Panasonic GHP/EHP Hybrid System R410A. First intelligent technology

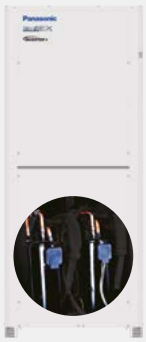
Taking advantage of Gas and Electricity to achieve better energy savings.

GHP + EHP
HYBRID
VRF SYSTEM

GHP Gas

U-20GES3E5 (20 HP)

EHP Electric



U-10MES2E8 (10 HP)

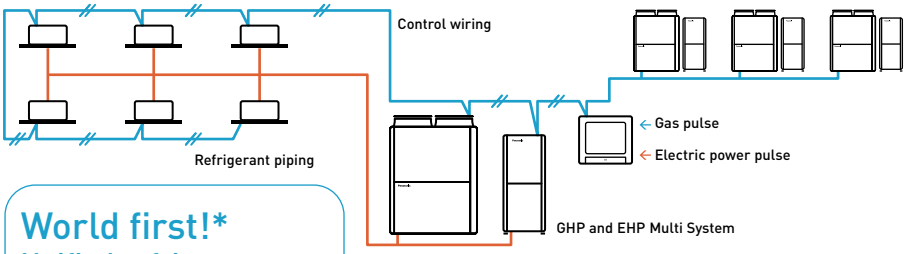
Intelligent controller CZ-256ESMC3

Master unit GHP
- Load calculation of GHP and EHP
- Operation in accordance with the upper limit setting
- Individual capacity control
- Device control
- Special control (Defrost, Oil recovery, 4 Way-valve matching / Abnormality processing)

Slave Unit EHP

Intelligent controller
- Demand monitoring
- Indoor / total load calculation
- Operation Ratio Indication upper limit setting of MAP according to:
  - Energy unit RRP
  - Electric power demand
  - Air conditioning load

Schematic of GHP/EHP Hybrid System.



World first!*
Unified refrigerant cycle in GHP and EHP

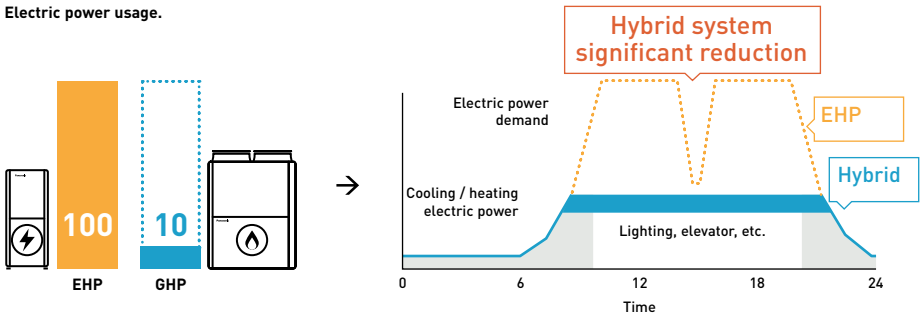
* Introduced as a world first technology by Panasonic in April 2016.

1 Peak cut of electricity consumption

Electrical peak demand is significantly reduced thanks to GHP system consuming less than 10% of electricity of EHP system.

* Image of Hotel project.

Electric power usage.

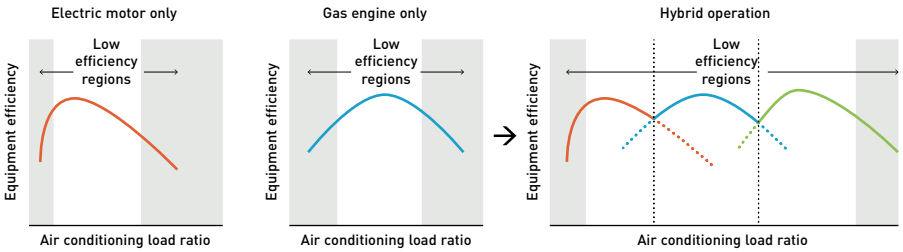


2 Optimal control to maximize energy saving

Switching the operation between GHP and EHP system on the basis of usage, energy demand, part load.

* Specification is tentative.

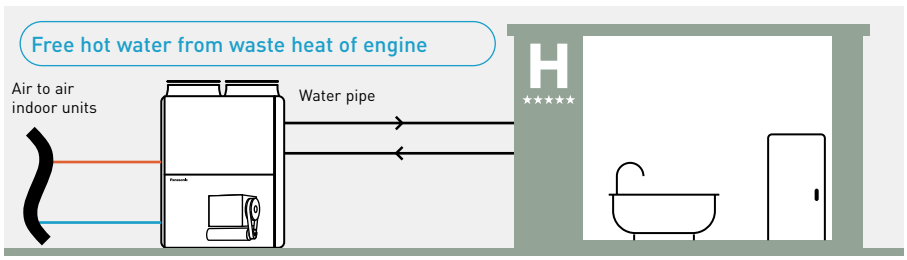
Optional control method.



3 Free hot water production by GHP system

Hot water is effectively produced from waste heat of engine.

* Specification is tentative.



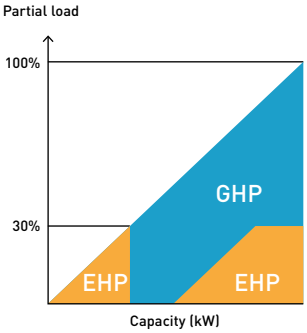
GHP/EHP Hybrid System R410A

Panasonic's reliable ECO G / ECOi technology provides energy savings, utilising the advantages of both gas and electricity
The hybrid system can offer intelligent operation logic for better economy and efficiency by taking the best of ECO G. A heating and cooling system operating in a similar way to a hybrid car.

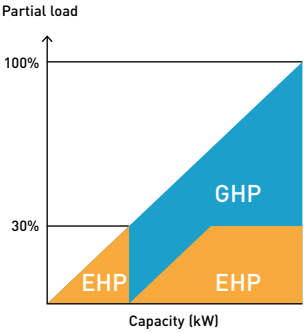
How to smartly operate a GHP and EHP system depending on your needs

4 different mode settings are available with the intelligent controller. Switch the operation between GHP and EHP or operating both units together to maximize the effect for different requirements such as economy and efficiency.

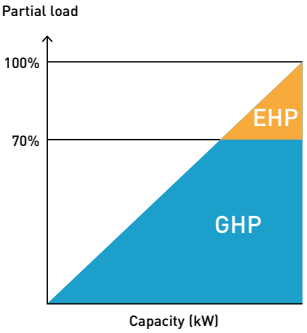
Economy mode



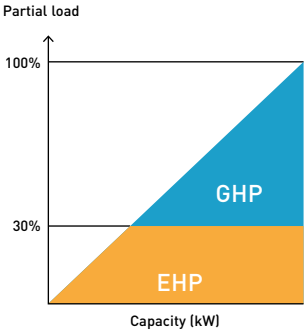
Efficiency mode



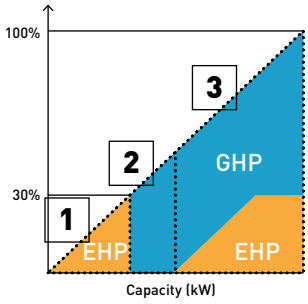
GHP priority mode



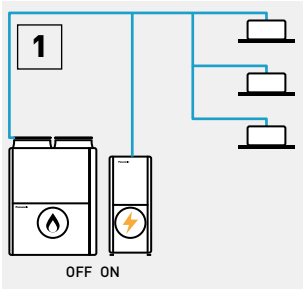
EHP priority mode



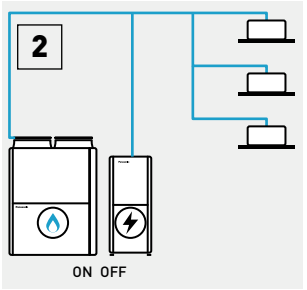
Optimal control example: Economy mode



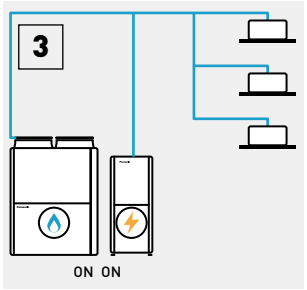
Only EHP



Only GHP



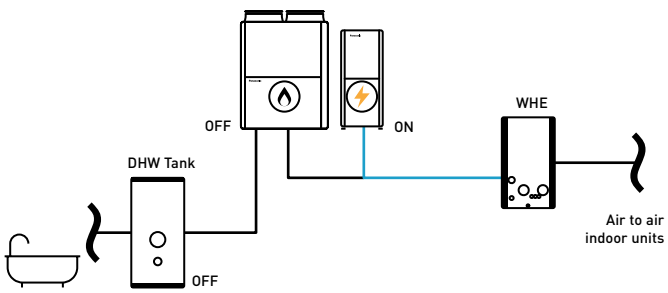
Balanced operation



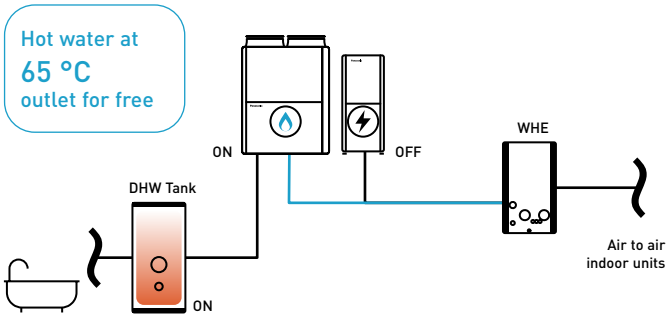
DHW priority mode in Hybryd + WHE System

When DHW is required during cooling operation by EHP, EHP is automatically turned "OFF" and GHP is turned "ON" to produce DHW for free.

High efficiency mode.



DHW priority mode.



2-Pipe Hybrid GHP/EHP · R410A

· Extended lifespan with intelligent energy management.
The goal is for the EHP and GHP to work at optimal speeds
· Low energy cost
· Low emissions

			Hybrid GHP	Hybrid EHP
HP			**20 HP**	**10 HP**
Outdoor unit			**U-20GES3E5**	**U-10MES2E8**
Power supply	Voltage	V	220 - 230 - 240	380 - 400 - 415
	Phase		Single phase	Three phase
	Frequency	Hz	50	50
Cooling capacity		kW	56,0	28,0
$\eta_{s,c}$ (LOT21)			**211,8%**	**275,4%**
Current		A	5,18	10,70 / 10,20 / 9,80
Input power		kW	1,12	6,41
Hot water in cooling mode (at 65 °C outlet)		kW	26,20	—
Gas consumption cooling		kW	52,10	—
Heating capacity		kW	63,0	31,5
$\eta_{s,h}$ (LOT21)			**143,2%**	**167,6%**
Current		A	4,79	11,10 / 10,50 / 10,10
Input power		kW	1,05	6,62
Gas consumption heating	Standard	kW	51,10	—
Starting current		A	30	1
Air flow		m^3/min	420	224
Sound pressure	Normal mode	dB(A)	58	56
Sound power	Normal mode	dB(A)	80	77
Dimension	H x W x D	mm	2255 x 1650 x 1000	1842 x 770 x 1000
Net weight		kg	765	210
Piping diameter [1]	Liquid	Inch (mm)	5/8 (15,88)	3/8 (9,52)
	Gas	Inch (mm)	1 1/8 (28,58)	7/8 (22,22)
	Balance	Inch (mm)	1/4 (6,35)	1/4 (6,35)
Drain heater		W	40	—
Refrigerant (R410A) / CO_2 Eq.		kg / T	11,05 / 23,0724	5,60 / 11,6928
Maximum allowable indoor / outdoor capacity ratio %			50 ~ 130	50 ~ 130
Operating range	Cool Min ~ Max	°C	-10 ~ +43	-10 ~ +43
	Heat Min ~ Max	°C	-21 ~ +18	-21 ~ +18

1) Please refer service manual when the maximum piping length exceeds 90 meters (equivalent length).

Technical focus

· 4 settings (economy, efficiency, GHP priority mode, EHP priority mode)
· DHW energy recovery 26,2 kW (at 65 °C) by engine waste heat
· Unified refrigerant cycle in GHP and EHP for easy installation
· DHW priority mode with WHE system
· Connection of up to 48 indoor units

HIGH COP | GAS POWERED ECO G | 5 YEARS COMPRESSOR WARRANTY

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 about ErP / Energy Labelling, please visit our websites www.aircon.panasonic.eu or www.ptc.panasonic.eu.