FSV SYSTEMS





A CENTURY OF RELIABILITY









AIR IS LIFE

AIR IS COMFORT

AIR IS ENERGY

QUALITY AIR FOR LIFE

Please read the Installation Instructions carefully before installing the unit,

- and the Operating Instructions before using it.
- Specifications are subject to change without prior notice.
- The contents of this catalogue are accurate as of December 2018.
- Due to printing considerations, the actual colours may vary slightly from those shown.
- All graphics are provided merely for the purpose of illustrating a point.

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

18VRF1201

Panasonic Australia Pty. Limited.

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aircon.panasonic.com.au



Authorised Dealer







QUALITY AIR FOR LIFE

ONE-STOP AIR SOLUTIONS

Panasonic Air Conditioners deliver more than just heating or cooling solutions. We want to create total Air Solutions that improve indoor air quality, for healthier and better living.

GAVE CHANGER



FSV-EX with Extraordinary Energy-Saving Performance and Powerful Operation EER 4.87*

* In the case of U-8MF3R7

A game-changing FSV-EX system delivering energy-saving performance, powerful operation, reliability and comfort surpassing anything previously possible.

It represents a true paradigm shift in air conditioning solutions. Taking quality to the extreme – that's the Panasonic challenge.

Multiple large-capacity all inverter compre (more than 40kW)

Enlarged heat exchanger surface area with triple surface

For 22.4 & 28.0kW unit, th

Newly designair discharge for better ae

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Extraordinary



In the case of U-8MF3R7

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MINI GAME CHANGER



MINI-FSV LE Series Cooling & Heating Type 22.4/25.0kW [LE1] 12.1/14.0/15.5kW [LE2]

MINI-FSV with Extraordinary Energy-Saving Performance and High External Static Pressure (35Pa*)

High External Static Pressure 35Pa*



* LE2, 22.4kW & 25.0kW only.



Compact Design

Long Piping Design Length for Greater Design Flexibility







6





A GLOBALLY TRUSTED AIR CONDITIONING BRAND

Celebrating 60 Years within the air conditioning industry, the Panasonic Air Conditioning Division has grown to become a globally recognised and celebrated entity. Driven by an endless guest for innovation, the Group has evolved from manufacturing compressors to providing comprehensive solutions to our customers' air conditioning needs. Panasonic has become a brand that possesses inextricable associations with superior quality and reliability.



RELIABILITY AND DURABILITY

At Panasonic, we believe that the best air conditioner is one that works quietly and effectively in the background whilst minimising its impact on the environment. People who use our products can look forward to years of high-quality performance without the need for constant maintenance.

As part of our rigorous design and development process, Panasonic air conditioners undergo a variety of stringent tests to ensure effectiveness and long-term reliability. Tests for durability, waterproofing, shock resistance, and noise are conducted on component parts or on the finished products themselves.

As a result of all of these painstaking efforts, Panasonic air conditioners meet even the most demanding industrial standards and regulations in every country where they are sold.



Applying advanced technologies that truly make life better, we live by an unparalleled commitment to product quality. Our approach to product development originates in the DNA of Japanese craftsmanship.

Panasonic is building on the Japanese tradition of uncompromising quality control worldwide, developing and manufacturing fine products and delivering them to customers everywhere.



DURABILITY

At Panasonic we know the importance of a long service life with minimal maintenance. That's why we subject our air conditioners to a wide range of stringent durability tests.



Long-Term Durability Test

To ensure durability and stable operation for many years, we conduct a long-term continuous operation test under conditions that are much more severe than actual operating conditions.



Compressor Reliability Test

After the continuous operation test, we remove the compressor from a selected outdoor unit. disassemble it. and examine the internal mechanisms and parts for potential failure. This helps ensure reliable long-term performance under harsh conditions.



Waterproofing Test

The outdoor unit, which is subject to rain and wind, complies with IPX4 waterproof specifications. Contact sections on printed circuit boards are resin-potted to prevent adverse effects caused by exposure to water (an unlikely occurrence).

INTERNATIONAL STANDARD QUALITY

To uphold the company's reputation around the world, Panasonic strives continuously to offer the highest quality with the lowest possible environment impact.



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

Reliable Parts That Meet or Exceed Industrial Standards

In every country where they are sold, Panasonic air conditioners comply with all required industrial standards and regulations. In addition, Panasonic conducts stringent testing to ensure the reliability of parts and materials.



Compliant Parts

RoHS / REACH

All Panasonic parts and materials comply with Europe's strict RoHS/REACH environmental regulations. During the development and production of parts, stringent inspections are conducted on over 100 materials to ensure that no hazardous substances are included.

Testing laboratory Panasonic Gunma, Japan (PAPARS)



Sophisticated **Production Process**

Panasonic's air conditioner production lines employ state-of-the-art factory automation technologies to ensure products are manufactured efficiently and with uniformly high levels of quality and reliability.

GLOBAL NETWORKING OF AIR CONDITIONING SOLUTIONS

In any indoor environment, eco-friendly air conditioning plays a vital role in maintaining our health, comfort, and productivity. Whether it's an office, a hotel, or a shopping mall, every building matters. That's why Panasonic has developed energy-efficient large-scale air conditioning solutions to suit a variety of business applications.

As one of the pillars of Panasonic's BtoB operations, our air conditioning sector provides comprehensive solutions to businesses around the world. Harnessing our advanced technology and extensive on-site expertise, we serve clients in a diverse range of environments throughout the world.

Panasonic air conditioning solutions are designed from the ground up to meet the specific needs of each location, whilst placing a premium on efficiency and reliability. At every stage, we seek to make optimal use of resources and energy to create solutions that benefit the environment.



PACT Training Facilities

The 24 Panasonic Air Conditioning Training Centres (PACTs) around the world provide a wide range of support for Panasonic's businessuse air conditioning systems. PACT represents Panasonic's unwavering commitment to our sales partners, distributors, and service teams in Europe, Asia, Oceania, and the Americas.



Quality Assurance from Japan to the World

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. As our business expands globally, we strive to transcend borders with our superior-quality products.

Japan





Panasonic Appliances Air Conditioning & Refrigeration

System (Gunma, Japan)

Established July 1959 Air conditioners

· Cold-chain/refrigeration products

Air Conditioning Division (Appliances Company) (Shiga, Japan)

Established April 1972 Appliances Company HQ Home Appliances Business Group
 Corporate Engineering Division

Malaysia







PAPAMY Compressor

Panasonic Appliances Panasonic Appliances Air Air Conditioning Malaysia Conditioning R&D Malaysia Sdn Bhd. Sdn. Bhd.

Established April 1972 Air conditioners
 Air-to-water heat pumps

Established June 1991 B&D for air conditioners · Air-to-water heat pumps

Rotary compressors for air conditioners

PRDCS

Panasonic B&D Cente

Suzhou Co., Ltd

Philippines

PAPARS

Established January 1987 R&D for rotary compressors

China



PAPAGZ PWAPCGZ Panasonic Appliances Air Panasonic Wanbao Conditioning (Guangzhou) Co., Ltd.

Appliances Compresso (Guangzhou) Co., Ltd.

Established June 1993 Air conditioners

Established April 2002 Established June 1993 Air conditioners Rotary compressors for R&D for home appliance air conditioners products · Compressors for

Taiwan

Panasonic Taiwan Co., Ltd.

Established October 1962

Automotive air conditioners

Home appliance products

Air conditioners

PTW

Indonesia

notive air conditioner

Panasonic Manufacturing

Home appliance products

Indonesia

Air conditioners





PMPC

India

PI Panasonic Manufacturing

Philippines Corporation Established September 1965 Established September 1967 • Boom Air conditioners Air conditioners

Home appliance products

12



PAPAMY Compressor R&D

Established September 1997



Panasonic Appliances Air-Conditioning and Refrigeration (Dalian) Co., Ltd.

Established September 1992 Air conditioners



Panasonic India Pvt. Ltd.

Established December 2012

PACT Headquarters and Bases EUROPE



Spain Barcelo

Erance Pari

France Lyor

UK Bracknell

Nordic Stockholm



Spain Madric



Italy Milan Czech Rep. Praque

ASIA

Malaysia Shah Alam





- 🚦 Taiwan Zhonghe Indonesia Jakarta

OCEANIA

Australia Sydney

New Zealand Auckland

Hong Kong

🚦 India Mumbai

China

India New Delhi









FSV-EX ADVANTAGES

The most efficient, powerful and quiet system in Panasonic's history.

There has never been a VRF system like it.

It's the story of a true game changer - Panasonic FSV-EX.

Extraordinary Energy-Saving Performance

The FSV-EX marks a revolutionary step forward in VRF efficiency. A look at the incredible EER value clearly indicates that. What's more, this high EER value is achieved even during part load operation.

This shows the extraordinary energy-saving performance the FSV-EX is capable of providing.





Numerous technological innovations, including an larger fan, have dramatically The result is an even more comfortable building environment.

Multiple large-capacity all inverter compressors (more than 40kW)

high efficiency. Redesigned performance improvement condition and EER performance.

Extended Operation Range Up to 52°C

The FSV-EX can provide cooling even when the outside temperature reaches a maximum of about 52°C. And amazingly, it can still operate at 100% capacity when the outside temperature is as high as 43°C. This high power capability enables reliable operation even under extremely high temperature conditions.

in Part loa



Enlarged heat exchanger surface area with triple surface*

The new heat exchanger features a triple-surface construction. Compared to the divided dual-surface construction in current models, there is no division of space and the area for heat exchange is larger. Also, highly efficient piping pattern increases heat exchange performance by 5%.*1

* For 22.4 & 28.0kW unit, the heat exchanger is 2 row design *1 Based on Panasonic in-house report



Low-Noise Operation

- improved compressor and a newly designed bell mouth and reduced the outdoor noise level.



Two independently controlled inverter compressors achieve components in the body provide especially in the rated cooling







EXTENDED OPERATION RANGE-25°C* TO 52°C

High reliability even under high temperature conditions

Designed to be durable enough to withstand extreme heat, FSV-EX ensures reliable cooling operation over an extended operation range up to 52°C.

 $^{*}\mbox{In the case of FSV-EX}$ (ME2)



Outside air temperature °C (WB)

Full-capacity Operation up to 43°C

The FSV-EX can provide cooling even when the outside temperature reaches a maximum of about 52°C, and amazingly, it can still operate at 100% capacity when the outside temperature is as high as 43°C. This high power capability enables reliable operation even under extremely high temperature conditions.



<Test Condition> 33.5kW model, IU/OU capacity ratio:100%, Indoor Condition:27°C[DB]/19°C[WB] Brand X spec is from technical data book.





EXTRAORDINARY ENERGY-SAVING PERFORMANCE

Designed for Actual Operation Performance

Panasonic builds air conditioning systems not only with a high EER for rated operation, but also with Seasonal-EER appropriate to the customer's actual environment of use. For instance, with rated operation, outdoor temperature is constant at 35°C, but in reality the outdoor temperature is continuously changing. Consequently, required air conditioning performance also changes. That's why Panasonic implements the following kind of proprietary control.

- 1. Set temperature is rapidly attained; full-load operating time is kept to a minimum.
- 2. The frequency of forced oil recovery is minimised. The volume of oil within the compressors is monitored precisely by sensors, so forced oil recovery under full-load operation is conducted only when necessary. Since this suppresses noise due to oil recovery, comfort is maintained.
- 3. Panasonic pursues a high EER, well as high EER in part load, for energy saving performance under a broad range of loads.

Panasonic's design concept contributes to substantial energy cost reductions.



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INTELLIGENT 3-STAGE OIL MANAGEMENT SYSTEM

In a VRF system, where lengthy piping and a large number of indoor units need to be controlled collectively, the key to maintaining the system's reliability is to ensure an appropriate amount of oil is secured in the compressors. In order to avoid oil shortage in the compressor, maximum operation is normally forcibly conducted at regular intervals to recover oil from indoor units. This method, typically employed in a standard VRF, causes the system to overheat or overcool and thus waste energy.

In Panasonic's FSV-EX systems, a sensor for detecting oil levels is mounted in each compressor. In installations with multiple outdoor units, a shortage of oil in one compressor can be compensated for by recovering oil either from another compressor in the same unit, from a compressor in an adjacent outdoor unit, or from a connected indoor unit. Panasonic FSV-EX systems provide users with a comfortable environment whilst saving energy.

Panasonic's intelligent oil management system efficiently manages oil recovery in three stages; minimising the frequency of forced oil recovery while reducing energy cost and maintaining comfort.

STAGE-1

Panasonic compressors are equipped with sensors which monitor oil levels precisely at all times. If oil levels fall, oil can be transferred from other compressors within the same outdoor unit.



STAGE-2

If oil levels in all compressors within the outdoor unit fall, oil can be replenished from adjacent outdoor units.

Balance tube for

STAGE-3

Forced oil recovery is implemented only if oil levels become insufficient in spite of above measures. Panasonic's intelligent oil management system is radically different from conventional oil systems.



Features of 3-stage oil recovery design

Oil sensors installed in each compressor

1 Oil sensors installed in each Panasonic compressor precisely monitor oil levels, eliminating unnecessary oil recovery.



Highly functional oil separator

2

Thanks to extended separate piping, oil recovery efficiency reaches 90%, minimising the oil to be discharged from the compressor.







(((() Detection of the level of activity enables precise power saving.

Presence or absence of people at their desks and the level of activity in the office are detected in real time. Set temperature is automatically adjusted to optimise the lower power consumption.

Human activity and presence detection



activity



At night Automatic Thermo Off depending on conditions at the end of the day*

In the afternoon Reduced cooling when there are fewer people

Dead Zone A sensor is remotely set to maximise the detection area.

Wide detection area

ECONAVI

Installation flexibility ready for indoor unit replacement and layout changes.

Wide 120°

7m

Remote ECONAVI sensor allows

optimum energy operation

Pillars, walls, cabinets and other fittings obstruct the sensor,

reducing the area of detection and lowering the energy-saving effect. Taking into consideration blind spots, Panasonic enables the optimum layout for sensors in any office.

ECONAVI VRF Field Test





Activity detection

		7
Every 2 min	Every 2 min	After 3 h
Heating Set Temp1°C	Heating Set Temp. +/-0 °C	Heating Set T
Cooling Set Temp. +/-0°C	Cooling Set Temp. +1°C	Cooling Set T
HIGHER ACTIVITY	LOWER ACTIVITY	After 20 min

Presence detection										
After 20 mins absence	After 3 hours absence									
Cooling Set Temp. +2°C	Cooling Thermo OFF*									
Heating Set Temp2°C	Heating Thermo OFF*									
After 3 hours the setting can change to Stop										



*Depending on conditions, the setting can change to Switch Off After 3 Hours, Thermo Off or Temperature Shift.



of indoor units Providing outstanding energy-saving performance, Panasonic's inverter VRF System can be connected to

ECONAVI to detect when energy is being wasted. ECONAVI senses the presence or absence of people and the level of activity in each area of an office. When unnecessary heating or cooling is detected, indoor units are individually controlled to match office conditions for energy-saving operation.

Location: Panasonic Malaysia Building Office floor: Cooling capacity 112kW Remote controller setting temperature 23°C Indoor unit 1 S-106MU1E5 U-20ME1E8 2 S-106MU1E 3 S-106MU1E 4 S-106MU1E 5 S-56MU1E5 6 S-106MU1E U-20ME1E8 7 S-106MU1E 8 S-56MU1E 9 S-106MU1E 10 S-106MU1E5 U-14ME1E8 11 S-56MU1E5 Interior of the office 12 S-106MU1E



Energy-saving effect tested and verified by Field test

PANASONIC VRF: TOP IN COMFORT



Since 2006, all Panasonic VRF systems have included special VET & VCT technology as standard.

Our 'smart logic' system checks the temperature every 30 seconds, automatically adjusting coolant temperature according to actual demand and outdoor conditions. This ensures better energy performance at all times.



Example of cooling mode (heating mode is also available)



Technical focus Variable temperatures Evaporation temperature ation temperature Condens



Control of the discharge temperature

far too high.

cooling range of 7-22°C.



This special function is available in all of Panasonic VRF systems' indoor units to guarantee maximum comfort for the end user.

For example, in cooling mode, if the temperature of the discharged air was below 10°C, the user may feel discomfort, just as he would do in heating mode if the temperature was

With the Panasonic control of the discharge air temperature, this can be adjusted within a

Discharge Example of cooling

It can be set and 22 °C

Benefits

- \cdot The air will never be too cold or too warm
- · Cooling and Heating function
- · Comfort
- · Energy saving
- · It prevents the formation of condensation within ducts and vents, improving levels of hygiene.

DELUXE WIRED REMOTE CONTROLLER



Large 3.5" Full-dot LCD with White LED Backlight

Characters and icons are clearly displayed for improved visibility. The display is also large enough to provide a wide range of information for easy confirmation of operation conditions.



Stylish, Easy-to-use **Touch Key Design**

The elegant, flat design features large touch keys in a simple layout enabling easy, intuitive operation.



Multiple control settings to meet a wide range of air conditioning needs

Temp aut	to re	eturn	20:3	0 (T)
OOL/DRY	In	30 m	30°C	45
EAT	In	30 m	16℃	6
UTO	In:	30 m	22°C	E
eturn typ	e		N	orma
- Sel. ()	1	E [-	J]Set	

- Sel. 4 > 2/ - [+]Set

HEAT

AUTO

Timer

- Sel. [-]Set

Heekly timer

Select enable 🛛/disable 🖃

<>Day C □ [+]Timer

Temperature Auto Return Even if you change the temperature setting, after a set time it automatically returns to the original temperature setting. You can set temperature auto return time in 10-minute intervals within a period of 4 hours.

20:30 (THU) Temp range Lower limit - Upper limit 18°C - 30°C (V) DOI /DRY 16°C - 26°C 17°C - 27°C Ξ

HU)

Ζ۷

20:30 (THU) S Auto shutoff Stop time 21:00 9:00 End time Stops in 60 m

Auto Shutoff Air conditioning automatically stops after a set time, so you don't have to worry about forgetting to switch the unit off. Even if you manually switch the unit back on after it has stopped, it automatically switches off again after the set time.

Wide range of controls for extra convenience

20:30 (THU)



Individual Louvre Control Lock individual flap (only for 4-PIPE cassette U2 type) Each of the 4-directional outlets can be selected and locked to provide efficient air distribution that matches the indoor unit layout. Indoor units can be set individually.

Weekly Timer day of the week.

20:30 (THU) Contact address Nane Unset Contact number Unset [D]Close

ON TUE WED THU FRI SAT V-----

> Service Contact Address Once you have register service contact details, they are automatically displayed if a problem with the air conditioner occurs. This helps you quickly deal with the situation.

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Temperature Setting Range

You can set the upper and lower temperature limits. Doing this helps reduce power consumption due to over cooling or heating. Setting is possible in the Cooling, Heating and Dry modes.

This lets you specify 8 Start/Stop times and temperature presets for each

Convenient Controls



Britter inde 20 30 cl nerns Filler cleaning time

Duist time

1500 hour ON everation

21:30 (1

22 00 - 1 💼

Charme (-DConfirm

Operation Lock

Filter Information

Filter information is indicated for

operation period has past. The

Quiet Operation Mode

operating noise. The mode can

be switched On/ Off and Start/

There's a Quiet mode that

End times can be set.

reduces the outdoor unit's

cleaning after a set time of

number of hours can be

adjusted.

To prevent operation by anyone other than the supervisor, operation keys can be locked. This prevents unauthorised personnel from changing temperature settings, airflow rate, airflow direction and other settings.



Change (-)

war Net - 20 30 0

2. Service patient 1. RC Setting sale 3. Test rat. 5. Set + Paur 1-322efire

Maintenance Function

Display of outdoor malfunction data, service contact details, filter cleaning remaining time and other data enables at-a-glance verification of maintenance information with the remote controller.

Repeat OFF Timer

You can stop the operation after a certain period of time each time operation is performed.

Setting Lists

Information concerning current settings is displayed in the remote controller's LCD for easy confirmation.



Quiet operation mode Energy saving Initial settings Ventilation Temperature auto return Auto shutoff Energy Saving Schedule peak cut Repeat off timer

Function List

Weekly timer Filter information Menu items Outing function Temperature setting range ECONAVI on/ off Outdoor unit error data Service Contact address RC setting mode Maintenance Test Run Function Sensor Information Service check Simple/ Detailed Settings Auto address

Control Item

Individual louvre control (Lock individual flap only for 4-

Basic instructions

ON/ OFF timer

FLAP



	Contro	llability
	" A" model	Non "A " model
	•	•
	•	•
-way cassette U2 type)	•	•
		•
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COMMERCIAL AC DESIGN SOFTWARE



Features the unique Mounting Scheme function providing more thorough spec-in and tender quotation support for easier, faster completion of work.



Cash Sydem Ward Signature Improvement Signature Improveme

The Panasonic Commercial AC Design software can be used for all Panasonic FSV and FSV-EX ranges

Panasonic has identified the importance of ever-increasing demands for fast and accurate responses to customer requests in the air conditioning industry, as well as an ever greater emphasis on energy efficiency. The ability to calculate cooling/heating loads and produce information of actual design conditions is a major advantage to any architect, consultant, contractor or end user. Panasonic understands the time-poor and demanding industry we are in and we are pleased to announce the launch of the next generation of our Commercial AC Design Software, streamlining the selection and design process.

Import tools to enable both simple and complex systems to be created. In addition, the system will allow outdoor and indoor units to be dragged on an interactive desktop. This allows users to create everything from realistic floor plans with detailed piping and wiring schematics to send out with quotations, through to installation guidance drawings.











Features include

- Mounting scheme Design selection from building floor drawing.
- Any kind of drawing format. (dxf, jpg, png..etc.)
- · Conventional principal scheme.
- 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 diagrams.
- Automatic price quotation.
- Automatic tender document assist.

FSV SYSTEMS

FSVEX

Panasonic's FSV systems are designed for energy savings, high durability, and even operation at extreme ambient temperature.

Panasonic continuously apply advanced technologies to meet the requirements of a variety of diverse situations, constantly contributing to the creation of comfortable living spaces.



2-PIPE FSV-EX HEAT PUMP ME2 Series

Extraordinary energy-saving performance and powerful operation

Space-saving Combination Model

Anti-Corrosion Cooling or Heating Type Model

- Wide range of systems from 22.4kW to 224.0kW
- Class-leading EER of 4.7 (22.4kW model)
- Industry-leading low noise of 54dB (22.4kW model) Cooling operation possible with outdoor temperature as high as
- 52°C (DB)
- Long piping length (up to 1,000m)
- Up to 64 indoor units connectable
- External static pressure up to 80Pa
- Extended operating range allows heating with outdoor temperatures as low as -25°C (WB)
- Suitable for R22 renewal projects*





High Efficiency Combination Model



(Please refer to page 42 and 43 for details)

• Wide range of systems from 22.4kW to 180.0kW • Higher EER than the Space-saving Combination Model





panasonic

3-PIPE FSV-EX HEAT RECOVERY MF3 Series

Extraordinary energy-saving for simultaneous cooling and heating operation

Cooling and Heating	
Simultaneous	

• Wide range of systems from 22.4kW to 135.0kW

- Class-leading EER: 4.87 / COP: 5.09 (22.4kW model)
- Long piping length (up to 500m)
- Increased maximum number of connectable indoor units (up to 52) • External static pressure up to 80Pa
- Cooling operation is possible when outdoor temperature as high
- as 52°C DB
- Operating range to provide heating at outdoor temperature as low as -20°C WB
- Suitable for R22 renewal projects
- (Please refer to technical document for further details)



2-PIPE Mini-FSV HEAT PUMP LE Series

For small-scale commercial and residential use

Cooling or Heating



- Wide range of systems from 12.1kW to 25.0kW
- High external static pressure 35Pa
- Class leading EER: 4.50 (12.1kW model) / 3.80 (22.4kW model)
- Less than 1 metre high (LE2 range)
 Wide operation range: Cooling: -10°C to 46°C DB, Heating at: -20°C to 18°C DB
- Maximum number of connectable indoor units : 13 (22.4/ 28.0kW model) • Actual piping length: 150m
- Maximum piping length: 150m (12.1/ 14.0/ 15.5kW) / 300m (22.4/ 28.0kW) • Suitable for R22 renewal projects
- (Please refer to technical document for further details)















High-efficiency & space-saving VRF System 2-PIPE FSV-EX ME2 SERIES

Remarkable improvement on key components



Extraordinary energy-saving performance

Multiple large-capacity all inverter **COMPRESSORS** (more than 40.0kW)

Two independently controlled inverter compressors achieve high efficiency. Redesigned components in the body provide performance improvement especially in the rated cooling condition and EER performance.

Enlarged heat exchanger surface area with triple surface*

The new heat exchanger features a triple-surface construction. Compared to the divided dual-surface construction in current models, there is no division of space and the area for heat exchange is larger. Also, highly efficient piping pattern increases heat exchange performance by 5%.



* For 22.4 & 28.0kW unit, the heat exchanger is 2 row design.

Redesigned for smooth and better air discharge

Newly designed curved air discharge bell mouth for better aerodynamics

> This newly designed curved air discharge with integrated top and bottom assures a smooth exhaust flow. This provides a greater air volume with the same sound levels, as well as a lower power input at the same air volume.

Large air discharge area with new flush surface top panel

To reduce air resistance, instead of a tubular fan design, a new, large, flat fan guard design, flush with the top panel, is employed. Consequently, this new design leads to improvements in air resistance as well as modernising the exterior to a more minimalistic look and feel.













New model [ME2]



Conventional model [ME1]



New model [ME2]

Conventional model [ME1]



New model [ME2]

A large number of indoor units can be connected

Up to 64 indoor units can be connected in a single system for ultimate design flexibility.

*Maximum number of indoor units depends on outdoor unit capacity.

Long piping length for greater design flexibility

Adaptable to various building types and sizes Actual piping length: 200m

Maximum piping length: 1,000m *Elevation difference of Max. 90m in case of ODU is higher than IDU may be allowed following certain conditions. Please consult with Panasonic sales engineers in case of piping elevation of over 50m

is required.



Up to 64 Indoor Units Connectable!*

Connectable indoor/outdoor unit capacity ratio up to 130% *

FSV systems attain a maximum indoor unit connection capacity of up to 130%* of the unit's connection range, depending on the outdoor and indoor models selected. So for a reasonable investment, FSV systems provide an ideal air conditioning solution for locations where full cooling/heating are not always required.

SYSTEM / KW	22.4	28.0	33.5	40.0	45.0	50.0	56.0	61.5	68.0	73.0	78.5	85.0	90.0	96.0	101.0	107.0	113.0	118.0	124.0
MNcIU: 130%	13	16	19	23	26	29	33	36	40	43	46	50	53	56	59	63	64	64	64
SYSTEM / KW	130.0	135.0	140.0	145.0	151.0	156.0	162.0	168.0	174.0	180.0	185.0	190.0	196.0	202.0	208.0	213.0	219.0	224.0	
MNcIU: 130%	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	

MNcIU: Maximum Number of Connectable Indoor Unit

Note: 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 authorised Panasonic dealer

If the following conditions are satisfied, the effective range is above 130% up to 200%

i) Obey the limited number of connectable inductor units.
 ii) The lower limit of operating range for heating outdoor temperature is limited to -10°CWB (standard -25°CWB).
 iii) Simultaneous operation is limited to less than 130% of connectable indoor units.

Excellent energy savings

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



Up to 50m length difference between the longest and the shortest piping from the first branch

Flexible piping layout makes it easier to design systems for locations such as train stations, airports, schools and hospitals.

- Up to 64 units can be connected to one system.
- Difference between maximum and minimum pipe runs after first branch can be a maximum of 50m.
- Larger pipe runs can be up to 200m.

Extended operating range

Cooling operation range:

-10°C DB to +52°C DB



Heating operation range:

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



* Depending on the type of remote controller.

Compact design

The ME2 series has reduced the installation space required with up to 56.0kW available in a single chassis. 22.4 -28.0kW are able to fit inside a lift for easy handling on site.



Newly designed fan

Optimised air flow

Newly designed fan and bell-mouth reduces stress on the fan by dispersing air quickly, thus lowering air resistance results in lower energy consumption.



Turbulence (blue) can be suppressed and the unwanted noise can be reduced. Even though a high speed fan is utilised, the noise level is still very low.

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Noise reduction



High external static pressure on condensers

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



Extended compressor life by uniform compressor operation time

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

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



* Depend on accumulated operation time of each compressors * Compressor priority has possibility to be changed.

(e.g) Case1: $A \rightarrow C \rightarrow B \rightarrow D$, Case2: $C \rightarrow A \rightarrow D \rightarrow B$, Case3: $A \rightarrow C \rightarrow D \rightarrow B$, Case4: $C \rightarrow A \rightarrow B \rightarrow D$

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

Except for 22.4, 28.0 & 33.5kW single unit installation

*Backup operation allows uninterrupted cooling or heating to continue whilst waiting for service. Users should contact their authorised service centre as soon as fault occurs

Even if a whole outdoor unit fails





Even if a compressor in a

single system fails

Automatic backup operation.



Featuring inverter control technology, all Panasonic FSV systems are Demand Response Management (DRM) ready. With this control, power consumption at times of peak load can be set in three steps to deliver optimum performance. This helps to reduce annual power consumption with minimal loss in comfort.

Demand control terminal is available to control 0 - 50 - 75 - 100% of capacities.

ME2 series features a DR terminal as standard (not a required option)



Flexible Demand Response with the CZ-CAPDC2*1

Setting is possible as 0% or in the range from 40 to 100% (in 5% intervals). Prior to shipping, these steps have been configured at intervals of 0%, 70% & 100%.

*1 An outdoor Seri-Para I/O unit (CZ-CAPDC2) is required for demand input signal.

Level 1 Level 2 Level 3

Anti-corrosion outdoor unit

All heat exchangers feature our standard Blue Fin technology which increases resistance to corrosion compared to non-Blue Fin models. For high corrosion environments, Panasonic offers optional "Premium Anti-corrosion" models, available for order. The "Premium Anti-corrosion" coating encompasses the treatment of many of the internal electrical and refrigeration components as well as the chassis and screws, offering the highest degree of corrosion protection.

Note: Selecting this unit does not completely eliminate the possibility of rust developing. For details concerning unit installation and maintenance, please consult an authorised dealer. *Specific model with suffix "F" has this treatment.









100% (Preset)	Dessible to shappe 40 100%					
70% (Preset)	Possible to change 40-100%					
0% (Always in stop co	ndition)					



PC board

Electric box Outer body Accumulator Receiver tar Oil separator Heat exchanger (blue fin cor





2-PIPE FSV-EX ME2 Series HIGH EFFICIENCY COMBINATION MODEL

Appearance kW														
kw Model name				U-8ME2R8	U-10ME2R8	U-12ME2R8	40.0 U-14ME2R8	45.0 U-16ME2R8	U-8ME2R8 U-10ME2R8	U-10ME2R8 U-10ME2R8	01.5 U-10ME2R8 U-12ME2R8	68.0 U-12ME2R8 U-12ME2R8		
Power supply				400V/415V/3-phase/50Hz										
	Quality		kW	22.4	28.0	33.5	40.0	45.0	50.0	56.0	61.5	68.0		
Capacity	Cooling		BTU/h	76,500	95,600	114,300	136,500	153,500	170,600	191,100	209,900	232,100		
Capacity	Lingting		kW	25.0	31.5	37.5	45.0	50.0	56.0	63.0	69.0	76.5		
	пеашу		BTU/h	85,300	107,500	128,000	153,600	170,600	191,100	215,000	235,500	261,100		
	R / COP		W/W	4.70	4.37	3.96	3.88	3.52	4.55	4.38	4.13	3.93		
EER / COP	Heating		W/W	5.13	4.76	4.73	4.56	4.42	4.96	4.77	4.76	4.69		
Dimensions	H×W>	×D	mm	1,842 x 770 x 1,000	1,842 x 770 x 1,000	1,842 x 1,180 x 1,000	1,842 x 1,180 x 1,000	1,842 x 1,180 x 1,000	1,842 x 1,600 x 1,000	1,842 x 1,600 x 1,000	1,842 x 2,010 x 1,000	1,842 x 2,420 x 1,000		
Net weight			kg	220	220	270	315	315	440	440	490	540		
	Running curre		urrent A	7.40 / 7.14	10.2 / 9.80	13.0 / 12.5	16.5 / 15.9	20.1 / 19.4	17.3 / 16.6	20.3 / 19.6	23.1 / 22.3	26.6 / 25.6		
	Cooling	Power in	put kW	4.77	6.41	8.47	10.3	12.8	11.0	12.8	14.9	17.3		
Electrical ratings	L La alla a	Running cu	urrent A	7.56 / 7.29	10.5 / 10.1	12.3 / 11.9	15.8 / 15.2	17.9 / 17.3	17.7 / 17.1	20.9 / 20.2	22.7 / 21.9	25.3 / 24.4		
Dimensions H Net weight Electrical ratings He Starting current	Heating	Power in	put kW	4.87	6.62	7.92	9.86	11.3	11.3	13.2	14.5	16.3		
Starting current			А	1	1	1	2	2	2	2	2	2		
All Gauge and			m³/h	13,440	13,440	13,920	13,920	13,920	26,880	26,880	27,360	27,840		
Air now rate		_	L/s	3,733	3,733	3,866	3,866	3,866	7,466	7,466	7,600	7,733		
Refrigerant amo	unt at shi	pment	kg	11.1	11.1	11.3	11.3	11.3	22.2	22.2	22.4	22.6		
External static p	ressure		Pa	80	80	80	80	80	80	80	80	80		
	Gas pip	e	mm (inches)	Ø19.05 (Ø3/4)	Ø22.22 (Ø7/8)	Ø25.40 (Ø1)	Ø25.40 (Ø1)	Ø28.58 (Ø1-1/8)	Ø28.58 (Ø1-1/8)	Ø28.58 (Ø1-1/8)	Ø28.58 (Ø1-1/8)	Ø28.58 (Ø1-1/8)		
Piping	Liquid p	oipe	mm (inches)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)	Ø12.70 (Ø1/2)	Ø12.70 (Ø1/2)	Ø12.70 (Ø1/2)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)		
Connections	Balance	e pipe	mm (inches)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)		
Ambient temper	ature ope	erating rang	ge			Coolin	g: -10°C (DB)~ +{	52°C (DB). Heatin	g: -25°C (WB)~ +	18°C (WB)				
Sound	Normal	mode	dB (A)	54.0	56.0	59.0	60.0	61.0	58.5	59.0	61.0	62.0		
pressure level	Silent m	node (2)	dB (A)	49.0	51.0	54.0	55.0	56.0	53.5	54.0	56.0	57.0		
Sound power level	Normal	mode	dB	75.0	77.0	80.0	81.0	82.0	79.5	80.0	82.0	83.0		

Appearance										P	
kW				140.0	145.0	151.0	156.0	162.0	168.0	174.0	180.0
Model name				U-10ME2R8 U-12ME2R8 U-12ME2R8 U-16ME2R8	U-12ME2R8 U-12ME2R8 U-12ME2R8 U-16ME2R8	U-10ME2R8 U-12ME2R8 U-16ME2R8 U-16ME2R8	U-12ME2R8 U-12ME2R8 U-16ME2R8 U-16ME2R8	U-10ME2R8 U-16ME2R8 U-16ME2R8 U-16ME2R8	U-12ME2R8 U-16ME2R8 U-16ME2R8 U-16ME2R8	U-14ME2R8 U-16ME2R8 U-16ME2R8 U-16ME2R8	U-16ME2R8 U-16ME2R8 U-16ME2R8 U-16ME2R8
Power supply							400V/415V/3	3-phase/50Hz			
	Casling		kW	140.0	145.0	151.0	156.0	162.0	168.0	174.0	180.0
Canaaitu	Cooling		BTU/h	477,800	494,900	515,400	532,400	552,900	573,400	593,600	614,160
Capacity	L La atta a		kW	155.0	160.0	169.0	175.0	182.0	189.0	195.0	201.0
apacity He ER / COP CCC Vimensions H Net weight	Heating		BTU/h	529,000	546,100	576,800	597,300	621,200	645,100	665,300	686,000
	Cooling		W/W	3.87	3.82	3.75	3.71	3.65	3.60	3.60	3.52
EER / COP	Heating		W/W	4.65	4.66	4.56	4.56	4.47	4.47	3.60 4.45 (4,900 x 1,842 x 4,900 x 1,000	4.42
Dimensions	H×W×D		mm	1,842 x 4,490 x 1,000	1,842 x 4,900 x 1,000	1,842 x 4,490 x 1,000	1,842 x 4,900 x 1,000	1,842 x 4,490 x 1,000	1,842 x 4,900 x 1,000	1,842 x 4,900 x 1,000	1,842 x 4,900 x 1,000
Net weight			kg	1,075	1,125	1,120	1,170	1,165	1,215	1,260	1,260
	Running current A		56.2 / 54.2	59.0 / 56.8	63.2 / 60.9	65.3 / 63.0	69.7 / 67.1	73.3 / 70.6	75.8 / 73.0	80.3 / 77.4	
	PC	Power input kW		36.2	38.0	40.3	42.1	44.4	46.7	48.3	51.2
Electrical ratings	Ru	nning current	A	52.2 / 50.4	53.8 / 51.9	58.8 / 56.7	60.2 / 58.1	64.6 / 62.2	67.1 / 64.7	69.5 / 67.0	72.2 / 69.6
	Pc	wer input	kW	33.3	34.3	37.1	38.4	40.7	42.3	43.8	45.5
Starting current			А	5	5	6	6	7	7	8	8
Air flow roto			m³/h	55,200	55,680	55,200	55,680	55,200	55,680	55,680	55,680
Air now rate			L/s	15,333	15,466	15,333	15,466	15,333	15,466	15,466	15,466
Refrigerant amou	unt at shipme	ent	kg	45.0	45.2	45.0	45.2	45.0	45.2	45.2	45.2
External static pr	ressure		Pa	80	80	80	80	80	80	80	80
	Gas pipe	mm	(inches)	Ø38.10 (Ø1-1/2)	Ø41.28 (Ø1-5/8)	Ø41.28 (Ø1-5/8)					
Piping	Liquid pipe	mm	(inches)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)						
00.1100001010	Balance pip	e mm	(inches)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)						
Ambient tempera	ature operati	ng range				Cooling: -10°C (DB)~ +52°C (DB).	Heating: -25°C (NB)~ +18°C (WB)	
Sound	Normal mo	de	dB (A)	65.5	66.0	66.0	66.5	66.5	67.0	67.0	67.0
pressure level	Silent mode	e (2)	dB (A)	60.5	61.0	61.0	61.5	61.5	62.0	62.0	62.0
Sound power level	Normal mo	de	dB	86.5	87.0	87.0	87.5	87.5	88.0	88.0	88.0



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

64.0

59.0

85.0

These specifications are subject to change without notice.

63.5

58.5

84.5

22.4 / 28.0kW

62.5

57.5

83.5

63.5

58.5

84.5

According to the installation site, you may choose the setting position in the depth direction of the anchor bolt from A, B or C.

A: (Installation hole pitch) For removing pipe forward B: (Installation hole pitch) For removing the downward

C: (Installation hole pitch)



unit: mm

ji l		pp -					
96.0	101.0	107.0	113.0	118.0	124.0	130.0	135.0
U-10ME2R8 U-12ME2R8 U-12ME2R8	U-12ME2R8 U-12ME2R8 U-12ME2R8	U-10ME2R8 U-12ME2R8 U-16ME2R8	U-12ME2R8 U-12ME2R8 U-16ME2R8	U-10ME2R8 U-16ME2R8 U-16ME2R8	U-12ME2R8 U-16ME2R8 U-16ME2R8	U-14ME2R8 U-16ME2R8 U-16ME2R8	U-16ME2R8 U-16ME2R8 U-16ME2R8
	400V/415V/	3-phase/50Hz					
96.0	101.0	107.0	113.0	118.0	124.0	130.0	135.0
327,600	344,700	365,200	385,700	402,700	423,200	443,700	460,800
108.0	113.0	119.0	127.0	132.0	138.0	145.0	150.0
368,600	385,700	406,100	433,400	450,500	471,000	494,900	511,900
4.05	3.95	3.84	3.75	3.69	3.62	3.62	3.52
4.72	4.73	4.61	4.57	4.49	4.50	4.46	4.42
1,842 x 3,250 x 1,000	1,842 x 3,660 x 1,000	1,842 x 3,250 x 1,000	1,842 x 3,660 x 1,000	1,842 x 3,250 x 1,000	1,842 x 3,660 x 1,000	1,842 x 3,660 x 1,000	1,842 x 3,660 x 1,000
760	810	805	855	850	900	945	945
36.8 / 35.5	39.3 / 37.9	43.8 / 42.2	46.7 / 45.0	50.2 / 48.4	53.2 / 51.3	56.9 / 54.9	60.2 / 58.1
23.7	25.6	27.9	30.1	32.0	34.3	35.9	38.4
35.9 / 34.6	37.1 / 35.8	40.5 / 39.0	43.6 / 42.0	46.6 / 44.9	48.2 / 46.4	51.5 / 49.7	53.8 / 51.8
22.9	23.9	25.8	27.8	29.4	30.7	32.5	33.9
3	3	4	4	5	5	6	6
41,280	41,760	41,280	41,760	41,280	41,760	41,760	41,760
11,466	11,600	11,466	11,600	11,466	11,600	11,600	11,600
33.7	33.9	33.7	33.9	33.7	33.9	33.9	33.9
80	80	80	80	80	80	80	80
Ø31.75 (Ø1-1/4)	Ø38.10 (Ø1-1/2)						
Ø19.05 (Ø3/4)							
Ø6.35 (Ø1/4)							
Cooling: -10°C (DB)~ +52°C (DB).	Heating: -25°C (WB)~ +18°C (WB)			
63.0	64.0	64.0	64.5	65.0	65.5	65.5	66.0
58.0	59.0	59.0	59.5	60.0	60.5	60.5	61.0
84.0	85.0	85.0	85.5	86.0	86.5	86.5	87.0

33.5 / 40.0 / 45.0kW

According to the installation site, you may choose the setting position in the depth direction of the anchor bolt from A, B or C.

A: (Installation hole pitch) For removing pipe forward B: (Installation hole pitch) For removing the downward C: (Installation hole pitch)

Top view





unit: mm

2-PIPE FSV-EX ME2 Series SPACE SAVING COMBINATION MODEL

Appearance													
kW				22.4	28.0	33.5	40.0	45.0	50.0	56.0	61.5	68.0	
Model name				U-8ME2R8	U-10ME2R8	U-12ME2R8	U-14ME2R8	U-16ME2R8	U-18ME2R8	U-20ME2R8	U-10ME2R8 U-12ME2R8	U-12ME2R8 U-12ME2R8	
Power supply				400V/415V/3-phase/50Hz									
	kW		kW	22.4	28.0	33.5	40.0	45.0	50.0	56.0	61.5	68.0	
Que est t	Cooling		BTU/h	76,500	95,600	114,300	136,500	153,600	170,600	191,100	209,900	232,100	
Capacity	L La alfra a			25.0	31.5	37.5	45.0	50.0	56.0	63.0	69.0	76.5	
	Heating		BTU/h	85,300	107,500	128,000	153,600	170,600	191,100	215,000	235,500	261,100	
	Cooling		W/W	4.70	4.37	3.96	3.88	3.52	3.38	3.01	4.13	3.93	
EER / COP	Heating		W/W	5.13	4.76	4.73	4.56	4.42	4.38	3.94	4.76	4.69	
Dimensions	H x W x D mm		1,842 x 770 x 1,000	1,842 x 770 x 1,000	1,842 x 1,180 x 1,000	1,842 x 1,180 x 1,000	1,842 x 1,180 x 1,000	1,842 x 1,540 x 1,000	1,842 x 1,540 x 1,000	1,842 x 2,010 x 1,000	1,842 x 2,420 x 1,000		
Net weight			kg	220	220	270	315	315	375	375	490	540	
	Cooling	Cooling	Running	current A	7.40 / 7.14	10.2 / 9.80	13.0 / 12.5	16.5 / 15.9	20.1 / 19.4	23.0 / 22.1	28.3 / 27.2	23.1 / 22.3	26.6 / 25.6
	Cooling	Power i	input kW	4.77	6.41	8.47	10.3	12.8	14.8	18.6	14.9	17.3	
Electrical ratings		Running	current A	7.56 / 7.29	10.5 / 10.1	12.3 / 11.9	15.8 / 15.2	17.9 / 17.3	20.1 / 19.4	24.6 / 23.7	22.7 / 21.9	25.3 / 24.4	
	Heating	Power i	input kW	4.87	6.62	7.92	9.86	11.3	12.8	16.0	14.5	16.3	
Starting current			А	1	1	1	2	2	2	2	2	2	
			m³/h	13,440	13,440	13,920	13,920	13,920	24,300	24,300	27,360	27,840	
Air flow rate			L/s	3,733	3,733	3,866	3,866	3,866	6,750	6,750	7,600	7,733	
Refrigerant amo	unt at shi	pment	kg	11.1	11.1	11.3	11.3	11.3	11.0	11.0	22.4	22.6	
External static p	ressure		Pa	80	80	80	80	80	80	80	80	80	
	Gas pip	e	mm (inches)	Ø19.05 (Ø3/4)	Ø22.22 (Ø7/8)	Ø25.40 (Ø1)	Ø25.40 (Ø1)	Ø28.58 (Ø1-1/8)	Ø28.58 (Ø1-1/8)	Ø28.58 (Ø1-1/8)	Ø28.58 (Ø1-1/8)	Ø28.58 (Ø1-1/8)	
Piping	Liquid p	oipe	mm (inches)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)	Ø12.70 (Ø1/2)	Ø12.70 (Ø1/2)	Ø12.70 (Ø1/2)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	
CONTRECTIONS	Balance	e pipe	mm (inches)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	
Ambient temper	ature ope	erating rar	nge			Cooling	g: -10°C (DB)~ +5	2°C (DB). Heating	: -25°C (WB)~ +1	8°C (WB)			
Sound	Normal	mode	dB (A)	54.0	56.0	59.0	60.0	61.0	59.0	60.0	61.0	62.0	
pressure level	Silent m	node (2)	dB (A)	49.0	51.0	54.0	55.0	56.0	54.0	55.0	56.0	57.0	
Sound power level	Normal	mode	dB	75.0	77.0	80.0	81.0	82.0	80.0	81.0	82.0	83.0	

Appearance									P		pp 1	
kW				140.0	145.0	151.0	156.0	162.0	168.0	174.0	180.0	185.0
Model name		U-14ME2R8 U-16ME2R8 U-20ME2R8	U-16ME2R8 U-16ME2R8 U-20ME2R8	U-14ME2R8 U-20ME2R8 U-20ME2R8	U-16ME2R8 U-20ME2R8 U-20ME2R8	U-18ME2R8 U-20ME2R8 U-20ME2R8	U-20ME2R8 U-20ME2R8 U-20ME2R8	U-14ME2R8 U-16ME2R8 U-16ME2R8 U-16ME2R8	U-16ME2R8 U-16ME2R8 U-16ME2R8 U-16ME2R8	U-10ME2R8 U-16ME2R8 U-20ME2R8 U-20ME2R8		
Power supply					400/415V/3-phase/50Hz							
	o "		kW	140.0	145.0	151.0	156.0	162.0	168.0	174.0	180.0	185.0
0	Cooling		BTU/ł	477,800	494,900	515,400	532,400	552,900	573,400	593,700	614,200	631,200
Capacity			kW	155.0	160.0	169.0	175.0	182.0	189.0	195.0	201.0	207.0
	Heating		BTU/ł	529,000	546,100	576,800	597,300	621,200	645,100	665,300	686,000	706,300
550 / 000	Cooling		W/W	3.39	3.32	3.21	3.15	3.12	3.01	3.60	3.52	3.28
EER / COP	Heating		W/W	4.29	4.27	4.11	4.08	4.06	3.94	4.45	4.42	4.16
Dimensions	H x W x	¢ D	mm	1,842 x 4,020 x 1,000	1,842 x 4,020 x 1,000	1,842 x 4,380 x 1,000	1,842 x 4,380 x 1,000	1,842 x 4,740 x 1,000	1,842 x 4,740 x 1,000	1,842 x 4,900 x 1,000	1,842 x 4,900 x 1,000	1,842 x 5,210 x 1,000
Net weight			kg	1,005	1,005	1,065	1,065	1,125	1,125	1,260	1,260	1,285
	Quality	Running c	current A	64.1 / 61.8	67.8 / 65.4	72.2 / 69.6	76.0 / 73.3	79.8 / 77.0	84.8 / 81.7	75.8 / 73.0	80.3 / 77.4	86.6 / 83.5
Electric el vetieres	Cooling	Power in	nput kW	41.3	43.7	47.0	49.5	52.0	55.8	48.3	51.2	56.4
Electrical ratings	Lippting	Running c	current A	56.6 / 54.6	58.8 / 56.7	63.8 / 61.5	66.6 / 64.2	69.5 / 67.0	73.7 / 71.0	69.5 / 67.0	72.2 / 69.6	77.1 / 74.3
	Heating	Power in	nput kW	36.1	37.5	41.1	42.9	44.8	48.0	43.8	45.5	49.7
Starting current			А	6	6	6	6	6	6	8	8	7
Air flow rate			m³/h	52,140	52,140	62,520	62,520	72,900	72,900	55,680	55,680	75,960
All llow rate			L/s	14,483	14,483	17,366	17,366	20,250	20,250	15,466	15,466	21,100
Refrigerant amo	unt at shi	pment	kg	33.6	33.6	33.3	33.3	33.0	33.0	45.2	45.2	44.4
External static p	ressure		Pa	80	80	80	80	80	80	80	80	80
Disiss	Gas pip	е	mm (inche	s) Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø41.28 (Ø1-5/8)	Ø41.28 (Ø1-5/8)	Ø41.28 (Ø1-5/8)
connections	Liquid p	oipe	mm (inche	s) Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)
	Balance	e pipe	mm (inche	s) Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)
Ambient temper	ature ope	rating ran	nge		Cooling: -1	0°C (DB)~ +52°C	(DB). Heating: -2	5°C (WB)~ +18°C	(WB)			
Sound	Normal	mode	dB (A)	65.5	65.5	65.0	65.5	64.5	65.0	67.0	67.0	66.0
pressure level	Silent m	node (2)	dB (A)	60.5	60.5	60.0	60.5	59.5	60.0	62.0	62.0	61.0
Sound power level	Normal	mode	dB	86.5	86.5	86.0	86.5	85.5	86.0	88.0	88.0	87.0

U-8N U-10	U-8ME2R8 U-10ME2R8 U-10ME2R8 U-16ME2R8 U-16ME2R8 U-20ME2R8										
								j j l			
73.0	78.5	85.0	90.0	96.0	101.0	107.0	113.0	118.0	124.0	130.0	135.0
U-10ME2R8 U-16ME2R8	U-12ME2R8 U-16ME2R8	U-14ME2R8 U-16ME2R8	U-16ME2R8 U-16ME2R8	U-14ME2R8 U-20ME2R8	U-16ME2R8 U-20ME2R8	U-18ME2R8 U-20ME2R8	U-20ME2R8 U-20ME2R8	U-10ME2R8 U-16ME2R8 U-16ME2R8	U-12ME2R8 U-16ME2R8 U-16ME2R8	U-14ME2R8 U-16ME2R8 U-16ME2R8	U-16ME2R8 U-16ME2R8 U-16ME2R8
	400V/415V/3-phase/50Hz										
73.0	78.5	85.0	90.0	96.0	101.0	107.0	113.0	118.0	124.0	130.0	135.0
249,100	267,900	290,100	307,200	327,600	344,700	365,200	385,700	402,700	423,200	443,700	460,800
81.5	87.5	95.0	100.0	108.0	113.0	119.0	127.0	132.0	138.0	145.0	150.0
278,200	298,600	324,200	341,300	368,600	385,700	406,100	433,300	450,500	471,000	494,900	511,900
3.80	3.69	3.68	3.52	3.32	3.22	3.16	3.00	3.69	3.62	3.62	3.52
4.55	4.56	4.48	4.42	4.17	4.14	4.13	3.92	4.49	4.50	4.46	4.42
1,842 x 2,010 x 1,000	1,842 x 2,420 x 1,000	1,842 x 2,420 x 1,000	1,842 x 2,420 x 1,000	1,842 x 2,780 x 1,000	1,842 x 2,780 x 1,000	1,842 x 3,140 x 1,000	1,842 x 3,140 x 1,000	1,842 x 3,250 x 1,000	1,842 x 3,660 x 1,000	1,842 x 3,660 x 1,000	1,842 x 3,660 x 1,000
535	585	630	630	690	690	750	750	850	900	945	945
30.1 / 29.0	33.1 / 31.9	36.6 / 35.3	40.2 / 38.7	44.9 / 43.2	48.2 / 46.5	52.1 / 50.2	57.3 / 55.2	50.2 / 48.4	53.2 / 51.3	56.9 / 54.9	60.2 / 58.1
19.2	21.3	23.1	25.6	28.9	31.4	33.9	37.7	32.0	34.3	35.9	38.4
28.4 / 27.4	30.1 / 29.0	33.6 / 32.4	35.8 / 34.6	40.6 / 39.2	42.4 / 40.8	44.7 / 43.1	49.8 / 48.0	46.6 / 44.9	48.2 / 46.4	51.5 / 49.7	53.8 / 51.8
17.9	19.2	21.2	22.6	25.9	27.3	28.8	32.4	29.4	30.7	32.5	33.9
3	3	4	4	4	4	4	4	5	5	6	6
27,360	27,840	27,840	27,840	38,220	38,220	48,600	48,600	41,280	41,760	41,760	41,760
7,600	7,733	7,733	7,733	10,616	10,616	13,500	13,500	11,466	11,600	11,600	11,600
22.4	22.6	22.6	22.6	22.3	22.3	22.0	22.0	33.7	33.9	33.9	33.9
80	80	80	80	80	80	80	80	80	80	80	80
Ø31.75 (Ø1-1/4)	Ø31.75 (Ø1-1/4)	Ø31.75 (Ø1-1/4)	Ø31.75 (Ø1-1/4)	Ø31.75 (Ø1-1/4)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)
Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)
Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)
				Cooling: -10°C (I	DB)~ +52°C (DB).	Heating: -25°C (WB)~ +18°C (WB)			
62.5	63.5	63.5	64.0	63.0	63.5	62.5	63.0	65.0	65.5	65.5	66.0
57.5	58.5	58.5	59.0	58.0	58.5	57.5	58.0	60.0	60.5	60.5	61.0
83.5	84.5	84.5	85.0	84.0	84.5	83.5	84.0	86.0	86.5	86.5	87.0



400/415V/3-phase/50Hz							
190.0	196.0	202.0	208.0	213.0	219.0	224.0	
648,300	668,800	689,200	709,700	727,000	747,200	764,300	
213.0	219.0	226.0	233.0	239.0	245.0	252.0	
726,800	747,200	771,100	795,000	815,500	836,000	860,100	
3.26	3.15	3.22	3.19	3.10	3.08	3.01	
4.18	4.05	4.14	4.12	4.03	4.03	3.94	
1,842 x 5,620 x 1,000	1,842 x 5,570 x 1,000	1,842 x 5,620 x 1,000	1,842 x 5,980 x 1,000	1,842 x 5,980 x 1,000	1,842 x 6,340 x 1,000	1,842 x 6,340 x 1,000	
1,335	1,345	1,380	1,440	1,440	1,500	1,500	
89.4 / 86.1	95.5 / 92.1	96.4 / 92.9	100.3 / 96.6	105.3 / 101.5	108.0 / 104.1	113.0 / 109.0	
58.2	62.2	62.8	65.3	68.6	71.1	74.4	
79.2 / 76.3	83.1 / 80.1	84.7 / 81.7	87.7 / 84.5	92.0 / 88.7	93.4 / 90.0	98.3 / 94.7	
51.0	54.1	54.6	56.5	59.3	60.8	64.0	
7	7	8	8	8	8	8	
76,440	86,340	76,440	86,820	86,820	97,200	97,200	
21,233	23,983	21,233	24,116	24,116	27,000	27,000	
44.6	44.1	44.6	44.3	44.3	44.0	44.0	
80	80	80	80	80	80	80	
Ø41.28 (Ø1-5/8)	Ø41.28 (Ø1-5/8)	Ø44.45 (Ø1-3/4)					
Ø22.22 (Ø7/8)							
Ø6.35 (Ø1/4)							
	Cooling: -10°C (E	DB)~ +52°C (DB).	Heating: -25°C (N	NB)~ +18°C (WB)			
66.5	65.5	66.5	66.5	66.5	66.0	66.0	
61.5	60.5	61.5	61.5	61.5	61.0	61.0	
87.5	86.5	87.5	87.5	87.5	87.0	87.0	

GLOBALREMARKS

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

These specifications are subject to change without notice.

224.0	
ME2R8	
ME2R8	
ME2R8	
ME2R8	

2-PIPE FSV-EX ME2 Series SPACE SAVING COMBINATION MODEL

8 intake

Air

Top view



22.4 / 28.0kW

- According to the installation site, you may choose the setting position in the depth direction of the anchor bolt from A, B or C.
- A: (Installation hole pitch) For removing pipe forward B: (Installation hole pitch) For removing the tube downward C: (Installation hole pitch)





Air outlet

Front view

22.4 / 28.0 / 33.5 / 40.0 / 45.0kW

According to the installation site, you may choose the setting position in the depth direction of the anchor bolt from A, B or C.

A: (Installation hole pitch) For removing pipe forward B: (Installation hole pitch) For removing the tube downward C: (Installation hole pitch)





Air outlet

 \bigcirc

 \cap

50.0 / 56.0kW

According to the installation site, you may choose the setting position in the depth direction of the anchor bolt from A, B or C.

1000

intake

Air

15

- A: (Installation hole pitch) For removing pipe forward B: (Installation hole pitch) For removing the tube downward C: (Installation hole pitch)





44

Piping Design

Select installation locations so that the lengths and sizes of refrigerant piping are within the allowable ranges shown in the figure below.



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

Items	Mark	Contents	Length (m)				
			Actual length	≤200*2			
Allowable piping length		Maximum piping length	Equivalent length	≤210*2			
	Δ L (L2-L4)	Difference between max. length and minimu	≤50* ⁵				
	LM	Maximum length of main piping (at maximur * Even after 1st distribution joint, LM is allowed if at r	*3				
	l1, l2~l64	Maximum length of each distribution pipe	≤30 ^{*7}				
	L1+ l1+ l2~ l63+ lA+ lB+LF+LG+LH	Total maximum piping length including lengt	ing length including length of each distribution pipe (only liquid tubing)				
	ℓA, ℓB+LO, ℓC+LO	Maximum piping length from outdoor's 1st of	≤10				
Allowable elevation	114	When outdoor unit is installed higher than in	≤50				
		When outdoor unit is installed lower than inc	≤40				
difference	H2	Maximum difference between indoor units		≤15 ^{*6}			
	НЗ	Maximum difference between outdoor units	≤4				
Allowable length	L3	T-joint piping (field-supply); Max. piping leng	≤2				

L = Length, H = Height

NOTE

1: The outdoor connection main piping (LO portion) is determined by the total capacity of the outdoor units that are connected to the pipe ends.

2: If the longest piping length (L1) exceeds 90m (equivalent length), increase the sizes of the main pipe (LM) by 1 rank for gas pipe

and liquid pipe. Use a field supply reducer. Select the pipe size from the table of main piping sizes (Table 3) and from the table of refrigerant piping sizes (Table 8) on the second following page.

- 3: If the longest main piping length (LM) exceeds 50m, increase the main piping size at the portion before 50m by 1 rank for the gas pipe. Use a field supply reducer Determine the length less than the limitation of allowable maximum piping length. For the portion that exceeds 50m, set based on the main piping size (LA) listed in Table 3. 4: If the size of the existing piping is already larger than the standard piping size, it is not necessary to further increase the size. * If the existing piping is used, and the amount of on-site refrigerant charge exceeds the value listed below, then change the size of the piping to reduce the amount of

refrigerant. Total amount of refrigerant for the system with 1 outdoor unit: 50kg

- Total amount of refrigerant for the system with 1 outdoor unit: 50kg Total amount of refrigerant for the system with 3 outdoor units: 80kg Total amount of refrigerant for the system with 3 outdoor units: or 4 outdoor units: 105kg 5: When the piping length exceeds 40m, increase a longer liquid or gas piping by 1 rank. Refer to the Technical Data for the details. 6: If the total distribution piping length exceeds 500m, maximum allowable elevation difference (H2) between the indoor units is calculated by the following formula. Make sure the indoor unit's actual elevation difference should fall within the figure calculated as follows. Unit of account (metre): 15 x (2 total piping length(m) ÷ 500) 7: If any of the piping length exceeds 30m, increase the size of the liquid and gas pipe by 1 rank.

Necessary amount of additional refrigerant charge per outdoor unit

0kg 0kg 4.0kg 4.0kg 5.5kg 5.5kg	

System limitations

Max. No. allowable connected outdoor units	4 *2			
Max. capacity allowable connected outdoor units	224kW (80			
Max. connectable indoor units	64 *1			
Max. allowable indoor/outdoor capacity ratio				

*1: In the case of 107.0kW or smaller units, the number is limited by the total capacity of the connected indoor units.

*2: Up to 4 units can be connected if the system has been extended. *3: If the following conditions are satisfied, the effective range is above 130% and below 200%.

i) Obey the limited number of connectable indoor units.
 ii) The lower limit of operating range for heating outdoor temperature is limited to -10°CWB (standard -25°CWB).

iii) Simultaneous operation is limited to less than 130% of connectable indoor units.

Additional refrigerant charge

Liquid piping size mm (inches)	Amount of refrigerant charge/m (g/m)
ø6.35 (ø1/4)	26
ø9.52 (ø3/8)	56
ø12.7 (ø1/2)	128
ø15.88 (ø5/8)	185
ø19.05 (ø3/4)	259
ø22.22 (ø7/8)	366
ø25.4 (ø1)	490

Refrigerant piping (Existing piping can be used.)

iping size (mm) -	Material Transm. O	ø6.35	ø9.52	ø12.7	ø15.88	ø19.05		
	Material Temper - O	t 0.8	t 0.8	t 0.8	t 1.0	t 1.2		
	Material Temper - 1/2 H, H	ø22.22	ø25.4	ø28.58	ø31.75	ø38.1	ø41.28	ø44.45
		t 1.0	t 1.0	t 1.0	t 1.1	over t 1.35	over t 1.45	over t1.55

* When bending the pipes, use a bending radius that is at least 4 times the outer diameter of the pipes. In addition, take sufficient care to avoid crushing or damaging the pipes when bending them.



OHP)

Refrigerant Branch Pipes (accessories) for 2-PIPE ME2 Series

See the installation instructions packaged with the refrigerant branch pipes for the installation procedure.

Model name	Cooling capacity after distribution	Remarks
1. CZ-P680PJ2	68.0kW or less	For outdoor unit
2. CZ-P1350PJ2	168.0kW or less	For outdoor unit
3. CZ-P160BK2	22.4kW or less	For indoor unit
4. CZ-P680BK2	68.0kW or less	For indoor unit
5. CZ-P1350BK2	1680.0kW or less	For indoor unit

2. CZ-P1350PJ2

Use: For outdoor unit (Capacity after refrigerant branch pipe is greater than 68.0kW and no more than 168.0kW.)

GAS PIPING



LIQUID PIPING



All measurements are in mm. Size of connection points on each part shown are inside diameters of piping.

3. CZ-P160BK2

Use: For indoor unit (Capacity after refrigerant branch pipe is 22.4kW or less.)

GAS PIPING





All measurements are in mm. Size of connection points on each part shown are inside diameters of piping.

Piping size (with thermal insulation)

1. CZ-P680PJ2

Use: For outdoor unit (Capacity after refrigerant branch pipe is 68.0kW or less.)

GAS PIPING



LIQUID PIPING



All measurements are in mm. Size of connection points on each part shown are inside diameters of piping.













Refrigerant Branch Pipes (accessories) for 2-PIPE ME2 Series

Piping size (with thermal insulation)

4. CZ-P680BK2

Use: For indoor unit (Capacity after refrigerant branch pipe is more than 22.4kW and no more than 68.0kW.)

GAS PIPING



LIQUID PIPING



All measurements are in mm. Size of connection points on each part shown are inside diameters of piping.

5. CZ-P1350BK2

Use: For indoor unit (Capacity after refrigerant branch pipe is greater than 68.0kW and no more than 168.0kW.)

GAS PIPING





All measurements are in mm. Size of connection points on each part shown are inside diameters of piping.





Simultaneous cooling and heating VRF System

3-PIPE FSV-EX MF3 SERIES

Heat Recovery Type



New 3-PIPE FSV-EX MF3 series enables simultaneous cooling and heating operation

Suitable for R22 renewal projects (Refer to Page 142)

Demand response ready (Peak cut)



Fully-automatic simultaneous cooling/heating operation and heat recovery

3-PIPE MF3 series enables simultaneous cooling and heating operation by each solenoid valve kit. New design to decrease chattering noise at low capacity load.





CZ-P56HR3 Up to 5.6kW CZ-P160HR3

From 5.7 to 16.0kW

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

CZ-P456HR3 CZ-P4160HR3

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 DB.

System Structure Low temperature, Low pressure Gas Medium temperature, Medium pressure Liquid High temperature, High pressure Gas Indoor unit

Outdoor unit 3-PIPE FSV-EX MF3











New Solenoid Valve Kit Multiple Connection Port Type

Panasonic's new solenoid valve kit has been designed to minimise the burden of field installation. Featuring connection pipes for the main refrigerant circuit line on both sides of the unit, improved flexibility in both system design and piping layout has been achieved.

System Structure





Heat exchanger temperature is controlled by the temperature difference between target and return air.





	i port	4 port
56 type	CZ-P56HR3	CZ-P456HR3
160 type	CZ-P160HR3	CZ-P4160HR3

Solenoid Valve Kit / Wiring Work







X 8pcs 8 port 6 port CZ-P656HR3 **CZ-P856HR3** -----

CZ-P856HR3

Increased max. number of connectable indoor units

The 3-PIPE MF3 series has five DC inverter outdoor units from 22.4kW to 45.0kW as the standard, and by combining up to three units, an air-conditioning capacity of 22.4kW to 135.0kW can be set according to the user needs.

System (kW)	22.4	28.0	33.5	40.0	45.0	50.0	56.0	61.5	68.0	73.0	78.5	85.0	90.0	96.0	101.0	107.0	113.0	118.0	124.0	130.0	135.0
	22.4	28.0	33.5	40.0	45.0	28.0	33.5	33.5	33.5	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Outdoor units						22.4	22.4	28.0	33.5	28.0	33.5	40.0	45.0	28.0	33.5	33.5	45.0	45.0	45.0	45.0	45.0
														22.4	22.4	28.0	22.4	28.0	33.5	40.0	45.0
Connectable indoor units	15	19	22	27	30	34	38	41	46	49	52	52	52	52	52	52	52	52	52	52	52

Connectable indoor/outdoor unit capacity ratio up to 150%



Excellent energy saving

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





Up to 40m piping after first branch

Up to 52 units can be connected to one system. Flexible piping layout makes it easier to design systems for locations such as train stations, airports, schools and hospitals.



Wide operating range

Cooling operation range:

The cooling operation range is from -10°C DB to +52°C DB, thanks to all Inverter outdoor.

Heating operation range:

Stable heating operation even with an outside air temperature of -20°C WB.

Wide temperature setting range

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



Remark: Cooling/heating capacity depend on indoor/outdoor temperature. Please refer to the technical databook.

Newly designed fan

Optimised air flow

Newly designed fan and bellmouth reduces stress on the fan by dispersing air quickly, thus lowering air resistance results in lower energy consumption.





Noise reduction

Turbulence (blue) can be suppressed and the unwanted noise can be reduced. Even at high speed fan mode the noise level is still very low.



High external static pressure on condensers

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





Extended compressor life by uniform compressor operation time

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

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

Even if a compressor in a



* Depend on accumulated operation time of each compressors * Compressor priority has possibility to be changed. (e.g) Case1: $A \rightarrow C \rightarrow B \rightarrow D$, Case2: $C \rightarrow A \rightarrow D \rightarrow B$, Case3: $A \rightarrow C \rightarrow D \rightarrow B$, Case4: $C \rightarrow A \rightarrow B \rightarrow D$

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

Even if a whole outdoor

Except for 22.4, 28.0 & 33.5kW single unit installation

*Backup operation allows uninterrupted cooling or heating to continue whilst waiting for service. Users should contact their authorised service centre as soon as fault occurs.

single system fails unit fails The other outdoor unit can The other compressor keep running can keep running

Automatic backup operation.

Demand response

Featuring inverter control technology, all Panasonic FSV systems are Demand Response Management (DRM) ready. With this control, power consumption at times of peak load can be set in three steps to deliver optimum performance. This helps to reduce annual power consumption with minimal loss in comfort.

Demand control terminal is available to control 0-50-75-100% of capacities.

MF3 series features a DR terminal as standard (not a required option)



Flexible Demand Response with the CZ-CAPDC2*1

Setting is possible as 0% or in the range from 40 to 100% (in 5% intervals). Prior to shipping, these steps have been configured at intervals of 0%, 70% & 100%.

*1 An outdoor Seri-Para I/O unit (CZ-CAPDC2) is required for demand input signal.

Blue fin condenser outdoor unit

The anti-corrosion Blue Fin treatment of the heat exchanger provides greater resistance against corrosion. All models are equipped with Blue Fin condenser.







	Power input					
	100% (Preset)	Describle to obende 40, 100%				
	70% (Preset)	Possible to change 40-100%				
0% (Always in stop condition)						

PC board (Corrosion-resistance treated)

Heat exchanger (blue fin condenser)

3-PIPE FSV-EX MF3 Series

Appearance												
kW			22.4	28.0	33.5	40.0	45.0	50.0	56.0	61.5	68.0	73.0
Model name			U-8MF3R7	U-10MF3R7	U-12MF3R7	U-14MF3R7	U-16MF3R7	U-8MF3R7 U-10MF3R7	U-8MF3R7 U-12MF3R7	U-10MF3R7 U-12MF3R7	U-12MF3R7 U-12MF3R7	U-10MF3R7 U-16MF3R7
Power supply			380/400/415V/ 380/400V/3-ph	3-phase/50Hz ase/60								
		kW	22.4	28.0	33.5	40.0	45.0	50.0	56.0	61.5	68.0	73.0
	Cooling	BTU/h	76,500	95,600	114,300	136,500	153,600	170,600	191,100	209,900	232,100	249,100
Capacity		kW	25.0	31.5	37.5	45.0	50.0	56.0	63.0	69.0	76.5	81.5
	Heating	BTU/h	85,300	107,500	128,000	153,600	170,600	191,100	215,000	235,500	261,100	278,200
	Cooling	W/W	4.87	4.49	3.91	3.70	3.49	4.67	4.24	4.16	3.89	3.82
EER / COP	Heating	W/W	5.09	5.02	4.51	4.21	4.17	5.09	4.70	4.73	4.47	4.45
Dimensions	H x W x D	mm	1,842x1,180 x1,000	1,842x1,180 x1,000	1,842x1,180 x1,000	1,842x1,180 x1,000	1,842x1,180 x1,000	1,842x2,420 x1,000	1,842x2,420 x1,000	1,842x2,420 x1,000	1,842x2,420 x1,000	1,842x2,420 x1,000
Net weight		kg	264	265	289	337	337	529	553	553	578	602
	Running current	t A	7.52	10.4	13.9	18.2	21.3	17.7	21.3	24.2	28.3	31.5
Electrical	Power input	kW	4.60	6.23	8.57	10.8	12.9	10.7	13.2	14.8	17.5	19.1
ratings	Running current	t A	8.02	10.5	13.4	18.1	20.0	18.2	21.7	23.9	27.6	30.6
	Power input	kW	4.91	6,27	8.32	10.7	12.0	11.0	13.4	14.6	17.1	18.3
Air flow rate		m³/h	12,600	13,200	13,920	13,920	13,920	25,800	26,520	27120	27,840	27,120
		L/s	3,500	3,667	3,867	3,867	3,867	7,167	7,367	7,533	7,733	7,533
Refrigerant am	ount at shipment	kg	9.8	9.8	11.8	11.8	11.8	19.6	21.6	21.6	23.6	21.6
	Suction pipe	mm (inches)	Ø19.05 (Ø3/4)	Ø22.22 (Ø7/8)	Ø25.40 (Ø1)	Ø25.40 (Ø1)	Ø28.58 (Ø1-1/8)	Ø28.58 (Ø1-1/8)	Ø28.58 (Ø1- 1/8)	Ø28.58 (Ø1- 1/8)	Ø28.58 (Ø1- 1/8)	Ø31.75 (Ø1- 1/4)
Piping	Discharge pipe	mm (inches)	Ø15.88 (Ø5/8)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø22.22 (Ø7/8)	Ø22.22 (Ø7/8)	Ø22.22 (Ø7/8)	Ø22.22 (Ø7/8)	Ø25.40 (Ø1)	Ø25.40 (Ø1)	Ø25.40 (Ø1)
connections	Liquid pipe	mm (inches)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)	Ø12.70 (Ø1/2)	Ø12.70 (Ø1/2)	Ø12.70 (Ø1/2)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø19.05 (Ø3/4)
	Balance pipe	mm (inches)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)
Ambient temp	erature operating range											
Sound	Normal mode	dB (A)	54.0	57.0	60.0	61.0	62.0	59.0	61.0	62.0	63.0	63.5
pressure level	Silent mode	dB (A)	51.0	54.0	57.0	58.0	59.0	56.0	58.0	59.0	60.0	60.5

78.5	85.0	90.0	96.0	101.0	107.0	113.0	118.0	124.0	130.0	135.0
267,900	290,100	307,200	327,600	344,700	365,200	385,700	402,700	423,200	443,700	460,800
87.5	95.0	100.0	108.0	113.0	119.0	127.0	132.0	138.0	145.0	150.0
298,600	324,200	341,300	368,600	385,700	406,100	433,400	450,500	471,000	494,900	511,900
3.65	3.59	3.49	4.00	3.87	3.84	3.69	3.69	3.58	3.55	3.49
4.31	4.19	4.17	4.56	4.45	4.47	4.29	4.34	4.25	4.18	4.17
1,842x2,420 x1,000	1,842x2,420 x1,000	1,842x2,420 x1,000	1,842x3,660 x1,000							
626	674	674	866	890	891	938	939	963	1,011	1,011
35.1	39.6	42.6	39.6	42.6	46.1	50.5	52.8	56.5	61.1	63.9
21.5	23.7	25.8	24.0	26.1	27.9	30.6	32.0	34.6	36.6	38.7
33.5	37.9	40.1	39.6	41.9	43.9	49.4	50.8	53.7	57.9	60.1
20.3	22.7	24.0	23.7	25.4	26.6	29.6	30.4	32.5	34.7	36.0
27,840	27,840	27,840	39,720	40,440	41,040	40,440	41,040	41,760	41,760	41,760
7,733	7,733	7,733	11,033	11,233	11,400	11,233	11,400	11,600	11,600	11,600
23.6	23.6	23.6	31.4	33.4	33.4	33.4	33.4	35.4	35.4	35.4
031.75 (01- 1/4)	Ø31.75 (Ø1- 1/4)	Ø31.75 (Ø1- 1/4)	Ø31.75 (Ø1- 1/4)	Ø38.1 (Ø1-1/2)						
028.58 (Ø1- 1/8)	Ø28.58 (Ø1- 1/8)	Ø28.58 (Ø1- 1/8)	Ø28.58 (Ø1- 1/8)	Ø28.58 (Ø1- 1/8)	Ø31.75 (Ø1- 1/4)					
019.05 (Ø3/4)	Ø19.05 (Ø3/4)									
26.35 (Ø1/4)	Ø6.35 (Ø1/4)									
	Cooling/Dry: -1	10°C~+52°C (DB)	Heating: -20°C~	+18°C (WB) Sim	ultaneous operat	ion: -10°C~+24°C	C (DB)			
64.5	64.5	65.0	64.0	64.5	65.0	65.5	66.0	66.5	66.5	67.0
61.5	61.5	62.0	61.0	61.5	62.0	62.5	63.0	63.5	63.5	64.0

Rated conditions: Cooling Heating GLOBAL 27°C DB / 19°C WB 20°C DB Indoor air temperature REMARKS Outdoor air temperature 35°C DB 7°C DB / 6°C WB These specifications are subject to change without notice. * For mixed heating and cooling operation with an outdoor temperature in excess of 24°C DB, please use 50% or more of the horsepower of the outdoor unit for cooling experime operation.

System example

Indoor/outdoor unit capacity ratio

Maximum level difference (when outdoor unit is lower)

Maximum total piping length in one direction

Maximum actual piping length



50-150%

200m

50 (40)m

500m

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

Dimensions

78.5

U-12MF3R8

U-16MF3R8

85.0

U-14MF3R7

U-16MF3R7

90.0

U-16MF3R7

U-16MF3R7

96.0

U-8MF3R7 U-10MF2R7 U-16MF3R7

101.0

U-8MF3R7

U-12MF3R7

U-16MF3R7

107.0

U-10MF3R7 U-12MF3R7

U-16MF3R7

113.0

U-8MF3R7 U-16MF3R7

U-16MF3R7



unit: mm

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118.0	124.0	130.0	135.0
U-10MF3R7	U-12MF3R7	U-14MF3R7	U-16MF3R7
U-16MF3R7	U-16MF3R7	U-16MF3R7	U-16MF3R7
U-16MF3R7	U-16MF3R7	U-16MF3R7	U-16MF3R7

Top view



Piping design



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

Item	Mark	Contents		Length (m)
	1.4	Mavinum pining length	Actual length	≦200* ²
		Maximum piping length	Equivalent length	≦210* ²
	Δ L (L2 - L4)	Difference between maximum length and minir	num length from the 1st distribution joint	≦50*4
Allowable piping length	LM	Maximum length of main piping (at maximum s *Even after 1st distribution joint,LM is allowed	size) if at maximum piping length.	*3
	l1,l2~l52	Maximum length of each distribution pipe	≦50* ⁵	
	L1+l1+l2~l51+lA +lB+LF+LG+LH	Total maximum piping length including length o	≦500	
	ℓA,ℓB+LO,ℓC+LO	Maximum piping length from outdoor's 1st dist	tribution joint to each outdoor unit	≦10
	l1-2,l2-2~l52-2	Maximum length between solenoid valve kit ar	≦30	
	1.14	When outdoor unit is installed higher than indo	≦50	
Allowable elevation		When outdoor unit is installed lower than indoo	≦40	
difference	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 piping le welded-shut end point	≦2	

L = Length, H = Height

: The outdoor connection main piping (LO portion) is determined by the total capacity of the outdoor units that are connected to the pipe ends.

2: If the longest piping length (L1) exceeds 90m (equivalent length), increase the sizes of the main pipe (LM) by 1 rank for the suction pipe, discharge pipe and liquid pipe. Use a field supply reducer. Select the pipe size from the table of main piping sizes (Table 3) and from the table of refrigerant piping sizes (Table 8).

3: If the longest main piping length (LM) exceeds 50m, increase the main piping size at the portion before 50m by 1 rank for the suction pipe and discharge pipe. Use a field supply reducer. Determine the length less than the limitation of allowable maximum piping length. For the portion that exceeds 50 m, set based on the Use a lield supply reduce. Determine the rengen loss that are intended at an antibality of the rengen loss that are intended at the prince are the rengen loss that are intended at the prince are the rengen loss that are intended at the prince are the rengen loss that are intended at the prince are the rengen loss that are intended at the prince are the rengen loss that are intended at the prince are the rengen loss that are intended at the re

pipe and discharge pipe. Refer to the Technical Data for the details.
5: If any of the piping length exceeds 30m, increase the size of the suction pipe,discharge pipe and liquid pipe by 1 rank.

Necessary Amount of Additional Refrigerant Charge Per Outdoor Unit

U-8MF3R7	U-10MF3R7	U-12MF3R7	U-14MF3R7	U-16MF3R7
1.0kg	1.0kg	3.9kg	3.9kg	3.9kg

System limitations

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

*1: In the case of 24 HP (Type 68.0kW) or smaller units, the number is limited by the total capacity of the connected indoor units. *2: Up to 3 units can be connected if the system has been extended.

*3: It is strongly recommended that you choose the unit so the load can become between 50 and 130%.

Additional refrigerant charge

Liquid piping size mm (inches)	Amount of refrigerant charge/m (g/m)
ø6.35 (ø1/4)	26
ø9.52 (ø3/8)	56
ø12.7 (ø1/2)	128
ø15.88 (ø5/8)	185
ø19.05 (ø3/4)	259
ø22.22 (ø7/8)	366

Necessary Amount of Additional Refrigerant Charge per metre, According to Discharge Piping Size

Discharge piping size	mm	ø12.7	ø15.88	ø19.05	ø22.22	ø25.4	ø28.58	ø31.75	ø38.1
Additional amount	g/m	12	21	31	41	55	71	89	126

*Additional refrigerant charge amount of discharge piping should be less than 9,000g.

Refrigerant branch pipes

Remarks	Model name	Cooling capacity after distribution
For outdoor wit	1. CZ-P680PH2	68.0kW or less
For outdoor unit	2. CZ-P1350PH2	118.0kW or less
	3. CZ-P224BH2	22.4kW or less
For indoor unit	4. CZ-P680BH2	68.0kW or less
	5. CZ-P1350BH2	118.0kW or less

Refrigerant piping

Piping size mm (inches)				
Material 0		1/2 H, H material		
Outer diameter	Wall thickness	Outer diameter	Wall thickness	
ø6.35 (ø1/4)	t 0.8 mm	ø22.22 (ø7/8)	t 1.0 mm	
ø9.52 (ø3/8)	t 0.8 mm	ø 25.4 (ø1)	t 1.0 mm	
ø12.7 (ø1/2)	t 0.8 mm	ø 28.58 (ø1-1/8)	t 1.0 mm	
ø15.88 (ø5/8)	t 1.0 mm	ø 31.75 (ø1-1/4)	t 1.1 mm	
ø19.05 (ø3/4)	t 1.0 mm	ø 38.1 (ø1-1/2)	t 1.15 mm	
		ø 41.28 (ø1-5/8)	t 1.20 mm	

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.

Refrigerant Branch Pipes (accessories) for 3-PIPE MF3 Series

See the installation instructions packaged with the refrigerant branch pipes for the installation procedure.

Model name	capacity after refrigerant branch pipe	Remarks
1. CZ-P680PH2	68.0kW or less	For outdoor unit
2. CZ-P1350PH2	greater than 68.0kW and no more than 135.0kW	For outdoor unit
3. CZ-P224BH2	22.4kW or less	For indoor unit
4. CZ-P680BH2	greater than 22.4kW and no more than 68.0kW	For indoor unit
5. CZ-P1350BH2	greater than 68.0kW and no more than 135.0kW	For indoor unit

1. CZ-P680PH2

Use: For outdoor unit (Capacity after refrigerant branch pipe is 68.0kW or less.)



All measurements are in mm. Size of connection points on each part shown are inside diameters of piping.

2. CZ-P1350PH2

Use: For outdoor unit (Capacity after refrigerant branch pipe is greater than 68.0kW and no more than 135.0kW.)



All measurements are in mm. Size of connection points on each part shown are inside diameters of piping.

3. CZ-P224BH2

Use: For indoor unit (Capacity after refrigerant branch pipe is 22.4kW or less.)





All measurements are in mm. Size of connection points on each part shown are inside diameters of piping.





Refrigerant Branch Pipes (accessories) for 3-PIPE MF3 Series

4. CZ-P680BH2

Use: For indoor unit (Capacity after refrigerant branch pipe is greater than 22.4kW and no more than 68.0kW.)



All measurements are in mm. Size of connection points on each part shown are inside diameters of piping.

5. CZ-P1350BH2

Use: For indoor unit (Capacity after refrigerant branch pipe is greater than 68.0kW and no more than 135.0kW.)







High external static pressure 35Pa

When unit is installed on a narrow balcony and exposed to the sun, the fence at the front side would restrict hot air from being discharged. Heat accumulated in an enclosure can cause over-heating. This could potentially result in damage or shorten the product's life span. A high external static pressure sends the air further away from the outdoor unit and through the fence. This provides better air circulation and distribution.



LE1 LE2

Previous model - Low pressure

When the pressure is low, hot air will accumulate in the unit thus affecting its work performance and of the unit above it as well.



Previous fan

High electrostatic pressure disrupted the airflow of the previous fan, lowering the air pressure and preventing hot air from being discharged far enough.



LE series - High pressure With a high pressure of 35Pa, hot air is sent further away preventing overheating inside the outdoor unit enclosure.



The new LE Series fan has ribs extending near the blade tips, in a structure that resist deformation. During high electrostatic pressure, this blade shape suppresses disruptions in the airflow, and a high air pressure of 35Pa discharges the hot air a sufficient distance.





Up to 50m of piping without additional gas charging

charge is required.

unit, it is possible for installation to occur in a greater variety of places compared to a single split system.



Short height of 996mm LE2

made the outdoor unit more compact. It can now be installed in places that were previously too small.



In addition to raising efficiency, we have

Short Height 996mm

Can be installed in the small space

Up to 13 indoor units connectable

An expansion from Panasonic FSV line up, the MINI-FSV is compatible with the same indoor units and controls as the rest of the FSV range.



* Use any of the FSV indoor models. Depending on the size or type of indoor unit, piping size shall be changed. Please refer technical documents for details. * Diversity ration 50-130%

* 15.5kW only; 12.1kW for 7 units, 14.0kW for 8 units.





LE1 LE2

High efficiency

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



HEATING FSV 5.5 5.19 5.0 4.60 4.5 4.27 4.02 3.93 4.0 3.5 3.0 2.5 12.1kW 14.0kW 15.5kW 22.4kW 25.0kW

LE 2

Energy savings design

LE1 LE2

LE1 LE2

- LE 1-

LE1 LE2

Panasonic Inverter Compressor	A large-capacity inverter compressor has been adopted. The inverter compressor is superior in performance with improved partial-load capacity.
Printed Circuit Board	Two PCBs have been included, increasing installation ease.
Accumulator	A large accumulator has been adopted to maintain compressor reliability because of the increased refrigerant quantity, which allows an extended max piping length.
Ø DC Fan Motor	Checking load and outside temperature, the DC motor is controlled for optimum air volume.
Newly Designed Fan	The newly designed fan blades have been developed to inhibit air turbulence and to increase efficiency. As the fan diameter has increased in size, so too has air volume increased whilst maintaining the same sound level.
Heat Exchanger & Copper Tubes	The heat exchanger and copper pipe sizes in the heat exchanger have been redesigned to increase efficiency.
Oil Separator	A centrifugal separator has been adopted to improve oil separation efficiency and reduce refrigerant pressure loss.

Flexible demand response with the optional terminal block

Demand Response

Featuring inverter control technology, all Panasonic MINI-FSV systems are Demand Response Management (DRM) ready. With this control, power consumption at times of peak load can be set in three steps to deliver optimum performance. This helps to reduce annual power consumption with minimal loss in comfort.

*Terminal block parts to be supplied separately. Please ask your dealer.



Flexible Demand Response with the CZ-CAPDC2¹¹

Setting is possible as 0% or in the range from 40-100% (in 5% intervals). Prior to shipping, these steps have been configured at intervals of 0%, 70%, and 100%.

*1 An outdoor Seri-Para I/O unit (CZ-CAPDC2) is required for demand input signal. * Demand timer setting for high spec remote controller is available.



Wide operating range

- Cooling operation is possible even when outdoor temperature is as low as -10°C DB.
- Cooling operation is possible even when outdoor temperature is as high as 46°C DB.
- Heating operation is possible even when outdoor temperature is as low as -20°C WB.

The remote controller temperature can be set from 18°C up to 30°C (Cooling), 16°C up to 30°C (Heating)*1. *1 Depending on the type of remote controller.

Blue fin condenser

The anti-corrosion Blue Fin treatment of the heat exchanger provides greater resistance against corrosion. All models are equipped with Blue Fin condenser.

Anti-corrosion outdoor unit

All heat exchangers feature our standard Blue Fin technology which increases resistance to corrosion compared to non-Blue Fin models. For high corrosion environments, Panasonic offers optional "Premium Anti-corrosion" models, available for order. The "Premium Anti-corrosion" coating encompasses the treatment of many of the internal electrical and refrigeration components as well as the chassis and screws, offering the highest degree of corrosion protection.

- Note: Selecting this unit does not completely eliminate the possibility of rust developing. For details concerning unit installation and maintenance, please consult an authorised dealer.
 - * Specific model with suffix "E" has this treatment.

Quiet operation mode

• Quiet operation mode reduces outdoor unit operating sound down to 7dB than rating.

- 3-step set point is available.
- External input signal is also available.
- * Timer setting of quiet operation mode is available in Deluxe Remote Controller.







* For further information please refer to the capacity tables in the Technical Data Book.





LE1 LE2


2-PIPE MINI-FSV LE2 SERIES

kW				12	.1	12	.1	14	.0	14	1.0	15	5.5	15	.5	
Model name		U-4LE2R5 /	U-4LE2R5E*	5E* U-4LE2R8		U-5LE2R5 /	U-5LE2R5E*	15E* U-5LE2R8		U-6LE2R5 / U-6LE2R5E*		U-6LE2R8				
Power supply	,			230/240V/1-	phase/50Hz	400/415V/3-	phase/50Hz	230/240V/1-	phase/50Hz	400/415V/3	-phase/50Hz	230/240V/1-phase/50Hz		400/415V/3-phase/50Hz		
Voltage				230V	240V	400V	415V	230V	240V	400V	415V	230V	240V	400V	415V	
			kW	12	.1	12	.1	14	.0	14	4.0	15	5.5	15	.5	
	Cooling		BTU/h	41,3	300	41,	300	47,	300	47,	800	52,	900	52,	900	
Capacity			kW	12	.5	12	.5	16	.0	10	6.0	16	ì.5	16	.5	
	Heating		BTU/h	42,	700	42,	700	54,	600	54,	600	56,	300	56,	300	
	Cooling		W/W	4.5	50	4.	50	4.0	06	4.	06	3.	73	3.	73	
EER/COP	Heating		W/W	5.	19	5.	19	4.6	60	4.	60	4.	27	4.1	27	
Dimensions (I	H/W/D)		mm	996 x 980 x 370		996 x 98	30 x 370	996 x 98	30 x 370	996 x 9	80 x 370	996 x 9	30 x 370	996 x 980 x 370		
Net weight			kg	10	16	106		10	106		106		106		106	
	Cooling	Running current	А	12.70	12.20	4.17	4.02	16.30	15.60	5.30	5.11	19.40	18.60	6.37	6.14	
Electrical	COOling	Power input	kW	2.69	2.69	2.69	2.69	3.45	3.45	3.45	3.45	4.15	4.15	4.15	4.15	
ratings	Heating	Running current	А	11.60	11.20	3.78	3.64	16.60	15.90	5.34	5.15	18.20	17.50	5.93	5.71	
	rieaurig	Power input	kW	2.41	2.41	2.41	2.41	3.48	3.48	3.48	3.48	3.86	3.86	3.86	3.86	
Starting curre	nt		A	1		1		1		1		1		1		
Air flow rate			m³/h	4,1	40	4,140		4,320		4,320		4,440		4,440		
			L/s	1,1	50	1,1	50	1,200		1,200		1,233		1,233		
Refrigerant ar at shipment	nount		kg	R4104	R410A 6.70 R410A 6.70		R410A 6.70 R410A 6.70		A 6.70	R410A 6.70		R410A 6.70				
Piping	Gas pipe	e	mm (inches)	Ø15.88	(Ø5/8)	Ø15.88	8 (Ø5/8)	Ø15.88	(Ø5/8)	Ø15.8	3 (Ø5/8)	Ø15.88	3 (Ø5/8)	Ø15.88	(Ø5/8)	
connection	Liquid pi	pe	mm (inches)	Ø9.52	(Ø3/8)	Ø9.52	(Ø3/8)									
Ambient temperature operating range			Cooling:-10°Cl Heating:-20°C\	DB~+46°CDB, VB~+18°CWB	Cooling:-10°C Heating:-20°C	DB~+46°CDB, WB~+18°CWB	Cooling:-10°C Heating:-20°C	DB~+46°CDB, NB~+18°CWB	Cooling:-10°C Heating:-20°C	DB~+46°CDB, WB~+18°CWB	Cooling:-10°C Heating:-20°C	DB~+46°CDB, WB~+18°CWB	Cooling:-10°C Heating:-20°C	DB~+46°CDB, VB~+18°CWB		
Sound	Normal	mode	dB(A)	52	.0	52	2.0	53	.0	53.0		54.0		54.0		
(Cooling)	Silent m	ode	dB(A)	45	.0	45	i.0	46	.0	4	5.0	47	7.0	47	.0	
Sound power level (Cooling)	Normal	mode	dB	69	.0	69	0.0	71	.0	7	1.0	73	3.0	73	.0	

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

* High durable model (with suffix "E") has same specifications.

Dimensions

U-4LE2R5 / U-4LE2R8 / U-4LE2R5E U-5LE2R5 / U-5LE2R8 / U-5LE2R5E U-6LE2R5 / U-6LE2R8 / U-6LE2R5E





When using a drain pipe, install the drain socket (field supply) on to the drain port.Seal the other drain port with the rubber cap.

1	Mounting hole (4-R6.5), anchor bolt : M10
2	Refrigerant tubing (liquid tube), flared connection (Ø9.52)
3	Refrigerant tubing (gas tube), flared connection (Ø15.88)
4	Refrigerant tubing port
5	Electrical wiring port (Ø13)
6	Electrical wiring port (Ø22)
0	Electrical wiring port (Ø27)
8	Electrical wiring port (Ø35)



A VIEW

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Unit: mm

_100 _



2-PIPE MINI-FSV LE1 SERIES

kW			22	.4	25.0			
Model nam	e		U-8LE1R8	3 / U-8LE1R8E*	U-10LE1R8	/ U-10LE1R8E*		
Power supply			400/415V/3-phase/50Hz	380/400V/3-phase/60Hz	400/415V/3-phase/50Hz 380/400V/3-phase/60Hz			
Voltage			400V	415V	400V	415V		
	0 1	kW	22	.4	25.0			
O	Cooling	BTU/h	76,5	500	85,3	300		
Capacity	Line Ken	kW	25	.0	28	3.0		
	Heating	BTU/h	85,3	300	95,6	600		
	Cooling	W/W	3.8	30	3.0	31		
EER/COP	Heating	W/W	4.0	02	3.9	93		
Dimensions	(H/W/D)	mm	1,500 x 9	80 x 370	1,500 x 9	80 x 370		
Net weight		kg	132		13	33		
	Running current	А	9.15	8.80	11.70	11.30		
Electrical	Power input	kW	5.89	5.89	7.55	7.55		
ratings	Running current	А	9.65	9.30	11.10	10.70		
	Power input	kW	6.22	6.22	7.13	7.13		
Starting curr	ent	A	1		1			
Air flow roto		m³/h	9,0	00	9,600			
Air now rate		L/s	2,5	00	2,666			
Refrigerant a	amount at shipment	kg	R410A	6.30	R410A 6.60			
Piping	Gas pipe	mm (inches)	Ø19.05	(Ø3/4)	Ø22.22 (Ø7/8)			
connection	Liquid pipe	mm (inches)	Ø9.52	(Ø3/8)	Ø9.52 (Ø3/8)			
Ambient temperature operating range		•	Cooling:-10°CE Heating:-20°CV	DB~+46°CDB, VB~+18°CWB	Cooling:-10°CDB~+46°CDB, Heating:-20°CWB~+18°CWB			
Sound Normal mode dB(A)		60	.0	62	2.0			
(Cooling) Silent mode dB(A)		dB(A)	53	.0	55	.0		
Sound power level (Cooling)	Normal mode	dB	81	.0	83	0.0		

	Rated conditions:	Cooling	Heating
Global remarks	Indoor air temperature	27°C DB / 19°C WB	20°C DB
lonidino	Outdoor air temperature	35°C DB	7°C DB / 6°C WB

Dimensions

U-8LE1R8 / U-10LE1R8 U-8LE1R8E / U-10LE1R8E



Air discharg 4×0 32 holes (holes for drain) When using a drain pipe, install the drain socket (field supply) onto the drain port. Seal the other drain port with the rubber cap.



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* High durable model (with suffix "E") has same specifications.

1	Mounting hole (4-R6.5), anchor bolt : M10
2	Refrigerant tubing (liquid tube), flared connection (ø9.52) for 8-10 HP finally.
3	Refrigerant tubing (gas tube), flared connection (ø19.05)
4	Refrigerant tubing port
6	Electrical wiring port (ø13)
6	Electrical wiring port (ø22)
\bigcirc	Electrical wiring port (ø27)
8	Electrical wiring port (ø35)

COLLETH7 For U-10/EEH7 The tubing of the gas main has a diameter of ø22.22, but the connection to the service valve of the outdoor unit has a diameter of 19.05, so a flare has to be used. Consequently, be sure to use the enclosed joint tube B and joint tube A in making connections (braze).









Unit: mm



Refrigerant Branch Pipes

CZ-P160BK2

Use: For indoor unit (Capacity after refrigerant branch pipe is 22.4kW or less.) GAS PIPING



LIQUID PIPING



All measurements are in mm. Size of connection points on each part shown are inside diameters of piping.

Size of conne	Size of connection point on each part (Shown are inside diameters of piping)											
Size		Part A	Part B	Part C	Part D	Part E						
Dimension	(mm)	Ø19.05	Ø15.88	Ø12.70	Ø9.52	Ø6.35						
Dimension	(inches)	Ø3/4	Ø5/8	Ø1/2	Ø3/8	Ø1/4						

Qty: 1

Piping design

Select the installation location so that the length and size of refrigerant piping are within the allowable range shown in the figure below.



KG Refrigerant branch pipe (CZ-P160BK2) Ball valve (field supply)

Ranges that Apply to Refrigerant Piping Lengths and to Differences in Installation Heights

Items	Marks	Contents		Length (m)		
		Maximum talaina lan atta	Actual length	120		
		Maximum tubing length	Equivalent length	140		
Allowable piping length	ΔL (L2 – L3)	Difference between maximum lengt from the No.1 refrigerant branch pip	h and minimum length De	40		
	≬ 1, ≬ 2 ≬ n	Maximum length of each distributio	Maximum length of each distribution pipe			
	Q 1, Q 2 Q n-1+L1	Total maximum piping length includ each distribution pipe (only narrow	ing length of biping)	150		
		When outdoor unit is installed high	When outdoor unit is installed higher than indoor unit			
Allowable elevation	HI	When outdoor unit is installed lowe	When outdoor unit is installed lower than indoor unit			
	H2	Maximum difference between indoc	Maximum difference between indoor units			

Piping Size

Main Piping Size (LA)

	12.1kW	14.0kW	15.5kW
System kilowatts	12.1	14.0	15.5
Gas piping mm (inches)	ø15.88 (ø5/8)		ø19.05 (ø3/4)
Liquid piping mm (inches)	ø9.52 (ø3/8)		

Note :If the system consists of only one indoor unit with an outdoor 15.5kW, the main pipe of the unit (LA) should be ø19.05. Convert ø19.05 to ø15.88 using a reducer (field supply) close to the indoor unit and then make the connection.

Indoor Unit Piping Connection (1,1,2...1n-1)

Indoor unit type	22	28	36	45	56	73	90	106	140	160
Gas piping mm (inches)	ø12.7 (ø1/2)			ø15.88 (ø5/8)						
Liquid piping mm (inches)	ø6.35 (ø1/4)			ø9.52 (ø3/8)						

System Limitations

Outdoor units	12.1kW	14.0kW	15.5kW
Number of maximum connectable indoor units	6	8	9
Maximum allowable indoor/ outdoor capacity ratio	50 - 130%		

kW = kilowatts

capacity

Total

Piping si

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L = Length, H = Height

Main Piping	Size	After	Distribution	(LB,	LC)
-------------	------	-------	--------------	------	-----

after	Below kW		7.1	12.1	14.0	15.5
	Over kW		-	7.1		
ize	Gas piping	(mm)	ø12.7	ø15.88		ø19.05
		(inches)	ø1/2	ø5/8		ø3/4
	Liquid piping	(mm)	ø9.52			
		(inches)	ø3/8			

kW = kilowatts

Note :In case the total capacity of connected indoor units exceeds the total capacity of the outdoor units, select the main piping size for the total capacity of the outdoor units.

Key Indoor Units equipped with DC motors









ECONAVI sensor

DNAVI

FSV Indoor Units

upon the indoor requirements

Offering a wide choice of models depending

Providing outstanding energy-saving performance, Panasonic VRF Systems can be connected to ECONAVI to detect when energy is being wasted. ECONAVI senses the presence or absence of people and the level of activity in each area of an office. When unnecessary heating or cooling is detected, indoor units are individually controlled to match office conditions for energy-saving operation.



Detection of the level of activity enables optimum power savino

CZ-CENSC1

ECONAVI

ECONAVI Senso

Activity or absence of people at their desks, and the level of activity in the office, are detected in real time. Cooling or heating is automatically adjusted for optimum operation required to lower power consumption.

Sensor is remotely located to maximise Ľ Î. the energy saving effect

Pillars, walls, cabinets and other fittings obstruct the sensors, reducing the area of detection and lowering the energy-saving effect. Taking into consideration blind spots, Panasonic enables the optimum layout of sensors in any office.

Deluxe Wired Remote Controller



Large 3.5" full-dot LCD with white LED backlight

Characters and icons are clearly displayed for improved visibility. The display is also large enough to provide a wide range of information for easy confirmation of operation conditions.

Stylish, easy-to-use touch key design

The elegant, flat design features large touch keys in a simple layout enabling easy, intuitive operation.





Wall Mounted / K2 type



Compact design enables seamless match with any type of room interior

Remote Temperature Sensor



CZ-CSRC3



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FSV INDOOR UNITS

Noise reducing external valve kit

To reduce noise level of expansion valve. (Optional accessory)



CZ-P56SVK2 (for 22 - 56 type) CZ-P160SVK2 (for 73 - 106 type)

• This is a remote sensor which can be used with indoor units. 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.

FSV Indoor Units Range

Wide choice of models depending on the indoor requirements

Class	22	28	36	45	56	60	73	90
	Cooling/Heating							
Capacity kW Type	2.2/2.5	2.8/3.2	3.6/4.2	4.5/5.0	5.6/6.3	6.0/7.1	7.3/8.0	9.0/10.0
F2 type CONAVI Mid Static Ducted	S-22MF2E5A	S-28MF2E5A	S-36MF2E5A	S-45MF2E5A	S-56MF2E5A	S-60MF2E5A	S-73MF2E5A	S-90MF2E5A
M1 type CCONAVI Slim Low Static Ducted	S-22MM1E5A	S-28MM1E5A	S-36MM1E5A	S-45MM1E5A	S-56MM1E5A			
Z1 type ECONAVI Slim & Narrow Ducted	S-22MZ1H4A	S-28MZ1H4A	S-36MZ1H4A	S-45MZ1H4A	S-56MZ1H4A	S-60MZ1H4A	S-73MZ1H4A	
E1/E2 type High Static Ducted / Energy Saving High- Fresh Air Ducted*							S-73ME1E5	
ER1 type High Static Compact Ducted								S-90ME1R5A
K2 type CONAVI Wall Mounted	S-22MK2E5A	S-28MK2E5A	S-36MK2E5A	S-45MK2E5A	S-56MK2E5A		S-73MK2E5A	
U2 type CONAVI** C•nanceX*** 4-Way Cassette Panel No. CZ-KPU3	S-22MU2E5A	S-28MU2E5A	S-36MU2E5A	S-45MU2E5A	S-56MU2E5A	S-60MU2E5A	S-73MU2E5A	S-90MU2E5A
Y2 type ECONAVI 4-Way Mini Cassette Panel No. CZ-KPY3AW	S-22MY2E5A	S-28MY2E5A	S-36MY2E5A	S-45MY2E5A	S-56MY2E5A			
L1 type 2-Way Cassette Panel No. CZ-02KPL2 Panel No. CZ-03KPL2 (Only for S-73ML1E5)	S-22ML1E5	S-28ML1E5	S-36ML1E5	S-45ML1E5	S-56ML1E5		S-73ML1E5	
D1 type 1-Way Cassette Panel No. CZ-KPD2		S-28MD1E5	S-36MD1E5	S-45MD1E5	S-56MD1E5		S-73MD1E5	
T2 type ECONAVI Ceiling			S-36MT2E5A	S-45MT2E5A	S-56MT2E5A		S-73MT2E5A	
P1 type Floor Standing	S-22MP1E5	S-28MP1E5	S-36MP1E5	S-45MP1E5	S-56MP1E5		S-71MP1E5	
R1 type Concealed Floor Standing	S-22MR1E5	S-28MR1E5	S-36MR1E5	S-45MR1E5	S-56MR1E5		S-71MR1E5	

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*	Only for High	Static Ducted (22	.4kW & 28.0kW only)	

** Only for CZ-KPU3A (ECONAVI Panel) *** Only for CZ-KPU3A (ECONAVI Panel) *** Only for CZ-CNEXU1 (nanoeX Sensor) with CZ-RTC5B

106	112	140	160	180	224	280	Wireless remote control		
Cooling/Heating		Type with							
10.6/11.4	11.2/12.5	14.0/16.0	16.0/18.0	18.0/20.0	22.4/25.0	28.0/31.5	Type with built-in sensor	separately installed sensor	Functions
	-							•	self-dagnosing Auto fan Mild dry
S-106MF2E5A		S-140MF2E5A	S-160MF2E5A						Auto restart Drain pump DC motor
								•	all-diaprosing Auto fan DRY Auto restart Drain pump Do motor
								•	self-dagnosing Auto fan Auto restart Auto restart DC motor
S-106ME1E5		S-140ME1E5		S-180ME2E5	High Fresh Air	High Fresh Air			self-dagnosing Auto fan Auto restart Auto restart DC motor
	S-112ME1R5A	S-140ME1R5A	S-160ME1R5A					•	Image: Self-diagnosing Auto fan Image: Diagnosing Auto restart
S-106MK2E5A							•	•	self-diagnosing Auto fan Auto restart Auto restart
S-106MU2E5A		S-140MU2E5A	S-160MU2E5A				•	•	Image: Self-diagnosing Auto fram Auto restart Arr swing Auto restart Arr swing
							•	•	self-dapnosing Auto fan Auto restart Auto restart Ar swing Drain pump Drain pump Drain pump Drain pump
							•	•	self-diagnosing Auto fan Auto fan Auto restart Ar swing Drain pump
							•	•	self-daprosing Auto fan Auto fan Auto restart Auto restart
S-106MT2E5A		S-140MT2E5A					•	•	self-daposing Auto fan Auto restart Auto restart
								•	self-dagnosing Auto fan Mild dry Auto restart
								•	self-diagnosing Auto fan Mild dry Auto restart
	·		·						

Self-diagnosing function definition operation whild dry Mild dry M

F2_{TYPE} Mid Static Ducted

The new F2 type is designed specifically for applications requiring fixed square ducting. An anti-mould filter is equipped as standard.

DC motor

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



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

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



DP

Built-in Drain Pump

Technical focus

- Variable external static pressure control
- Industry-leading low sound levels from 25dB (A)
- Built-in drain pump provides 702mm lift
- Easy to install and maintain

- Air off sensor avoids cold air drafts during heating operation
- Anti-mould washable filters included

Built-in Drain pump (DC motor pump)

Standardised height of 290mm for all models

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

Variable external static pressure control

Optimal airflow set-up is possible depending on ducting design and conditions.



* Please refer to technical databook for detail.

System example

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



More powerful drain pump

Using a high-lift drain pump, drain piping can be elevated up to 702mm from the base of the unit.



V-shaped heat exchanger

To improve heat exchange efficiency, an original V-shaped heat exchanger was developed incorporating a conventional high-efficiency slit fan and high-efficiency grooved heat transfer tubes. This increases the heat exchange surface area.













For all indoor units CZ-RWSK2 + CZ-RWSC3





ncreased heat exchange surface area

Model Name	•		S-22MF2E5A	S-28MF2E5A	S-36MF2E5A	S-45MF2E5A	S-56MF2E5A		
Power source)		220/230/240V, 1 phase - 50/60Hz						
KW kW		kW	2.2	2.8	3.6	4.5	5.6		
Cooling capa	City	BTU/h	7,500	9,600	12,300	15,400	19,100		
Lipping conc	eite :	kW	2.5	3.2	4.2	5.0	6.3		
Heating capa	City	BTU/h	8,500	10,900	14,300	17,100	21,500		
-	Cooling	kW	0.070/0.070/0.070	0.070/0.070/0.070	0.070/0.070/0.070	0.070/0.070/0.070	0.100/0.100/0.100		
Power input	Heating	kW	0.070/0.070/0.070	0.070/0.070/0.070	0.070/0.070/0.070	0.070/0.070/0.070	0.100/0.100/0.100		
Running	Cooling	А	0.60/0.57/0.56	0.60/0.57/0.56	0.60/0.57/0.56	0.60/0.57/0.56	0.77/0.74/0.71		
amperes	Heating	А	0.60/0.57/0.56	0.60/0.57/0.56	0.60/0.57/0.56	0.60/0.57/0.56	0.77/0.74/0.71		
	Туре		Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan		
	Air flow rate (H/M/L)	m³/h	840/780/600	840/780/600	840/780/600	840/780/600	960/900/720		
Fan motor		L/s	233/217/167	233/217/167	233/217/167	267/250/220	267/250/220		
	Output	kW	0.119	0.119	0.119	0.119	0.119		
	External static pressure	Pa	70(10-150)	70(10-150)	70(10-150)	70(10-150)	70(10-150)		
Power sound	level (H/M/L)	dB(A)	55/51/47	55/51/44	55/51/44	56/54/47	56/54/47		
Sound pressu	ure sound (H/M/L)	dB(A)	33/29/25	33/29/22	33/29/22	34/32/25	34/32/25		
Dimensions	H x W x D	mm	290x800x700	290x800x700	290x800x700	290x800x700	290x800x700		
	Liquid	mm (inches)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)		
Pipe	Gas	mm (inches)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)		
CONTECTIONS	Drain piping		VP-25	VP-25	VP-25	VP-25	VP-25		
Net weight		kg	29	29	29	29	29		

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

Specifications are subject to change without notice.

S-60MF2E5A	S-73MF2E5A	S-90MF2E5A	S-106MF2E5A	S-140MF2E5A	S-160MF2E5A
		220/	230/240V, 1 phase - 50	/60Hz	
6.0	7.3	9.0	10.6	14.0	16.0
20,500	24,900	30,700	36,200	47,800	54,600
7.1	8.0	10.0	11.4	16.0	18.0
24,200	27,300	34,100	38,900	54,600	61,400
0.120/0.120/0.120	0.120/0.120/0.120	0.135/0.135/0.135	0.195/0.195/0.195	0.215/0.215/0.215	0.225/0.225/0.225
0.120/0.120/0.120	0.120/0.120/0.120	0.135/0.135/0.135	0.200/0.200/0.200	0.210/0.210/0.210	0.225/0.225/0.225
0.91/0.89/0.87	0.91/0.89/0.87	0.99/0.97/0.95	1.35/1.30/1.27	1.48/1.44/1.39	1.55/1.50/1.47
0.91/0.89/0.87	0.91/0.89/0.87	0.99/0.97/0.95	1.37/1.34/1.29	1.46/1.42/1.38	1.55/1.50/1.46
Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan
1,260/1,140/900	1,260/1,140/900	1,500/1,380/1,140	1,920/1,620/1,320	2,040/1,740/1,380	2,160/1,860/1,500
350/317/250	350/317/250	417/383/317	533/450/367	567/483/383	600/517/417
0.124	0.124	0.124	0.235	0.235	0.235
70(10-150)	70(10-150)	70(10-150)	100(10-150)	100(10-150)	100(10-150)
57/54/48	57/54/48	59/56/50	60/56/53	61/57/54	62/58/55
35/32/26	35/32/26	37/34/28	38/34/31	39/35/32	40/36/33
290x1,000x700	290x1,000x700	290x1,000x700	290x1,400x700	290x1,400x700	290x1,400x700
Ø6.35 (Ø1/4)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)
Ø12.7 (Ø1/2)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)
VP-25	VP-25	VP-25	VP-25	VP-25	VP-25
34	34	34	46	46	46

SIZE 60-90 MF2E5A

1 Refrigerant piping joint (liquid tube) Ø9.52 Flare 2 Refrigerant piping joint (gas tube) Ø15.88 Flare 3 Upper drain port VP25 (O.D. Ø32mm) \$ 200 flexible hose supplied 4 Bottom drain port VP25 (O.D. Ø32mm) 5 Suspension lug (4-12 × 30mm) 6 Power supply outlet 7 Fresh air intake port (Ø150mm) 8 Flange for flexible air outlet duct 9 Electrical component box



F2 TYPE MID STATIC DUCTED Dimensions

SIZE 22-56 MF2E5A



SIZE 106-160 MF2E5A

Refrigerant piping joint (liquid tube) Ø9.52 Flare
 Refrigerant piping joint (gas tube) Ø15.88 Flare
 Upper drain port VP25 (O.D. Ø32mm)
 200 flexible hose supplied
 Bottom drain port VP25 (D.D. Ø32mm)
 Suspension lug (4-12 × 30mm)
 Power supply outlet
 Fresh air intake port (Ø150mm)
 Flange for flexible air outlet duct
 Electrical component box



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and small offices.

M1_{TYPE} Slim Low Static Ducted Concealed duct

Featuring a height of only 200mm, greater flexibility and adaptability, the ultra slim M1 Type is

the perfect solution for a variety of applications, especially residential apartments, hotels





S-22MM1E5A / S-28MM1E5A / S-36MM1E5A S-45MM1E5A / S-56MM1E5A







Technical focus

- Ultra-slim profile: 200mm for all models
- DC fan motor greatly reduces power consumption
- Ideal for hotel application with very narrow false ceilings
- Anti-mould washable filters included
- Easy maintenance and service by external electrical box
- 40Pa static pressure enables ductwork to be fitted.
- Up to 653mm drain pump

Ultra-slim profile for all models

200mm height for all models allows installation in very narrow ceilings.



Drain pump with increased power!

Using the built-in high-lift drain pump, the drain piping rise height can be increased to 653mm from the lower surface of the body.



Model Name			S-22MM1E5	A	S-28MM1E5	A	S-36MM1E5A	S-45MM1E5A	S-56MM1E5A
Power source						220/	230/240 V, 1 phase - 50	/ 60 Hz	
o "		kW	2.2	2.2			3.6	4.5	5.6
Cooling capac	nty	BTU/h	7,500	7,500			12,300	15,400	19,100
		kW	2.5		3.2		4.2	5.0	6.3
Heating capac	orty	BTU/h	8,500		10,900		14,300	17,100	21,500
Dennisant	Cooling	kW	0.036/0.036/0	0.036	0.040/0.040/	0.040	0.042/0.042/0.042	0.049/0.049/0.049	0.064/0.064/0.064
Power input	Heating	kW	0.026/0.026/0).026	0.030/0.030/	0.030	0.032/0.032/0.032	0.039/0.039/0.039	0.054/0.054/0.054
Running	Cooling	А	0.26/0.26/0.2	6	0.30/0.30/0.3	0	0.31/0.31/0.31	0.37/0.37/0.37	0.48/0.48/0.48
current	Heating	А	0.23/0.23/0.2	3	0.27/0.27/0.2	27	0.28/0.28/0.28	0.34/0.34/0.34	0.45/0.45/0.45
	Туре		Sirocco fan		Sirocco fan		Sirocco fan	Sirocco fan	Sirocco fan
		m³/h	480/420/360	480/420/360			540/480/420	630/570/480	750/690/600
Fan	Air flow rate (H/M/L)	L/s	133/117/100	133/117/100			150/133/117	175/158/133	208/192/167
	Motor output	kW	0.06		0.06		0.06	0.06	0.06
	External static pressure	Pa	10 (30)		15 (30)		15 (40)	15 (40)	15 (40)
Sound power	level (H/M/L)	dB	43/42/40		45/44/42		47/45/43	49/47/45	50/48/46
Sound pressu	re level (H/M/L)	dB(A)	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 6	40	200 x 750 x 6	640	200 x 750 x 640	200 x 750 x 640	200 x 750 x 640
	Liquid	mm (inches)	Ø6.35 (Ø1/4)		Ø6.35 (Ø1/4)		Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)
Pipe	Gas	mm (inches)	Ø12.7 (Ø1/2)		Ø12.7 (Ø1/2)		Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)
00111100010113	Drain piping		VP-20		VP-20		VP-20	VP-20	VP-20
Net weight		kg	19		19		19	19	19
	Dated conditions.	Casling		Liesting	1	Specifi	cations are subject to ch	ange without notice.	* With booster cable
GLOBAL	Indeer eir temperature		/ 10°C M/P						
REMARKS		270 DB	/ 24°C WB	200 DB	C WB				

M1 TYPE SLIM LOW STATIC DUCTED Dimensions

1 Refrigerant piping joint (narrow pipe) 2 Refrigerant piping joint (wide pipe)

7 Pl cover 8 Electrical component box

9 Frame filter

Deingerarit piping joint (wide pipe)
 Upper and bottom drain port (O.D. 26mm)
 Suppension lug
 Power supply outlet (2- Ø30)
 Flange for air intake duct





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For all indoor units CZ-RWSK2 + CZ-RWSC3

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unit: mm



Featuring a height of only 200mm, greater flexibility and adaptability, the slim and narrow Z1 Type is the perfect solution for a variety of applications. In addition, high efficiency and an extremely low noise level make it highly suitable for hotels and small offices.







S-22MZ1H4A/ S-28MZ1H4A/ S-36MZ1H4A/ S-45MZ1H4A/ S-56MZ1H4A/ S-60MZ1H4A



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
- electrical box • 29Pa static pressure enables ductwork to be fitted.

• Easy maintenance and service by external

• Up to 700mm drain pump (optional)

Ultra-slim profile for all models

200mm height for all models allows installation in very narrow ceilings.



Drain pump with increased power! (optional)

Using the optional high-lift drain pump, the drain piping rise height can be increased to 700mm from the drain pipe port. (Please refer to technical documents for further details)



CZ-73DMZ1

Model Nam	e		S-22MZ1H4A	S-28MZ1H4A	S-36MZ1H4A	S-45MZ1H4A	S-56MZ1H4A	S-60MZ1H4A	S-73MZ1H4A	
Power sourc	e		220/230/240 V, 1 phase - 50 / 60 Hz							
Cooling capacity <u> KW</u> BTU/		kW	2.2	2.8	3.6	4.5	5.6	6.0	7.3	
		BTU/h	7,500	9,500	12,200	15,300	19,100	20,500	24,900	
		kW	2.5	3.2	4.2	5.1	6.4	7.1	8.0	
Heating capa	acity	BTU/h	8,500	10,900	14,300	17,400	21,800	24,200	27,300	
Power input	Cooling	kW	0.075/0.075/0.075	0.080/0.080/0.080	0.085/0.085/0.085	0.095/0.095/0.095	0.100/0.100/0.100	0.100/0.100/0.100	0.125/0.125/0.125	
	Heating	kW	0.075/0.075/0.075	0.080/0.080/0.080	0.085/0.085/0.085	0.095/0.095/0.095	0.100/0.100/0.100	0.100/0.100/0.100	0.125/0.125/0.125	
Running current	Cooling	А	0.50/0.47/0.45	0.55/0.52/0.50	0.60/0.57/0.55	0.70/0.68/0.65	0.75/0.72/0.70	0.75/0.72/0.70	0.80/0.78/0.75	
	Heating	А	0.50/0.47/0.45	0.55/0.52/0.50	0.60/0.57/0.55	0.70/0.68/0.65	0.75/0.72/0.70	0.75/0.72/0.70	0.80/0.78/0.75	
-	Туре		Sirroco fan	Sirroco fan	Sirroco fan	Sirroco fan	Sirroco fan	Sirroco fan	Sirroco fan	
		m³/h	480/420/360	600/540/420	600/540/420	690/630/510	720/660/540	870/750/630	1,080/840/660	
Fan	Air flow rate (H/M/L)	L/s	133/117/100	167/150/117	167/150/117	192/175/142	200/183/150	242/208/175	300/233/183	
	Motor output	W	60	60	60	60	60	60	60	
	External static pressure	Pa	10-30	10-30	10-30	10-30	10-30	10-30	10-30	
Sound powe	er level (H/M/L)	dB	50/49/47	52/51/49	54/52/50	56/54/52	57/55/53	60/57/55	62/60/58	
Sound press	ure level (H/M/L)	dB(A)	28/27/25	30/29/27	32/30/28	34/32/30	35/33/31	38/35/33	40/38/36	
Dimensions	H x W x D	mm	200x830×500	200x830×500	200x830×500	200x830×500	200x830×500	200x830×500	200x1,050×550	
	Liquid	mm (inches)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø9.52 (Ø3/8)	
Pipe	Gas	mm (inches)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø15.88 (Ø5/8)	
connections	Drain piping		O.D. Ø20.5 mm / I.D. Ø15.5mm	O.D. Ø20.5 mm / I.D. Ø15.5mm	O.D. Ø20.5 mm / I.D. Ø15.5mm	O.D. Ø20.5 mm / I.D. Ø15.5mm	O.D. Ø20.5 mm / I.D. Ø15.5mm	O.D. Ø20.5 mm / I.D. Ø15.5mm	O.D. Ø20.5 mm / I.D. Ø15.5mm	
Net weight		kg	17	17	18	18	18	18	24	
GLOBAL	Rated conditi	ons:	Cooling	Heating	S	pecifications are su	bject to change wit	hout notice.		
GLUBAL	Indoor air ten	nperature	27°C DB / 19°C \	NB 20°C DB						

Z1 TYPE SLIM & NARROW DUCTED

REMARKS

SIZE 22-60MZ1H4A

Dimensions

Outdoor air temperature 35°C DB / 24°C WB 7°C DB / 6°C WB





a) Refrigerant piping joint (liquid pipe)
b) Refrigerant piping joint (gas pipe)
c) Bottom drain port O.D.Ø20.5mm / I.D. Ø15.5mm
d) Suspension lug (4 – 12 × 30mm)
e) Power supply outlet
d) Elense to flowible oir guillet duct f) Flange for flexible air outlet ductg) Electrical component box



SIZE 73MZ1H4A





unit: mm

E1 TYPE High Static Ducted

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



S-73ME1E5 / S-106ME1E5 / S-140ME1E5







Functio

Technical focus

Complete flexibility for ductwork design

Operation

- Can be located into a weatherproof housing for external installation
- Up to 186Pa external static pressure (in the case of S-73ME1E5)

System example

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



• Discharge air temperature control to reduce cold

• Up to 600L/s airflow (in the case of S-140ME1E5)

drafts during heating operation

Discharge air temperature control

- Able to control discharge air temperature for accurate room temperature control.
- Possible to reduce cold drafts during heating operation.





Model Name	•		S-73ME1E5	S-106ME1E5	S-140ME1E5	
Power source			240 V, 1 phase - 50Hz			
o "		kW	7.3	10.6	14.0	
Cooling capac	Cooling capacity		25,000	36,000	47,800	
Line Providence	-14 .	kW	8.0	11.4	16.0	
Heating capac	спту	BTU/h	27,000	39,000	54,600	
Dennisert	Cooling	kW	0.530	0.570	0.710	
Power Input	Heating	kW	0.530	0.570	0.710	
Running current	Cooling	A	2.31	2.47	3.00	
	Heating	А	2.31	2.47	3.00	
	Туре		Sirocco fan	Sirocco fan	Sirocco fan	
[an	Air flow rate (H/M/L)	L/s	383/367/350	500/467/417	600/583/550	
Fan	Motor output	kW	0.2	0.2	0.35	
	External static pressure	Pa	186	176	167	
Sound power	level (H/M/L)	dB	55/54/53	56/55/53	58/57/55	
Sound pressu	re level (H/M/L)	dB(A)	44/43/42	45/44/42	47/46/44	
Dimensions	H x W x D	mm	420 x 1,065 x 620	420 x 1,065 x 620	450 x 1,065 x 620	
	Liquid	inches (mm)	3/8 (Ø9.52)	3/8 (Ø9.52)	3/8 (Ø9.52)	
Pipe connections	Gas	inches (mm)	5/8 (Ø15.88)	5/8 (Ø15.88)	5/8 (Ø15.88)	
	Drain piping		VP-25	VP-25	VP-25	
Net weight		kg	47	50	54	

Specifications subject to change without notice.

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

E1 TYPE HIGH STATIC DUCTED Dimensions

SIZE 73-140

1 Refrigerant liquid line (ø9.52) 2 Refrigerant gas line (ø15.88) 3 Power supply entry 4 Drain connection (20A / VP25) 5 Duct connection for suction 6 Duct connection for discharge







Concealed duct

High static and large airflow ducted for exceptional installation flexibility.





Technical focus

- Design flexibility thanks to high static pressure and large air volume
- DC motor equipped

 Discharge air temperature control to reduce cold drafts during heating operation

Air intake senso

-1

Available Fresh Air Intake mode

3-step static pressure set up



You can select between the three static pressure modes of 270Pa/ 140Pa/ 60 (72*)Pa for extra installation flexibility.

Up to 270Pa static pressure setting

A maximum static pressure setting of a high 270Pa enables the use of long ducts for installation in a wide range of spaces. Ideal for large-scale offices, restaurants and other facilities.

Sensible cooling 5-10% improved

New heat exchanger with ϕ 7mm pipe that increases the heat transfer surface to improve sensible cooling (5-10% improvement)

E3 sensor

E1 sensor

Air discharge

sensor

Discharge air temperature control

- Equipped with 4 sensors (Intake/ Discharge)
- Able to control discharge air temperature for accurate room temperature control.
- Possible to reduce cold drafts during heating operation.





		1					
		S-180ME2E5	S-224ME2E5	S-280ME2E5			
		220/230/240 V, 1 phase - 50/60Hz					
÷.	kW	18.0	22.4	28.0			
Cooling capacity		61,400	76,400	95,500			
	kW	20.0	25.0	31.5			
ity	BTU/h	68,200	85,300	107,500			
Cooling	kW	0.400	0.440	0.715			
Heating	kW	0.400	0.440	0.715			
Cooling	А	2.40 / 2.30 / 2.20	2.55 / 2.45 / 2.35	3.95 / 3.85 / 3.70			
Heating	А	2.40 / 2.30 / 2.20	2.55 / 2.45 / 2.35	3.95 / 3.85 / 3.70			
Туре		Sirocco fan	Sirocco fan	Sirocco fan			
Air flow rate (H/M/L)	m³/h	2,940 / 2,640 / 2,340	3,360 / 3,060 / 2,640	4,320 / 3,780 / 3,180			
	L/s	817 / 733 / 650	933 / 850 / 733	1,200 / 1,050 / 883			
External static pressure	Pa	140 (60/270)	140 (60/270)	140 (72/270)			
evel (H/M/L)	dB	76 / 74 / 72	77 / 75 / 73	81 / 79 / 75			
e level (H/M/L)	dB(A)	44 / 42 / 40	45 / 43 / 41	49 / 47 / 43			
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			
Liquid	mm (inches)	Ø9.52 (3/8)	Ø9.52 (3/8)	Ø9.52 (3/8)			
Gas	mm (inches)	Ø19.05 (3/4)	Ø19.05 (3/4)	Ø22.22 (7/8)			
Drain piping		VP-25	VP-25	VP-25			
	kg	102	102	106			
	ty Cooling Heating Cooling Heating Type Air flow rate (H/M/L) External static pressure evel (H/M/L) e level (H/M/L) H x W x D Liquid Gas Drain piping	ty KW BTU/h BTU/h KW BTU/h Cooling KW Heating KW Cooling A Heating A Heating A Type Air flow rate (H/M/L) M ^{3/h} L/s External static pressure Pa evel (H/M/L) dB e level (H/M/L) dB e level (H/M/L) dB e level (H/M/L) mm Liquid mm (inches) Gas mm (inches) Drain piping Kg	S-180ME2E5 ty KW 18.0 BTU/h 61,400 ty KW 20.0 BTU/h 68,200 Cooling Cooling KW 0.400 Heating KW 0.400 Cooling A 2.40 / 2.30 / 2.20 Heating A 2.40 / 2.30 / 2.20 Type Sirocco fan Air flow rate (H/M/L) m³/h 2.940 / 2,640 / 2,340 L/s 817 / 733 / 650 External static pressure Pa 140 (60/270) evel (H/M/L) dB 76 / 74 / 72 e level (H/M/L) dB/A 24/ 42 / 40 H x W x D mm 479 x 1,453 x 1,205 Liquid mm (inches) Ø9.52 (3/8) Gas mm (inches) Ø19.05 (3/4) Drain piping VP-25 kg 102	S-180ME2E5 S-24ME2E5 220/230/240 V, 1 phase - 50/60Hz ty KW 18.0 22.4 ty BTU/h 61,400 76,400 ty KW 20.0 25.0 ty BTU/h 68,200 85,300 Cooling kW 0.400 0.440 Heating kW 0.400 0.440 Cooling A 2.40 / 2.30 / 2.20 2.55 / 2.45 / 2.35 Heating A 2.40 / 2.30 / 2.20 2.55 / 2.45 / 2.35 Type Sirocco fan Sirocco fan Air flow rate (H/M/L) m ³ /h 2.940 / 2.640 / 2.340 3.360 / 3.060 / 2.640 Air flow rate (H/M/L) dB 76 / 74 / 72 77 / 75 / 73 External static pressure Pa 140 (60/270) 140 (60/270) elvel (H/M/L) dB 76 / 74 / 72 77 / 75 / 73 e level (H/M/L) dB(A) 44 / 42 / 40 45 / 43 / 41 H x W x D mm 479 x 1,453 x 1,205 479 x 1,453 x 1,205 Liquid			

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

E2 TYPE HIGH STATIC DUCTED Dimensions

1 Refrigerant piping (liquid pipes) Ø9.52 2 Refrigerant piping (gas pipes) 180 & 224 type: Ø19.05, 280 type: Ø22.22 3 Power supply outlet (Ø25 grommet, rubber) 4 Power supply outlet (spare) (Ø30 knock-out) 5 Optional outlet for piping 6 Drain port 25 A, male thread 7 Duct connection for suction 8 Duct connection for discharge





Specifications are subject to change without notice.







Concealed duct

High static and large airflow ducted for exceptional installation flexibility.



Technical focus

- 100% fresh air intake for ventilation purpose
- Design flexibility with high static pressure
- and large air volume
- DC motor equipped

High Fresh System

High Fresh System enables delivery of fresh outside air at almost the same temperature and humidity as indoor air without putting a burden on air conditioning.

* Capable of treating outdoor air only. Indoor air conditioner units are required to adjust indoor air temperature.



• Discharge air temperature control to reduce cold

drafts during heating operation

Mix operation unit with standard indoor units

Possible to combine High Fresh Air ducted indoor unit and standard air ducted indoor units. When other indoor units are connected in same circuit, keep following capacity ratio. E2 type/ Outdoor unit < 30%, and Total of indoors (incl. E2) /outdoor <100%

Discharge air temperature control

- Equipped with 4 sensors (Intake/ Discharge)
- Ability to control discharge air temperature for accurate room temperature control.
- Ability to reduce cold drafts during heating operation.



Installation Conditions

Model	Operation	Rap valve kit CZ-P160RVK2	3-PIPE control PCB CZ-CAPE2	3-PIPE valve kit CZ-P160HR3	Distribution Joint kit <2pipes> CZ-P160BK2 for 22 4kW unit or loop	Distribution Joint kit <3pipes> CZ-P224BH2
					CZ-P680BK2 for more than 22.4kW	for 22.4kW unit CZ-P680BH2 for 28.0kW unit
E2 Type	Cooling Only	-	-	-	-	-
Energy Saving High-Fresh Air	Cool or Heat	2pcs	2pcs	-	2pcs	-
Ducted	Heat Recovery	-	2pcs	2pcs	1pc	1pc

Model Name	•		S-224	ME2E5		S-280ME2E5
Power source	1			220/230/240 V, 1		1 phase - 50/60Hz
		kW	22.4			28.0
Cooling capac	city	BTU/h	76,400			95,500
	•.	kW	21.2			26.5
Heating capa	city	BTU/h	72,300			90,400
	Cooling	kW	0.290			0.350
Power input	Heating	kW	0.290			0.350
Running	Cooling	А	1.90/1.	85/1.80		2.30/2.20/2.10
current	Heating	А	1.90/1.85/1.80			2.30/2.20/2.10
	Туре		Sirocco fan			Sirocco fan
	A: 0 .	m³/h	1,700	1,700		2,100
Fan	Air flow rate	L/s	472			583
	Motor output	W	560	560		750
	External static pressure	Pa	200			200
Sound power	level	dB	75			76
Sound pressu	ire level	dB(A)	43			44
Dimensions	H x W x D	mm	479 x 1	,453 x 1,205		479 x 1,453 x 1,205
	Liquid	mm (inches)	Ø9.52	(Ø3/8)		Ø9.52 (Ø3/8)
Pipe	Gas	mm (inches)	Ø19.05	i (Ø3/4)		Ø22.22 (Ø7/8)
Drain piping			VP-25			VP-25
Net weight kg		102			106	
						•
GLOBAL	Rated conditions:	Cooling		Heating	Specifications are subje	ct to change without notice.
REMARKS	Outdoor air temperature	33°C DB / 28°C	C WB	0°C DB / -2.9°C WB		

E2 TYPE HIGH STATIC DUCTED Dimensions

1 Refrigerant piping (liquid pipes) Ø9.52 2 Refrigerant piping (gas pipes) 224 type: Ø19.05, 280 type: Ø22.22 224 type: 019.03, 200 type: 022.22 3 Power supply outlet (Ø25 grommet, rubber) 4 Power supply outlet (spare) (Ø30 knock-out) 5 Optional outlet for piping 6 Drain port 25 A, male thread 7 Duct connection for suction 8 Duct connection for discharge

S-224ME2E5

S-280ME2E5



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93

E1 TYPE High Static Compact Ducted

Concealed duct

Hidden in the ceiling to provide an ideal match for luxury residences and light commercial buildings.





S-90ME1R5A/ S-112ME1R5A S-140ME1R5A/ S-160ME1R5A



Technical focus

- Complete flexibility for ductwork design
- Can be located into a weatherproof housing for external installation
- Up to 150Pa external static pressure

System Example

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



• Up to 1000 L/s air flow (in the case of S-160ME1R5A)



Compact Body Size

Hidden in the ceiling, ideal when interior decor is an important consideration such as in residences with many rooms and light commercial buildings.



S-90ME1R5A / S-112ME1R5A



S-140ME1R5A / S-160ME1R5A

Model Name	,		S-90ME1R5A	S-112ME1R5A	S-140ME1R5A	S-160ME1R5A		
Power source			230/240 V, 1 phase - 50Hz					
0 "		kW	9.0	11.2	14.0	16.0		
Cooling capac	лту	BTU/h	30,700	38,200	47,800	54,600		
		kW	10.0	12.5	16.0	18.0		
Heating capac	city	BTU/h	34,100	42,700	54,600	61,400		
Dennisent	Cooling	kW	0.275/0.290	0.390/0.410	0.410/0.430	0.590/0.640		
Power input	Heating	kW	0.275/0.290	0.390/0.410	0.410/0.430	0.590/0.640		
Running	Cooling	А	1.24/1.25	1.72/1.74	1.82/1.84	2.62/2.70		
current	Heating	А	1.24/1.25	1.72/1.74	1.82/1.84	2.62/2.70		
	Туре		Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan		
	Air flow rate (H/M/L)	m³/h	1,800/1,560/1,320	2,400/2,100/1,740	3,000/2,760/2,160	3,600/3,000/2,520		
Fan		L/s	500/433/366	666/583/483	833/766/600	1,000/833/700		
	Motor output	kW	0.155	0.275	0.310	0.44		
	External static pressure	Pa	100 (max150)	100 (max150)	100 (max150)	100 (max150)		
Sound power	level (H/M/L)	dB	62/61/60	70/68/66	71/69/67	73/71/69		
Sound pressu	re level (H/M/L)	dB(A)	45/44/43	48/46/44	49/47/45	51/49/47		
Dimensions	H x W x D	mm	360 x 1,100(+100) x 700	360 x 1,100(+100) x 700	430 x 1,100(+100)x 700	430 x 1,100(+100) x 700		
	Liquid	mm (inches)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)		
Pipe	Gas	mm (inches)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)		
0011100010113	Drain piping		VP-25	VP-25	VP-25	VP-25		
Net weight kg		42	44	48	53			
	Bated conditions:	Cooling	Heating	Specifications are s	ubject to be changed withou	t notice.		
GLOBAL	Indoor air temperature	27°C DB / 19°	CWB 20°C DB					
REMARKS	Outdoor air temperature	35°C DB / 24°C	CWB 7°C DB / 6°C WB					

E1 TYPE HIGH STATIC DUCTED Dimensions



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For all indoor units CZ-RWSK2 + CZ-RWSC3



Dimensions: mm

	А	В	С	D
A 5A	195	35.7	360	50
5A 5A	260	38.2	430	121.5







The K2 type wall mounted unit has a stylish smooth design with a washable front panel. Small, lightweight, and a low noise level, this unit is ideal for small offices and other commercial applications.

S-22MK2E5A / S-28MK2E5A /

S-36MK2E5A







Operation





Mild drv



Auto Swing (Auto Flap Control)

Technical focus

- Closed discharge port when not in use
- Lighter and smaller units make installation easy
- Quiet operation
- Smooth and durable design
- Piping outlet in six directions
- Noise reducing external valve kit To reduce noise level of expansion valve. (Optional accessory)



- Air distribution is automatically altered depending on the operational mode of the unit
- Anti-mould washable filters are included



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.

Compact indoor units make the installation easy



Quiet operation

Low operating noise level makes these units ideal for hotels and hospital applications.

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 six directions

Piping outlet operates in six directions: right, right rear, right bottom, left, left rear, left bottom, making installation easier.

Washable front panel

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

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

Air outlet angle is automatically adjusted for cooling and heating operation.





Model Name			S-22MK2E5A	S-28MK2E5A	S-36MK2E5A	S-45MK2E5A		
Power source	•		220/230/240 V, 1 phase - 50 / 60 Hz					
Cooling cono	alle d	kW	2.2	2.8	3.6	4.5		
Cooling capa	city	BTU/h	7,500	9,600	12,300	15,400		
Lineting cone	olih r	kW	2.50	3.20	4.20	5.0		
Heating capa	City	BTU/h	8,500	10,900	14,300	17,100		
Dowor input	Cooling	kW	0.025/0.025/0.025	0.025/0.025/0.025	0.030/0.030/0.030	0.030/0.030/0.030		
Fower input	Heating	kW	0.025/0.025/0.025	0.025/0.025/0.025	0.030/0.030/0.030	0.030/0.030/0.030		
Running	Cooling	А	0.21	0.23	0.25	0.33/0.32/0.31		
current	Heating	А	0.21	0.23	0.25	0.33/0.32/0.31		
	Туре		Cross-flow fan	Cross-flow fan	Cross-flow fan	Cross-flow fan		
Fee	Air flow rate (H/M/L)	m³/h	540/450/390	570/498/390	654/540/390	870/750/600		
Fan		L/s	153/138/113	161/142/113	187/158/113	242/208/167		
	Motor output	kW	0.03	0.03	0.03	0.054		
Sound power	level (H/M/L)	dB	51/48/44	52/49/44	55/51/44	53/50/48		
Sound pressu	ire level (H/M/L)	dB(A)	36/33/29	37/34/29	40/36/29	38/35/33		
Dimensions	H x W x D	mm	290 x 870 x 214	290 x 870 x 214	290 x 870 x 214	302 x 1,120 x 236		
	Liquid	mm (inches)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)		
Pipe connections	Gas	mm (inches)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)		
	Drain piping	mm	Ø18	Ø18	Ø18	Ø18		
Net weight		kg	9	9	9	13		

S-56MK2E5A	S-73MK2E5A	S-106MK2E5A
22	20/230/240 V, 1 phase - 50 /	60 Hz
5.6	7.3	10.6
19,100	24,900	36,200
6.3	8.0	11.4
21,500	27,300	38,900
0.035/0.035/0.035	0.055/0.055/0.055	0.080/0.080/0.080
0.035/0.035/0.035	0.055/0.055/0.055	0.080/0.080/0.080
0.36/0.35/0.34	0.52/0.51/0.50	0.72/0.70/0.68
0.36/0.35/0.34	0.52/0.51/0.50	0.72/0.70/0.68
Cross-flow fan	Cross-flow fan	Cross-flow fan
960/840/720	1,170/1,020/840	1,290/1,110/900
267/233/200	325/283/233	358/308/250
0.054	0.054	0.054
55/52/50	62/59/55	64/61/57
40/37/35	47/44/40	49/46/42
302 x 1,120 x 236	302 x 1,120 x 236	302 x 1,120 x 236
Ø6.35 (Ø1/4)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)
Ø12.7 (Ø1/2)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)
Ø18	Ø18	Ø18
13	14	14

Rated conditions: GLOBAL REMARKS

Heating Indoor air temperature 27°C DB / 19°C WB 20°C DB

Specifications are subject to change without notice.

Cooling Outdoor air temperature 35°C DB / 24°C WB 7°C DB / 6°C WB

K2 (22-36) TYPE WALL MOUNTED Dimensions

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

K2 (45-106) TYPE WALL MOUNTED Dimensions

S-45MK2E5A / S-56MK2E5A / S-73MK2E5A / S-106MK2E5A







1 Refrigerant piping (liquid pipe) ø6.35(flared) 2 Refrigerant piping (gas pipe) ø12.7(flared) 3 Drain hose (outer dia. ø16) 4 Rear panel (PL BACK) 5 Rear panel fixing holes (ø5 holes or 5X13 oval holes) 6 Tubing and wiring holes (ø70)











1 Refrigerant piping (liquid pipe) 45-56 / 73-106 type ø6.35 / ø9.52 (flared) 2 Refrigerant piping (gas pipe) 45-56 / 73-106 type ø12.7 / ø15.88 (flared) 3 Drain hose VP13 (outer dia. ø18) 4 Rear panel (PL BACK) 5 Ta blied typic (PC)

5 Tubing and wiring holes (ø80)



U2_{TYPE} 4-WAY Cassette Semi concealed cassette FLATPANEL DESIGN AIR INTAKE CHAMBER



1 [1] Air intake flange (Ø100) (field supply) 2 Air intake box CZ-ATU2 * 3 Air intake plenum CZ-FDU3 * When using Air intake box (CZ-ATU2).

Air intake plenum (CZ-FDU3) is required



Normal Panel : CZ-KPU3 ECONAVI Panel: CZ-KPU3A

Technical focus

- New high performance turbo fan, new path system for heat exchanger
- Lower noise in slow fan operation
- Industry top light weight, easy piping

- ECONAVI: Floor temperature and humidity sensor added Activity amount detection and new circulator
- nanoe[™]X: For clean and healthy air
- Easy installation structure of the panel

Flat horizontal design

The intuitive design of the 4-WAY cassette ensures a low unit profile protruding from the ceiling at a mere 33.5mm, this elegant unit is perfectly suited to interior spaces.



Up to 300mm

Up to **850**mm

Drain pump of up to 850mm from the ceiling surface

Built in drain pump allows flexible install and design options with up to 850mm lift. Long horizontal piping is also possible.

Easy to clean suction grille

Suction grille is able to make 90-degree turns.



360° wide & comfortable airflow

360° Wide

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

-4 flaps can be controlled individually (by standard wired remote controller*)

-Versatile air flow control to cover a wide variety of demands.

*Pre-setting is required for this function at System Test-run procedure

Temperature distribution by thermograph (cooling operation)

> nulation conditions 140M 4-PIPE ceiling-mounted cassette type in cooling mode / Floor area of 225m / Ceiling height of 3m

Ample airflow: 36 m³/min Industry's leading in the 140PU class.











* * * CZ-RTC5B

CZ-CNEXU1 [CZ-RTC5B is required]

High-ceiling installation (Up to 5m for 10.6kW and higher capacity models)

The units can be installed in rooms with high ceilings, where they provide ample floor-level heating in the winter. (See ceiling height guidelines below.)

Ceiling height guidelines

*1 settings	4-Way discha	4-Way discharge					
Indoor unit	Factory setting 1	High ceiling setting 1	High ceiling setting 2	(optional air-blocking materials)			
2.2-5.6kW	2.7	3.2	3.5	3.8			
6.0-9.0kW	3.0	3.3	3.6	3.8			
10.6-16.0kW	3.6	4.3	5.0	4.7			

ECONAVI energy saving function (CZ-KPU3A is required)

Newly positioned humidity sensor on suction side of coil allows unit to achieve increased energy saving operation and comfort.

• Energy saving operation in case of low humidity during cooling operation

Panels & panel parts

Normal panel: CZ-KPU3 ECONAVI panel: CZ-KPU3A



enance X

nanoe[™]X with 10 times^{*1} the concentration

nanoe[™] X contains plenty of OH radicals that inhibit bacteria and viruses, deodorise unpleasant odours and keeps room air clean and fresh.



*CZ-CNEXU1 & CZ-RTC5B to use nanoe™ X function. *1 Panasonic in-house test report



High Ceiling (Factory s



5.0

- Energy saving operation in case of high humidity during heating operation
- Energy saving operation based on activity amount and comfort and energy saving based on temperature and humidity.

Invisible air contaminants are suppressed

Model Name	•		S-22MU2E5A	S-28MU2E5A	S-36MU2E5A	S-45MU2E5A	S-56MU2E5A	
Power source			220/230/240 V, 1 phase - 50Hz/60Hz					
0	- 14	kW	2.2	2.8	3.6	4.5	5.6	
Cooling capac	city	BTU/h	7,500	9,600	12,300	15,400	19,100	
I I a d'a a sa a s	- 14	kW	2.5	3.2	4.2	5.0	6.3	
Heating capac	city	BTU/h	8,500	10,900	14,300	17,100	21,500	
Deuterienut	Cooling	kW	0.020/0.020/0.020	0.020/0.020/0.020	0.020/0.020/0.020	0.020/0.020/0.020	0.025/0.025/0.025	
Power Input	Heating	kW	0.020/0.020/0.020	0.020/0.020/0.020	0.020/0.020/0.020	0.020/0.020/0.020	0.025/0.025/0.025	
Running	Cooling	А	0.21/0.21/0.20	0.21/0.21/0.20	0.21/0.21/0.20	0.21/0.21/0.20	0.24/0.23/0.22	
current	Heating	А	0.20/0.20/0.19	0.20/0.20/0.19	0.20/0.20/0.19	0.20/0.20/0.19	0.23/0.22/0.21	
	Туре		Turbo fan	Turbo fan	Turbo fan	Turbo fan	Turbo fan	
-	Air flow rate (H/M/L)	m³/h	870/780/690	870/780/690	870/780/690	930/780/690	990/810/690	
Fan		L/s	233/200/183	233/200/183	233/200/183	250/217/200	275/225/192	
	Motor output	kW	0.06	0.06	0.06	0.06	0.06	
Sound power	level (H/M/L)	dB	45/44/43	45/44/43	45/44/43	46/44/43	47/45/43	
Sound pressu	ire level (H/M/L)	dB(A)	30/29/28	30/29/28	30/29/28	31/29/28	32/30/28	
Dimensions*	H x W x D	mm		256	6+(33.5) x 840 (950) x 84	D (950)		
	Liquid	mm (inches)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	
Pipe connections	Gas	mm (inches)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	
0011100000110	Drain piping		VP-25	VP-25	VP-25	VP-25	VP-25	
Net weight (Panel) kg		kg	19 (+5)	19 (+5)	19 (+5)	19 (+5)	19 (+5)	
Detections difference - Operations		l la stir s		e values in () for external	dimensions and Net we	eight		

are the values for the optional ceiling panel.

S-60MU2E5A	S-73MU2E5A	S-90MU2E5A	S-106MU2E5A	S-140MU2E5A	S-160MU2E5A	
			220/230/240 V, 1 phase - 50Hz/60Hz			
6.0	7.3	9.0	10.6	14.0	16.0	
20,500	24,900	30,700	36,200	47,800	54,600	
7.1	8.0	10.0	11.4	16.0	18.0	
24,200	27,300	34,100	38,900	54,600	61,400	
0.035/0.035/0.035	0.040/0.040/0.040	0.040/0.040/0.040	0.090/0.090/0.090	0.095/0.095/0.095	0.105/0.105/0.105	
0.035/0.035/0.035	0.040/0.040/0.040	0.040/0.040/0.040	0.085/0.085/0.085	0.090/0.090/0.090	0.100/0.100/0.100	
0.34/0.33/0.32	0.37/0.36/0.35	0.39/0.38/0.37	0.74/0.71/0.68	0.77/0.74/0.71	0.85/0.82/0.79	
0.33/0.32/0.31	0.36/0.35/0.34	0.38/0.37/0.36	0.72/0.69/0.66	0.75/0.72/0.69	0.83/0.80/0.77	
Turbo fan	Turbo fan	Turbo fan	Turbo fan	Turbo fan	Turbo fan	
1,260/960/780	1,350/960/780	1,380/1,110/840	2,040/1,500/1,140	2,160/1,560/1,200	2,220/1,680/1,440	
350/283/233	367/283/233	383/317/250	550/450/350	600/433/333	600/483/383	
0.06	0.06	0.06	0.09	0.09	0.09	
51/47/44	52/47/44	53/50/47	59/53/49	60/54/50	61/55/53	
36/32/29	37/32/29	38/35/32	44/38/34	45/39/35	46/40/38	
			319	+(33.5) x 840 (950) x 84	0 (950)	
Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)	
Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	
VP-25	VP-25	VP-25	VP-25	VP-25	VP-25	
20 (+5)	20 (+5)	20 (+5)	25 (+5)	25 (+5)	25 (+5)	

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Cooling Rated conditions: Heating GLOBAL Indoor air temperature 27°C DB / 19°C WB 20°C DB REMARKS

Outdoor air temperature 35°C DB / 24°C WB 7°C DB / 6°C WB

Specifications are subject to change without notice.

C•nanoe[®]X

Test report for odours and mould suppression performance

No.	Target Substance	Effectiveness	Testing Institute	Test Report No.	Method	Result
1	Odours	Decrease by 0.7 level	Gunma Research Center	Test Report No. 27055	nance™X was operated in a test space (55m²) and the deodorisation effect on a piece of cloth impregnated with odour components of cigarette smoke was evaluated using 6 level odour intensity indication method.	Decrease in odour intensity by 0.7 level after 2 hour of operation
2	Mould	Inhibit mould growth	Institute of Environmental Biology	Test Report No.150901, 150904	Mould sensor was attached at indoor unit inside. In a test space (95m ²) at 25 degree and 75% humidity, AC cooling with nance [™] X was operated during 2 hour per day for 9 days.	No mould growth after 9 days.



U2 TYPE 4-WAY CASSETTE Dimensions

- 6 Power supply port
 7 Discharge duct connection port (#150)
 8 Suspension bolt hole (4-12×30 elongated hole)
 9 Fresh air intake duct connection port (#100) *
 10 ECONAVI sensor (Only CZ-KPU3A)

*1: Necessary to attach duct connecting flange (field supplied). Filter size: 520 x 520 x 15





unit: mm

The length of the suspension bolts should be selected so that there is a gap of 30mm or more below the lower surface of the ceiling (1mm or more below the lower surface of the main unit), as shown in the figure at right. If the suspension bolt is too long, it will contact the ceiling panel and the unit cannot be installed.



the Mini Cassette Y2 Type is ideal for small commercial and retrofit applications.

PANEL

8 x 1060 x 680mm (HxWxD)

CZ-KPY3AW 8 x 1360 x 680mm (HxWxD)







Designed to fit perfectly into a 600 x 600mm ceiling grid without the need to alter the bar configuration,



Automatic Restart

Function

DP Built-in Drain Pump

Technical focus

- Mini cassette fits into a 600 x 600mm ceiling grid
- Anti-mould and anti-bacteria washable filters
- Powerful drain pump gives 750mm lift
- DC fan motor with variable speed and a new heat exchanger ensures efficient power consumption
- Fresh air knock out
- Multi directional air flow

Compact design

The panel is a compact (700 × 700mm) so it can be installed even in a small room where space is limited.



Lighter and slimmer, easier installation

When only 260mm of indoor body height, it can easily fit in limited spaces and tight spots. (Required 288mm from bottom of panel to top of the unit)

ndoor Unit



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

Anti-Mould Long-Life Air Filter

Anti-mould and anti-bacteria washable filter ensures clean, healthy air.





Model Name	•		S-22MY2E5A	S-28MY2E5A	S-36MY2E5A	S-45MY2E5A	S-56MY2E5A		
Power source	1		220/230/240 V, 1 phase - 50, 60 Hz						
0 "	•	kW	2.2	2.8	3.6	4.5	5.6		
Cooling capac	city	BTU/h	7,500	9,600	12,300	15,400	19,100		
I I a strange a second	- 14 .	kW	2.5	3.2	4.2	5.0	6.3		
Heating capa	city	BTU/h	8,500	10,900	14,300	17,100	21,500		
Den in t	Cooling	kW	0.035	0.035	0.040	0.040	0.045		
Power input	Heating	kW	0.030	0.030	0.035	0.035	0.040		
Running	Cooling	A	0.30	0.30	0.30	0.32	0.35		
amperes	Heating	A	0.25	0.30	0.30	0.30	0.35		
	Туре		Turbo fan	Turbo fan	Turbo fan	Turbo fan	Turbo fan		
	Airflow rate (H/M/L)	m³/h	546/492/336	558/504/336	582/522/360	600/558/492	624/588/510		
Fan motor		L/s	155/140/93	160/140/93	165/151/100	172/160/137	185/163/145		
	Output	kW	0.04	0.04	0.04	0.04	0.04		
Power sound	Cooling	dB	50/46/40	50/46/40	5 /47/41	53/49/43	55/52/49		
level (H/M/L)	Heating	dB	50/46/40	50/46/40	51/47/41	53/49/43	55/52/49		
Sound pressure	Cooling	dB(A)	35/31/25	35/31/25	36/32/26	38/34/28	40/37/34		
level (H/M/L)	Heating	dB(A)	35/31/25	35/31/25	36/32/26	38/34/28	40/37/34		
Dimensions*	H x W x D	mm	288 (+31) x 575 (700) x 575 (700)	288 (+31) x 575 (700) x 575 (700)	288 (+31) x 575 (700) x 575 (700)	288 (+31) x 575 (700) x 575 (700)	288 (+31) x 575 (700) x 575 (700)		
	Liquid	mm (inches)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)		
Pipe	Gas	mm (inches)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)		
CONTINUCTIONS	Drain piping		VP-25	VP-25	VP-25	VP-25	VP-25		
Net weight*		kg	18 (+2.4)	18 (+2.4)	18 (+2.4)	18 (+2.4)	18 (+2.4)		
	Datad conditions:	Coolin	Liesting	*The valu	ues in () for external dimens	ions and Net weight are the	e		

GLOBAI Indoor air temperature 27°C DB / 19°C WB 20°C DB REMARKS Outdoor air temperature 35°C DB / 24°C WB 7°C DB / 6°C WB

Y2 TYPE 4-WAY CASSETTE Dimensions

1 Air intake grill



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values for the optional ceiling panel. Specifications are subject to change without notice.

L1 TYPE 2-WAY Cassette Semi Concealed Cassette

The L1 is very thin, compact and light, allowing flexible installation options. A redesigned fan has been used to achieve this size and weight reduction.

PANEL

CZ-02KPL2 8 x 1060 x 680mm (HxWxD) Big size panel (for S-73ML1E5) CZ-03KPL2 8 x 1360 x 680mm (HxWxD)







Automatic

Restart

Function

DP Built-in Drain Pump

Technical focus

- Airflow and distribution is automatically altered depending on the operational mode of the unit
- Drain up is possible up to 500mm via the built-in drain pump
- Simple maintenance

Auto flap control

Airflow and distribution is automatically altered depending on the operational mode (cooling or heating) of the unit.



Drain up is possible up to 500mm via the built-in drain pump.

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



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.

Model Nam	e		S-22ML1E5	S-28ML1E5	S-36ML1E5	S-45ML1E5	S-56ML1E5	S-73ML1E5
Power source	e				220/230/240V, 1	phase - 50 / 60Hz		
Onellander	14	kW	2.2	2.8	3.6	4.5	5.6	7.3
Cooling capa	BTU/h		7,500	9,600	12,000	15,000	19,000	25,000
		kW	2.5	3.2	4.2	5.0	6.3	8.0
Heating capa	acity	BTU/h	8,500	11,000	14,000	17,000	21,000	27,000
Power input +	Cooling	kW	0.086/0.090/0.095	0.086/0.092/0.097	0.088/0.093/0.099	0.091/0.097/0.103	0.091/0.097/0.103	0.135/0.145/0.154
	Heating	kW	0.055/0.058/0.062	0.055/0.060/0.064	0.057/0.061/0.066	0.060/0.065/0.070	0.060/0.065/0.070	0.100/0.109/0.117
Running	Cooling	А	0.45/0.45/0.45	0.44/0.45/0.45	0.44/0.45/0.45	0.45/0.45/0.45	0.45/0.45/0.45	0.64/0.65/0.66
current	Heating	А	0.29/0.29/0.30	0.28/0.29/0.30	0.28/0.29/0.30	0.29/0.29/0.30	0.29/0.29/0.30	0.46/0.48/0.49
	Туре		Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan
F	Air flow rate (H/M/L)	m³/h	480/420/360	540/480/420	580/520/460	660/540/480	660/540/480	1,140/960/840
Fan		L/s	133/117/100	150/133/117	161/144/128	183/150/133	183/150/133	317/267/233
	Motor output	kW	0.03	0.03	0.03	0.03	0.03	0.05
Sound powe	er level (H/M/L)	dB	40/38/35	44/40/37	45/42/39	46/44/40	46/44/40	49/46/44
Sound press	ure level (H/M/L)	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)x 1,140 (1,360) x600 (680)
	Liquid	mm (inches)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø9.52 (Ø3/8)
Pipe	Gas	mm (inches)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø15.88 (Ø5/8)
	Drain piping		VP-25	VP-25	VP-25	VP-25	VP-25	VP-25
Net weight*		kg	23 (+5.5)	23 (+5.5)	23 (+5.5)	23 (+5.5)	23 (+5.5)	30 (+9)
	Bated condition	IS'	Cooling	Heating	*The values in () for ex	ternal dimensions and Ne	et weight are the values fo	or the
GLOBAL	Indoor air temp	erature	27°C DB / 19°C WB	20°C DB	optional ceiling panel. Specifications are sub	iect to change without no	tice.	
REMARKS	Outdoor air tem	perature	35°C DB / 24°C WB	7°C DB / 6°C WB				

L1 TYPE 2-WAY CASSETTE Dimensions







	22~56 type	73 type
A	840	1,140
В	440	590
С	480	630
D	1,020	1,320
E	1,060	1,360
③Ceiling opening dimensions	1,020x640	1,320x640
⑤Refrigerant piping (liquid pipes)	ø6.35	ø9.52
⑥ Refrigerant piping (gas pipes)	ø12.7	ø15.88
Duct connection port (only on the right side)	@x 1 pc.	@x 2 pc.







Designed for installation within the ceiling void, the D1 range of slimline 1-PIPE cassettes feature a quiet yet powerful fan that can reach the floor up 4.2m from ceiling height.

PANEL

CZ-KPD2 20 x 1230 x 800mm (HxWxD)





Intelligent Auto Automatic Restart Function Swing

Auto Swing Built-in Drain (Auto Flap Control) Pump

1

Technical focus

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

DP

Drain height

A built-in drain pump provides up to 590mm lift from ceiling height for flexible install options.



With 3 types of air-blow systems, the units can be used in various ways.



(1) One-direction "down-blow" system

Powerful one-direction "down-blow" system reaches the floor even from high ceilings (up to 4.2m).



(2) Two-direction ceiling-mounted system

"Down-blow" and "front-blow" systems are combined in a ceilingmounted unit to blow air over a wide area.



(3) One-direction ceiling-mounted system

This powerful ceiling-mounted "front-blow" system efficiently airconditions the space in front of the unit. (Additional accessories required)

Model Name	e		S-28MD1E5	S-36MD1E5		S-45MD1E5	S-56MD1E5	S-73MD1E5
Power source	e				220	D/230/240 V, 1 phase - 50 / 6	i0 Hz	
0 ľ		kW	2.8	3.6		4.5	5.6	7.3
Cooling capacity		BTU/h	9,600	12,000		15,000	19,000	25,000
I I a cha cha cha ch		kW	3.2	4.2		5.0	6.3	8.0
Heating capa	City BTU/h		11,000	14,000		17,000	21,000	27,000
Dennised	Cooling	kW	0.050/0.051/0.052	0.050/0.051/0.052	0.050/0.051/0.052 0.050/0.05		0.058/0.060/0.061	0.086/0.087/0.089
Power input	Heating	kW	0.039/0.040/0.042	0.039/0.040/0.042 0.039/0.040/0.042		0.046/0.048/0.049	0.075/0.076/0.077	
Running	Cooling	А	0.40/0.39/0.39	0.40/0.39/0.39		0.40/0.39/0.39	0.46/0.46/0.46	0.71/0.70/0.69
current	Heating	А	0.36/0.35/0.35	0.36/0.35/0.35		0.36/0.35/0.35	0.42/0.41/0.41	0.66/0.65/0.63
	Туре		Sirocco fan	Sirocco fan		Sirocco fan	Sirocco fan	Sirocco fan
F	Air flow rate	m³/h	720/600/540	720/600/540		720/660/600	780/690/600	1,080/900/780
Fan	(H/M/L)	L/s	200/167/150	200/167/150		200/183/167	217/192/167	300/250/217
	Motor output	kW	0.05	0.05		0.05	0.05	0.05
Sound powe	r level (H/M/L)	dB	47/45/44	47/45/44		47/46/45	49/47/45	56/51/47
Sound press	ure level (H/M/L)	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) x 1,000 (1,230) x 710 (800)	200+(20) x 1,000 (1,230)	x 710 (800)	200+(20) x 1,000 (1,230) x 710 (800)	200+(20) x 1,000 (1,230) x 710 (800)	200+(20) x 1,000 (1,230) x 710 (800)
	Liquid	mm (inches	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)		Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø9.52 (Ø3/8)
Pipe	Gas	mm (inches) Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)		Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø15.88 (Ø5/8)
	Drain piping		VP-25	VP-25		VP-25	VP-25	VP-25
Net weight*		kg	21 (+5.5)	21 (+5.5)		21 (+5.5)	21 (+5.5)	22 (+5.5)
	Rated conditions		Cooling Heatin	ng	*The val	ues in () for external dimensio	ons and Net weight are the va	lues for the
GLOBAL	Indoor air tempe	rature	27°C DB / 19°C WB 20°C	DB	Specific	ations are subject to change	without notice.	
	Outdoor air temperature		35°C DB / 24°C WB 7°C D	5°C DB / 24°C WB 7°C DB / 6°C WB				

D1 TYPE 1-PIPE CASSETTE Dimensions

1 Air intake grille 2 Air outlet 2 Air outlet 3 Refrigerant piping (liquid pipes) Size 28 to 56: Ø6.35 (flared) Size 73: Ø9.52 (flared) 4 Refrigerant piping (gas pipes) Size 28 to 56: Ø12.7 (flared) Size 73: Ø15.88 (flared) 5 Drain connection VP25 (outer Ø32) 6 Power supply entry 7 Discharge duct connection port (for descending ceiling) 8 Wireless remote control receiver (option) 9 Suspension mounting (4-12 x 30 slot) 10Fresh air intake (Ø100)







Providing outstanding energy-saving performance and comfortable, long-distance air flow distribution, it's recommended for stores and schools.









Automatic Operation

Automatic Restart Function

Technical focus

- Lower sound levels
- Standardised height and depth for all models
- Long and wide air distribution

Fan

- Easy to install and maintain
- Fresh air knockout

ADC

DC monito

Compact Looking, Stylish, One-Motion Design

With its streamlined, one-motion form, the unit looks slim and compact when installed for a neat appearance in any room. When not operating, the louvre closes to provide an elegant look while keeping the unit clean.

Energy-Saving Technology Delivering Top-Class Efficiency

Top Class Energy Saving

an diamete

147.5

Large Diagonal Air Flow Fan



Comfortable, Long-Distance Air Flow Distribution

The shape of the outlet has been optimised to provide long-distance air flow distribution. Even in deep spaces, air flow reaches every corner for exceptionally comfortable air conditioning.

High Ceiling Setting	Air flow distance				
*Setting by remote control	112	140	160		
4.3m	12m	13m	13m		

Multiple Piping Directions For **Flexible Installation**

The 5-directional drain pipe and 3-directional refrigerant pipe make installation much easier. And the neat fit with walls and ceilings assures more installation flexibility.







				1		r	1	1
Model Name)		S-36MT2E5A	S-45MT2E5A	S-56MT2E5A	S-73MT2E5A	S-106MT2E5A	S-140MT2E5A
Power source	3				220 / 230 / 240 V,	1 phase - 50 / 60 Hz		
0	-14	kW	3.6 4.5		5.6	7.3	10.6	14.0
Cooling capa	City	BTU/h	12,300	15,400	19,100	24,900	36,200	47,800
	-14	kW	4.2	5.0	6.3	8.0	11.4	16.0
Heating capa	City	BTU/h	14,300	17,100	21,500	27,300	38,900	54,600
Denningt	Cooling	kW	0.035/0.035/0.035	0.040/0.040/0.040	0.040/0.040/0.040	0.055/0.055/0.055	0.080/0.080/0.080	0.100/0.100/0.100
Power input	Heating	kW	0.035/0.035/0.035	0.040/0.040/0.040	0.040/0.040/0.040	0.055/0.055/0.055	0.080/0.080/0.080	0.100/0.100/0.100
Running current	Cooling	А	0.37/0.36/0.35	0.39/0.38/0.37	0.39/0.38/0.37	0.45/0.44/0.43	0.69/0.67/0.65	0.82/0.79/0.77
	Heating	А	0.37/0.36/0.35	0.39/0.38/0.37	0.39/0.38/0.37	0.45/0.44/0.43	0.69/0.67/0.65	0.82/0.79/0.77
	Туре		Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan
-	Air flow rate (H/M/L)	m³/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
Fan		L/s	233/200/175	250/208/175	250/208/175	350/300/258	500/417/383	533/467/400
	Motor output	kW	0.043	0.043	0.043	0.074	0.111	0.111
Sound power	level (H/M/L)	dB	54/50/48	55/51/48	55/51/48	57/53/51	60/55/54	62/58/55
Sound pressu	ure level (H/M/L)	dB(A)	36/32/30	37/33/30	37/33/30	39/35/33	42/37/36	44/40/37
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
	Liquid	mm (inches)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)
Pipe	Gas	mm (inches)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)
001110000010	Drain piping		VP-20	VP-20	VP-20	VP-20	VP-20	VP-20
Net weight		kg	27	27	27	33	40	40
					Creations or		the street in a time	•

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

S-73MT2E5A

T2 PIPE CEILING Dimensions

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

1	Drain port VP20	Inside diameter ø26mm, drain hose supplied			
2	Left drain position				
3	Refrigerant liquid piping	Ø6.35mm for 36–56type, Ø9.52mm for 73–140type			
4	Refrigerant gas piping	Ø12.77mm for 36–56type, Ø15.88mm for 73–140type			
5	i Left side drain hose outlet port (cutout)				
6	Tubing hole on wall surface	Ø100mm			
7	Upper side piping port				
8	Right side drain hose outlet port (cutout)				
9	Wireless remote controller receiver i	installation location			



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



are subject to change wit

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

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



P1 TYPE Floor Standing

The compact floor standing P1 units are the ideal solution for providing perimeter air conditioning. A 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





Model Name	•		S-22MP1E5	S-28MP1E5	S-36MP1E5	S-45MP1E5	S-56MP1E5	S-71MP1E5
Power source	•				220/230/240 V, 1	phase - 50 / 60 Hz		
		kW	2.2	2.8	3.6	4.5	5.6	7.1
Cooling capacity		BTU/h	7,500	9,600	12,000	15,000	19,000	24,000
		kW	2.5	3.2	4.2	5.0	6.3	8.0
Heating capa	city	BTU/h	8,500	11,000	14,000	17,000	21,000	27,000
	Cooling	kW	0.051/0.056/0.061	0.051/0.056/0.061	0.079/0.085/0.091	0.116/0.126/0.136	0.116/0.126/0.136	0.150/0.160/0.170
Power input	Heating	kW	0.036/0.040/0.045	0.036/0.040/0.045	0.064/0.070/0.076	0.079/0.091/0.101	0.079/0.091/0.101	0.110/0.120/0.130
Runnina	Cooling	А	0.24/0.25/0.26	0.24/0.25/0.26	0.37/0.38/0.39	0.54/0.56/0.58	0.54/0.56/0.58	0.70/0.72/0.73
current	Heating	А	0.17/0.18/0.19	0.17/0.18/0.19	0.30/0.31/0.32	0.37/0.41/0.43	0.37/0.41/0.43	0.52/0.54/0.56
	Туре		Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan
-		m³/h	420/360/300	420/360/300	540/420/360	720/540/480	900/780/660	1,020/840/720
Fan	Air flow rate (H/M/L)	L/s	117/100/83	117/100/83	150/117/100	200/150/133	250/217/183	283/233/200
	Motor output	kW	0.01	0.01	0.02	0.02	0.03	0.06
Sound power	level (H/M/L)	dB	44/41/39	44/41/39	50/46/40	49/46/42	50/47/42	52/49/46
Sound pressu	ure level (H/M/L)	dB(A)	33/30/28	33/30/28	39/35/29	38/35/31	39/36/31	41/38/35
Dimensions	H x W x D	mm	615 x 1,065 x 230	615 x 1,065 x 230	615 x 1,065 x 230	615 x 1,380 x 230	615 x 1,380 x 230	615 x 1,380 x 230
	Liquid	mm (inches)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø9.52 (Ø3/8)
Pipe connections	Gas	mm (inches)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø15.88 (Ø5/8)
001110000010	Drain piping		VP-20	VP-20	VP-20	VP-20	VP-20	VP-20
Net weight		kg	29	29	29	39	39	39
				-	Specifications are	subject to change wit	hout notice.	·
GLOBAL	Rated conditions:	C		Heating	_	,		
REMARKS	Outdoor air tempera	iture 2			-			
	Outdoor air tempe	rature 3	00 DB / 24 0 WB	ICDB/0CWB	_			

P1 TYPE FLOOR STANDING Dimensions

1 4 x Ø12 holes (for floor fixing) 2 Power supply outlet 3 Air filter

- 3 Air filter
 4 Refrigerant piping (liquid pipes)
 5 Refrigerant piping (gas pipes)
 6 Level adjustment bolt
 7 Drain outlet VP20 (with vinyl hose)
 8 Refrigerant piping connection port (bottom or rear)
 9 Operation switch (remote controller RCS-SH80AG) mounting part
 10 Electric equipment box
 11 Accessory copper pipe for gas pipe connection

Indoor unit	A	В	С	Liquid pipes	Gas pipes
22 to 36 type	1,065	665	632		
45 type				Ø6.35	Ø12.7
56 type	1,380	980	947		
71 type]			Ø9.52	Ø15.88







unit: mm

R1 TYPE Concealed Floor Standing

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



Technical focus

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

Perimeter air conditioning with high interior quality





Model Name	•		S-22MR1E5	S-28MR1E5	S-36MR1E5	S-45MR1E5	S-56MR1E5	S-71MR1E5		
Power source	•			220/230/240 V. 1 phase - 50. 60 Hz						
0	- 14	kW	2.2	2.8	3.6	4.5	5.6	7.1		
Cooling capacity –		BTU/h	7,500	9,600	12,000	15,000	19,000	24,000		
		kW	2.5	3.2	4.2	5.0	6.3	8.0		
Heating capa	City	BTU/h	8,500	11,000	14,000	17,000	21,000	27,000		
Devuerieseut	Cooling	kW	0.051/0.056/0.061	0.051/0.056/0.061	0.079/0.085/0.091	0.116/0.126/0.136	0.116/0.126/0.136	0.150/0.160/0.170		
Power Input	Heating	kW	0.036/0.040/0.045	0.036/0.040/0.045	0.064/0.070/0.076	0.079/0.091/0.101	0.079/0.091/0.101	0.110/0.120/0.130		
Running	Cooling	А	0.24/0.25/0.26	0.24/0.25/0.26	0.37/0.38/0.39	0.54/0.56/0.58	0.54/0.56/0.58	0.70/0.72/0.73		
current	Heating	А	0.17/0.18/0.19	0.17/0.18/0.19	0.30/0.31/0.32	0.37/0.41/0.43	0.37/0.41/0.43	0.52/0.54/0.56		
	Туре		Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan	Sirocco fan		
F	Air flow roke (1104/1)	m³/h	420/360/300	420/360/300	540/420/360	720/540/480	900/780/660	1,020/840/720		
Fan	Air flow rate (H/M/L)	L/s	117/100/83	117/100/83	150/117/100	200/150/133	250/217/183	283/233/200		
	Motor output	kW	0.01	0.01	0.02	0.02	0.03	0.06		
Sound power	level (H/M/L)	dB	44/41/39	44/41/39	50/46/40	49/46/42	49/46/42	52/49/46		
Sound pressu	ire level (H/M/L)	dB(A)	33/30/28	33/30/28	39/35/29	38/35/31	39/36/31	41/38/35		
Dimensions	H x W x D	mm	616 x 904 x 229	616 x 904 x 229	616 x 904 x 229	616 x 1,219 x 229	616 x 1,219 x 229	616 x 1,219 x 229		
	Liquid	mm (inches)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø9.52 (Ø3/8)		
Pipe	Gas 410 A	mm (inches)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø12.7 (Ø1/2)	Ø15.88 (Ø5/8)		
001110000010	Drain piping		VP-20	VP-20	VP-20	VP-20	VP-20	VP-20		
Net weight		kg	21	21	21	28	28	28		
		_			Specifications are	subject to change wi	thout notice			
GLOBAL	Rated conditions:	Co	oling	Heating	_	subject to change wi	indut notice.			
REMARKS	Indoor air tempera	ture 27°		20°C DB	_					
	Outdoor air temperature		C DB / 24 C WB	/ CDB / 6C WB	_					



- 1 4 x Ø12 holes (for floor fixing)
- 2 Electric equipment box
 3 Power supply outlet
- 4 Air filter
- 5 Discharge duct connection flange
- 6 Refrigerant connection outlet (liquid pipes)
 7 Refrigerant connection outlet (gas pipes)
 8 Drain filter

- 9 Drain pan 10 Level adjustment bolt 11 Drain outlet VP20 (with vinyl hose)



Indoor unit	А	В	С	D	E	F	Liquid pipes	Gas pipe
22 to 36 type	904	692	672	665	500	86		
45 type							Ø6.35	Ø12.7
56 type	1,219	1,007	1,002	980	900	51		
71 type							Ø9.52	Ø15.88
21								





Smart Control Management Solutions

Panasonic has developed the latest range of smart control management solutions offering streamlined approaches for each unique need. From individual remote control for residential split systems, up to the newest cloud based technology, allowing you to control each of your buildings around the world, all from your portable device.

Centralised Control System

This integrated control system is ideal for largescale spaces, and achieves more efficient operation.

Aı

PAC/VRF Smart Connectivity

Through thorough energy management, Panasonic's PAC/VRF Smart Connectivity is a completely new, state-of-the-art solution providing energy saving and comfort as well as simple installation, operating and running.

Panasonic AC Smart Cloud

With a simple click, all your units from several locations, receive status updates in real-time reducing the chance of breakdowns and optimising costs.





Individual Controllers

A remote control solution to optimise the temperature in each room.

PAC/VRF Smart Connectivity

Through thorough energy management, Panasonic's PAC/ VRF Smart Connectivity is a completely new, state-of-theart solution providing energy saving and comfort as well as simple installation, operation and running.



PAC/VRF Smart Connectivity

PAC/VRF Smart Connectivity offers efficient energy management and a new air conditioning control solution with high IAQ.



Energy Management System for Rooms

and CO₂ sensor in the room, ideal, waste-free air conditioning is achieved.



Sensing Technology

occupancy control and automatic IAQ control were realised. The sensors detect the presence or absence of occupants, and the opening and closing of doors and windows to achieve the most efficient energy management for exceptional air-conditioned comfort. Flexible installation is possible to match different applications and building features such as walls, ceilings and proximity to doors and windows. No wiring means extra installation versatility.





absence of people in each room for optimum control. This creates an environment of high productivity and efficiency.







* Graphic shows combination of products from Panasonic, Schneider Electric and others. Currently, some products might not available in Australia, please consult authorised dealer for more details.

Smart Management Solutions

1 Hotels

Room Key Cardless Solution with Programmable Controller

The SER8150 and Zigbee Sensor automatic detection function offer optimal air conditioning regardless of whether there is a hotel room key or not. Sensors detect the presence or absence of occupants and the opening and closing of doors and windows for the optimum air-conditioned environment guests expect. Automatic control ensures the most efficient operation when guests are away or when windows are open. This contributes to an appreciable reduction in operation costs.



A truly comfortable experience for guests

Easy-to-understand, refined on-screen images enable display of hotel logos and original welcoming messages. Colour and design can also be customised for different facilities to create an even more comfortable environment for guests.

2 Small and Medium Offices 23.5° 11 11



CO2 sensors (option) and Humidity sensors

CO2 sensors (option) take measurements in units of ppm, and humidity sensors enable fine air quality control. This creates the most comfortable space for occupants while contributing to improved employee satisfaction.





System Example

- **1.** If a guest's presence is detected and the window is closed, the air-conditioner can be operated.
- 2. If the room is empty and RH is over 60%, dry mode is automatically selected. * System integration may be required.



Humidity sensors

Humidity sensors enable automatic dehumidification for the optimum IAQ regardless of climatic conditions. This creates an even more comfortable environment for customers, employees, and products themselves.

Innovative and Unrivalled Advantages

Colour and Design to Match Office Interiors

Colour combinations and design can be set to match different facilities.



Easy-to-Understand Error Description

Error description during an emergency is easy to understand, enabling staff to respond quickly.



Customisation in 20 Languages Possible

The display can be customised to match the native

languages of guests to enable smooth, stress-free communication for hospitality at its finest. *Currently 6. More languages scheduled



Programmable Logic

for a late 2018 release

Full customisation of remote control logic possible, and updating to match conditions.





Smart Connectivity Devices



SED-WDS-P-5045	SED-CMS-P-5045
Window / Door sensor	Ceiling motion sensor
	a palatat.
SED-WMS-P-5045	SED-C02-G-5045
Wall motion temperature sensor	C0 ₂ sensor

 \cdot Up to 5-year battery life, batteries included Features

Battery level is a point

Sensor points visible in SBO when SER8150 is integrated via BACnet MS/TP

• Sensor status and battery level visible in SBE when SER8150 is integrated via ZigBee® Pro

· Integration to SBE only recommended when each MPM is connected to Ethernet and set as a ZigBee® Coordinator node

Remote Controller	Description
SER8150R0B1194	Panasonic Net Con, RH, No PIR, R1/R2 (Wired)
SER8150R5B1194	Panasonic Net Con, RH, PIR, R1/R2 (Wired)
Interface	Description
VCM8000V5094P	Panasonic wireless Zigbee Pro Com.card
VCM8000R94B0X *	Panasonic R1/R2 (Wired) to Zigbee adaptor box No Brand
VCM8000V5094G *	Wireless Zigbee Pro / Green Com card

Sensors. 2. VCM8000V5094G : Required in case wired solution need to do MPM connection. 3. As for the products marked with^{*}, the time of release will be announced later. 4. Specifications are subject to change.

SED-WMS-P-5045	SED SEN OCC WALL ZP
SED-WDS-P-5045	SED SW DOR/WIN ZP
SED-CMS-P-5045	SED SEN OCC CEIL ZP
SED-CO2-G-5045 *	Wireless Zigbee Green CO2 sensor
Fascia	Description
FAS-00	Silver
FAS-01	White
FAS-03	Translucent White
FAS-05	Light Tan Wood
FAS-06	Brown Wood
FAS-07	Dark Brown Wood
FAS-10	Brushed Steel

PAC/VRF Smart Connectivity controller external dimensions Room Controller SER8150 - Dimensions & Wiring & Specifications



Dimensions Height: 12cm/4.72in Width: 8.6cm/3.39in Depth: 2.7cm/1.06in Power Requirements 16 Vdc from Panasonic R-R IDU connectors 50/60 Hz, 4VA, Class 2 Supply Range from Indoor Unit Recommended 500ft (150 m) Operating Conditions 0 °C to 50°C (32°F to122°F) 0% to 95% R.H. non-condens Storage Conditions -30°C to 50°C (-22°F to 122°F) 0% to 95% R.H. non-condensing Temperature Sensor Local 10 K NTC type 2 thermisto Temperature Sensor Res ± 0.1°C (± 0.2°F) Temperature Sensor Accuracy ± 0.5°C (± 0.9°F) @ 21°C (70°F) typical calibrated Humidity Sensor and Calibration Single point calibrated bulk polymer typ

Ceiling Motion Sensor SED-CMS-P-5045 - Dimensions & Wiring & Specifications



Wall Motion Sensor SED-WMS-P-5045 - Dimensions & Wiring & Specifications



Door/Window Contact SED-WDS-P-5045 - Dimensions & Wiring & Specifications



Humidity Sensor Precision
Reading range from 10 to 90 % R.H. non-
condensing 10 to 20% precision: 10%
20% to 80% precision: 5%
80% to 90% precision: 10%
Humidity Sensor Stability
Less than 1.0 % yearly (typical drift)
Wiring
Maximum wire length between last indoor
unit to SER8150RxB1194 equals 490ft
(150m) With AWG #18 Wire (0.82 mm -).
System Diagram for Remote Controller" for
this limitation
Approximate Shipping Weight
0.34 kg (0.75 lb)
Safaty Standarda All Madala
IVD Directive 2006/95/FC
EN 60950-1:2006/A2:2013
UL 873 CSA C22.2 No.24-93
EMC Standards All Models
EMC Directive 2004/108/EC
IEC 61326-1:2005
FCC 15 Subpart B
ICES-003

Radio Standards (Wireless Models) R&TTE Directive 1999/5/EC IEC 61326-1:2005 EN 301 489-1 V1.9.2 EN 301 328 V1.8.1 FCC 15 Subpart C, Class A BSS 210 RSS 210 THIS DEVICE COMPLIES WITH PART 15 OF THIS DEVICE COMPLES WITH PART IS OF THE FCC RULES. OPERATION IS SUBJECT TO THE FCLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFER ENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED

X



Check with your local government for instruction on disposal of these

White	
50g (1.8oz) with batteries	
3())	
ZigBee, HA1.2 Compatible	
Up to 40ft (12m), open field 300ft (100m)	
Maximum: 90 deg cone, 16.5ft (5m)	
Recommended: 45 dea. 12ft (3.6m)	

75mm diameter x 20mm thick (2.94in diameter x 0.75in thick)

1.5VDC Alkaline 2 x AAA (recomme ended Panasonic LR03XWA Up to 5 years -10 °C to +50 °C (+14 °F to +122 °F)



Check with your local government for instruction on disposal of these products

65mm H x 29mm W x 25mm D (2.56in H x 1.14in W x 0.99in D) White 30g (1.06o2) with battery
ZigBee, HA1.2 Compatible Up to 40ft (12m) open field 300ft (100m) Maximum: 90 deg cone, 16.5ft (5m) Recommended: 47 deg, 16ft (5m)
3.0VDC Lithium CR2 (recommended Panasonic CR15H270) Up to 5 years -10°C to +50 °C (+14 °F to +122 °F)



with your local government for osal of these or

32mm wide x 30mm high x 11mm thick (1.26in wide x 1.16in high x 0.43in thick) 15mm wide x 32mm high x 6mm thick (0.59" wide x 1.26" high x 0.24" thick) White 11g (0.38oz) with battery

ZigBee, HA1.2 Compatible Up to 40ft (12m) open field 300ft (100m)

3.0VDC Lithium CR2032 (recommended Panasonic CR2032) Up to 5 years -10 °C to +50 °C (+14 °F to +122 °F)



Panasonic AC Smart Cloud

The Panasonic AC Smart Cloud solution allows you to have complete control of all your installations. With a simple click all your units from several locations receive status updates in real-time, reducing the chance of breakdowns and optimising costs.

What is AC Smart Cloud?

Using a cloud computing system, AC Smart Cloud lets you monitor and manage the energy consumption of multiple locations from anywhere, anytime.



AC Smart Cloud is suitable for various facilities





Hospital



Flexible and Scalable Solution

- · Energy monitoring
- · Anytime, anywhere
- · Site(s) management

Centralise control of your business premises, from wherever you are, 24/7/365. It doesn't matter how many sites you have, or where they are! The AC Smart Cloud system from Panasonic allows you to have complete control of all your installations, from your tablet or your computer. In a simple click, receive status updates in real-time of all your installations, reducing the chance of breakdowns and optimising costs.



Key Functions and Uniqueness

Multi site monitoring.

 It doesn't matter how many sites you have, easy to manage, operate, compare per sites, locations, rooms.



layout Maintenance

Schedule setting. Weekly / holiday timer

setting as you want • One setting can be copied to other sites



Multisite monitoring

Owner of Hotels Administrator has a full access

User customisation. Site administrator can create users as desired and assign customised profiles.



3 Steps to Set Up AC Smart Cloud

Panasonic AC Smart Cloud is very easy to install on existing and new installations. The communication adaptor (CZ-CFUSCC1) 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

Flexible solution for your business.













Internet browse

Scalable solution for your business.







AC / VRF

* Customised to meet user demand / Upgraded new functions / Upgraded by new products / IT smart management.

Powerful statistics for energy savings.

- Power consumption, capacity, efficiency level can be compared according to variable parameters
- (Yearly / monthly /
- weekly/ daily bases)



Maintenance notification.

- Error notification by
- email and with floor
- notification of PAC
- VRF outdoor units









FSV Controllers

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

OPERATION SYSTEM		INDIVIDUAL CONTROL SYSTEMS	
Requirements	Advanced operation	Normal operation	Operation from anywhere in the room
External appearance		1000 1000 1000 1000 1000 1000 1000 100	
	Deluxe Wired Remote Controller	Timer Remote Controller (Wired)	Wireless Remote Controller
Type, model name	CZ-RTC5B	CZ-RTC4	CZ-RWSU3 CZ-RWSD2 CZ-RWSL2N CZ-RWST3N CZ-RWSC3 CZ-RWSK2
Built-in thermostat	•	\bullet	\bullet
ECONAVI ON/OFF control	•	•	_
Number of indoor units which can be controlled	1 group, 8 units	1 group, 8 units	1 group, 8 units
Use limitations	 Up to 2 controllers can be connected per group (When using ECONAVI sensor, only one remote controller is possible to connect at indoor unit) 	 Up to 2 controllers can be connected per group (When using ECONAVI sensor, only one remote controller is possible to connect at indoor unit) 	Up to 2 controllers can be connected per group.
Function ON/OFF	\bullet	\bullet	\bullet
Mode setting	\bullet	\bullet	\bullet
Fan speed setting	•	•	•
Temperature setting	•	•	•
Air flow direction	•	•	•
Permit/Prohibit switching	_	_	_
Weekly program		\bullet	-

CENTRALISED CONTROL SYSTEMS Only ON/OFF operation from a central location Operation with various functions from a central location A LOW MAN 0000 ----- -8 . 1 System Controller ON/OFF Controller Intelligent Controller CZ-256ESMC3 (CZ-CFUNC2) CZ-64ESMC3 CZ-ANC3 _ _ _ • \bullet _ 64 groups, maximum 64 units 16 groups, maximum 64 units \cdot Up to 10 controllers, can be connected to · Up to 8 controllers (4 main units + 4 sub Main unit/sub unit (1 main unit + 1 sub unit) units) can be connected to one system. connection is possible. • Use without remote controller is possible. · Use without remote controller is impossible. • • • _ _ _ _ • _

All specifications are subject to change without notice.



Utilises ECONAVI Sensor and Control Program technologies to detect where energy is normally wasted and self-adjusts cooling power to reduce energy waste.

Activity detectionAbsence detection



Individual Control Systems

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 / CZ-RTC5B Wireless remote controller CZ-RWSU3 / CZ-RWSL2N / CZ-RWSC3 / CZ-RWSK2 / CZ-RWST3N / CZ-RWSD2	1 unit each
 Group control Batch remote control on all indoor units. Operation of all indoor units in the same mode. Up to 8 units can be connected. The sensor is the body sensor, and thermostat ON/OFF setting in regard to the temperature set by the remote controller is possible for each indoor unit. 	Timer remote controller CZ-RTC4 / CZ-RTC5B Wireless remote controller CZ-RWSU3 / CZ-RWSL2N / CZ-RWSC3 / CZ-RWSK2 / CZ-RWST3N / CZ-RWSD2	1 unit
 (2) Main/sub remote control Maximum 2 remote controllers per indoor unit. (Main remote controller can be connected) The button pressed last has priority. Timer setting is possible even with the sub remote controller. (When using ECONAVI sensor, only one remote controller is possible to connect at indoor unit) 	Main or sub Timer remote controller CZ-RTC4 / CZ-RTC5B Wireless remote controller CZ-RWSU3 / CZ-RWSL2N / CZ-RWSC3 / CZ-RWSK2 / CZ-RWST3N / CZ-RWSD2	As required

SYSTEM EXAMPLE FSV-EX



Deluxe wired remote controller (CZ-RTC5B)



Energy Saving

- ECONAVI on/ off*
- Temperature Auto Return
- Temperature Setting Range
- Auto Shutoff
- Schedule peak cut
- Repeat off timer

Basic Operation

- Individual Louvre Control (Lock individual flap only
- for 4-WAY cassette U2 type)
- ON/ OFF timer
- Weekly Timer
- Filter information*
- Outing function
- Quiet operation mode*
- Energy saving
- Initial settings
- Ventilation

Maintenance Function

- Outdoor unit error data
- Service Contact address
- RC setting mode
- Test Run
- Sensor Information
- Service check
- Simple/ Detailed Settings
- Auto address
- *Subject to the connected model.

Timer remote controller (CZ-RTC4)



Sleeping Function

H 120 x W 120 x

Basic remote controller ON/OFF

- Operation mode changeover
- (Cooling, Heating, Dry, Auto, Fan). • Temperature setting
- (Cooling/Dry: 18-30° Heating: 16-30°g).
- Fan speed setting H/ M/ L and Auto.
- Air flow direction adjustment.
- ECONAVI on/ off*

Time Function 24 hours real time clock

• Day of the week indicator.

Wireless remote controller



For all indoor units CZ-RWSK2 +

CZ-RWSC3

unit.

When CZ-RWSC3 is used, wireless control becomes possible for all indoor units

In addition, there are other functions such as temperature setting, operation switching, airflow direction/fan speed setting, etc

Ventilation independent operation is possible 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).















Weekly Programme Function

• A maximum of 6 settings/ day and 42 settings/ week can be programmed.

Outing Function

• This function can prevent the room temperature from dropping or rising when the occupants are out for a long time.

• 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.

* Depending on the model, some menus cannot be used.

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

• When a separate receiver is set up in a different room, control from that room also becomes possible.

• Automatic operation by means of the emergency operation button is possible even when the remote controller has been lost or the batteries have been exhausted.

Centralised Control Systems

System controller (CZ-64ESMC3)



Dimensions H 120 x W 120 x D 16 + 52 (embedding dimension mm)

Power supply: AC 100 to 240 V I/O part: Remote input part (effective voltage:DC24V) All operation,All stop,Demand 1,Demand 2 Remote output part (non voltage contact) Operation, Alarm (external power supply within DC 30V, max 0.5A) Total wiring length : 1km

Individual control is possible for maximum 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, operation monitoring, alarm monitoring, ventilation, remote controller local operation prohibition, etc.

Prohibition setting for Remote controller operation

Setting mode	ON/OFF	Mode	Temperature	Fan speed	Flap
Permit		•	•	•	
Prohibit 1	_	•	•	•	
Prohibit 2	_	_	_	•	
Prohibit 3	•	_	_	•	
Prohibit 4	•	_	•	•	•

In case of joint use with a wireless remote controller, there are limitations for the control mode. Please use only with setting "Permit" and "Prohibit1 (prohibition for ON/OFF)".

*Contents for Prohibit 1~4 can be modified.

Operation from the remote controller is possible.
 Operation from the remote controller is prohibited.

Joint use with a remote controller, an intelligent controller, 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 setting "Permit" and "Prohibit1 (prohibition for ON/OFF)".)

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

Weekly timer function

- 8 programs per day (with ON/ OFF/ Mode/ Temperature/ Central control setting items) for 1 week (7 days) can be set.
- Special holiday setting can ignore the timer operation temporarily by keeping the original timer setting. (Special holiday setting can be removed by same setting display.)

• 5 types of Energy saving function

Set temperature automatic return / Set temperature range limitation / Off remind / Off timer operation / Demand control timer.

A control mode corresponding to the use condition can be selected from 10 patterns

Cont

unit numb

mode

A : Operation mode: Central control mode or remote control mode Connec 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.



ON/OFF controller (CZ-ANC3)



Dimensions H 121 x W 122 x D 14 + 52 mbedding dimension mm

Power supply: AC 100 to 240 V I/O part: Remote input (effective voltage: within DC 24 V): All ON/OFF Remote output (allowable voltage: within DC 30 V): All ON, All alarm

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

ction	example				
		A Operation mode			
		Central control mode	Remote control mode		
	All mode	All central control Example 1	All remote control		
	Zone 1 mode	Zone 1 central control Example 2	Zone 1 remote control		
olled	Zone 2 mode	Zone 2 central control	Zone 2 remote control Example 3		
	Zone 3 mode	Zone 3 central control Example 4	Zone 3 remote control		
	Zone 4 mode	Zone 4 central control	Zone 4 remote control Example 5		

Intelligent controller (CZ-256ESMC3)



Touch panel

Dimensions H 240 x W 280 x D 85mm Power supply: AC 100 to 240 V (50/60 Hz) LCD: 10.4 in. TFT, XGA(1024 x 768), LED backlight

Product Features

- 10.4 in., Large, easy-to-use colour LCD
- With Smartphone-like operations, such as swiping and flicking
- Enhanced energy-saving control functions
- Packed with demand functions
- Set temperature auto return settings, auto shutoff, set temperature range limit settings

• Energy Visualisation

- Displays electricity and gas usage distribution
- Supports energy-saving plans with graph display function

New Features

- Maximum 256 indoor unit [16 systems x 64 units] can be controlled. In case of three or more systems [more than 128 units], a communication adaptor CZ-CFUNC2 must be installed for three or more links.
- Operation is possible as batch, in zone units, and in group units.
- ON/OFF, operation mode setting, temperature setting, for fan speed setting, air flow direction setting (when used without a remote controller) and remote controller local operation prohibition [prohibition 1,2,3,4] can be done
- Graph display [trends, comparisons]
- ECONAVI ON/OFF

- Outdoor unit quiet operation ON/OFF
- Energy-saving Functions
- Event control [such as equipment linkage]
- Limitation contents for prohibited operation

Prohibition means limitation of the operation contents from the remote controller. It is also possible to change the prohibition items.

Limitation contents

(Limitations can be user defined)

- Individual There is no limitation for the operation of the remote controller. However, the contents will be changed to the contents of the controller operated last. (Lastpressed 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.)

Remote Control

The LAN terminal on this unit enables you connect it to a network. Connecting to internet will enable you to operate the unit and check the status using a PC from remote location.

34	HEAR.	Cour at .	Dates	Address	1. 44		Aller	÷	*
General	761	them.	Terre	Matt.	SHT.	Filme T.	Fan SPD	Flee	10
	1	Unit1 3-03	ON	Heat	60	11	Ado	3	1
	2	Unit 1:02	orr	Heat	52	72	Auto	1	
Ó	÷.	Linet Intil	UN-	Heat	.68	88	Hat	1	P
	4	Unit1 InD4	QIE .	(teat	15	89	Hah	.1	
	5	Unit! 1-05	ON	Heat.	-16	-69	Hah	-11	
D	+	Liniti InDi	ON :	Heat :	.46	:46.1	Hah	1	1
	a.	Unit1 In07	ON	Heat."	.86	- 69	Heh	1	
		Adp1-11e01	ON	Coel	184.5	- 32	-		

Display image on the remote PC is same design as the controller unit.

System configuration

The following is an example of a system configuration.



Communication adaptor (CZ-CFUNC2)



* Required when more than 129 indoor units are connected.



T10 Terminal for External Control (Digital Connection)

Connecting an FSV 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.





1. T10 Terminal Specification (T10:CN061 at indoor unit PCB)



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

2. Usage Example

Forced OFF control

Condition

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1-2 (Static input): Close/ Operation with Remote is permitted. (Normal condition) Open/ Unit is forcibly OFF and Remote controller operation is prohibited

• Example of wiring



NOTE: The wire length from indoor unit to the Relay must be within 2.0m



1. 1-2 (Pulse input): Unit ON/OFF condition switching with a pulse signal. (1 pulse signal: shortage status more than 300msec.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): 12V output during the unit ON. / No output at OFF. 4. 5-6 (Static output): 12V output when some errors occur / No output at normal

Operation ON/OFF signal output

Condition

4-5 (Static output): 12V 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 2.0m Pulse signal changeable to static with JP cutting. (Refer to JP001)

Interfaces for External Control (Digital Connection)



- Temperature setting and measuring of the indoor suction temperature can be performed from central monitoring.
- The analogue input for temperature setting is 0 to 10 V, or 0 to 140 Ohm.
- Power is supplied from the T10 terminal of the indoor units.
- Separate power supply also is possible (in case of suction temperature measuring).

Interface adaptor (CZ-CAPC3)



 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.

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





Dimensions	H 80 X W 290 X D 2001111	
Power supply	Single phase 110-120/220-240V (50/60 Hz), 18W	
Input	Batch operation/Batch stop (non-voltage contact/DC 24V, 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 1km. Digital signal: 10 m or shorter	



• In addition to operation and stop, there is a digital input function for air speed and operation mode.

System example



System example

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

Serial Interface for 3rd Party External Controller

Example of 3rd party BMS connection with CZ-CFUNC2 (For the detail please consult to authorised dealer)



Serial Interface for LonWorks Network



• This interface is a communications converter for connecting LonWorks to the control network of

• From the host connected to LonWorks, basic settings and status monitoring is possible for up to 16 groups of indoor units.

Interface Center Control Device (field supply)
-
iys
de
ngs
ngs
vith active alarms
S
intervals settings

FSV Controller External Dimensions

6



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



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



VRF R22 Renewal

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



RENEWAL R22 is a HCFC and classified as an ozone depleting substance banned under the Montreal Protocol. Many existing R22 VRF Systems will need to be replaced over the coming years

by more modern and efficient R410A VRF Systems.

Panasonic takes proactive action to switch to R410A refrigerant

Recognising consumers' anxiety and financial difficulties to adapt to the new R22 regulations, Panasonic developed a new cost-effective and simple solution to switch to R410A refrigerant.

What is Panasonic VRF Renewal?

Panasonic VRF Renewal enables reuse of good quality existing R22 pipework to be installed with a new high efficiency R410A system.

What's so unique about Panasonic's solution?

By enabling re-use of existing R22 piping, consumers get to save substantially from reduced installation cost, and without any sacrifices to warranty or performance.

Ozone Depletion Potential	
---------------------------	--

R22	HCFCs	0.055
R410A	HFC	0
R407C	HFC	0
Doo The second set is a set of	hlanina aniti al fan a alaanse	- 6 A

R22 - The reduction of Chlorine critical for a cleaner future

Before renewing piping, be sure to contact an authorised Panasonic dealer for advice.

VRF Renewal

Panasonic's Renewal system allows a completely new VRF system, indoor and outdoor units, to be installed using the existing systems pipe work. Panasonic's advanced technology enables the system to work with previously installed pipe work by managing the working pressure within the system down to R22 (3.3 bar) levels. This ensures the system works safely and efficiently without loss of capacity.

The new equipment has potential to increase 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 oil residue.



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

amount of additional refrigerant charge

(calculating the amount in Judgment 4)



Attaching the Renewal Kit and sight glass

- To adjust the limited pressure level into 3.3 MPa, special setting is necessary on site.
- A filter drier shall be attached to the liquid piping of each outdoor unit. • Do not need to remove Renewal Kit after a test run is performed as it can be retained for normal operation.
- When attaching Renewal Kit, be extra careful with regards to installation location and orientation of the filter drier and ball valve. Any mistakes will complicate maintenance work.
- Thermal insulation material (field supply: heat resistance of 80°C or higher and thickness of 10mm or greater) shall be applied to the Renewall Kit.
- The filter drier of the Renewal 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).

Connecting pipe dimensions (Inch/mm) A Ø 1/2 (12.7) (33.5, 40.0, 45.0kW) B Ø 3/8 (9.52) (22.4, 28.0kW)

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

Sight glass (field supply)

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



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VRF Renewal Kit (CZ-SLK2)
Procedure for VRF R22 Renewal





Panasonic VRF Global Projects

Panasonic air conditioning systems provides comprehensive solutions to businesses around the world.

Harnessing our advanced technology and extensive on-site expertise, we serve clients in a diverse range of environments throughout the world.

HOTEL





VRF 3-PIPE FSV MF2 series 8 systems Indoor Units: 116 units Cooling Capacity: 302 kW / 86 USRT

Russia River Park Hotel

VRF 2-PIPF MF1 series 47 systems

Indoor Units: 96 units Cooling Capacity: 788 kW / 224 USRT

OFFICE

Malaysia Gapruna project

doman a l

VRF 2-PIPE FSV ME1 series

Indoor Units: 537 units

5,370 kW / 1,526 USRT

England Soapworks

Air Conditioning System

with ERV 167 systems

VRF 3-PIPE MF2

77 systems

109 systems

VRF 2-PIPE FSV ME1 series 14 systems Indoor Units: 132 units Cooling Capacity: 677 kW / 193 USRT

VRF 3-PIPF MF2

Indoor Units: 144 units

Cooling Capacity: 592 kW / 168.33 USRT

Malavsia Plaza 33 Office Block A

VRF 2-PIPE FSV ME1 series

Indoor Units: 153 units

3,667 kW / 1,042 USRT

Spain PTA Malaga

) systems

12 systems

Germany The LEGOLAND Castle Hotel

Indonesia Patra Jasa Hotel









Spain Monument Hotel



VRF 3-PIPF 12 systems Indoor Units: 171 units Cooling Capacity: 592 kW / 168.33 USRT

RETAIL



India Sai Aarav Motors, Mehsana



VRF 3-PIPF MF1 series 18 systems Indoor Units: 57units Cooling Capacity: 656 kW / 186 USRT

VRF 2-PIPE FSV ME1 series 3 systems Indoor Units: 19 units Cooling Capacity: 156 kW / 44 USRT

SCHOOL

Malaysia Xiamen University

Russia Technopark of Nobosibirsk Academgorodok





VRF FSV Systems 110 systems Indoor Units: 1,349 units Cloud adapter: CZ-CFUSCC1 17pcs VRF 3-PIPE 12 systems Indoor Units: 234 units Cooling Capacity: 1,487 kW / 422 USRT

RESIDENTIAL

China Star River Group Luxury Condominium



VRF Master series 966 syste Indoor Units: 3,948 systems

Inverter multi-solit room air conditioner Indoor Units: Wall mounted S series (with ECOVAV Control System: Panasonic HEMS

Singapore Punggol Eco-Town

India Heera Windfaire



100



VRF 2-PIPE FSV ME1 series 96 systems, Indoor Units: 479 units Cooling Capacity: 2,184kW / 620 USRT



Air Conditioning System VRF FSM LA1 series 136 systems Indoor Units: 294 units Cooling Capacity: 2,108 kW / 599 USRT





VRF 2-PIPE ME1 series 42 systems Indoor Units: 277 units Cooling Capacity: 2,045 kW / 581 USRT

Areeva

VRF 2-PIPF FSV MF1 series 19 syst Single split system 67 systems

Thailand Areeva

Indoor Units: 85 units -



16,737 kW / 4,755 USRT 1.1





















VRF 2-PIPE FSV ME1 series

22 systems, Indoor Units: 139 units

802 kW / 228 USRT



146

F

Russia Sun City Mall



Air Londitioning System: VRF 2-PIPE ME1 series 47 systems, VRF 3-PIPE 12 systems ndoor Units: 283 units Cooling Capacity: 1,605 kW / 456 USRT

HOSPITAL

Indonesia Bekasi Hospital



ALLES -

VRF 2-PIPF FSV MF1 series 42 systems Indoor Units: 283 units Cooling Capacity: 1.834 kW / 524 USRT

SCHOOL

United States Shippensburg University



VRF 3-PIPE MF1 series 55 systems Indoor Units: 530 units 1,498 kW / 426 USRT



Indonesia Persada Hospital



Hong Kong Gloucester Road Project



VRF FSM LA1 series 67 systems Twenty series 105 systems Indoor Units: 255 units Cooling Capacity: 1,391 kW / 395 USRT

Panama Mosaic Building PANAMA PACIFICO



VRF 2-PIPE FSV LE1 series 156 systems Indoor Units: 357 units Cooling Capacity: 2,338 kW / 664 USRT

Hong Kong The Green Project



VRF FSM LA1 series 239 system Twenty series 538 systems Indoor Units: 999 units 6,425 kW / 1,825 USRT

