %	50-170 %	50-130 %	50-130 %	50-130 %	50-130 %	50-130 %
Number of connections indoor			24	24	24	32	48	48	48	48	48

GHP Service kits model names	Kit CZ-PSK560SP	Kit CZ-PSK850S
Outdoor unit reference	U-16GE2E5 / U-20GE2E5 / U-25GE2E5	U-30GE2E5
Material included on the kit		
Oil Filter	1	1
Air Cleaner Element (Air Filter)	1	1
Plug	4	4
V BELT (for compressor)	1	1
V Belt (for generator)	-	-
Oil Strainer	1	1
Drain Filter Packing	1	1

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

* In these combinations, GEP2E5 is able to connect to a W-multi system Specifications subject to change without notice instead of a GE2E5..
1) Referred to Natural Gas (HCV=55,489 MJ/kg; LCV=50,013 MJ/kg). 2) Low temperature condition: outdoor temperature 2°C.
Specifications subject to change without notice.

Cooling and heating capacities in the tables are determined under the test conditions of JIS B 8627.
Effective heating requires that the outdoor air intake temperature be at least –20°C DB or –21°C WB.

• Gas consumption is the total (high) calorific value standard. • Outdoor unit operating sound is measured 1 meter from the front and 1.5 meters above the floor (in an anechoic environment). Actual installations may have larger values due to ambient noise and reflections. • Specifications are subject to change without notice. • Hot water heating capacity is applicable during cooling operation. • The maximum water temperature that can be obtained is 75°C. Water heating performance and temperature vary with the air conditioning load. Because the hot water heating system uses waste heat from the engine, which runs the air conditioning, its ability to heat water is not guaranteed.

Technical focus

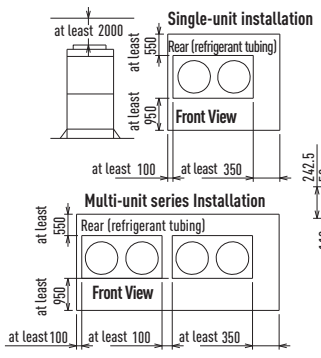
- Reduced gas consumption by Miller-cycle engine
- Reduced electrical power consumption by using DC Motors
- Lightweight design reduces weight
- Capacity ratio 50-130% (single models only)
- Quiet mode offers a further 2 dB(A) reduction
- Part load efficiencies increased
- Connectivity increased - now up to 48 indoor units
- Multi-systems with combinations from 13 HP up to 50 HP
- 10,000 run hours between engine service intervals (equivalent to one maintenance every 3.2 years*)
- 200 m maximum allowable piping length (L1)
- Extended pipe runs (total 780 m)
- Full heating capacity down to -20°C
- No defrost cycle

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

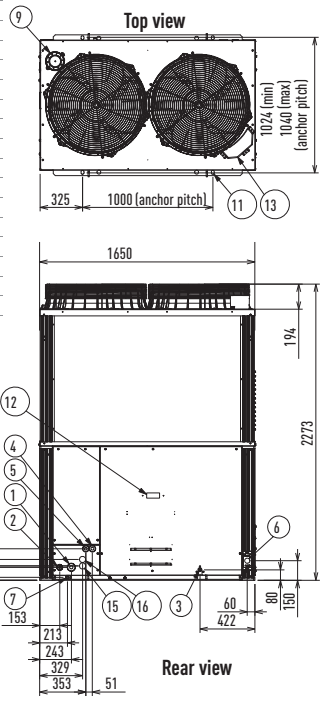
Sample installation

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

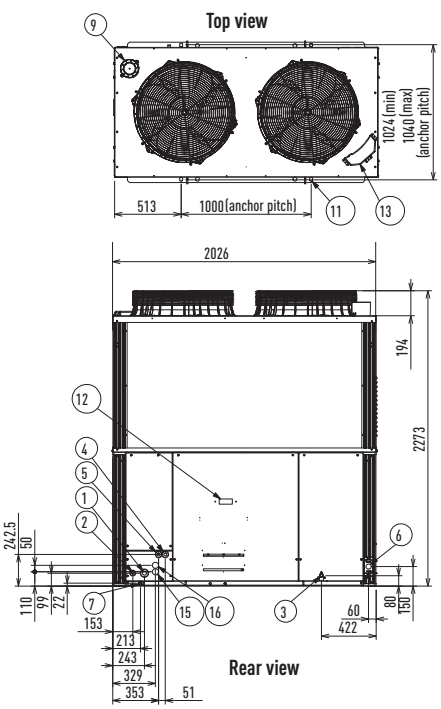
Service clearances for installation



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



U-30GE2E5



ECO G 3 WAY

3 Way Heat Recovery System with Simultaneous Heating & Cooling

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

High savings ECO G

Environmentally friendly refrigerant R410A

HP			16 HP	20 HP	25 HP
Model			U-16GF2E5	U-20GF2E5	U-25GF2E5
Cooling capacity		kW	45,00	56,00	71,00
Power input cooling		kW	0,71	1,02	1,33
EER (Calorific Value)[1]	High / Low	W/W	1,48 / 1,64	1,40 / 1,55	1,15 / 1,28
Cooling gas consumption		kW	29,7	39,1	60,4
Heating capacity	STD	kW	50,00	63,00	80,00
	Low temperature[2]	kW	53,00	67,00	78,00
Power input heating		kW	0,60	0,64	0,83
COP (Calorific Value)[1]	High / Low	W/W	1,51 / 1,68	1,46 / 1,62	1,48 / 1,64
Gas consumption	STD	kW	32,5	42,5	53,2
	Low temperature[2]	kW	41,5	56,4	62,3
COP	Average		1,50	1,43	1,32
Starter amperes		A	30	30	30
Operation sound		dB(A)	57	58	62
Dimensions	H x W x D	mm	2,273 x 1,650 x 1,000 (+80)	2,273 x 1,650 x 1,000 (+80)	2,273 x 1,650 x 1,000 (+80)
Net weight		kg	775	775	805
Pipe Connections	Gas	inch (mm)	1 1/8 (28,58)	1 1/8 (28,58)	1 1/8 (28,58)
	Liquid	inch (mm)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)
	Discharge	inch (mm)	7/8 (22,22)	1 (25,40)	1 (25,40)
	Fuel gas		R3/4	R3/4	R3/4
	Exhaust drain port	mm	25	25	25
Indoor/outdoor capacity ratio			50-200%[3]	50-200%[3]	50-200%[3]
Number of connected indoor units			24	24	24

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

GHP Service kits model name	Kit CZ-PSK560SP
Outdoor unit reference	U-16GF2E5 / U-20GF2E5 / U-25GF2E5
Material included on the kit	
Oil Filter	1
Air Cleaner Element (Air Filter)	1
Plug	4
V BELT (for compressor)	1
V Belt (for generator)	-
Oil Strainer	1
Drain Filter Packing	1

3-Pipe control box kit*	
CZ-P456HR3	4 ports 3 pipe box (up to 5,6kW)
CZ-P656HR3	6 ports 3 pipe box (up to 5,6kW)
CZ-P856HR3	8 ports 3 pipe box (up to 5,6kW)
CZ-P4160HR3	4 ports 3 pipe box (from 5,6 to 10,6kW)

* Available from December 2015.

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

1) Referred to Natural Gas (HCV=55,489 MJ/kg; LCV=50,013 MJ/kg). 2) Low temperature condition: outdoor temperature 2°C. 3) Indoor unit can be connected to up to 16 kW model (model size 60)
Specifications subject to change without notice.

Cooling and heating capacities in the tables are determined under the test conditions of JIS B 8627.
Effective heating requires that the outdoor air intake temperature be at least –20°C DB or –21°C WB.

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

Technical focus

- Simultaneous heating and cooling for total control
- Reduced gas consumption by Miller-cycle engine
- Reduced electrical power consumption by using DC Motors
- Part load efficiencies increased
- Connectability increased to up to 24 indoor units
- 145 m maximum allowable piping length, L1
- Capacity ratio 50–200%
- Extended pipe runs (total 780 m)
- Quiet mode offers a further 2 dB(A) reduction
- Full heating capacity down to -21°C
- Option of using LPG as a power supply (increases flexibility and avoids problems of potential site restrictions in the future. The purer fuel is also excellent for further reductions in CO_2 emissions)
- No defrost cycle
- 10,000 run hours between engine service intervals (equivalent to one maintenance every 3.2 years*)

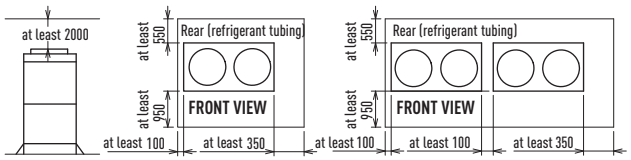
* Assuming 3,120 running hours per year - 12 h x 5 days x 52 weeks

Additional parts

3-Pipe control Solenoid valve kit
CZ-P56HR3: Up to 5.6 kW
CZ-P160HR3: From 5.7 to 16 kW
KIT-P56HR3: (CZ-P56HR3+CZ-CAPE2)
KIT-P160HR3: (CZ-P160HR3+CZ-CAPE2)
* For conference rooms and other locations where low noise is required, pay attention to the installation location and install in a corridor etc.

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

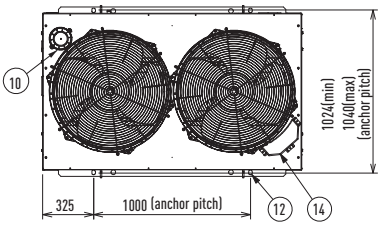
Service clearances for installation

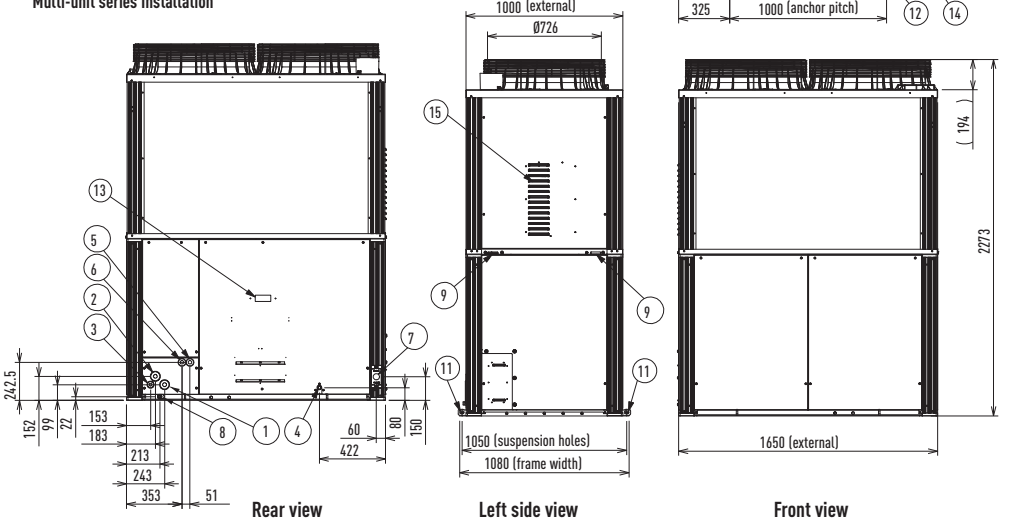


Single-unit installation — Multi-unit series Installation

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

Top view





Rear view — Left side view — Front view

- A CLASS PUMP INCLUDED
- 4 WAY VALVE INCLUDED
- OPTIMIZED HEAT EXCHANGER
- 1.010 x 570 x 960 (H x W x D)
- WATER CONNECTIONS R2"F

The Panasonic solution for chilled and hot water production!

From 28 kW to 80 kW

Key benefits:

- No cascade installation up to 80 kW with GHP outdoor unit and 51,3 kW with ECOi
- Full line-up of outdoor units which can cover up to 80 kW heat demand
- Large choice of remote controls and interfaces
- 3,25 COP with water at 45°C and outdoor temperature of +7°C

Energy saving
INVERTER+
Environmentally friendly refrigerant
R410A

With ECOi outdoor units

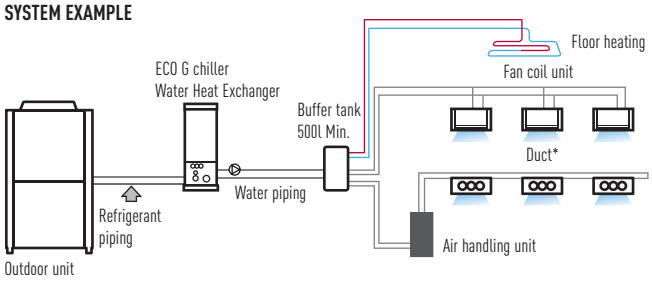
- Maximum hot water outlet temperature: 45°C
- Minimum chilled water outlet temperature: 5°C
- Outdoor temperature range in cooling mode: +5°C to +43°C
- Outdoor temperature range in heating mode: -11°C to +15°C

ECOi Water Heat Exchanger

Electrical VRF with Water Heat Exchanger

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

SYSTEM EXAMPLE

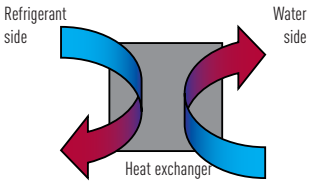


A Buffer Tank of minimum 500l is always needed.

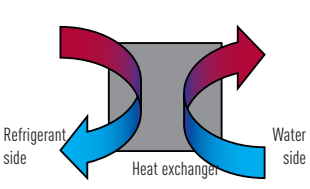
New Electrical panel with new algorithm

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

On cooling mode



On heating mode



Built in A class water pump with high efficiency and capacity

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

ECOi 2-PIPE WITH WATER HEAT EXCHANGER

FOR CHILLED AND HOT WATER PRODUCTION

For hydronic Applications

Water Heat Exchanger for GHP and ECOi, dimensions reduced by 45 %. Operation and control by timer remote control CZ-RTC4. Energy-efficient capacity control. Stainless steel plate heat exchanger with anti-freeze protection control. Change-over between heating and cooling operation.

- A CLASS PUMP INCLUDED
- 4 WAY VALVE INCLUDED
- OPTIMIZED HEAT EXCHANGER
- 1.010 x 570 x 960 (H X W x D)
- WATER CONNECTIONS R2"F

Energy saving — INVERTER+

Environmentally friendly refrigerant — R410A

Water Heat Exchanger*			PAW-250WX2E5	PAW-500WX2E5	PAW-710WX2E5
Nominal cooling capacity at 35 °C, water outlet 7 °C			25,0	50,0	67,0
Nominal heating capacity			28,0	56,0	75,0
Heating capacity at +7°C, heating water temperature at 45°C		kW	28,0	56,0	75,0
COP at +7°C with heating water temperature at 45°C			3,25	3,10	3,32
Dimensions	H x W x D	mm	1.010 x 570 x 960	1.010 x 570 x 960	1.010 x 570 x 960
Net weight		kg	120	145	180
Water pipe connector			Rp2 Female Thread (50A)	Rp2 Female Thread (50A)	Rp2 Female Thread (50A)
A class pump			Included	Included	Included
Heating water flow (ΔT=5 K. 35°C)		m³/h	4,3	8,6	11,6
Capacity of integrated electric heater		kW	Not equipped	Not equipped	Not equipped
Input power		kW	0,01 + (min. 0,05 / max. 0,13 for water pump)	0,01 + (min. 0,19 / max. 0,31 for water pump)	0,01 + (min. 0,17 / max. 0,31 for water pump)
Maximum current		A	0,07 + (min. 0,37 / max. 0,95 for water pump)	0,07 + (min. 0,88 / max. 1,37 for water pump)	0,07 + (min. 0,85 / max. 1,37 for water pump)
Outdoor unit			**U-10ME1E81**	**U-20ME1E81**	**U-12ME1E81 + U-14ME1E81**
Sound pressure level		dB(A)	59	63	61 - 62
Sound power level		dB	73,5	77,5	
Dimensions	H x W x D	mm	1.758 x 770 x 930	1.758 x 1.540 x 930	1.758 x 770 x 930 - 1.758 x 770 x 930
Net weight		kg	283	423	281 - 309
Piping connections	Liquid pipe	inch (mm)	7/8 (22,22)	1-1/8 (28,58)	1 (25,40)
	Gas pipe	inch (mm)	3/8 (9,52)	5/8 (15,88)	1/2 (12,70)
Refrigerant (R410A)		kg	6,3 *Need Additional charge at site	9,0 *Need Additional charge at site	
Pipe length range	Max.	m	170	170	
Pipe length for nominal capacity		m	7,5	7,5	
Pipe length for additional gas		m	0 <	0 <	
Additional charge (R410A)		g/m	Refer to manual	Refer to manual	Refer to manual
Elevation difference (in/out)		m	50 (OD above) 35 (OD below)	50 (OD above) 35 (OD below)	
Operation Range	Outdoor ambient	°C	-11 — +15[1]	-11 — +15[1]	-11 — +15[1]
	Water outlet (at-2/-7/-15)[2]	°C	35 — 45	35 — 45	35 — 45

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

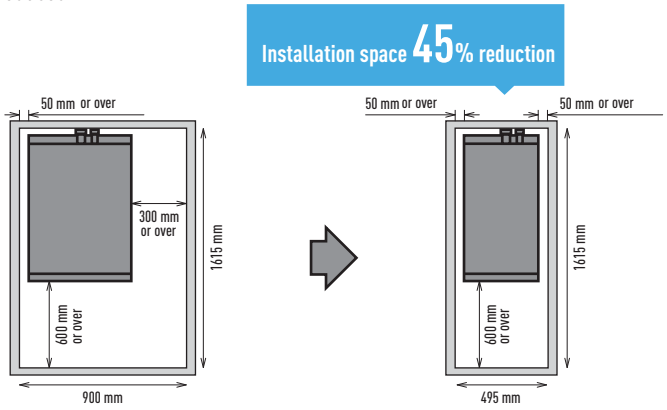
Performance calculation in agreement with Eurovent.
Sound pressure measured at 1 m from the outdoor unit and at 1,5 m height.
1) With accessory low temperature kit -25 — +15 °C.

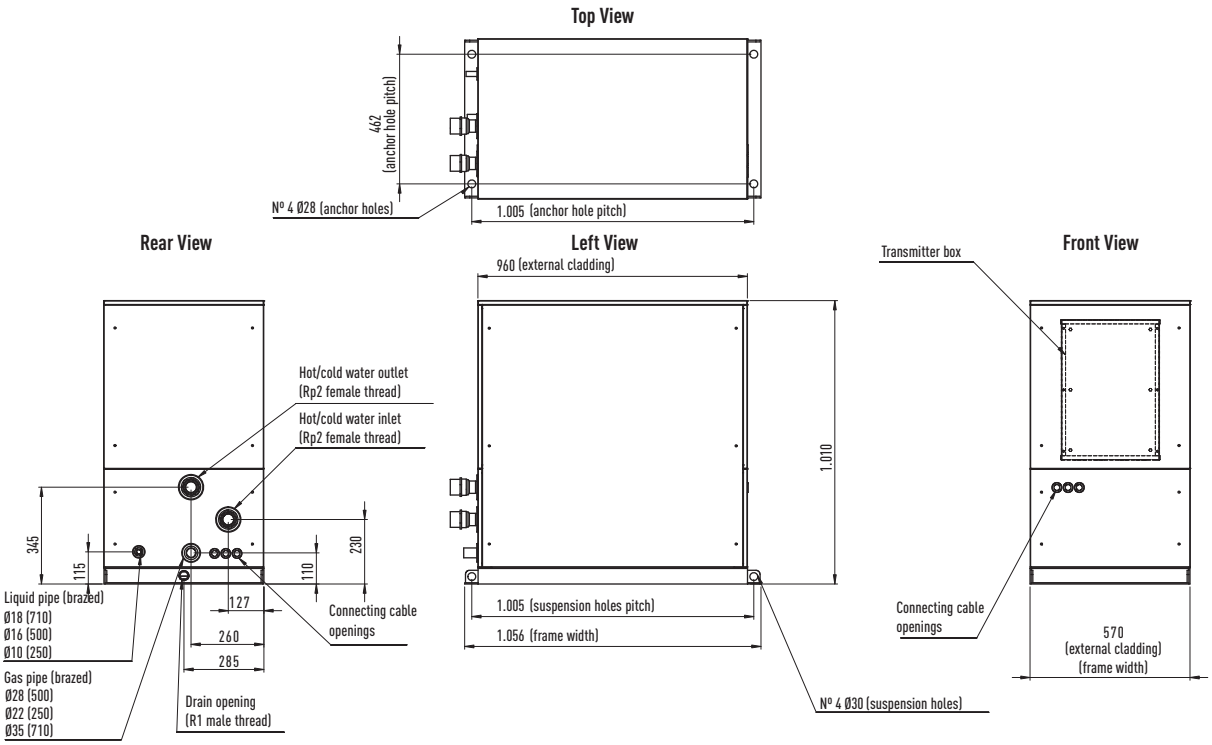
Technical focus

- Maximum distance between outdoor unit and Water Heat Exchanger: 170 m
- Maximum hot water outlet temperature: 45°C
- Minimum chilled water outlet temperature: 7°C
- Outdoor temperature range in cooling mode: +5°C to +43°C
- Outdoor temperature range in heating mode: -20°C to +15°C

Slim & Light design

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





- MORE EFFICIENT THAN GAS BOILERS AND CHILLERS
- HEATING, COOLING AND DHW
- INCREASED ENERGY EFFICIENCY AND LOW CO_2 EM

GHP + WHE heating, cooling and DHW

The ECO G solution for gas boiler replacement

- Combined with a Water Heat Exchanger unit, the Panasonic GHP can create a flexible system, the ideal replacement for existing chiller and boiler systems in order to increase efficiency and reduce CO_2 emissions.
- Reused heat from the engine is an alternative to thermal solar energy
- No defrost cycle
- Super silent outdoor units
- No glycol needed as the hydromodule can be placed in heated part of building
- Keep existing water installation and fan coils
- Oversizing is reduced by keeping the power at a low temperature.
- No need for cooling towers
- Electrical demand spikes or possible costs derived from investments in new electrical infrastructures are lowered.

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

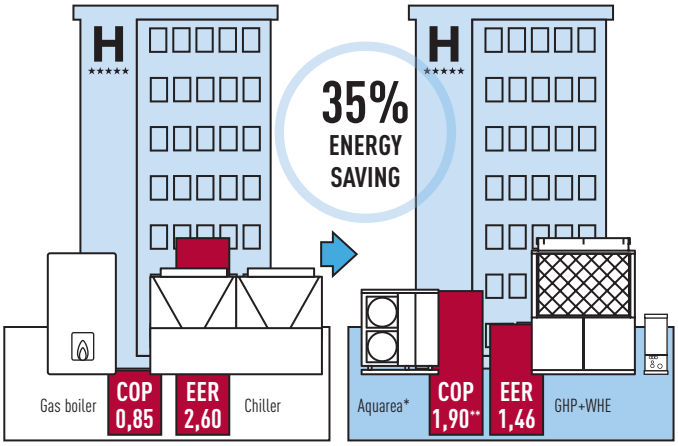
High savings ECO G

Environmentally friendly refrigerant R410A

35% SAVINGS

BEST ECO SOLUTION

Case Study, Hotel Application



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

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

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

			Load kW/h year	Power Input	Running cost €
Cooling	Chiller+Boiler	Chiller	231.653	89.097	12.474
	GHP+A2W	GHP	231.653	183.852	7.354
Heating	Chiller+Boiler	Boiler	96.749	113.823	4.553
	GHP+A2W	GHP	96.749	73.630	2.945
HSW	Chiller+Boiler	Boiler	204.213	240.251	9.610
	GHP+A2W	GHP (*)	118.225	0	0
		Aquarea	77.031	16.390	2.295
		Back up Boiler	8.957	10.538	422
Total	Chiller+Boiler		532.616	443.171	26.637
	GHP+A2W		532.616	284.409	13.015
	GHP+A2W savings			158.762	13.621

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

With GHP outdoor units:

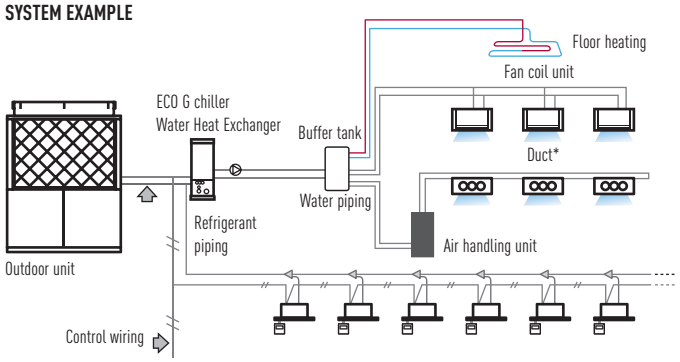
In heating mode, at very low outdoor temperature -21°C, the available power is maintained. No defrost cycle happens and stable heating comfort is guaranteed.

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

ECO G Water Heat Exchanger. Mixed System Application

- The GHP Multi System can have an indoor unit plus a GHP chiller. When the two systems are operated independently, an outdoor unit with 130% capacity can be connected.

SYSTEM EXAMPLE



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

ECO G WITH WATER HEAT EXCHANGER

FOR CHILLED AND HOT WATER PRODUCTION

For hydronic applications

Water Heat Exchanger, dimensions reduced by 45 % (250 W x 2 and 500 W x 2). Operation and control by timer remote control CZ-RTC4. Energy-efficient capacity control. Stainless steel plate heat exchanger with anti-freeze protection control. Change-over between heating and cooling operation.

- MORE EFFICIENT THAN GAS BOILERS AND CHILLERS
- HEATING, COOLING AND DHW
- INCREASED ENERGY EFFICIENCY AND LOW CO_2 EM

High savings ECO G

Environmentally friendly refrigerant R410A

Water Heat Exchanger*			PAW-250WX2E5	PAW-500WX2E5	PAW-710WX2E5
Nominal Heating Capacity			30	60	80
Heating Capacity at +7°C, heating water temperature at 35°C		kW		62	82.8
COP at +7°C with heating water temperature at 35°C				1,49	1,34
Heating Capacity at +7°C, heating water temperature at 45°C		kW	30	60	80
COP at +7°C with heating water temperature at 45°C				1,30	1,17
Heating Capacity at -7°C, heating water temperature at 35°C		kW		57,2	74,6
COP at -7°C, heating water temperature at 35°C				0,76	0,77
Heating Capacity at -15°C, heating water temperature at 35°C		kW		59,2	77,4
COP at -15°C with heating water temperature at 35°C				0,75	0,76
Nominal Cooling Capacity			25	50	71
Cooling capacity at +35°C, outlet tp 7°C, inlet tp 12°C		kW		50	71
EER at +35°C, outlet tp 7°C, inlet tp 12°C				1,15	1,05
Dimensions	H x W x D	mm	1.010 x 570 x 960	1.010 x 570 x 960	1.010 x 570 x 960
Weight		kg	120	145	180
Water pipe connector			Rp2 Female Thread (50A)	Rp2 Female Thread (50A)	Rp2 Female Thread (50A)
Pump			Included	Included	Included
Heating water flow (ΔT=5 K. 35°C)		l/min	4,3	8,6	11,6
Capacity of integrated electric heater		kW	Not equipped	Not equipped	Not equipped
Input Power		kW	0,01 + (min. 0,05 / max. 0,13 for water pump)	0,01 + (min. 0,19 / max. 0,31 for water pump)	0,01 + (min. 0,17 / max. 0,31 for water pump)
Maximum Current		A	0,07 + (min. 0,37 / max. 0,95 for water pump)	0,07 + (min. 0,88 / max. 1,37 for water pump)	0,07 + (min. 0,85 / max. 1,37 for water pump)
Outdoor unit			-	**U-20GE2E5**	**U-30GE2E5**
Sound pressure		dB(A)		58	63
Sound power level		dB		83	86
Dimensions	H x W x D	mm		2.273 x 1.650 x 1.000	2.273 x 2.026 x 1.000
Weight		kg		780	840
Piping connections	Liquid pipe	inch (mm)		1-1/8 (28,58)	1 1/4 (31,75)
	Gas pipe	inch (mm)		5/8 (15,88)	3/4 (19,05)
Refrigerant (R410A)		kg		11,5 (Need additional charge at site)	11,5 (Need additional charge at site)
Pipe length range	Max.	m		170	170
Pipe length for nominal capacity		m		7	7
Pipe length for additional gas		m		0<	0<
Additional charge (r410a)		g/m		Refer to Manual	Refer to Manual
Elevation difference (in/out)		m	50 (OD above) 35 (OD below)	50 (OD above) 35 (OD below)	50 (OD above) 35 (OD below)
Operation range	Outdoor ambient	°C		-21 — 15,5	-21 — 15,5
	Water outlet (at-2/-7/-15)[2]	°C		35 — 55	35 — 55

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

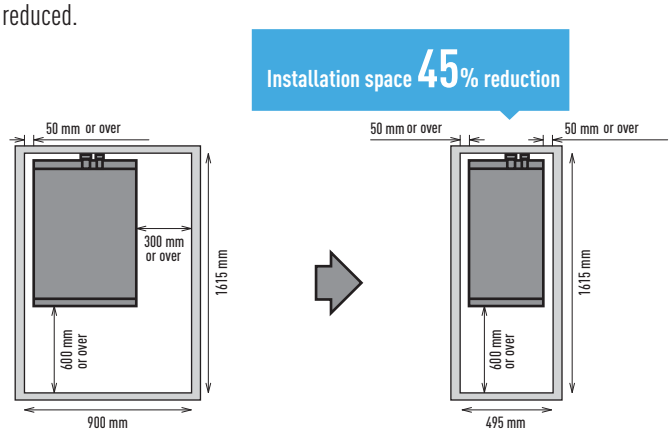
Performance calculation in agreement with Eurovent.
Sound pressure measured at 1 m from the outdoor unit and at 1.5 m height.
* Only with indoors combination. Can not be used as 1 to 1.

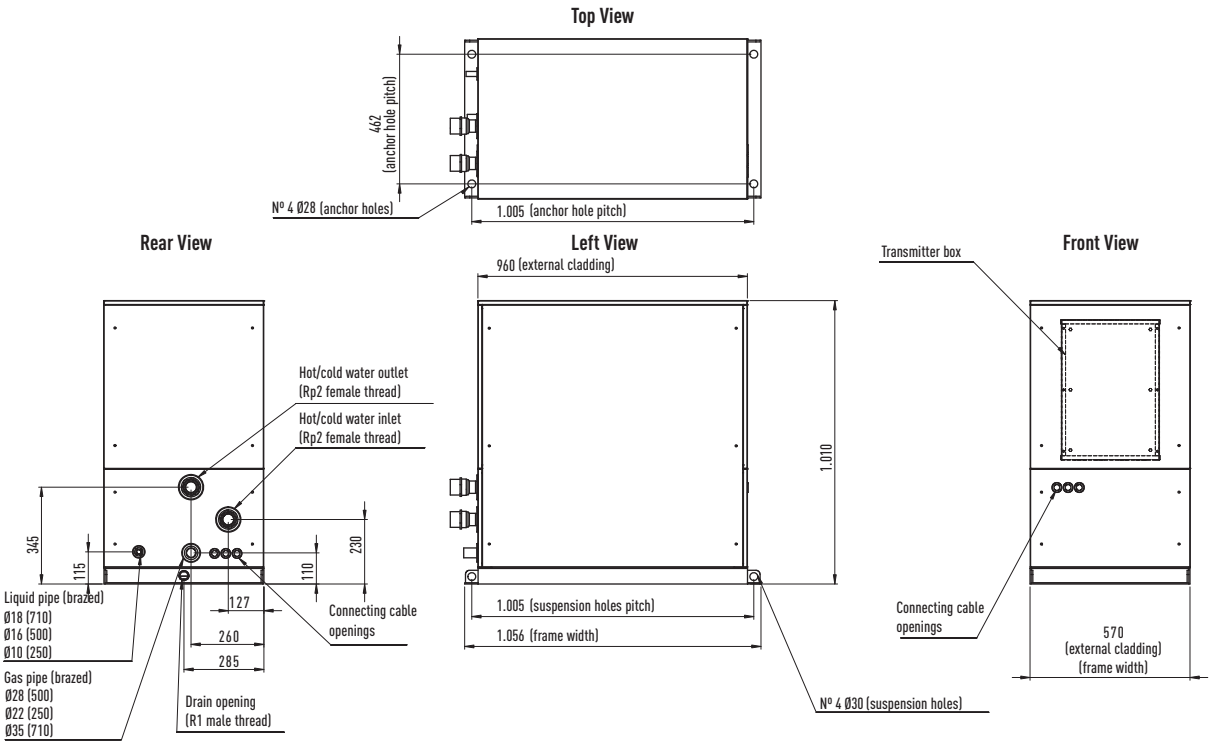
Technical focus

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

Slim & Light design

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





AQUAREA AIR RADIATORS

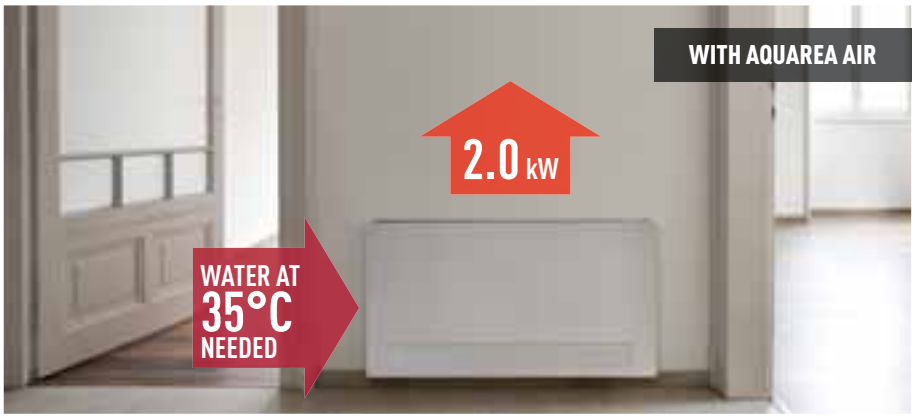
New line up of Super low temperature radiators for Heat Pump application: Aquarea Air 200/700/900 with radiating effect

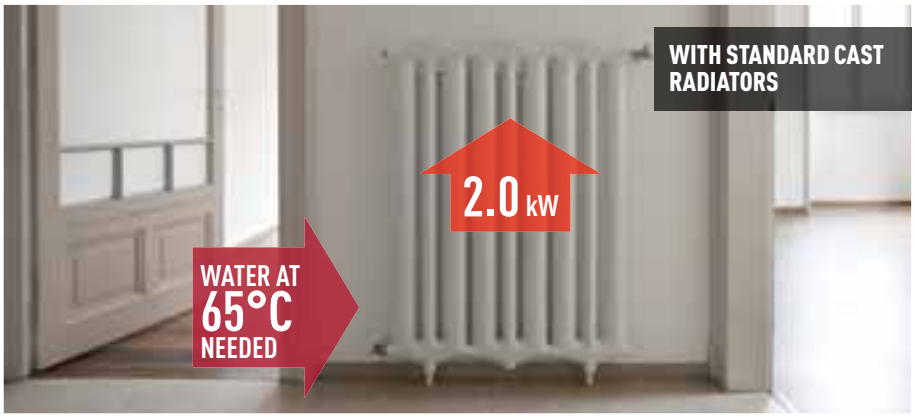
The slimline Panasonic Aquarea Air radiators deliver high efficiency climate control. With a depth of just under 13 cm they are at the cutting edge of the market. Blending easily into the home, Aquarea Air's elegant design and product refinements are clear to see in every detail.

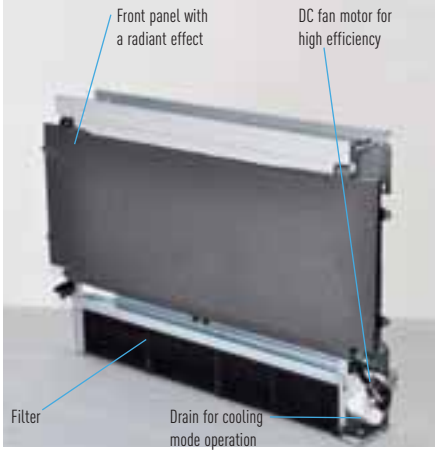
The Aquarea Air's slimline profile has been achieved thanks to the innovative layout of the ventilation unit and the heat exchanger. The fan is tangential with asymmetric blades and the large surface heat exchanger enables high airflows to be achieved with low pressure loss and low noise levels. Exceptional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

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

Fan Coils for Heat Pump application		PAW-AAIR-200					PAW-AAIR-700					PAW-AAIR-900				
Without radiant heating		PAW-AAIR-200L					PAW-AAIR-700L					PAW-AAIR-900L				
Total heating capacity	W	138	160	217	470	570	223	360	708	1032	1188	273	475	886	1420	1703
Water flow	kg/h	23,7	27,5	37,3	80,8	98,0	38,4	61,9	121,8	177,5	204,3	47,0	81,7	152,4	244,2	292,9
Water pressure drop	kPa	0,1	0,2	0,4	2,0	2,9	0,1	0,1	0,3	0,8	1,0	0,1	0,2	0,5	1,6	2,2
Air flow	m³/h	28	37	55	113	162	44	84	155	252	320	54	110	248	367	461
	Speed	Main Fan Off	Super Min	Min	Med	Max	Main Fan Off	Super Min	Min	Med	Max	Main Fan Off	Super Min	Min	Med	Max
Maximum input power	W	2	5	7	9	13	3	9	14	18	22	3	11	16	20	24
Sound pressure level	dB(A)	17,6	18,8	24,7	33,2	39,4	18,4	19,6	25,8	34,1	40,2	18,4	22,3	26,2	34,4	42,2
Inlet water temperature	°C	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Outlet water temperature	°C	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Inlet air temperature	°C	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
Outlet air temperature	°C	34,5	32,6	38,9	32,0	30,0	34,9	32,4	33,3	31,8	30,6	34,8	32,5	30,2	31,1	30,6
Dimentions (H x W x D)	mm	735 x 576 x 129					935 x 579 x 129					1.135 x 579 x 129				
Weight	kg	17					20					23				
3 ways valve included		Yes					Yes					Yes				
Touch schreen thermostat		Yes					Yes					Yes				







PAW-AAIR-900

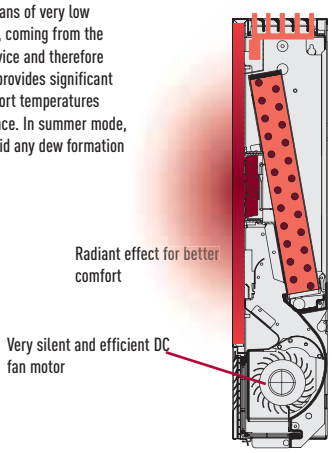
PAW-AAIR-700 PAW-AAIR-200

AQUAREA AIR

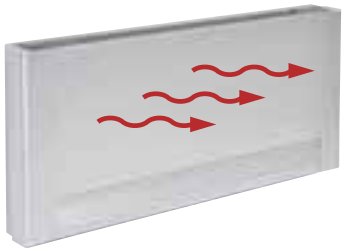
Technical focus

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

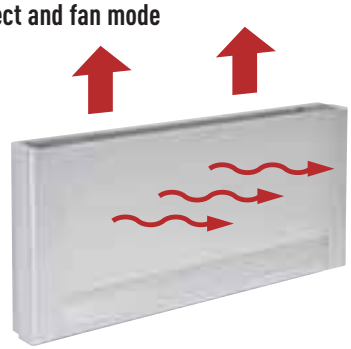
During winter, the operating principle is based on micro fans of very low power consumption and minimum noise that send hot air, coming from the heat exchanger, to the inside of the front panel of the device and therefore heat it effectively. With this principle, the terminal also provides significant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



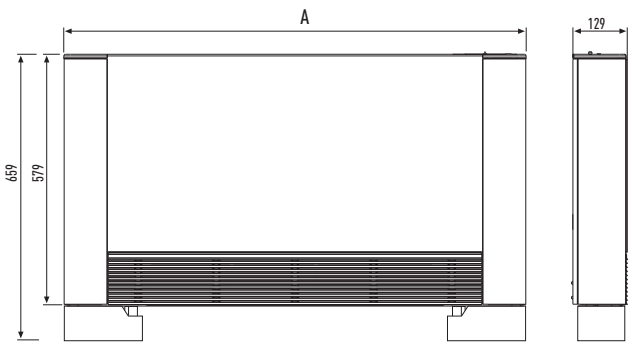
Operating on heating mode with radiator using only radiant effect



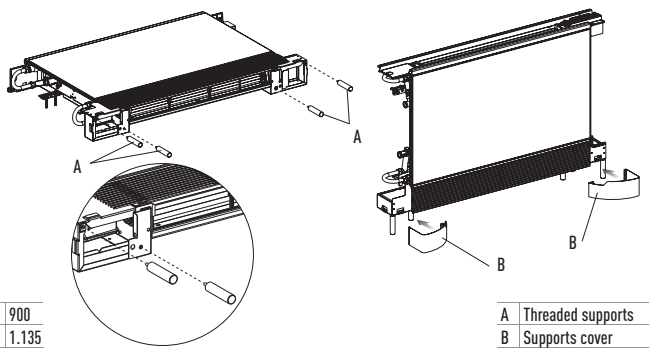
Operating on heating mode with radiant effect and fan mode



Operating on cooling mode with fan



	200	700	900
A	735	935	1.135



A	Threaded supports
B	Supports cover

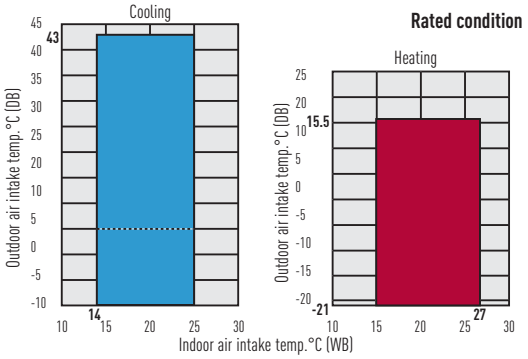
Features

High technology features

Down to -25 °C in heating mode
OUTDOOR TEMPERATURE

Wider operation

Thanks to wide operation range of Panasonic ECOi and ECOg systems with Aquarea Air fan coils is possible to cover outdoor temperatures of as -10°C DB for cooling and -21°C WB for heating.



Practical operation
AUTOMATIC RESTART

Automatic restart function for power failure

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

Easy maintenance
SELF-DIAGNOSING

Self-diagnosing function

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

Simple, convenient features (Indoor Units)

For more comfort
AUTOMATIC FAN

Automatic fan operation

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

Comfort everywhere
AIR SWEEP

Air Sweep

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

Perfect humidity control
MILD DRY

Mild dry

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

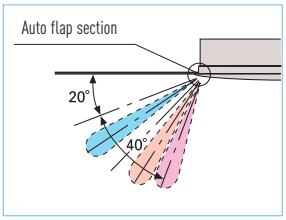
Easy to install
BUILT-IN DRAIN PUMP

Built-in drain pump

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

Further comfort
AUTO-FLAP CONTROL

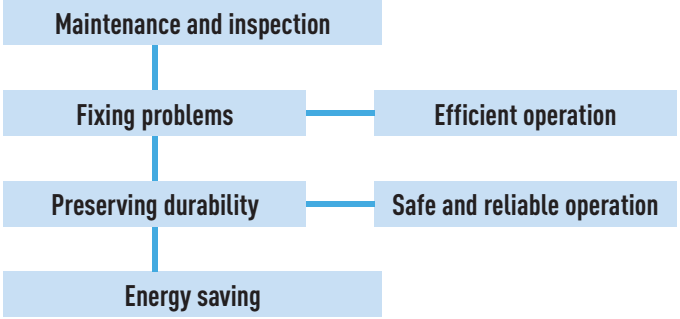
Comfortable auto-flap control



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

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

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



Main maintenance and inspection items

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

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

Panasonic's software

ECOi VRF Designer

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

Super-efficient and built for the designers' every need, Panasonic's Advanced VRF software can create life-sized piping designs and automatic length calculation based on their imported drawings.

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

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

Panasonic's Advanced VRF software with AutoCAD® compatibility makes design easier than ever
Panasonic provides bespoke software helping system designers, installers and dealers to very quickly design and size systems, create wiring diagrams and issue bills of quantities at the push of a button.

GHP Checker Software

The handy tool for optimising the running of your system:
Diagnosis for start ups, maintenance and system supervising.

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

Panasonic VRF Service Checker

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

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

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


Interface Box

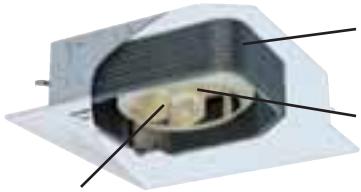
Indoor units for ECOi and ECO G

Wide choice of models depending on the indoor requirements.

4 Way 90x90 Cassette

Wide & Comfortable Airflow

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



High-efficient & Silent turbo Fan.
It is realized more air volume and more silent due to new development of a bigger fan chassis than previous one and optimization design of airflow path.

Higher efficiency split fin.
Improved heat-transfer coefficient due to adoption of high efficiently grooved heat exchanger tube.

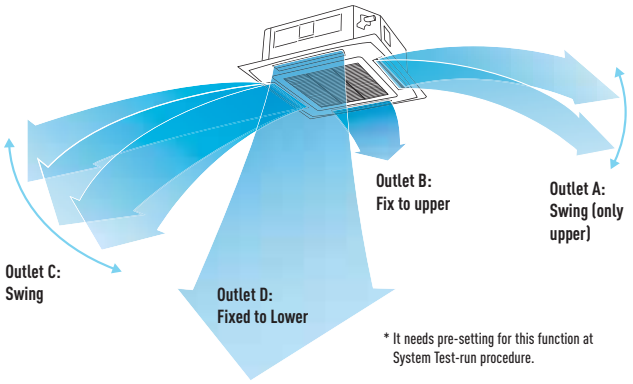
New DC-Fan motor.
It is realized more optimum air-flow by a new DC-fan motor with independent control.

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

Flexible 3D air-flow control

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

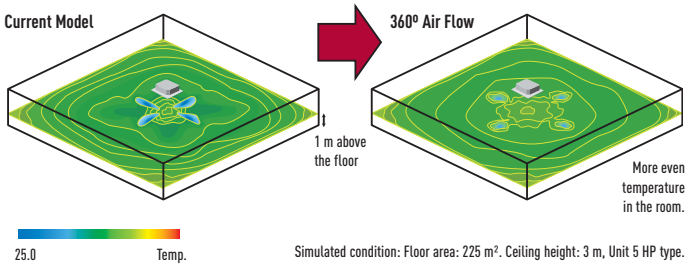
- 4 Flaps can be controlled individually (by standard wired remote controller*).
- It can make more flexible Air-flow control to be matched to several demands can be accommodated in one space.



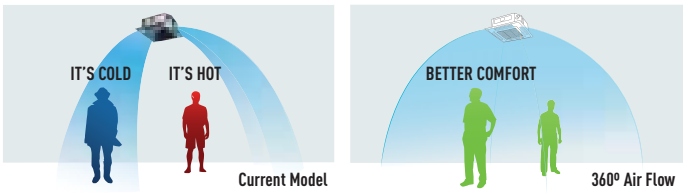
* It needs pre-setting for this function at System Test-run procedure.

New 360º Air Flow for better comfort

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

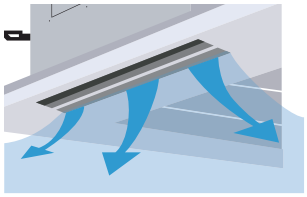


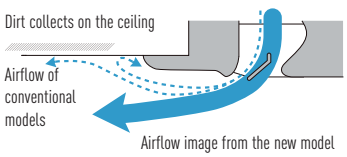
Simulated condition: Floor area: 225 m². Ceiling height: 3 m, Unit 5 HP type.



New design

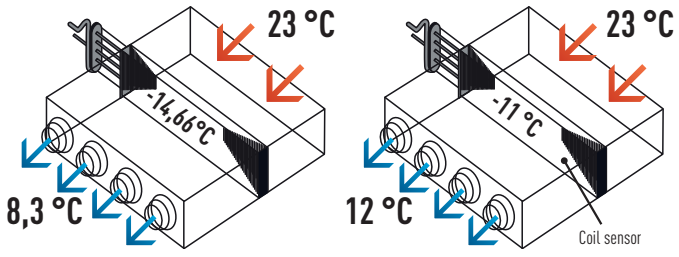
Wide direction air discharge by outlet design.
The Circle Flow Flap and redesigned air outlet eliminate airflow along recessed parts on the ceiling to reduce contamination. If air flows only along these recessed parts, they will quickly become dirty. These new features greatly reduce accumulations of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





Air Discharge Temperature Control

Available in all VRF indoor units, this control provides excellent comfort. Discharge air at below 10 °C is uncomfortable and can cause draughts. With Panasonic air discharge temperature control, air off temperature can be controlled between 7 °C - 22 °C.



ECOi and ECO G systems indoor units range

	1,5 kW	2,2 kW	2,8 kW	3,0 kW	3,6 kW	4,0 kW	4,5 kW
U1 Type // 4 Way 90x90 Cassette		 S-22MU1E5A	 S-28MU1E5A		 S-36MU1E5A		 S-45MU1E5A
Y2 TYPE // 4 Way 60x60 Cassette	 S-15MY2E5A	 S-22MY2E5A	 S-28MY2E5A		 S-36MY2E5A		 S-45MY2E5A
L1 Type // 2 Way Cassette		 S-22ML1E5	 S-28ML1E5		 S-36ML1E5		 S-45ML1E5
D1 Type // 1 Way Cassette			 S-28MD1E5		 S-36MD1E5		 S-45MD1E5
F2 Type // Variable Static Pressure Hide Away	 S-15MF2E5A	 S-22MF2E5A	 S-28MF2E5A		 S-36MF2E5A		 S-45MF2E5A
M1 Type // Slim Variable Static Pressure Hide Away	 S-15MM1E5A	 S-22MM1E5A	 S-28MM1E5A		 S-36MM1E5A		 S-45MM1E5A
E2 Type // High Static Pressure Hide Away NEW							
Heat Recovery With DX Coil NEW				 PAW-500ZDX2		 PAW-800ZDX2	 PAW-01KZDX2
T2 Type // Ceiling					 S-36MT2E5A		 S-45MT2E5A
K2/K1 Type // Wall Mounted	S-15MK2E5A	S-22MK2E5A	S-28MK2E5A		S-36MK2E5A		 S-45MK1E5A
P1 Type // Floor Standing		 S-22MP1E5	 S-28MP1E5		 S-36MP1E5		 S-45MP1E5
R1 Type // Concealed Floor Standing		S-22MR1E5	S-28MR1E5		S-36MR1E5		S-45MR1E5
Hydrokit for ECOi, water at 45°C NEW							

Wide choice of models depending on the indoor requirements.

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

5,6 kW	6,0 kW	7,3 kW	9,0 kW	10,6 kW	14,0 kW	16,0 kW	22,4 kW	28,0 kW
 S-56MU1E5A	 S-60MU1E5A	 S-73MU1E5A	 S-90MU1E5A	 S-106MU1E5A	 S-140MU1E5A	 S-160MU1E5A		
 S-56MY2E5A								
 S- 56ML1E5		 S-73ML1E5						
 S-56MD1E5		 S-73MD1E5						
 S-56MF2E5A	 S-60MF2E5A	 S-73MF2E5A	 S-90MF2E5A	 S-106MF2E5A	 S-140MF2E5A	 S-160MF2E5A		
 S-56MM1E5A								
							 S-224ME2E5	 S-280ME2E5
 S-56MT2E5A		 S-73MT2E5A		 S-106MT2E5A	 S-140MT2E5A			
 S-56MK1E5A		 S-73MK1E5A		 S-106MK1E5A				
 S-56MP1E5		 S-71MP1E5						
 S-56MR1E5		 S-71MR1E5						
			 S-80MW1E5		 S-125MW1E5			

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

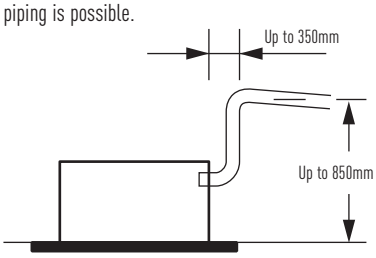
U1 TYPE
4 WAY 90X90 CASSETTE SEMI CONCEALED CASSETTE

360° air flow

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

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

A drain height of approx. 850mm from the ceiling surface
The drain height can be increased by approximately 350mm over the conventional value by using a high-lift drain pump, and long horizontal piping is possible.



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

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

Panel
CZ-KPU21

Optional Controller
Wired remote controller
CZ-RTC5

Optional Controller
Timer remote controller
CZ-RTC4

Optional Controller
Wireless remote controller
CZ-RWSU2

Optional Controller
Simplified remote controller
CZ-RE2C2

Model			S-22MU1E5A	S-28MU1E5A	S-36MU1E5A	S-45MU1E5A	S-56MU1E5A	S-60MU1E5A	S-73MU1E5A	S-90MU1E5A	S-106MU1E5A	S-140MU1E5A	S-160MU1E5A
Power source			230 V / Single Phase / 50 Hz										
Cooling capacity		kW	2,2	2,8	3,6	4,5	5,6	6,0	7,3	9,0	10,6	14,0	16,0
Power input cooling		W	20	20	20	20	25	35	40	40	95	100	115
Operating current cooling		A	0,19	0,19	0,19	0,19	0,22	0,31	0,33	0,36	0,71	0,76	0,89
Heating capacity		kW	2,5	3,2	4,2	5,0	6,3	7,1	8,0	10,0	11,4	16,0	18,0
Power input heating		W	20	20	20	20	25	35	40	40	85	100	105
Operating current heating		A	0,17	0,17	0,17	0,17	0,20	0,30	0,32	0,34	0,65	0,73	0,80
Fan type			Turbo fan	Turbo fan	Turbo fan	Turbo fan	Turbo fan	Turbo fan	Turbo fan	Turbo fan	Turbo fan	Turbo fan	Turbo fan
Air volume	Hi / Med / Lo	m^3/h	840/720/660	840/720/660	840/720/660	900/780/720	960/810/720	1.260/1.020/840	1.320/1.020/840	1.380/1.140/900	1.980/1.620/1.260	2.100/1.680/1.320	2.160/1.740/1.380
Sound pressure level	Hi / Med / Lo	dB(A)	30 / 29 / 28	30 / 29 / 28	30 / 29 / 28	31 / 29 / 28	33 / 30 / 28	36 / 32 / 29	37 / 32 / 29	38 / 35 / 32	44 / 38 / 34	45 / 39 / 35	46 / 40 / 38
Dimensions	H x W x D	mm	256 (+33,5) x 840 (950) x 840 (950)								319 (+33,5) x 840 (950) x 840 (950)		
Net weight		kg	23	23	23	23	23	24	24	24	27	27	27
Pipe connections	Liquid	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	3/8 (9,52)	3/8 (9,52)	3/8 (9,52)	3/8 (9,52)	3/8 (9,52)	3/8 (9,52)
	Gas	inch (mm)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	5/8 (15,88)	5/8 (15,88)	5/8 (15,88)	5/8 (15,88)	5/8 (15,88)	5/8 (15,88)
	Drain piping		VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25

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.

Optional

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

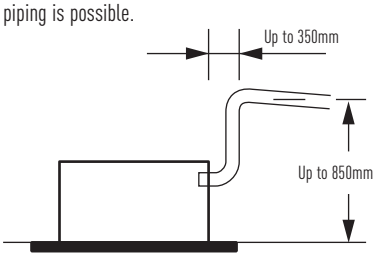
Y2 TYPE
4 WAY 60X60 CASSETTE MINI SEMI CONCEALED CASSETTE

Designed to fit exactly into a 600 x 600mm ceiling grid without the need to alter the bar configuration, the Y2 is ideal for small commercial and retrofit applications. In addition, the improvements to efficiency make this one of the most advanced units in the industry.

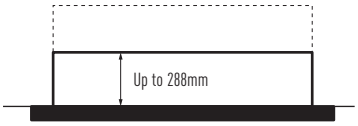
Technical focus
- Mini cassette fits into a 600 x 600mm ceiling grid
- Fresh air knock out
- Multidirectional air flow
- Powerful drain pump gives 850mm lift
- Turbo fans and heat exchanger fins with improved design
- DC fan motors with variable speed, new heat exchangers, etc. ensure an efficient power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

Special designed flap
The flap can be removed easily for washing with water.

A drain height of approx. 850mm from the ceiling surface
The drain height can be increased by approximately 350mm over the conventional value by using a high-lift drain pump, and long horizontal piping is possible.



A lightweight unit at 18.4 kg the unit is also very slim with a height of only 288mm, making installation possible even in narrow ceilings.



Panel
CZ-KPY3A (size 700 x 700mm)
CZ-KPY3B (size 625 x 625mm)

Optional Controller
Wired remote controller
CZ-RTC5

Optional Controller
Timer remote controller
CZ-RTC4

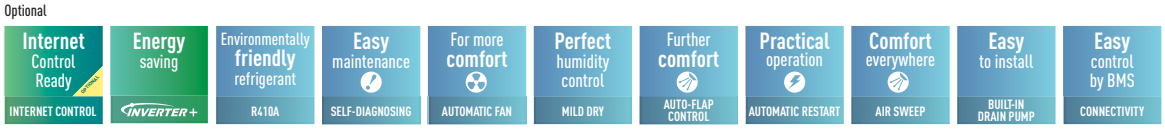
Optional Controller
Wireless remote controller
CZ-RWSK2

Optional Controller
Simplified remote controller
CZ-RE2C2

Model			S-15MY2E5A	S-22MY2E5A	S-28MY2E5A	S-36MY2E5A	S-45MY2E5A	S-56MY2E5A
Power source			230 V / Single Phase / 50 Hz					
Cooling capacity		kW	1,5	2,2	2,8	3,6	4,5	5,6
Power input cooling		W	35	35	35	40	40	45
Operating current cooling		A	0,30	0,30	0,30	0,30	0,32	0,35
Heating capacity		kW	1,7	2,5	3,2	4,2	5,0	6,3
Power input heating		W	30	30	30	35	35	40
Operating current heating		A	0,25	0,25	0,30	0,30	0,30	0,30
Fan type				Centrifugal fan	Centrifugal fan	Centrifugal fan	Centrifugal fan	Centrifugal fan
Air volume	Cooling	m^3/h	534 / 492 / 336	546 / 492 / 336	558 / 504 / 336	582 / 522 / 360	600 / 558 / 492	624 / 588 / 510
(Hi / Med / Lo)	Heating	m^3/h	546 / 504 / 336	558 / 504 / 336	576 / 522 / 336	594 / 546 / 360	618 / 576 / 492	666 / 588 / 522
Sound pressure level	Hi / Med / Lo	dB(A)	34 / 31 / 25	35 / 31 / 25	35 / 31 / 25	36 / 32 / 26	38 / 34 / 28	40 / 37 / 34
Dimensions	H x W x D	mm	288 x 583 x 583	288 x 583 x 583	288 x 583 x 583	288 x 583 x 583	288 x 583 x 583	288 x 583 x 583
Net weight		kg	20,4 (18 + 2,4)	20,4 (18 + 2,4)	20,4 (18 + 2,4)	20,4 (18 + 2,4)	20,4 (18 + 2,4)	20,4 (18 + 2,4)
Pipe connections	Liquid	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)
	Gas	inch (mm)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)
	Drain piping		VP-25	VP-25	VP-25	VP-25	VP-25	VP-25

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.

Optional



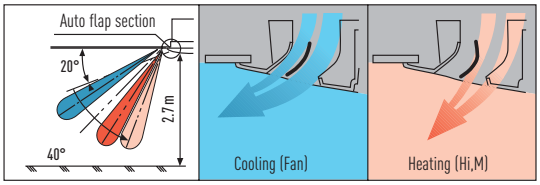
L1 TYPE
2 WAY CASSETTE

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

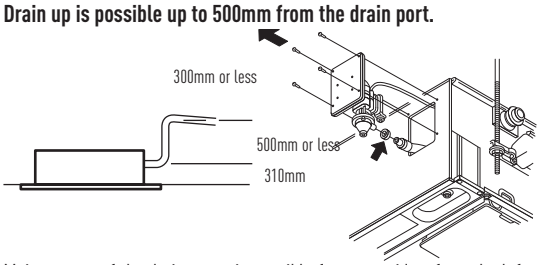
Technical focus
- Airflow and distribution is automatically altered depending on the operational mode of the unit
- Drain up is possible up to 500mm from the drain port
- Simple maintenance

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

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



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



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

Panel
CZ-02KPL2
CZ-03KPL2 (for S-73ML1E5)

Optional Controller
Wired remote controller
CZ-RTC5

Optional Controller
Timer remote controller
CZ-RTC4

Optional Controller
Wireless remote controller
CZ-RWSL2

Optional Controller
Simplified remote controller
CZ-RE2C2

Model			S-22ML1E5	S-28ML1E5	S-36ML1E5	S-45ML1E5	S-56ML1E5	S-73ML1E5
Power source			230 V / Single Phase / 50 Hz					
Cooling capacity		kW	2,2	2,8	3,6	4,5	5,6	7,3
Power input cooling		W	90	92	93	97	97	145
Operating current cooling		A	0,45	0,45	0,45	0,45	0,45	0,65
Heating capacity		kW	2,5	3,2	4,2	5,0	6,3	8,0
Power input heating		W	58	60	61	65	65	109
Operating current heating		A	0,29	0,29	0,29	0,29	0,29	0,48
Fan type			Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan
Air volume	Hi / Med / Lo	m^3/h	480 / 420 / 360	540 / 480 / 420	580 / 520 / 460	660 / 540 / 480	660 / 540 / 480	1.140 / 960 / 840
Sound pressure level	Hi / Med / Lo	dB(A)	30 / 27 / 24	33 / 29 / 26	34 / 31 / 28	35 / 33 / 29	35 / 33 / 29	38 / 35 / 33
Dimensions	H x W x D	mm	350(+8)x840 (1.060)x600 (680)	350(+8)x840 (1.060)x600 (680)	350(+8)x840 (1.060)x600 (680)	350(+8)x840 (1.060)x600 (680)	350(+8)x840 (1.060)x600 (680)	350(+8)x1.140 (1.360)x600 (680)
Net weight		kg	28,5 (23 + 5,5)	28,5 (23 + 5,5)	28,5 (23 + 5,5)	28,5 (23 + 5,5)	28,5 (23 + 5,5)	39 (30 + 9)
Pipe connections	Liquid	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	3/8 (9,52)
	Gas	inch (mm)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	5/8 (15,88)
	Drain piping		VP-25	VP-25	VP-25	VP-25	VP-25	VP-25

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.

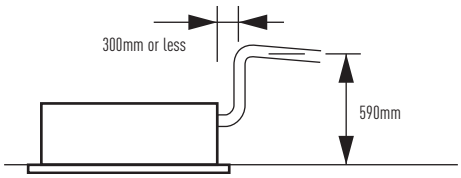
Optional

D1 TYPE
1 WAY CASSETTE

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

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

Drain height



Panel
CZ-KPD2

Optional Controller
Wired remote controller
CZ-RTC5

Optional Controller
Timer remote controller
CZ-RTC4

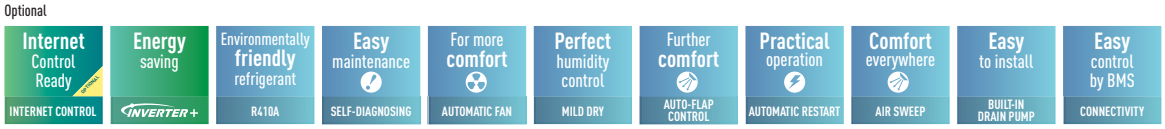
Optional Controller
Wireless remote controller
CZ-RWST2

Optional Controller
Simplified remote controller
CZ-RE2C2

Model			S-28MD1E5	S-36MD1E5	S-45MD1E5	S-56MD1E5	S-73MD1E5
Power source			230 V / Single Phase / 50 Hz				
Cooling capacity		kW	2,8	3,6	4,5	5,6	7,3
Power input cooling		W	51	51	51	60	87
Operating current cooling		A	0,39	0,39	0,39	0,46	0,7
Heating capacity		kW	3,2	4,2	5,0	6,3	8,0
Power input heating		W	40	40	40	48	76
Operating current heating		A	0,35	0,35	0,35	0,41	0,65
Fan type			Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan
Air volume	Hi / Med / Lo	m^3/h	720 / 600 / 540	720 / 600 / 540	720 / 660 / 600	780 / 690 / 600	1.080 / 900 / 780
Sound pressure level	Hi / Med / Lo	dB(A)	36 / 34 / 33	36 / 34 / 33	36 / 35 / 34	38 / 36 / 34	45 / 40 / 36
Dimensions	H x W x D	mm	200 (+20)x1.000 (1.230)x710 (800)	200 (+20)x1.000 (1.230)x710 (800)	200 (+20)x1.000 (1.230)x710 (800)	200 (+20)x1.000 (1.230)x710 (800)	200 (+20)x1.000 (1.230)x710 (800)
Net weight		kg	26,5 (21 + 5,5)	26,5 (21 + 5,5)	26,5 (21 + 5,5)	26,5 (21 + 5,5)	27,5 (22 + 5,5)
Pipe connections	Liquid	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	3/8 (9,52)
	Gas	inch (mm)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	5/8 (15,88)
	Drain piping		VP-25	VP-25	VP-25	VP-25	VP-25

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.

Optional



F2 TYPE
VARIABLE STATIC PRESSURE HIDE AWAY

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

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

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

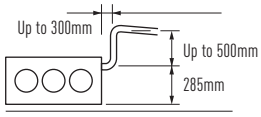
The new F2 type is designed specifically for applications requiring fixed square ducting. The internal filter is equipped as standard.

Technical focus

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

More powerful drain pump

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



Air Outlet & Inlet Plenum

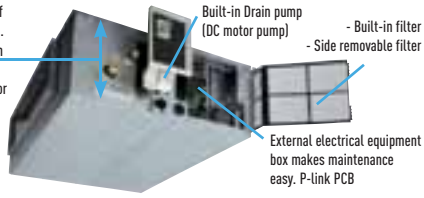
S-...MF2E5A	Diameters	Air Outlet Plenum	Diameters	Air Inlet Plenum
22, 28, 36, 45 & 56	2 x Ø 200	CZ-56DAF2	2 x Ø 200	CZ-DUMPA56MF2
60, 73 & 90	3 x Ø 200	CZ-90DAF2	2 x Ø 250	CZ-DUMPA90MF2
106, 140 & 160	4 x Ø 200	CZ-160DAF2	4 x Ø 200	CZ-DUMPA160MF2

Air Outlet Plenum

Air Inlet Plenum

New Variable Static Pressure Hide Away MF2 series

Standardized height of 290mm for all models. Height standardization enables easy and uniform installation for models with different capacities.



Full range of External Static Pressure and Airflow Volumes available by special setting

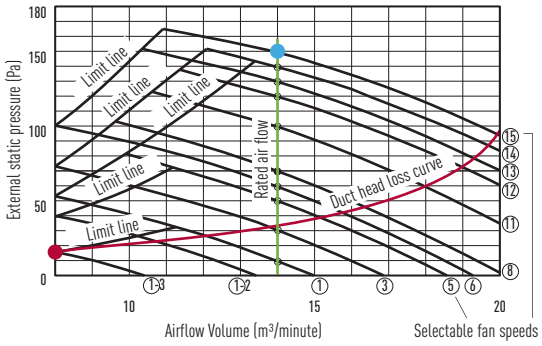
To meet all design needs thanks to DC fan motor it is possible to select the best fitted airflow/ static pressure curve.
The table below shows the airflow and noise data at minimum airflows curve selectable (Example S-22MF2E5A: see red dot in the diagram n.1) and noise data at maximum rated static pressure with maximum airflow curve selectable (example S-22MF2E5A blu dot in diagram n.1). Specific diagrams per each units are available in ECOi Technical Data Book.

Model		15-36	45	56	60-73	90	106	140	160
Minimum air volume - the red dot - on minimum airflow curve selectable (curve 1-3)	m³/h	480	480	600	780	960	1.140	1.200	1.320
Min Static Pressure value - the red dot - on minimum airflow curve selectable (curve 1-3)	Pa	15	15	15	10	10	20	15	15
Noise level at minimum static pressure -the red dot - on minimum airflow curve selectable (curve 1-3)	dB(A)	24	26	26	24	26	29	30	31
Noise level at maximum rated static pressure -the blue dot - on maximum airflow curve selectable (curve 15)	dB(A)	34	35	35	40	41	42	42	43

F2 Advantages

Automatic learning function for the required static pressure, to be activated easily by the standard wired timer remote controller.
Possible to increase the sensible cooling capacity by adjusting the air volume flow in order to almost completely eliminate latent losses.
This is possible due to the outstanding big heat exchanger surface in combination with increasing the air volume flow by a manual selection of higher fan speed curves through the standard wired remote controller when commissioning the system together with the default active off-coil temperature control and the room load based variable evaporation temperature control.

Diagram n. 1 S-22MF2E5A



Optional Controller
Wired remote controller
CZ-RTC5

Optional Controller
Timer remote controller
CZ-RTC4

Optional Controller
Wireless remote controller
CZ-RWSK2 + CZ-RWSC3

Optional Controller
Simplified remote controller
CZ-RE2C2

Model			S-15MF2E5A	S-22MF2E5A	S-28MF2E5A	S-36MF2E5A	S-45MF2E5A	S-56MF2E5A	S-60MF2E5A	S-73MF2E5A	S-90MF2E5A	S-106MF2E5A	S-140MF2E5A	S-160MF2E5A
Power source			230 V / Single Phase / 50 Hz											
Cooling capacity		kW	1,5	2,2	2,8	3,6	4,5	5,6	6,0	7,3	9,0	10,6	14,0	16,0
Power input cooling		W	70	70	70	70	70	100	120	120	135	195	215	225
Operating current cooling		A	0,57	0,57	0,57	0,57	0,57	0,74	0,89	0,89	0,97	1,30	1,44	1,50
Heating capacity		kW	1,7	2,5	3,2	4,2	5,0	6,3	7,1	8,0	10,0	11,4	16,0	18,0
Power input heating		W	70	70	70	70	100	100	120	120	135	200	210	225
Operating current heating		A	0,57	0,57	0,57	0,57	0,57	0,74	0,89	0,89	0,97	1,34	1,42	1,50
Fan type			Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan
Air volume[1]	Hi / Med / Lo	m³/h	840/780/540	840/780/540	840/780/540	840/780/540	840/780/600	960/900/720	1.260/1.140/900	1.260/1.140/900	1.500/1.380/1.140	1.920/1.560/1.260	2.040/1.740/1.380	2.160/1.920/1.500
External static pressure		Pa	70 (10-150)	70 (10-150)	70 (10-150)	70 (10-150)	70 (10-150)	70 (10-150)	70 (10-150)	70 (10-150)	70 (10-150)	100 (10-150)	100 (10-150)	100 (10-150)
Sound power level[2]	Hi / Med / Lo	dB	55 / 51 / 44	55 / 51 / 44	55 / 51 / 44	55 / 51 / 44	56 / 54 / 47	56 / 54 / 47	57 / 54 / 48	57 / 54 / 48	59 / 56 / 50	60 / 56 / 53	61 / 57 / 54	62 / 58 / 55
Sound pressure level[2]	Hi / Med / Lo	dB(A)	33 / 29 / 22	33 / 29 / 22	33 / 29 / 22	33 / 29 / 22	34 / 32 / 25	34 / 32 / 25	35 / 32 / 26	35 / 32 / 26	37 / 34 / 28	38 / 34 / 31	39 / 35 / 32	40 / 36 / 33
Dimensions	H x W x D	mm	290x800x700	290x800x700	290x800x700	290x800x700	290x800x700	290x800x700	290x1.000x700	290x1.000x700	290x1.000x700	290x1.400x700	290x1.400x700	290x1.400x700
Net weight		kg	29	29	29	29	29	29	34	34	34	46	46	46
Pipe connections	Liquid	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	3/8 (9,52)	3/8 (9,52)	3/8 (9,52)	3/8 (9,52)	3/8 (9,52)	3/8 (9,52)
	Gas	inch (mm)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	5/8 (15,88)	5/8 (15,88)	5/8 (15,88)	5/8 (15,88)	5/8 (15,88)	5/8 (15,88)
	Drain piping		VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	VP-25

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)) Value referred to standard settings at shipment (H curve 8, M curve 5, L curve 1). 2) Sound pressure without refrigerant flow.

Optional

M1 TYPE
SLIM VARIABLE STATIC PRESSURE HIDE AWAY CONCEALED DUCT

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

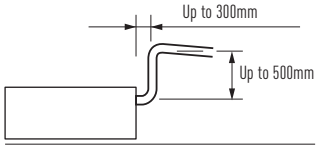
Technical focus
- Ultra-slim profile: 200mm for all models
- DC fan motor greatly reduces power consumption
- Ideal for hotel application with very narrow false ceilings
- Easy maintenance and service by external electrical box
- 40 Pa static pressure enables ductwork to be fitted.
- Includes drain pump

Air Outlet & Inlet Plenum

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

Ultra-slim profile for all models

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



Optional Controller
Wired remote controller
CZ-RTC5

Optional Controller
Timer remote controller
CZ-RTC4

Optional Controller
Wireless remote controller
CZ-RWSK2 + CZ-RWSC3

Optional Controller
Simplified remote controller
CZ-RE2C2

Model			S-15MM1E5A	S-22MM1E5A	S-28MM1E5A	S-36MM1E5A	S-45MM1E5A	S-56MM1E5A
Power source			230 V / Single Phase / 50 Hz					
Cooling capacity		kW	1,5	2,2	2,8	3,6	4,5	5,6
Power input cooling		W	36	36	40	42	49	64
Operating current cooling		A	0,26	0,26	0,30	0,31	0,37	0,48
Heating capacity		kW	1,7	2,5	3,2	4,2	5,0	6,3
Power input heating		W	26	26	30	32	39	54
Operating current heating		A	0,23	0,23	0,27	0,28	0,34	0,45
Fan type			Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan
Air volume	Hi / Med / Lo	m^3/h	480 / 420 / 360	480 / 420 / 360	510 / 450 / 390	540 / 480 / 420	630 / 570 / 480	750 / 690 / 600
External static pressure		Pa	10 (30)	10 (30)	15 (30)	15 (40)	15 (40)	15 (40)
Sound pressure level	Hi / Med / Lo (1)	dB(A)	28 / 27 / 25 (30 / 29 / 27)	28 / 27 / 25 (30 / 29 / 27)	30 / 29 / 27 (32 / 31 / 29)	32 / 30 / 28 (34 / 32 / 30)	34 / 32 / 30 (36 / 34 / 32)	35 / 33 / 31 (37 / 35 / 32)
Dimensions	H x W x D	mm	200 x 750 x 640	200 x 750 x 640	200 x 750 x 640	200 x 750 x 640	200 x 750 x 640	200 x 750 x 640
Net weight		kg	19	19	19	19	19	19
Pipe connections	Liquid	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)
	Gas	inch (mm)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)
	Drain piping		VP-20	VP-20	VP-20	VP-20	VP-20	VP-20

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

1) With booster cable using short circuit connection.

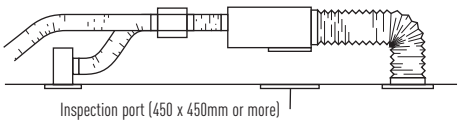
Optional

E2 TYPE
HIGH STATIC PRESSURE
HIDE AWAY

2 products in 1: High pressure duct and 100% Fresh air duct function. The E2 range of ducted units offers improved design flexibility for extended duct layouts as a result of their increased external static pressures and reduces energy consumption.

Technical focus
- **NEW!** No need of rap valve
- **NEW!** 100% Fresh air duct function
- **NEW!** DC fan motor for more savings
- Complete flexibility for ductwork design
- Can be located into a weatherproof housing for external siting
- Air OFF sensor avoids cold air dumping
- Configurable air temperature control

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



100% Fresh air duct function
The New E2 duct with 100% fresh air duct function have exeptional discharge temperature.

	Discharge Range		
	Min	Max	Default
Colling	15°C	24°C	18°C
Heating	17°C	45°C	40°C

Plenums

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

Kit for 100% Fresh air function

For 2 Way systems		For 3 Way systems	
2x CZ-P160RVK2	Rap valve kit	2x CZ-P160HR3	3 way valve kit
2x CZ-CAPE2	3way control PCB	2x CZ-CAPE2	3 way control PCB
CZ-P680BK2	Distribution Joint kit	CZ-P680BH2	Distribution Joint kit
1x Remocon		1x Remocon	

Optional Controller
Wired remote controller
CZ-RTC5

Optional Controller
Timer remote controller
CZ-RTC4

Optional Controller
Wireless remote controller
CZ-RWSK2 + CZ-RWSC3

Optional Controller
Simplified remote controller
CZ-RE2C2

			100% Fresh air duct function (by using Kit for 100% Fresh air)		High pressure duct	
Model			**S-224ME2E5**	**S-280ME2E5**	**S-224ME2E5**	**S-280ME2E5**
Power source			230 V / Single Phase / 50 Hz	230 V / Single Phase / 50 Hz	230 V / Single Phase / 50 Hz	230 V / Single Phase / 50 Hz
Cooling capacity		kW	22,4	28,0	22,4	28,0
Power input cooling		W	290	350	440	715
Operating current cooling		A	1,85	2,20	2,45	3,95
Heating capacity		kW	21,2	26,5	25,0	31,5
Power input heating		W	290	350	440	715
Operating current heating		A	1,85	2,20	2,45	3,95
Fan type			Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan
Air volume	Hi / Med / Lo	m^3/h	700 / – / –	2.100 / – / –	3.360 / 3.060 / 2.640	4.320 / 3.780 / 3.180
External static pressure		Pa	200	200	140 (60 / 270)[1]	140 (72 / 270)[1]
Sound pressure level[2]	Hi / Med / Lo	dB(A)	– / – / 43	– / – / 44	45 / 43 / 41	49 / 47 / 43
Dimensions	H x W x D	mm	479 x 1.453 x 1.205	479 x 1.453 x 1.205	479 x 1.453 x 1.205	479 x 1.453 x 1.205
Net weight		kg	102	106	102	106
Pipe connections	Liquid	inch (mm)	3/8 (9,52)	3/8 (9,52)	3/8 (9,52)	3/8 (9,52)
	Gas	inch (mm)	3/4 (19,05)	7/8 (22,22)	3/4 (19,05)	7/8 (22,22)
	Drain piping		VP-25	VP-25	VP-25	VP-25

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.
Rating Conditions for 100% Fresh air duct function: Cooling Outdoor 33 °C DB / 28 °C WB. Heating Outdoor 0 °C DB / -2,9 °C WB.
DB: Dry Bulb; WB: Wet Bulb.

1) Available to select the setting by initial setup.
2) Values with 140Pa setting.

Optional

HEAT RECOVERY
WITH DX COIL

Bioxigen® your best indoor air quality

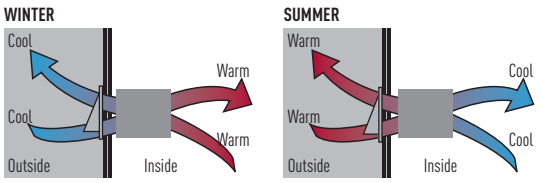
Optional Controller
Wired remote controller
CZ-RTC5

Optional Controller
Timer remote controller
CZ-RTC4

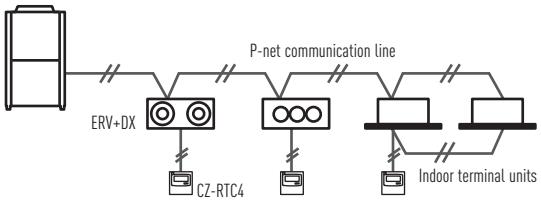
Technical focus
- Motorised heat recovery by-pass device automatically controlled by unit control to use fresh air free-cooling when convenient
- The Bioxigen® purifying system, activates when the fan runs, provides an efficient antibacterial treatment, ensuring optimum health of supplied air

General characteristics
- Galvanized steel self-supporting panels, internally and externally insulated
- Counterflow air-to-air heat recovery device, made of sheets of special paper with special sealing to keep airflows separate and only permeable to water vapor. Total heat exchange with temperature efficiency up to 77% and enthalpy efficiency up to 63%, also at high level during summer season
- G4 efficiency class filters with synthetic cleanable media, both on fresh air and return air intake
- Removable side panel to access filters and heat recovery in the event of scheduled maintenance
- Low consumption, high efficiency & low noise direct driven fans with 3-speed EC motors
- Supply section complete with DX coil (R410A) fitted with solenoid control valve, freon filter, contact temperature sensors on liquid and gas line, NTC sensors upstream and downstream airflow
- Built-in electric box equipped with PCB to control internal fan speed and to interconnect outdoor/indoor units
- Duct connection by circular plastic collars
- CZ-RTC4 Timer remote controller (option)

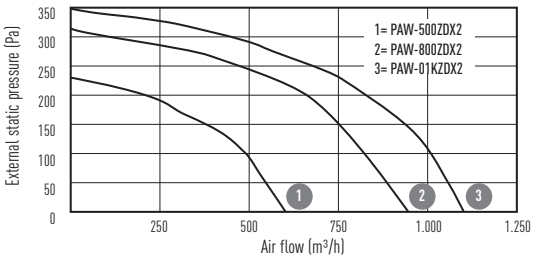
Balanced Ventilation



Interconnection to outdoor/indoor units



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



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

Nominal summer conditions: Outside air: 32°C DB, RH 50%. Ambient air: 26°C DB, RH 50%. Nominal winter conditions: Outside air: -5°C (-10°C) DB, RH 80%. Ambient air: 20°C DB, RH 50%. Cooling mode air inlet condition: 28.5°C DB, RH 50%; evaporating temp. 4°C. Heating mode air inlet condition: 13°C DB, RH 40% (11°C DB, RH 45%); condensating temperature 49°C. DB: Dry Bulb; RH: Relative Humidity.
1) Available in December 2014. 2) Referred to the nominal air flow after filter and plate heat exchanger. 3) Referred to 1.5 meters from inlet in free field condition.
Optional

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

T2 TYPE
CEILING

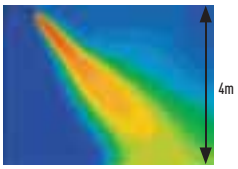
S-36MT2E5A // S-45MT2E5A // S-56MT2E5A

S-106MT2E5A // S-140MT2E5A

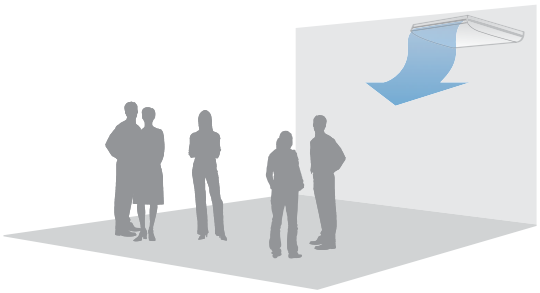
The T2 TYPE ceiling mounted units feature a DC fan motor for increased efficiency and reduced operating sound levels. All the units are the same height and depth for a uniform appearance in mixed installations and feature a fresh air knockout for improved air quality.

Technical focus
- Low sound levels
- New design, all units just 235mm high
- Large and wide air distribution
- Easy to install and maintain
- Fresh air knockout

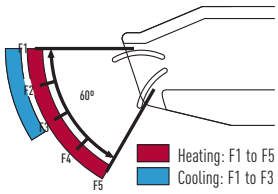
Further comfort improvement
The wide air discharge opening widens the air flow to the left and the right, so that a comfortable temperature is obtained in the entire room. The unpleasant feeling caused when the air flow directly hits the human body is prevented by the "Draft prevention position", which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



Further comfort improvement with airflow distribution



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



Optional Controller
Wired remote controller
CZ-RTC5

Optional Controller
Timer remote controller
CZ-RTC4

Optional Controller
Wireless remote controller
CZ-RWSK2 + CZ-RWST3

Optional Controller
Simplified remote controller
CZ-RE2C2

Model			S-36MT2E5A	S-45MT2E5A	S-56MT2E5A	S-73MT2E5A	S-106MT2E5A	S-140MT2E5A
Power source			230 V / Single Phase / 50 Hz					
Cooling capacity		kW	3,6	4,5	5,6	7,3	10,6	14,0
Power input cooling		W	35	40	40	55	80	100
Operating current cooling		A	0,36	0,38	0,38	0,44	0,67	0,79
Heating capacity		kW	4,2	5,0	6,3	8,0	11,4	16,0
Power input heating		W	35	40	40	55	80	100
Operating current heating		A	0,36	0,38	0,38	0,44	0,67	0,79
Fan type			Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan
Air volume	Hi / Med / Lo	m^3/h	840 / 720 / 630	900 / 750 / 630	900 / 750 / 630	1.260 / 1.080 / 930	1.800 / 1.500 / 1.380	1.920 / 1.680 / 1.440
Sound pressure level	LL[1] / Hi / Med / Lo	dB(A)	– / 36 / 32 / 30	– / 37 / 33 / 30	– / 37 / 33 / 30	– / 39 / 35 / 33	– / 42 / 37 / 36	– / 46 / 40 / 37
Dimensions	H x W x D	mm	235 x 960 x 690	235 x 960 x 690	235 x 960 x 690	235 x 1.275 x 690	235 x 1.590 x 690	235 x 1.590 x 690
Net weight		kg	27	27	27	33	40	40
Pipe connections	Liquid	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	3/8 (9,52)	3/8 (9,52)	3/8 (9,52)
	Gas	inch (mm)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	5/8 (15,88)	5/8 (15,88)	5/8 (15,88)
	Drain piping		VP-20	VP-20	VP-20	VP-20	VP-20	VP-20

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) Sound pressure level with fan only.
* Preliminary data.

Optional

K2/K1 TYPE
WALL MOUNTED

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

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

Optional Controller
Wired remote controller
CZ-RTC5

Optional Controller
Timer remote controller
CZ-RTC4

Optional Controller
Wireless remote controller
CZ-RWSK2

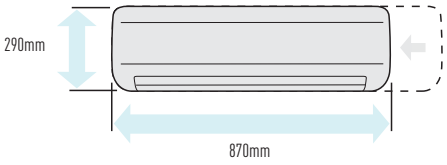
Optional Controller
Simplified remote controller
CZ-RE2C2

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

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

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

Lighter and smaller units make the installation easy
The width has been decreased by 17% and the units are lighter.



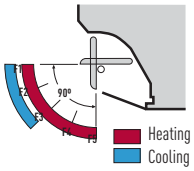
Quiet operation
These units are among the quietest in the industry, making them ideal for hotels and hospitals.

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

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

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

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



External valve (Optional)
CZ-P56SVK2 (model sizes 15 to 56)
CZ-P160SVK2 (model sizes 73 to 106)

Model			S-15MK2E5A	S-22MK2E5A	S-28MK2E5	S-36MK2E5	S-45MK1E5A	S-56MK1E5A	S-73MK1E5A	S-106MK1E5A
Power source				230 V / Single Phase / 50 Hz						
Cooling capacity		kW	1,5	2,2	2,8	3,6	4,5	5,6	7,3	10,6
Power input cooling		W	25	25	25	30	20	30	57	60
Operating current cooling		A	0,20	0,21	0,23	0,25	0,26	0,35	0,58	0,62
Heating capacity		kW	1,7	2,5	3,2	4,2	5,0	6,3	8,0	11,4
Power input heating		W	25	25	25	30	20	30	57	68
Operating current heating		A	0,20	0,21	0,23	0,25	0,26	0,35	0,58	0,70
Fan type			Cross flow	Cross flow	Cross flow	Cross flow	Cross flow	Cross flow	Cross flow	Cross flow
Air volume	Hi / Med / Lo	m^3/h	474 / 444 / 390	540/450/390	570/498/390	654/540/390	720 / 630 / 510	840 / 720 / 630	1.080 / 870 / 690	1.140 / 990 / 780
		m^3/h	540 / 462 / 408	552/498/408	582/510/408	672/570/408				
Sound pressure level	LL[1] / Hi / Med / Lo	dB(A)	– / 34 / 32 / 29	– / 36 / 33 / 29	– / 37 / 34 / 29	– / 40 / 36 / 29	– / 38 / 34 / 30	– / 40 / 36 / 32	– / 47 / 44 / 40	– / 49 / 45 / 42
Dimensions	H x W x D	mm	290 x 870 x 214	290 x 870 x 214	290 x 870 x 214	290 x 870 x 214	300 x 1.065 x 230	300 x 1.065 x 230	300 x 1.065 x 230	300 x 1.065 x 230
Net weight		kg	9	9	9	9	13	13	14,5	14,5
Pipe connections	Liquid	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	3/8 (9,52)	3/8 (9,52)
	Gas	inch (mm)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	5/8 (15,88)	5/8 (15,88)
	Drain piping (O.D.)		φ 16	φ 16	φ 16	φ 16	φ 18	φ 18	φ 18	φ 18

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) Sound pressure level with fan only.

Optional

P1 TYPE
FLOOR STANDING

R1 TYPE
CONCEALED FLOOR STANDING

Optional Controller
Wired remote controller
CZ-RTC5

Optional Controller
Timer remote controller
CZ-RTC4

Optional Controller
Wireless remote controller
CZ-RWSK2 + CZ-RWSC3

Optional Controller
Simplified remote controller
CZ-RE2C2

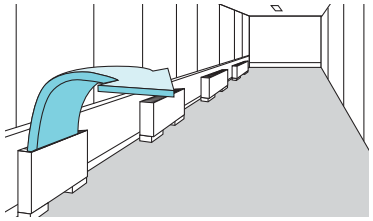
P1 Type

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

Technical focus

- Pipes can be connected to either side of the unit from the bottom or rear
- Easy to install
- Front panel opens fully for easy maintenance
- Removable air discharge grille gives flexible air flow
- Room for condensate pump
- For build-in remote control, only CZ-RTC2 is suitable

Effective perimeter handling



A standard wired remote control can be installed in the body

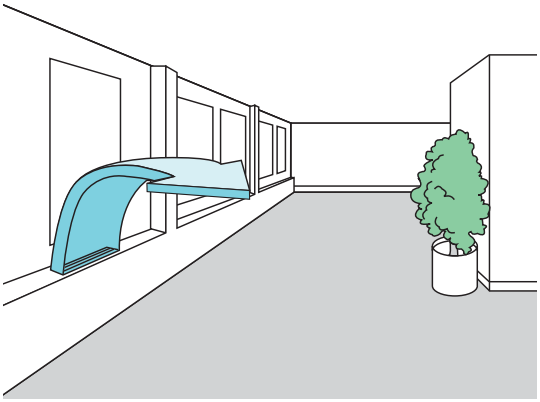
R1 Type

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

Technical focus

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

Perimeter air conditioning with high interior quality



Model P1 Type			S-22MP1E5	S-28MP1E5	S-36MP1E5	S-45MP1E5	S-56MP1E5	S-71MP1E5
Model R1 Type			S-22MR1E5	S-28MR1E5	S-36MR1E5	S-45MR1E5	S-56MR1E5	S-71MR1E5
Power source			230 V / Single Phase / 50 Hz					
Cooling capacity		kW	2,2	2,8	3,6	4,5	5,6	7,1
Power input cooling		W	56	56	85	126	126	160
Operating current cooling		A	0,25	0,25	0,38	0,56	0,56	0,72
Heating capacity		kW	2,5	3,2	4,2	5,0	6,3	8,0
Power input heating		W	40	40	70	91	91	120
Operating current heating		A	0,18	0,18	0,31	0,41	0,41	0,54
Fan type			Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan
Air volume	Hi / Med / Lo	m^3/h	420 / 360 / 300	420 / 360 / 300	540 / 420 / 360	720 / 540 / 480	900 / 780 / 660	1.020 / 840 / 720
Sound pressure level	Hi / Med / Lo	dB(A)	33 / 30 / 28	33 / 30 / 28	39 / 35 / 29	38 / 35 / 31	39 / 36 / 31	41 / 38 / 35
Dimensions P1 Type	H x W x D	mm	615 x 1.065 x 230	615 x 1.065 x 230	615 x 1.065 x 230	615 x 1.380 x 230	615 x 1.380 x 230	615 x 1.380 x 230
Net weight P1 Type		kg	29	29	29	39	39	39
Dimensions R1 Type	H x W x D	mm	616 x 904 x 229	616 x 904 x 229	616 x 904 x 229	616 x 1.219 x 229	616 x 1.219 x 229	616 x 1.219 x 229
Net weight R1 Type		kg	21	21	21	28	28	28
Pipe connections	Liquid	inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	3/8 (9,52)
	Gas	inch (mm)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	1/2 (12,7)	5/8 (15,88)
	Drain piping		VP-20	VP-20	VP-20	VP-20	VP-20	VP-20

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

Optional

HYDROKIT FOR ECOi
WATER AT 45°C

Optional Controller
Wired remote controller
CZ-RTC5

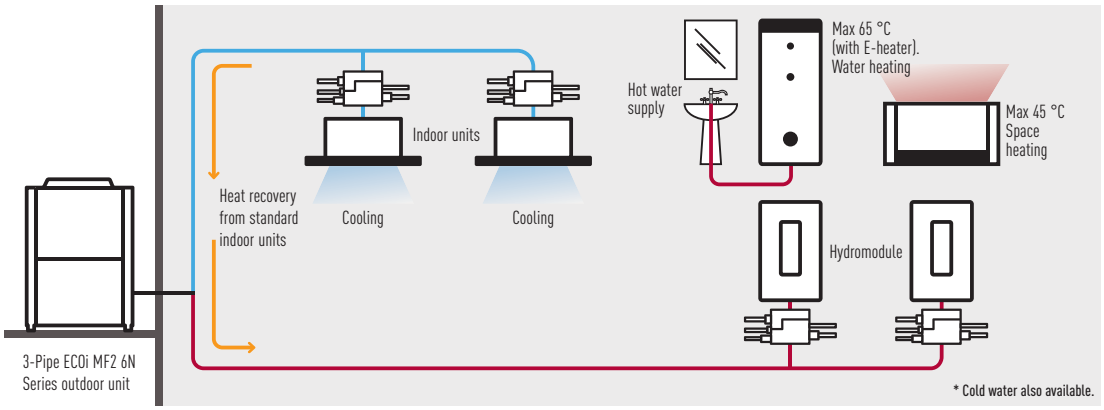
Connect the Hydrokit to your VRF system, together with other indoor units.

Technical focus
- Only with 3-Pipe ECOi MF2 6N Series outdoor units
- Remote controller CZ-RTC5 common use with DX Coil indoor units ECOi and PACi

Basic principle & advantage
Hydrokit module provides hot water by using waste heat that is recovered from standard air-conditioning indoor unit in cooling mode. Total system performs high energy efficiency by this heat recovering operation, and it gives an advantage for the environmental-friendly assessment scheme (ex. BREEAM in UK).

Hydrokit control function / CZ-RTC5
- CZ-RTC5 is updated version from CZ-RTC3. It can be used for hydrokit and also normal indoor unit. CZ-RTC5 checks the type of connected unit and switch hydrokit or air conditioner style of display automatically
- Operating mode on hydrokit style to be set at initial setting of the system from following modes: tank mode or air conditioning mode

Overview: hydromodule in VRF system
- Multiple hydromodule connection in same circuit is available
- Each module can be set different operation mode either hot water supply mode or space heating mode (both operation modes are not able to set at 1 hydromodule)
- 3-Pipe control solenoid valve kit is necessary for each indoor unit and hydromodule



Model*				S-80MW1E5	S-125MW1E5
Power source				230 V / Single Phase / 50 Hz	230 V / Single Phase / 50 Hz
Cooling capacity			kW	8,0	12,5
Heating capacity			kW	9,0	14,0
Power input heating (hydrokit)			W	—	—
Operating current heating (hydrokit)			A	—	—
Maximum temperature			°C	~45 / ~65 [1]	~45 / ~65 [1]
Dimensions	H x W x D		mm	892 x 502 x 353	892 x 502 x 353
Net weight			kg	—	—
Water pipe connector			inch	R1 1/4	R1 1/4
Water pump (built-in)				DC motor (A class)	DC motor (A class)
Water flow rate	Cooling		l/min	22,9	35,8
	Heating		l/min	25,8	40,1
Sound pressure level			dB(A)	—	—
Pipe connections	Liquid		inch (mm)	3/8 (9,52)	3/8 (9,52)
	Gas		inch (mm)	5/8 (15,88)	5/8 (15,88)
	Drain piping			15 ~ 17 mm (inner size)	15 ~ 17 mm (inner size)
Operation range	Cooling	Ambient	°C	+10 / +43	+10 / +43
		Water	°C	+5 / +20	+5 / +20
	Heating	Ambient	°C	-20 / +32	-20 / +32
		Water	°C	+25 / +45	+25 / +45
Connectable system				3-Pipe (heat recovery type) VRF system (system capable up to 48 HP)	
Maximum Indoor ratio (connectable hydrokit module capacity ratio)				Total indoor unit + Hydrokit capacity: up to 130 % (** ~ **% vs. total outdoor unit capacity)	

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) Max 45 °C by refrigerant circuit (heat pump cycle), over 45 °C is provided by electric heater operation.
* Tentative Data. Available from October 2015.

Panasonic Ventilation Solutions

For maximum savings and easy integration.

Air Handling Unit Kit
Connects easily to your ECOi and ECO G systems.

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

Air Handling Unit Kit

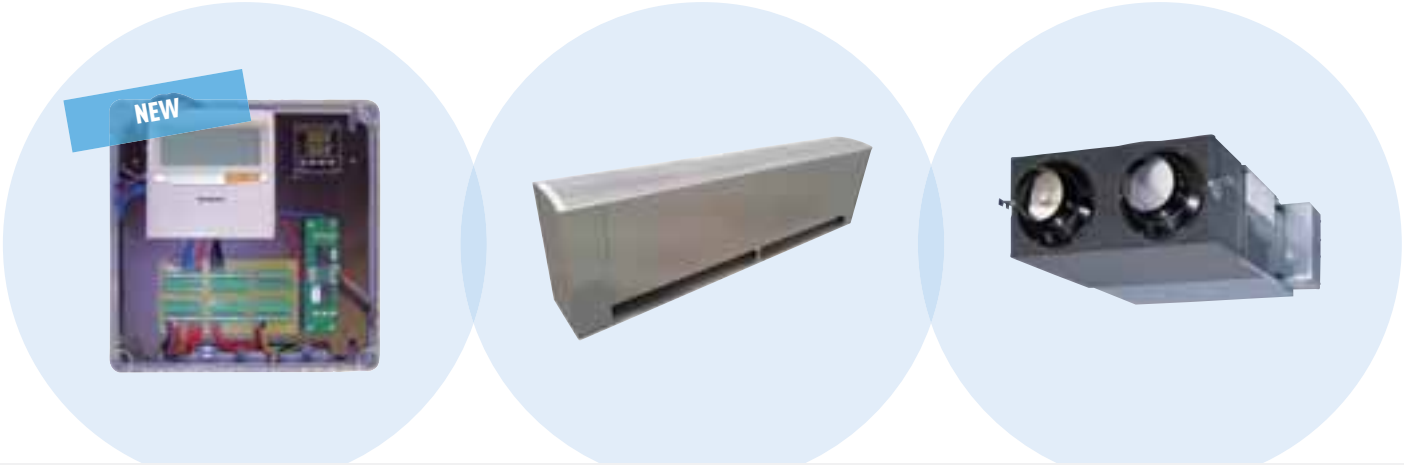
New AHU Kits connect ECOi and GHP systems to air handling unit systems, using the same refrigerant circuit as the VRF system.

Air Curtain with DX Coil

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

Energy Recovery Ventilator

Suppresses indoor temperature changes while providing fresh air.



AHU connection kit 16 kW, 28 kW and 56 kW for ECOi and GHP

Heat exchanger, Fan & Fan motor to be mounted in AHU Kit shall be provided in the field.
AHU connection Kit (field supplied) AHU Kit system. (Contents of kit: Control for PCB, expansion valve, sensors).
Application: Hotels, offices, server rooms or all large buildings where air quality control such as humidity control and fresh air and is needed.
AHU Kit combine air conditioning and fresh air in just one solution.

Air Curtain with DX Coil

Highly efficient heating effect

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

Energy Recovery Ventilator

- Counter-flow heat exchange element used for reduced noise and slimmer, more compact body shape
- All maintenance can be performed through a single inspection hole
- Straight air supply / exhaust system used for easier installation
- Each unit can be mounted in reverse position.
- Equipped with an Extra-High setting
- Can incorporate a medium performance filter (optional, installed on site)

NEW

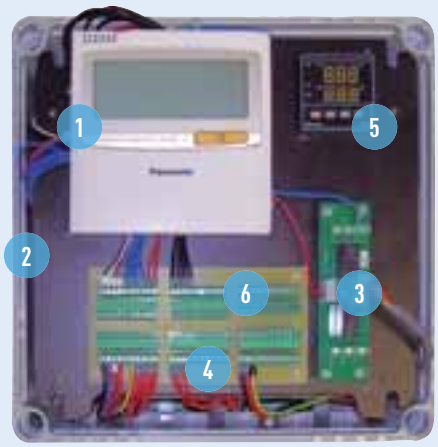
16kW // IP65 //
COMPACT BODY

Air Handling Unit Kit

New AHU Kits connect ECOi and ECO G systems to air handling unit systems, using the same refrigerant circuit as the VRF system.
Large connectivity possibilities mean the Panasonic AHU Kit can be easily integrated.
Application: Hotels, offices, server rooms or all large buildings where air quality control such as humidity control and fresh air and is needed.

2 types of AHU Kit: Advanced and Light

Model Code	IP 65	0-10V demand control	Outdoor temperature shift compensation. Cold draft prevention
PAW-160MAH2 / PAW-280MAH2 / PAW-560MAH2	Yes	Yes	Yes
PAW-160MAH2L / PAW-280MAH2L / PAW-560MAH2L	Yes	No	No



1. Remote control CZ-RTC4
2. New plastic IP 65 Box
3. PAW-T10 PCB for dry contact
4. 0-10V demand control PCB
5. Intelligent thermostat for:
   - Cold draft prevention
   - Outdoor temperature shift compensation
6. Terminal base for sensors and power supply

AHU Connection Kit


PCB, Power trans, Terminal block


Expansion valve

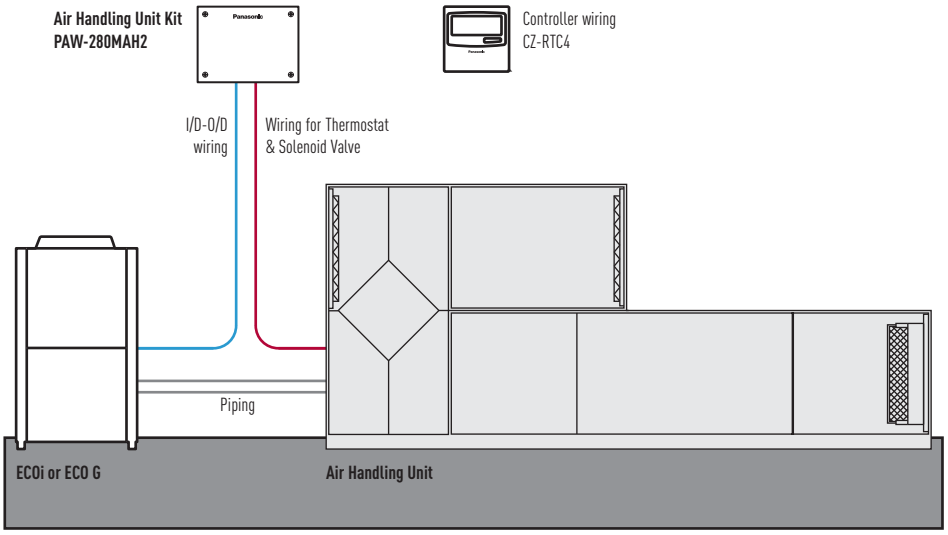

Thermistor x2 (Refrigerant: E1, E3)


Thermistor x2 (Air: Tf, Tb)

Remote controller

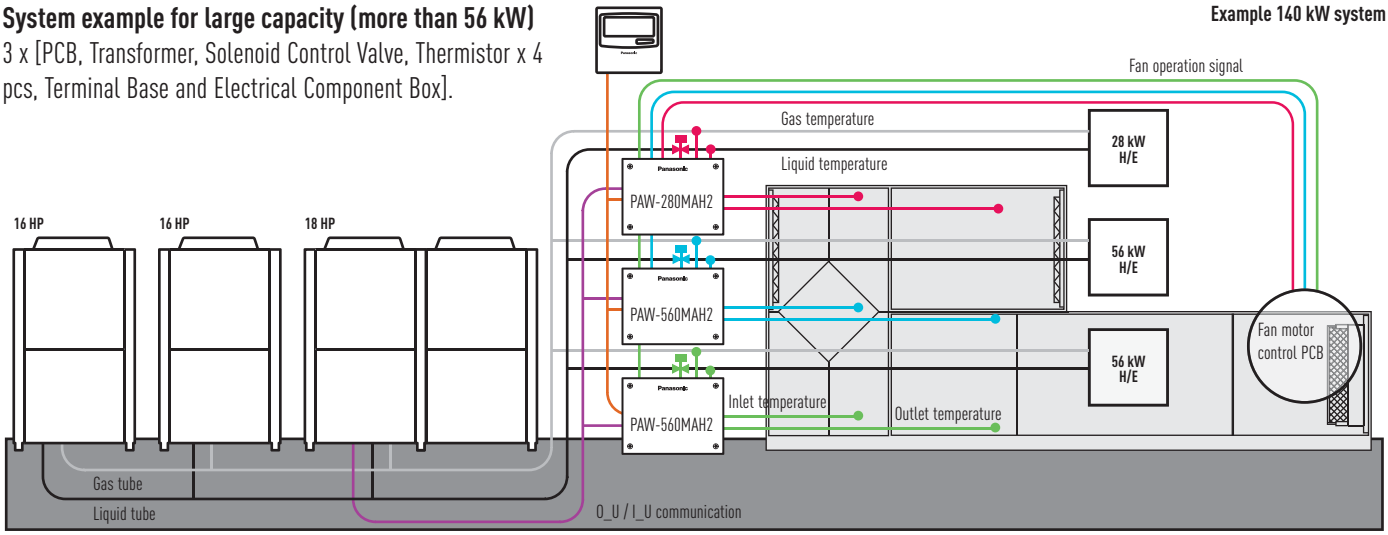

Standard wired remote controller. Can be installed inside the box.

Panasonic AHU Kit, 16-56 kW connected to ECOi or ECO G outdoor unit
PCB, Transformer, Solenoid Control Valve, Thermistor x 4 pcs, Terminal Base and Electrical Component Box.



System example for large capacity (more than 56 kW)
3 x [PCB, Transformer, Solenoid Control Valve, Thermistor x 4 pcs, Terminal Base and Electrical Component Box].

Example 140 kW system



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

CZ-RTC4 Timer remote controller
- Operation-ON/OFF
- Mode select
- Temperature setting

* Fan operation signal can be taken from the PCB.

CZ-T10 terminal
- Input signal= Operation ON/OFF
- Remote controller prohibition
- Output signal= Operating-ON status
- Alarm output (by DC12V)

PAW-OCT, DC12 V outlet. OPTION terminal
- Output signal= Cooling/Heating/Fan status
- Defrost
- Thermostat-ON

PAW-T10 PCB to connect to T10 connector
- A Dry contact PCB has been developed to easily control the unit
- Input signal operation ON/OFF
- Remote control prohibition
- Output signal Operation ON status maximum 230 V 5 A (NO/NC)
- Output signal Alarm status maximum 230 V 5 A (NO/NC)
- **Additional available contacts:**
  - External humidifier control (ON/OFF) 230 VAC 3 A
  - External fan control (ON/OFF) 12V DC
  - External filter status signal potential free
  - External float switch signal potential free
  - External leakage detection sensor or TH. OFF contact potential free (possible usage for external blow out temperature control)

CZ-CAPBC2 Mini seri-para I/O unit
- Demand control 40% to 120% (5% steps) by 0-10V input signal
- Temperature setting by 0-10 V or 0-140 Ω input signal
- Room (inlet air) temp outlet by 4-20 mA
- Mode select or/and ON/OFF control
- Fan operation control
- Operation status output/ Alarm output
- Thermostat ON/OFF control

AHU CONNECTION KIT
16, 28 AND 56 kW FOR ECOi AND GHP

6N series 2-Pipe ECOi outdoor unit shall be used for AHU connection KIT.
3 models for VRF system: 5 HP (PAW-160MAH2), 10 HP (PAW-280MAH2) and 20 HP (PAW-560MAH2).

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

HP			5 HP	10 HP	20 HP	30 HP	40 HP	50 HP	60 HP
Model			PAW-160MAH2	PAW-280MAH2	PAW-560MAH2	PAW-280MAH2 + PAW-560MAH2	PAW-560MAH2 + PAW-560MAH2	PAW-560MAH2 + PAW-560MAH2 + PAW-280MAH2	PAW-560MAH2 + PAW-560MAH2 + PAW-560MAH2
Nominal cooling capacity @ 50Hz		kW	14,0	28,0	56,0	84,0	112,0	140,0	168,0
Nominal heating @ 50Hz		kW	16,0	31,5	63,0	95,0	127,0	155,0	189,0
Cooling airflow	High	m^3/min	2.160	5.000	10.000	15.000	20.000	25.000	30.000
	Low	m^3/min	1.140	3.500	7.000	10.500	14.000	17.500	21.000
Bypass factor			0,9 (recommended)	0,9 (recommended)	0,9 (recommended)	0,9 (recommended)	0,9 (recommended)	0,9 (recommended)	0,9 (recommended)
Dimensions of the box	H x W x D	mm	303 x 232 x 110	404 x 425 x 78	404 x 425 x 78	404 x 425 x 78	404 x 425 x 78	404 x 425 x 78	404 x 425 x 78
Weight		kg	3,2	6,3	6,3	6,3	6,3	6,3	6,3
Piping length	Min / Max	m	10 / 100	10 / 100	10 / 100	10 / 100	10 / 100	10 / 100	10 / 100
Elevation difference (in/out)	Max	m	10	10	10	10	10	10	10
Piping connections	Liquid pipe	Inch (mm)	3/8 (9,52)	3/8 (9,52)	5/8 (15,88)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)	3/4 (19,05)
	Gas pipe	Inch (mm)	5/8 (15,88)	7/8 (22,22)	1 1/8 (28,58)	1 1/4 (31,75)	1 1/2 (38,15)	1 1/2 (38,15)	1 1/2 (38,15)
Intake temperature of AHU Kit	Cooling (Min / Max)	°C	18-32°C DB (13-23°C WB)	18 - 32°C DB (13 - 23°C WB)	18 - 32°C DB (13 - 23°C WB)	18 - 32°C DB (13 - 23°C WB)	18 - 32°C DB (13 - 23°C WB)	18 - 32°C DB (13 - 23°C WB)	18 - 32°C DB (13 - 23°C WB)
	Heating (Min / Max)	°C	16-30°C DB	16 - 30°C TK	16 - 30°C TK	16 - 30°C TK	16 - 30°C TK	16 - 30°C TK	16 - 30°C TK
Ambient temperature of outdoor unit	Cooling (Min / Max)	°C	-10 - 34°C DB	-10 - 34°C DB	-10 - 34°C DB	-10 - 34°C DB	-10 - 34°C DB	-10 - 34°C DB	-10 - 34°C DB
	Heating (Min / Max)	°C	-10 - 15°C WB	-10 - 15°C WB	-10 - 15°C WB	-10 - 15°C WB	-10 - 15°C WB	-10 - 15°C WB	-10 - 15°C WB

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

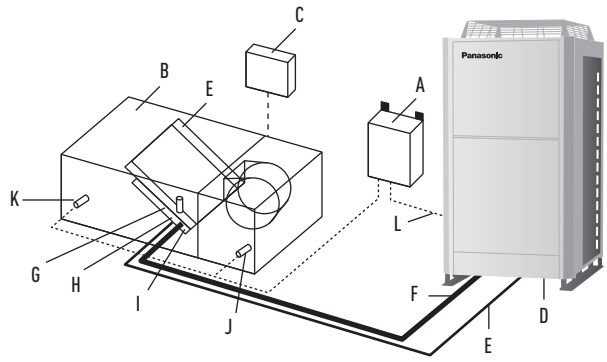
Optional
Timer remote controller
CZ-RTC4

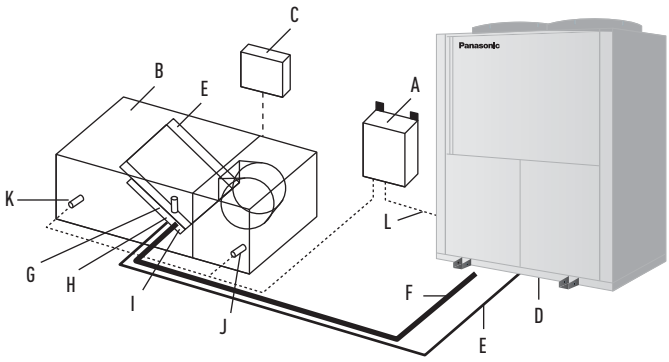
Technical focus

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

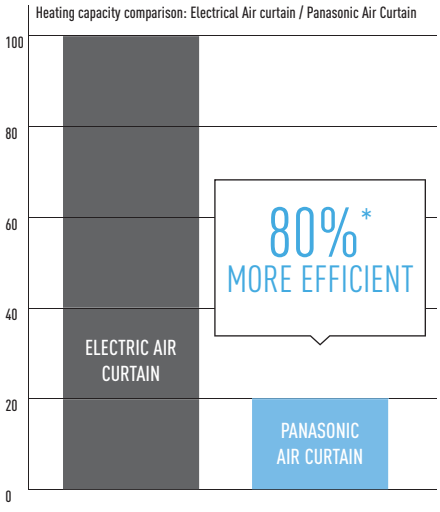
* To be simultaneous operation controlled by one remote controller sensor.

- The systems is controlled by the suction air (or room return air) temperature (same as standard indoor unit). (Selectable mode: Automatic / Cooling / Heating / Fan / Dry (but same as Cool)
- The discharge air temperature is also controlled to prevent too-low air discharge in cooling or too-high air discharge in heating (in case of VRF)
- Demand control (Forcible thermostat-OFF control by operating current)
- Defrost operation signal, Thermo-ON/OFF states output
- Drain pump control (Drain-pump and the float switch to be supplied in local)
- External target temperature setting via Indoor/Outdoor signal interface is available with CZ-CAPBC2 (Ex. 0 – 10 V)
- Demand control 40% to 120% (5% steps) by 0-10V input signal
- Connectable with P-LINK system. Special care for electrical noise may be necessary depending on the on-side system
- Fan control signal from the PCB can be used for control the air volume (High/Mid/Low and LL for Th-OFF). Need to change the fan control circuit wiring at field





System & regulations. System overview
A: AHU Kit controller box (with control PCB)
B: AHU Kit equipment (Field supplied)
C: AHU Kit system controller (Field supplied)
D: Outdoor unit
E: Gas piping (Field supplied)
F: Liquid piping (Field supplied)
G: Electronic expansion valve
H: Thermistor for Gas pipe
I: Thermistor for Liquid pipe
J: Thermistor for Suction air
K: Thermistor for Discharge air
L: Inter-unit wiring



* With the U-100PE1E5 on the PAW-20PAIRC-MS.
Calculation method: Taking as consideration SCOP of the Panasonic combination of 6.0. If 100 is the energy needed for a air curtain, Panasonic Air curtain will need 1/(1-6)*100=20.

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

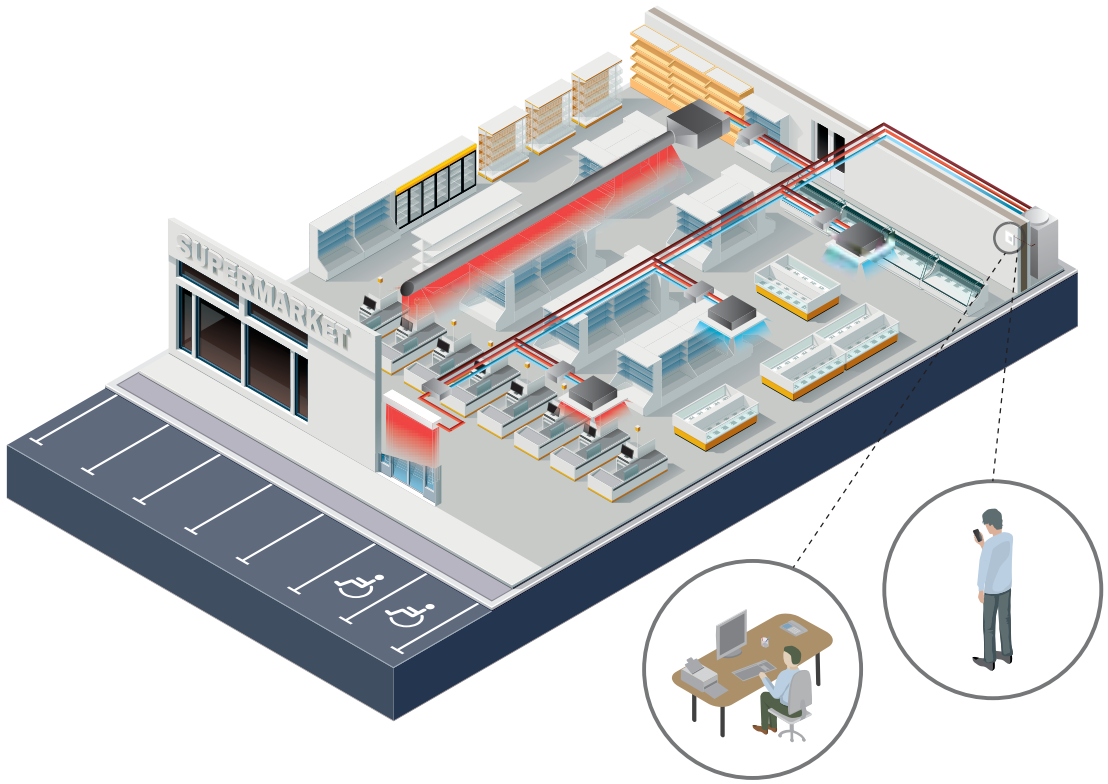
The Panasonic range of air curtains is designed for smooth operation and efficient performance. Air curtains produce a continuous stream of air blown from the top to the bottom of an open doorway and create a barrier that people and products can flow across, but air can't. Designed to improve energy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

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

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

Highly efficient heating effect

The combined air stream, which has a desirable low air current induction factor (mixing factor), can carry the selected initial temperature effect over long distances, and will reach the floor area while still at room temperature. This is necessary to avoid cooling down the interior spaces.
Available in different lengths to suit requirements between 1 and 2,5m, both air curtains have outlet grilles that can be adjusted to five different positions. The jet flow model can be installed up to a height of 3,5m with the standard model up to 3,0m. The outlet grilles can be easily adjusted into five positions to suit different installations requirements and the air filter can be accessed without the need for specialist tools.

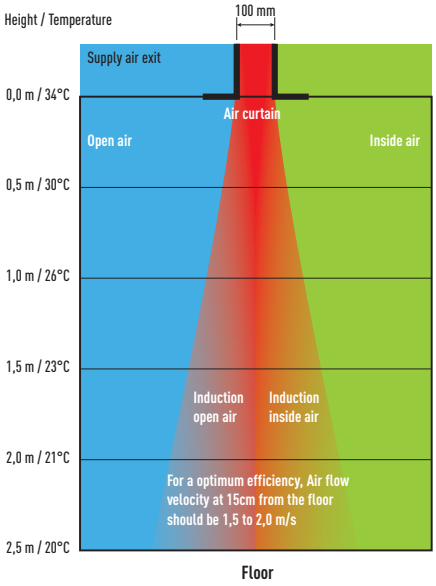


Intelligent Operation

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

Internet Control

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

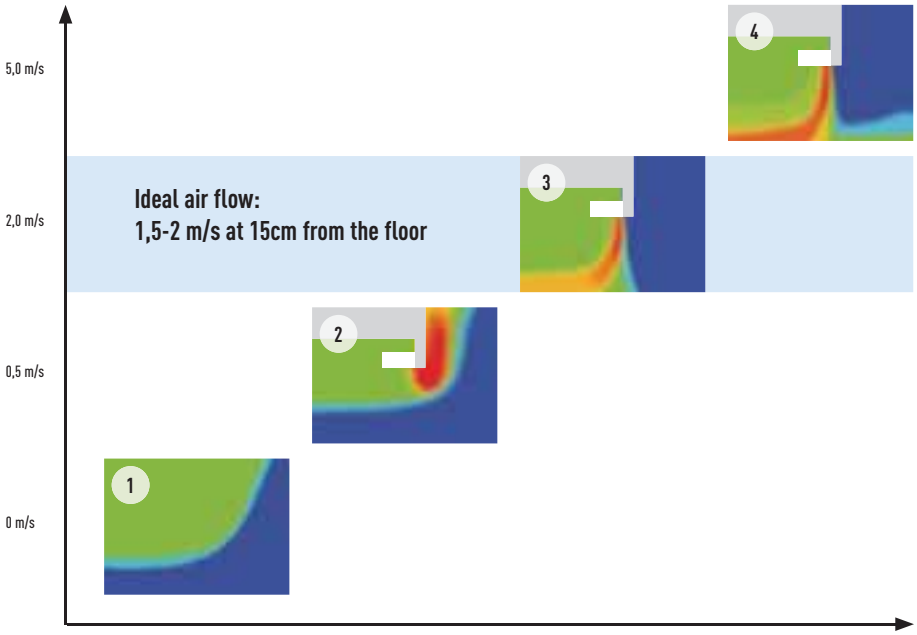


How does it work?

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

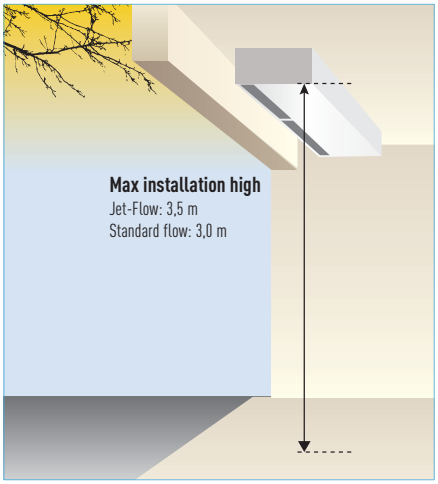
Optimised air flow velocity

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



AIR CURTAIN WITH DX COIL

High efficiency Air curtain connected to your VRF installation. EC Fan motor for a smooth operation and efficient performance.
2 types of Air flow available: Jet-Flow and Standard.
2015 Fan Standard available today.
Easy Cleaning and Servicing.



Easy control by BMS
CONNECTIVITY

HP			4 HP	6 HP	8 HP	14 HP	4 HP	8 HP
Air Curtain			**PAW-10EAIRC-MJ**	**PAW-15EAIRC-MJ**	**PAW-20EAIRC-MJ**	**PAW-25EAIRC-MJ**	**PAW-10EAIRC-MS**	**PAW-20EAIRC-MS**
Air flow type			**Jet-flow**				**Standard**	
Air Flow Length (A)		m	1,0	1,5	2,0	2,5	1,0	2,0
Air volume	High	m^3/h	1.800	2.700	3.600	4.500	1.800	2.700
	Medium	m^3/h	1.500	2.300	3.000	3.800	1.500	2.300
	Low	m^3/h	1.200	1.900	2.500	3.100	1.200	1.900
Cooling capacity nominal[2]		kW	9,2	17,5	23,1	24,4	9,2	17,5
Heating capacity nominal		kW	11,4	25,0	31,5	31,5	11,4	31,5
Heating capacity with air in 20°C, air out 40°C		kW	11,9	17,9	23,9	29,9	11,9	17,9
Heating capacity with air in 20°C, air out 35°C		kW	8,9	13,4	17,9	22,4	8,9	13,4
Heating capacity with air in 20°C, air out 30°C		kW	5,9	8,9	11,9	14,9	5,9	8,9
Max installation height	Good condition	m	3,5	3,5	3,5	3,5	3	3
	Normal condition	m	3,1	3,1	3,1	3,1	2,7	2,7
	Bad condition	m	2,7	2,7	2,7	2,7	2,4	2,4
Refrigerant			R410A	R410A	R410A	R410A	R410A	R410A
Hot gas temperature		°C	70	70	70	70	70	70
Condensing temperature		°C	50	50	50	50	50	50
Subcooling		K	5	5	5	5	5	5
Pressure		bar	45	45	45	45	45	45
Liquid pipe		Inch (mm)	3/8 (9,52)	3/8 (9,52)	3/8 (9,52)	3/8 (9,52)	3/8 (9,52)	3/8 (9,52)
Gas pipe		Inch (mm)	5/8 (15,88)	3/4 (19,05)	7/8 (22,22)	7/8 (22,22)	5/8 (15,88)	7/8 (22,22)
Fan			230V / 50Hz / 1 / N / PE	230V / 50Hz / 1 / N / PE	230V / 50Hz / 1 / N / PE	230V / 50Hz / 1 / N / PE	230V / 50Hz / 1 / N / PE	230V / 50Hz / 1 / N / PE
Fan type			EC	EC	EC	EC	EC	EC
Currency	High	A	2,1	2,8	4,2	4,9	2,1	4,2
	Med	A	0,8	1,1	1,6	1,9	0,8	1,6
	Low	A	0,3	0,4	0,6	0,7	0,3	0,6
Electrical Consumption	High	kW	0,44	0,59	0,89	1,03	0,44	0,89
	Med	kW	0,17	0,23	0,34	0,4	0,17	0,34
	Low	kW	0,06	0,08	0,12	0,14	0,06	0,12
Protecting Fuse		A	M16A	M16A	M16A	M16A	M16A	M16A
Noise		dB(A)	40-55	40-56	40-57	40-58	40-55	40-57
Dimensions	W x H x D	mm	1.210 x 260 x 590	1.710 x 260 x 590	2.210 x 260 x 590	2.710 x 260 x 590	1.210 x 260 x 490	2.210 x 260 x 490
Weight		kg	70	100	138	160	60	128

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

1) or bigger size.
All combinations under rated conditions: Heating Outdoor +7°C DB/+6°C WB Indoor +20°C DB. In case of lower outdoor temperatures a higher capacity outdoor unit model may be necessary.
2) Rated Conditions Cooling Outdoor +35°C DB Indoor +27°C DB/+19°C WB, Discharge temperature [3] 16°C.

TEKADOOR®

Technical focus

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

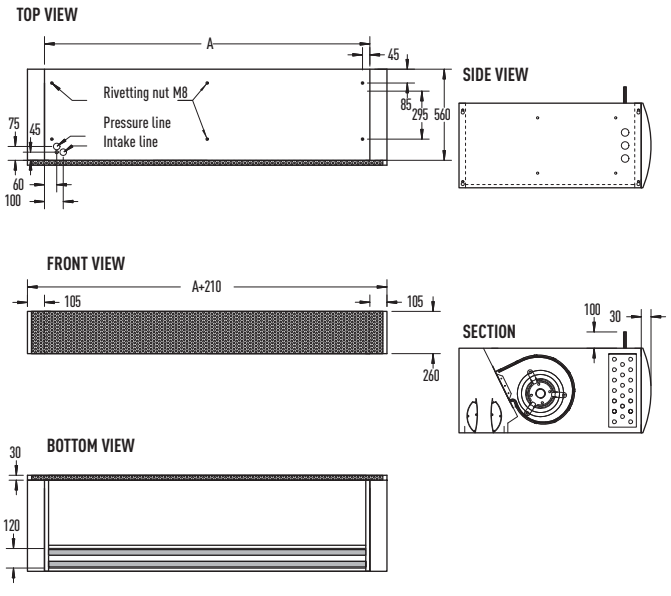
Features

COMFORT
- Easy redirection of Air-Flow by means of manual deflector (Jet-Flow)

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

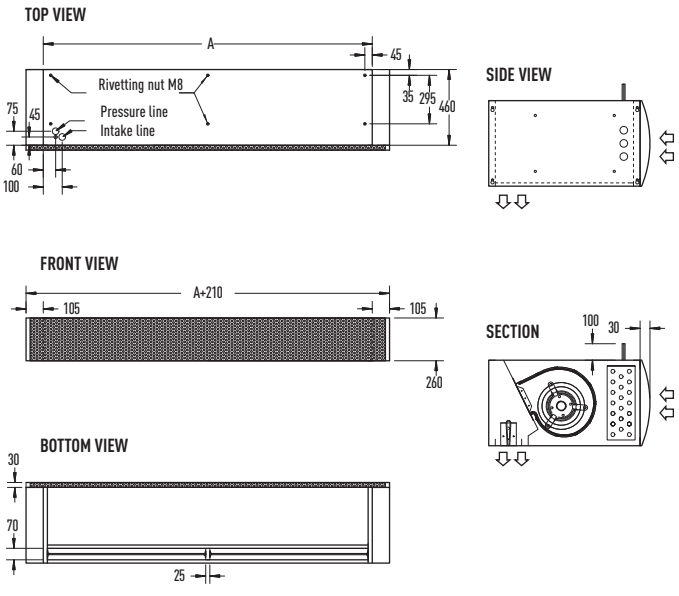
EASY INSTALLATION AND MAINTENANCE
- Easy installation
- Compact dimensions improve installation and positinioning (Jet-Flow)
- Easy cleaning of grid without opening of the unit

Jet-flow dimensions



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

Standard dimensions



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

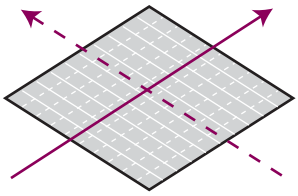
Energy Recovery Ventilator

Suppresses indoor temperature changes while providing fresh air

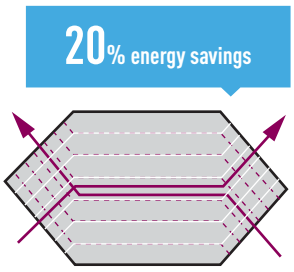
Energy efficiency and ecology

Energy consumption is dramatically reduced by using a counter-flow heat-exchange element. Air conditioning load is reduced by approximately 20%, resulting in significant energy savings.

Heat exchanger characteristics



Former (cross-flow element)



New (counter-flow element)

Heat exchange ventilation and normal ventilation

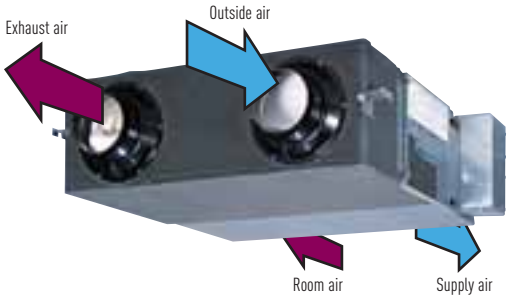
Heat exchange ventilation

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

Normal ventilation

This is used in the spring and autumn, when rooms are not cooled or heated, that is, when there is little difference between the indoor and outdoor air conditions. In addition, at night during the hot season, when the outside air temperature drops the outside air is drawn inside without heat exchange, alleviating the load on the air conditioning equipment.
The heat exchanger is made up of a membrane manufactured from a special material covered in resin for optimal heat transmission. The nylon/polyester fibre filter offers high dust retention capacity. We have also redesigned the air ducts to obtain a long-lasting heat exchange system which does not need periodic cleaning.

Adopts a highly efficient counter-flow heat exchange element



Heat exchanger

With the cross-flow element, air moves in a straight line across the element. With the counter-flow element, air flows through the element for a longer time (longer distance), so the heat-exchange effect remains unchanged even if the element is made thinner.

More Comfort

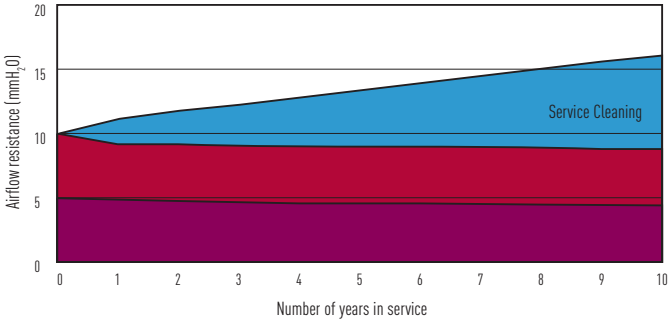
Quiet operation

Low noise operation results in noticeably quieter units. All models with capacities below 500 m^3/h run at noise levels below 32 dB (High setting) and even our largest 1,000 m^3/h-capacity model runs at only 37.5 dB (High setting).

Long heat-exchange element service life

Cleaning reduced due to the special material heat exchanger.
The nylon/polyester fibre filter offers high dust retention capacity.

Changes in airflow resistance based on number of years in service



Former element before cleaning
Former element after cleaning
New element

Former element requires periodic cleaning. The counter-flow type element requires no periodic cleaning because it produces practically no increase in resistance.

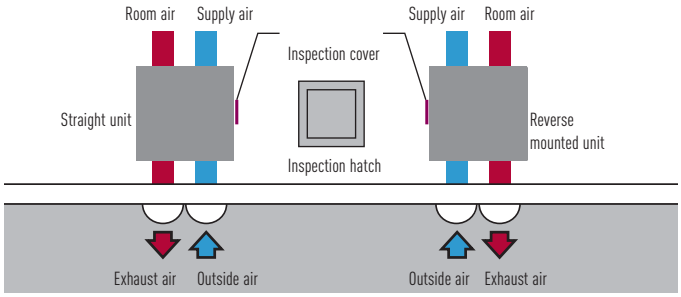
Easy Installation and Maintenance

Slim shape and easier installation

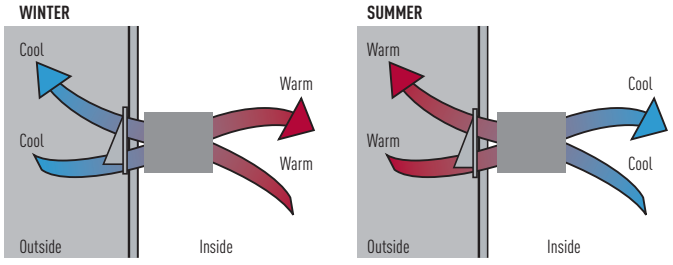
Counter-flow heat exchange element used for reduced noise and slimmer, more compact body shape.
270mm Height: FY-250ZDY8 // FY-350ZDY8 // FY-500ZDY8
388mm Height: FY-650ZDY8 // FY-800ZDY8 // FY-01KZDY8A

Reverse mountable direct air supply / exhaust system

Adoption of straight air supply / exhaust system: Duct design is simplified because the air supply / exhaust ducts are straight.
Since each unit can be mounted in reverse position, only one inspection hole is needed for two units: Two units can share one inspection hole so duct work is easier and more flexible.



Balanced Ventilation



ENERGY RECOVERY VENTILATION SYSTEM

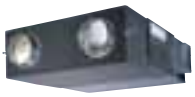
Recovers up to 77% of the heat in the outgoing air, for an ecological and energy efficient building.

FY-250ZDY8

FY-350ZDY8

FY-500ZDY8

FY-800ZDY8

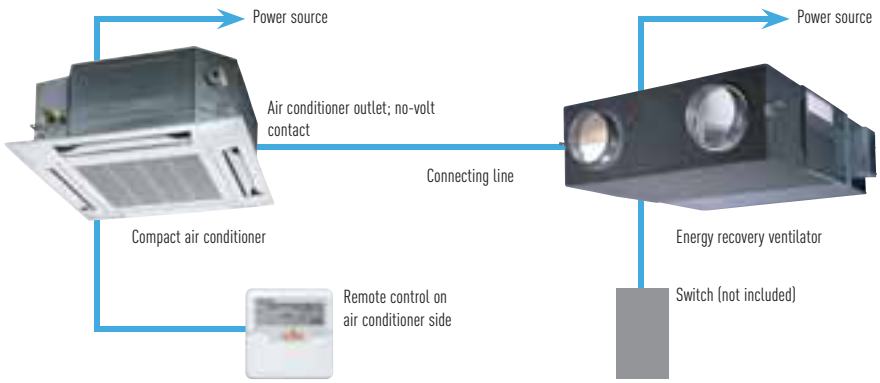


FY-01KZDY8A

Rated flow rate		250 m³/h			350 m³/h			500 m³/h			800 m³/h			1000 m³/h		
Models		FY-250ZDY8			FY-350ZDY8			FY-500ZDY8			FY-800ZDY8			FY-01KZDY8A		
Power Source		220 - 240 V - 50 Hz			220 - 240 V - 50 Hz			220 - 240 V - 50 Hz			220 - 240 V - 50 Hz			220 - 240 V - 50 Hz		
Heat Exchange Ventilation		E - High	High	Low	E - High	High	Low	E - High	High	Low	E - High	High	Low	E - High	High	Low
Input	W	112 - 128	108 - 123	87 - 96	182 - 190	178 - 185	175 - 168	263 - 289	204 - 225	165 - 185	387 - 418	360 - 378	293 - 295	437 - 464	416 - 432	301 - 311
Air Volume	m³/h	250	250	190	350	350	240	500	500	440	800	800	630	1.000	1.000	700
External Static Pressure	Pa	105	95	45	140	60	45	120	60	35	140	110	55	105	80	75
Noise	dB	30,0 - 31,5	29,5 - 30,5	23,5 - 26,5	32,5 - 33,0	30,5 - 31,0	22,5 - 25,5	36,5 - 37,5	34,5 - 35,5	31,0 - 32,5	37,0 - 37,5	36,5 - 37,0	33,5 - 34,5	37,5 - 38,5	37,0 - 37,5	33,5 - 34,5
Temp. Exchange Effiency	%	75	75	77	75	75	78	75	75	76	75	75	76	75	75	79
Normal Ventilation		E - High	High	Low	E - High	High	Low	E - High	High	Low	E - High	High	Low	E - High	High	Low
Input	W	112 - 128	108 - 123	87 - 96	182 - 190	178 - 185	175 - 168	263 - 289	204 - 225	165 - 185	387 - 418	360 - 378	293 - 295	437 - 464	416 - 432	301 - 311
Air Volume	m³/h	250	250	190	350	350	240	500	500	440	800	800	630	1.000	1.000	700
External Static Pressure	Pa	105	95	45	140	60	45	120	60	35	140	110	55	105	80	75
Noise	dB	30,0 - 31,5	29,5 - 30,5	23,5 - 26,5	32,5 - 33,0	30,5 - 31,0	22,5 - 25,5	37,5 - 38,5	37,0 - 38,0	31,0 - 32,5	37,0 - 37,5	36,5 - 37,0	33,5 - 34,5	39,5 - 40,5	39,0 - 39,5	35,5 - 36,5
Temp. Exchange Effiency	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dimensions (W x D x H)	mm	882 x 599 x 270			1.050 x 804 x 317			1.090 x 904 x 317			1.322 x 884 x 388			1.322 x 1.134 x 388		
Weight	kg	29			49			57			71			83		

This noise of the product is the value which was measured at the acoustic room. Actually, in the established condition, that undergo influence by the echoing of the room and so that become bigger than the display numerical value. The input, the current and the exchange efficiency are values at the time of the mentioned air volume. The noise level shall be measured 1,5m below the centre of the unit. The temperature exchange efficiency averages that of when cooling and when heating.

Typical system linked to a cassette type air conditioner



Use conditions

Outdoor air conditions
Temperature range: -10°C – 40°C
Relative humidity: 85% or less

Indoor air conditions
Temperature range: -10°C – 40°C
Relative humidity: 85% or less

Requirements for installation
Use is to be avoided in refrigerated chambers or other places where the temperature may undergo significant fluctuations, even when the temperature range is acceptable.

Technical focus

- High energy saving, up to 20%
- Counter Cross Flow technology for better efficiency
- Long life element core
- Easy installation and 20% less thickness
- Easy connection to air conditioning units
- Super quiet units

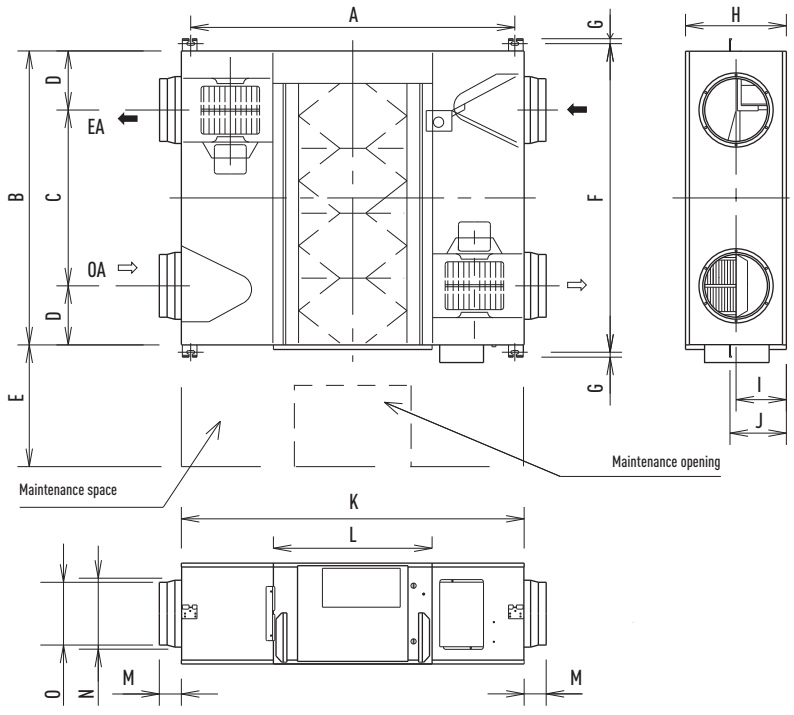
Features

HEALTHY AIR
- The filter guarantees healthier air

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

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

EASY INSTALLATION AND MAINTENANCE
- 6 models for easier selection
- Reduced system height (270 mm and 388 mm)
- Side opening for cleaning (inspection of filter, motor and other parts)
- Installation can be reversed to share an inspection opening between 2 machines
- Easy connection to the air conditioning unit (without additional elements)
- Installation in false ceilings
- Units operate at 220 - 240 V
- High static pressure for easier installation



	FY-250ZDY8	FY-350ZDY8	FY-500ZDY8	FY-800ZDY8	FY-01KZDY8A
A	810	810	890	1.250	1.250
B	599	804	904	884	1.134
C	315	480	500	428	678
D	142	162	202	228	228
E	600	600	600	600	600
F	655	860	960	940	1.190
G	19	19	19	19	19
H	270	317	317	288	388
I	135	145	145	194	194
J	159	159	159	218	218
K	882	882	962	1.322	1.322
L	414	414	414	612	612
M	95	95	107	85	85
N	219	219	246	258	258
O	144	144	194	242	242

Possible to use on **R22 pipings**

R22 RENEWAL

R22 Renewal

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

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

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

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

Depending on the outdoor unit type to be used for renewal installation, one additional setting has to be changed properly before starting a test-run operation of the new system. The renewal system operating condition (design pressure: 3,3MPa) will be set by this parameter change. Refer to the following table and be sure to change the parameter accordingly. A maintenance remote controller for the outdoor unit is required to change the relevant parameter. (See the maintenance remote controller's instruction manual for further details on connections and usage methods.)

Why renewal?

It is often said that legislation is ruling our lives but sometimes it is there to help save lives. R22 phase out can be described as one of these and from Jan 1st 2010 the use of Virgin (new) R22 refrigerant was banned within the European Community.

Panasonic are doing our part

We at Panasonic are also doing our part – recognising that all finances are under pressure at the moment. Panasonic have developed a clean and cost effective solution to enable this latest legislation to be introduced with as minimum an effect on businesses and cash reserves as possible.
The Panasonic renewal system allows good quality existing R22 pipe work to be re-used whilst installing new high efficiency R410A systems.
By bringing a simple solution to the problem Panasonic can renew all Split Systems and VRF systems; and depending upon certain restrictions we don't even limit the manufactures equipment we are replacing.

By installing a new high efficiency Panasonic R410A system you can benefit from around 30% running cost saving compared to the R22 system.
Yes...
1. Check the capacity of the system you wish to replace
2. Select from the Panasonic range the best system to replace it with
3. Follow the procedure detailed in the brochure and technical data

Simple...

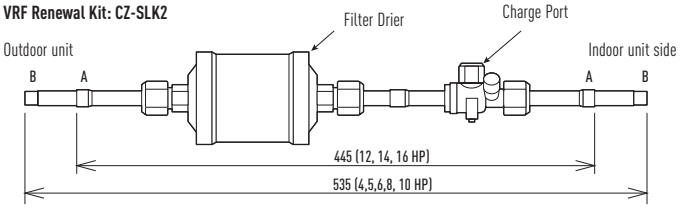
R22 - The reduction of Chlorine critical for a cleaner future.

Panasonic's Renewal system allows a completely new VRF system, indoor and outdoor units, to be installed using the existing systems pipe work.
Panasonic's advanced technology enables the system to work with previously installed pipe work by managing the working pressure within the system down to R22 (33 bar) levels, this ensures the system works safely and efficiently without loss of capacity.
The new equipment can offer increased COP/EER by using state of the art inverter compressor and heat exchanger technology.
Having contacted your Panasonic supplier regarding pipe work restrictions and gained approval to use the Panasonic Renewal System there are three main tests that have to be carried out to ensure that the system can be used effectively.
Firstly a thorough inspection of the pipe work must be carried out and any damage must be repaired.
Secondly an oil test has to be carried out to ensure that the system has not been subject to a compressor burnout during its lifetime, Lastly a VRF Renewal Kit (CZ-SLK2) has to be installed within the pipe work to ensure that the system is cleaned of any remnants of oil.

VRF Renewal Kit (CZ-SLK2) and Sight Glass

The following shows an overview of the VRF Renewal Kit (CZ-SLK2) that is required when existing tubing is reused. If the exact tube length and tube size of the existing tubing are uncertain, attach a sight glass in accordance with the figure below. It will be used for checking the amount of additional refrigerant charge.

VRF Renewal Kit: CZ-SLK2



Connecting tube dimensions (Inch (mm)): A Ø 1/2 (12.7) (12, 14, 16 HP) - B Ø 3/8 (9.52) (4,5,6,8 10 HP)

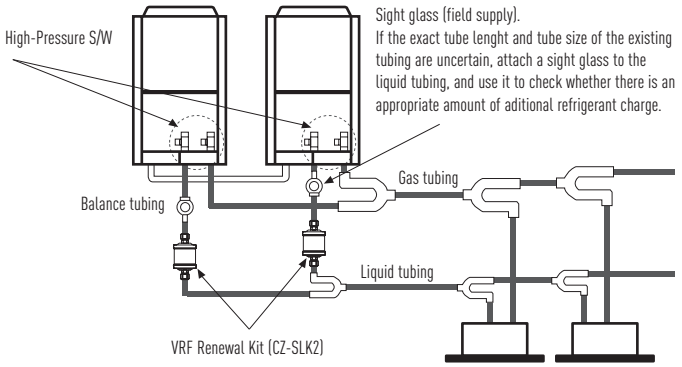
Note: If the tube size does not match that of the existing tubing, use a reducer (field supply) to adjust the tube diameter.

Sight glass (field supply)

If the exact tube length and tube size of the existing tubing are uncertain, attach a sight glass to the liquid tubing, and use it to check whether there is an appropriate amount of additional refrigerant charge.

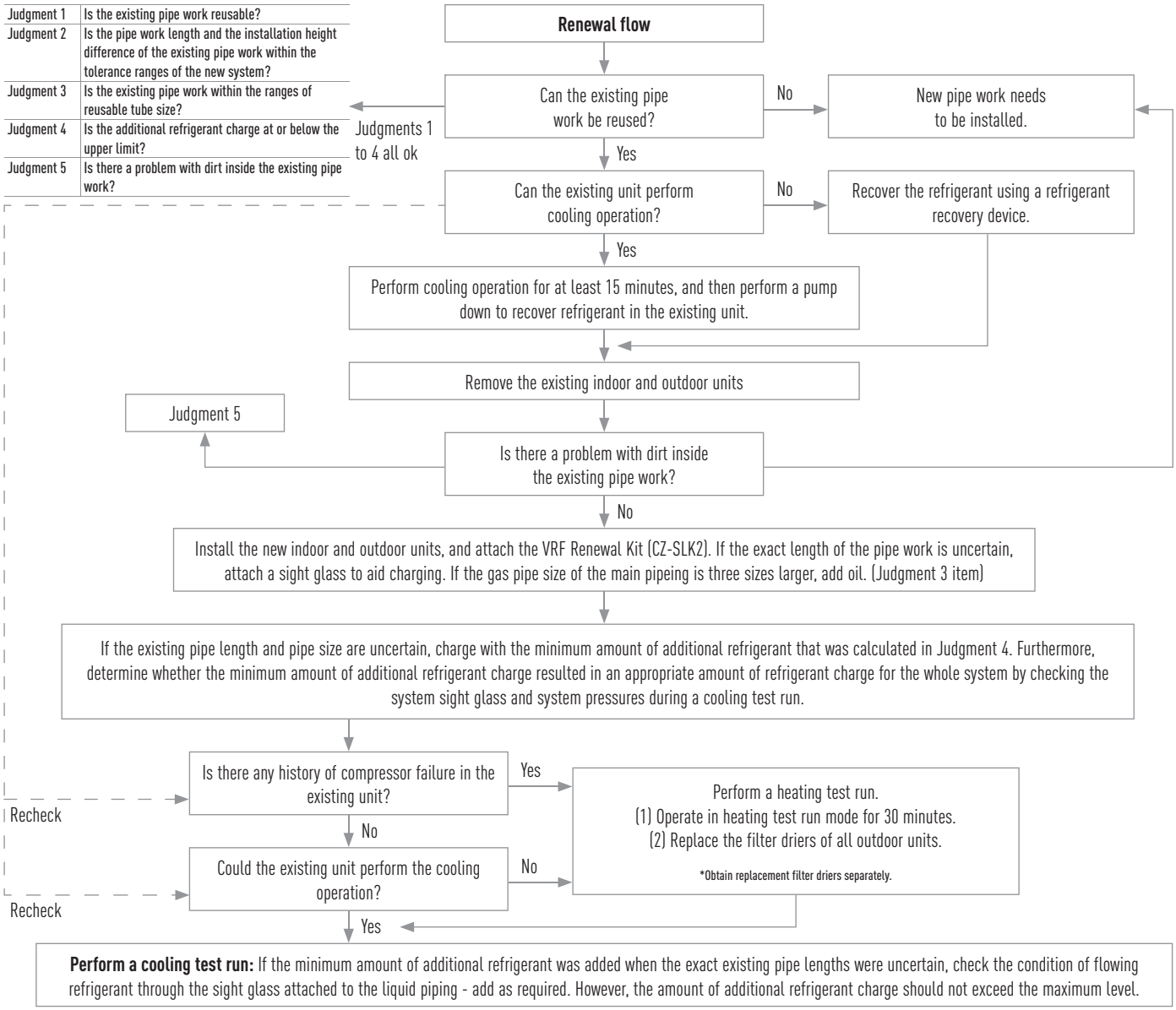
Attaching the Filter Drier Kit and sight glass

- To adjust the limited pressure level into 3,3 MPa only, special setting is necessary at site.
- A filter Drier shall be attached to the liquid tubing of each outdoor unit.
- High-Pressure switches shall be attached to both the liquid and the gas tubings of each outdoor unit.
- There is no need to remove the Filter Drier Kit after a test run is performed because normal operation continues while it is attached (High pressure switches need to be replaced by 3.3 MPa type (field supplied).
- When attaching the Filter Drier Kit, care shall be taken with reguards to the installation location and orientation of the filter drier and ball valve. If a mistake is made, the refrigerant is the system needs to be recovered when the filter drier is replaced, which will make maintenance difficult.
- Thermal insulation material (field supply: heat resistance of 80°C or higher and thickness of 10mm or greater) shall be applied to the Filter Drier Kit.
- The filter drier of the Filter Drier Kit may need to be replaced depending on the condition of the existing unit. Use a Danfoss DMB 164 as the replacement filter drier (field supply).



Procedure for VRF Renewal

Judgment 1	Is the existing pipe work reusable?
Judgment 2	Is the pipe work length and the installation height difference of the existing pipe work within the tolerance ranges of the new system?
Judgment 3	Is the existing pipe work within the ranges of reusable tube size?
Judgment 4	Is the additional refrigerant charge at or below the upper limit?
Judgment 5	Is there a problem with dirt inside the existing pipe work?



Perform a cooling test run: If the minimum amount of additional refrigerant was added when the exact existing pipe lengths were uncertain, check the condition of flowing refrigerant through the sight glass attached to the liquid piping - add as required. However, the amount of additional refrigerant charge should not exceed the maximum level.

Branches

Dimensions and Tube Sizes of Branches and Headers for 2-Pipe ECOi 6N Systems

Optional Distribution Joint Kits

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

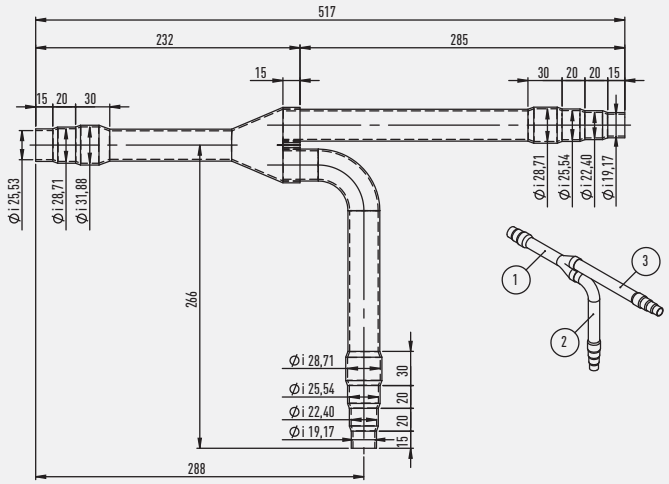
	Cooling capacity after distribution	Remarks
Outdoor unit side	68,0 kW or less	CZ-P680PH2BM
	From 68,0 kW to 168,0 kW	CZ-P1350PH2BM
Indoor unit side	22,4 kW or less	CZ-P224BK2BM
	From 22,4 kW to 68,0 kW	CZ-P680BK2BM
	From 68,0 kW 168,0 kW or less	CZ-P1350BK2BM

Tubing size (with thermal insulation)

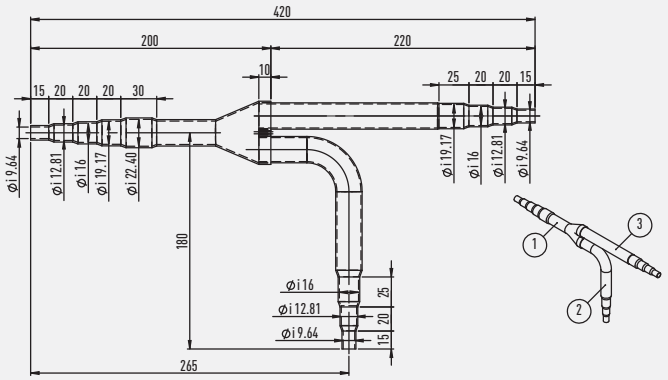
CZ-P680PH2BM

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

Gas tubing



Liquid tubing

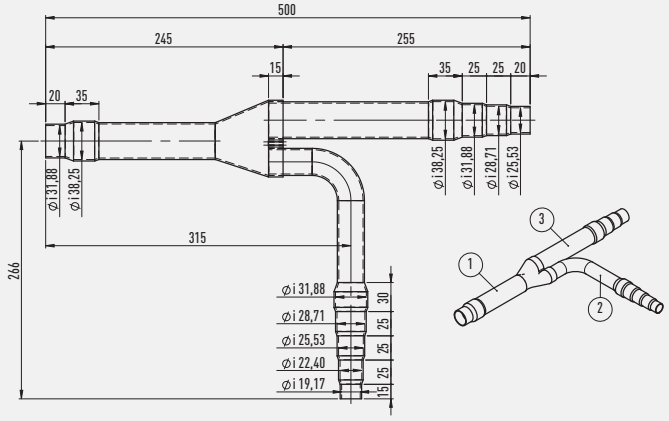


Unit:mm

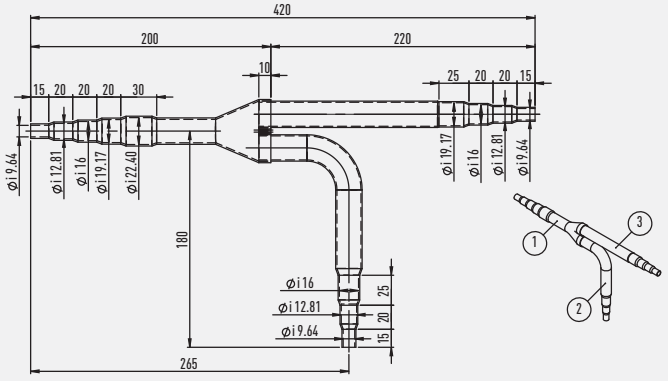
CZ-P1350PH2BM

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

Gas tubing



Liquid tubing

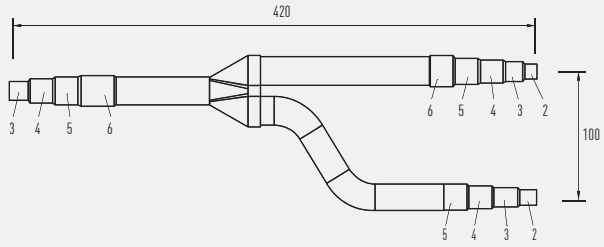


Unit:mm

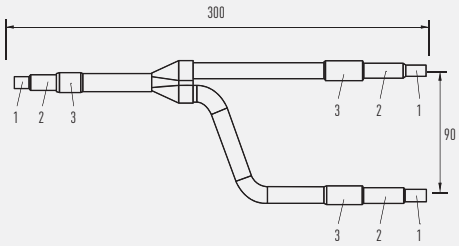
CZ-P224BK2BM

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

Gas tubing



Liquid tubing

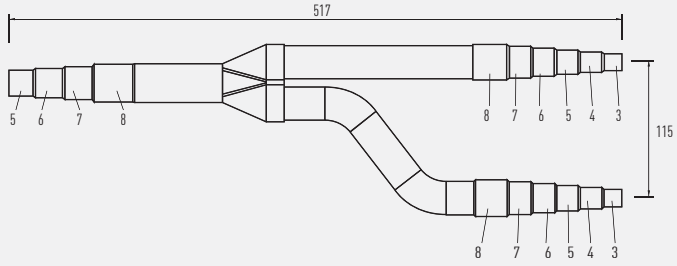


Unit:mm

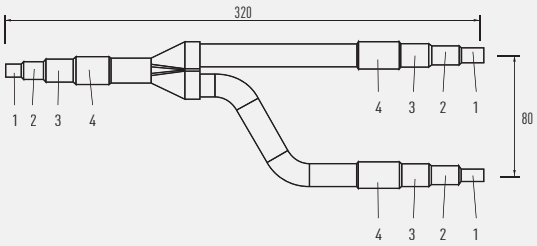
CZ-P680BK2BM

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

Gas tubing



Liquid tubing

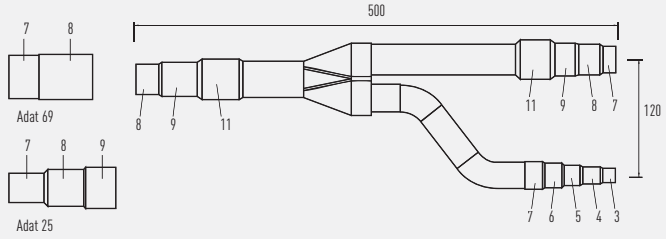


Unit:mm

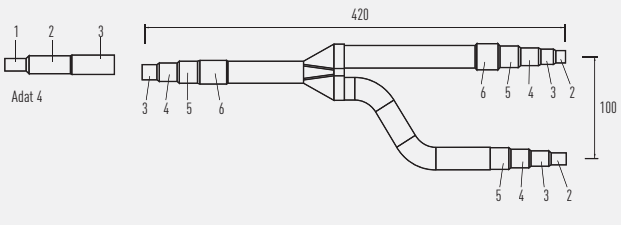
CZ-P1350BK2BM

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

Gas tubing



Liquid tubing



Unit:mm

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

Branches

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

Optional Distribution Joint Kits

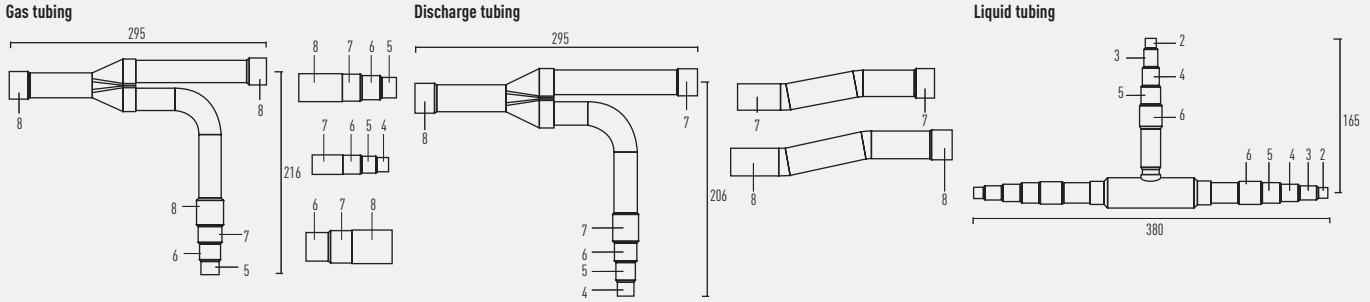
See the installation instructions packaged with the distribution joint kit for the installation procedure.

	Capacity after distribution joint	Remarks
For outdoor unit	68,0 kW or less	CZ-P680PJ2BM
	Greater than 68,0 kW and no more than 135,0 kW	CZ-P1350PJ2BM
For indoor unit	22,4 kW or less	CZ-P224BH2BM
	Greater than 22,4 kW and no more than 68,0 kW	CZ-P680BH2BM
	Greater than 68,0 kW and no more than 135,0 kW	CZ-P1350BH2BM

Tubing size (with thermal insulation)

CZ-P680PJ2BM

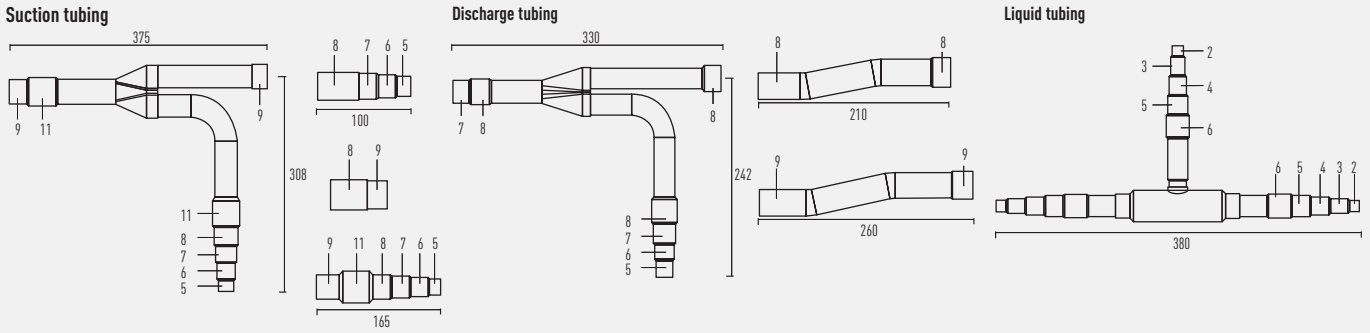
For outdoor unit side (Capacity after distribution joint is 68,0 kW or less).



Unit:mm

CZ-P1350PJ2BM

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

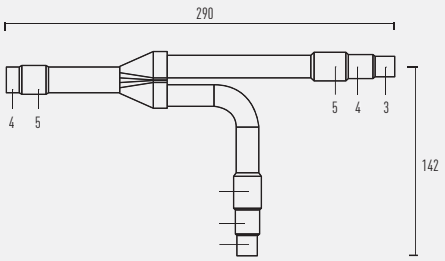


Unit:mm

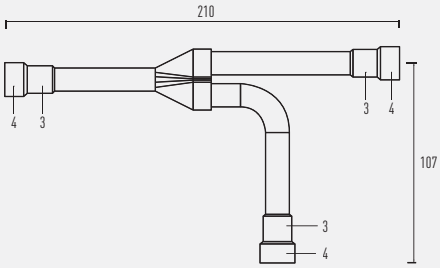
CZ-P224BH2BM

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

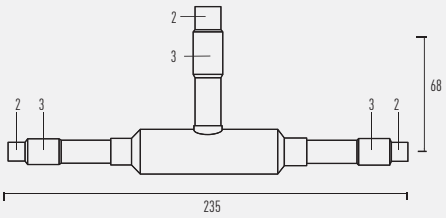
Suction tubing



Discharge tubing



Liquid tubing

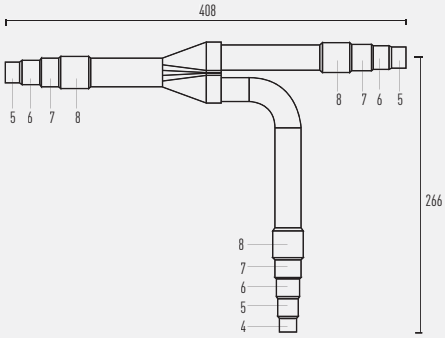


Unit:mm

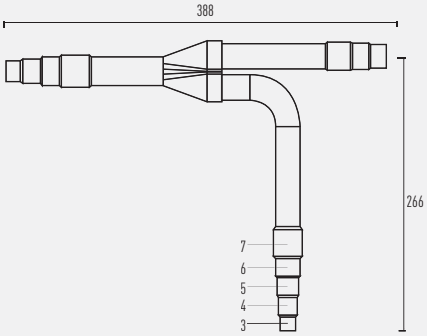
CZ-P680BH2BM

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

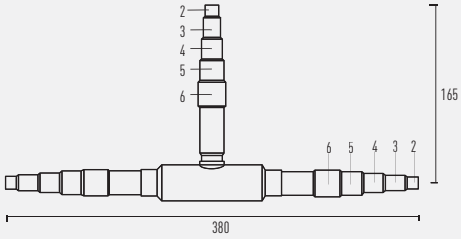
Suction tubing



Discharge tubing



Liquid tubing

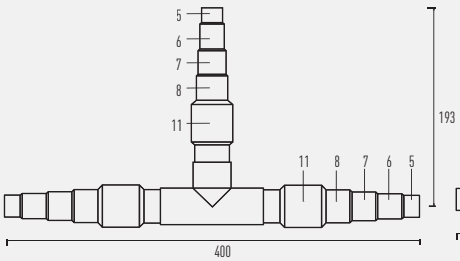


Unit:mm

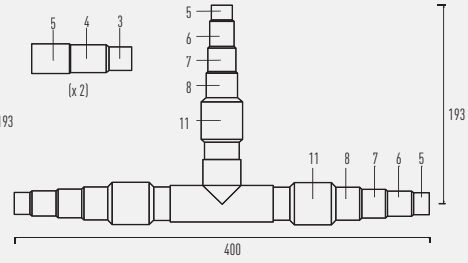
CZ-P1350BH2BM

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

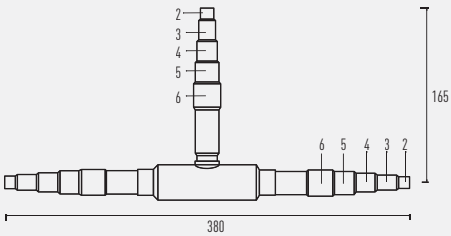
Suction tubing



Discharge tubing



Liquid tubing



Unit:mm

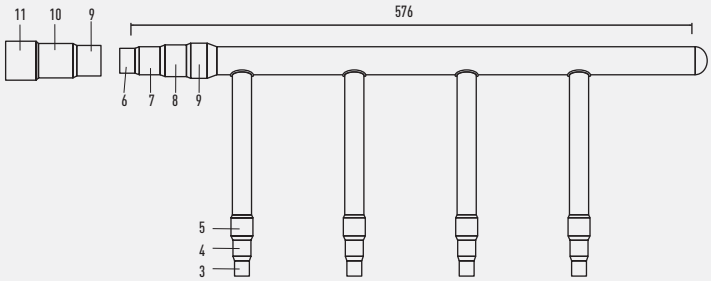
Diameters		Diameters		Diameters	
1	6,35 mm 1/4"	6	22,40 mm 7/8"	11	38,10 mm 1"1/2
2	9,52 mm 3/8"	7	25,40 mm 1"	12	41,28 mm 1"5/8
3	12,70 mm 1/2"	8	28,57 mm 1" 1/8	13	44,45 mm 1"3/4
4	15,88 mm 5/8"	9	31,75 mm 1" 1/4	14	50,80 mm 2"
5	19,05 mm 3/4"	10	34,92 mm 1"3/8		

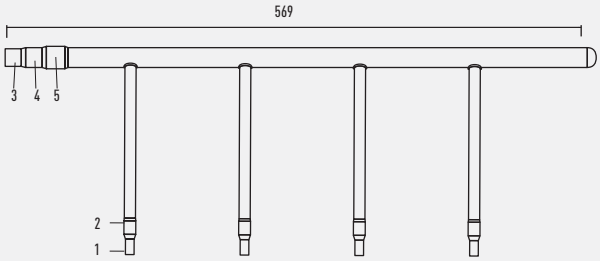
Headers

Header pipe set for ECOi 6N 2-Pipe system

CZ-P4HP4C2BM

Header pipe models for 2-Pipe systems.

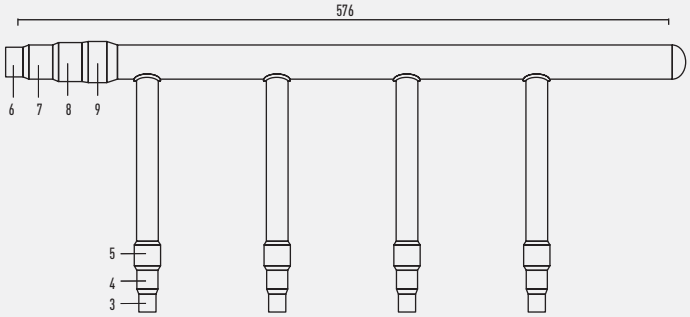


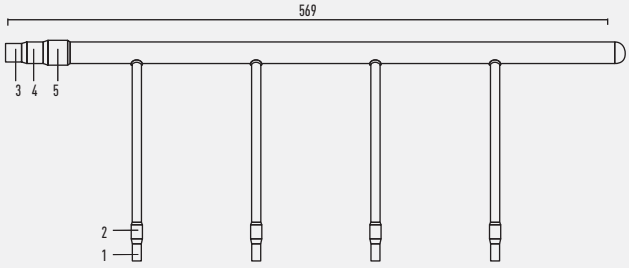


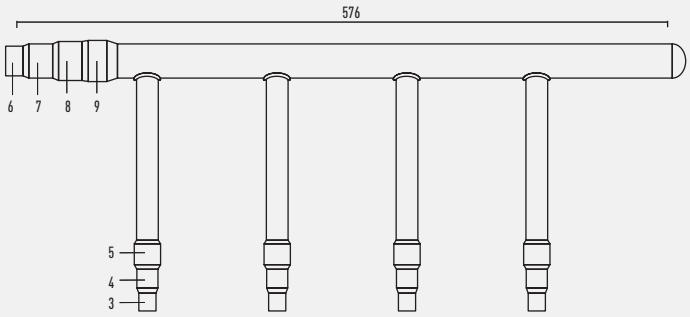
Header pipe set for ECOi 6N 3-Pipe system

CZ-P4HP3C2BM

Header pipe model for 3-Pipe systems.





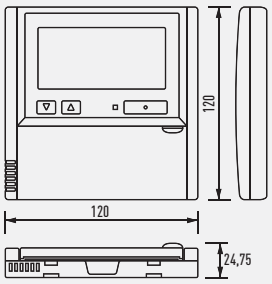


Diameters		Diameters		Diameters	
1	6,35 mm 1/4¨	5	19,05 mm 3/4¨	9	31,75 mm 1¨ 1/4
2	9,52 mm 3/8¨	6	22,40 mm 7/8¨	10	34,92 mm 1¨3/8
3	12,70 mm 1/2¨	7	25,40 mm 1¨	11	38,10 mm 1¨1/2
4	15,88 mm 5/8¨	8	28,57 mm 1¨ 1/8		

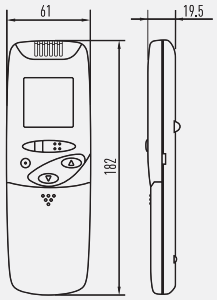
Control equipment external dimensions

Control Systems

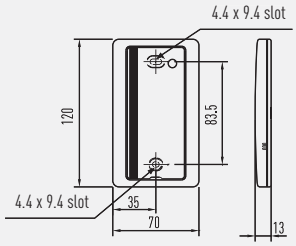
Timer remote controller
(CZ-RTC4)



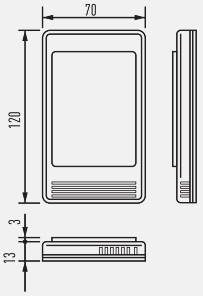
Wireless remote controller



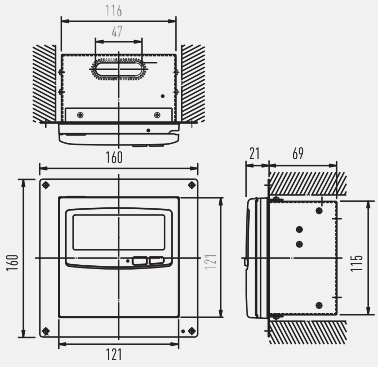
Separate receiver for wireless remote controller



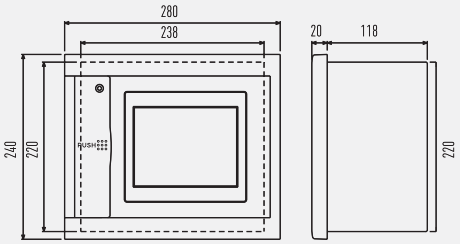
Simplified remote controller
(CZ-RE2C2)
Remote sensor
(CZ-CSRC2)



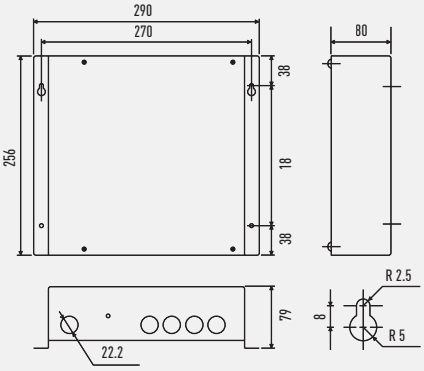
System controller
(CZ-64ESMC2)



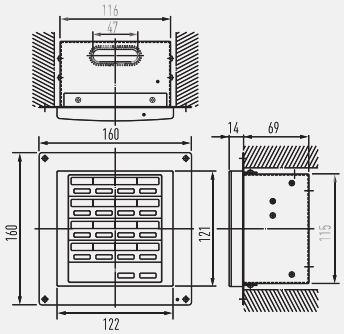
Intelligent controller
(CZ-256ESMC2)



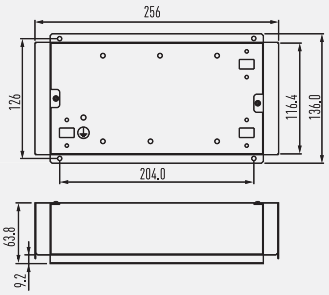
Communication adapter
(CZ-CFUNC2)



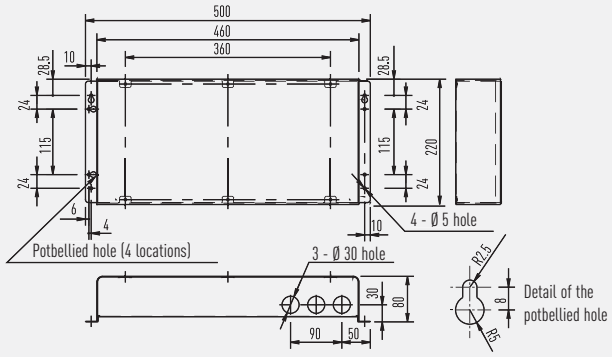
ON/OFF controller
(CZ-ANC2)



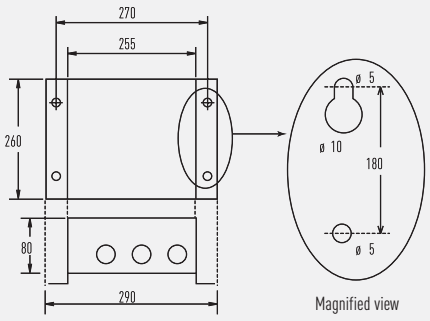
Seri-Para I/O unit for each indoor unit
(CZ-CAPBC2)



LonWorks interface
(CZ-CLNC2)



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

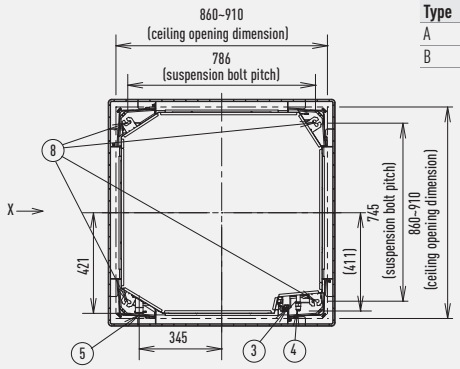


ECOi and ECO G indoor units dimensions

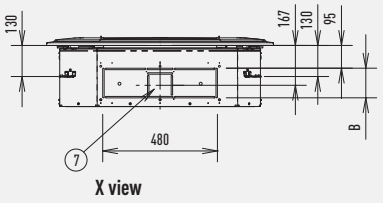
U1 Type // 4 Way 90x90 Cassette

Type		22-56	60-160
1	Air intake grill		
2	Air discharge outlet		
3	Refrigerant piping (liquid pipes)	Ø 6,35 (flared)	Ø 9,52 (flared)
4	Refrigerant piping (gas pipes)	Ø 12,7 (flared)	Ø 15,88 (flared)
5	Drain outlet VP50	Outer diameter 32mm	
6	Power supply port		
7	Discharge duct	Ø 150	
8	Suspension bolt hole	4-12x30 slot	
9	Fresh air intake duct connection port	Ø 100[1]	

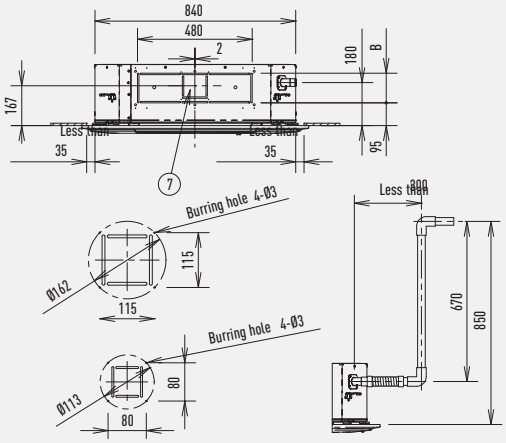
1 Air inlet kit is necessary.
Filter size: 520 x 520 x 16

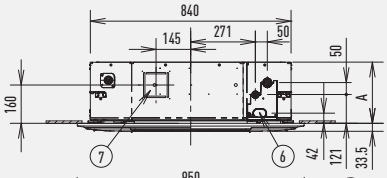


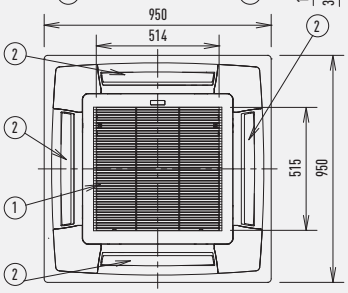
Type	22-90	106-160
A	256	319
B	124	187

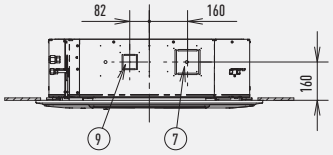


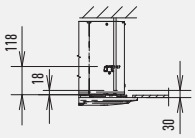
X view







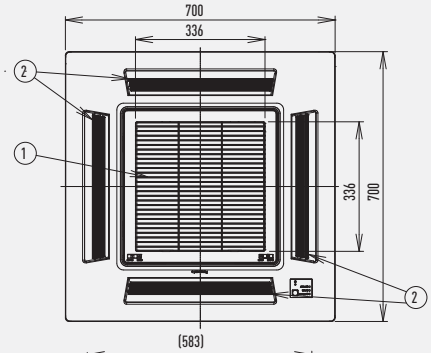


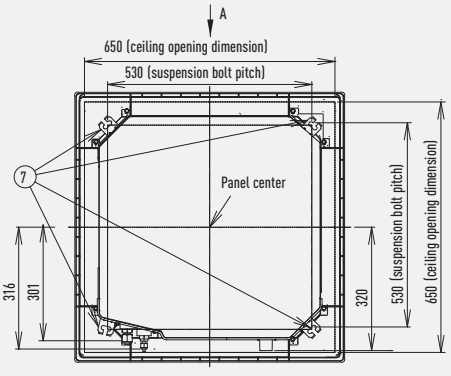


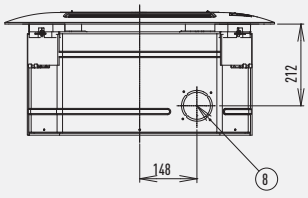
Adjust the suspension bolt length so that the gap from the lower ceiling surface becomes 30mm or more (18mm or more from the lower surface of the body) as shown in the figure. When the suspension bolt length is long, it hits the ceiling panel and installation is not possible.

Dimensions: mm

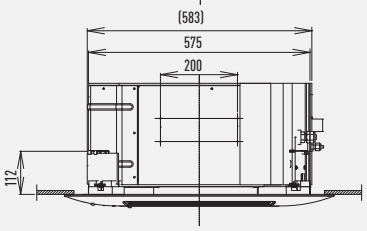
Y2 Type // 4 Way 60x60 Cassette

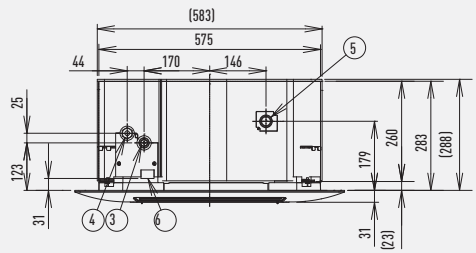


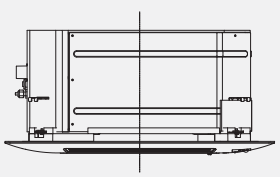


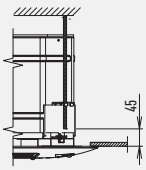


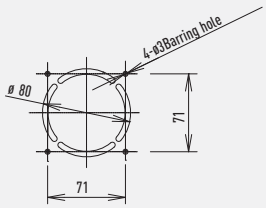
A view











Dimension of Fresh air intake duct (field supply) connection port

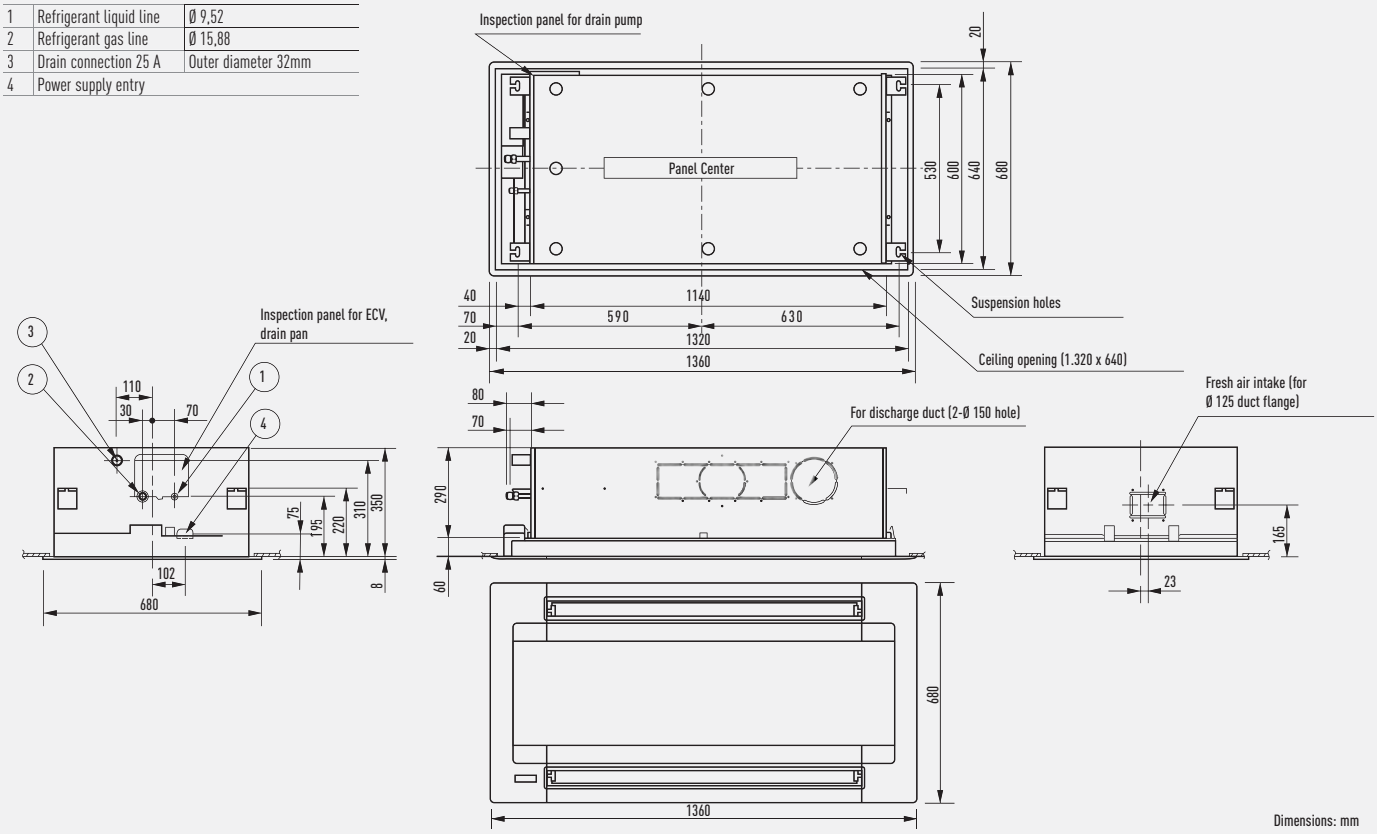
1	Air intake	
2	Discharge outlet	
3	Refrigerant tubing (liquid tube)	Ø 6,35 (flared)
4	Refrigerant tubing (gas tube)	Ø 12,7 (flared)
5	Drain tube connection port VP25	Outer dia. Ø 32
6	Power supply port	
7	Suspension bolt hole	4-11 x 26 hole
8	Fresh air intake duct connection port	Ø 80

Adjust the suspension bolt length so that the gap from the lower ceiling surface becomes 45mm or more, as shown in the figure at right.
If the suspension bolts is too long, it will contact the ceiling panel and the unit cannot be installed.

Dimensions: mm

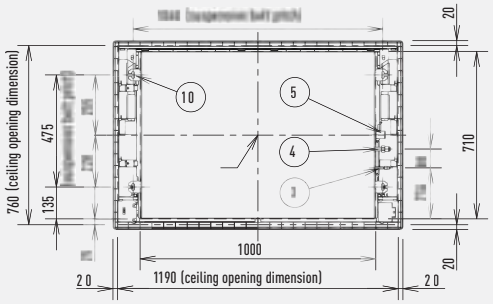
L1 Type // 2 Way Cassette

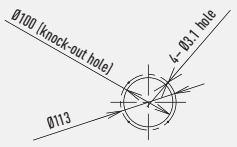
1	Refrigerant liquid line	Ø 9,52
2	Refrigerant gas line	Ø 15,88
3	Drain connection 25 A	Outer diameter 32mm
4	Power supply entry	



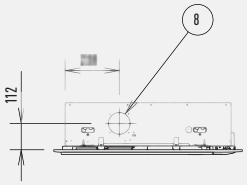
D1 Type // 1 Way Cassette

		28-56	73
1	Air intake grille		
2	Discharge outlet		
3	Refrigerant piping (liquid pipes)	Ø 6,35 (flared)	Ø 9,52 (flared)
4	Refrigerant piping (gas pipes)	Ø 12,7 (flared)	Ø 15,88 (flared)
5	Drain connection VP25	Outer diameter32	
6	Power supply entry		
7	Discharge duct connection port (for descending ceiling)		
8	Fresh air intake duct connection port	Ø 100	
9	Installation port for wireless remote controller receiver		
10	Suspension bolt hole	4–12 30 hole	

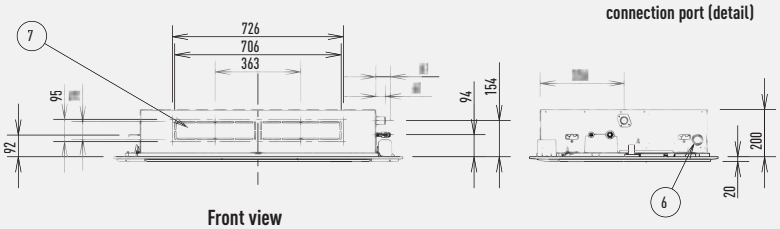




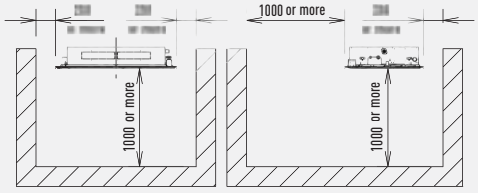
Fresh air intake duct connection port (detail)

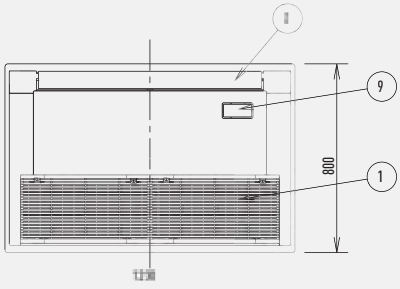


Required space for installation



Front view



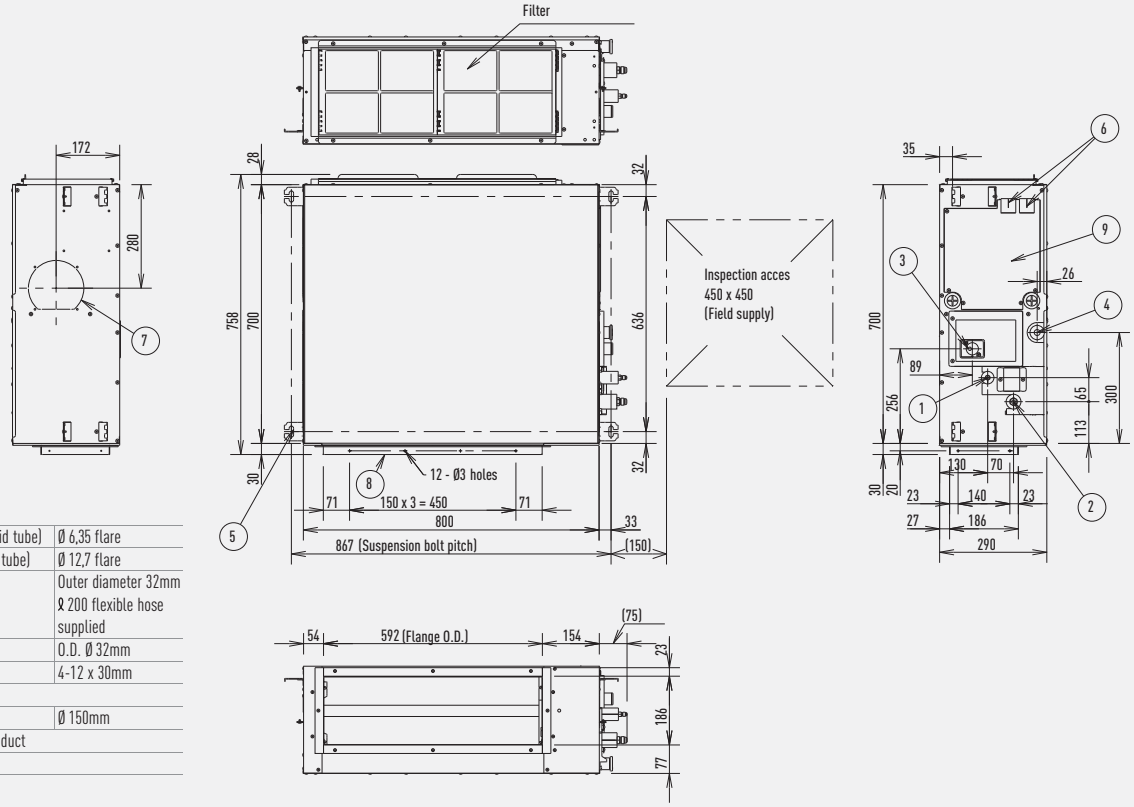


Dimensions: mm

ECOi and ECO G indoor units dimensions

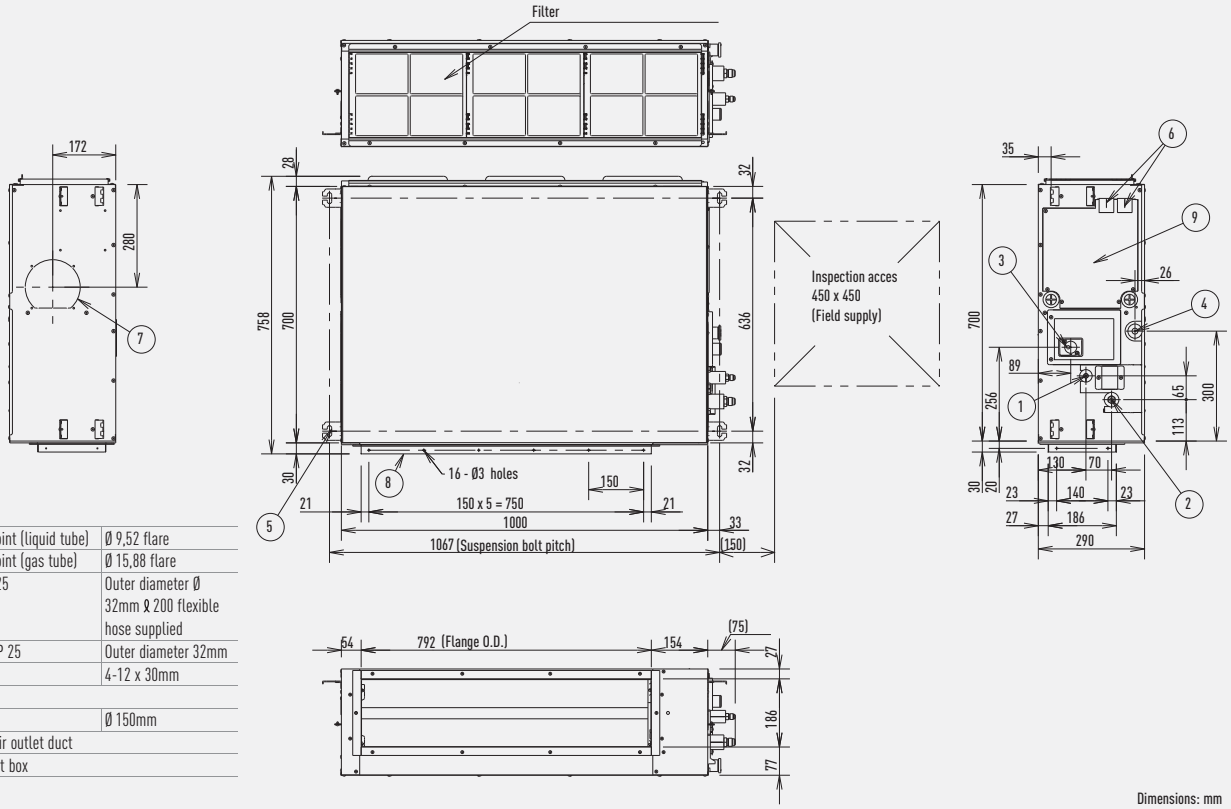
F2 Type // Variable Static Pressure Hide Away

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



1	Refrigerant tubing joint (liquid tube)	Ø 6,35 flare
2	Refrigerant tubing joint (gas tube)	Ø 12,7 flare
3	Upper drain port VP25	Outer diameter 32mm ℓ 200 flexible hose supplied
4	Bottom drain port VP 25	O.D. Ø 32mm
5	Suspension lug	4-12 x 30mm
6	Power supply outlet	
7	Fresh air intake port	Ø 150mm
8	Flange for flexible air outlet duct	
9	Electrical component box	

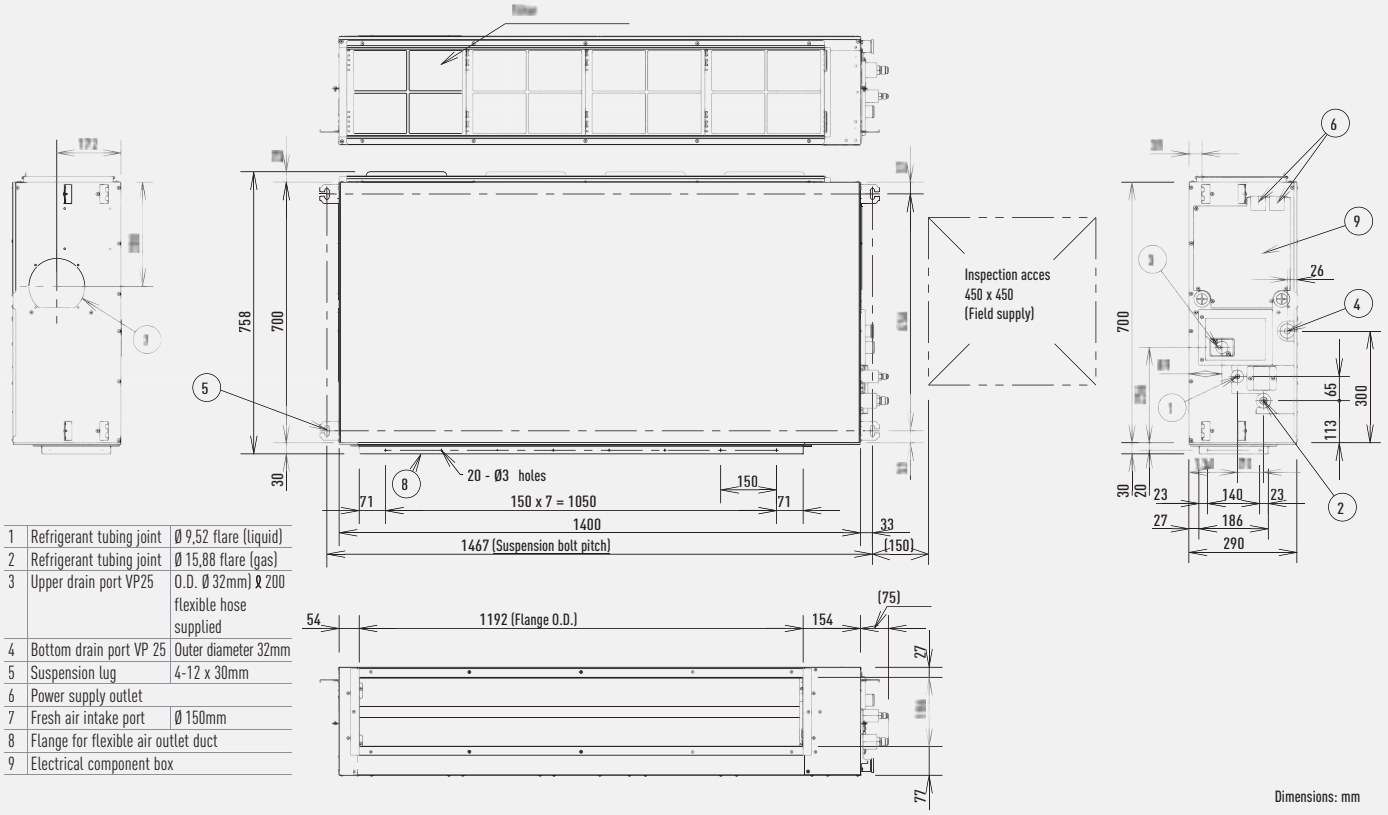
S-60MF2E5A // S-73MF2E5A // S-90MF2E5A



1	Refrigerant tubing joint (liquid tube)	Ø 9,52 flare
2	Refrigerant tubing joint (gas tube)	Ø 15,88 flare
3	Upper drain port VP25	Outer diameter Ø 32mm ℓ 200 flexible hose supplied
4	Bottom drain port VP 25	Outer diameter 32mm
5	Suspension lug	4-12 x 30mm
6	Power supply outlet	
7	Fresh air intake port	Ø 150mm
8	Flange for flexible air outlet duct	
9	Electrical component box	

Dimensions: mm

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

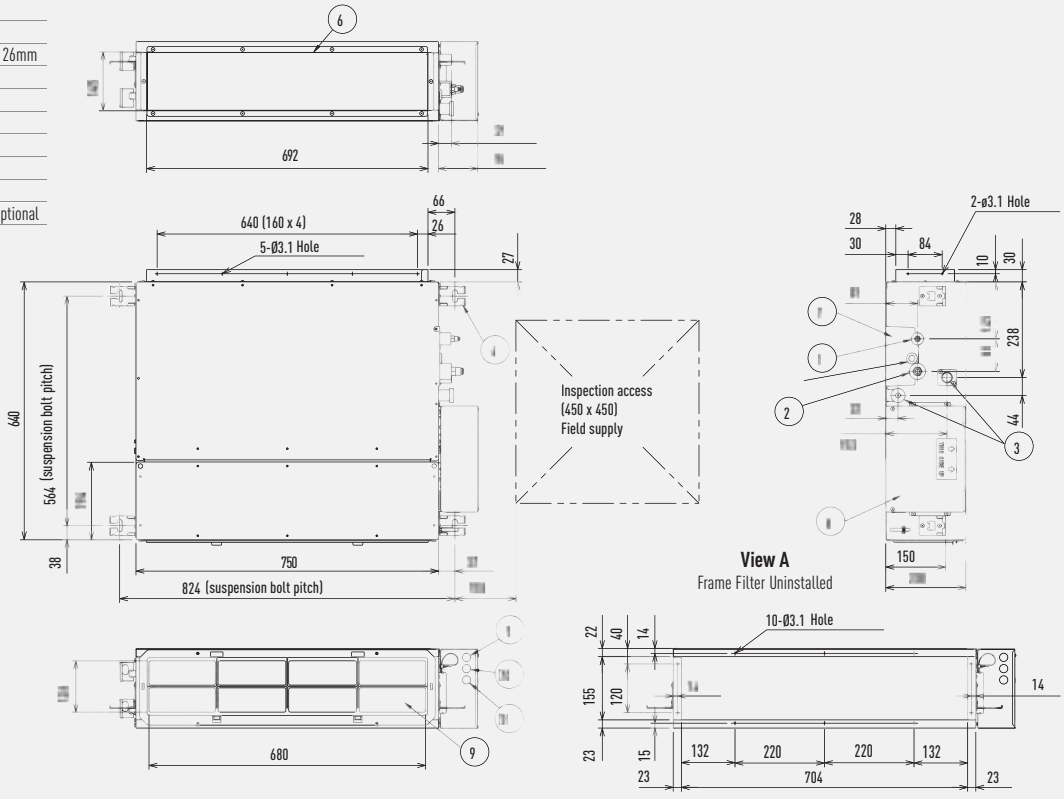


1	Refrigerant tubing joint	Ø 9,52 flare (liquid)
2	Refrigerant tubing joint	Ø 15,88 flare (gas)
3	Upper drain port VP25	O.D. Ø 32mm) ℓ 200 flexible hose supplied
4	Bottom drain port VP 25	Outer diameter 32mm
5	Suspension lug	4-12 x 30mm
6	Power supply outlet	
7	Fresh air intake port	Ø 150mm
8	Flange for flexible air outlet duct	
9	Electrical component box	

Dimensions: mm

M1 Type // Slim Variable Static Pressure Hide Away

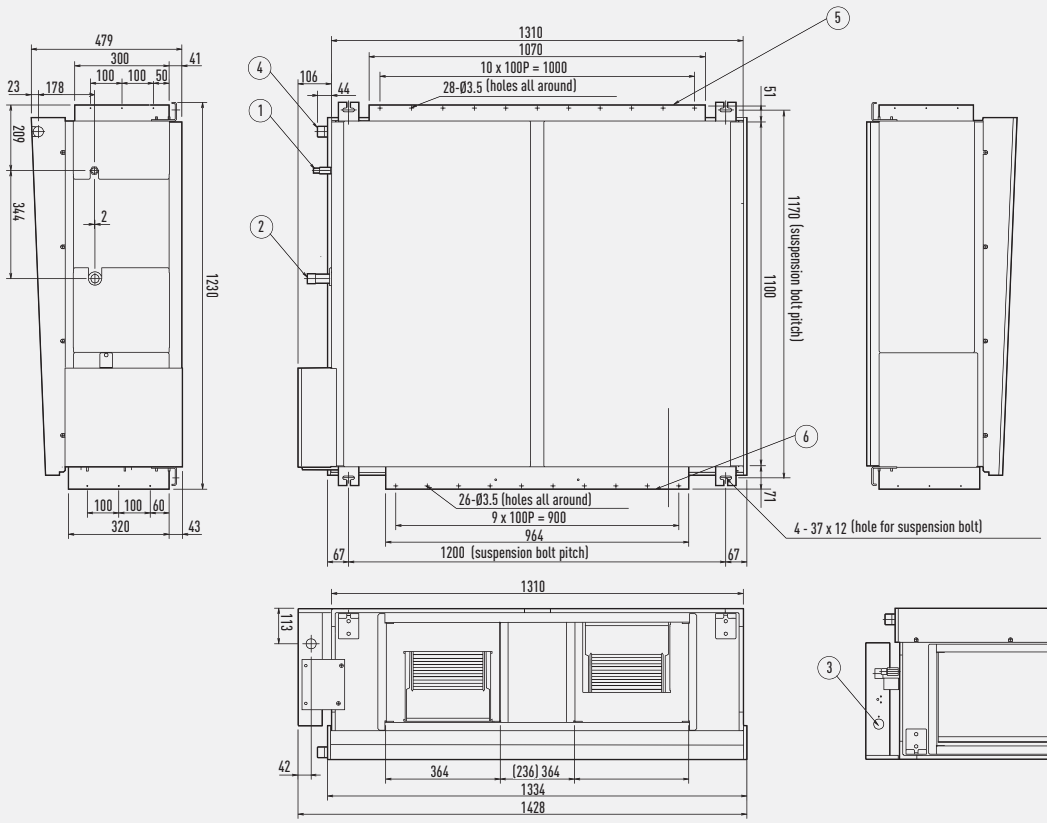
1	Refrigerant tubing joint (narrow tube)	
2	Refrigerant tubing joint (wide tube)	
3	Upper and bottom drain port	Outer diameter 26mm
4	Suspension lug	
5	Power supply outlet	2- Ø 30
6	Flange for air intake duct	
7	PL cover	
8	Electrical component box	
9	Frame filter	
10	Signal output board	ACC-SG-AGB: optional



Dimensions: mm

ECOi and ECO G indoor units dimensions

E2 Type // High Static Pressure Hide Away

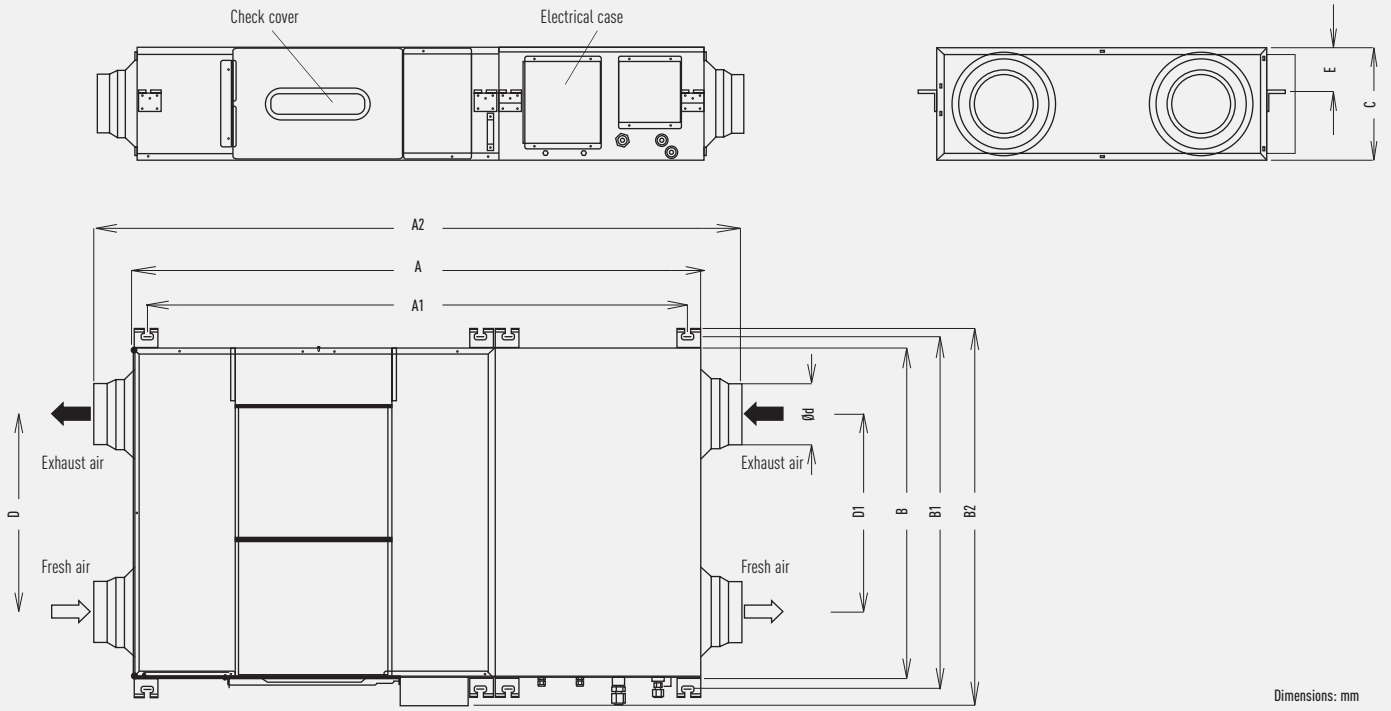


		224	280
1	Refrigerant liquid line	Ø 9,52	
2	Refrigerant gas line	Ø 19,05	Ø 22,22
3	Power supply outlet		
4	Drain port	Outer diameter 32 mm	
5	Duct connection for suction		
6	Duct connection for discharge		

Dimensions: mm

Heat Recovery with DXCoil

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

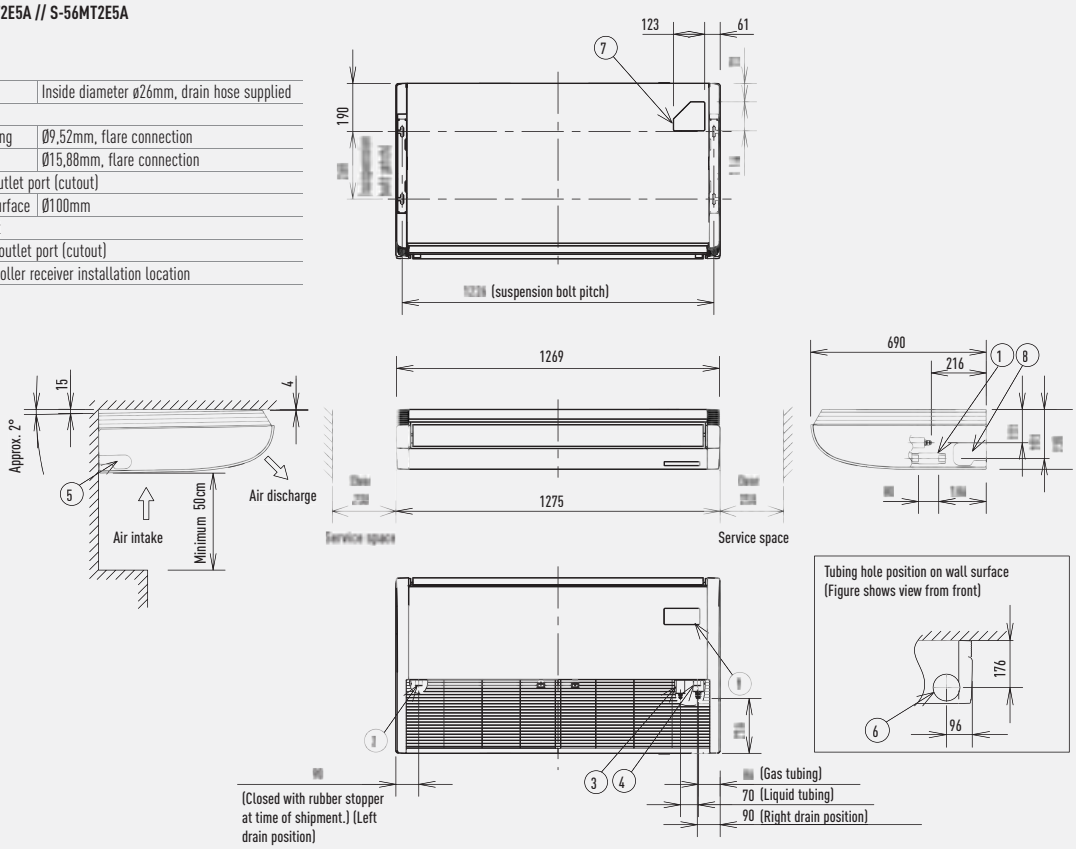


Dimensions: mm

T2 Type // Ceiling

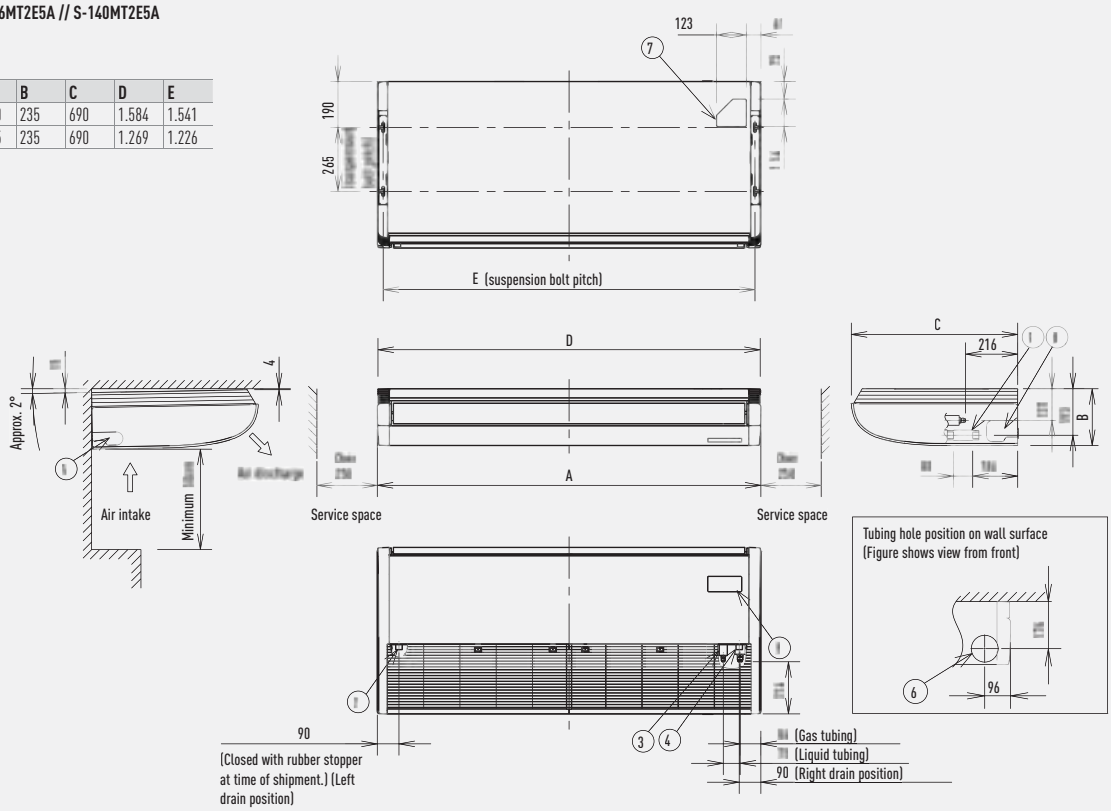
S-36MT2E5A // S-45MT2E5A // S-56MT2E5A

1	Drain port VP20	Inside diameter ø26mm, drain hose supplied
2	Left drain position	
3	Refrigerant liquid tubing	Ø9,52mm, flare connection
4	Refrigerant gas tubing	Ø15,88mm, flare connection
5	Left side drain hose outlet port (cutout)	
6	Tubing hole on wall surface	Ø100mm
7	Upper side tubing port	
8	Right side drain hose outlet port (cutout)	
9	Wireless remote controller receiver installation location	



S-73MT2E5A // S-106MT2E5A // S-140MT2E5A

	A	B	C	D	E
106-140 type	1.590	235	690	1.584	1.541
140 type	1.275	235	690	1.269	1.226

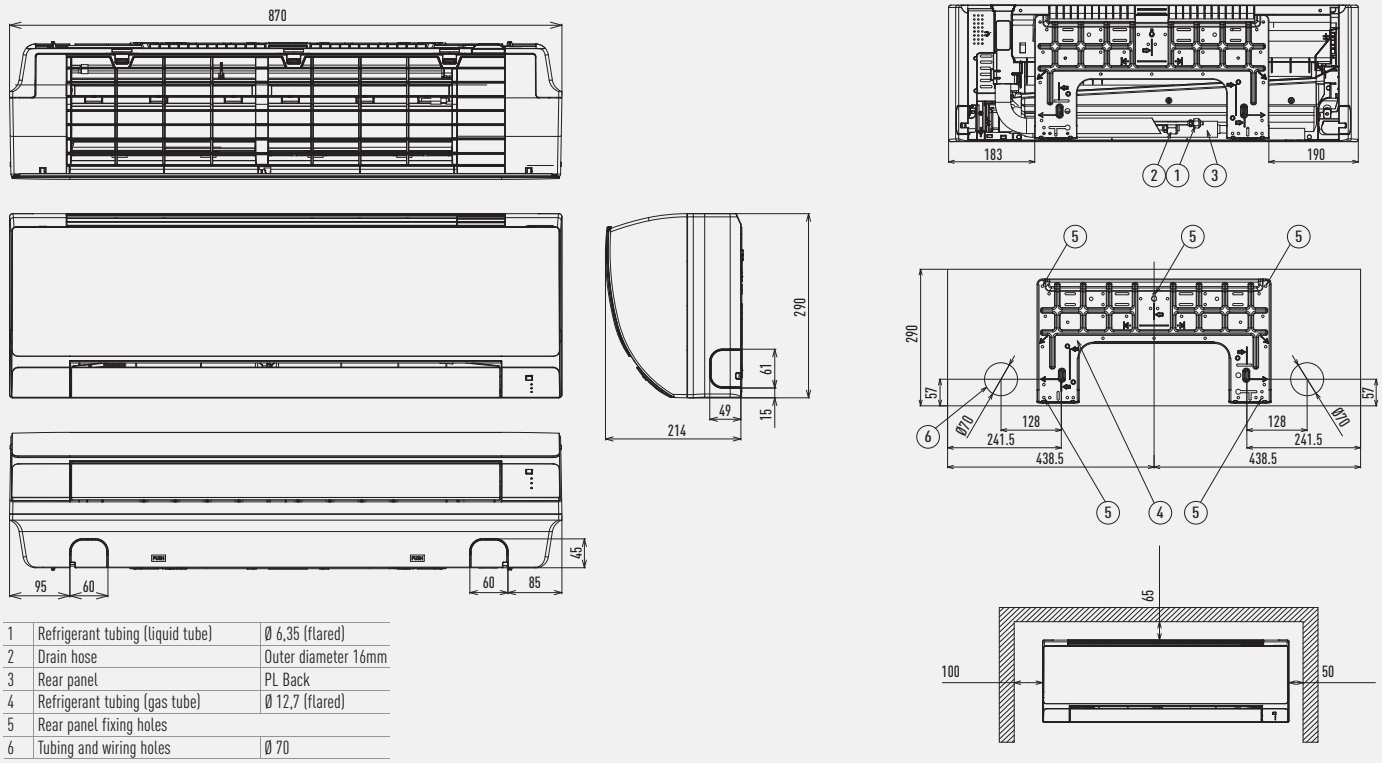


Dimensions: mm

ECOi and ECO G indoor units dimensions

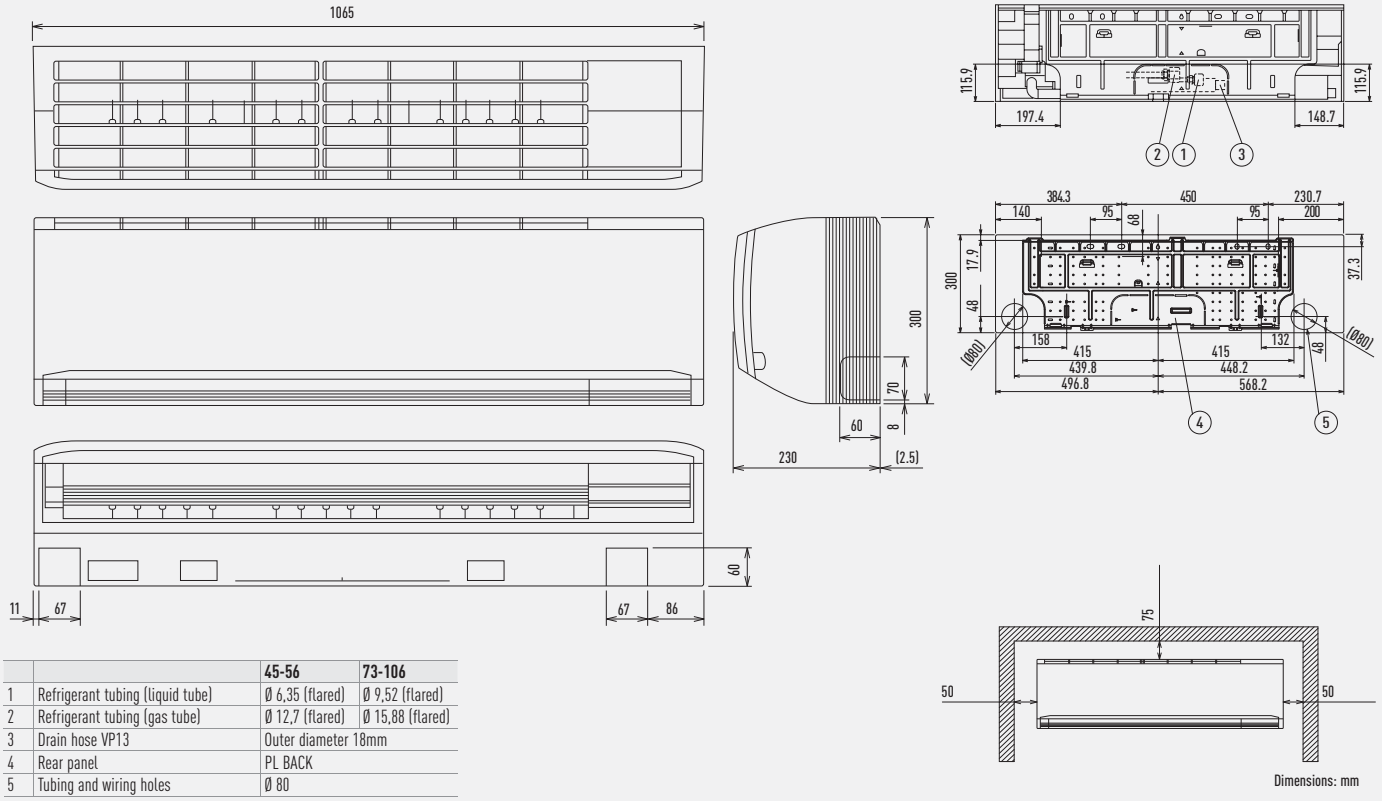
K2/K1 Type // Wall Mounted

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



1	Refrigerant tubing (liquid tube)	Ø 6,35 (flared)
2	Drain hose	Outer diameter 16mm
3	Rear panel	PL Back
4	Refrigerant tubing (gas tube)	Ø 12,7 (flared)
5	Rear panel fixing holes	
6	Tubing and wiring holes	Ø 70

S-45MK1E5A / S-56MK1EA5 / S-73MK1E5A / S-106MK1E5A



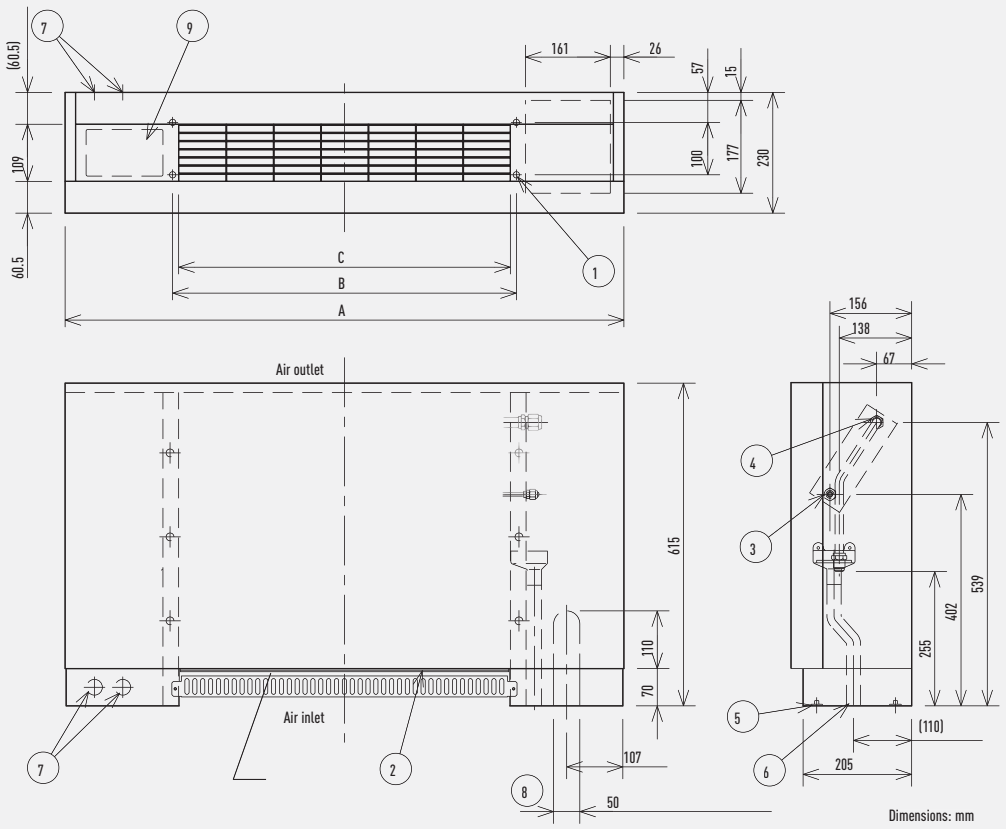
		45-56	73-106
1	Refrigerant tubing (liquid tube)	Ø 6,35 (flared)	Ø 9,52 (flared)
2	Refrigerant tubing (gas tube)	Ø 12,7 (flared)	Ø 15,88 (flared)
3	Drain hose VP13	Outer diameter 18mm	
4	Rear panel	PL BACK	
5	Tubing and wiring holes	Ø 80	

Dimensions: mm

P1 Type // Floor Standing

1	4-Ø 12 hole (For fastening the indoor unit to the floor with screws.)
2	Air filter
3	Refrigerant connection outlet (liquid tube)
4	Refrigerant connection outlet (gas tube)
5	Level adjusting bolt
6	Drain outlet (20 A)
7	Power cord outlet (downward, rear)
8	Refrigerant tubing outlet (downward, rear)
9	Location for mounting the remote controller (Remote controller can be attached within the room.)

	A	B	C	Liquid pipes	Gas pipes
22-36	1065	665	632	Ø 6,35	Ø 12,7
45	1380	980	947		
56					
71				Ø 9,52	Ø 15,88

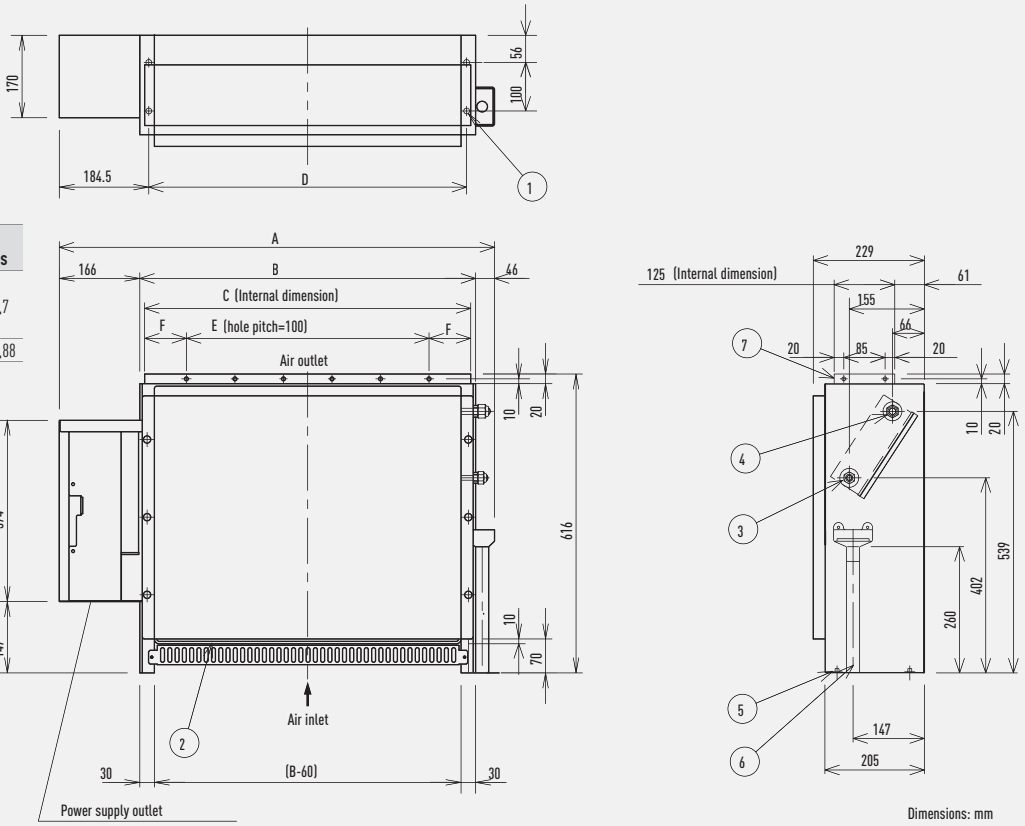


Dimensions: mm

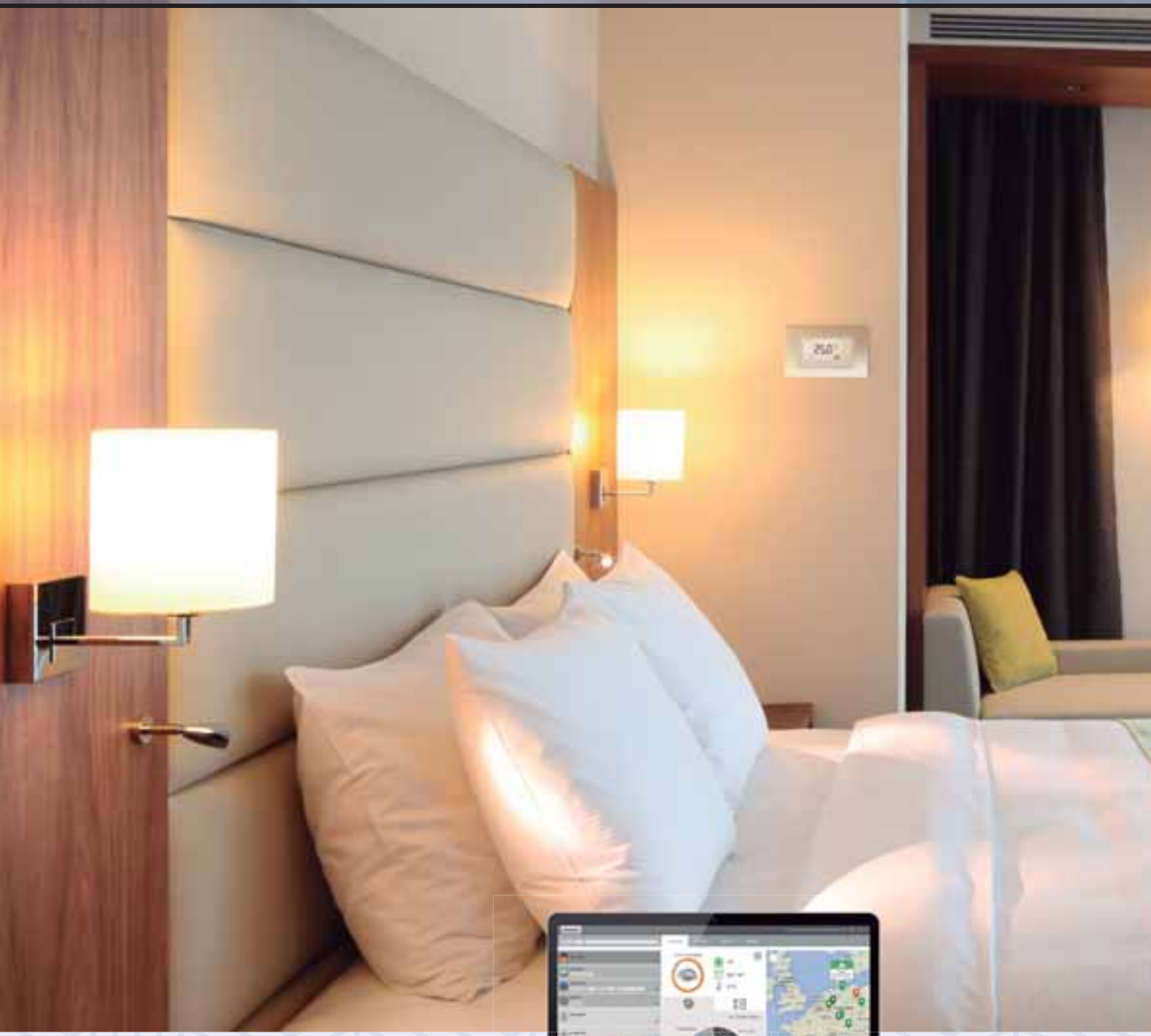
R1 Type // Concealed Floor Standing

1	4-ø12 hole (For fastening the indoor unit to the floor with screws.)
2	Air filter
3	Refrigerant connection outlet (liquid tube)
4	Refrigerant connection outlet (gas tube)
5	Level adjusting bolt
6	Drain outlet (20 A)
7	Flange for the air-outlet duct

	A	B	C	D	E	F	Liquid pipes	Gas pipes
22-36	904	692	672	665	500	86	Ø 6,35	Ø 12,7
45	1,219	1,007	1,002	980	900	51		
56								
71							Ø 9,52	Ø 15,88



Dimensions: mm




25.0


28

CONTROL AND CONNECTIVITY

Panasonic has developed the largest range of control systems to offer the best option to each need.
From the individual remote control for the residential single units up to the newest technology to control each your buildings around the world from an easy to use software in the cloud by your portable device.

Panasonic Smart Cloud

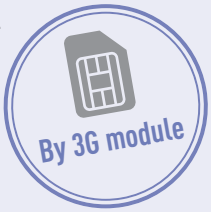
Take control of all your shops around the world from a single device.

Centralize control of your business premises, from wherever you are, 24/7

It doesn't matter how many sites you have, or where they are! The new Cloud system from Panasonic allows you to have complete control of all your installations, from your smartphone or from your computer. In a simple click, all your units from several locations, receive status updates in real-time of all your installations, preventing breakdowns and optimizing costs.

With Panasonic Smart Cloud, have your business under control, and start saving!

- Monitor temperature in your shops, optimize temperatures, reduce energy costs!
- Monitor running time, anticipate maintenance and optimise costs consumption
- Monitor breakdowns in order to take quick action to maintain the comfort in the shops
- Monitor energy consumption and running time of the units
- Compare the performance of your shops easily and develop best practices plan
- Alarms
- 2 connections possible:
  - by internet, using the shop internet connection
  - by 3G module. In this case, the system does not need internet connection, but a SIM Card and the 3G contract should be supply on the field.



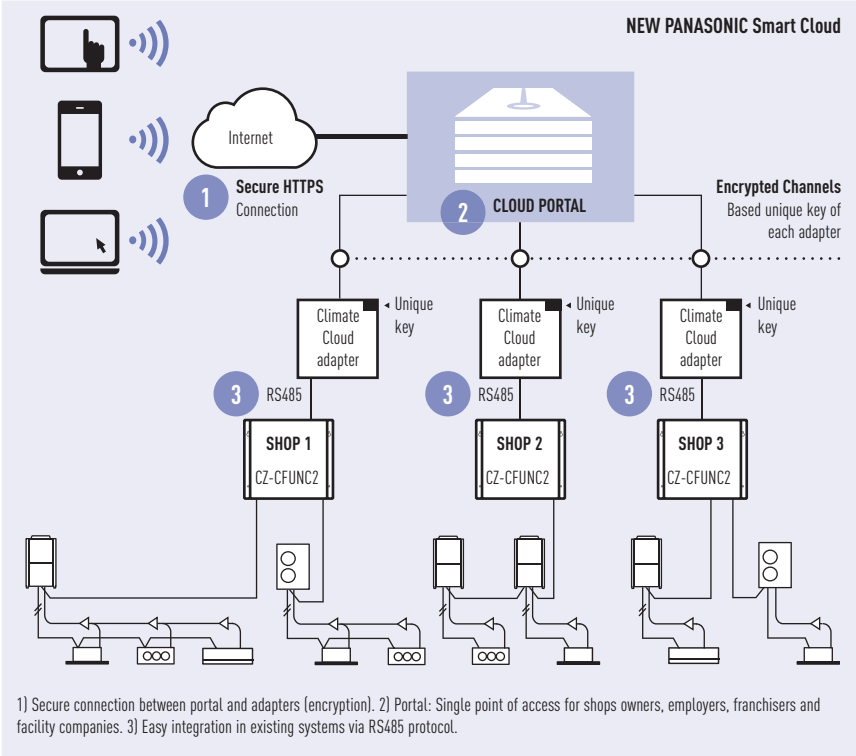
Security

Panasonic has developed both physical and software protection with a high level of encryption to secure your data on our servers which are located in Germany.

Scalable solution according to the needs

Panasonic Smart Cloud is fully scalable to the needs of your shops, franchises, facility companies.

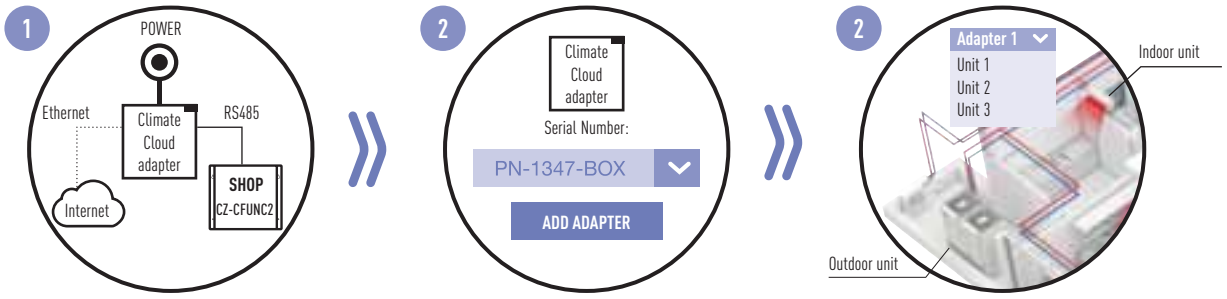
Panasonic Smart Cloud is giving value not only for your business but also for your partners



1) Secure connection between portal and adapters (encryption). 2) Portal: Single point of access for shops owners, employers, franchisers and facility companies. 3) Easy integration in existing systems via RS485 protocol.

3 steps to setup the Smart Cloud

Panasonic Smart Cloud is very easy to install on existing and new installations.
The communication adaptor (CZ-CFUNC2 + PAW-CCA-1) is connected to the Panasonic bus and the Ethernet.
Then in only 3 steps, the cloud system is running.



Connect Wires / Internet connection — **Register adapter in Cloud** — **Configure units structure**

Availability of the solution					
Phase	**Feature**	**May 2014**	**September 2014**	**December 2014**	**2015**
1	On/Off of units/groups/sites	✔			
1	Set mode per units/groups/sites	✔			
1	Set temperature per units/groups/sites	✔			
1	Running time per units	✔			
1	Schedule per units/groups/sites	✔			
1	Shops status display on Map	✔			
1	Initial configuration wizard	✔			
1	Alert notifications	✔			
1	Users management	✔			
2	Advanced statistics (working hours, performance etc.)		✔		
2	Energy consumption calculation		✔		
2	Systems ranking mode based on define parameters		✔		
2	Error logs		✔		
2	Status on map		✔		
2	Email notifications		✔		
2	3-G module			✔	
3	Maintenance module				✔
3	Energy Management module				✔

1) This service is available on a 2 year base contract, with automatic renewal every year. The parties can cancel the contract at the end of the year with 3 month notice. 2) This cost only covers the activation of the system on the cloud. The 3G card and the 3G monthly fee from the telecommunication company is not included and must be supply locally.

Remote controller with Econavi

Easy to use, attractive, clear design, with new demand control functions and energy consumption display! This useful feature makes this remote control unique!

Design
The new CZ-RTC5 wired remote control is ideal for integration into the most demanding interior architectures.
The touch panel features a very sleek and easy to use display, which with its compact display is only 120mm x 120mm x 16mm.

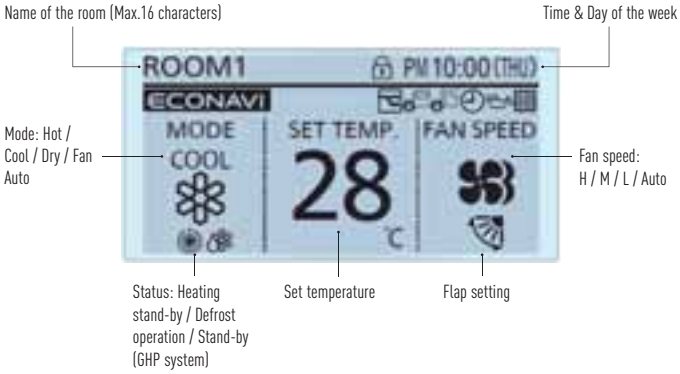
Display of information
The information is mainly based on pictograms to ensure easy understanding.
The minimal amount of text is available in 4 languages (English / German / French / Spanish / Italian).
The screen is back lit to enable reading even during the night.

Easy Access to the menus
With the new pictograms, the navigation, the selection and the settings are simple and easy to follow.

Key Functions
- Easy setup of the timer and settings of the indoor unit
- Energy consumption display (only available with PACi units with the reference ending with A)
- Limitation of the energy consumption (Demand control) by timer.

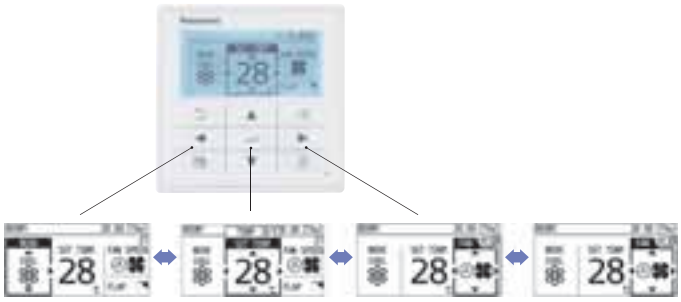
Basic function (Operation display & indication)

All functions are easily available on the remote controll.
• OFF/ON timer • Weekly timer • Quiet operation • Remote control sensor • Operation prohibit • Filter sign • Energy saving • Centralized control indication • Mode change prohibit • Automatic temperature return • Temperature range limitation • OFF remind • Schedule demand control • Ventilation • Out Function



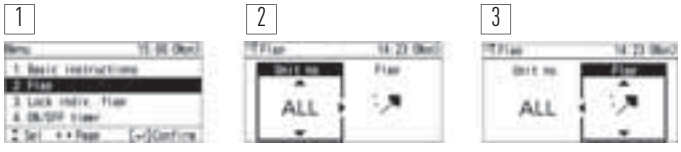
Easy operation and quick access to all menus

1. Set temperature will be selected, when any arrow button is touched.
2. Select the item (Mode or Fan speed) by left/right ◄► key.
3. Change the setting by up/down ▲▼ key.



Example of easy access to the functions: Air direction setting

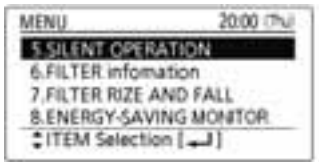
1. Select "Air direction" and press "determine" key.
2. Select the unit No. by up/down key.
3. Select the flap position by up/down key.
4. Press "Return" key to go back the Menu display.



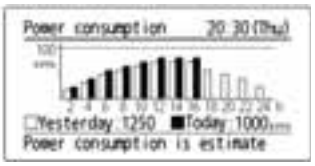
Example of easy access to the functions : Weekly timer setting

8 actions available per day. Total 56 actions per week can be set.
1. Weekly timer menu display
2. Setting for each day of the week
3. Timer program setting of the day

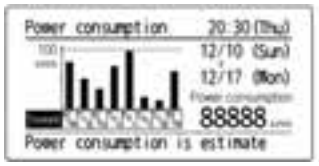
Example of easy access to the functions: Energy consumption monitoring display per day, week, month and year (only available with PACi units)



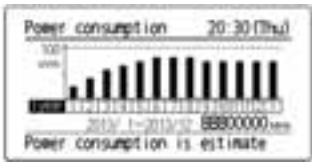
Menu selection: 3 types (Day/Week/Year)of display are available.



Daily Energy consumption: Data is shown with Yesterday's record.(Graph starts from 0 o'clock to 24 o'clock only.)



Weekly Energy consumption: Power consumption of each day of the week can be checked.

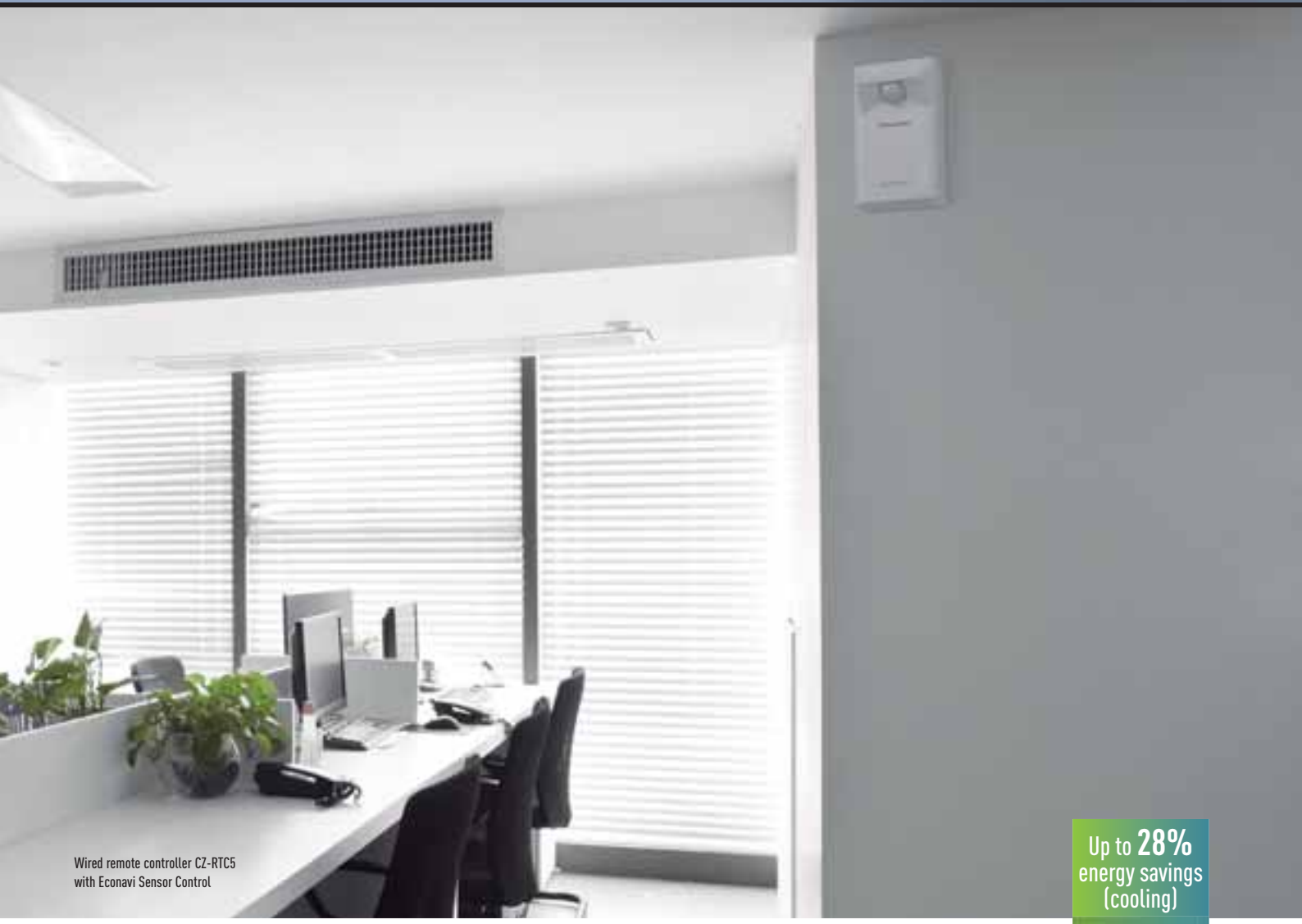


Annual Energy consumption: Power consumption of each month can be checked.

Functions available on the CZ-RTC5

Control item	Controllability	Indoor Units		
		All PACi	Only PACi ending on A	All VRF
Basic Operation	Operation, Mode, Temperature setting, Airflow volume, Airflow direction	✔	✔	✔
Timer function	Time display	✔	✔	✔
	Easy ON/OFF timer	✔	✔	✔
	Weekly Program timer	✔	✔	✔
Energy saving	Outing function	✔	✔	–
	Temperature auto return	✔	✔	–
	Temperature setting range limitation	✔	✔	–
	OFF remind	✔	✔	–
	Energy saving mode	✔	✔	–
	Schedule demand control	–	✔	–
	Energy monitoring	–	✔	–
Maintenance	System failure information	–	✔	–
	Service contact registration	✔	✔	✔
	Filter sign (rest time display) & Reset	✔	✔	✔
	Auto-address, Test run	✔	✔	✔
	Sensor value monitor	✔	✔	✔
	Simple/Detail setting mode	✔	✔	✔
Others	Key lock	✔	✔	✔
	Ventilation fan control	✔	✔	✔
	Display contrast adjustment	✔	✔	✔
	Remote controller sensor	✔	✔	✔
	Quiet operation mode	–	✔	–
	Prohibit setting control from Central controller	✔	✔	✔

All specifications subject to change without notice.



Wired remote controller CZ-RTC5
with Econavi Sensor Control

Up to 28% energy savings (cooling)
ECONAVI

INCREASE EFFICIENCY BY 28%
INCREASE COMFORT

Econavi Sensor reference: CZ-CENSC1

Econavi Sensor

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

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

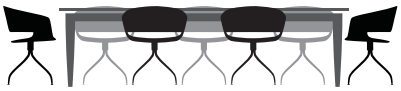
- Analyses room activity: Human activities and human heat
- Modifies the capacity to adapt in real-time to the needs of the room

Key points

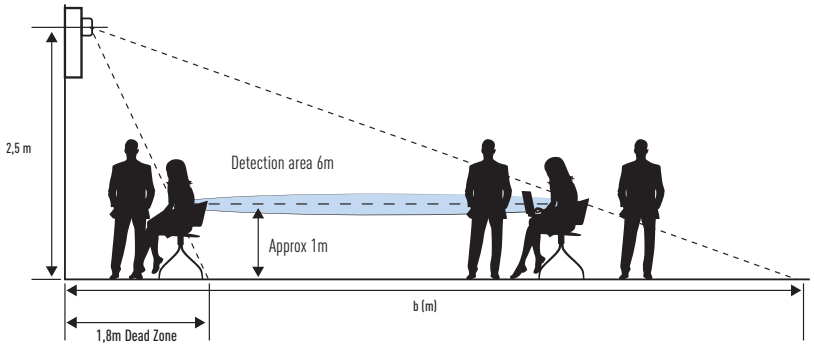
- Compatible with Cassette, Wall Mounted, Hide Away and Ceiling - Sensor - Improves efficiency - Better Comfort - Can be installed in the best place of the room for detection purposes.

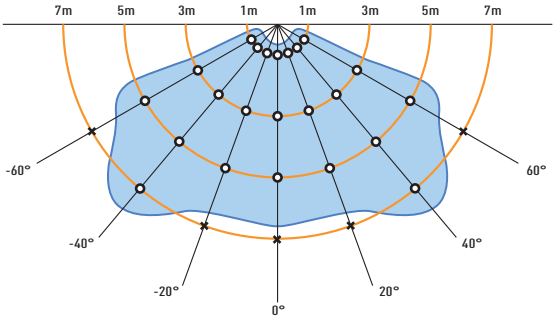
Human activity and presence detection

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	



Sensor location image





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

Model evaluation only for PACi (Laboratory Testing/Cooling Operation)

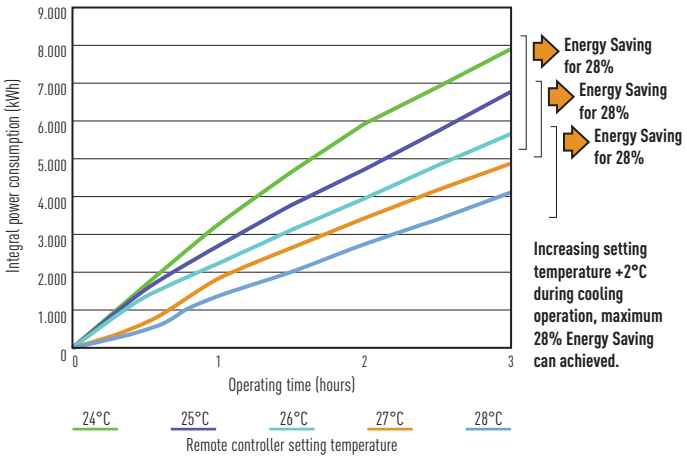
28% ENERGY SAVING

Test Method

To establish conditions for our field tests, because human movements and door open/close are random, we did not test on set conditions. To replicate typical conditions, we have fixed variable numbers (see below) and tested how Econavi's temperature control function contributes to energy efficiency level.

For each temperature setting, we have tested and compared power consumption at three-hourly intervals.

Integral Power Consumption Cooling Operation

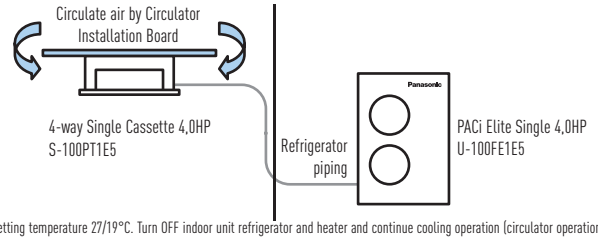


Increasing setting temperature +2°C during cooling operation, maximum 28% Energy Saving can achieved.

Test Condition

- Testing location: New 6,0HP testing room / 29m²
- Test sample remote controller setting: Setting temperature: Cooling 24 ~28°C / Fan Speed: Hi
- Measured integral power consumption every 30 minutes and compare (including thermo OFF period)
- Room temperatures / 19°C, outdoor temperature 35/24°C (cooling nominal capacity) cool down the room for 1 hour and keep the room temperature stable. After the room temperature become stable, turn OFF indoor unit refrigerator and heater and only operate circulator and continue cooling down the room by the unit (operating circulator to avoid temperature variation)

Test Sample Testing Location: Building 1.460 NEW 6,0HP TESTING ROOM



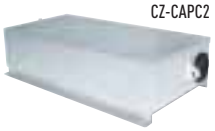
Indoor setting temperature 27/19°C. Turn OFF indoor unit refrigerator and heater and continue cooling operation (circulator operation ON).

Operation System	**Individual Control Systems**						
Requirements	Control for hotel application (for VRF)		Wired remote controller			Wireless remote controller	Quick and easy operation
External appearance				NEW 			
Type, model name	Intelligent Controller		Normal operation	Normal operation with Econavi	Design wired remote controller	Wireless remote controller	Simplified remote controller
	PAW-RE2C3-WH PAW-RE2C3-GR PAW-RE2C3-MOD-WH PAW-RE2C3-MOD-GR PAW-RE2C3-LON-WH PAW-RE2C3-LON-GR	Stand-Alone White Stand-Alone Grey Modbus White Modbus Grey LonWorks White LonWorks Grey	CZ-RTC2 (Will be replaced in June by CZ-RTC4)	CZ-RTC4 ECONAVI	CZ-RTC3 (Will be replaced in October by CZ-RTC5) ECONAVI	CZ-RWSU2 // CZ-RWSY2 // CZ-RWSL2 // CZ-RWSC3 // CZ-RWST2 // CZ-RWST3 // CZ-RWSK2	CZ-RE2C2
Econavi Control	—		—	✔	✔	—	—
Power consumption monitor	—			✔[2]	✔[2]	—	—
Built-in Thermostat	✔		✔	✔	✔	✔	✔
I_O which can be controlled	1 indoor unit		1 group, 8 units	1 group, 8 units	1 group, 8 units	1 group, 8 units	1 group, 8 units
Use limitations	–		· Up to 2 controllers can be connected per group	· Up to 2 controllers can be connected per group	· Up to 2 controllers can be connected per group	· Up to 2 controllers can be connected per group	· CZ-RE2C2: up to 2 controllers can be connected per group · CZ-RELC2: can not operate other (SUB) remo-con
Function ON/OFF	✔		✔	✔	✔	✔	✔
Mode setting	AUTO		✔	✔	✔	✔	✔
Fan speed setting	✔		✔	✔	✔	✔	✔
Temperature setting	✔		✔	✔	✔	✔	✔
Air flow direction	—		✔	✔	✔	✔[1]	✔[1]
Permit/Prohibit switching	✔		—	—	—	—	—
Weekly program	—		✔	✔	✔	—	—

1. Setting is not possible when a remote control unit is present (use the remote control for setting). 2) Only for PACi Elite except 50 type. * All specifications subject to change without notice.

Control systems for PACi, ECOi and ECO G

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

	Timer Operation	**Centralized Control Systems**					
	Daily and weekly program	Operation with various function from center station	NEW	Only ON/OFF operation from center station	Simplified load distribution ratio (LDR) for each tenant	BMS System. PC Base	Connection with 3rd Party Controller
						**P-AIMS. Basic Software**  CZ-CSWKC2 **Optional software**  CZ-CSWAC2 for Load distribution. CZ-CSWWC2 for Web application. CZ-CSWGC2 for Object layout display. CZ-CSWBC2 for BAC net software interface. *PC required (field supply) **Web Interface Systems**  CZ-CWEBC2 *PC required (field supply)	**Seri-Para I/O unit for outdoor unit** CZ-CAPDC2  **Local adaptor for ON/OFF control** CZ-CAPC2  **MINI Seri-Para I/O Unit** CZ-CAPBC2  **Communication Adaptor** CZ-CFUNC2 
	Schedule timer	System controller	New System Controller with Schedule timer	ON/OFF Controller	Intelligent Controller (Touch screen panel)		
	CZ-ESWC2	CZ-64ESMC2	CZ-64ESMC3 (Available in December 2015. Tentative data)	CZ-ANC2	CZ-256ESMC2 (CZ-CFUNC2)		
	—	—	—	—	—		
	—	—	—	—	—		
	—	—	—	—	—		
	64 groups, max. 64 units	64 groups, max. 64 units	64 groups, max. 64 units	16 groups, max. 64 units	64 units x 4 systems, max. 256 units		
	· Required power supply from the system controller · When there is no system controller, connection is possible to the T10 terminal of an indoor unit	· Up to 10 controllers, can be connected to one system · Main unit/sub unit (1 main unit + 1 sub unit) connection is possible · Use without remote controller is possible	· Up to 10 controllers, can be connected to one system · Main unit/sub unit (1 main unit + 1 sub unit) connection is possible · Use without remote controller is possible	· Up to 8 controllers (4 main units + 4 sub units) can be connected to one system · Use without remote controller is impossible	· A communication adaptor (CZ-CFUNC2) must be installed for three or more systems		
	—	✔	✔	✔	✔		
	—	✔	✔	—	✔		
	—	✔	✔	—	✔		
	—	✔	✔	—	✔		
	—	✔[1]	✔[1]	—	✔[1]		
	—	✔	✔	✔	✔		
	✔	—	✔	—	✔		

Nº1

FOR HOTEL APPLICATIONS

ALL IN ONE!

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

Control for hotel application

Nice, easy and cost effective!

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

- Easy to install
- Cost effective installation as all electrical cable are centralized on this remote
- Architect inspired attractive design
- Direct connection to the Indoor unit with most of the functions of the indoor unit
- 3 options available: Stand-Alone, Modbus or LonWorks communication
- 2 frame colours: White and aluminium

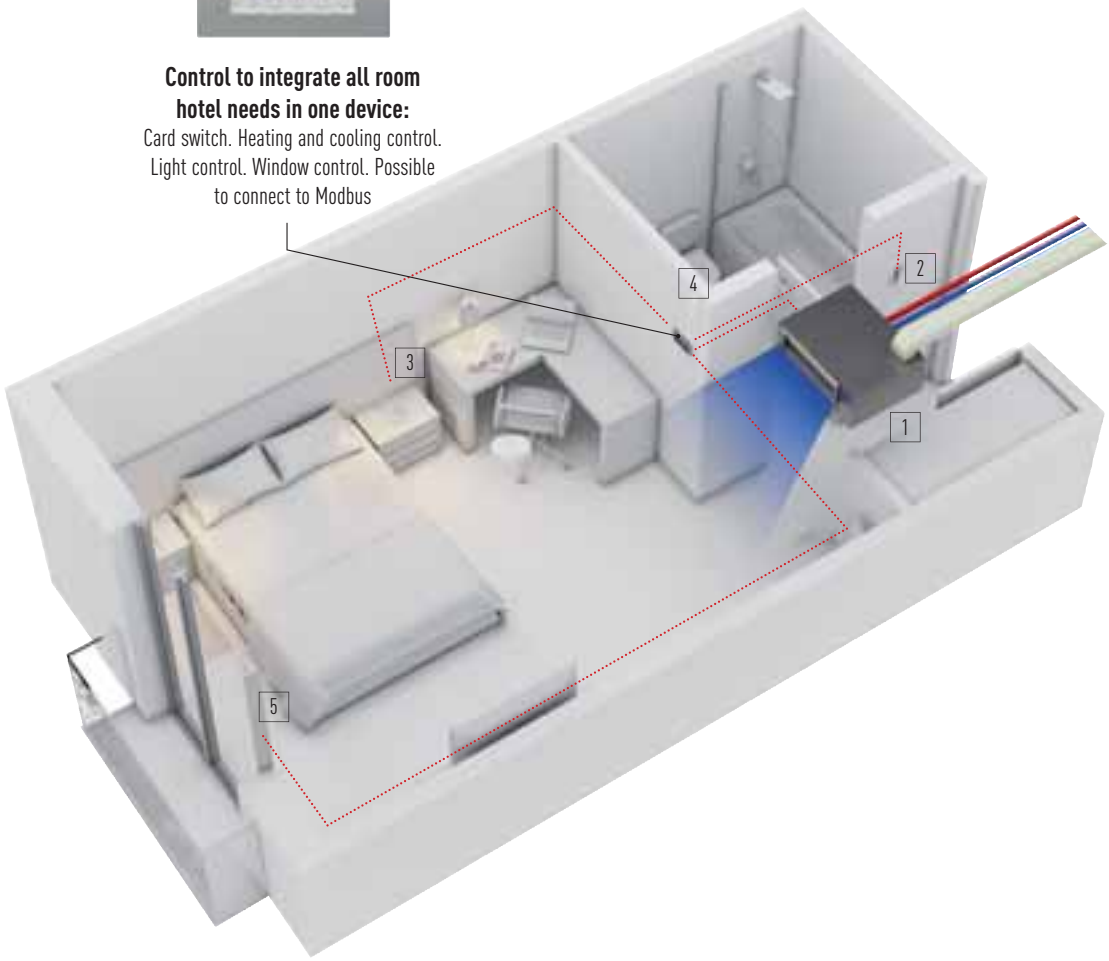
From this remote control: The lighting, card contact, motion detector, window contact and the air conditioning are controlled.

Energy saving functions included on the device: • Turns Off air conditioning and lighting when room is unoccupied • Disables air conditioning when window is open • Maximum/ minimum setpoint temperature configurable

Easy remote control: The hotel customer will have access to limited functions to control the air conditioning:
ON/OFF, Temperature (under a certain limit fixed during the start up) and Fan speed

Easy set up: Stand-Alone model with easy configuration menu to access all parameters. The installation is simplified as all the cables should arrive to the remote control. A pre-define scenario can be uploaded on the remote control connected to a computer to make installation on site plug and play (only on the Modbus and LonWorks models).

Control to integrate all room hotel needs in one device:
Card switch. Heating and cooling control. Light control. Window control. Possible to connect to Modbus



1. Indoor unit. Variable static pressure hide away
2. Room card switch*

3. Lighting control
4. Human sensor
5. Window contact*

* Field supply

Four preconfigured systems (option 1 to 4)

The remote control have a 4 preconfigured systems in order to easily integrate it.

4 options available I/O configurations: Inputs

Configurations	Digital 1-2	Digital 3-4	Digital 5-6	Analog 7-8
Option 1	Card	Window	Lighting	Temperature
Option 2	Card	Window	Blinds Up	Blinds Down
Option 3	Motion Sensor	Window	Door Contact	Temperature
Option 4	Lighting	Window	Blinds Up	Blinds Down

Available I/O Configurations: Outputs

Configurations	Relay 15-16	Relay 13-14	Relay 11-12	Relay 9-10
Option 1	Courtesy	Lighting	Not Used	Valve actuator
Option 2	Courtesy	Lighting	Blinds Up	Blinds Down
Option 3	Courtesy	Lighting	Not Used	Valve actuator
Option 4	Not used	Lighting	Blinds Up	Blinds Down

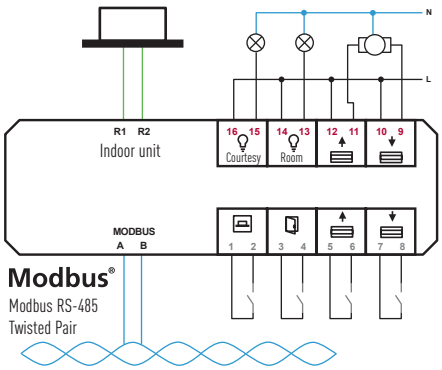
I/O Definitions: Inputs

Description	Functionality
Card	Occupancy room status. Enable HVAC Control and automatically switches ON Courtesy and Lighting outputs
Window	Temporary disables HVAC System
Lighting	Pushbutton to turn ON/OFF Lighting Output when room occup.
Temperature	Analog input for Valve Actuator output control on 2nd zone
Blinds Up	Pushbutton for Blind Up motor output control
Blinds Down	Pushbutton for Blind Down motor output control
Motion Sensor	In combination with Door Contact, enables HVAC Control and automatically switches ON Courtesy and Lighting outputs
Door Contact	In combination with Motion Sensor, enables HVAC Control and automatically switches ON Courtesy and Lighting outputs

I/O Definitions: Outputs

Description	Functionality
Courtesy	Automatically turns ON when room changes to occupied or unoccupied mode. It turns to OFF after a configurable time-out
Lighting	Automatically turns ON/OFF when room changes to occupied/unoccupied. Manual override with Lighting input
Valve Actuator	HVAC Control for a 2nd zone
Blinds Up	Output for Blind Up motor control
Blinds Down	Output for Blind Down motor control

Example I/O: Wiring configuration for Option 2



Example I/O: Option 2

Terminals	Description	Type
A, B	Modbus RS-485	Bi-directional
R1, R2	Indoor Unit	Bi-directional
1, 2	Card contact	Digital Input
3, 4	Window Contact	Digital Input
5, 6	Blinds Up	Digital Input
7, 8	Blinds Down	Analog Input
9, 10	Blinds Down	Relay Output
11, 12	Blinds Up	Relay Output
13, 14	Lighting Room	Relay Output
15, 16	Lighting Courtesy	Relay Output

Panasonic Reference

PAW-RE2C3-WH	Stand-Alone with I/O White frame
PAW-RE2C3-GR	Stand-Alone with I/O Grey Frame
PAW-RE2C3-MOD-WH	Modbus RS-485 with I/O White frame
PAW-RE2C3-MOD-GR	Modbus RS-485 with I/O Grey frame
PAW-RE2C3-LON-WH	LonWorks TP/FT-10 with I/O White frame
PAW-RE2C3-LON-GR	LonWorks TP/FT-10 with I/O Grey frame

Individual Control Systems

Wired remote controller. Normal operation with Econavi (CZ-RTC4) (Available in June 2015)

- Time Function 24 hours real time clock (week day indicator)
- Weekly programme function (a maximum of 6 actions can be programmed for each day)
- Sleeping function (this function controls the room temperature for comfortable sleeping)
- Maximum 8 indoor units can be controlled from one remote controller
- Remote control by main remote controller and sub controller is possible (maximum 2 remote controllers (main remote controller and sub controller) can be installed for one indoor unit)
- Possible to connect to the outdoor unit using PAW-MRC cable for servicing purposes
- Outing function (this function can prevent the room temperature from dropping or rising when the occupants are out for a long time)
- Dimensions (H x W x D:) 120 x 120 x 20 mm
- Weight: 160 g

Basic remote controller ON/OFF

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

High-spec wired remote controller (CZ-RTC5) (Available in October 2015)

- Power consumption monitor (only for PACi)
- Flat face design & Touch sensor switch for stylish design and operating usability
- New functions such as for Energy saving & monitoring and for Service use are available on the Full dot LCD (3,5" display)
- Improved illumination
- White LED backlit
- Blink when alarm occurs

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

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

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

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

* Several functions can not use on some outdoor unit. Ex. Power consumption monitor is not available for PACi Standard, Big PACi and PACi Elite 50 type.

Timer remote controller (CZ-RTC2)

- Time Function 24 hours real time clock (week day indicator)
- Weekly programme function (a maximum of 6 actions can be programmed for each day)
- Sleeping function (this function controls the room temperature for comfortable sleeping)
- Maximum 8 indoor units can be controlled from one remote controller
- Remote control by main remote controller and sub controller is possible (maximum 2 remote controllers (main remote controller and sub controller) can be installed for one indoor unit)
- Possible to connect to the outdoor unit using PAW-MRC cable for servicing purposes
- Outing function (this function can prevent the room temperature from dropping or rising when the occupants are out for a long time)

Basic remote controller ON/OFF

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

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

Control contents		Part name, model No.	Quantity
Standard Control	· Control of the various operations of the indoor unit by wired or wireless remote controller. · Cooling or heating mode of the outdoor unit is decided by the first priority of the remote controller. · Switching between remote controller sensor and body sensor is possible.	Timer remote controller: CZ-RTC4 Wired remote controller: CZ-RE2C2 // CZ-RELC2 Wireless remote controller: CZ-RWSU2 // CZ-RWSL2 // CZ-RWSG2 // CZ-RWSK2 // CZ-RE2C2	1 unit each
(1) Group control	· Batch remote control on all indoor units. · Operation of all indoor cells in the same mode. · Up to 8 units can be connected.	Timer remote controller: CZ-RTC4 Wired remote controller: CZ-RE2C2 Wireless remote controller: CZ-RWSU2 // CZ-RWSL2 // CZ-RWSG2 // CZ-RWSK2 // CZ-RE2C2	1 unit
(2) Main/sub remote control	· Max 2 remote controllers per indoor unit. · The button pressed last has priority. · Timer setting is possible even with the sub remote controller.	Main or sub. Timer remote controller: CZ-RTC4 Wireless remote controller: CZ-RWSU2 // CZ-RWSL2 // CZ-RWSG2 // CZ-RWSK2 // CZ-RE2C2	As required

Wireless remote controller

CZ-RWSU2
For 4 Way 90x90 Cassette.

CZ-RWSL2
For 2 Way Cassette.

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

CZ-RWST2
For 1 Way Cassette.

CZ-RWST3
For Ceiling.

CZ-RWSK2 + CZ-RWSC3
Combination for all indoor units.

- Easy installation for the 4 Way cassette type simply by replacing the corner part
- 24 hour timer function
- Remote control by main remote controller and sub controller is possible (Max. 2 remote controllers (main remote controller and sub controller) can be installed for one indoor unit)
- When CZ-RWSC3 is used, wireless control becomes possible for all indoor units (1: when a separate receiver is set up in a different room, control from that room also becomes possible. 2: automatic operation by means of the emergency operation button is possible even when the remote controller has been lost or the batteries have been exhausted)
- Operation of separate energy recovery ventilators (When commercial ventilation fans or heat-exchange ventilation fans have been installed, they can be operated with this remote control (interlocked operation with the indoor unit or independent ventilation ON/OFF)

Simplified remote controller (CZ-RE2C2)

A remote controller with simple functions and basic operation

- Suitable for open rooms or hotels where detailed functions are not required
- ON/OFF, operation mode switching, temperature setting, air speed switching, air flow direction setting, alarm display, and remote controller self-diagnosis can be performed
- Batch group control for up to 8 indoor units
- Remote control by main remote controller and sub controller is possible with a simplified remote controller or a wired remote controller (up to two units)

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

Remote sensor (CZ-CSRC2)

- This remote sensor can be connected to any indoor unit. Please use it to detect the room temperature when no remote controller sensor or body sensor is used (connection to a system without a remote controller is possible)
- For joint use with a remote control switch, use the remote control switch as main remote controller
- Batch group control for up to 8 indoor units

Remote sensor (CZ-CSRC3) (Available in July 2015)

- New appearance design based on simplified remote controller chassis

Centralised Control Systems

Schedule timer (CZ-ESWC2)

The power supply for the schedule timer is taken from one of the following.

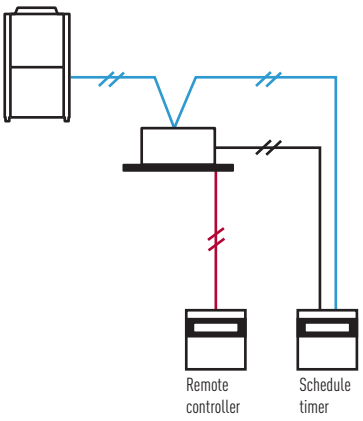
1. Control circuit board (T10) of a nearby indoor unit (power supply wiring length: within 200 m from the indoor unit).
2. System controller (power supply wiring length: within 100 m from the indoor unit).

When the power supply for the schedule timer is taken from the control circuit board of the indoor unit, that indoor unit cannot be used with other control devices using the CZ-T10 terminal. As operation mode and temperature settings are not possible with the schedule timer, it must be used together with a remote controller, a system controller, an intelligent controller, etc. Also, as it does not have an address setting function, the control function of a system controller etc. must be used for address setting.

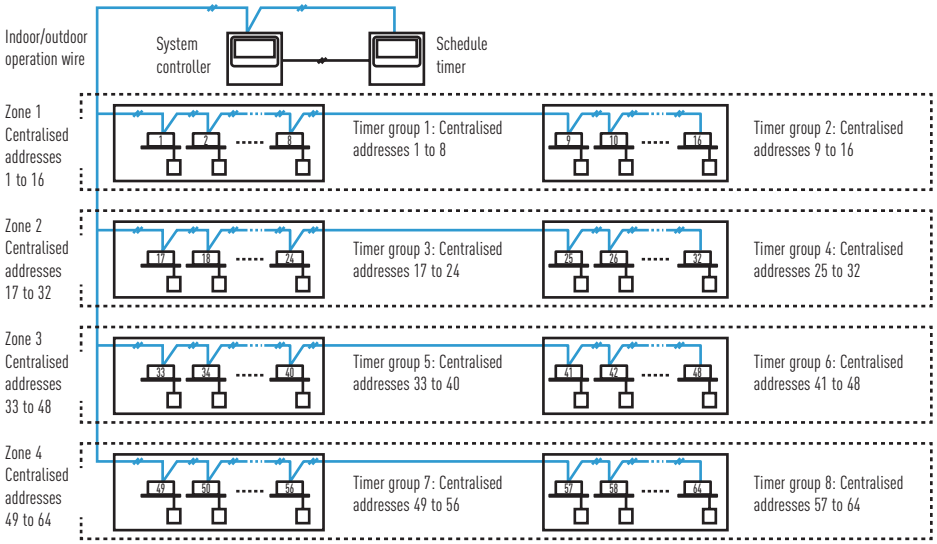
- Up to 64 groups (maximum 64 indoor units) can be controlled divided into 8 timer groups
- Six program operations (Operation/Stop/Local permission/Local prohibition) per day can be set in a program for one week
  - Only operation or stop, remote controller local permission or remote controller local prohibition, and their respective combinations are possible. (Operation + local permission, stop + local prohibition, only local permission, etc.)
  - Local prohibition and the combination of the three items of temperature setting, mode change, and operation/stop can be set at the time of installation.
- A function for pausing the timer in case of national holidays has been added, and timer operation also can be stopped for a long time
  - By setting holidays or operation stop within one week, the timer can be paused just for that week.
  - All timer settings can be stopped with the timer "ON/OFF effective" button. (Return to timer operation is made by pressing the button again.)

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

Connection example 1 (power supply from the indoor unit)



Connection example 2 (power supply from the central controller)



ON/OFF controller (CZ-ANC2)

- 16 groups of indoor units can be controlled.
- Collective control and individual group (unit) control can also be performed.
- Up to 8 ON/OFF controller (4 main, 4 sub) can be installed in one link system.
- The operation status can be determined immediately.

Note: As operation mode and temperature settings are not possible with the ON/OFF controller, it must be used together with a remote controller, a system controller etc.

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

Power supply: AC 220 to 240 V.
I/O part: Remote input (effective voltage: within DC 24 V): All ON/OFF.
Remote output (allowable voltage: within DC 30 V): All ON, All alarm.

New System Controller with scheduled timer (CZ-64ESMC3) (available in December 2015)

System controller (CZ-64ESMC2)

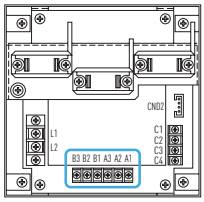
Dimensions (H x W x D): 120 x 120 x 21 + 69 mm (embedding dimension).
Power supply: AC 220 to 240 V.
I/O part: Remote input (effective voltage: DC 24 V): All ON/All OFF
Remote output (voltage-free contact): All ON/All OFF (external Power supply within DC 30 V, maximum 1 A).
Total wiring length: 1 km.

Individual control is possible for max. 64 groups, 64 indoor units.
Control of 64 indoor units divided into 4 zones. (One zone can have up to 16 groups, and one group can have up to 8 units.)
Control is possible for ON/OFF, operation mode, fan speed, air flow direction (only when used without a remote controller), operation monitoring, alarm monitoring, ventilation, remote controller local operation prohibition, etc.

Individual	All operations are possible from the remote controller. However, the contents will be changed to the last settings used on the controller.
Central 1	The remote controller cannot be used for ON/OFF. (All other operations are possible from the remote controller.)
Central 3	The remote controller cannot be used for mode change or temperature setting change. (All other operations are possible from the remote controller.)
Central 4	The remote controller cannot be used for operation mode change. (All other operations are possible from the remote controller.)

Joint use with a remote controller, an intelligent controller, a schedule timer, etc. is possible
(The maximum number of connectable system controllers is 10, including other central controllers on the same circuit.)
(In case of joint use with a wireless remote controller, there are limitations for the control mode. Please use only with "Individual" and "Central 1".)

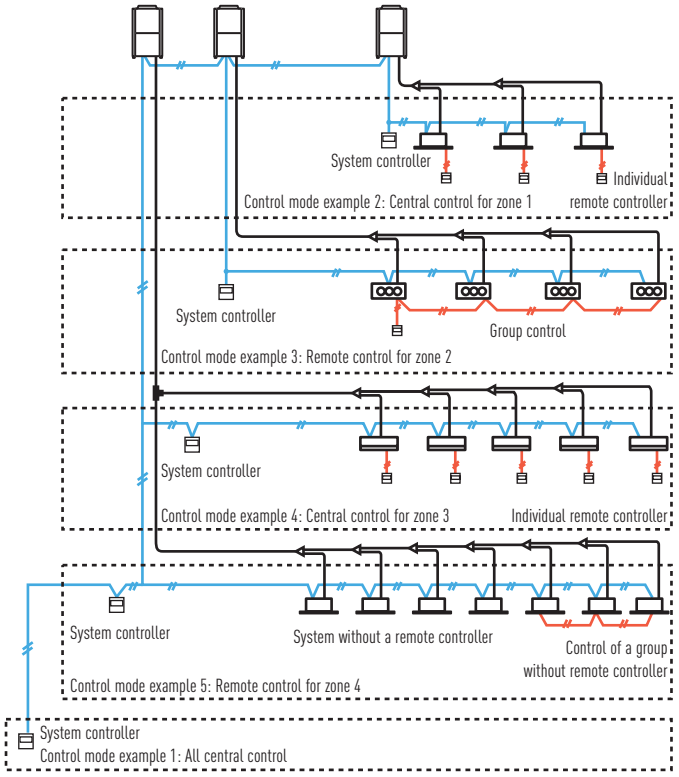
Control of systems without a remote controller and of main/sub systems (a total of up to 2 units) is possible



External Contacts On Central Controllers
Terminals for remote monitoring:
A1) Input for turning ON air conditioners concurrently
A2) Input for turning OFF air conditioners concurrently
A3) Common input for turning air conditioners ON or OFF
B1) On operation state indicator output
B2) Alarm indicator output
B3) Common indicator output

A control mode corresponding to the use condition can be selected from 10 patterns
A. Operation mode: Central control mode or remote control mode can be selected
Central control mode: The system controller is used as centralised control device. (Setting from a remote controller can be prohibited by prohibiting local operation from the system controller.)
Remote control mode: The system controller is used as a remote controller. (Setting from the system controller can be prohibited by prohibiting local operation from another central control unit.)
B. Controlled unit number mode: All mode or zone 1, 2, 3, 4 mode can be selected
All mode: All, zone, or group unit can be selected.
Zone 1, 2, 3, 4 mode: Setting is possible only for the indoor units of zone 1, 2, 3, or 4.

Connection example			
		A Operation mode	
		Central control mode	Remote control mode
B Controlled unit number mode	All mode	All central control. Example 1	All remote control
	Zone 1 mode	Zone 1 central control. Example 2	Zone 1 remote control
	Zone 2 mode	Zone 2 central control	Zone 2 remote control. Example 3
	Zone 3 mode	Zone 3 central control. Example 4	Zone 3 remote control
	Zone 4 mode	Zone 4 central control	Zone 4 remote control. Example 5

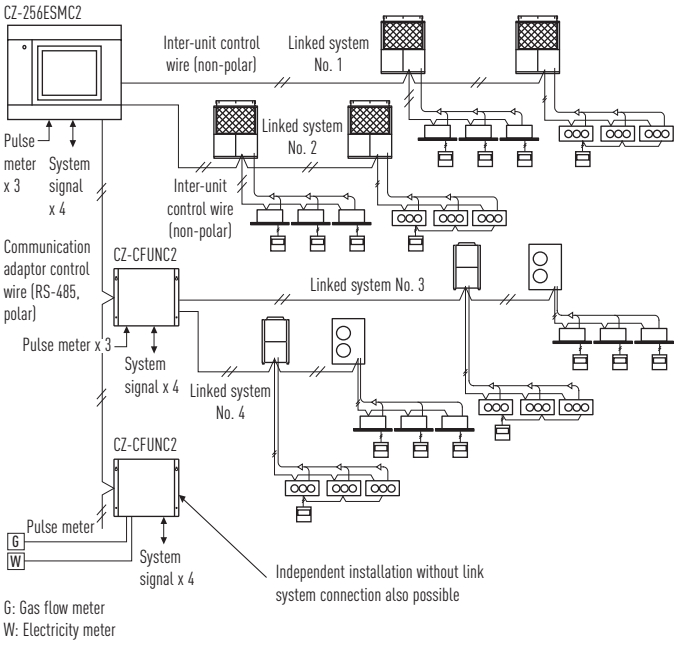


Centralised Control Systems

Intelligent controller (CZ-256ESMC2)

Web application

System Configuration Example



G: Gas flow meter
W: Electricity meter

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

Limitation contents for prohibited operation

Prohibition means limiting the operations possible from the remote controller. It is also possible to change the prohibition items.

Limitation contents (Limitations can be user defined)

Individual — No limits are set for the remote controller operation. However, the contents will be changed to the controller's last settings. (Last-pressed priority.)

Prohibition 1 — The remote controller cannot be used for ON/OFF. (All other operations are possible from the remote controller.)

Prohibition 2 — The remote controller cannot be used for ON/OFF, operation mode change and temperature setting. (All other operations are possible from the remote controller.)

Prohibition 3 — The remote controller cannot be used for operation mode change and temperature setting. (All other operations are possible from the remote controller.)

Prohibition 4 — The remote controller cannot be used for operation mode change. (All other operations are possible from the remote controller.)

Note: Avoid joint use of the AMY system and the intelligent controller on the same indoor/ outdoor operation line.

- Max. 256 indoor units (4 systems x 64 units) can be controlled. In case of three or more systems, a communication adaptor CZ-CFUNC2 must be installed on the outside
- Operation is possible as batch, in zone units, in tenant and in group units
- ON/OFF, operation mode setting, temperature setting, fan speed setting, air flow direction setting (when used without a remote controller), and remote controller local operation prohibition (prohibition 1, 2, 3, 4)
- A system without a remote controller is possible. Joint use with a remote controller or a system controller is also possible
- Use of a schedule timer and holiday setting also can be done
- Proportional distribution of the air conditioning energy is possible. Including CSV-file export via CF-card (supplementary accessory)
- Pulse signal input from electric/gas consumption meter

In case of joint use with a wireless remote control system, there are limitations for the control mode. Please use only with "Permission" and "Prohibition 1".

Dimensions (H x W x D): 240 x 280 x 138mm.
Power supply: AC 100 to 240 V (50 Hz), 30 W (separate power supply).
I/O part: Remote in put (voltage-free contact): All ON/OFF.
Remote output (voltage-free contact): All ON, All alarm (external power supply within DC 30 V, 0.5 A).
Total wiring length: 1 km for each system.
Only for embedding in the panel.

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

Web Interface (CZ-CWEBC2)

Functions

(HxWxD): 248x185x80mm
AC 100 to 240 V (50/60Hz), 17 W
(separate power supply)

- Access and operation by Web browser.
- Icon display.
- Language codes available in English, French, German, Italian, Portguese, Spanish.
- Individual control possible (max. 64 indoor units) ON/OFF operation mode, set temperature, fan speed, Flap set, timer ON/OFF alarm code monitoring, prohibit Remote Control.
- Zone control*.
- All Units control.
- Alarm Log.
- Mail Sent Log.
- Program Timer set 50 daily timers with 50 actions each day, 50 weekly timers 50 weekly timers, 1 holiday timer, 5 special day timers, for each tenant
- Prohibit Remote Control settings.
- IP ADDRESS could be changed via Internet.

Note: It is recommended to install a remote controller or a system controller on site to enable local control if it network experience a problem.

Easy to set to every room by recognizable icon and user-friendly remote control window

- If any of the indoor units is selected, the remote control window shown will be displayed for detailed setting modifications.

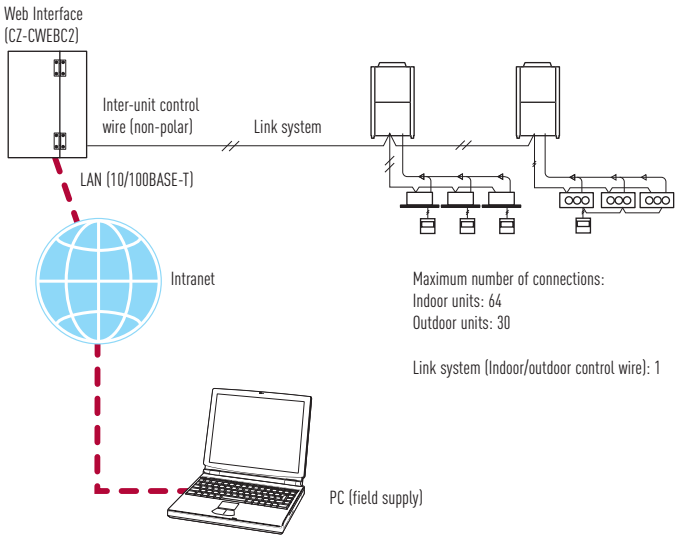
Easy to manage and monitor each tenant use*

- Each floor or tenant, otherwise each zone can be displayed and controlled.
- All unit statuses can also be displayed on one screen.

Program Timer set

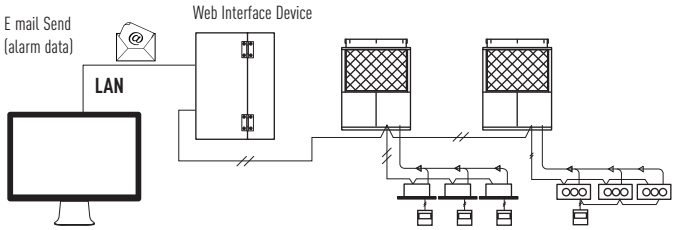
- 50 daily timers with 50 actions each day, 50 weekly timers, holiday timer, 5 special day timers, for each tenant.

* Web interface system not applicable for load distribution.



Maximum number of connections:
Indoor units: 64
Outdoor units: 30

Link system (Indoor/outdoor control wire): 1



Functions

- Access and operation by Web browser.
- Icon display.
- Language codes available in English, French, German, Italian, Portuguese, Spanish.
- Individual control possible (max. 64 indoor units) ON/OFF operation mode, set temperature, fan speed, Flap set, timer ON/OFF alarm code monitoring, prohibit Remote Control.
- Each Tenant (Zone) control.
- All Units control.
- Alarm Log.
- Mail Sent Log.
- Program Timer set 50 daily timers with 50 actions each day, 50 weekly timers 50 weekly timers, 1 holiday timer, 5 special day timers, for each tenant.
- Prohibit Remote Control settings.
- IP Address could be changed via Internet.

Note: it is recommended to install a remote controller or a system controller on site to enable local control if IT network experiance a problem.

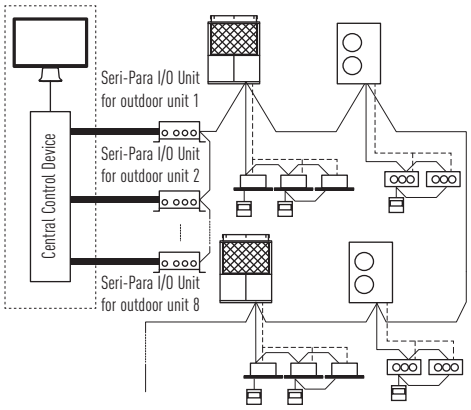
Centralised Control Systems

Seri-Para I /O unit for outdoor unit (CZ-CAPDC2 for ECOi / CZ-CAPDC3 for Mini ECOi and PACi)

- This unit can control up to 4 outdoor units.
- From the central control device, mode changing and batch operation/batch stop are possible.
- Required for demand control.

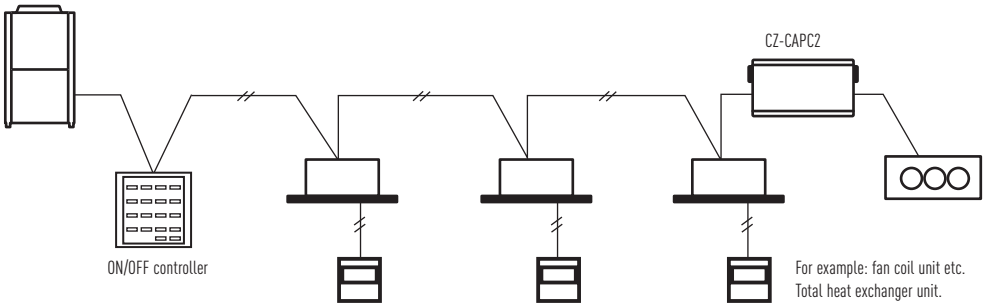
Dimensions (H x W x D): 80 x 290 x 260mm.
Power supply: Single Phase 100/200V (50/60Hz), 18W.
Input: Batch operation/Batch stop (non-voltage contact/DC 24 V, pulse signal). Cooling/Heating (non-voltage contact/static signal). Demand 1/2 (non-voltage contact/static signal) (Local stop by switching)
Output:Operation output (non-voltage contact).
Alarm output (non-voltage contact)

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

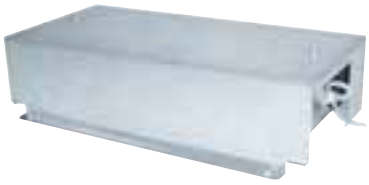


Local adaptor for ON/OFF control (CZ-CAPC2)

- Control and status monitoring is possible for individual indoor unit (or any external electrical device up to 250 V AC, 10 A) by contact signal.

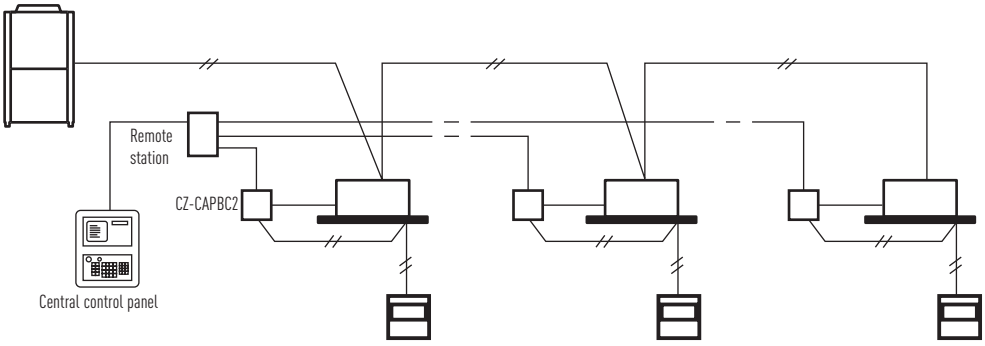


Demand Control 0 -10 V (CZ-CAPBC2)



- Control and status monitoring is possible for individual indoor unit (1 group).
- In addition to operation and stop, there is a digital input function for air speed and operation mode.
- Temperature setting and measuring of the indoor suction temperature can be performed from central monitoring.
- The analog imput for demand of the outdoor capacity by 20 steps (from 40% to 120%) by 0-10V.
- The analog input for temperature setting is 0 to 10 V, or 0 to 140 Ohm.
- Power is supplied from the CZ-T10 terminal of the indoor units.
- Separate power supply also is possible (in case of suction temperature measuring).

* Ask to your distributor.



P-AIMS. Panasonic Total Air Conditioning Management System

P-AIMS Basic software / CZ-CSWKC2

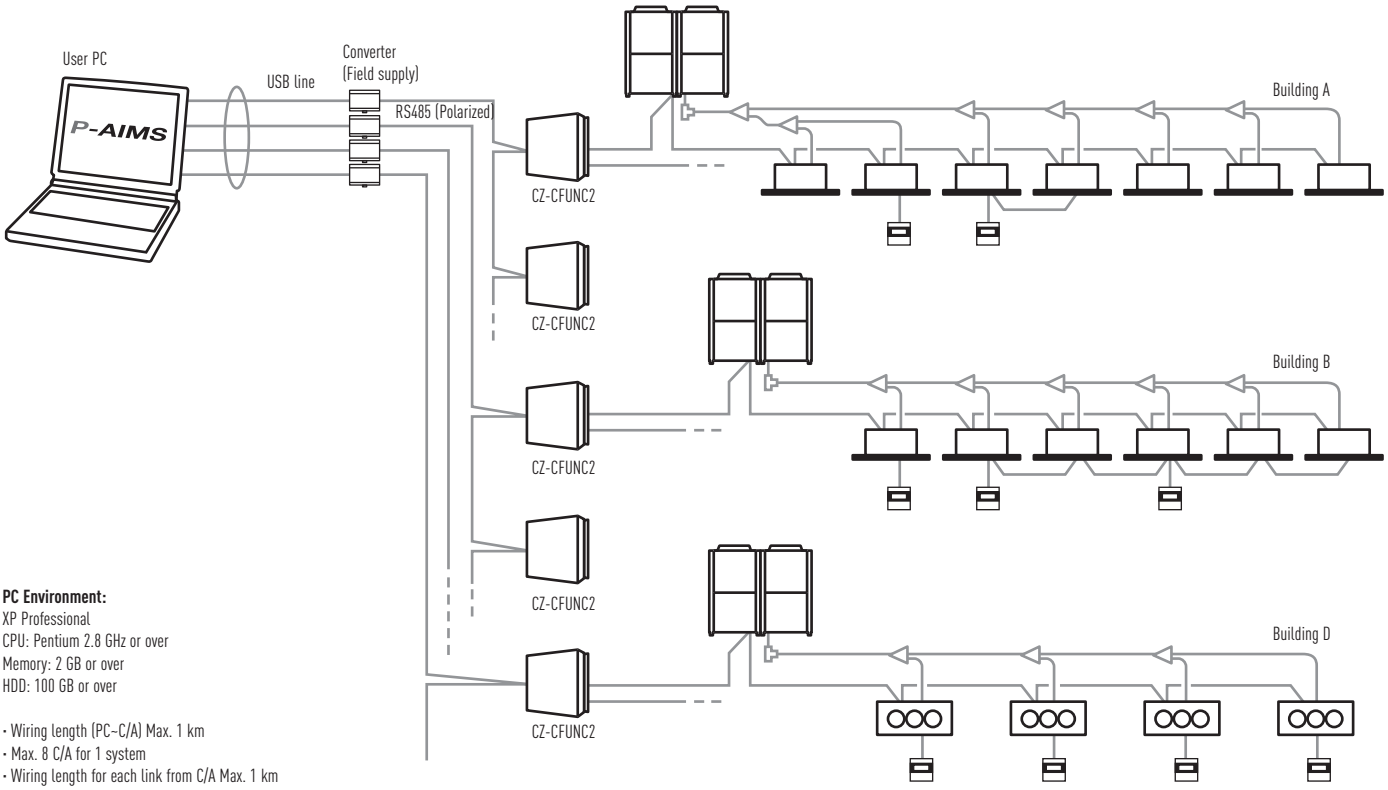
Up to 1024 indoor units can be controlled by one PC.

Functions of basic software

- Standard remote control for all indoor units.
- Many timer schedule programs can be set on the calender.
- Detailed information display for alarms.
- CSV file output with alarm history, operating status.
- Automatic data backup to HDD.

With 4 upgrade packages the basic software can be upgraded to suit individual requirements

P-AIMS is suitable for large shopping centers and universities with many areas/ buildings. 1 "P-AIMS" PC can have 4 independent systems at once. Each system can have max. 8 C/A units, and control max. 512 units. In total, 1024 indoor units can be controlled by 1 "P-AIMS" PC.



PC Environment:
XP Professional
CPU: Pentium 2.8 GHz or over
Memory: 2 GB or over
HDD: 100 GB or over

- Wiring length (PC–C/A) Max. 1 km
- Max. 8 C/A for 1 system
- Wiring length for each link from C/A Max. 1 km

P-AIMS optional software CZ-CSWAC2 for Load distribution
Load distribution calculation for each tenant

- Air-conditioner load distribution ratio is calculated for each unit (tenant) with used energy consumption data (m^3, kWh).
- Calculated data is stored as a CSV type file.
- Data from the last 365 days is stored.

P-AIMS optional software CZ-CSWWC2 for Web application
Web access & control from remote station

- Accessing P-AIMS software from remote PC.
- You can monitor/operate ECOi 6N system by using Web browser (Internet Explorer).

P-AIMS optional software CZ-CSWGC2 for Object layout display
Whole system can be controlled visually

- Operating status monitor is available on the layout display.
- Object's layout and indoor unit's location can be checked at once.
- Each unit can be controlled by virtual remote controller on the display.
- Max. 4 layout screens are shown at once.

P-AIMS optional software CZ-CSWBC2 for BACnet software interface
Connectable to BMS system

- Can communicate with other equipment by BACnet protocol.
- ECOi 6N system can be controlled by both BMS and P-AIMS.
- Max. 255 indoor units can be connected to 1 PC (that has P-AIMS basic & BACnet software).

Centralised Control Systems

Centralised Control Systems

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

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

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

The application will act with various units, regardless of whether they are available in the same intranet or in different locations, transparently to users at any time. In this way, our solution allows to overcome main restrictions like onsite maintenance or the lack of centralization.

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

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

Features of current system

Operation Functions

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

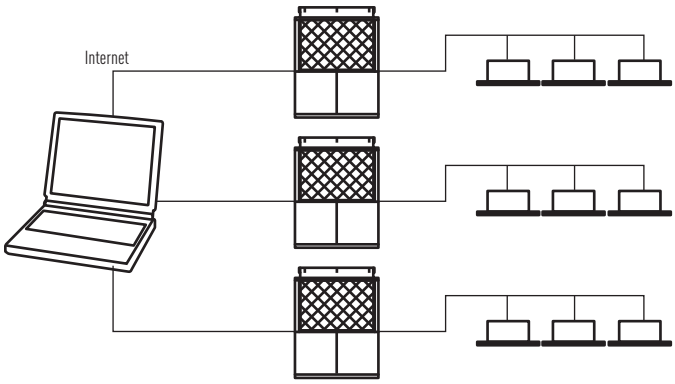
Operation Monitoring

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

Program Timers

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

Current installation



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

Offer reliable solution to improve existing functionalities

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

Benefits

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

For the building Ownership:

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

For Maintenance companies:

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

PACi and VRF Control

Aware of the importance of both control and connectivity in offering the best comfort at the lowest price, Panasonic offers its customers cutting-edge technology, specially designed to ensure our air conditioning systems deliver maximum performance. You can properly manage the air conditioning and perform comprehensive monitoring and control, with all of the features the remote control provides, from anywhere in the world thanks to the internet applications Panasonic has created for you.

Internet Control

Control your air conditioning system with your smart device -smartphone & internet for PACi and VRF Systems

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

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

Internet Control. Easy to install. Maximum benefit
Internet Control is underlined with the slogan "Your home in the cloud", meaning a simple and easy to handle solution has been considered for every user to manage the device, not requiring any communication or computer skills.
No servers. No adaptors. No wires. Just a small box is needed to be connected and placed close to the air conditioning indoor unit... and your smartphone, tablet or PC.
Your existing WiFi connection does the rest when you are at home. Start the App from your smartphone device, your tablet or your computer, and enjoy a new experience in comfort. And if you are out of home, just launch the App, and manage the air conditioning of your home from the cloud. An intuitive and user-friendly application on the screen of your smartphone or PC that lets you manage the air conditioning unit in the same way you do with the remote controller at home.
Internet Control can be downloaded in Apple's AppStore and Android's PlayStore.

Control your air conditioning with the smart internet control device via smartphones, tablet, PC and smart desktop phone via internet
Offering the same functions as if you were at home or office: start/stop, Mode Operation, Set Temperature, Room Temperature etc as well as the new, advanced functionality provided by Internet Control to achieve the best comfort and efficiency with the lowest energy consumption.

Case Study. Paul, Business Man
"My business is growing but I still want to feel like I'm in control. So I carry out all the arrangements, transactions and operations I can from my mobile. From bank transactions, processing orders, to controlling the temperature at the company's different plants; I do everything from my smartphone thanks to IntesisHome and Panasonic."

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

KX-UT670 Smart Desktop Phone from Panasonic.

PACi and VRF Connectivity

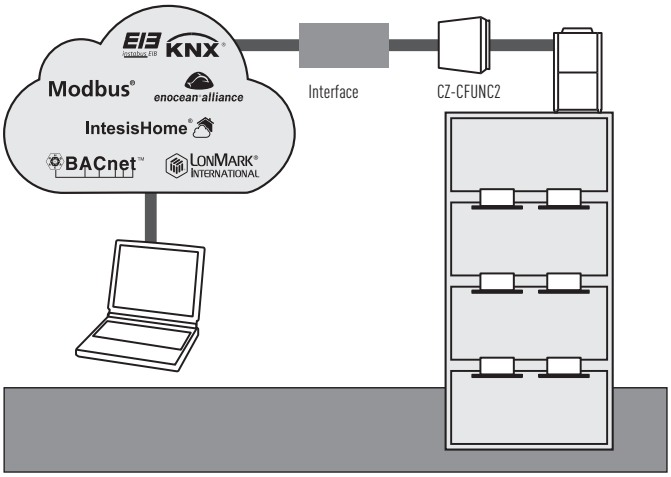
Panasonic Partners have designed solutions specifically for Panasonic air conditioners, and provide complete monitoring, control and full functionality of the entire Commercial line-up from KNX / Modbus / LonWorks / BACnet installations.

PACi Connectivity

Easy connection to KNX, Modbus, LonWorks and BACnet

Great flexibility for integration into your KNX / Modbus / LonWorks / BACnet projects allows fully bi-directional monitoring and control of all the functioning parameters.

For more information, contact Panasonic.



Communication adaptor for VRF Connectivity (CZ-CFUNC2)

This communication interface is required to connect a ECOi and GHP systems to a BMS. An additional interface is needed to convert the information into KNX/Modbus/Bacnet language. CZ-CFUNC2 is very easy to operate and to connect to the Panasonic P-link, which is the ECOi bus. From the CZ-CFUNC2, all the indoor and outdoor units of the installation can be easily control. Two linked wiring systems can be connected to one CZ-CFUNC2.
Dimensions: H 260 x W 200 x D 68mm

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

Airzone. Control of the PACi Hide Aways

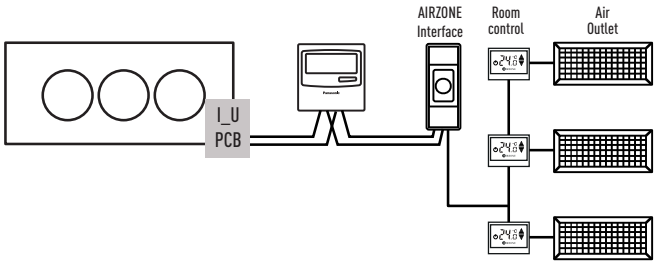
Airzone has developed interfaces to easily connect to Panasonic PACi Hide Away units. Ensuring optimum performance, comfort and energy savings, the new system is efficient and easy to install.

Airzone full range of accessories for any duct project

Different type of outlets

Also plenum automatic doors

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



Easy control by BMS

CONNECTIVITY

ECOi and GHP Connectivity

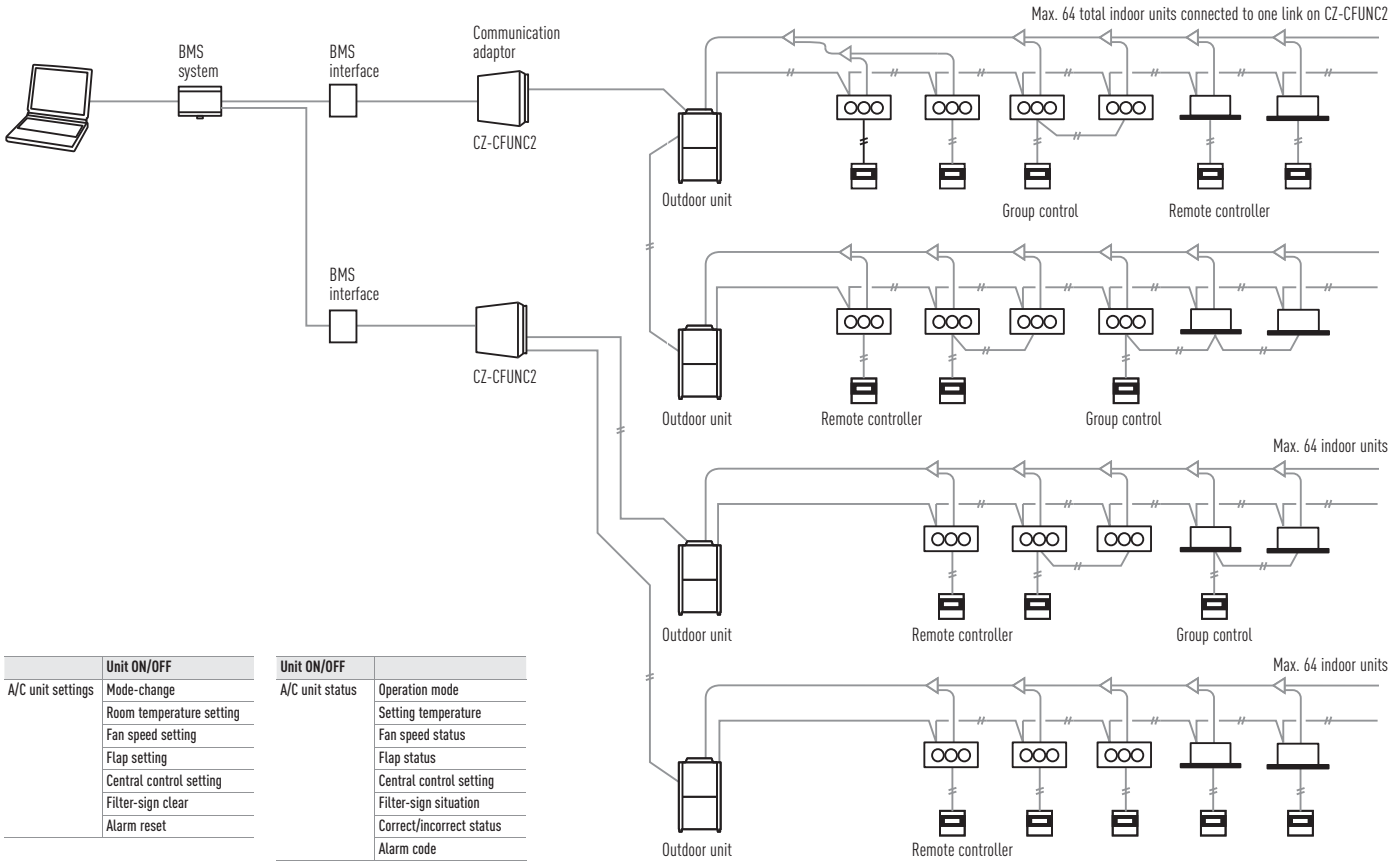
New Plug and play interface connected directly to the P-Link

The interface has been designed specifically for Panasonic and provides complete monitoring, control and full functionality of the Etherea, 4-Way 60x60 cassette and Low static pressure hide away line-up from IntesisHome, KNX, EnOcean, Modbus and BacNet installations.
This connectivity solution is made by a third party company, please contact Panasonic for more information.

	Panasonic model name	Interface	Connected on P-link or in the indoor unit	Maximum number of indoor units connected
ECOi / PACi Indoor Units	PAW-RC2-KNX-1i	KNX	Indoor unit	1 (1 Group of Indoor units)
	PAW-RC2-MBS-1	Modbus RTU*	Indoor unit	1 (1 Group of Indoor units)
	PAW-RC2-ENO-1i	EnOcean	Indoor unit	1 (1 Group of Indoor units)
	PA-RC2-WIFI-1	IntesisHome	Indoor unit	1 (1 Group of Indoor units)
ECOi P-Link	PAW-AC-KNX-64	KNX**	P-link	64
	PAW-AC-KNX-128	KNX**	P-link	128
	PAW-TM-MBS-RTU-64	Modbus RTU**	P-link	64
	PAW-TM-MBS-TCP-128	Modbus TCP**	P-link	128
	PAW-AC-BAC-64	Bacnet**	P-link	64
	PAW-AC-BAC-128	Bacnet**	P-link	128
	CZ-CLNC2	Lonworks	P-link	16 groupes of max. 8 indoor units, in total max. 64 indoor units

* Interface Modbus RTU/TCP is needed in case if Modbus TCP connection. PAW-MBS-TCP2RTU (ModBus RTU Slave devices).
** Interface CZ-CFUNC2 needed.

Example of BMS connection for air conditioner central control system



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

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

ECOi, ECO G and PACi Connectivity indoor units

PCB's and cables for ECOi, ECO G and PACi indoor units		
Name of the cables	**Function**	**Comment**
CZ-T10	All T10 functions	Requires field supplied accessory
PAW-FDC	Operate external fan	Requires field supplied accessory
PAW-OCT	All option monitoring signals	Requires field supplied accessory
CZ-CAPE2	Option monitoring signals wo. fan	Requires aditional wires from spare part supply
PAW-EXCT	Forced Thermo OFF/Leakage D.	Requires field supplied accessory
Name of the PBC	**Function**	**Comment**
PAW-T10	All T10 functions	Allows easy connection "Plug & Play"
PAW-T10V	All T10 functions + powermonitoring	Same like PAW-T10 + monitoring the power supply of indoor unit
PAW-T10H	ON/OFF; Prohibit 5VDC & 230VAC	Specials for single hotel card or window contact
PAW-T10HW	ON/OFF; Prohibit 5VDC	For hotel card + window contact at same time
PAW-PACR3	Redundancy of 2 or 3 systems; for ECOi and PACi	Redundancy of 2 or 3 ECOi or PACi systems including temperature monitoring, error indication, backup, alternative run
PAW-SERVER-PKEA	Redundancy of 2 units PKEA	Redundancy of 2 units PKEA including temperature monitoring, error indication, backup, alternative run

T10 connector (CN015)

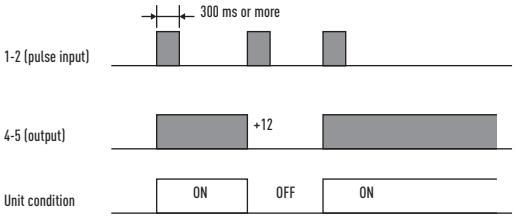
CZ-T10: Panasonic has developed an optional accessory (consisting of plug + wires) called CZ-T10 to enable an easy connection to this T10 connector.

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

Example of applications

T10 terminal Specification (T10: CN015 at indoor unit PCB)

- Control items: 1. Start/stop input
  2. Remote controller prohibit input
  3. Start signal output
  4. Alarm signal output

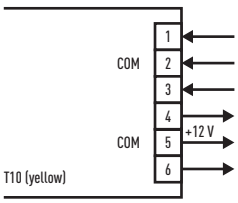


NOTE: The wire length from indoor unit to the Relay must be within 2.0 m. Pulse signal changeable to static with JP cutting. (Refer to JP001)

- Condition

1. 1-2 (Pulse input): Unit ON/OFF condition switching with a pulse signal. (1 pulse signal: shortage status more than 300 msec. or more)
2. 2-3 (Static input): Open / Operation with Remote is permitted.(Normal condition) Close / Remote controller is prohibited.
3. 4-5 (Static output): 12 V output during the unit ON. / No output at OFF.
4. 5-6 (Static output): 12 V output when some errors occur / No output at normal.

- Example of wiring

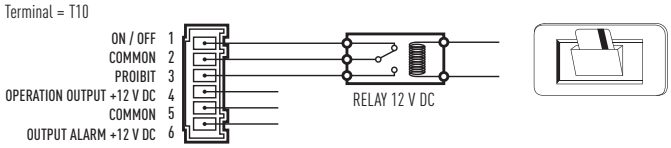


Usage Example

Forced OFF control

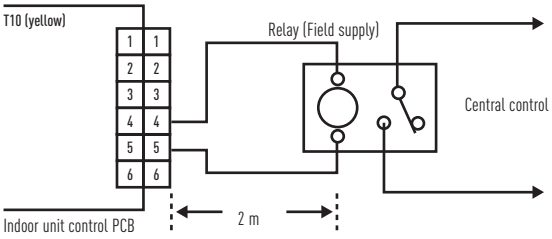
Term 1 & 2: Free contact for ON/OFF signal (cut *JP1* for static signal) when the hotel card is it connected the contact must be close (the unit can be used).

Term 2 & 3: Free contact to prohibit all function in the remote controller install in the room when the hotel card is it removed the contact must be closed (the unit can not work).



Operation ON/OFF signal output

- Condition:
  4-5 (Static output): 12 V output during the unit ON / No output at OFF
- Example of wiring



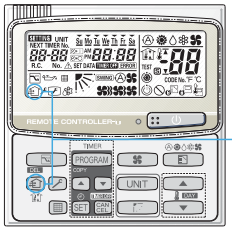
NOTE: The wire length from indoor unit to the Relay must be within 2.0 m. Pulse signal changeable to static with JP cutting. (Refer to JP001)

Fan Drive Connector (CN032)

PAW-FDC: Panasonic has developed an optional accessory (consisting of plug + wires) called PAW-FDC to enable an easy connection to this Fan Drive Connector (CN032).

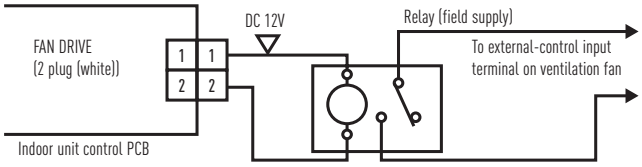
Operating the ventilation fan from the remote controller

- Start / stop of external ventilation and total heat exchanger fans
- Works even if indoor unit is stopped
- In case of group control ➔ all fans will operate; no individual control



External fan On / Off

Ventilation button

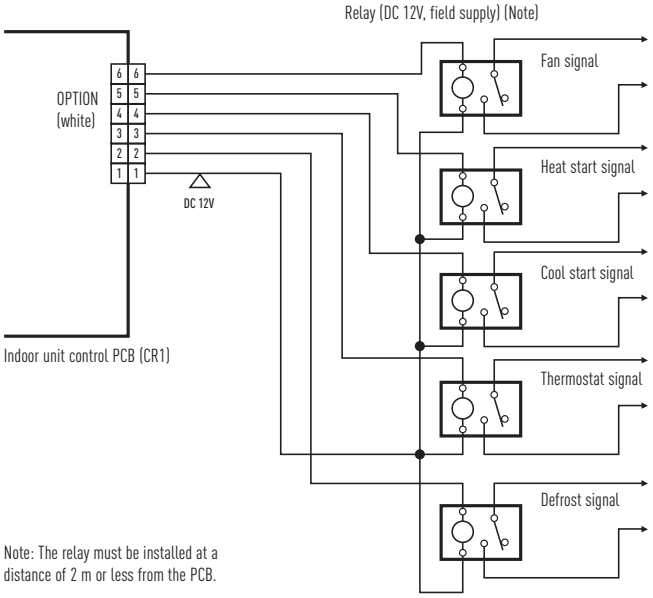


Option Connector (CN060) Output external signals

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

With the combination of the T10 and the option CN060 an external control of the I_U is possible!

6P (white): Outputs external signals as shown in the figure below.



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

EXCT Connector (CN009)

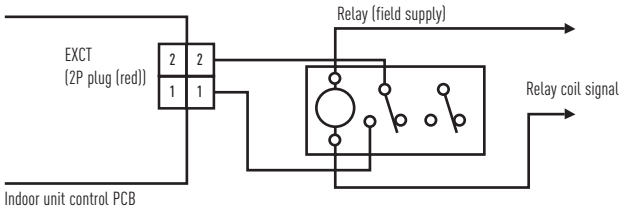
PAW-EXCT: Panasonic has developed an optional accessory (consisting of plug + wires) called PAW-EXCT to enable an easy connection to this EXCT Connector (CN009).

A) With static input
➔ STATIC INPUT ➔ THERMO OFF ➔ ENERGY SAVING

2P plug (red): Can be used for demand control. When input is present, forces the unit to operate with the thermostat OFF.

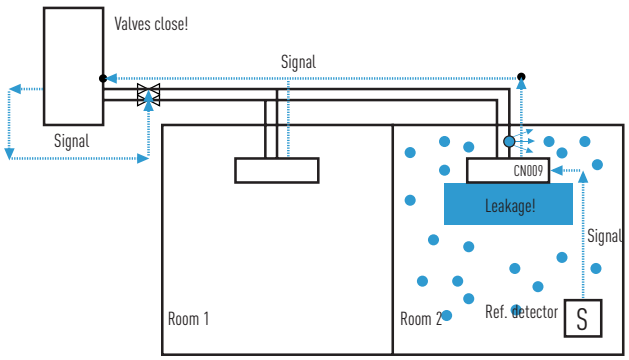
Note: The length of the wiring from the indoor unit control PCB to the relay must be 2m or less.
* Lead wire with 2P plug (special—order part: WIRE K/854 05280 75300)

- Examples of wiring:



B) Example: In connection with a refrigerant sensor

- Signal from leakage detector: non voltage, static.
- Indoor unit setting: Code 0b ➔ 1
- Connector for leak detector: EXCT
- Outdoor unit setting:
  Code C1 ➔ 1 power output if alarm from O2 connector 230 V
  Code C1 ➔ 2 power output if alarm from O2 connector 0 V
- Displayed alarm message P14



Notes

Panasonic