

Mini ECOi LE Series for light commercial and residential use

ECOi

Mini ECOi with extraordinary energy-saving performance and high external static pressure (35Pa).

Compact design



7,9
SEER4,9*
SCOPIndustry leading
efficiency

4 / 5 / 6 HP

6,4*
SEER4,3
SCOP

8 / 10 HP

1 Efficiency energy control

Upgraded outdoor units deliver high efficiency rating and reduced energy costs.

2 Space saving

Ideal for commercial locations with limited space such as banks and shops. Compact units integrate easily and discreetly into building design.

3 Flexible installation

Reduced installation time thanks to compact units and extra long piping without additional refrigeration charge. High external static pressure 35 Pa and small chassis increase installation options.

Compact design: LE2 Series - 4 / 5 / 6 HP

- Extraordinary energy saving: 7,9 SEER and 4,9 SCOP (4 HP)*
- 50 m piping length without additional refrigerant charge
- Quiet operation mode with 4 levels
- High COP mode option

* SEER / SCOP is calculated based on the seasonal space cooling / heating efficiency "η" values of the COMMISSION REGULATION (EU) 2016/2281. SEER, SCOP = (η + Correction) × PEF.

LE1 Series - 8 / 10 HP

- 60% smaller than ECOi ME2 8 / 10 HP vertical flow type
- Flexible piping length (Total: 300 m, Furthest: 150 m)
- Maximum number of connectable indoor units: 15

Key features for LE2 / LE1.

- High external static pressure 35 Pa
- Full range of ECOi indoor units and controllers
- Variable evaporation temperature control as standard
- Connectable maximum indoor / outdoor capacity ratio up to 130%
- Auto restart from outdoor units
- Demand response (Peak cut) by optional parts
- Suitable for R22 renewable projects



Flexible, easy and hassle free installation

Compact space-saving design. High external static pressure 35 Pa. Long piping length for flexible installation. No additional refrigerant charge up to 50 m. 130% capacity ratio for connectable indoor units.

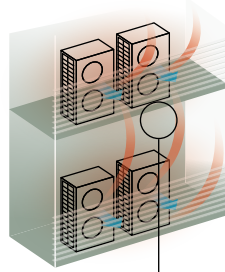
High external static pressure 35 Pa

- High air pressure
- An efficient blade design
- Perfect for high class condominiums

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

And a high air pressure of 35 Pa discharges the hot air to a sufficient distance.

Previous model - low pressure.

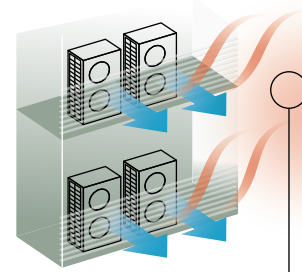


Heat accumulated.
When the pressure is low, hot air will accumulate in the unit thus affecting its work performance and that of unit above it as well.



Previous fan

LE Series - high pressure.



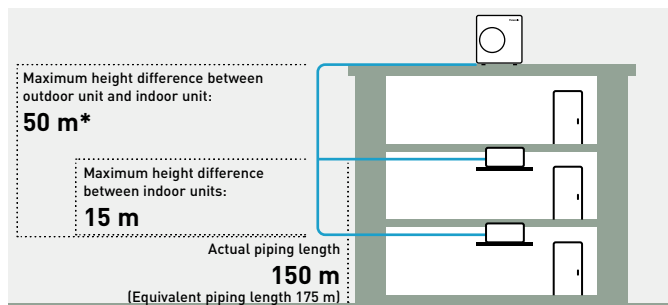
Heat discharged.
But with a high pressure of 35 Pa, hot air is sent further away preventing overheating inside the outdoor unit enclosure.



LE2's fan

Long piping design length for greater design flexibility

- LE1: Maximum total piping length: 300 m.
- LE2: Maximum total piping length: 180 m.

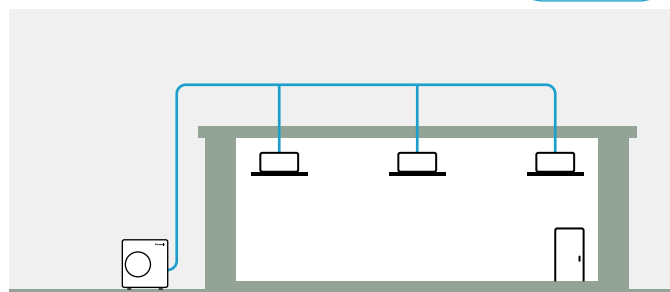


* 40 m if the outdoor unit is below the indoor unit.

Plug & Play concept

- 50 m piping length free of charge
- A 50 m pipe length is sufficient for most residential and small business buildings

Free of charge
50 m



Connection of up to 15 indoor units

An expansion from Panasonic VRF line up, the mini ECOi is compatible with the same indoor units and controls as the rest of the ECOi range.

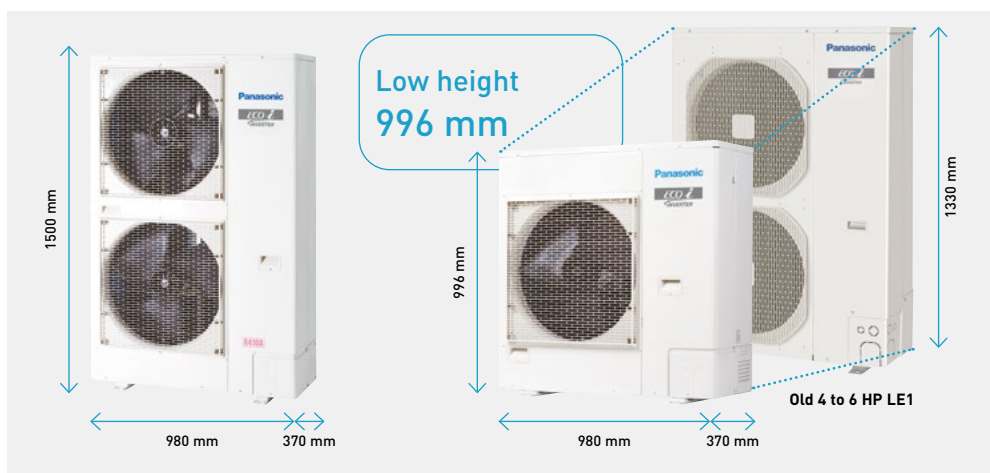
Compact design

Mini ECOi LE Series is a single unit.

Perfect for installations with limited space and easy to hide within a modern building. Flexible space-saving options compared to single split system.

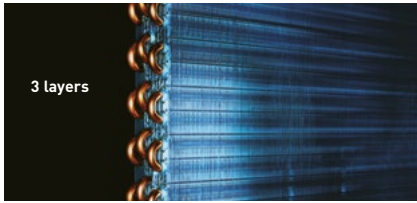
LE2 low height of 996 mm.

LE2 Series is 25% smaller in height than conventional model.

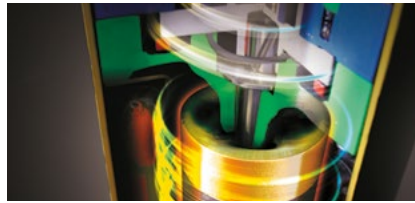


Energy control and reliability

The Mini ECOi system delivering energy-saving performance, powerful operation, reliability and comfort surpassing anything previously possible.



Powerful heat exchanger.
3 layers of heat exchanger for all LE Series. LE Series features the same heat exchange volume as conventional model even though it is 15% smaller in size.

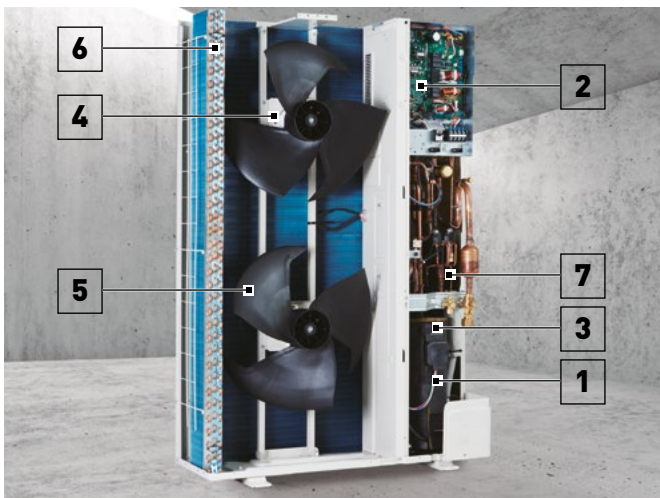


Panasonic twin rotary compressor.
A large capacity Inverter compressor has been adopted. This compressor features wider and 0,1 Hz step Inverter control.



Design fan.
Fan blades have been redesigned to inhibit air resistance and to increase efficiency. The larger fan increases air flow while maintaining low noise levels.

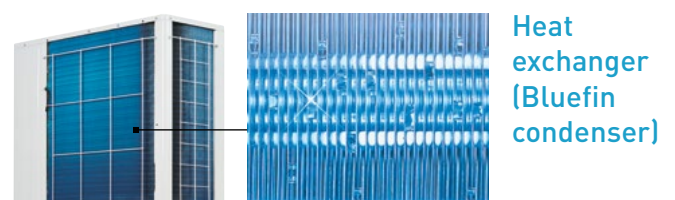
Energy savings design



- 1 | **Panasonic Inverter compressor.** A large-capacity Inverter compressor has been adopted. The Inverter compressor is superior in performance with improved partial-load capacity.
- 2 | **Printed circuit board.** Maintenance is made easier with only 2 PCBs.
- 3 | **Accumulator.** A large accumulator has been adopted to maintain compressor reliability because of the increased refrigerant quantity, which allows an extended maximum piping length.
- 4 | **DC fan motor.** Checking load and outside temperature, the DC motor is controlled for optimum air flow.
- 5 | **Blade shape.** The fan blades have been developed to inhibit air turbulence and increase efficiency. As the fan diameter has been increased, air flow has also increased whilst maintaining a same sound level.
- 6 | **Heat exchanger and copper tubes.** The heat exchanger size and the copper tube sizes in the heat exchanger have been redesigned to increase efficiency.
- 7 | **Oil separator.** A centrifugal separator has been adopted to improve oil separation efficiency and reduce refrigerant pressure loss.

Bluefin condenser: high durability outdoor unit

The anti-corrosion Bluefin treatment of the heat exchanger provides greater resistance against corrosion. All models are equipped with Bluefin condenser and corrosion-resistance treated for high resistance to rust and salty air to assure long-lasting performance.



Heat exchanger (Bluefin condenser)

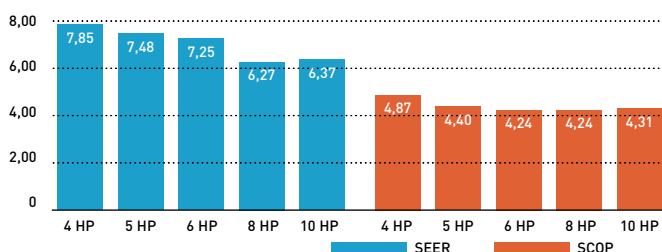
Maximum comfort with quiet operation mode

- Quiet operation mode reduces outdoor unit operating sound by 7 dB(A)
- 4-step set point is available
- Silent mode 1 maintains rated cooling capacity

* Timer setting of quiet operation mode is available in High-spec remote controller.

Silent mode options	Sound pressure level
Silent mode 1	-1,5 dB(A)
Silent mode 2	-3 dB(A)
Silent mode 3	-5 dB(A)
Silent mode 4	-7 dB(A)

SEER / SCOP



Superior seasonal energy efficiency (SEER / SCOP follows LOT21*)

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

* SEER / SCOP is calculated based on the seasonal space cooling / heating efficiency "η" values of the COMMISSION REGULATION (EU) 2016/2281. SEER, SCOP = (η + Correction) × PEF.

Mini ECOi LE2 Series high efficiency 4 to 6 HP · R410A

Panasonic Mini ECOi. Extraordinary energy-saving.

The most compact ECOi system ever.

- Outstanding SEER and SCOP
- Better efficiency even compared to 2 fan outdoor units
- 50 m piping without additional refrigeration charge
- High static pressure 35 Pa
- High COP mode selectable with maintenance remote controller
- Selectable silent mode



HP			4 HP	5 HP	6 HP	4 HP	5 HP	6 HP
Outdoor unit			U-4LE2E5	U-5LE2E5	U-6LE2E5	U-4LE2E8	U-5LE2E8	U-6LE2E8
Power supply	Voltage	V	220-230-240	220-230-240	220-230-240	380-400-415	380-400-415	380-400-415
	Phase		Single phase	Single phase	Single phase	Three phase	Three phase	Three phase
	Frequency	Hz	50	50	50	50	50	50
Cooling capacity		kW	12,1	14,0	15,5	12,1	14,0	15,5
EER ¹⁾		W/W	4,50	4,06	3,73	4,50	4,06	3,73
Current		A	13,30-12,70-12,20	16,30-15,60-17,00	20,30-19,40-18,60	4,39-4,17-4,02	5,58-5,30-5,11	6,71-6,37-6,14
Input power		kW	2,69	3,45	4,15	2,69	3,45	4,15
Heating capacity		kW	12,5	16,0	16,5	12,5	16,0	16,5
COP ¹⁾		W/W	5,19	4,60	4,27	5,19	4,60	4,27
Current		A	12,20-11,60-11,20	17,60-16,80-16,10	19,10-18,20-17,50	3,98-3,78-3,64	5,62-5,34-5,14	6,24-5,93-5,71
Input power		kW	2,41	3,48	3,86	2,41	3,48	3,86
Starting current		A	1,00	1,00	1,00	1,00	1,00	1,00
Maximum current		A	17,30	24,30	27,40	7,90	10,10	10,70
Maximum input power		kW	3,50-3,66-3,82	4,92-5,14-5,37	5,61-5,86-6,12	4,34-5,09-5,28	6,25-6,55-6,82	6,62-6,97-7,23
Maximum number of connectable indoor units ²⁾			7(10)	8(10)	9(12)	7(10)	8(10)	9(12)
External static pressure		Pa	0-35	0-35	0-35	0-35	0-35	0-35
Air flow		m ³ /min	69	72	74	69	72	74
Sound pressure	Cool	dB(A)	52	53	54	52	53	53
	Cool (Silent 1/2/3/4)	dB(A)	50,5/49/47/45	51,5/50/48/46	52,5/51/48/46	50,5/49/49/47	48,5/50/48/46	48,5/50/48/46
Sound power	Heat	dB(A)	54	56	56	54	56	56
	Cool / Heat	dB(A)	69/72	71/75	73/75	69/72	71/75	73/75
Dimension	HxWxD	mm	996x980x370	996x980x370	996x980x370	996x980x370	996x980x370	996x980x370
Net weight		kg	106	106	106	106	106	106
Piping diameter	Liquid	Inch (mm)	3/8(9,52)	3/8(9,52)	3/8(9,52)	3/8(9,52)	3/8(9,52)	3/8(9,52)
	Gas	Inch (mm)	5/8(15,88)	5/8(15,88)	5/8(15,88)	5/8(15,88)	5/8(15,88)	5/8(15,88)
Maximum piping length (total)		m	150(180)	150(180)	150(180)	150(180)	150(180)	150(180)
Elevation difference (in / out)		m	50(OU above)/ 40(OU below)	50(OU above)/ 40(OU below)	50(OU above)/ 40(OU below)	50(OU above)/ 40(OU below)	50(OU above)/ 40(OU below)	50(OU above)/ 40(OU below)
Refrigerant (R410A) / CO ₂ Eq.		kg / T	6,70(14,40)/ 13,9896	6,70(14,40)/ 13,9896	6,70(14,40)/ 13,9896	6,70(14,40)/ 13,9896	6,70(14,40)/ 13,9896	6,70(14,40)/ 13,9896
Maximum allowable indoor / outdoor capacity ratio		%	50-130	50-130	50-130	50-130	50-130	50-130
Operating range	Cool Min - Max	°C	-10 ~ +46	-10 ~ +46	-10 ~ +46	-10 ~ +46	-10 ~ +46	-10 ~ +46
	Heat Min - Max	°C	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +18

ErP data³⁾

SEER ⁴⁾	7,85	7,48	7,25	7,85	7,48	7,25
$\eta_{s,c}$	311,0%	296,2%	286,8%	311,0%	296,2%	286,8%
SCOP ⁴⁾	4,87	4,40	4,24	4,87	4,40	4,24
$\eta_{s,h}$	191,8%	172,9%	166,7%	191,8%	172,9%	166,7%

1) EER and COP calculation is based in accordance to EN14511. 2) In case of 1,5 kW indoor units connection, able to connect maximum 12 indoor units. 3) SEER / SCOP and $\eta_{s,c}$ / $\eta_{s,h}$ are in accordance with ErP test data for F2 type variable static pressure hide-away indoor units. Eurovent certified. 4) SEER / SCOP is calculated based on the seasonal space cooling / heating efficiency " η " values of the COMMISSION REGULATION (EU) 2016/2281. SEER, SCOP = (η + Correction) × PEF.

For light commercial use

Mini ECOi allows easier installation in condominiums and medium sized buildings with limited spaces. Utilising R410A and DC Inverter technology, Panasonic offers VRF to a new and growing market.

Reduced height of 996 mm

In addition to raising efficiency, the outdoor unit has been designed to be as compact as possible. It can now be installed in places that were previously too small.



INTERNET CONTROL: Optional.

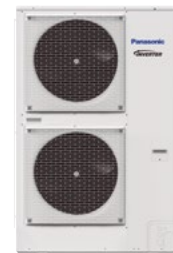
Mini ECOi LE1 Series high efficiency 8 and 10 HP · R410A

Prepare to be blown away by Panasonic's Mini VRF system.

The Mini VRF compact system is the ideal solution for minimum outdoor space.

Panasonic extends the Mini VRF range by 8 and 10 HP units.

- Piping flexibility with 150 m maximum length
- High efficiency
- Connection of up to 15 indoor units
- Quiet operation mode (one of the lowest in the market)
- High ambient temp performance
- High static pressure 35 Pa



HP			8 HP	10 HP
Outdoor unit			U-8LE1E8	U-10LE1E8
Power supply	Voltage	V	380-400-415	380-400-415
	Phase		Three phase	Three phase
	Frequency	Hz	50	50
Cooling capacity		kW	22,4	28,0
EER ¹⁾		W/W	3,80	3,11
Current		A	9,60 - 9,15 - 8,80	14,70 - 14,00 - 13,50
Input power		kW	5,89	9,00
Heating capacity		kW	25,0	28,0
COP ¹⁾		W/W	4,02	3,93
Current		A	10,20 - 9,65 - 9,30	11,60 - 11,10 - 10,70
Input power		kW	6,22	7,13
Starting current		A	1,00	1,00
Maximum current		A	13,70	19,60
Maximum input power		kW	9,16	13,10
Maximum number of connectable indoor units ²⁾			15	15
External static pressure		Pa	0 - 35	0 - 35
Air flow		m ³ /min	150	160
Sound pressure	Cool	dB(A)	60	63
	Cool (Silent 1/2/3)	dB(A)	57/55/53	60/58/56
	Heat	dB(A)	64	65
Sound power	Cool / Heat	dB(A)	81/85	84/86
Dimension	H x W x D	mm	1500 x 980 x 370	1500 x 980 x 370
Net weight		kg	132	133
Piping diameter	Liquid	Inch (mm)	3/8(9,52) ³⁾ /1/2(12,70) ⁴⁾	3/8(9,52) ³⁾ /1/2(12,70) ⁴⁾
	Gas	Inch (mm)	3/4(19,05) ³⁾ /7/8(22,22) ⁴⁾	7/8(22,22) ³⁾ /1(25,40) ⁴⁾
Maximum piping length (total)		m	7,5 - 150(7,5 - 300)	7,5 - 150(7,5 - 300)
Elevation difference (in / out)		m	50(OU above)/40(OU below)	50(OU above)/40(OU below)
Refrigerant (R410A) / CO ₂ Eq.		kg / T	6,30(24,00)/13,1544	6,60(24,00)/13,7808
Maximum allowable indoor / outdoor capacity ratio		%	50 - 130	50 - 130
Operating range	Cool Min ~ Max	°C	-10 ~ +46	-10 ~ +46
	Heat Min ~ Max	°C	-20 ~ +18	-20 ~ +18

ErP data ⁵⁾		
SEER ⁶⁾		6,27
η _{s,c}		247,9%
SCOP ⁶⁾		4,24
η _{s,h}		166,4%

1) EER and COP calculation is based in accordance to EN14511. 2) If the heating utilized, it is necessary to increase 1 size with respect to the main liquid pipe, depending on the combination of the indoor unit. 3) Under 90 m for ultimate indoor unit. 4) Over 90 m for ultimate indoor unit. If the longest piping equivalent length exceeds 90 m, increase the sizes of the main tubes by 1 rank for gas and liquid pipes. 5) SEER / SCOP and η_{s,c} / η_{s,h} are in accordance with ErP test data for F2 type variable static pressure hide-away indoor units. Eurovent certified. 6) SEER / SCOP is calculated based on the seasonal space cooling / heating efficiency "η" values of the COMMISSION REGULATION (EU) 2016/2281. SEER, SCOP = (η + Correction) × PEF.

Increase external static pressure

When unit is installed on a narrow balcony, any barrier in front will be an obstacle. High external static pressure will overcome this obstacle and maintain operating capacity.

High ambient temperature performance

Cooling operation range up to 46 °C. The system can maintain the rated (100%) capacity up to 40 °C by 8 HP model and up to 37 °C by 10 HP model.



INTERNET CONTROL: Optional.

