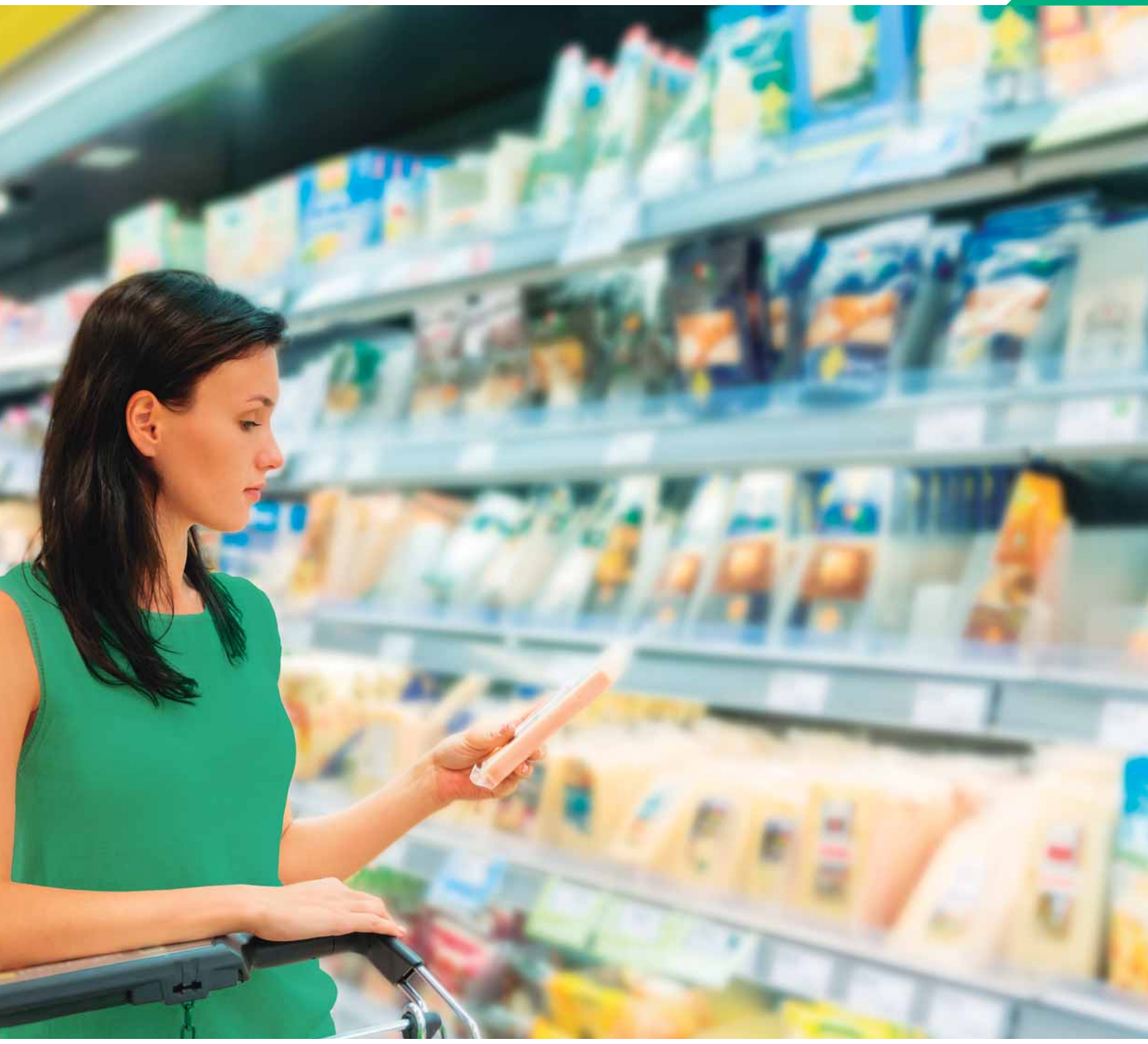
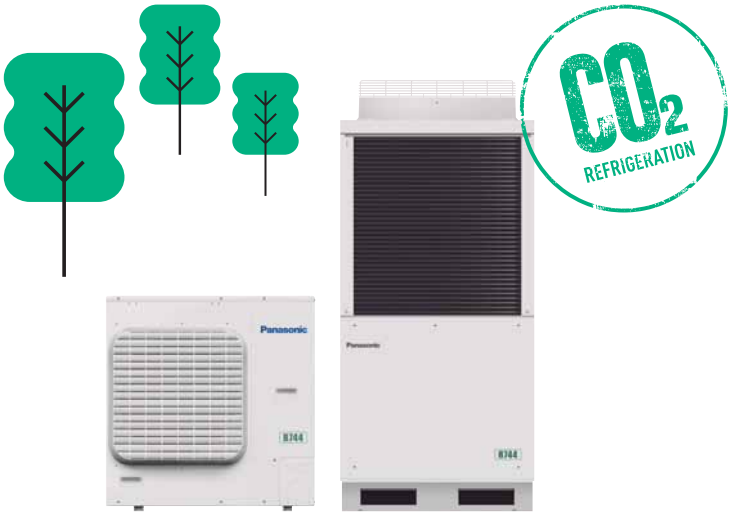
Panasonic
BUSINESS



PANASONIC CONDENSING UNITS WITH NATURAL REFRIGERANT

Panasonic is now introducing the new environmentally friendly CO_2 condensing units for commercial refrigeration.



heating & cooling solutions

CHOOSE THE GREEN SOLUTION BY PANASONIC

ENVIRONMENTALLY FRIENDLY
CO_2
CONDENSING UNITS

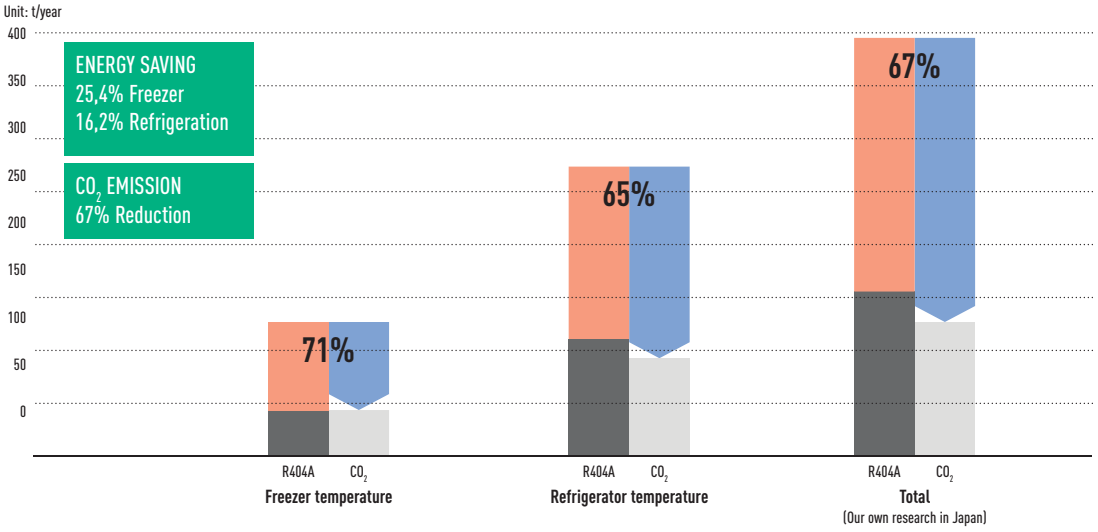
Why CO_2?: Natural refrigerant

EU F-Gas Regulation is a key priority for European countries. It ensures compliance with the Kigali Amendment supporting international climate commitments on greenhouse gases and leading the global transition to climate-friendly HFC-free technologies.
Carbon dioxide (R–744) is regaining its place in the refrigeration world. Driven by environmental concerns, legislation is requiring increased adoption of 'alternative' refrigerants, of which CO_2 is one.
CO_2 is a very attractive refrigerant from an environmental perspective. Zero ODP and "GWP" (Global Warming Potential)=1 means natural substance in the atmosphere.
In Europe a step-by-step HFC reduction has been in place since the F Gas regulation was introduced in 2015.
In fact, not only in Europe but also other countries all over the world have actively been preparing to enact the necessary domestic legislation to implement the agreement for reducing the use of HFCs.
Panasonic is now able to provide a solution in Europe with CO_2 refrigeration systems to prevent global warming and to support environment-friendly retail operations.
The following table shows how well R744 (CO_2) performs regarding environmental impact and safety.

ODP (Ozone Depletion Potential) = 0 - GWP (Global Warming Potential) = 1.

	Next generation refrigerant			Current refrigerant	
	CO_2	Ammonia	Isobutane	R410A	R404A
ODP	**0**	0	0	0	0
GWP	**1**	0	4	2090	3920
Flammability	**Non flammable**	Light flammable	Flammable	Non flammable	Non flammable
Toxicity	**No**	Yes	No	No	No

Comparison of CO_2 emissions



1) Direct influence presents the effect of refrigerant leakage comparing R744 (CO_2) with R404A.
2) Indirect influence presents CO_2 emissions linked to power consumption of CO_2 unit and conventional units.

By Panasonic research in Japan. Comparing 6 shops average for R404A inverter multi condensing unit.

Reliable quality made in Japan. Excellent quality control established by skilled factory team.

CO_2 transcritical condensing units New MT/LT model (OCU-CR1000VF8A(SL))

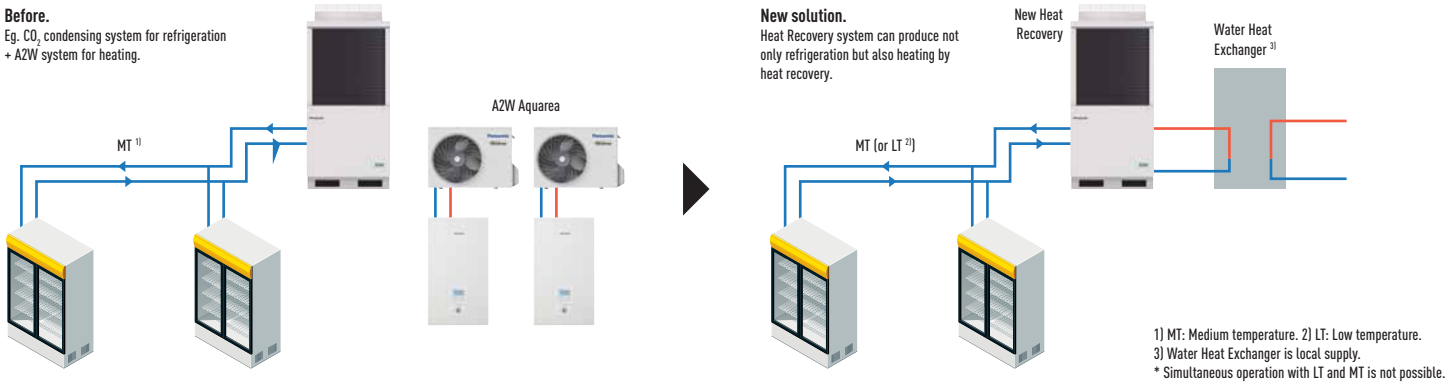
Panasonic has introduced new model offering both MT and LT options.
An enlarged 12L tank in this new model ensures an optimum operation.

Both MT and LT options.
Maximum cooling capacity.
MT: Up to 16kW.
LT: Up to 8kW.

Up scales tank 7L to 12L.
This 12L tank keeps inside extra amount of refrigerant when the system stops.
Also helping installers by making wider tolerance from optimum charge.

Heat recovery function for heating. Available in Autumn 2019.
This function offers refrigeration together with heating in one system. Its a ground breaking function giving a great opportunity to cut running costs by utilizing exhausted heat from refrigeration to the energy source for heating.

What is Heat Recovery function?



CO_2 transcritical condensing units CR Series

- Set-points at medium or low temperature available depending on applications
- High COP at high ambient temperature thanks to Panasonic's 2-stage compression CO_2 rotary compressor
- Compact and extremely quiet
- Transfer Pressure control for stable expansion valve control in showcases (1000VF8 and 1000VF8A models only)

* SEPR values has been tested at 3-part laboratory.

MT/LT TYPE
200VF5
4kW / 2kW

3,83
SEPR COOLING*
1,92
SEPR FREEZING*

MT TYPE
1000VF8
15kW

MT/LT TYPE
1000VF8A
16kW / 8kW

NEW
2019

CR Series	Low temperature	Medium temperature	ET (Evaporation Temperature) Set points range
OCU-CR200VF5	✔	✔	-45 ~ -5°C
OCU-CR1000VF8	–	✔	-20 ~ -5°C
OCU-CR1000VF8A	✔	✔	-45 ~ -5°C

Reliability is our main target and therefore we offer compressor warranties of 5 years, and 2 year warranties on other components!

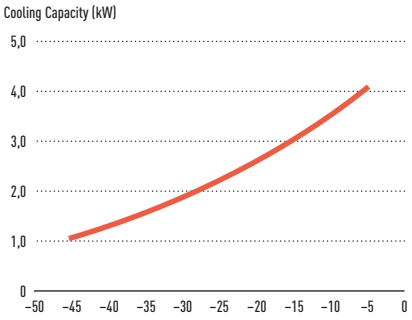
Superior cooling capacity at each evaporating temperature

CO_2 Transcritical Condensing units have a high cooling capacity at each set point. CO_2 2-stage compression rotary compressor developed by Panasonic is designed to compress CO_2 refrigerant twice; it reduces load in operation by half compared with 1-stage refrigerant compression and delivers better durability and reliability.

Units can be set to run at low and medium temperatures with four initial settings. These settings can then be modified by turning a simple and user friendly rotary switch to further enhance energy savings. (200VF5 model only).

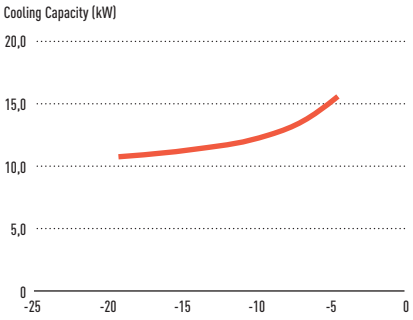
4kW: OCU-CR200VF5(SL)

This compact unit provides flexibility to adapt to changing needs of refrigeration depending on the install setting.



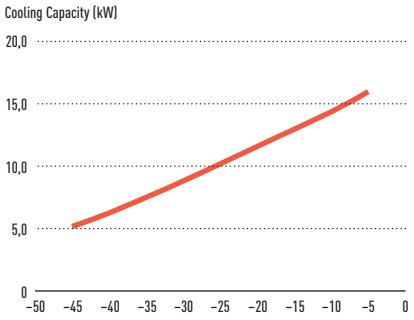
Ambient temperature: 32°C, 230V, Compressor: operation frequency: 65 S^{-1}
Refrigerant: R744, suction gas temperature: 18°C.

15kW: OCU-CR1000VF8(SL)



Ambient temperature: 32°C, 400V, Compressor: Operation frequency: 60 S^{-1},
Refrigerant: R744, suction gas temperature:18°C.

16kW: OCU-CR1000VF8A(SL)



Ambient temperature: 32°C, 400V, Compressor: Operation frequency: 60 S^{-1},
Refrigerant: R744, suction gas temperature:18°C. * Tentative.

Reliable CO_2 technology by Panasonic

- Reliable Quality: Made in Japan
- Experience: 10000 units sold and installed in 3700 retail operations such a convenience stores and supermarkets in Japan*
- Excellent quality control established by skilled factory team
- Panasonic offers 5 year warranties on compressor and 2 years on components
- The 5 year compressor warranty matches the products long lifetime

* As of the end of November 18.

Cold chain applications

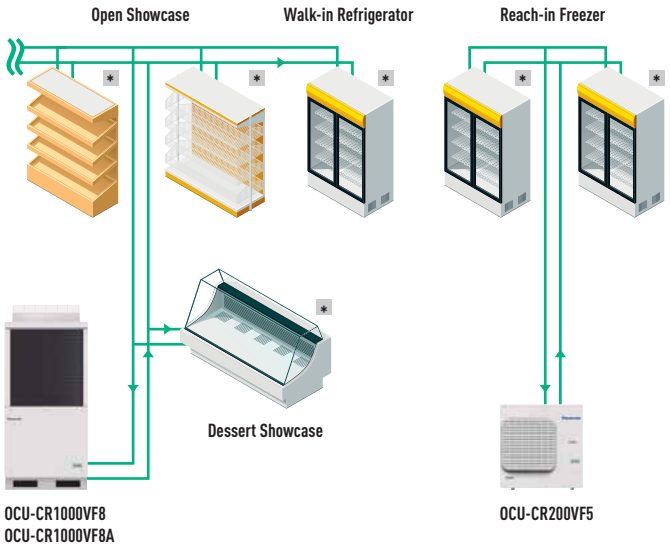
Panasonic's CR Series of CO_2 condensing units provide the ideal solution for supermarkets, convenience stores and gas stations.
Keeping food always fresh at right temperature in showcases or cold rooms is a very critical point. And one of the biggest challenges for those retailers has been the expensive effects of refrigeration breakdowns which can result in costly product wastage.
Panasonic's reliable CO_2 solution helps address the above issue by having a stable and reliable all year-round system to help maximise energy efficiency.

Showcases

Convenience stores, supermarket, gas stations.

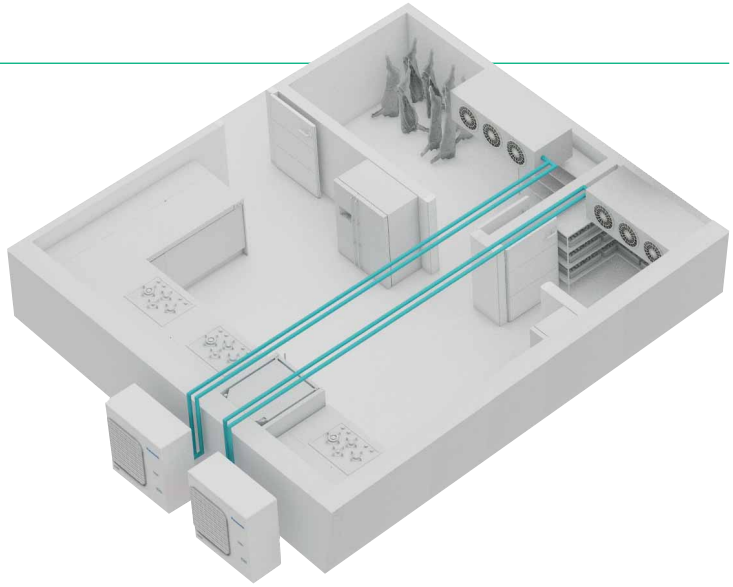
CO_2 Model	Showcase type example
4kW / OCU-CR200VF5	Reach in Freezer
15kW / OCU-CR1000VF8 **16kW / OCU-CR1000VF8A**	Open Showcase [1] (total width 850cm) / Dessert showcase / Walk-in refrigerator (6 or 7 doors)

1) Showcases are local supply.
* Controllers: PAW-CO2-PANEL or local supply.
** Minimum cooling load must be 18% of the total capacity.



Cold room application to keep food fresh

Hotel, school, hospital.



CO_2 Model	Cold room	
	Evaporation temperature	Room size example*
4kW / OCU-CR200VF5	-30 ~ -45°C	10m³
	-10 ~ -5°C	40m³
15kW / OCU-CR1000VF8	-10 ~ -5°C	200m³
16kW / OCU-CR1000VF8A	-30 ~ -45°C	50m³
	-10 ~ -5°C	200m³

* Room size is reference. Please contact to authorized Panasonic dealer for calculation.

Panasonic condensing units with natural refrigerant: The environmentally friendly and reliable solution for convenience stores, supermarket, gas stations and cold rooms.

Saving installation time with Plug & Play kit

To ensure a quick and easy install of the product, Panasonic has designed a one box solution that includes the condensing unit, a panel pre-programmed controller, electronic expansion and all required sensors in addition to providing easy to understand instructions.

Plug & Play kit

Electronic expansion for superheat control.

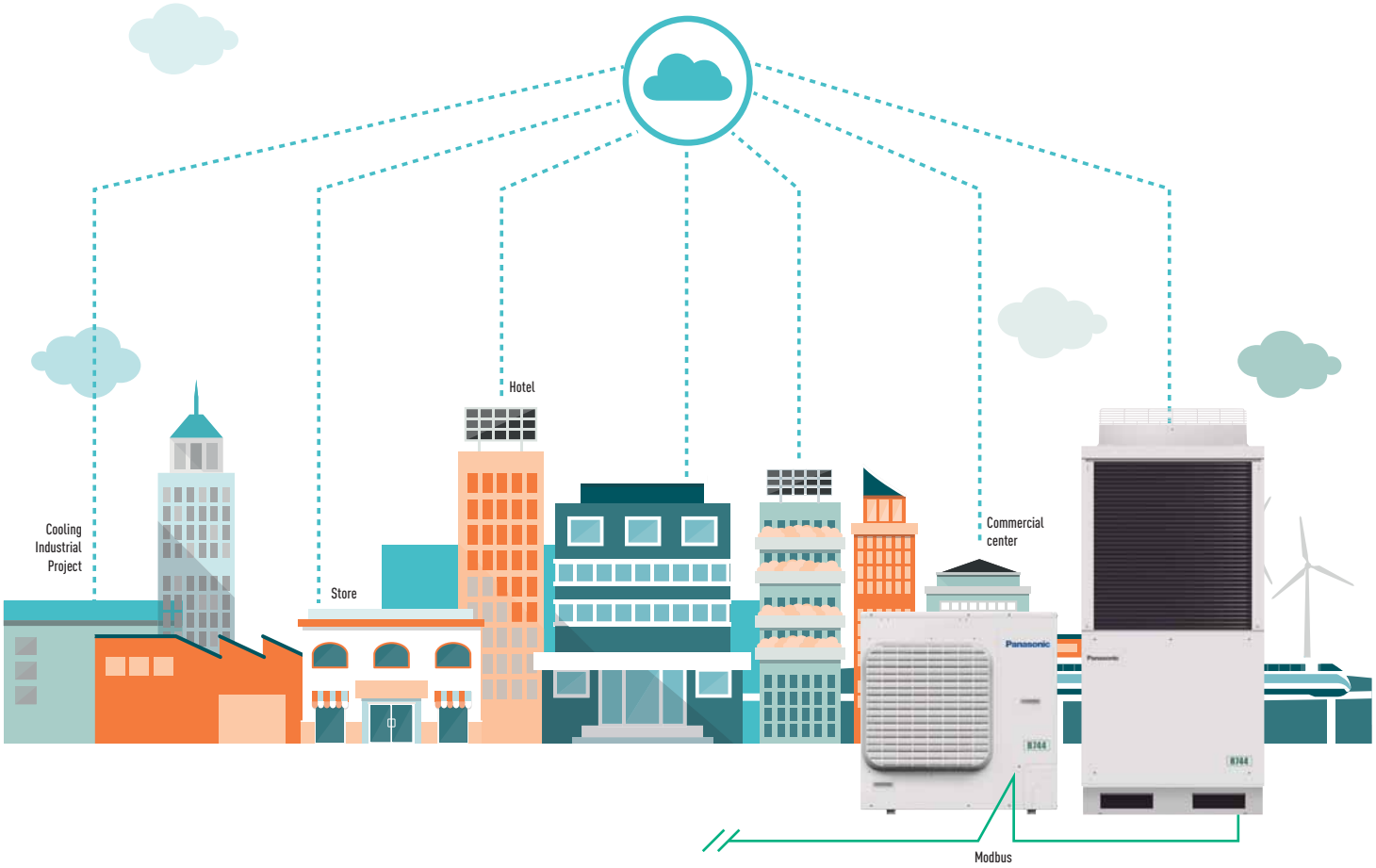
Intelligent controller programmed specially for storage rooms and showcases.

Model code: PAW-C02-PANEL

Modbus compatibility with monitoring system

Panasonic CO_2 condensing unit CR Series can be supervised by major monitoring system such as CAREL, Eliwell and Danfoss. Monitoring system ensures the recording, monitoring and reporting of temperature conditions etc... of entire CO_2 condensing units system at shops.

Monitoring system		
CAREL	Danfoss	eliwell by Schneider Electric
Standard boss & boss-mini	AK-SM Series	TelevisGo




MT / LT


MT


MT / LT

NEW 2019

CO_2 Condensing units

Type (MT: Medium temp. LT: Low temp.)			MT(4kW) / LT (2kW)				MT (15kW)				MT(16kW) / LT (8kW)			
Model			**OCU-CR200VF5**		**OCU-CR200VF5SL**		**OCU-CR1000VF8**		**OCU-CR1000VF8SL**		**OCU-CR1000VF8A**		**OCU-CR1000VF8ASL**	
Anti corrosion coating			No		Yes		No		Yes		No		Yes	
Power supply	Voltage	V	220/230/240				380/400/415				380/400/415			
	Phase		Single Phase				Three Phase				Three Phase			
	Frequency	Hz	50				50				50			
Cooling capacity at ET -10°C AT 32°C		kW	3,70				14,00				15,10			
Cooling capacity at ET -35°C AT 32°C		kW	1,80				N/A				8,00			
Evaporator connection			Multiple [1]				Multiple				Multiple			
Evaporation temperature	Min ~ Max	°C	-45~-5				-20~-5				-45~-5			
Ambient temperature	Min ~ Max	°C	-15~+43				-15~+43				-15~+43			
Refrigerant			R744				R744				R744			
Design pressure liquid line		Mpa	12				8				8			
Design pressure suction line		Mpa	8				8				8			
User system external alarm. Digital input. Non-voltage contact			Yes				Yes				Yes			
Liquid tube electromagnetic valve		Vac	220/230/240				220/230/240				220/230/240			
Showcase operation ON/OFF signal. Digital input. Non-voltage contact			Yes				Yes				Yes			
Modbus communication line (RS485)		Ports	2				2				2			
Compressor type			2- stage rotary				2- stage rotary				2- stage rotary			
Dimension	H x W x D	mm	930x900x437				1941x890x890				1941x890x890			
Net weight		Kg	70				293				320			
Piping connections	Suction pipe	Inch (mm)	3/8(9,52)				3/4(19,05)				3/4(19,05)			
	Liquid pipe	Inch (mm)	1/4(6,35)				5/8(15,88)				5/8(15,88)			
Length of connection piping		m	25				100 [2]				100 [2]			
Standard performance	Ambient temperature	°C	32				32				32			
	Evaporating temperature	°C	-10	-35	-10	-35	-10	-35	-10	-35	-10	-35	-10	-35
	Cooling capacity	kW	3,70	1,80	3,70	1,80	14,00	—	14,00	—	15,10	8,00	15,10	8,00
	Power consumption	kW	1,79	1,65	1,79	1,65	8,20	—	8,20	—	N/A	N/A	N/A	N/A
	Nominal load ampere	A	7,94	7,26	7,94	7,26	12,60	—	12,60	—	N/A	N/A	N/A	N/A
	Sound pressure level	dB(A)	35,5 [3]	35,5 [3]	35,5 [3]	35,5 [3]	36,0 [4]	—	36,0 [4]	—	36,0 [4]	36,0 [4]	36,0 [4]	36,0 [4]
Air volume		m^3/min	54				220				220			
External static pressure		Pa	17				58				58			
Necessary accessories														
Tube connector adaptor for vacuum and service		**SPK-TU125**	Yes [5]				Yes [5]				Yes [5]			
Drier filter liquid line, diameter 6,35mm		**D-152T**	Yes [6]				—				—			
Drier filter liquid line, diameter 15,88mm		**D-155T**	—				Yes [6]				Yes [6]			
Suction filter, diameter 19,05mm (outer diameter welding)		**S-008T**	—				Yes [5]				Yes [6]			

Accessories	
PAW-CO2-PANEL	Room and superheat control including both Panel + expansion valve
SPK-TU125	Tube connector adaptor for vacuum and service

Accessories	
D-152T	Drier filter liquid line, diameter 6,35mm for 4kW model
D-155T	Drier filter liquid line, diameter 15,88mm for 15kW model
S-008T	Suction filter

1) Ask salesperson if you make multiple connection. 2) PZ-68S (refrigeration oil) must be added if >50m. 3) ET-10°C, 65 S-1, 10m from product. 4) ET -10°C, 60 S-1, 10m from product. 5) Optional. Please order separately. 6) Delivered with the unit.


SPK-TU125
Tube connector adaptor for vacuum and service.


D-152T
Drier filter liquid line, diameter 6,35mm.


D-155T
Drier filter liquid line, diameter 15,88mm.


S-008T
Suction filter, diameter 19,05mm (outer diameter welding).

Natural CO_2 / R744. R744 refrigerant provides higher energy saving and lower CO_2 emission compared to R404A. Zero ODP and GWP=1 means natural substance. — Inverter+. Inverter Plus system classification highlights the highest performing Panasonic systems. — High efficiency compressor. Powerful 2-stage CO_2 rotary compressor by Panasonic. It delivers high performance all year around. — Super quiet. Systems operate extremely quiet. Minimum 35,5dB(A) @10m with 200VF5 model. — Operation range up to 43°C. The system operates up to 43°C which gives wide possibility of the location installed. — Anti corrosion coating. Selectable fin type with or without an anti corrosion coating. The anti corrosion coating prevents salt damage for the longer life time. — Automatic Fan. Microprocessor control automatically adjusts the outdoor fan speed in CO_2 systems for the efficient operation. — BMS connectivity. The system can by supervised with major monitoring system. — 5 Years compressor warranty. We guarantee the outdoor unit compressors in the entire range for five years.

Panasonic®

To find out how Panasonic cares for you, log on to: www.aircon.panasonic.eu

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