

# Panasonic

# EVERY BUILDING MATTERS

EVERY  BUILDING MATTERS

EVERY BUILDING MATTERS

EVERY BUILDING MATTERS

**FS MULTI**  
AIR CONDITIONING SYSTEM

EVERY



Panasonic air conditioning systems

**INVERTER**

**ECONAVI**

**FSV**

**FS MULTI**  
AIR CONDITIONING SYSTEM



# PANASONIC AIR CONDITIONING DESIGNED TO CARE FOR YOUR PROJECTS.

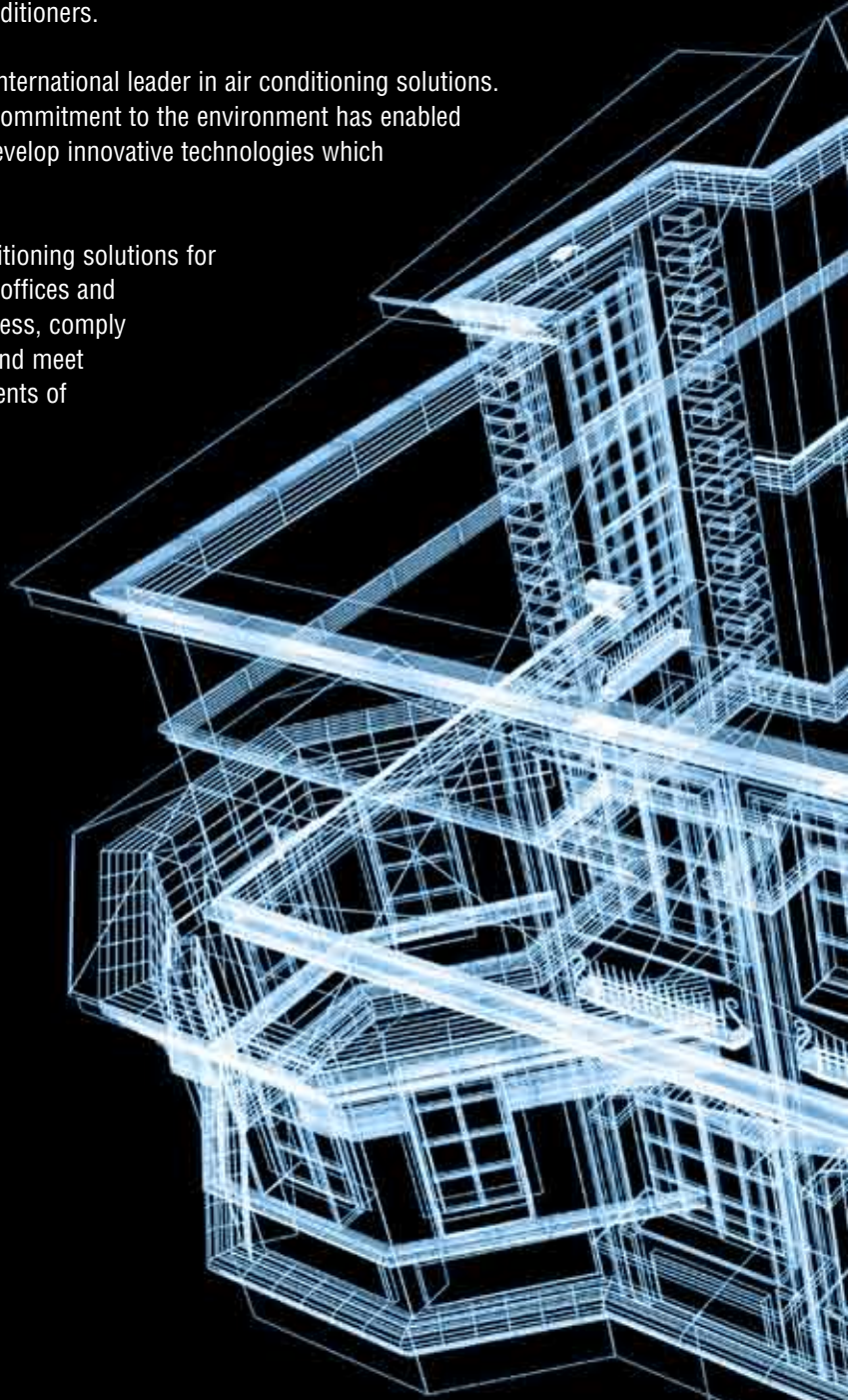
With more than 30 years of experience, exporting to more than 120 countries around the world, Panasonic is unquestionably one of the leaders in the air conditioning sector. The company is also a world leader in innovation as it has filed more than 91,539 patents to improve its customers' lives. Moreover, Panasonic is determined to remain at the forefront of its market. In all, the company has produced more than 200 million compressors and its products, particularly residential air conditioners, now hold the No.1 market share in Japan and other major countries in Asia. You can be assured of the extremely high quality of Panasonic's air conditioners.

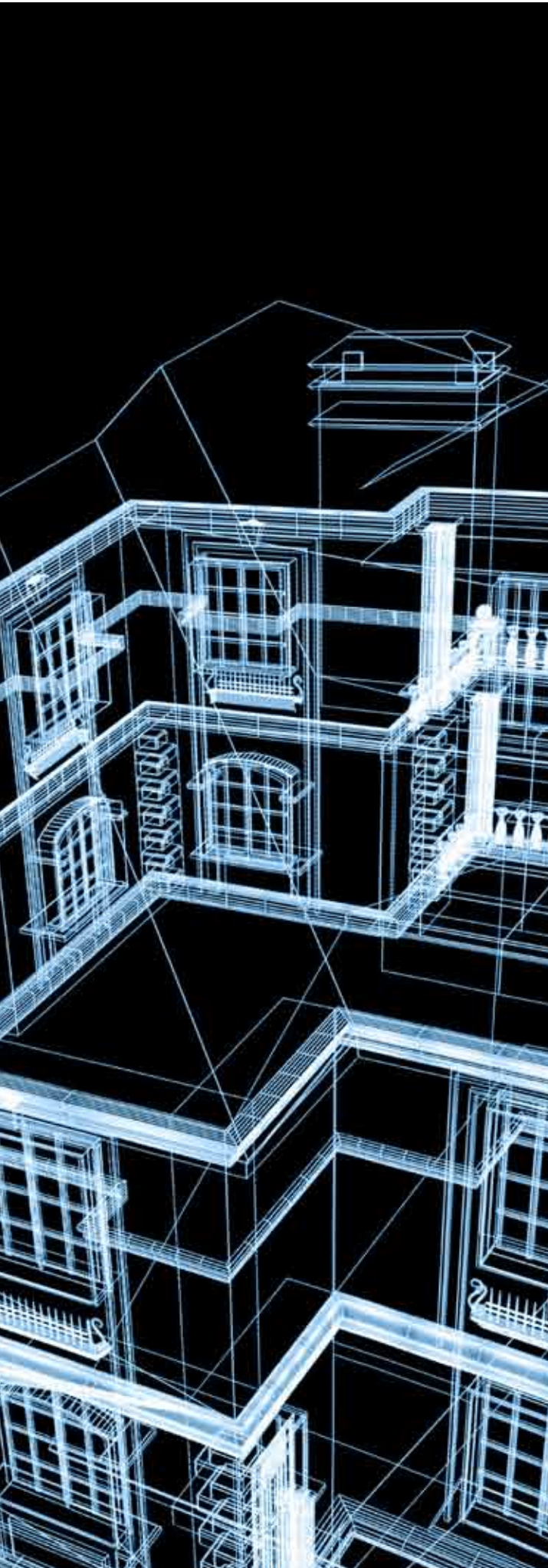
This wish to excel has made Panasonic the international leader in air conditioning solutions. The company's industrial capacity and firm commitment to the environment has enabled it to open new avenues of research and to develop innovative technologies which enhance its customers' way of life.

Panasonic offers a range of turnkey air conditioning solutions for homes and medium-sized buildings such as offices and restaurants. These offer maximum effectiveness, comply with the strictest environmental standards, and meet the most avant-garde construction requirements of our time.

At Panasonic we know what a great responsibility it is to install cooling and heating systems. Because offering you the best solutions in cooling and heating matters.

EVERY BUILDING MATTERS





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## 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. Expanding globally, Panasonic provides superior international products transcending borders.

**NEW**

### Panasonic Air Conditioning Training Centre Asia (PACT)

Location : PAPAMY-Malaysia

Established July 2011

- Global training facility for all BtoB air conditioners including VRF



#### PAPAMY-Malaysia

Panasonic Appliances Air-Conditioning Malaysia Sdn. Bhd.

Established April 1972

- Air conditioners
- Air to water heat pump



#### PAPARADMY-Malaysia

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

Established June 1991

- R&D for air conditioners
- Air to water heat pump

#### PAPAMY Compressor-Malaysia

Established January 1987

- Rotary compressors for air conditioners



#### PAPAMY Compressor R&D-Malaysia

Established September 1997

- R&D for rotary compressors



#### PMI-Indonesia

Panasonic Manufacturing Indonesia

Established September 1965

- Air conditioners
- Home appliance products



#### PMPC-Philippines

Panasonic Manufacturing Philippines Corporation.

Established September 1967

- Air conditioners
- Home appliance products



Dalian, China  
Shenyang, China

Suzhou, China

Guangzhou, China

Taiwan

Philippines

Malaysia

Indonesia



**STMC**

SANYO Tokyo Manufacturing Co.,Ltd.  
-Japan Gunma

Established July 1959

- Air conditioners
- Cold-Chain/Refrigeration products



**DSK-China**

Dalian SANYO  
Air Conditioner Co., Ltd.

Established December 1995

- Air conditioners



**SSA-China**

Shenyang SANYO  
Airconditioner Co., Ltd.

Established March 1993

- Air conditioners



**Air-Conditioning and Cold Chain  
Business Group (Appliances Company)  
-Japan Shiga**

Established April 1972

Appliances Company HQ  
Home Appliances Business Group  
Corporate Engineering Division



**PRDCS-China**

Panasonic R&D Center Suzhou Co., Ltd.

Established April 2002

- Air conditioners
- R&D for home appliance products



**PAPANZ**

Panasonic Appliances Air-Conditioning  
(Guangzhou) Co., Ltd.

Established June 1993

- Air conditioners

**PWAPCGZ**

Panasonic Wanbao Appliances Compressor  
(Guangzhou) Co., Ltd.

Established June 1993

- Rotary compressors for air conditioners
- Compressors for car air conditioners

**PTW-Taiwan**

Panasonic Taiwan Co., Ltd.

Established October 1962







- Air conditioners
- Car air conditioners
- Home appliance products



# The Global Trusted Air Conditioning Brand

53 years since its establishment, the Panasonic Aircon Group has grown into a global multinational company. Through the continuous quest for product innovation, the Group has evolved from manufacturing Compressors to now providing Comprehensive Air Conditioning solutions. This has made Panasonic a trusted brand for continuous reliability and superior quality products.

# HISTORY of the Air Conditioning Group 1958-2011

- |             |  |   |             |   |   |
|-------------|--|---|-------------|---|---|
| <b>1958</b> | <p><b>Started production and sales of Home Coolers</b><br/>The Electrical Appliance Business Group (Kadoma) started cooler production in March 1958. Started sales in May under the "Home Cooler" name.</p>  |  | <b>2003</b> | <p><b>Launched EcoCute on the back of better energy-saving technology</b><br/><b>Launched accumulator-less, high-efficiency, CO<sub>2</sub> scroll compressor for EcoCute</b></p>   |   |
| <b>1961</b> | <p><b>Started exports of Home Coolers (to South Vietnam)</b></p>   |   | <b>2005</b> | <p><b>Began production of Multi-split packaged air conditioner (mini-VRF)</b><br/><b>Launched air conditioner automatic filter cleaning function (AC robot)</b></p>   |  |
| <b>1965</b> | <p><b>Launched Room Coolers</b></p>  |  | <b>2006</b> | <p><b>Aggregated global production of Panasonic compressors reached 200 million units</b></p>   |   |
| <b>1968</b> | <p><b>Began development of Rotary Compressors</b><br/>High efficiency and high quality attracted domestic and overseas air conditioner manufacturers. Began external sales.</p>  |   | <b>2008</b> | <p><b>In the 2008 Energy Conservation Grand Prizes, EcoCute won its first Director General Prize from the Agency of Natural Resources and Energy, while Panasonic air conditioning won the Chairmans' Prize from the Energy Conservation Centre of Japan</b><br/><b>Started Air to Water heat pump business in Europe</b></p> |  |
| <b>1972</b> | <p><b>Established overseas business base in Malaysia</b><br/>MAICO was established in Malaysia as the Aircon Group's first overseas base. From this time, MAICO started to export to Japan, Indonesia, Australia, and other markets. Panasonic started operating a twin base system with a presence in Japan and Malaysia.</p> |  | <b>2009</b> | <p><b>Established air conditioner dedicated sales company in Europe (PHAAE)</b><br/>Panasonic HA Air-Conditioning Europe (PHAAE) strengthened the commercial air conditioning business</p>  |   |
| <b>1983</b> | <p><b>Launched inverter Air Conditioner</b><br/>Started sales of Panasonic's first inverter air conditioners and these have gained increased popularity ever since. Inverter became the future technology of the air conditioning market.</p> <p><b>Started shipments of Air Conditioners to Panasonic America</b></p>         |  | <b>2010</b> | <p><b>Started collaboration with SANYO air conditioner business</b><br/>Panasonic corporation(HQ) announces that it has made SANYO and Panasonic Electric Works its wholly-owned Subsidiary through Share Exchange</p>  |   |
| <b>1985</b> | <p><b>Began development of Scroll Compressors</b><br/>Began development of scroll compressors, offering high efficiency, low noise, and low vibration in comparison to rotary compressors.</p>   |   | <b>2011</b> | <p><b>Launched Large capacity VRF air conditioner "FSV series"</b></p>  |   |
| <b>1990</b> | <p><b>Launched world's first Compact Scroll Compressor-equipped Air Conditioner</b></p>  |   | <b>2012</b> | <p><b>New Panasonic Group started</b></p>   |   |
| <b>1993</b> | <p><b>Established Matsushita-Wanbao (Guangzhou) Air Conditioner (MWAC)</b><br/><b>Established Matsushita-Wanbao (Guangzhou) Compressor (MWCC)</b><br/><b>Established Matsushita Air Conditioner Engineering (Matsushita ACE)</b></p>   |   |             |   |   |



**1972 | Established overseas business base in Malaysia**

MAICO was established in Malaysia as the Aircon Group's first overseas base. From this time, MAICO started to export to Japan, Indonesia, Australia, and other markets. Panasonic started operating a twin base system with a presence in Japan and Malaysia.



**2003 | Making 'environment' the central theme for all product innovations**

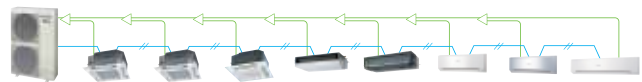
**CO<sub>2</sub> heat pump hot water heater (EcoCute)**

- CO<sub>2</sub> scroll compressor requires smaller installation area
- Quiet, compact, lightweight



**Introduced mini-VRF**

Using inverter control, Panasonic developed new energy saving mini-VRF series for residential applications.



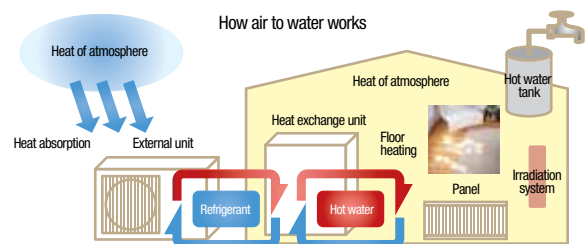
**Accumulator-less, high-efficiency, CO<sub>2</sub> scroll compressor for EcoCute**

Using a non-toxic, non-combustible natural refrigerant (CO<sub>2</sub>) as replacement for Freon to help reduce global warming.



**2008 | New growth for the next generation**  
**Europe: Started Air to Water heat pump business**

With environmental awareness growing around the world, hot water heating attracts considerable attention, particularly in Europe, as an alternative to conventional fuel-type heating systems. This market is expected to continue to grow in the future.



# New Panasonic Group

Contributing to the progress and development of society and enriching people's lives through manufacturing

## Panasonic

- Wide range of products, electrical appliances, business systems, residential, BtoB, healthcare
- Cutting-edge technologies
- Management infrastructures including sales platforms
- Energy products - Solar cells, batteries
- Strong businesses in Commercial and Industrial equipment and devices



Our extensive range of products deliver customer satisfaction



# Panasonic Group Technology



ideas for life ... Today and Tomorrow

Ideas from consumers' viewpoint, ideas that are practical and useful, ideas that bring surprises and discoveries, ideas that make people happy, ideas that are innovative and interesting – ideas for life.

## We Like to Challenge Our Ideas and Products

The Panasonic robot-mascot powered by rechargeable EVOLTA batteries completed a two-month-long, 500-kilometre trip from Tokyo to Kyoto. The seven-inch-tall robot, Mr EVOLTA, weighing just 1 kilogram is a small green character made of plastic and carbon fibre with two Panasonic rechargeable EVOLTA batteries on its back, pulling a trailer containing ten more EVOLTA batteries. Human team mates helped Mr EVOLTA by pushing a device with an infra-red signal which the robot followed and by stopping once a day to recharge its batteries. Panasonic set this challenge to demonstrate the performance and durability of its new rechargeable AA batteries made from nickel-metal-hydride. The batteries combine the convenience of a disposable battery with the performance and cost benefits of a rechargeable battery. Two years ago, Mr EVOLTA, powered by two EVOLTA alkaline batteries, climbed a 530-metre rope to the top of the Grand Canyon in six hours and 46 minutes. The following year, it finished the 24-hour Le Mans endurance race of 23.7km and was subsequently recognised in the Guinness World Records for the longest distance covered by a battery-operated remote control car.



## U-Vacua Technology

Panasonic U-Vacua is a high-performance vacuum insulation panel (VIP) with very low thermal conductivity that performs about 20 times better than standard urethane foam. U-Vacua's improved performance saves space while increasing the energy efficiency of refrigeration applications, home appliances, buildings, and any products that require low energy loss from heat transfer. It is powerful enough to make a snowman survive in a hot sauna for 24 hours. We have tested it.



## Built for Extreme Conditions

Toughbooks are, like the name indicates, the perfect companion to conditions that require durability and reliability. With a rugged build, they are the choice for the German skijump team, which uses them in various weather conditions – from rain to -20°C temperatures.



## Connected at 35,000 Feet Just Like on the Ground

Beside being a world leader in state-of-the-art in-flight entertainment and communication systems manufacture, Panasonic Avionics has teamed up with Lufthansa to provide passengers with in-flight broadband connectivity on Lufthansa flights. Passengers will be able to use their own devices, such as laptops and smart phones, to wirelessly connect to the Internet – to browse, access social media sites, send/receive e-mails and more.



Realising eco-conscious solutions for entire towns

# ECO CITY -Tianjin-

## Toward a low-carbon future

Tianjin Eco-City (China) is an environmentally conscious city being built in Tianjin by the Chinese and Singaporean governments. Business districts and apartment blocks are built on a reclaimed former saltpan, and people will start living here from 2011. By 2020, around 30 square kilometres of city capable of accommodating a population of approximately 400,000 will be completed.

Panasonic is participating in this Eco City project, which brings together leading technologies from around the world.

## HEMS ~Home Energy Management System ~

A Home Energy Management System (HEMS) is a support system for saving energy in homes. By linking a whole range of home appliances, solar power generation equipment, domestic EV chargers, storage batteries, and other devices, HEMS systems show the amount of energy used throughout the home, indicate whether energy-saving goals are being achieved, and display advice for energy saving.

Panasonic is supplying mini-VRF and HEMS systems to the homes being built in Tianjin Eco City, with the aim to effectively leverage Panasonic's comprehensive strengths in eco-conscious technologies.



# 'eco ideas' Declaration



Connecting with the Earth the Panasonic Group strives to be a Green Innovation Company with a global perspective.

## 'eco ideas' for Lifestyles

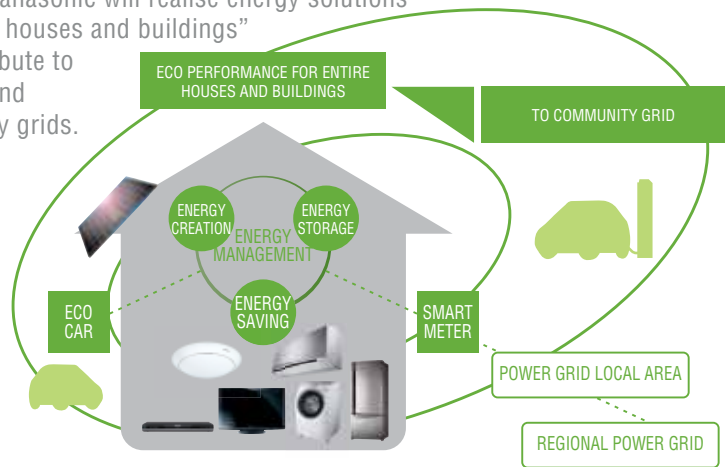
We will promote lifestyles with virtually zero CO<sub>2</sub> emissions all throughout the world.

## 'eco ideas' for Business-styles

We will create and pursue a business-style which makes the best use of resources and energy.

## Panasonic's vision for Comprehensive energy solutions

Based on the four pillars of "energy creation" for making energy, "energy storage" for storing energy, "energy saving" for individual products, and "energy management" to control these in an integrated manner, Panasonic will realise energy solutions for "entire houses and buildings" and contribute to eco cars and community grids.



## Linking Equipment in the Home

~ Solution for the Missing Link ~

Centrally controlling the amount of energy consumed in the home is the key to saving energy.

Being able to display HEMS information on all screens within the home makes it easy for the family to see whether energy saving targets have been met and to check advice. Making energy "visible" makes users conscious of energy-saving activities and helps them adopt a more natural and eco-friendly lifestyle.

# Panasonic Air Conditioner product range for **EVERY BUILDING MATTERS**

All driven by Panasonic Inverter Technology for Energy Savings



**Single-Split Packaged Air Conditioner**

From 6.0kW to 14.0kW



**Single-Split Room Air Conditioner**

From 2.6kW to 8.0kW





### VRF Air Conditioner

From 12.1kW to 168.0kW  
Up to 64 indoor units



### FS MULTI AIR CONDITIONING SYSTEM



### Multi-Split Packaged Air Conditioner (mini-VRF)

From 11.2kW to 15.5kW  
Up to 8 indoor units



**INVERTER**



Single-Split System solution

**INVERTER**



Single-Split Packaged Air Conditioner solution



# FS MULTI

AIR CONDITIONING SYSTEM



Mini-VRF solution



# FSV

Flexi System VRF



VRF Large Building solution

# VRF Air Conditioner NEW FSV SYSTEMS



## 2-WAY FSV ME1

Newly designed next generation VRF!



**Cooling or Heating Type**

- Line up from 22.4kW to 168kW
- Top class EER = 4.04 / COP = 4.56 (in the case of 22.4kW)
- Wide range of systems up to 168kW
- Longer max piping length (up to 1000 m)
- Increased max number of connectable indoor units (up to 64)
- Extended operating range to provide heating at outdoor temperature as low as -25°C
- Cooling operation is possible up to 46°C outdoor temperature
- Suitable for renewal projects



## 2-WAY FSV ME1



**HIGH COP SETTING MODEL**

Enables further energy saving

**Cooling or Heating Type**

- Line up from 28kW to 135kW
- Wide range of system up to 135kW
- High COP especially large capacity zone (107kW=COP:4.08)



## 2-WAY mini-FSV LE1

For small-scale commercial and residential use

Cooling or Heating Type 1 phase 12.1kW, 14.0kW, 15.5kW  
Cooling or Heating Type 3 phase 12.1kW, 14.0kW, 15.5kW

INDUSTRY TOP CLASS EER/COP

- Top-class EER:3.76 / COP:4.21 (In case of 12.1kW)
- Cooling operation is possible up to 46°C outdoor temperature
- Available for both single and three phase power supplies
- Piping length:120m (Total piping length:150m)
- System difference of elevation:50m /40m (outdoor UP/DOWN)
- 9 units connectable to one outdoor units (in the case of 15.5kW)





# Exclusive features for ME1 series

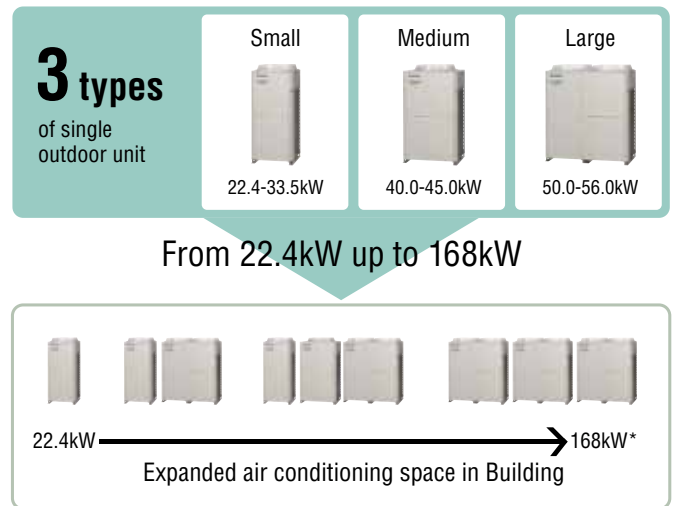


A large number of indoor units can be connected



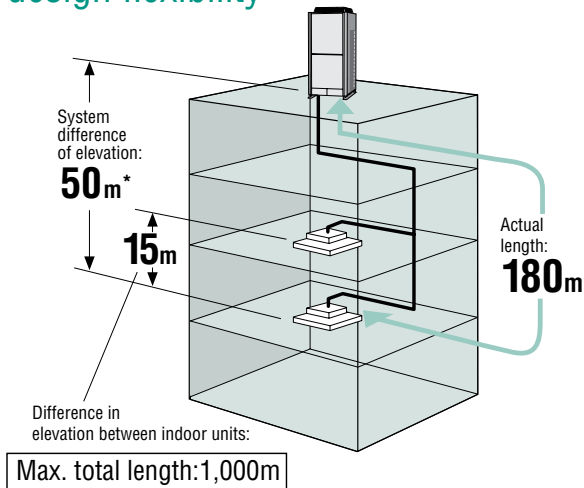
\*Maximum number of indoor units depends on outdoor unit capacity.

Possible to combine single outdoor units up to 168kW



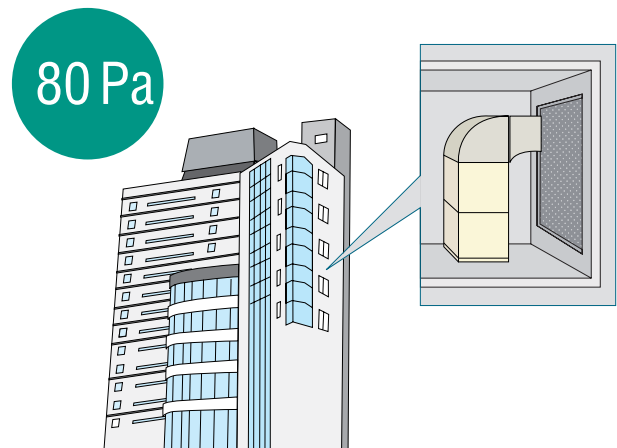
\*High COP setting model up to 135kW.

Increased piping length for greater design flexibility

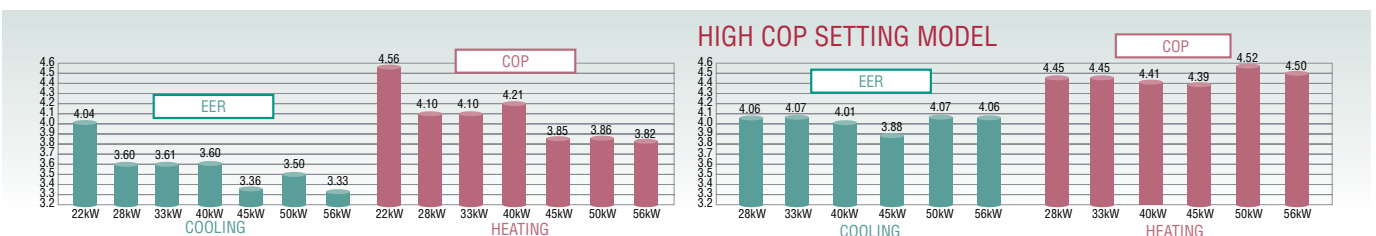







\*40m if the outdoor unit is below the indoor unit.

High external static pressure on condensers














Excellent energy savings



kW	12.1	14.0	15.5	22.4	28.0	33.5	40.0	45.0	50.0	56.0	61.5	68.0	73.0
<b>2-WAY FSV ME1 Series</b>													
MODEL NAME				U-8ME1R8	U-10ME1R8	U-12ME1R8	U-14ME1R8	U-16ME1R8	U-18ME1R8	U-20ME1R8	U-14ME1R8 U-8ME1R8	U-14ME1R8 U-10ME1R8	U-14ME1R8 U-12ME1R8
<b>2-WAY FSV ME1 Series <span style="border: 1px solid red; padding: 2px;">HIGH COP SETTING MODEL</span></b>													
MODEL NAME					U-14ME1R8	U-16ME1R8	U-18ME1R8	U-20ME1R8	U-14ME1R8 U-8ME1R8	U-16ME1R8 U-8ME1R8	U-18ME1R8 U-8ME1R8	U-16ME1R8 U-16ME1R8	U-18ME1R8 U-16ME1R8
<b>2-WAY mini-FSV LE1 Series</b>													
MODEL NAME	■ Single phase U-4LE1R5 U-5LE1R5 U-6LE1R5 ■ Three phase U-4LE1R8 U-5LE1R8 U-6LE1R8												

## Wide range of indoor units

Wide choice of models depending on the indoor requirements

Type	Class Capacity kW BTU/h	22	28	36	45	56	73	90	106	140	160	224	280
		Cooling/Heating 2.2/2.5 7,500/8,500	Cooling/Heating 2.8/3.2 9,600/11,000	Cooling/Heating 3.6/4.2 12,000/14,000	Cooling/Heating 4.5/5.0 15,000/17,000	Cooling/Heating 5.6/6.3 19,000/21,000	Cooling/Heating 7.3/8.0 25,000/27,000	Cooling/Heating 9.0/10.0 30,000/34,000	Cooling/Heating 10.6/11.4 36,000/39,000	Cooling/Heating 14.0/16.0 47,800/54,600	Cooling/Heating 16.0/18.0 54,600/61,500	Cooling/Heating 22.4/25.0 76,400/85,300	Cooling/Heating 28.0/31.5 95,500/107,500
<b>U1type</b> 4-Way Cassette 		●	●	●	●	●	●	●	●	●	●		
<b>Y1type</b> 4-Way Cassette 60x60 		●	●	●	●	●							
<b>L1type</b> 2-Way Cassette 		●	●	●	●	●	●						
<b>D1type</b> 1-Way Cassette 			●	●	●	●	●						
<b>F2type</b> Low Silhouette Ducted 		●	●	●	●	●	●	●	●	●	●		
<b>M1type</b> Slim Low Static Ducted 		●	●	●	●	●							
<b>E1type</b> High Static Pressure Ducted 							●		●	●		●	●
<b>T1type</b> Ceiling 				●	●	●	●		●	●			
<b>K1type</b> Wall Mounted 		●	●	●	●	●	●		●				
<b>P1type</b> Floor Standing 		●	●	●	●	●	●						
<b>R1type</b> Concealed Floor Standing 		●	●	●	●	●	●						

78.5	85.0	90.0	96.0	101.0	107.0	113.0	118.0	124.0	130.0	135.0	140.0	145.0	151.0	156.0	162.0	168.0	
U-16ME1R8 U-12ME1R8	U-16ME1R8 U-14ME1R8	U-16ME1R8 U-16ME1R8	U-18ME1R8 U-16ME1R8	U-20ME1R8 U-16ME1R8	U-20ME1R8 U-18ME1R8	U-20ME1R8 U-20ME1R8	U-16ME1R8 U-14ME1R8 U-12ME1R8	U-16ME1R8 U-16ME1R8 U-12ME1R8	U-16ME1R8 U-16ME1R8 U-14ME1R8	U-16ME1R8 U-16ME1R8 U-16ME1R8	U-18ME1R8 U-20ME1R8 U-16ME1R8	U-20ME1R8 U-18ME1R8 U-16ME1R8	U-20ME1R8 U-18ME1R8 U-16ME1R8	U-20ME1R8 U-18ME1R8 U-16ME1R8	U-20ME1R8 U-18ME1R8 U-16ME1R8	U-20ME1R8 U-18ME1R8 U-16ME1R8	U-20ME1R8 U-18ME1R8 U-16ME1R8
U-20ME1R8 U-16ME1R8	U-20ME1R8 U-18ME1R8	U-20ME1R8 U-20ME1R8	U-18ME1R8 U-16ME1R8 U-8ME1R8	U-16ME1R8 U-16ME1R8 U-16ME1R8	U-18ME1R8 U-16ME1R8 U-16ME1R8	U-20ME1R8 U-16ME1R8 U-16ME1R8	U-20ME1R8 U-18ME1R8 U-16ME1R8	U-20ME1R8 U-18ME1R8 U-18ME1R8	U-20ME1R8 U-20ME1R8 U-18ME1R8	U-20ME1R8 U-20ME1R8 U-20ME1R8							

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

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

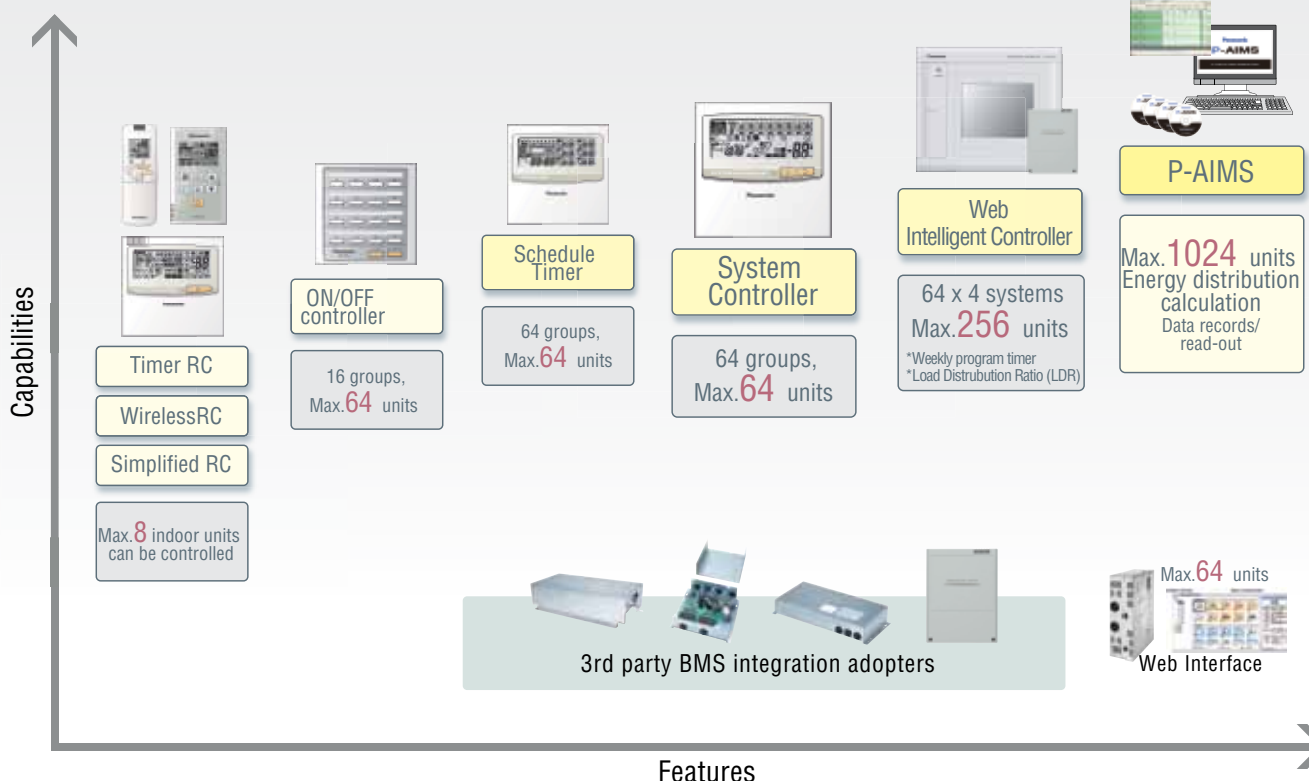
System (KW)	22.4	28.0	33.5	40.0	45.0	50.0	56.0	61.5	68.0	73.0	78.5	85.0	90.0	96.0	101.0	107.0	113.0	118.0	124.0	130.0	135.0	140.0	145.0	151.0	156.0	162.0	168.0
MNcIU : 130%	13	16	19	23	26	29	33	36	40	43	47	50	53	56	59	64								64			
MNcIU : 200%	20	25	30	35	40	45	50	55	60					64												64	

MNcIU: Maximum Number of Connectable Capacity

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.

## Controllers for all applications

### FSV controllers



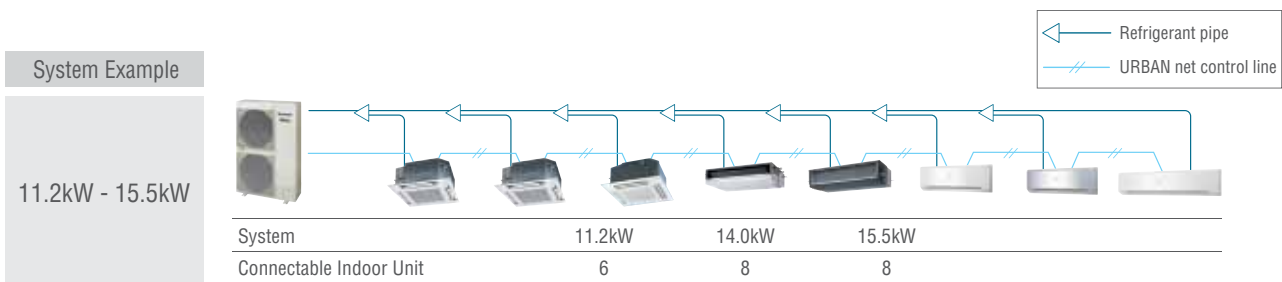
# Multi-Split Packaged Air Conditioner (mini-VRF)



## Simple Design

FS Multi cutting edge VRF technology is perfectly suitable for medium or small areas. With single-phase power sources, together with advanced Inverter technology, FS Multi opens up unlimited possibilities in the world of air conditioning.

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



# FS MULTI

AIR CONDITIONING SYSTEM

Simple Design

Refrigerant charge-less system

Installation and Commissioning simplified

Space saving

Indoor units : 5 different types / 26 models from 2.2kW up to 9.0kW



Outdoor units



11.2kW/14.0kW/15.5kW

## Refrigerant charge-less system

The FS Multi is a refrigerant charge-free system that does NOT require a charge of additional refrigerant even when using a full pipe length of up to 90m.

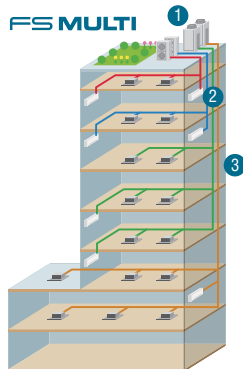
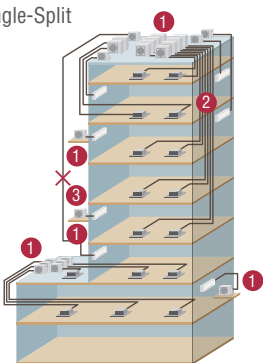


## Installation & Commissioning simplified

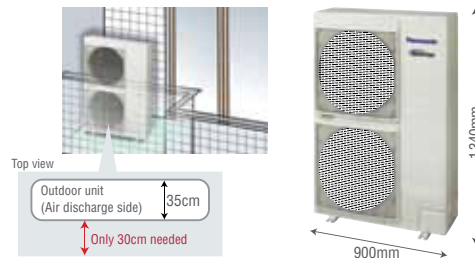
The FS Multi system solves the air conditioning design and construction problems that arise due to pipes at different heights and the location of the installation site. Exceptional installation flexibility makes installation easy and maintains the attractive appearance of buildings.

## Space saving

Single-Split

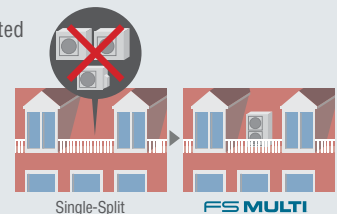


- ① Reduce outdoor unit space
- ② Reduce piping shaft space
- ③ Longer piping length for design flexibility



When installation space is limited

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



# Single-Split Room Air Conditioner



## ECONAVI technology



Panasonic's ECONAVI concept applies high precision Sensors and Control Program technologies to optimise air conditioner operation according to room conditions. How does it save energy? By utilising these technologies to detect where energy is normally wasted and self-adjusts cooling/heating power. ECONAVI helps you to save energy efficiently with uninterrupted cooling/heating, comfort and convenience.

ECONAVI provides up to 30%\* energy-savings in cooling mode, and up to 40%\*<sup>1</sup> energy-savings in heating mode.

One-touch ECONAVI reduces waste in three simple steps:

- EXAMINE**
  - Level of activity.
  - Human presence.
- EVALUATE**
  - Changes in human location.
  - Changes in human activity.
  - Changes in human presence.
- EXECUTE**
  - Adjusts airflow direction.
  - Low activity: Auto decrease output.
  - Absence: Gradually decrease output.

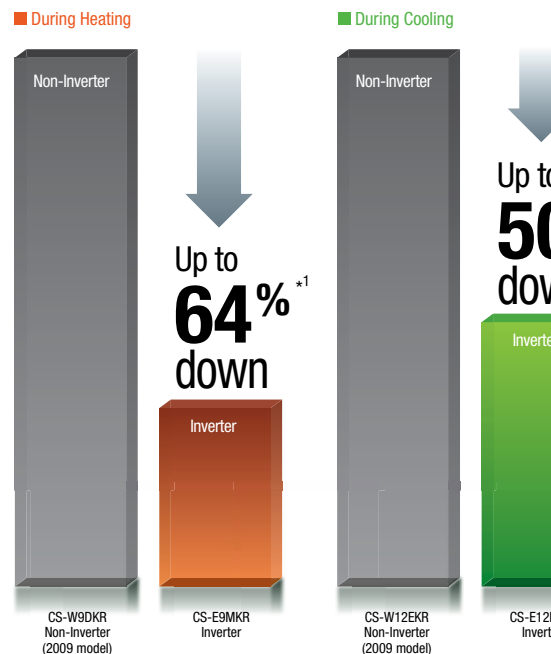
**UP To 30%\* ENERGY SAVINGS**

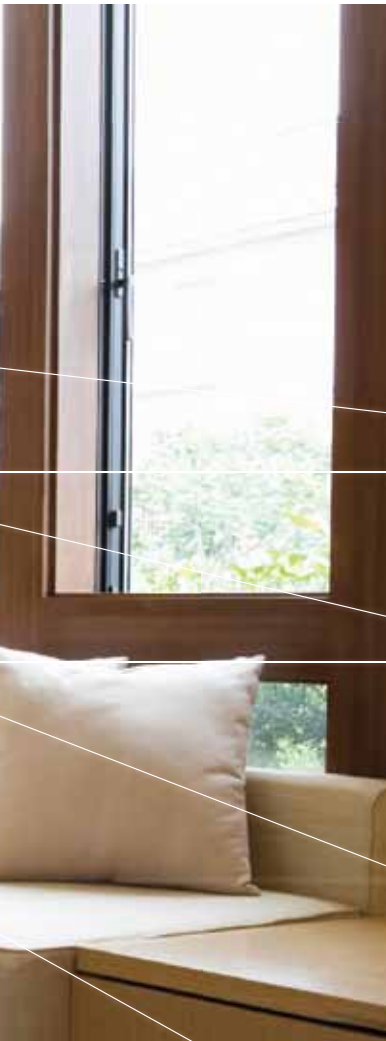
**Comparison of 3.5kW Inverter model with ECONAVI ON and OFF (Cooling)**  
**ECONAVI ON** Outside temperature: 35°C/24°C  
 Remote setting temperature: 25°C with Fan Speed (High)  
 Vertical Airflow direction: Auto, Horizontal Airflow direction: ECONAVI Mode  
 Setting temperature goes up 1°C controlled by ECONAVI activity level  
**ECONAVI OFF** Outside temperature: 35°C/24°C  
 Remote setting temperature: 25°C with Fan Speed (High)  
 Vertical Airflow direction: Auto, Horizontal Airflow direction: Front  
 Total power consumption amount are measured for 1 hour in stable condition.  
 At Panasonic Amenity Room (size:16.2m<sup>2</sup>)  
 This is the maximum energy saving value, and the effect differs according to conditions in installation and usage.

**\*1 Up to 40% Energy-Savings**  
**Comparison of 3.5kW Inverter model with ECONAVI ON and OFF (Heating)**  
**ECONAVI ON** Outside temperature: 7°C/6°C, Remote setting temperature: 23°C with Fan Speed (High)  
 Vertical Airflow direction: Auto, Horizontal Airflow direction: ECONAVI Mode, Setting temperature goes down 2°C controlled by ECONAVI activity level  
**ECONAVI OFF** Outside temperature: 7°C/6°C, Remote setting temperature: 23°C with Fan Speed (High)  
 Vertical Airflow direction: Auto, Horizontal Airflow direction: Front, Total power consumption amount are measured for 1 hour in stable condition. At Panasonic Amenity Room (size:16.2m<sup>2</sup>)  
 This is the maximum energy saving value, and the effect differs according to conditions in installation and usage.

## Inverter technology

The exceptional energy-saving performance of Panasonic Inverter air conditioner is among the highest in the industry. The secret lies in its precise temperature control. Inverter air conditioners operate with minimum power – giving you up to 50%\* energy savings during cooling operation and up to 64%\*<sup>1</sup> energy savings during heating operation. By contrast, non-inverter air conditioners use a ON-OFF cycle to maintain the temperature – so it uses twice as much power.





# ECONAVI

## ECONAVI technology

## Inverter technology

## Serial connectivity



2.6kW / 3.5kW / 4.4kW



5.0kW / 6.3kW / 7.1kW / 8.0kW



Intelligent Inverter air conditioners ranks precision control. After reaching the set point, it automatically adjusts compressor rotation speed to save energy during cooling operation, and a non-Inverter unit operates on an average of 1.5 times as much electricity.

Up To

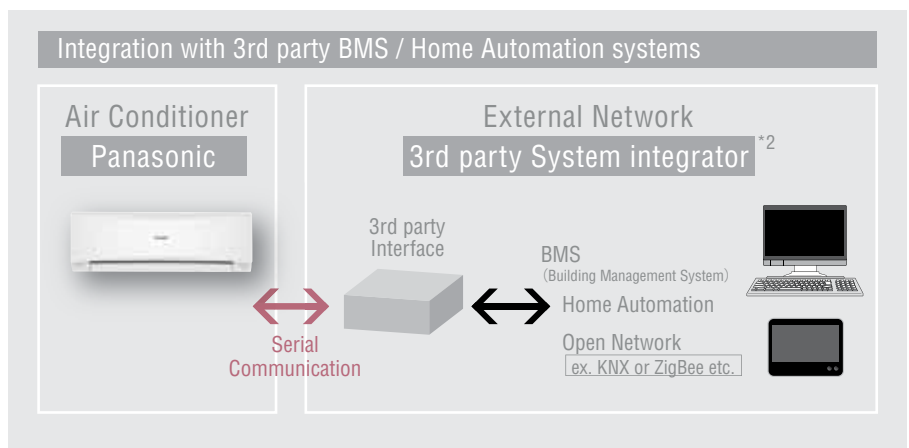
50%\*

ENERGY SAVINGS

**Comparison of 3.5kW Inverter model and 3.5kW Non-Inverter model (Cooling)**  
 Outside temperature: 35°C/24°C, Remote setting temperature: 25°C with Fan speed (AUTO)  
 Vertical Airflow direction: Auto, Horizontal Airflow direction: Front  
 Total power consumption amount are measured for 8 hours from starting.  
 At Panasonic Amenity Room (size:16.2m<sup>2</sup>)  
 This is the maximum energy saving value, and the effect differs according to conditions in installation and usage.

**\*1 Comparison of Inverter model and Non-Inverter model (Heating)**  
 Outside temperature: 2°C/1°C, Remote setting temperature: 25°C with Fan speed (High)/ Vertical Airflow direction: Auto, Horizontal Airflow direction: Front  
 Total power consumption amount are measured from the start of operation until it reaches to the set temperature.  
 At Panasonic Amenity Room (size: 16.2m<sup>2</sup>)  
 This is the maximum energy saving value, and the effect differs according to conditions in installation and usage.

## Serial connectivity<sup>\*1</sup>



Panasonic's Inverter Room Air Conditioners are equipped with a serial port on indoor unit PCB. This serial port allows link-up with more advanced 3rd party centralised control systems like BMS or Home automation systems.

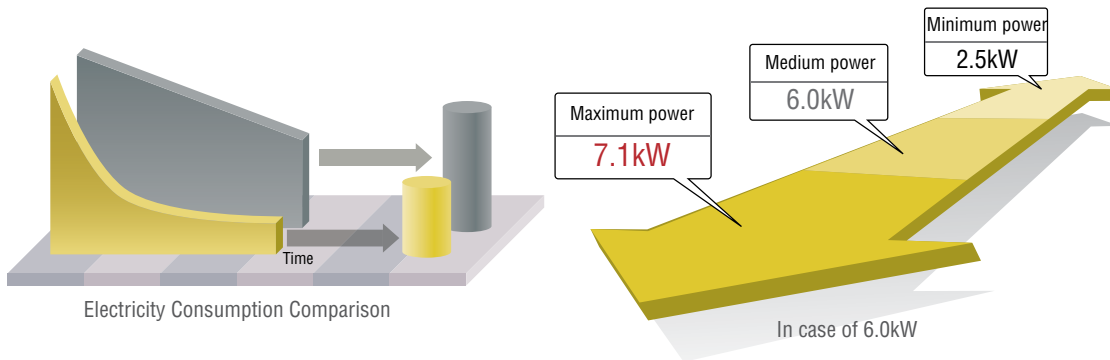
\*1 Contact your Panasonic distributor for further details.

\*2 The systems integration company is responsible for the external network.



## Energy saving operation by **INVERTER**

The Inverter constantly adjusts compressor rotation speed to provide optimum performance at all times. This extremely precise operation enables quick cooling and heating while reducing power consumption.



## Energy saving operation











- ① Hyper Wave Inverter
- ② DC Inverter Compressor
- ③ New Large Diagonal Air Flow Fan





## Energy saving operation by **INVERTER**

## Design flexibility

	6.0kW 	7.1kW 	10.0kW 	12.5kW 	14.0kW 
Cassette type 	●	●	●	●	●
Ceiling type 			●	●	●
Ducted type 	●	●	●	●	●

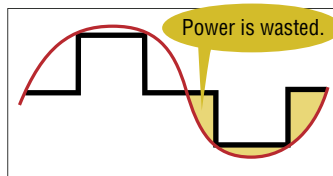
Indoor units 3 different type / 13 models

## Design flexibility

### Hyper Wave Inverter

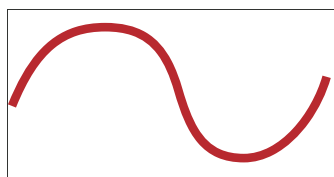
The Panasonic group's experiences and actual results in the development of inverters are released in the control. This control of the inverter demonstrates the optimum compressor torque. The FS series quickly cools the room up to the set temperature and maintains a comfortable condition, whilst ensuring energy efficiency and savings.

#### Our conventional Inverter



The current waveform deviates from the motor voltage waveform, so power is wasted.

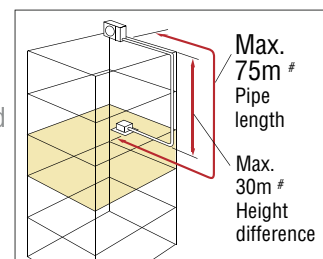
#### Hyper Wave Inverter



The current waveform closely matches the motor voltage waveform, so power consumption is reduced.

### 75m Long Piping

Piping can be extended up to 30 metres without additional gas charging, and up to 75 metres with additional gas charging. By giving you more flexibility in positioning the outdoor unit, this gives you a wider range of installation options.



\*For 10.0kW, 12.5kW, 14.0kW

	6.0-7.1kW	10.0-14.0kW
Max. Length #	50 m	75 m
Max. Chargeless Length	30 m	30 m
Max. Height Difference #	30 m <sup>*1</sup> 15 m <sup>*2</sup>	30 m <sup>*1</sup> 15 m <sup>*2</sup>

#Gas is pre-charged for 30m. (Additional gas is required when pipe length is extended.)

\*1 When installing the outdoor unit at a higher position than the indoor unit.

\*2 When installing the outdoor unit at a lower position than the indoor unit.

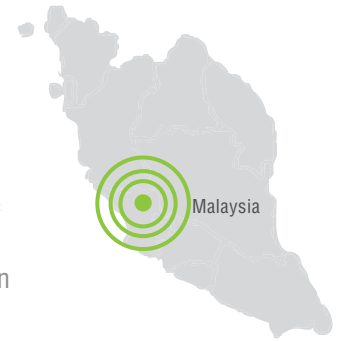


# Panasonic's strong and unwavering commitment

# Overview of PACT

Set up in July 2011, Panasonic Air Conditioning Training Centre Asia (PACT) represents Panasonic's strong and unwavering commitment to our business partners, sales companies, distributors and authorised sales agents and service/support teams for its VRF air conditioning systems in the Asia Pacific region.

As the region's first Panasonic VRF training hub, PACT comes equipped with a full range of FS Multi and FSV VRF systems. PACT is also staffed with experienced engineers and certified installers offering up-to-date product knowledge, technical know-how and hands-on skills training essential for preparation of system design and product specification, installation, repair and troubleshooting of FS Multi and FSV VRF systems.



## FS MULTI

AIR CONDITIONING SYSTEM



### FS MULTI VRF AIR CONDITIONING SYSTEM

Easy-to-install, energy-efficient systems for homes and small commercial buildings.

- Wide line up of up to 26 indoor unit models
- Outdoor unit ratings : 11.2kW, 14.0kW, 15.5kW (Single-phase)

### FSM Training Module (2 days)

Attendees are given a fundamental working knowledge on the FSM VRF air conditioning system, plus the do's and don'ts of installation and a step-by-step guide to error trouble-shooting.

## FSV

Flexi System VRF

## Large Commercial Buildings



### FSV VRF AIR CONDITIONING SYSTEM

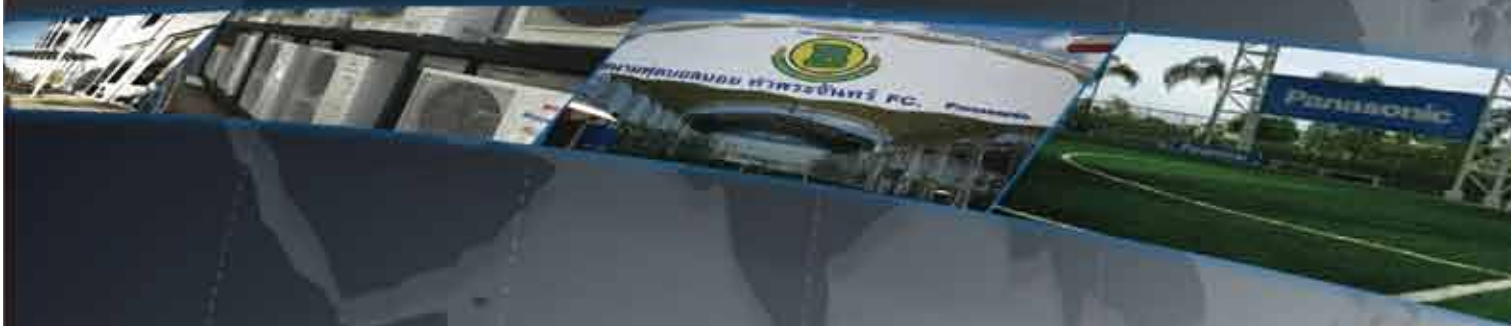
Easy-to-install, energy saving and high efficiency. Ideal for large-space facilities where full or continuous cooling / heating is not always required.

- Wide range of systems up to 168kW
- Extensive line up of up to 64 indoor units connectable up to 200% of the outdoor unit's capacity.
- Various FSV Centralised controllers controls up to 256 indoor units, monitoring of up to 1,024 indoor units.

### FSV Training Module (4 days)

Gain better understanding and working knowledge of the FSV VRF air conditioning system. Attendees will come away with valuable pointers on installation, in-depth technical advice and a step-by-step guide to error troubleshooting.

# Extensive Project Exp



## Thailand

Boy Tarprajun Football Club Project      FS Inverter

## Singapore

The Sound Condominium Project      Multi-Split System Inverter

Nathan Suite Project      FS Multi, FS Inverter

Tresalve Condominium Project      Multi-Split and Single-Split

Caltex Petrol Station Project      FS Inverter

## Hong Kong

DD100 Fan Kam Rd. Project      FS Multi System Inverter, FS Inverter

Welfare Rd. Project      FS Multi

# Experience



Vietnam	Saigon Pavilion Project	FS Multi, FS Series and Single-Split
India	Vikram Traders Project	FS Multi
	Hari Narayanan Project	FS Multi
China	Tianjin Ecocity Project - Condominium First Phase	Master series (FS Multi)
	Guangzhou Sky River Bay Project	Master series (FS Multi)
Australia	Office Complex Project - Perth	FS Multi
	Medical Research Facility Project - Perth	FS Multi

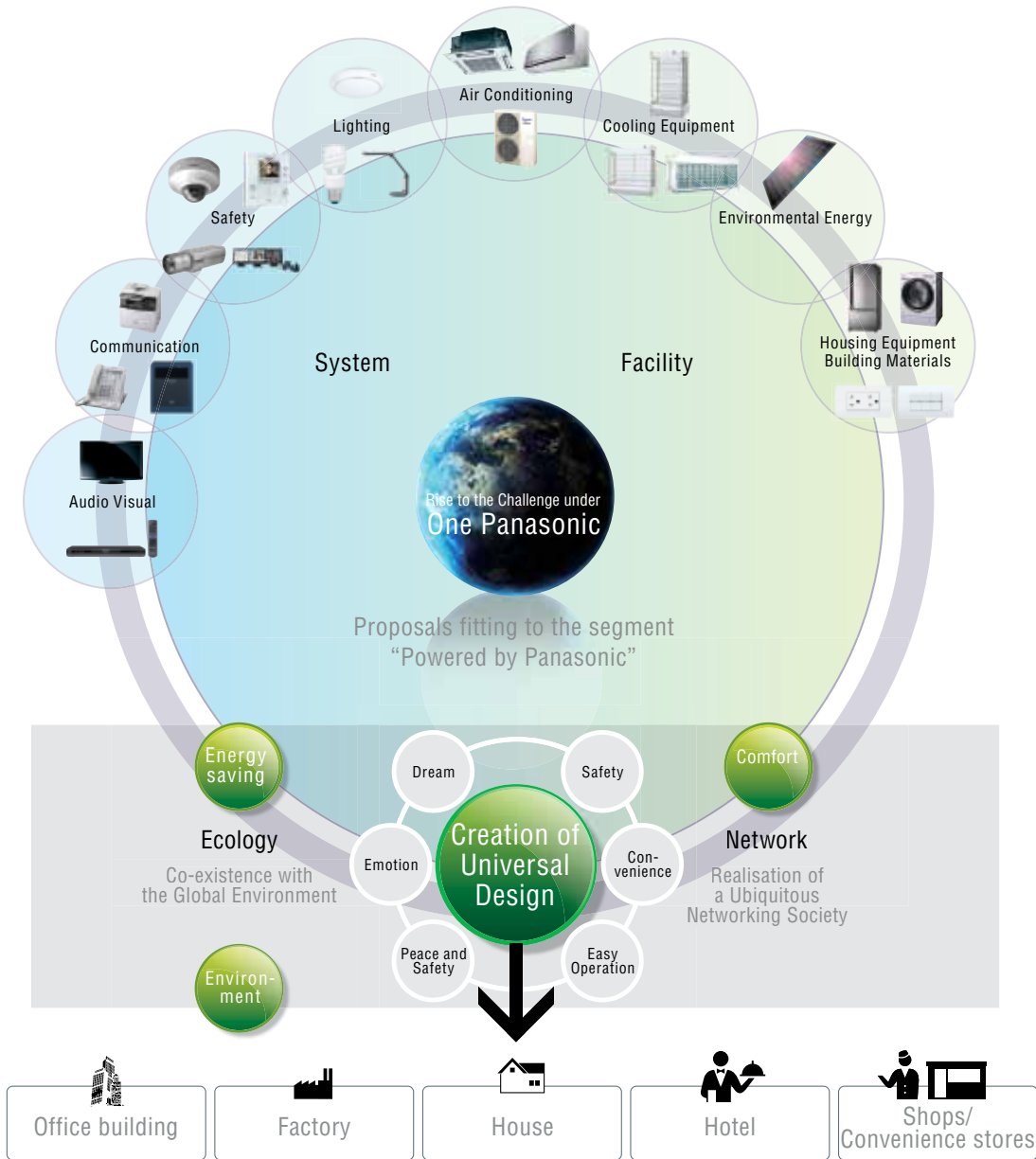


# One window same language

One Panasonic will fulfill your needs

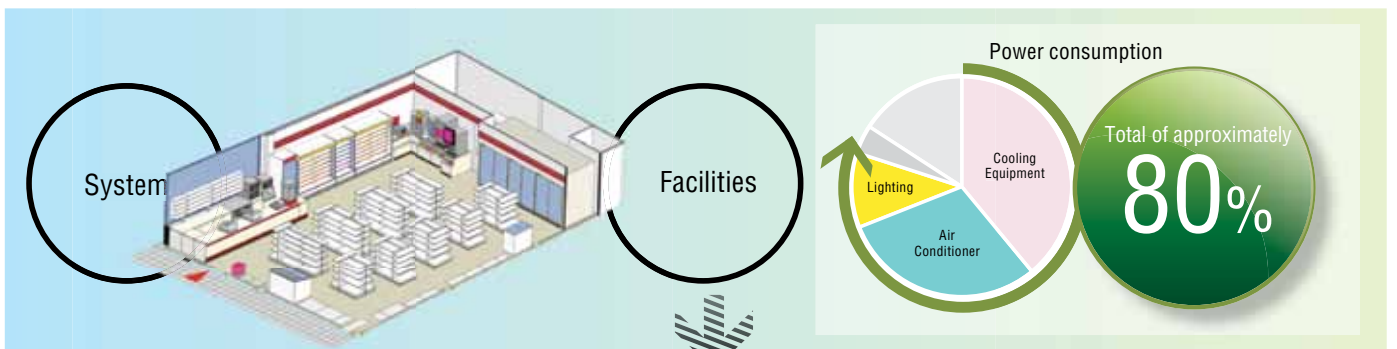
# One Panasonic for BtoB Business Concept

One Panasonic for BtoB is a concept to bring together the sales units of four companies to better serve BtoB customers such as hotels, apartment blocks, housing projects, industrial plants, offices, shops, hospitals, and schools. A new one-stop service operates under the Systems & Equipment Business Division.



## Example for convenience stores


Panasonic is promoting energy saving in the area of the three main energy resources that account for most of the power consumed.



Panasonic provides eco-conscious solutions throughout the entire store through its extensive product line-up

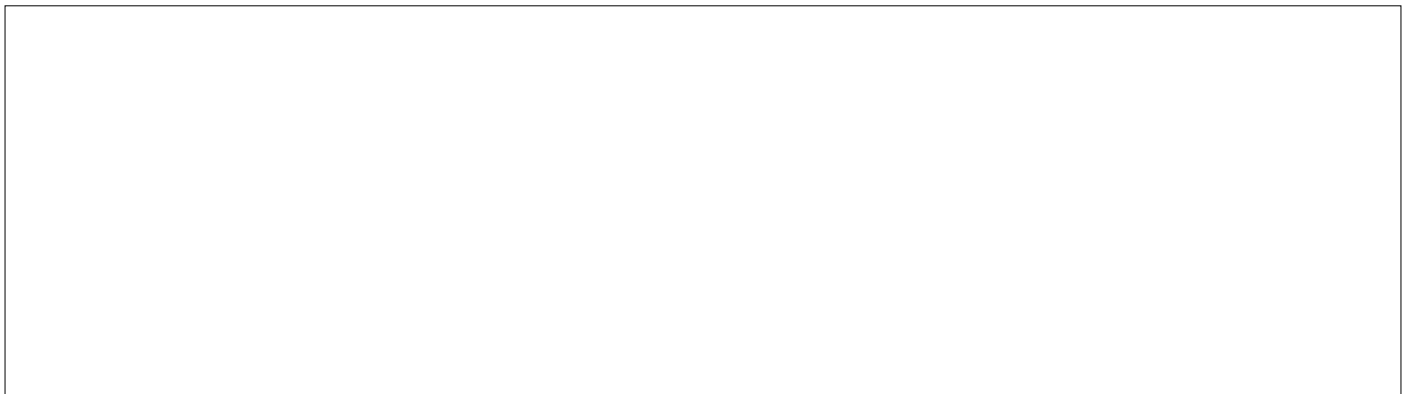
# EVERY BUILDING MATTERS

Quality Management System Certificate	Environmental Management System Certificate
 <p>Certified to ISO 9001: 2008 Cert. No.: MY-AR 1010</p>	 <p>Certified to ISO 14001: 2004 Cert. No.: MY-ER0112</p>
 <p>Certified to ISO 9001: 2008 Registration Number: 01209Q20645R5L</p>	 <p>Certified to ISO 14001: 2004 Registration Number: 02107E10411R3L</p>
<p><b>Certified to ISO 9001: 2008</b> Panasonic HA Air-Conditioning (M) Sdn.Bhd. Cert. No.: MY-AR 1010</p>	<p><b>Certified to ISO 14001: 2004</b> Panasonic HA Air-Conditioning (M) Sdn.Bhd. Cert. No.: MY-ER0112</p>
<p><b>Certified to ISO 9001: 2008</b> Panasonic Home Appliances Air-Conditioning (Guangzhou) Co., Ltd. Registration Number: 01209Q20645R5L</p>	<p><b>Certified to ISO 14001: 2004</b> Panasonic Home Appliances Air-Conditioning (Guangzhou) Co., Ltd. Registration Number: 02107E10411R3L</p>



**Panasonic leads the way... with "eco ideas"**

<b>'eco ideas' for Lifestyles</b>	<b>'eco ideas' for Business-styles</b>
We will promote lifestyles with virtually zero CO <sub>2</sub> emissions all throughout the world	We will create and pursue a business-style which makes the best use of resources and energy



**Panasonic**

**Panasonic Australia Pty. Limited.**

ACN 001 592 187 ABN 83 001 592 187

[www.panasonic.com.au](http://www.panasonic.com.au)

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