

## GAS HEAT PUMP (GHP) VRF SYSTEM

2019 / 2020

**Panasonic**  
BUSINESS

**Building Passion,  
Building Solutions.**  
Panasonic Air Conditioning Systems

We face a time in which "quality air" differentiates business. It's a time for Panasonic to fully display its strengths. Our ability to assemble and build superior systems isn't just due to the rich resources we have as a comprehensive electronics manufacturer, but also to Panasonic's 100 years of tradition, where each person thinks and acts on their own initiative while working in a team to reach further heights. We do not compromise. Each of our independent selves is a one stop solution. We face our customers' challenges together with our customers and do all that we can to build effective systems. As a true partner for our customers, we strive to always be at the forefront of business.

- 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 July 2019.
- 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.

Authorised Dealer

GHP MALAYSIA\_JULY 2019

**Panasonic Air-Conditioning Malaysia  
(PACMY)**

Care Line: +603-7931 3442  
Address: Lot 10, Jalan 13/2,  
46200 Petaling Jaya,  
Selangor Darul Ehsan.



**Panasonic Global Air Conditioner**

Global Site : [aircon.panasonic.com](http://aircon.panasonic.com)  
PROClub : [panasonicproclub.global](http://panasonicproclub.global)



[airconpanasonicglobal](https://www.youtube.com/channel/UCaRnpanasonicglobal)



QUALITY AIR FOR LIFE

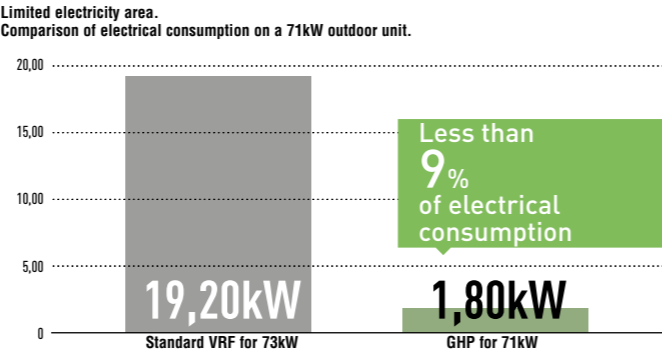
# GAS HEAT PUMP (GHP) VRF SYSTEM

Panasonic Gas Heat Pump (GHP) VRF sytem powerfully and efficiently realizes high quality air whilst balancing energy conservation by reducing power consumption and energy saving by suppressing peak-time electricity consumption.

GHP satisfies special requirement for your application and environmentally friendly solution by Panasonic professional technology.

### Power supply problems?

- If you are short of electric power, our GHP is a perfect solution.
- Runs on natural gas or LPG and just needs single phase supply
  - Enables the building's electrical power supply to be used for other critical electrical demands
  - Reduces capital cost to upgrade power substations to run heating and cooling systems
  - Reduces power loadings within a building especially during peak periods
  - Electricity supply freed up for other uses such as IT servers, commercial refrigeration, manufacturing, lighting, etc...

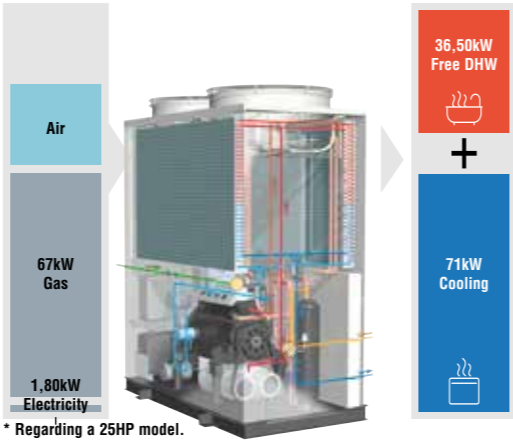


### What is GHP? The Gas Heat Pump (GHP)

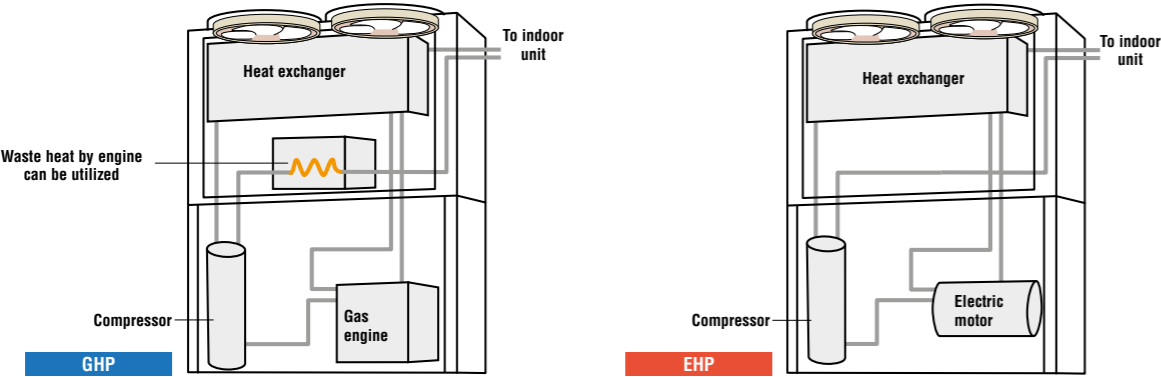
Panasonic Gas Heat Pump (GHP) VRF System is a direct expansion system with compressor as same as electric VRF system. Gas engine is used as driving source of compressor instead of electric motor. This gas engine compressor drive has 2 advantages:

1. Waste heat from the gas engine available
2. No need for motor power consumption thanks to gas engine

GHP is the natural choice for commercial projects, especially for those projects where power restrictions apply.



### Difference between GHP and EHP



# GE3 SERIES

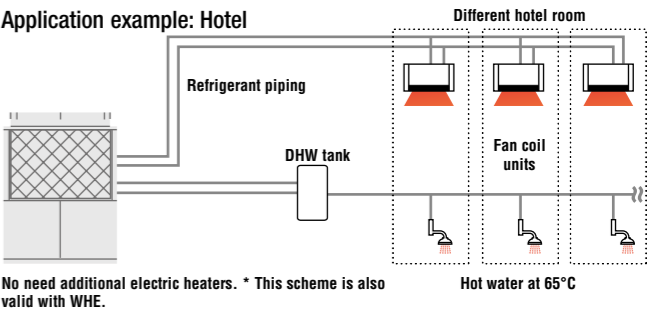


### 2-Way GE3 Series

Designed for high energy efficiency.

### High demand of Domestic Hot Water

The rejected heat from the engine is available for DHW production and can supply up to 46kW of hot water at 65°C. DHW at 65°C is also ready to use in heating without additional electric heaters.



### Application

Application	Condition	GHP
Hotel	High DHW demand	✓ Energy recovery of GHP system can fulfill different requirement
Hotel	Needs to warm up swimming pool	✓ Speed of start up is quicker than VRF system
Office	Quick start up is necessary	✓ - No need an additional power transformer - Space and cost can be saved
Any building	In a city with power restriction	

### Project Case Study



**Beach Republic Miri**  
4 GE3 series units.  
54 indoor units.



**SSH Office Miri**  
59 indoor units with a 160HP load.  
The new construction of an office and furniture showroom.

Reliable quality by long development history since 1985.

Our Gas Driven VRF range of commercial systems is leading the industry in the development of efficient and flexible systems



1985  
Introduces first GHP (Gas Heat Pump) VRF air conditioner.

200.000  
GHP outdoor units were sold in all over the world

GE3 SERIES

High blast efficiency

3-blades fan.

Propeller shape with 3 blades provides high blast efficiency.



3 Series fan



“L” type heat exchanger

“L” shape heat exchanger provides large surface area to ensure optimal operation efficiency.



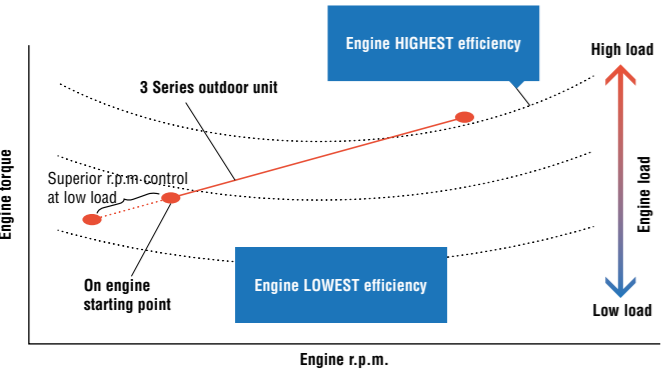
Heat exchanger

Exquisite partial load control

Start / stop loss are decreased by expanding the area where continuous operation is possible. Good annual operation efficiency is achieved at low partial load.

Engine.

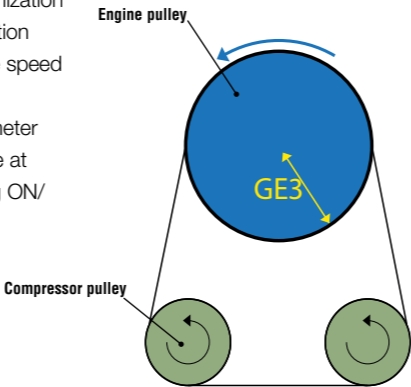
- Continuous operation area at low partial load is superior by gaining large operation area of low speed
- High engine efficiency are achieved by shifting output points to high torque side



Engine pulley.

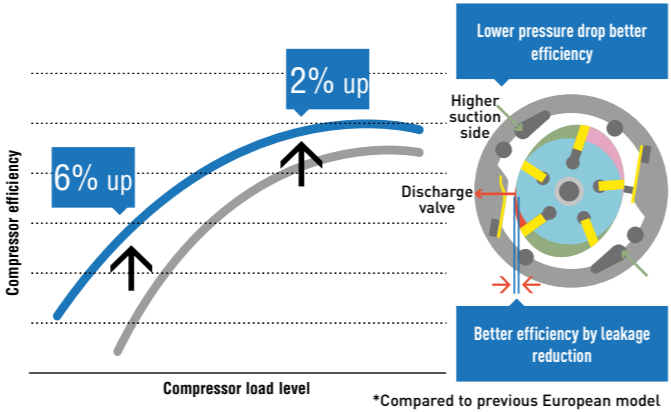
- Big diameter of engine pulley contributes to the optimization of the compressor rotation speed ratio with engine speed

Large engine pulley diameter giving good performance at partial load and reducing ON/OFF operation.



Compressor.

- Amount of internal leakage is small by the reduction of clearance.
- The compressor efficiency in the low load and low rotation region is superior.
- Moreover, efficiency of high speed and high load is also excel by reduction of suction pressure loss due to expansion of suction path
- Optimized compressor capacity



\*Compared to previous European model

Introducing GE3 Series.  
Optimized energy saving with reliable Panasonic technologies.  
The GE3 Series has a top level of efficiency in this category.  
In addition, this product fits with special needs for commercial application thanks to DHW\* priority setting.

\*DHW: domestic hot water

Line up of GE3 2-Way Combination

- Available for water heat exchanger
- Maximum 60HP combination



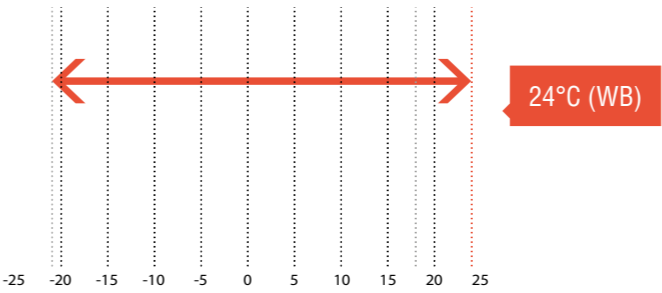
High performance in all capacity ranges

High power efficiency of combination system.

GE3 Series system offers high efficiency with “L” type heat exchanger design, blast efficiency, partial load control.

Heating design operation conditions (GE3)

Operating range in heating is up to 24°C (WB) for air to water system to meet the demand of swimming pool application.

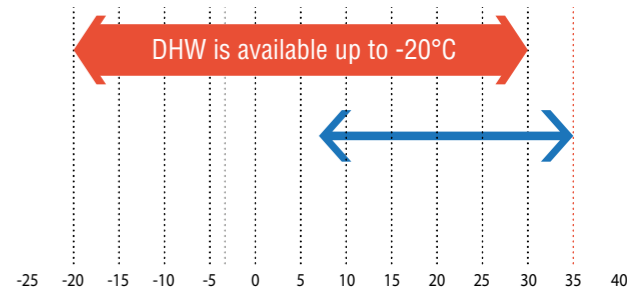


Heating operation range:  
· Air to water system: -21 ~ +24 (°C WB)  
· Air to air system: -21 ~ +18 (°C WB)

GE3 Air to water system

DHW priority mode setting in heating (GE3)

Ambient temperature range for DHW production is expandable by setting depending on DHW needs. Hot water at 65°C is available in heating without additional electric heaters.



Heating: Outside air temperature °C (WB).  
\* In normal mode, heat from engine exhaust is used for preventing defrost.

GE3 with DHW priority mode

GE3 with normal mode

Flexible design with wide line up of indoor units

GE3 series can connect up to 64 indoor units.

Series	16HP	20HP	25HP	30HP	32HP	36HP	40HP	45HP	50HP	55HP	60HP
2-Way GE3 Series	26	33	41	50	52	59	64	64	64	64	64

2-WAY GE3 SERIES



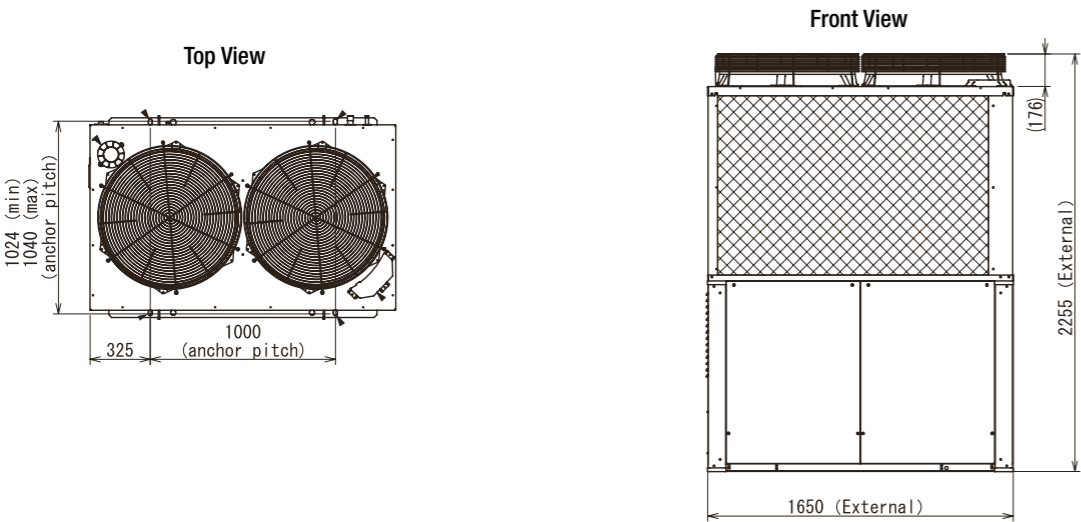
Technical focus

- DHW priority setting
- Operating range in heating down to -21°C and up to +24°C for air to water system
- No defrost cycle
- Capacity ratio : 50 ~ 200% (16-25 HP), 50 ~ 170% (30HP)

HP			16HP	20HP	25HP	30HP
Model			U-16GE3E5	U-20GE3E5	U-25GE3E5	U-30GE3E5
Power supply	Voltage	V	220/230/240	220/230/240	220/230/240	220/230/240
	Phase		Single Phase	Single Phase	Single Phase	Single Phase
	Frequency	Hz	50	50	50	50
Cooling capacity		kW	45.00	56.00	71.00	85.00
EER	Cooling	W/W	1.06	1.05	1.02	0.98
Input power cooling		kW	1.17	1.12	1.80	1.80
Hot water in cooling mode (at 65°C outlet)		kW	23.60	29.10	36.40	46.00
Max COP in hot water		W/W	1.55	1.55	1.49	1.47
Gas consumption cooling		kW	41.10	52.10	67.20	84.10
Heating capacity	Standard	kW	50.00	63.00	80.00	95.00
	Low temperature	kW	53.00	67.00	78.00	90.00
COP	Heating	W/W	1.29	1.20	1.15	1.23
Input power heating		kW	0.56	1.05	0.91	1.75
Gas consumption heating	Standard	kW	38.00	51.10	68.60	75.30
	Low temperature	kW	45.40	62.70	60.70	73.90
Starter amperes		A	30	30	30	30
External static pressure		Pa	10	10	10	10
Air volume		m³/min	370	420	460	460
Sound power		dB	80/77	80/77	84/81	84/81
Dimension	H×W×D	mm	2255×1650×1000	2255×1650×1000	2255×2026×1000	2255×2026×1000
Net weight		kg	765	765	870	880
Piping connections	Liquid pipe	Inch (mm)	1/2 (12.70)	5/8 (15.88)	5/8 (15.88)	3/4 (19.05)
	Gas pipe	Inch (mm)	1-1/8 (28.58)	1-1/8 (28.58)	1-1/8 (28.58)	1-1/4 (31.75)
	Balance pipe	Inch (mm)	—	—	—	—
Elevation difference (in/out)			50	50	50	50
Refrigerant (R410A)		kg	11.50	11.50	11.50	11.50
Maximum number of connectable indoor units			26	33	41	50
Operating range	Cool Min ~ Max	°C (DB)	-10 ~ +43	-10 ~ +43	-10 ~ +43	-10 ~ +43
	Heat Min ~ Max	°C (WB)	-21 ~ +18	-21 ~ +18	-21 ~ +18	-21 ~ +18

25HP chassis enlarged due to specification improvement. Pre-coat corrosion fin.

16 / 20 HP



2-WAY GE3 SERIES COMBINATION



Technical focus

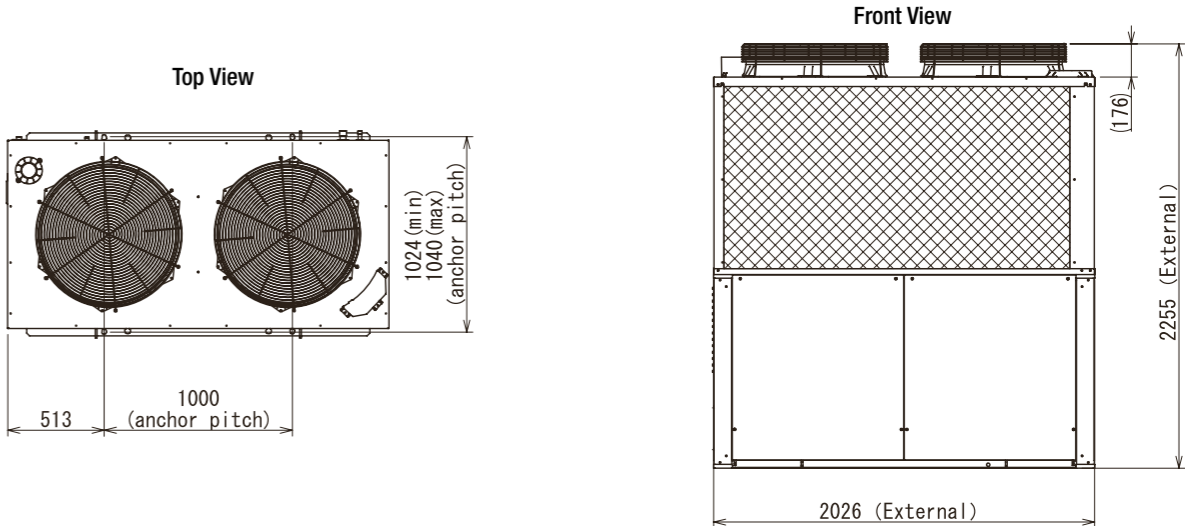
- Maximum 60HP combination
- DHW priority setting
- Operating range in heating down to -21°C and up to +24°C for air to water system
- No defrost cycle

- Combination capacity ratio : 50% of smallest outdoor unit capacity ~ 130% of total capacity of outdoor unit combination

HP			32HP	36HP	40HP	45HP	50HP	55HP	60HP
Model			U-16GE3E5	U-16GE3E5	U-20GE3E5	U-20GE3E5	U-25GE3E5	U-25GE3E5	U-30GE3E5
			U-16GE3E5	U-20GE3E5	U-20GE3E5	U-25GE3E5	U-25GE3E5	U-30GE3E5	U-30GE3E5
Power supply	Voltage	V	220/230/240	220/230/240	220/230/240	220/230/240	220/230/240	220/230/240	220/230/240
	Phase		Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase
	Frequency	Hz	50	50	50	50	50	50	50
Cooling capacity			kW	90.00	101.00	112.00	127.00	142.00	156.00
Input power cooling			kW	2.34	2.29	2.24	2.92	3.60	3.60
Hot water in cooling mode (at 65°C outlet)			kW	47.20	52.70	58.20	65.50	72.80	82.40
Max COP in hot water			W/W	1.55	1.55	1.55	1.52	1.49	1.47
Gas consumption cooling			kW	82.20	93.20	104.20	119.30	134.40	151.30
Heating capacity	Standard	kW	100.00	113.00	126.00	143.00	160.00	175.00	190.00
	Low temperature	kW	106.00	120.00	134.00	145.00	156.00	168.00	180.00
Input power heating			kW	1.12	1.61	2.10	1.96	1.82	2.66
Gas consumption heating	Standard	kW	76.00	89.10	102.20	119.70	137.20	143.90	150.60
	Low temperature	kW	90.80	108.10	125.40	123.40	121.40	134.60	147.80
Starter amperes			A	30	30	30	30	30	30
External static pressure			Pa	10	10	10	10	10	10
Air volume			m³/min	370/370	370/420	420/420	420/460	460/460	460/460
Sound power			dB	83/80	83/80	83/80	86/83	87/84	87/84
Dimension	Height	mm	2255	2255	2255	2255	2255	2255	2255
	Width	mm	1650+100 +1650	1650+100 +1650	1650+100 +1650	1650+100 +2026	2026+100 +2026	2026+100 +2026	2026+100 +2026
	Depth	mm	1000	1000	1000	1000	1000	1000	1000
Net weight			kg	1530(765+765)	1530(765+765)	1530(765+765)	1635(765+870)	1740(870+870)	1750(870+880)
Piping connections	Liquid pipe	Inch (mm)	3/4(19.05)	3/4(19.05)	3/4(19.05)	3/4(19.05)	3/4(19.05)	7/8(22.22)	7/8(22.22)
	Gas pipe	Inch (mm)	1-1/4(31.75)	1-1/4(31.75)	1-1/2(38.10)	1-1/2(38.10)	1-1/2(38.10)	1-1/2(38.10)	1-1/2(38.10)
	Balance pipe	Inch (mm)	—	—	—	—	—	—	—
Elevation difference (in/out)			50	50	50	50	50	50	50
Refrigerant (R410A)			kg	2x11.50	2x11.50	2x11.50	2x11.50	2x11.50	2x11.50
Maximum number of connectable indoor units			52	59	64	64	64	64	64
Operating range	Cool Min ~ Max	°C	-10 ~ +43	-10 ~ +43	-10 ~ +43	-10 ~ +43	-10 ~ +43	-10 ~ +43	-10 ~ +43
	Heat Min ~ Max	°C	-21 ~ +18	-21 ~ +18	-21 ~ +18	-21 ~ +18	-21 ~ +18	-21 ~ +18	-21 ~ +18

Data is for reference. 25HP chassis enlarged due to specification improvement. Pre-coat corrosion fin.






25 / 30 HP













Rating Conditions: Cooling Indoor 27°C DB / 19°C WB, Cooling Outdoor 35°C DB / 24°C WB, Heating Indoor 20°C DB, Heating Outdoor 7°C DB / 6°C WB. (DB: Dry Bulb; WB: Wet Bulb)  
Specifications subject to change without notice. For detailed information, please visit our websites <https://www.panasonic.com/my>.

CONTROLLERS

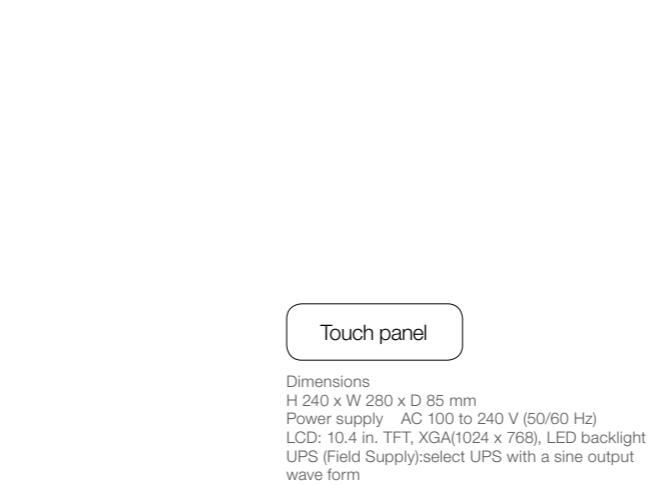
A wide variety of control options to meet the requirements of different applications

Operation system	Individual control systems				Timer operation
Requirements	High-spec operation	Normal operation	Operation from anywhere in the room	Quick and easy operation	Daily and weekly program
External appearance					
Type, model name	High-spec Wired Remote Controller	Timer Remote Controller (Wired)	Wireless Remote Controller	Simplified Remote Controller	Schedule Timer
	CZ-RTC5B	CZ-RTC4	Controller:CZ-RWS3 Receiver:CZ-RWRU3 CZ-RWRL3 CZ-RWRD3 CZ-RWRT3 CZ-RWRC3	CZ-RE2C2	CZ-ESWC2
Built-in thermostat	●	●	—	●	—
ECONAVI ON/OFF control	●	●	●	—	—
No. of indoor units which can be controlled	1 group, 8 units	1 group, 8 units	1 group, 8 units	1 group, 8 units	64 groups, max. 64 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 (When using ECONAVI sensor, only one remote controller is possible to connect at indoor unit)	· Up to 2 controllers can be connected per group.	· Required power supply from the system controller · When there is no system controller, connection is possible to the T10 terminal of an indoor unit.
Function ON/OFF	●	●	●	●	—
Mode setting	●	●	●	●	—
Fan speed setting	●	●	●	●	—
Temperature setting	●	●	●	●	—
Air flow direction	●	●	●	●	—
Permit/Prohibit switching	—	—	—	—	—
Weekly program	●	●	—	—	●

Centralised control systems				
Operation with various functions from a central location	Only ON/OFF operation from a central location	Simplified load distribution ratio (LDR) for each tenant (LDR) for each tenant 10.4 in. touch screen panel color LCD	BMS System PC Base	Connection with 3rd Party Controller
			<b>P-AIMS Software</b> Up to 1024 units  CZ-CSWK2	<b>Seri-Para I/O unit for outdoor unit</b>  CZ-CAPDC2
System Controller	ON/OFF Controller	Intelligent Controller	<b>Optional software</b>  CZ-CSWAC2 for Load distribution CZ-CSWWC2 for Web application CZ-CSWGC2 for Object layout display CZ-CSWBC2 for BACnet software interface *PC required (field supply)	<b>Interface Adaptor</b>  CZ-CAPC3
CZ-64ESMC3	CZ-ANC3	CZ-256ESMC3 (CZ-CFUNC2)		<b>Seri-Para I/O unit for each indoor unit</b>  CZ-CAPBC2
—	—	—		<b>Communication Adaptor</b>  CZ-CFUNC2
●	—	●		<b>LonWorks Interface</b>  CZ-CLNC2
64 groups, max. 64 units	16 groups, max. 64 units	64 units x 16 systems, max. 256 units		
· Up to 10 controllers, can be connected to one system. · Main unit/sub unit (1 main unit + 1 sub unit) connection is possible. · Use without remote controller is possible.	· Up to 8 controllers (4 main units + 4 sub units) can be connected to one system. · Use without remote controller is impossible.	· A communication adaptor (CZ-CFUNC2) must be installed for three or more links.		
●	●	●		
●	—	●		
●	—	●		
●	—	●		
●	—	●		
●	●	●		
●	—	●		

All specifications are subject to change without notice.

INTELLIGENT CONTROLLER (CZ-265ESMC3)



Product features

- 10.4 in., large, easy-to-use color 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 visualization
  - Displays electricity & gas usage distribution
  - Supports energy-saving plans with graph display function

New features

- Max 256 indoor unit [4 links x 64 units] can be controlled. In case of three or more links [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. (Last-pressed priority.)
Prohibition 1	The remote controller cannot be used for ON/OFF. (All other operations are possible from the remote controller.)
Prohibition 2	The remote controller cannot be used for ON/OFF, operation mode change and temperature setting. (All other operations are possible from the remote controller.)
Prohibition 3	The remote controller cannot be used for operation mode change and temperature setting. (All other operations are possible from the remote controller.)
Prohibition 4	The remote controller cannot be used for operation mode change. (All other operations are possible from the remote controller.)

Remote control







































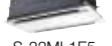
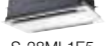

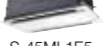
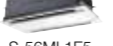
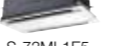





















The LAN terminal on this unit enables you to connectit to a network. Connecting to internet will enable you to operate the unit and check the status using a PC from remote location.

Power Distribution function

You can view cumulative electrical consumption per indoor unit or in a area.  
Gas flow meter with pulse require (Field Supply) for this function

INDOOR UNITS RANGE

Wide choice of models depending on the indoor requirements

Class		22	28	36	45	56	60	73
Capacity	Cooling/Heating	Cooling/Heating	Cooling/Heating	Cooling/Heating	Cooling/Heating	Cooling/Heating	Cooling/Heating	Cooling/Heating
	kW BTU/h	2.2/2.5 7,500/8,500	2.8/3.2 9,600/11,000	3.6/4.2 12,000/14,000	4.5/5.0 15,000/17,000	5.6/6.3 19,000/21,000	6.0/7.1 20,400/24,200	7.3/8.0 25,000/27,000
Type								
F2 type <b>ECONAVI</b> Mid Static Ducted								
M1 type <b>ECONAVI</b> Slim Low Static Ducted								
Z1 type <b>ECONAVI</b> Slim Low Static Ducted Twenty Series								
E2 type High Static Ducted / Energy Saving High-Fresh Air Ducted								
E1 type High Static Ducted								
H1 type High Fresh Air Ducted								
(Class of 45 - 106) K2 type <b>ECONAVI</b> Wall Mounted								
U2 type <b>ECONAVI</b> ** 4-Way Cassette Panel No. CZ-KPU3 Panel No. CZ-KPU3A								
Y2 type <b>ECONAVI</b> 4-Way Mini Cassette Panel No. CZ-KPY3AW								
L1 type 2-Way Cassette Panel No. CZ-02KPL2 Panel No. CZ-03KPL2 (Only for S-73ML1E5)								
D1 type 1-Way Cassette Panel No. CZ-KPD2								
T2 type <b>ECONAVI</b> Ceiling								
P1 type Floor Standing								
R1 type Concealed Floor Standing								

\* Only for High Static Ducted  
\*\* Only for CZ-KPU3A

90	106	140	160	180	224	280	Wireless remote control		Functions
Cooling/Heating	Cooling/Heating	Cooling/Heating	Cooling/Heating	Cooling/Heating	Cooling/Heating	Cooling/Heating	Type with built-in sensor	Type with separately installed sensor	
9.0/10.0 30,000/34,000	10.6/11.4 36,000/39,000	14.0/16.0 47,800/54,600	16.0/18.0 54,600/61,500	18.0/20.0 61,400/68,200	22.4/25.0 76,400/85,300	28.0/31.5 95,500/107,500			