MINI ECOi LE SERIES FOR LIGHT COMMERCIAL & RESIDENTIAL USE

NEW COMPACT DESIGN

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

Advantages of Mini ECOi LE Series used for medium sized buildings.

1 **Efficiency energy control**

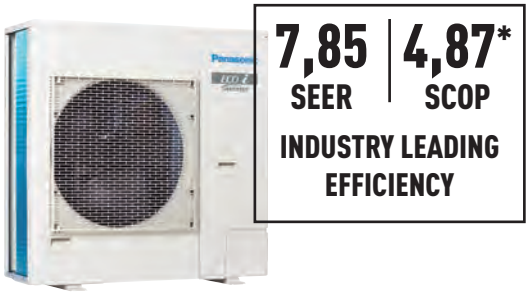
Upgraded outdoor units deliver high efficiency rating and reduced energy costs.

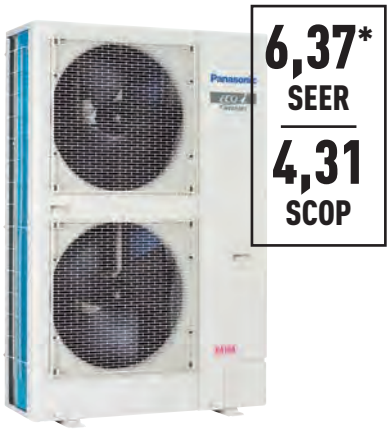
2 **Space saving**

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 35Pa and small chassis increase installation options.





New compact design: LE2 Series - 4 / 5 / 6HP

- Extraordinary energy saving: 7,85 SEER and 4,87 SCOP (4HP)*
- 50 m piping length without additional refrigerant charge
- Quiet operation mode with 4 levels
- High COP mode option

LE1 Series - 8 / 10HP

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

* 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.

Key features for LE2 / LE1.

High external static pressure 35Pa
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

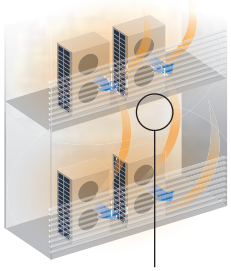
INSTALLATION FLEXIBLE, EASY AND HASSLE-FREE

High external static pressure 35Pa

- High air pressure
- New blade shape
- Good for high class condominiums

When unit is installed on a narrow balcony and exposed to the sun, the barrier at the front side would restrict hot air from being discharged. Heat accumulated in an enclosure can cause over-heating. This could potentially result in damage or shorten the product's life span. A high external static pressure 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 35Pa discharges the hot air a sufficient distance.

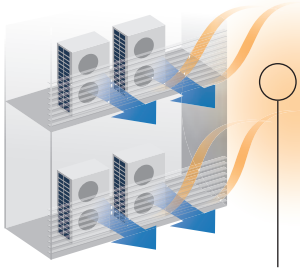
Previous Model - Low Pressure



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

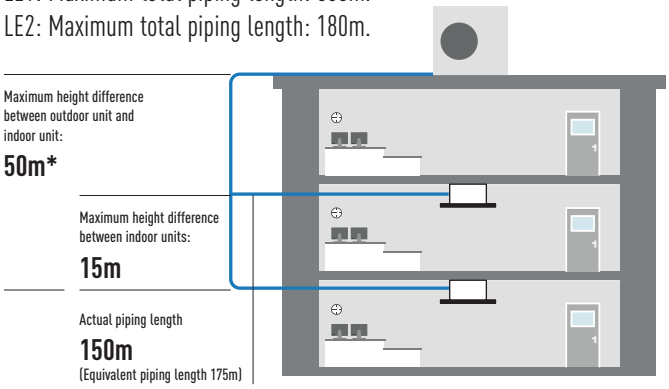


Heat Discharged.
But with a high pressure of 35Pa, hot air is sent further away preventing overheating inside the outdoor unit enclosure.

New LE2's fan

Long piping design length for greater design flexibility

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

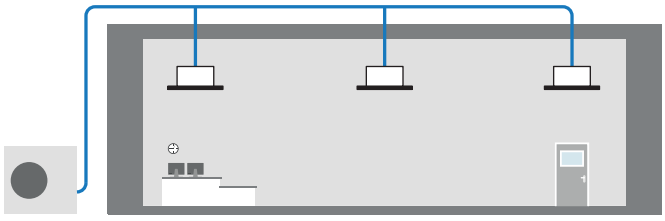


* 40m if the outdoor unit is below the indoor unit.

Plug & Play concept

FREE OF CHARGE 50m

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



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

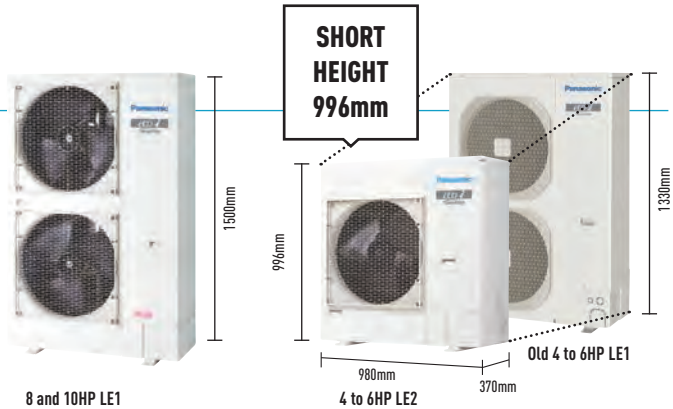
Up to 15 indoor units connectable

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 short height of 996mm.
New LE2 Series is 25% smaller in height than conventional model.



Mini ECOi LE2 Series
High Efficiency 4 to 6HP

Panasonic Mini ECOi. Extraordinary energy-saving. The most compact ECOi system ever.

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.

Short height of 996m

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.

Technical focus

- Outstanding SEER and SCOP
- Better efficiency even compared to 2 fan outdoor units
- 50m piping length free of refrigeration charge
- 35Pa high static pressure
- High COP mode selectable with maintenance remote controller
- Selectable silent mode

HP			**4HP**	**5HP**	**6HP**	**4HP**	**5HP**	**6HP**
Outdoor units			**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	12,10	14,00	15,50	12,10	14,00	15,50
EER [1]		W/W	4,50	4,06	3,73	4,50	4,06	3,73
SEER [2]			**7,85**	**7,48**	**7,25**	**7,85**	**7,48**	**7,25**
Running current cooling		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 cooling		kW	2,69	3,45	4,15	2,69	3,45	4,15
Heating capacity		kW	12,50	16,00	16,5	12,50	16,00	16,50
COP [1]		W/W	5,19	4,60	4,27	5,19	4,60	4,27
SCOP [2]			**4,87**	**4,40**	**4,24**	**4,87**	**4,40**	**4,24**
Running current heating		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 heating		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			7(10)[3]	8(10)[3]	9(12)[3]	7(10)[3]	8(10)[3]	9(12)[3]
External static pressure		Pa	0~35	0~35	0~35	0~35	0~35	0~35
Air volume		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
	Heat	dB(A)	54	56	56	54	56	56
Sound power	Cool / Heat	dB	69/72	71/75	73/75	69/72	71/75	73/75
Dimension	H x W x D	mm	996x980x370	996x980x370	996x980x370	996x980x370	996x980x370	996x980x370
Net weight		kg	106	106	106	106	106	106
Piping connections	Liquid pipe	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 pipe	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(Outdoor unit upper)/ 40(Outdoor unit lower)	50(Outdoor unit upper)/ 40(Outdoor unit lower)	50(Outdoor unit upper)/ 40(Outdoor unit lower)	50(Outdoor unit upper)/ 40(Outdoor unit lower)	50(Outdoor unit upper)/ 40(Outdoor unit lower)	50(Outdoor unit upper)/ 40(Outdoor unit lower)
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

1) EER and COP calculation is based in accordance to EN14511. 2) 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. 3) In case of 1,50kW indoor unit's connection, able to connect maximum 12 indoor units.

INVERTER+ | R2 ROTARY COMPRESSOR | BLUEFIN | -10°C COOLING MODE | -20°C HEATING MODE | AUTOMATIC RESTART | R22 → R410A R22 RENEWAL | PANASONIC AC SMART CLOUD | OPTIONAL WLAN | 5 YEARS COMPRESSOR WARRANTY

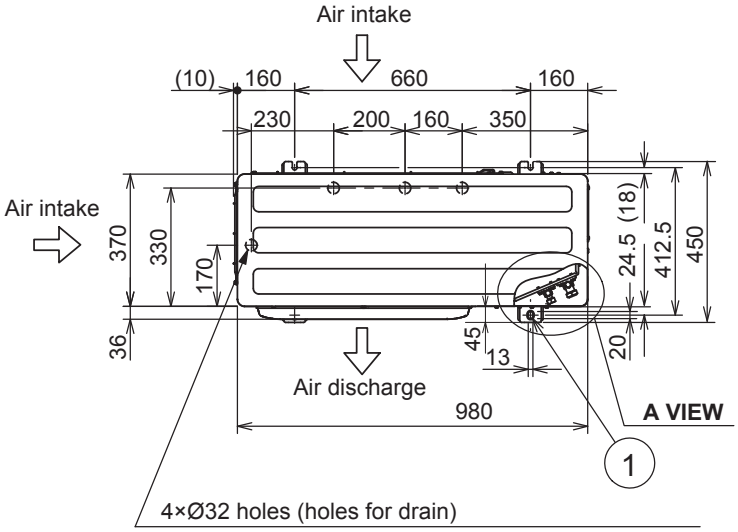
INTERNET CONTROL: Optional.

1. Outdoor Unit

1-2. Dimensional Data

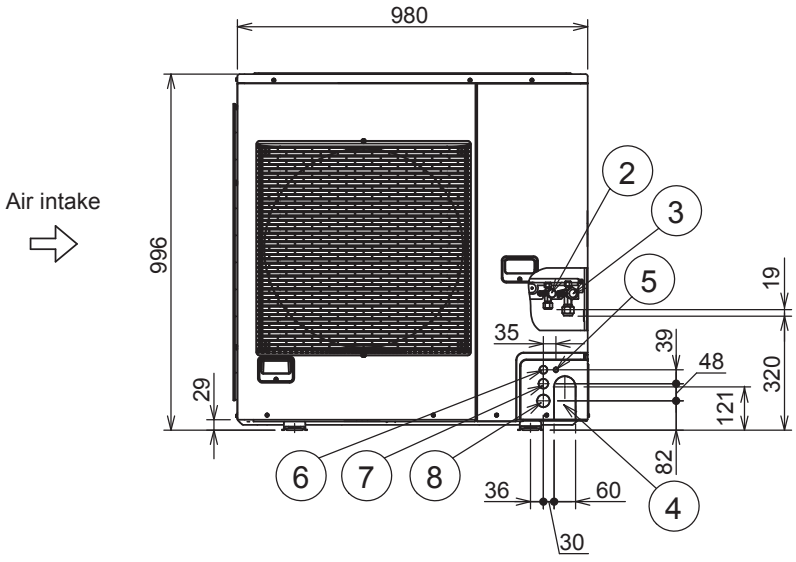
U-4LE2E5, U-5LE2E5, U-6LE2E5

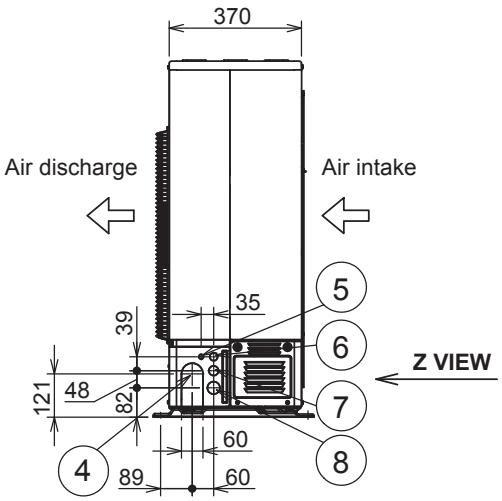
Unit: mm

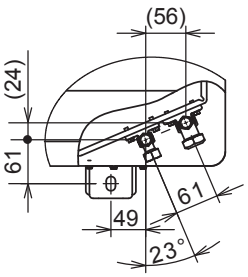


①	Mounting hole (4-R6.5), anchor bolt : M10
②	Refrigerant tubing (liquid tube), flared connection (Ø9.52)
③	Refrigerant tubing (gas tube), flared connection (Ø15.88)
④	Refrigerant tubing port
⑤	Electrical wiring port (Ø13)
⑥	Electrical wiring port (Ø22)
⑦	Electrical wiring port (Ø27)
⑧	Electrical wiring port (Ø35)

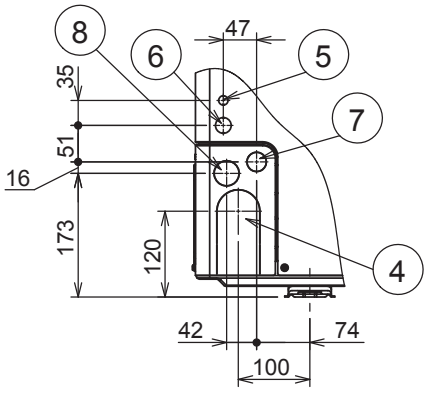
When using a drain pipe, install the drain socket (field supply) on to the drain port.Seal the other drain port with the rubber cap.







A VIEW



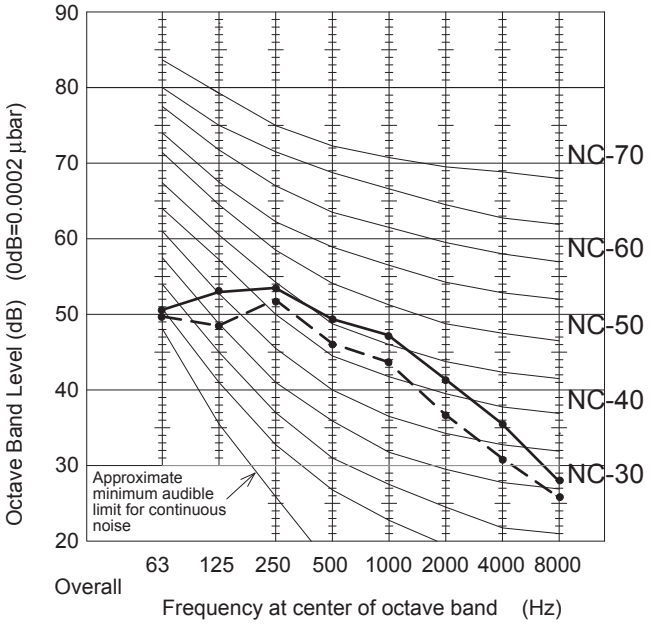
Z VIEW

1. Outdoor Unit

1-5. Noise Criterion Curves

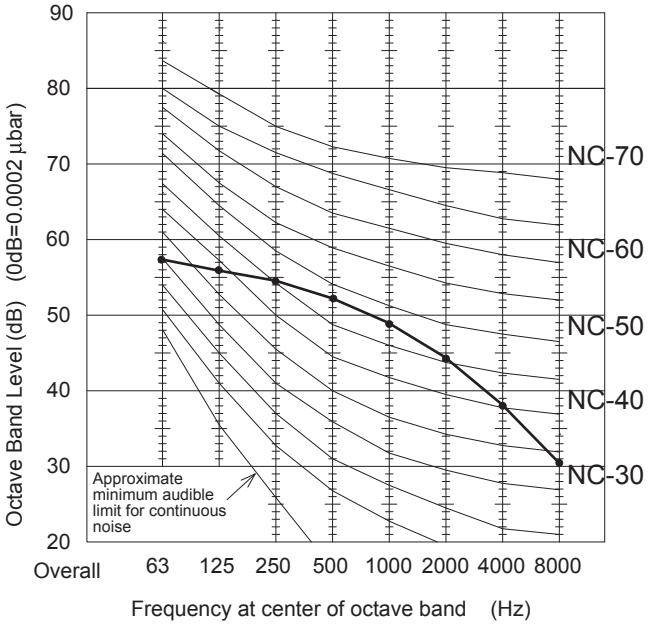
Cooling

MODEL	U-4LE2E5
SOUND LEVEL dB(A)	52.0 (Quiet mode 49.0)
CONDITION	1 m in front at height of 1.5 m



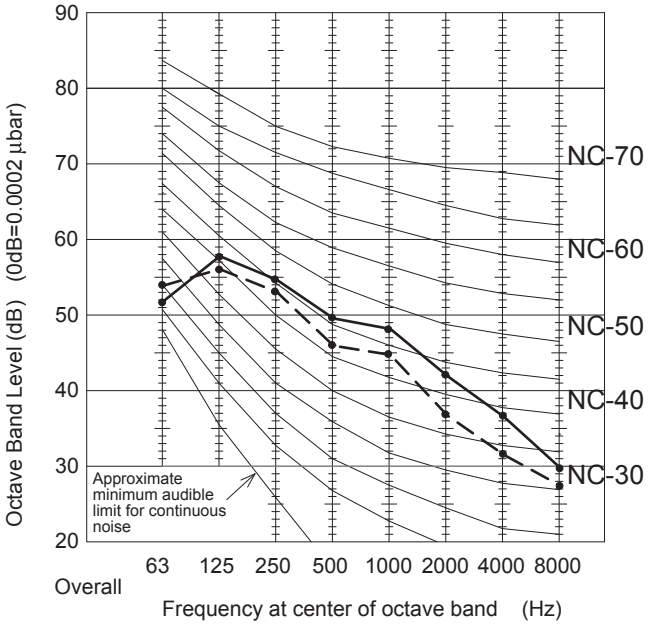
Heating

MODEL	U-4LE2E5
SOUND LEVEL dB(A)	54.0
CONDITION	1 m in front at height of 1.5 m



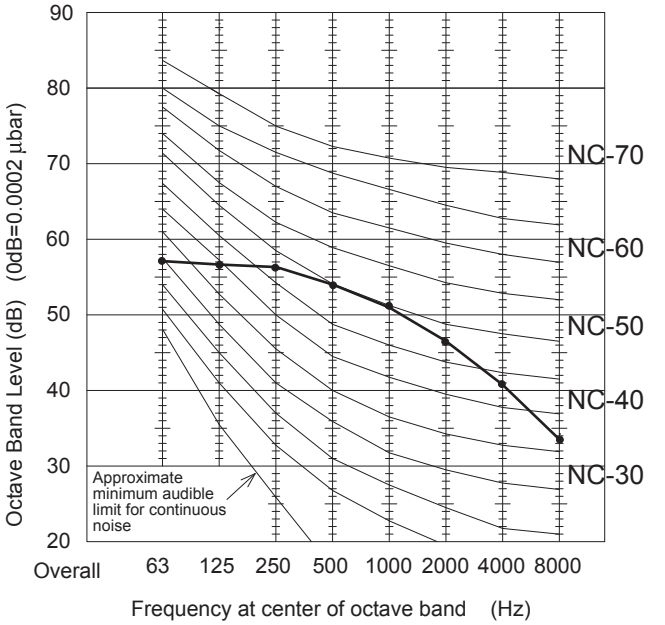
Cooling

MODEL	U-5LE2E5
SOUND LEVEL dB(A)	53.0 (Quiet mode 50.0)
CONDITION	1 m in front at height of 1.5 m



Heating

MODEL	U-5LE2E5
SOUND LEVEL dB(A)	56.0
CONDITION	1 m in front at height of 1.5 m



4

Mini ECOi LE1 Series
High Efficiency 8 and 10HP

Prepare to be blown away by Panasonic's New 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 10HP units.

Increase external static pressure

When unit is installed on a narrow balcony, the fence at front side will be the obstacle. High external static pressure will overcome this obstacle and maintain operation 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 8HP model & up to 37°C by 10HP model.

Technical focus

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

HP			**8HP**	**10HP**
Outdoor units			**U-8LE1E8**	**U-100LE1E8**
Power supply	Voltage	V	380/400/415	380/400/415
	Phase		Three Phase	Three Phase
	Frequency	Hz	50	50
Cooling capacity		kW	22,40	28,00
EER [1]		W/W	3,80	3,11
SEER [2]			**6,27**	**6,37**
Running current cooling		A	9,60/9,15/8,80	14,70/14,00/13,50
Input power cooling		kW	5,89	9,00
Heating capacity		kW	25,00	28,00
COP [1]		W/W	4,02	3,93
SCOP [2]			**4,24**	**4,31**
Running current heating		A	10,20/9,65/9,30	11,60/11,10/10,70
Input power heating		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			15 [4]	15 [4]
External static pressure		Pa	0~35	0~35
Air volume		m³/min	150	160
Sound pressure	Cool	dB(A)	60	63
	Cool (Silent 1/2/3/4)	dB(A)	57/55/53	60/58/56
	Heat	dB(A)	64	65
Sound power	Cool / Heat	dB	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 connections	Liquid pipe	Inch (mm)	3/8 (9,52) [5] / 1/2 (12,70) [6]	3/8 (9,52) [5] / 1/2 (12,70) [6]
	Gas pipe	Inch (mm)	3/4 (19,05) [5] / 7/8 (22,22) [6]	7/8 (22,22) [5] / 1 (25,40) [6]
Maximum piping length (total)		m	7,5~150 (7,5~300)	7,5~150 (7,5~300)
Elevation difference (in/out)		m	50 (Outdoor unit upper) / 40 (Outdoor unit lower)	50 (Outdoor unit upper) / 40 (Outdoor unit lower)
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

1) EER and COP calculation is based in accordance to EN14511. 2) 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. 3) In case of 1,50kW indoor unit's connection, able to connect maximum 12 indoor units. 4) 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. 5) Under 90m for ultimate indoor unit. 6) Over 90m for ultimate indoor unit. If the longest piping equivalent length exceeds 90m, increase the sizes of the main tubes by 1 rank for gas and liquid pipes.

INTERNET CONTROL: Optional.

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.

1. Outdoor Unit

1-1. Specifications

Unit specifications

Outdoor Unit		MODEL		U-8LE1E8			U-10LE1E8		
Performance test condition				EN14511			EN14511		
Power supply		ø,Hz		3ø, 380/400/415V,50Hz			3ø, 380/400/415V,50Hz		
		V		380	400	415	380	400	415
COOLING	Capacity	kW		22.4	22.4	22.4	28.0	28.0	28.0
		BTU/h		76500	76500	76500	95600	95600	95600
	Current	A		9.60	9.15	8.80	14.7	14.0	13.5
	Input power	W		5.89k	5.89k	5.89k	9.00k	9.00k	9.00k
	EER	(W/W)		3.80	3.80	3.80	3.11	3.11	3.11
	Power factor	%		93	93	93	93	93	93
	Noise outdoor	dB-A (Normal)		60.0			63.0		
		Power Level dB (Normal)		81.0			84.0		
		dB-A (Silent 1)		57.0			60.0		
		dB-A (Silent 2)		55.0			58.0		
		dB-A (Silent 3)		53.0			56.0		
HEATING	Capacity	kW		25.0	25.0	25.0	28.0	28.0	28.0
		BTU/h		85300	85300	85300	95600	95600	95600
	Current	A		10.2	9.65	9.30	11.6	11.1	10.7
	Input power	W		6.22k	6.22k	6.22k	7.13k	7.13k	7.13k
	COP	(W / W)		4.02	4.02	4.02	3.93	3.93	3.93
	Power factor	%		93	93	93	93	93	93
Max Current (A) / Max Input power (W)				13.7 / 9.16k	13.7 / 9.16k	13.7 / 9.16k	19.6 / 13.1k	19.6 / 13.1k	19.6 / 13.1k
Starting current (A)				1	1	1	1	1	1
Time Delay fuse max size (A)				25			30		
Fan motor output		W / Pole number		120 / 8			120 / 8		
External static pressure		Pa		0 ~ 35			0 ~ 35		
Air flow		m^3/ min		150			160		
Refrigerant type / amount g				R410A / 6.3k			R410A / 6.6k		
Product dimension		Height	mm	1500			1500		
		Width	mm	980			980		
		Depth	mm	370			370		
Packing dimension		Height	mm	1642			1642		
		Width	mm	1095			1095		
		Depth	mm	529			529		
Weight		(NET) kg		132			133		
		(GROSS) kg		144			145		
Layers limit				2			2		
Operation condition (Outdoor)		Cool (DBT)		-10°C ~ 46°C			-10°C ~ 46°C		
		Heat (WBT)		-20°C ~ 18°C			-20°C ~ 18°C		
MAX. WORKING PRESSURE		High side bar (MPa)		38.0 (3.80)			38.0 (3.80)		
		Low side bar (MPa)		27.0 (2.70)			27.0 (2.70)		
PIPING	Pipe diameter mm (inch) (Under 90m for ultimate Indoor unit.)			(Liquid) 9.52(3/8) (Gas) 19.05(3/4)			(Liquid) 9.52(3/8) (Gas) 22.22(7/8)		
	Pipe diameter mm (inch) *1 (Over 90m for ultimate Indoor unit.)			(Liquid) 12.7(1/2) (Gas) 22.22(7/8)			(Liquid) 12.7(1/2) (Gas) 25.4(1)		
	Connecting method			flared(Liquid) , flared(Gas)			flared(Liquid) , brazing(Gas)		
	Max tubing length m			7.5	~	150	7.5	~	150
	Total Max tubing length m			7.5	~	300	7.5	~	300
	Indoor unit & Outdoor unit height difference (Outdoor unit upper / Outdoor unit Lower) m			50 / 40			50 / 40		
Max connectable indoor units pcs.				15 *2			15 *2		
Max allowable indoor/outdoor capacity ratio %				50 ~ 130			50 ~ 130		

*1: If the longest tubing equivalent length exceeds 90m, increase the sizes of the main tubes by 1 rank for gas tubes and liquid tubes.

*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.

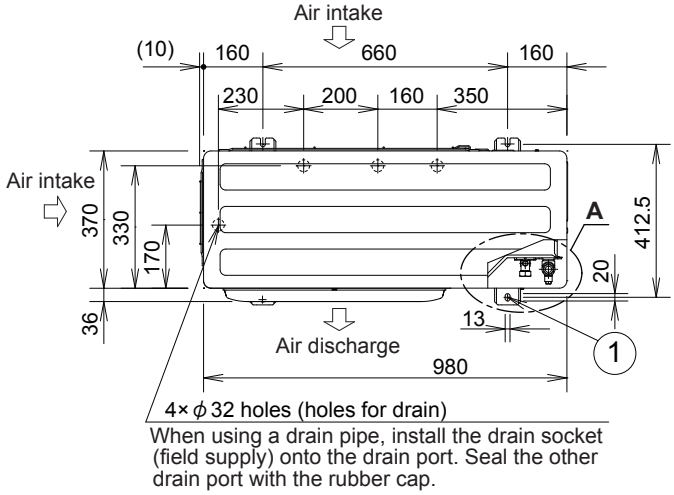
Max total refrigerant amount of 1 outdoor unit is 24kg.

1. Outdoor Unit

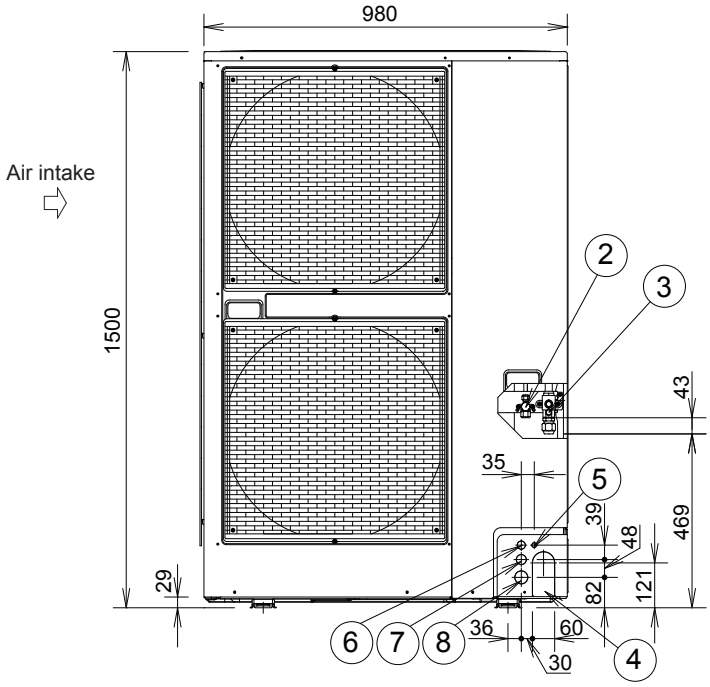
1-2. Dimensional Data

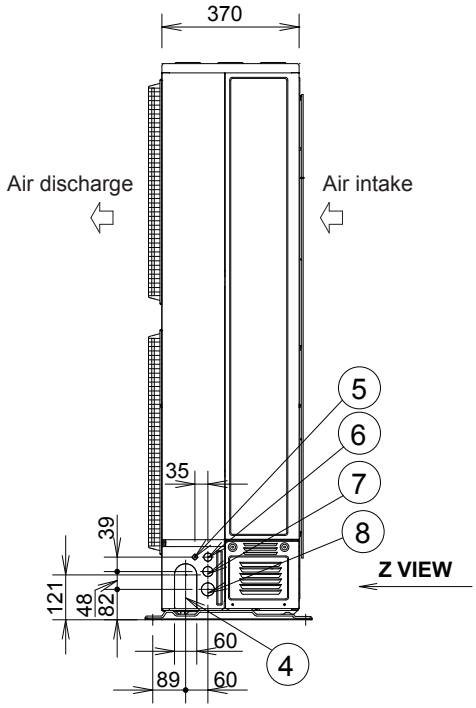
U-8LE1E8

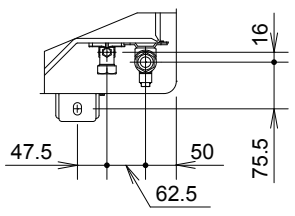
Unit: mm



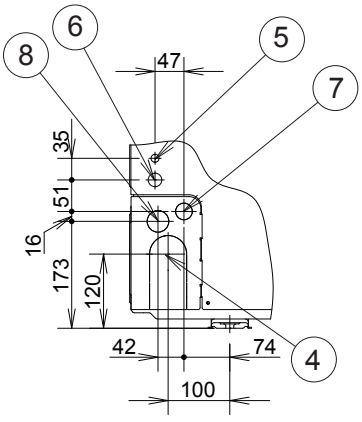
①	Mounting hole (4-R6.5), anchor bolt : M10
②	Refrigerant tubing (liquid tube), flared connection (ø9.52)
③	Refrigerant tubing (gas tube), flared connection (ø19.05)
④	Refrigerant tubing port
⑤	Electrical wiring port (ø13)
⑥	Electrical wiring port (ø22)
⑦	Electrical wiring port (ø27)
⑧	Electrical wiring port (ø35)







A VIEW



Z VIEW

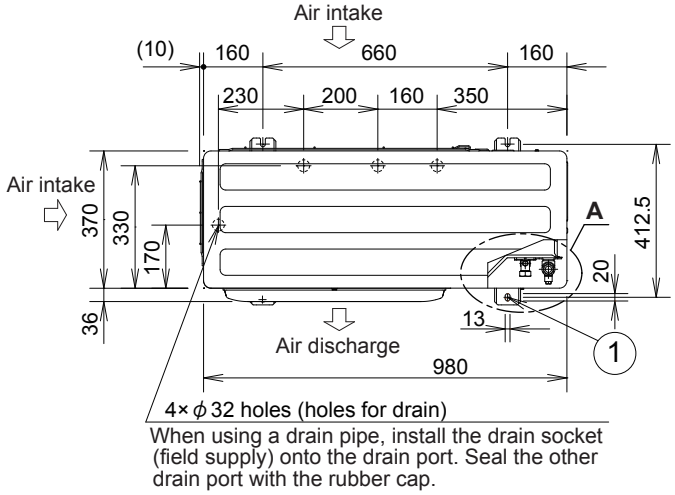
4

1. Outdoor Unit

1-2. Dimensional Data

U-10LE1E8

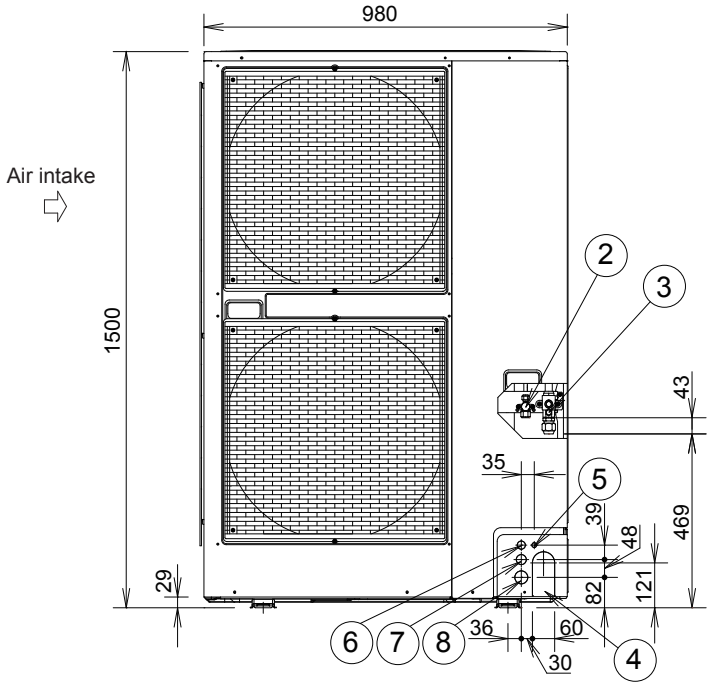
Unit: mm

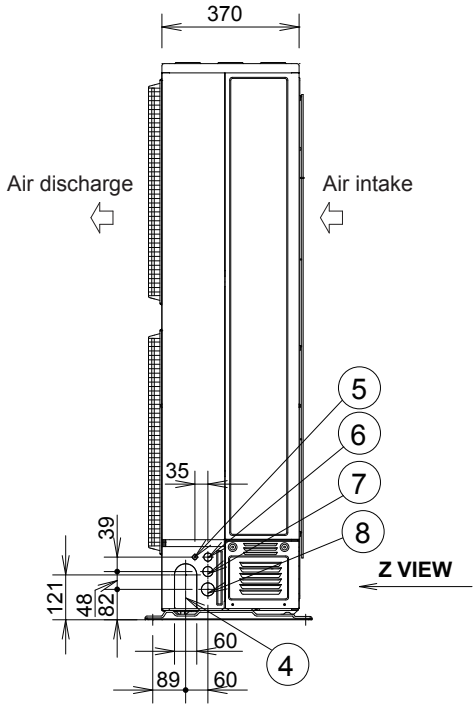


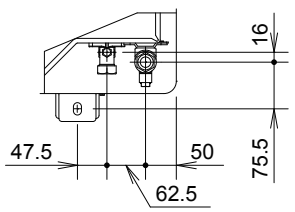
When using a drain pipe, install the drain socket (field supply) onto the drain port. Seal the other drain port with the rubber cap.

①	Mounting hole (4-R6.5), anchor bolt : M10
②	Refrigerant tubing (liquid tube), flared connection (ø9.52)
③	Refrigerant tubing (gas tube), flared connection (ø19.05)
④	Refrigerant tubing port
⑤	Electrical wiring port (ø13)
⑥	Electrical wiring port (ø22)
⑦	Electrical wiring port (ø27)
⑧	Electrical wiring port (ø35)

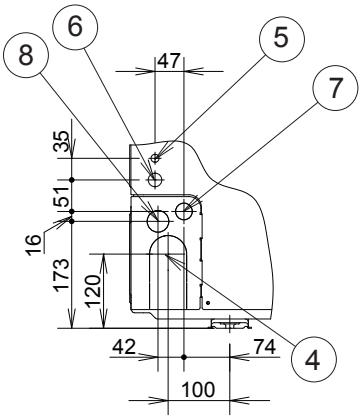
The tubing of the gas main has a diameter of ø22.22, but the connection to the service valve of the outdoor unit has a diameter of ø19.05, so a flare has to be used. Consequently, be sure to use the enclosed joint tube B and joint tube A in making connections (braze).







A VIEW



Z VIEW

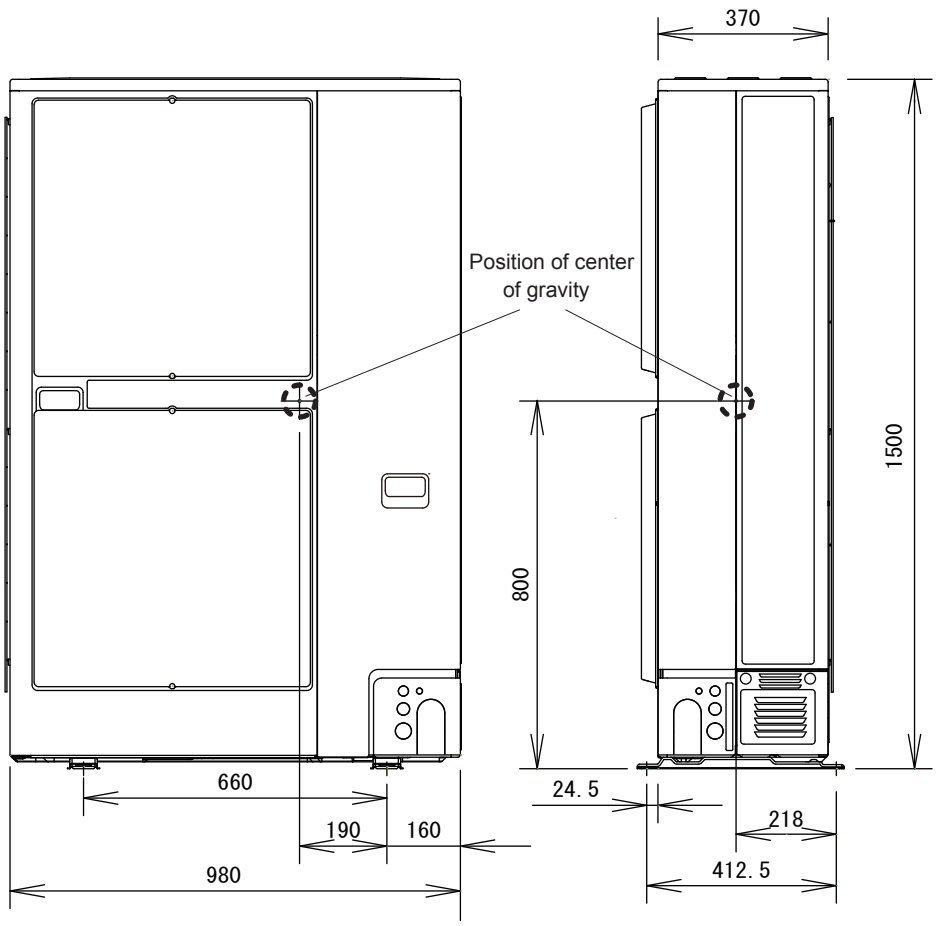
1. Outdoor Unit

1-3. Position of Center of Gravity
U-8LE1E8, U-10LE1E8

Unit: mm

Weight

Model	Weight (kg)
U-8LE1E8	132
U-10LE1E8	133

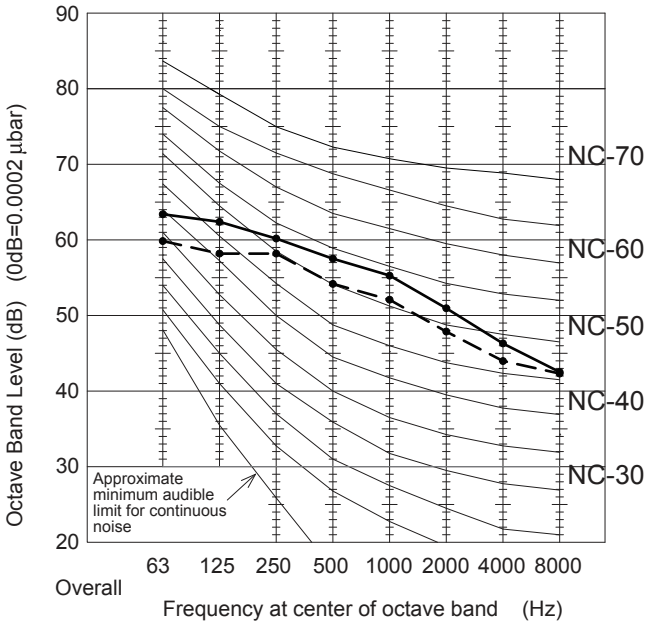


Front view **Side view**

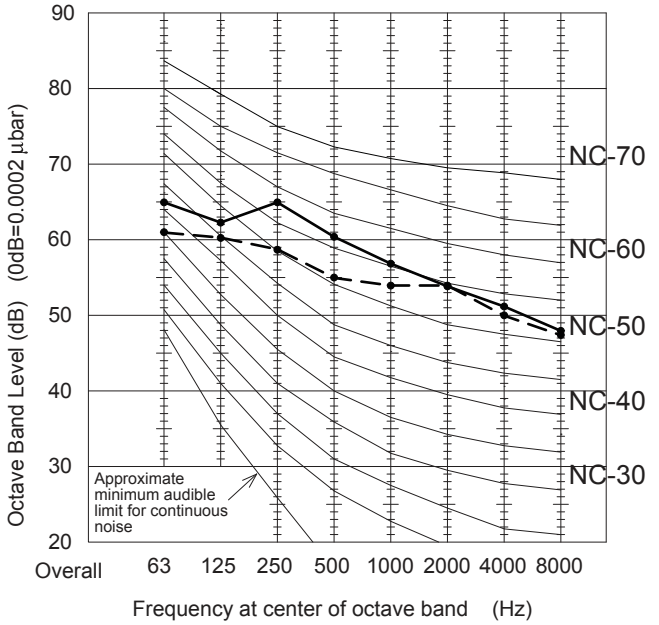
1. Outdoor Unit

1-5. Noise Criterion Curves

MODEL	U-8LE1E8
SOUND LEVEL dB(A) (Cooling/Heating)	60.0 (Quiet mode 57.0)
CONDITION	1 m in front at height of 1.5 m



MODEL	U-10LE1E8
SOUND LEVEL dB(A) (Cooling/Heating)	63.0 (Quiet mode 60.0)
CONDITION	1 m in front at height of 1.5 m



4