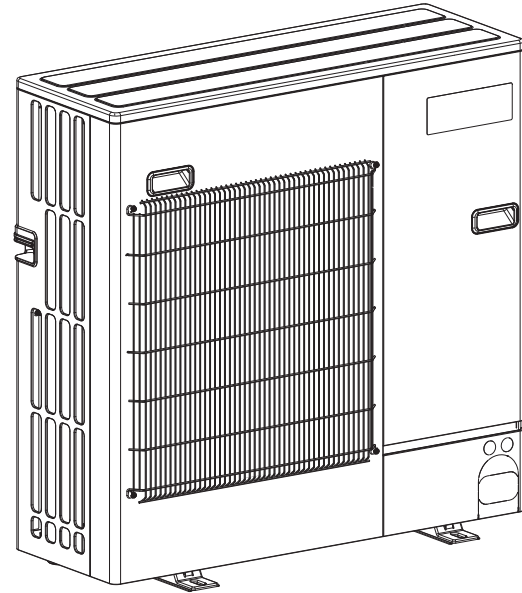


Technical & Service Manual R454B

[Model Name]	[Service Ref.]
PUZ-AK12NL	PUZ-AK12NL-U1
PUZ-AK18NL	PUZ-AK18NL-U1
PUZ-AH24NL	PUZ-AH24NL-U1
PUZ-AH30NL	PUZ-AH30NL-U1
PUY-AK12NL	PUY-AK12NL-U1
PUY-AK18NL	PUY-AK18NL-U1
PUY-AH24NL	PUY-AH24NL-U1
PUY-AH30NL	PUY-AH30NL-U1



PUZ-AH24/30NL-U1
PUY-AH24/30NL-U1

Contents

Service manual

1. REFERENCE MANUAL	2
2. SAFETY PRECAUTION	2
3. FEATURES	11
4. SPECIFICATIONS	12
5. DATA	13
6. OUTLINES AND DIMENSIONS	16
7. WIRING DIAGRAM	18
8. WIRING SPECIFICATIONS	20
9. REFRIGERANT SYSTEM DIAGRAM	23
10. TROUBLESHOOTING	25
11. EASY MAINTENANCE FUNCTION	77
12. FUNCTION SETTING	78
13. MONITORING THE OPERATION DATA BY THE REMOTE CONTROLLER	79
14. DISASSEMBLY PROCEDURE	87
15. REMOTE CONTROLLER	98

Technical data

T1. SPECIFICATIONS CONNECTED TO INDOOR UNIT	121
T2. PERFORMANCE CHART	135
T3. PERFORMANCE CURVES	148
T4. CORRECTION FACTORS	151
T5. PART LOAD CAPACITY CHART	153
T6. POSITION OF THE CENTER OF GRAVITY	195
T7. OPTIONAL PARTS	196
T8. SYSTEM CONTROL	353

1

REFERENCE MANUAL





INDOOR UNIT

Model name	Service Ref.	Service manual No. Parts catalog No.
PLA-AE12/18/24/30/36/42/48NL	PLA-AE12/18/24/30/36/42/48NL-U1	OCH856, OCB856
PCA-AK24/30/36/42NL	PCA-AK24/30/36/42NL-U1	OCH860, OCB860
PKA-AK24/30/36NL	PKA-AK24/30/36NL-U1	OCH859, OCB859
PKA-AL12/18NL	PKA-AL12/18NL-U1	OCH858, OCB858
PEAD-AA12/18/24/30/36/42NL	PEAD-AA12/18/24/30/36/42NL-U1	HWE24030, BWE024030
PAA-AA/BA/CA18/24/30/36/42NL	PAA-AA/BA/CA18/24/30/36/42NL-U1	MD-2025-K010
PVA-AA12/18/24/30/36/42/48/60NL	PVA-AA12/18/24/30/36/42/48/60NL-U1	

2

SAFETY PRECAUTION

Meaning of symbols displayed on the unit

	WARNING (Risk of fire)	This unit uses a flammable refrigerant. If the refrigerant leaks and comes in contact with fire or a heating part, it will create a harmful gas and there is a risk of fire.
	Read the operating instructions carefully before operation.	
	Service personnel are required to carefully read the operating instructions and installation manual before operation.	
	Further information is available in the operating instructions, installation manual, and the like.	

2-1. ALWAYS OBSERVE FOR SAFETY

Before obtaining access to terminal, all supply circuits must be disconnected.

Preparation before the repair service.

- Prepare the proper tools.
- Prepare the proper protectors.
- Provide adequate ventilation.
- After stopping the operation of the air conditioner, turn off the power-supply breaker.
- Discharge the condenser before the work involving the electric parts.

Precautions during the repair service.

- Do not perform the work involving the electric parts with wet hands.
- Do not pour water into the electric parts.
- Do not touch the refrigerant.
- Do not touch the hot or cold areas in the refrigerating cycle.
- When the repair or the inspection of the circuit needs to be done without turning off the power, exercise great caution not to touch the live parts.
- When opening or closing the valve below freezing temperatures, refrigerant may spurt out from the gap between the valve stem and the valve body, resulting in injuries.
- This model is equipped with a fusible plug. The fusible plug operates when the temperature rises above 158°F [70°C], and there is a risk of accidents or disasters such as the ejection of molten metal or refrigerant leakage.
When removing the refrigerant pipe, be careful not to expose the fusible plug to the braze torch flame or transfer heat to it.

2-2. CAUTIONS RELATED TO NEW REFRIGERANT

Caution for units utilizing refrigerant R454B

Use new refrigerant pipes.

In the case of using the existing pipes for R22, R410A, be careful with the following:

- Be sure to clean the pipes and make sure that the insides of the pipes are clean.
- Change flare nut to the one provided with this product. Use a newly flared pipe.
- Avoid using thin pipes.

Make sure that the inside and outside of refrigerant piping is clean and it has no contaminants such as sulfur, oxides, dirt, shaving particles, etc. which are hazard to refrigerant cycle. In addition, use pipes with specified thickness.

Contamination inside refrigerant piping can cause deterioration of refrigerant oil, etc.

Store the piping to be used indoors during installation and both ends of the piping sealed until just before brazing. (Leave elbow joints, etc. in their packaging.)

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

The refrigerant oil applied to flare and flange connections must be ester oil, ether oil or alkylbenzene oil in a small amount.

If large amount of mineral oil enters, that can cause deterioration of refrigerant oil, etc.

Charge refrigerant from liquid phase of gas cylinder.

If the refrigerant is charged from gas phase, composition change may occur in refrigerant and the efficiency will be lowered.

Do not use refrigerant other than R454B.

If other refrigerant (R22, R410A, etc.) is used, chlorine in refrigerant can cause deterioration of refrigerant oil, etc.

Use a vacuum pump with a reverse flow check valve.

Vacuum pump oil may flow back into refrigerant cycle and that can cause deterioration of refrigerant oil, etc.

Use the following tools specifically designed for use with R454B refrigerant.

The following tools are necessary to use R454B refrigerant.

Tools for R454B	
Gauge manifold	Flaring tool
Charge hose	Size adjustment gauge
Gas leak detector	Vacuum pump adaptor
Torque wrench	Electronic refrigerant charging scale

Handle tools with care.

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

Do not use a charging cylinder.

If a charging cylinder is used, the composition of refrigerant will change and the efficiency will be lowered.

Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.

Use the specified refrigerant only.

Never use any refrigerant other than that specified.

Doing so may cause a burst, an explosion, or fire when the unit is being used, serviced, or disposed of.

Correct refrigerant is specified in the manuals and on the spec labels provided with our products.

We will not be held responsible for mechanical failure, system malfunction, unit breakdown or accidents caused by failure to follow the instructions.

[1] Warning for service

- (1) Do not alter the unit.
- (2) For installation and relocation work, follow the instructions in the Installation Manual and use tools and pipe components specifically made for use with refrigerant specified in the outdoor unit installation manual.
- (3) Ask a dealer or an authorized technician to install, relocate and repair the unit.
- (4) Refrigerant pipes connection shall be accessible for maintenance purposes.
- (5) If the air conditioner is installed in a small room or closed room, measures must be taken to prevent the refrigerant concentration in the room from exceeding the safety limit in the event of refrigerant leakage. Should the refrigerant leak and cause the concentration limit to be exceeded, hazards due to lack of oxygen in the room may result.
- (6) Keep gas-burning appliances, electric heaters, and other fire sources (ignition sources) away from the location where installation, repair, and other air conditioner work will be performed.
If refrigerant comes into contact with a flame, poisonous gases will be released.
- (7) When installing or relocating, or servicing the air conditioner, use only the specified refrigerant (R454B) to charge the refrigerant lines.
Do not mix it with any other refrigerant and do not allow air to remain in the lines.
If air is mixed with the refrigerant, then it can be the cause of abnormal high pressure in the refrigerant line, and may result in an explosion and other hazards.
- (8) After installation has been completed, check for refrigerant leaks. If refrigerant leaks into the room and comes into contact with the flame of a heater or portable cooking range, poisonous gases will be released.
- (9) Do not use low temperature solder alloy in the case of brazing the refrigerant pipes.
- (10) When performing brazing work, be sure to ventilate the room sufficiently. Make sure that there are no hazardous or flammable materials nearby.
When performing the work in a closed room, small room, or similar location, make sure that there are no refrigerant leaks before performing the work.
If refrigerant leaks and accumulates, it may ignite or poisonous gases may be released.
- (11) Do not install the unit in places where refrigerant may build-up or places with poor ventilation such as a semibasement or a sunken place in outdoor: Refrigerant is heavier than air, and inclined to fall away from the leak source.
- (12) Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- (13) The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
- (14) Do not pierce or burn.
- (15) Be aware that refrigerants may not contain an odor.
- (16) Pipe-work shall be protected from physical damage.
- (17) The installation of pipe-work shall be kept to a minimum.
- (18) Compliance with national gas regulations shall be observed.
- (19) All field joints shall be accessible for inspection prior to being covered or enclosed.
- (20) Keep any required ventilation openings clear of obstruction.
- (21) Servicing shall be performed only as recommended by the manufacturer.
- (22) The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
- (23) Maintenance, service and repair operations shall be performed by authorized technician with required qualification.
- (24) Be sure to have appropriate ventilation in order to prevent ignition. Furthermore, be sure to carry out fire prevention measures that there are no dangerous or flammable objects in the surrounding area.

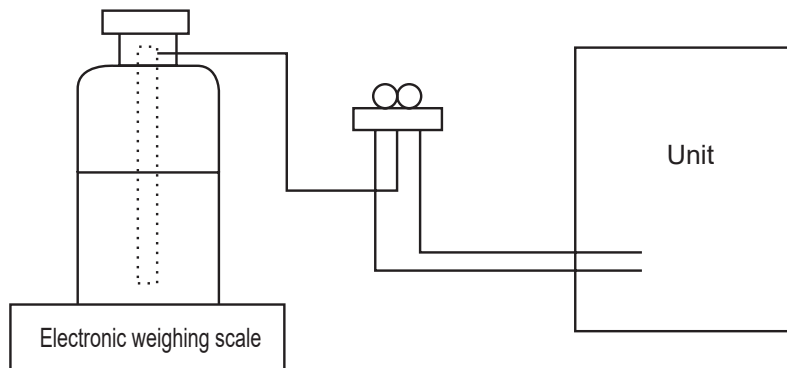
[2] Cautions for service

- (1) Perform service after recovering the refrigerant left in unit completely.
- (2) Do not release refrigerant in the air.
- (3) After completing service, charge the cycle with specified amount of refrigerant.
- (4) If moisture or foreign matter might have entered the refrigerant piping during service, ensure to remove them.

[3] Additional refrigerant charge

When charging directly from cylinder

- (1) Check that cylinder for R454B on the market is a syphon type.
- (2) Charging should be performed with the cylinder of syphon stood vertically. (Refrigerant is charged from liquid phase.)



[4] Cautions for unit using R454B refrigerant

Basic work procedures are the same as those for conventional units using refrigerant R410A. However, pay careful attention to the following points.

- (1) Information on servicing
 - (1-1) Checks on the Area

Prior to beginning work on systems containing FLAMMABLE REFRIGERANTS, safety checks are necessary to ensure that the risk of ignition is minimized. For repair to the refrigerating systems, (1-3) to (1-7) shall be completed prior to conducting work on the systems.
 - (1-2) Work Procedure

Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.
 - (1-3) General Work Area

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out.
Work in confined spaces shall be avoided. The area around the workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.
 - (1-4) Checking for Presence of Refrigerant

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.
 - (1-5) Presence of Fire Extinguisher

If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand.
Have a dry powder or CO2 fire extinguisher adjacent to the charging area.
 - (1-6) No Ignition Sources

No person carrying out work in relation to a REFRIGERATING SYSTEM which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.
 - (1-7) Ventilated Area

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.
 - (1-8) Checks on the Refrigeration Equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.
The following checks shall be applied to installations using FLAMMABLE REFRIGERANTS:
- the actual REFRIGERANT CHARGE is in accordance with the room size within which the refrigerant containing parts are installed;
 - the ventilation machinery and outlets are operating adequately and are not obstructed;
 - marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
 - refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.
- (1-9) Checks on Electrical Devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.
Initial safety checks shall include:
- that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
 - that no live electrical components and wiring are exposed while charging, recovering or purging the system;
 - that there is continuity of ground bonding.

(2) Repairs to Sealed Components

Sealed electrical components shall be replaced.

(3) Repair to intrinsically Safe Components

Intrinsically safe components must be replaced.

(4) Cabling

Refer to 6.1 in the installation manual.

(5) Detection of Flammable Refrigerants

Refer to 4.4 in the installation manual.

(6) Removal and Evacuation

Refer to 1.2 in the installation manual.

(7) Charging Procedures

Refer to 4.4 in the installation manual.

(8) Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.

a. Become familiar with the equipment and its operation.

b. Isolate system electrically.

c. Before attempting the procedure, ensure that:

- mechanical handling equipment is available, if required, for handling refrigerant cylinders;
- all personal protective equipment is available and being used correctly;
- the recovery process is supervised at all times by a competent person;
- recovery equipment and cylinders conform to the appropriate standards.

d. Pump down refrigerant system, if possible.

e. If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.

f. Make sure that cylinder is situated on the scales before recovery takes place.

g. Start the recovery machine and operate in accordance with instructions.

h. Do not overfill cylinders (no more than 80 % volume liquid charge).

i. Do not exceed the maximum working pressure of the cylinder, even temporarily.

j. When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.

k. Recovered refrigerant shall not be charged into another REFRIGERATING SYSTEM unless it has been cleaned and checked.

(9) Labelling

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing FLAMMABLE REFRIGERANTS, ensure that there are labels on the equipment stating the equipment contains FLAMMABLE REFRIGERANT.

(10) Recovery

Refer to 1.2 in the installation manual.

[5] Service tools

Use the below service tools as exclusive tools for R454B refrigerant.

No.	Tool name	Specifications
①	Gauge manifold	· Only for R454B
		· Use the existing fitting specifications.
		· Use high-tension side pressure of 768.7 psig [5.3 MPa.G] or over.
②	Charge hose	· Only for R454B
		· Use pressure performance of 738.2 psig [5.09 MPa.G] or over.
③	Electronic weighing scale	—
④	Gas leak detector	· Use the detector for R134a, R407C, R410A or R454B
⑤	Adaptor for reverse flow check	· Attach on vacuum pump.
⑥	Refrigerant charge base	—
⑦	Refrigerant cylinder	· Only for R454B
		· Cylinder with syphon
⑧	Refrigerant recovery equipment	—

2-3. CAUTIONS FOR REFRIGERANT PIPING WORK

The new refrigerant R454B is adopted for replacement inverter series. Although the refrigerant piping work for R454B is the same as for R22/R410A, exclusive tools are required to avoid mixing with different types of refrigerant. Furthermore, as the working pressure of R454B is 1.6 times higher than that of R22, their sizes of flared sections and flare nuts are different.

① Thickness of pipes

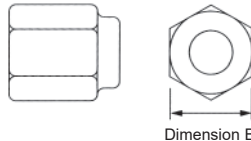
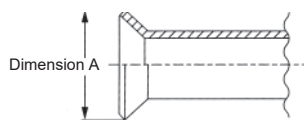
Since the working pressure of R454B is higher compared to R22, be sure to use refrigerant piping with thickness as shown below. (Never use pipes of 7/256 inch [0.7 mm] or below.)

Piping diameter and thickness

Nominal dimensions (inch)	Outside diameter (mm)	Thickness: inch [mm]	
		R454B/R410A	R22
1/4	6.35	1/32 [0.8]	1/32 [0.8]
3/8	9.52	1/32 [0.8]	1/32 [0.8]
1/2	12.70	1/32 [0.8]	1/32 [0.8]
5/8	15.88	5/128 [1.0]	5/128 [1.0]
3/4	19.05	5/128 [1.0]	5/128 [1.0]

② Dimensions of flare cutting and flare nut

The component molecules in HFC refrigerant are smaller compared to the conventional refrigerants. In addition, R454B is a refrigerant, which has higher risk of leakage because its working pressure is higher than that of other refrigerants. Therefore, to enhance air tightness and strength, flare cutting dimension of copper pipe for R454B has been specified separately from the dimensions for other refrigerants as shown below. The dimension B of the flare nut for R454B also has partly been changed to increase strength as shown below. Set copper pipe correctly referring to copper pipe flaring dimensions for R454B below. For 1/2 and 5/8 inch pipes, the dimension B changes. Use torque wrench corresponding to each dimension.



Flare cutting dimensions

Nominal dimensions (inch)	Outside diameter (mm)	Dimension A (寸)	
		R454B/R410A (inch [mm])	R22 (mm)
1/4	6.35	11/32-23/64 [9.1]	9.0
3/8	9.52	1/2-33/64 [13.2]	13.0
1/2	12.70	41/64-21/32 [16.6]	16.2
5/8	15.88	49/64-25/32 [19.7]	19.4
3/4	19.05	59/64-15/16 [24.0]	23.3

Flare nut dimensions

Nominal dimensions (inch)	Outside diameter (mm)	Dimension B	
		R454B/R410A (inch [mm])	R22 (mm)
1/4	6.35	43/64 [17.0]	17.0
3/8	9.52	7/8 [22.0]	22.0
1/2	12.70	1-3/64 [26.0]	24.0
5/8	15.88	1-9/64 [29.0]	27.0
3/4	19.05	1-27/64 [36.0]	36.0

③ Tools for R454B (The following table shows whether conventional tools can be used or not.)

Tools and materials	Use	R454B tools	Can R22 tools be used ?	Can R410A tools be used ?
Gauge manifold	Air purge, refrigerant charge and operation check	Tool exclusive for R454B	×	○
Charge hose		Tool exclusive for R454B	×	○
Gas leak detector	Gas leak check	Tool for HFC refrigerant	×	○
Refrigerant recovery equipment	Refrigerant recovery	Tool exclusive for R454B	×	○
Refrigerant cylinder	Refrigerant charge	Tool exclusive for R454B	×	×
Applied oil	Apply to flared section	Ester oil, ether oil and alkylbenzene oil (minimum amount)	×	Ester oil, ether oil: ○ Alkylbenzene oil: minimum amount
Safety charger	Prevent compressor malfunction when charging refrigerant by spraying liquid refrigerant	Tool exclusive for R454B	×	○
Charge valve	Prevent gas from blowing out when detaching charge hose	Tool exclusive for R454B	×	○
Vacuum pump	Vacuum drying and air purge	Tools for other refrigerants can be used if equipped with adapter for reverse flow check	△ (Usable if equipped with adapter for reverse flow)	△ (Usable if equipped with adapter for reverse flow)
Flaring tool*	Flaring work of piping	Tools for other refrigerants can be used by adjusting flaring dimension	△ (Usable by adjusting flaring dimension)	△ (Usable by adjusting flaring dimension)
Bender	Bend the pipes	Tools for other refrigerants can be used	○	○
Pipe cutter*	Cut the pipes	Tools for other refrigerants can be used	○	○
Welder and nitrogen gas cylinder	Weld the pipes	Tools for other refrigerants can be used	○	○
Refrigerant charging scale	Refrigerant charge	Tools for other refrigerants can be used	○	○
Vacuum gauge or thermistor vacuum gauge and vacuum valve	Check the degree of vacuum. (Vacuum valve prevents back flow of oil and refrigerant to thermistor vacuum gauge)	Tools for other refrigerants can be used	○	○
Charging cylinder	Refrigerant charge	Tool exclusive for R454B	×	×

×: Prepare a new tool. (Use the new tool as the tool exclusive for R454B.)

△: Tools for other refrigerants can be used under certain conditions.

○: Tools for other refrigerants can be used.

* Follow the instructions below to prevent abrasive components contained in sandpaper and cutting tools from entering the refrigerant circuit because those components can cause failures of the compressor and valves.

- To deburr pipes, use a reamer or other deburring tools, not sandpaper.
- To cut pipes, use a pipe cutter, not a grinder or other tools that use abrasive materials.
- When cutting or deburring pipes, do not allow cutting chips or other foreign matters to enter the pipes.
- If cutting chips or other foreign matters enter pipes, wipe them off the inside of the pipes.

2-4. LOW AMBIENT COOLING

Precautions for low ambient cooling

- If the outdoor temperature is 23°F or lower during cooling operation, install an optional air guide to prevent wind from blowing into the outdoor unit.
- Install the outdoor unit in a location where wind will not blow onto the back of the unit or through the unit.
- To prevent damage to the parts, be sure to install the unit, turn on the main power, and perform service in an environment where the ambient temperature is 0°F or higher.
- In order to protect the compressor and electrical components, do not turn off the circuit breaker if the unit is installed in an environment where the ambient temperature is 0°F or lower.
- It needs at least 12 hr standby to operation in order to warm the electrical parts.

2.5. Minimum installation area

■ Indoor units

When the indoor unit is installed in a room with a floor area of A_{min} or more, charge an appropriate amount of refrigerant M (factory-charged refrigerant + locally added refrigerant) according to the table below.

* For the factory-charged refrigerant amount, refer to the specification nameplate or installation manual.

For the amount to be added locally, refer to the installation manual.

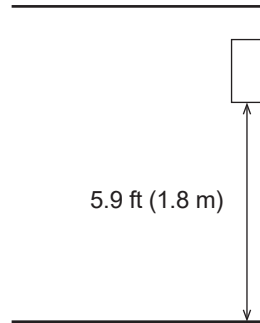
* For ducted systems to one or more rooms, first determine the system's refrigerant amount, then refer to the indoor unit installation manual for each room's restriction for minimum area.

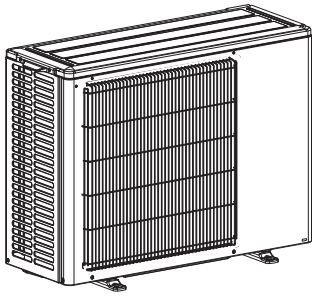
The mounting height of indoor unit shall be 5.9 ft (1.8 m) or more from the floor, excluding ceiling concealed (PEAD), multi-position air handler (PVA), and A-Coil (PAA).

* There are restrictions in installation height for each model, so read the installation manual for the particular unit.

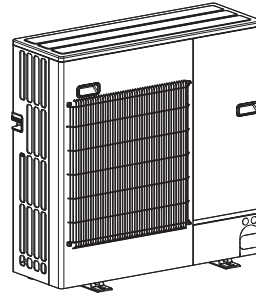
<Refrigerant Charging Table>

M		A min		
[kg]	[lbs, oz]	[m ²]	[ft ²]	
2.0	4 6	7.5	81	
2.5	5 8	9.3	101	
3.0	6 9	11.2	121	
3.5	7 11	13.0	140	
4.0	8 13	14.9	161	
4.5	9 14	16.7	180	
4.6	10 2	17.1	185	
4.7	10 5	17.5	189	
4.8	10 9	17.8	192	
4.9	10 12	18.2	196	
5.0	11 0	18.6	201	
5.1	11 3	18.9	204	
5.2	11 7	19.3	208	
5.3	11 10	19.7	213	
5.4	11 14	20.0	216	
5.5	12 2	20.4	220	
5.6	12 5	20.8	224	
5.7	12 9	21.2	229	
5.8	12 12	21.5	232	
5.9	13 0	21.9	236	
6.0	13 3	22.3	241	
6.1	13 7	22.6	244	
6.2	13 10	23.0	248	
6.3	13 14	23.4	252	
6.4	14 1	23.8	257	
6.5	14 5	24.1	260	
6.6	14 8	24.5	264	
6.7	14 12	24.9	269	
6.8	14 15	25.2	272	
6.9	15 3	25.6	276	
7.0	15 6	26.0	280	
7.1	15 10	26.3	284	
7.2	15 13	26.7	288	
7.3	16 1	27.1	292	





PUZ-AK12NL-U1
PUZ-AK18NL-U1
PUY-AK12NL-U1
PUY-AK18NL-U1



PUZ-AH24NL-U1
PUZ-AH30NL-U1
PUY-AH24NL-U1
PUY-AH30NL-U1

Chargeless system

Pre-charged refrigerant is supplied for piping length at shipment.

(Maximum 225 ft [69 m] (PUY-AH24, 30)/ Maximum 165 ft [50 m] (PUZ-AH24, 30/ PUY-AK12, 18)/

Maximum 100 ft [30 m] (PUZ-AK12, 18))

The refrigerant circuit with LEV (Linear Expansion Valve) and the accumulator always control the optimal refrigerant level regardless of the piping length (PUY-AH24, 30: 225 ft [69 m] maximum/ PUZ-AH24, 30 and PUY-AK12, 18: 165 ft [50 m] maximum/ PUZ-AK12, 18: 100 ft [30 m] maximum and 25 ft [7.5 m] minimum). The additional refrigerant charging work during installation often causes problems.

It is completely eliminated by chargeless system. This unique system improves the quality and reliability of the work performance. It also helps to speed up the installation time.

4

SPECIFICATIONS

Service Ref.		PUZ-AK12NL-U1 PUY-AK12NL-U1	PUZ-AK18NL-U1 PUY-AK18NL-U1	PUZ-AH24NL-U1 PUY-AH24NL-U1	PUZ-AH30NL-U1 PUY-AH30NL-U1
Power supply	Phase	Single			
	Frequency	60 Hz			
	Voltage	208/230 V			
Inverter Input	A	11		15	
MCA	A	16		22	
MOCP	A	27		37	
Breaker size	A	20		25	
External finish		Munsell 3Y 7.8/1.1			
Heat exchanger		Cross fin			
Defrost method		Reverse cycle			
Crankcase heater	kW	—			
Compressor		Hermetic			
	Model	SRB140FQHMC-L1		SRB172FQHMC-L1	
	Motor output	kW	0.8		0.8
	Starter type		Inverter		
Fan	Fan (drive) × No.		Propeller fan × 1		
	Fan motor output	kW	0.051		0.074
		HP	0.0683		0.0992
	Airflow	CFM	1,590		1,940
		m ³ /min	45		55
Sound pressure level	Cooling	dB	44		49
	Heating	dB	46		52
Protection devices		HP switch			
		Comp. shell thermo			
Dimension	W	inch	31-13/16 + 2-7/16		37-13/32
	D	inch	11-13/16		13-63/64
	H	inch	24-13/16		37-1/8
	W	mm	809 + 62		950
	D	mm	300		330 + 25
	H	mm	630		943
Weight		lb	99		155
		kg	45		70
Refrigerant		R454B			
Charged		lb	4+6/16		7+11/16
		kg	2.0		3.5
Control		Linear expansion valve			
Oil charged	Model	Ester (RM68EH)			
		oz	16		23
		L	0.5		0.7
Refrigerant piping	Pipe size OD liquid	inch	1/4		3/8
		mm	6.35		9.52
	Pipe size OD gas	inch	1/2		5/8
		mm	12.7		15.88
Connection method - Indoor		Flared			
Connection method - Outdoor		Flared			
Height difference IU-OU	ft	Maximum 100			
	m	Maximum 30			
Piping length	ft	PUZ	Maximum 100		Maximum 165
		PUY	Maximum 165		Maximum 225
	m	PUZ	Maximum 30		Maximum 50
		PUY	Maximum 50		Maximum 69

5-1. COMPRESSOR TECHNICAL DATA

(Winding temperature at 68°F [20°C])

Service Ref.		PUZ-AK12/18NL-U1	PUZ-AH24/30NL-U1
		PUY-AK12/18NL-U1	PUY-AH24/30NL-U1
Compressor model		SRB140FQHMC-L1	SRB172FQHMC-L1
Winding resistance (Ω)	U-V/U-W/W-V	1.56	1.56

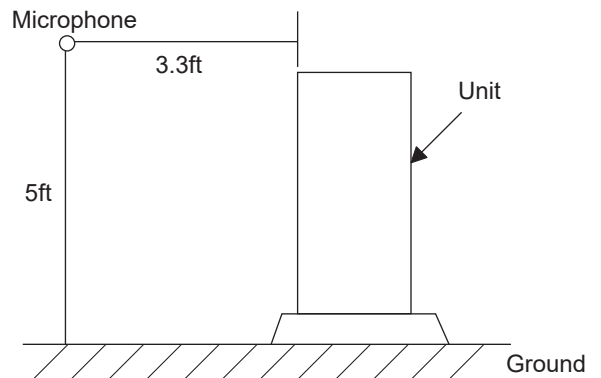
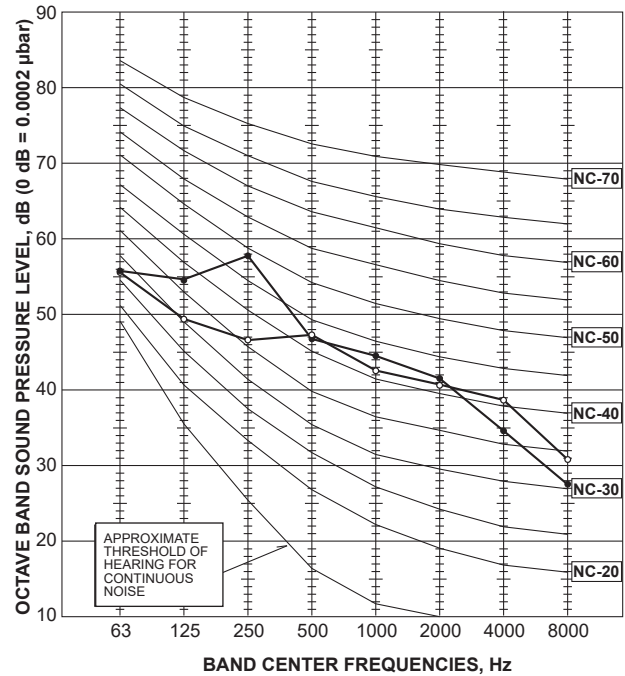
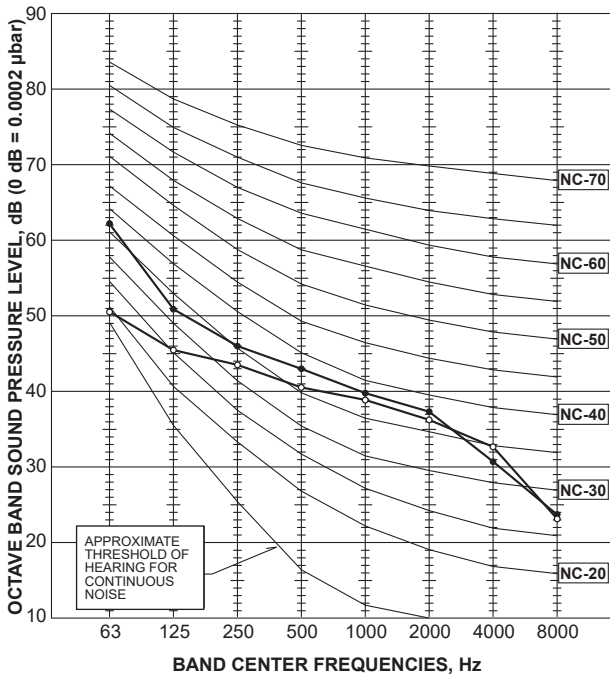
5-2. NOISE CRITERION CURVES

PUZ-AK12/18NL-U1
PUY-AK12/18NL-U1

MODE	SPL(dB)	LINE
COOLING	44	○—○
HEATING	46	●—●

PUZ-AH24/30NL-U1
PUY-AH24/30NL-U1

MODE	SPL(dB)	LINE
COOLING	49	○—○
HEATING	52	●—●



5-3. STANDARD OPERATION DATA

5-3-1. Heat pump

Representative matching			PLA-AE12NL		PLA-AE18NL		PLA-AE24NL		PLA-AE30NL	
Mode			COOLING	HEATING	COOLING	HEATING	COOLING	HEATING	COOLING	HEATING
Total	Capacity	Btu/h	12,000	20,000	18,000	23,000	24,000	29,000	27,000	32,600
	Input	W	700	1,540	1,310	1,790	1,810	2,060	2,300	2,380
Electrical circuit	Indoor unit model		PLA-AE12NL		PLA-AE18NL		PLA-AE24NL		PLA-AE30NL	
	Phase		Single		Single		Single		Single	
	Cycle		60 Hz		60 Hz		60 Hz		60 Hz	
	Voltage		208/230 V		208/230 V		208/230 V		208/230 V	
	Current		0.26 A		0.34 A		0.49 A		0.59 A	
	Outdoor unit model		PUZ-AK12NL		PUZ-AK18NL		PUZ-AH24NL		PUZ-AH30NL	
	Phase		Single		Single		Single		Single	
	Cycle		60 Hz		60 Hz		60 Hz		60 Hz	
	Voltage		208/230 V		208/230 V		208/230 V		208/230 V	
	Current		3.31 A	6.66 A	5.59 A	7.24 A	7.38 A	8.47 A	9.55 A	9.90 A
Refrigerant circuit	Discharge pressure	PSIG	346	357	382	361	396	324	415	347
	Suction pressure	PSIG	163	109	149	107	150	106	143	104
	Discharge temperature	°F	150	170	164	176	173	176	174	165
	Condensing temperature	°F	107	109	114	108	119	104	121	105
	Suction temperature	°F	66	34	55	35	57	41	55	33
	Ref. pipe length	ft	25	25	25	25	25	25	25	25
	Discharge pressure	MPa	2.39	2.46	2.63	2.49	2.73	2.23	2.86	2.39
	Suction pressure	MPa	1.12	0.75	1.03	0.74	1.03	0.73	0.98	0.71
	Discharge temperature	°C	65.8	76.8	73.5	80.0	78.4	80.0	78.8	74.1
	Condensing temperature	°C	41.8	42.6	45.8	42.2	48.6	40.1	49.2	40.8
Suction temperature	°C	18.9	1.0	12.9	1.7	14.1	4.9	12.5	0.6	
Ref. pipe length	m	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	
Indoor side	Intake air temperature DB	°F	80	70	80	70	80	70	80	70
	Intake air temperature WB	°F	67	60	67	60	67	60	67	60
	Discharge air temperature DB	°F	60	108	57	105	57	103	57	103
Outdoor side	Intake air temperature DB	°F	95	47	95	47	95	47	95	47
	Intake air temperature WB	°F	75	43	75	43	75	43	75	43
	Intake air temperature DB	°C	26.7	21.1	26.7	21.1	26.7	21.1	26.7	21.1
Indoor side	Intake air temperature WB	°C	19.4	15.6	19.4	15.6	19.4	15.6	19.4	15.6
	Discharge air temperature DB	°C	15.6	42.0	14.1	40.4	14.1	39.4	13.7	39.4
	Intake air temperature DB	°C	35.0	8.3	35.0	8.3	35.0	8.3	35.0	8.3
	Intake air temperature WB	°C	23.9	6.1	23.9	6.1	23.9	6.1	23.9	6.1
	SHF		0.90	-	0.77	-	0.82	-	0.65	-
BF		0.09	-	0.01	-	0.11	-	0.24	-	

5-3-2. Cooling only

Representative matching			PLA-AE12NL	PLA-AE18NL	PLA-AE24NL	PLA-AE30NL
Mode			COOLING	COOLING	COOLING	COOLING
Total	Capacity	Btu/h	12,000	18,000	24,000	27,000
	Input	W	700	1,310	1,810	2,300
Electrical circuit	Indoor unit model		PLA-AE12NL	PLA-AE18NL	PLA-AE24NL	PLA-AE30NL
	Phase		Single	Single	Single	Single
	Cycle		60 Hz	60 Hz	60 Hz	60 Hz
	Voltage		208/230 V	208/230 V	208/230 V	208/230 V
	Current		0.26 A	0.34 A	0.49 A	0.59 A
	Outdoor unit model		PUY-AK12NL	PUY-AK18NL	PUY-AH24NL	PUY-AH30NL
	Phase		Single	Single	Single	Single
	Cycle		60 Hz	60 Hz	60 Hz	60 Hz
	Voltage		208/230 V	208/230 V	208/230 V	208/230 V
	Current		3.31 A	5.59 A	7.38 A	9.55 A
Refrigerant circuit	Discharge pressure	PSIG	346	382	396	415
	Suction pressure	PSIG	163	149	150	143
	Discharge temperature	°F	150	164	173	174
	Condensing temperature	°F	107	114	119	121
	Suction temperature	°F	66	55	57	55
	Ref. pipe length	ft	25	25	25	25
	Discharge pressure	MPa	2.39	2.63	2.73	2.86
	Suction pressure	MPa	1.12	1.03	1.03	0.98
	Discharge temperature	°C	65.8	73.5	78.4	78.8
	Condensing temperature	°C	41.8	45.8	48.6	49.2
Suction temperature	°C	18.9	12.9	14.1	12.5	
Ref. pipe length	m	7.6	7.6	7.6	7.6	
Indoor side	Intake air temperature DB	°F	80	80	80	80
	Intake air temperature WB	°F	67	67	67	67
	Discharge air temperature DB	°F	60	57	57	57
Outdoor side	Intake air temperature DB	°F	95	95	95	95
	Intake air temperature WB	°F	75	75	75	75
Indoor side	Intake air temperature DB	°C	26.7	26.7	26.7	26.7
	Intake air temperature WB	°C	19.4	19.4	19.4	19.4
	Discharge air temperature DB	°C	15.6	14.1	14.1	13.7
Outdoor side	Intake air temperature DB	°C	35.0	35.0	35.0	35.0
	Intake air temperature WB	°C	23.9	23.9	23.9	23.9
SHF			0.90	0.77	0.82	0.65
BF			0.09	0.01	0.11	0.24

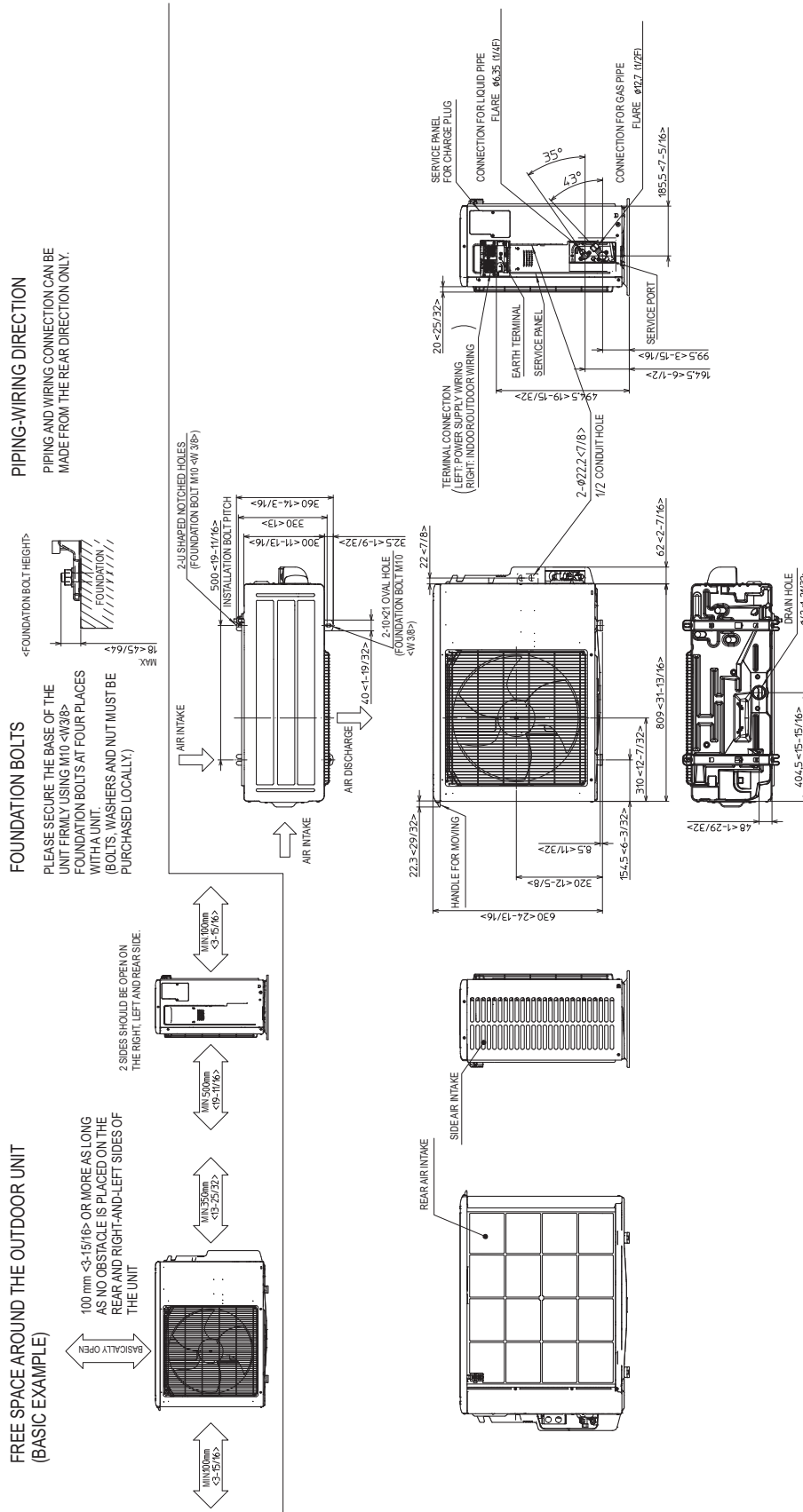
PUZ-AK12NL-U1

PUZ-AK18NL-U1

PUY-AK12NL-U1

PUY-AK18NL-U1

Unit: mm<in>



PUZ-AH24NL-U1

PUZ-AH30NL-U1

PUY-AH24NL-U1

PUY-AH30NL-U1

Unit: mm<in>

4. PIPING-WIRING DIRECTIONS

PIPING AND WIRING CONNECTIONS CAN BE MADE FROM 4 DIRECTIONS: FRONT, RIGHT, REAR AND BELOW.

3. FOUNDATION BOLTS

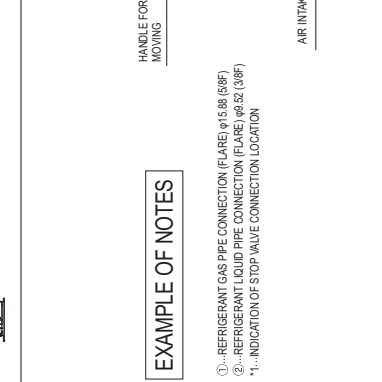
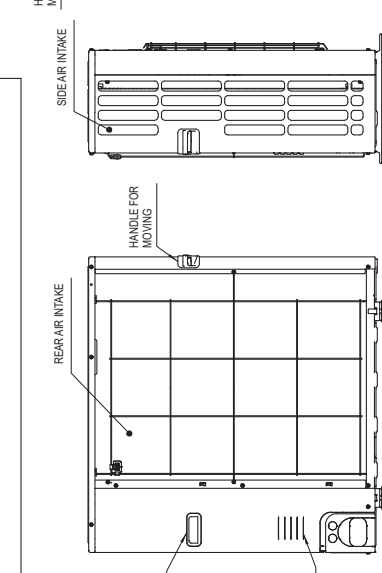
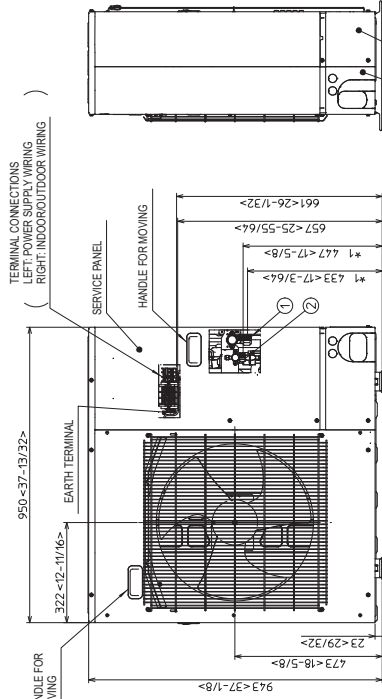
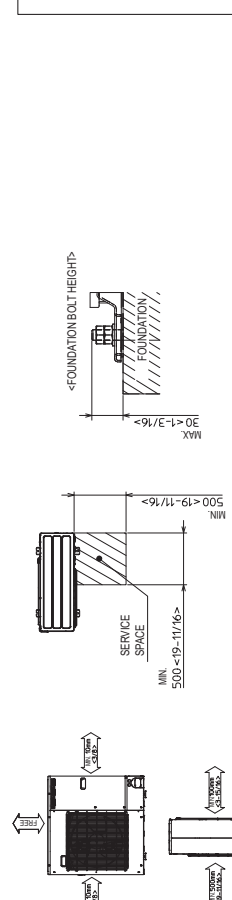
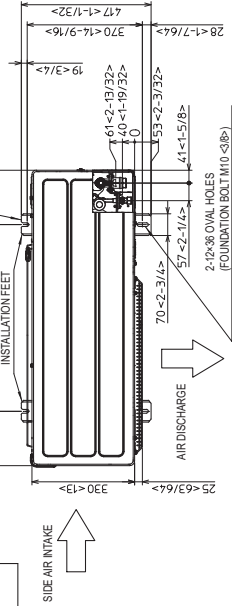
PLEASE SECURE THE BASE OF THE UNIT FIRMLY USING M10 φ3/8 FOUNDATION BOLTS AT FOUR PLACES WITH DOUBLE NUTS, (BOLTS, WASHERS AND NUT MUST BE PURCHASED LOCALLY)

2. SERVICE SPACE

DIMENSIONS OF SPACE NEEDED FOR SERVICE ACCESS ARE SHOWN IN THE BELOW DIAGRAM.

1. FREE SPACE (AROUND THE UNIT)

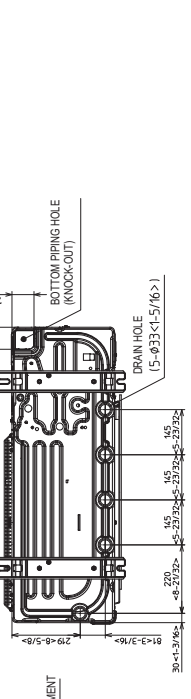
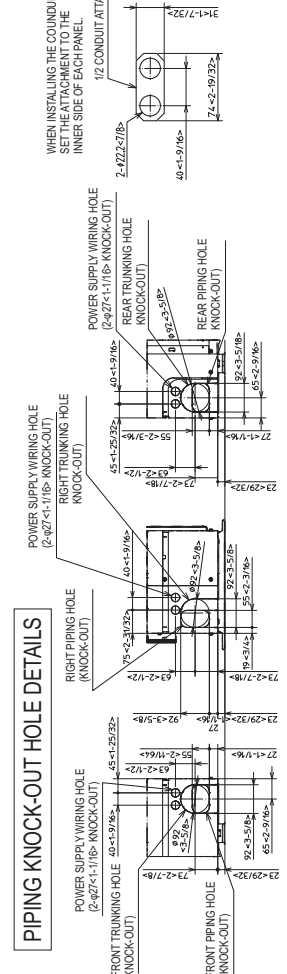
THE DIAGRAM BELOW SHOWS A BASIC EXAMPLE. EXPLANATION OF PARTICULAR DETAILS ARE GIVEN IN THE INSTALLATION MANUALS ETC.



EXAMPLE OF NOTES

- ①...REFRIGERANT GAS PIPE CONNECTION (FLARED φ5.88 (3/8F))
- ②...REFRIGERANT LIQUID PIPE CONNECTION (FLARE φ6.32 (3/8F))
- *1...INDICATION OF STOP VALVE CONNECTION LOCATION

PIPING KNOCK-OUT HOLE DETAILS

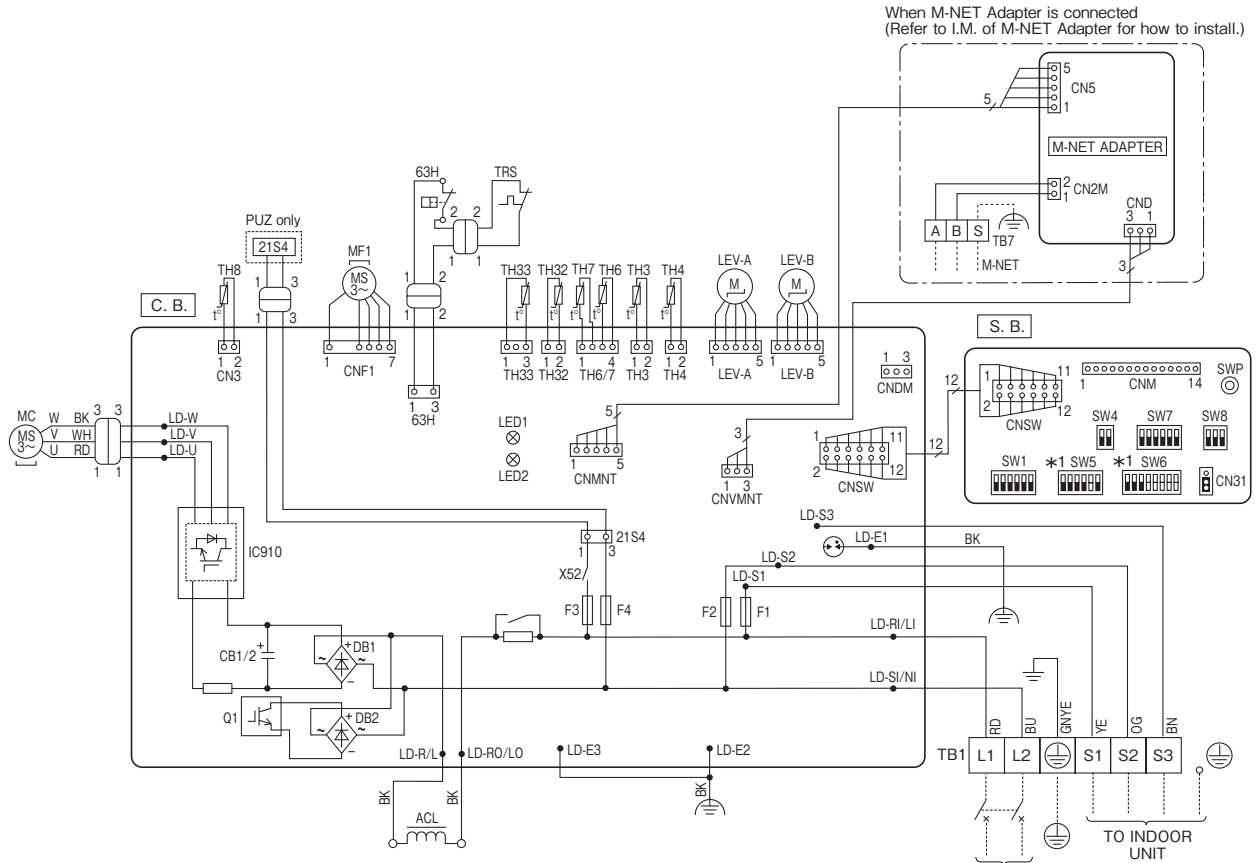


PUZ-AK12NL-U1

PUZ-AK18NL-U1

PUY-AK12NL-U1

PUY-AK18NL-U1



When M-NET Adapter is connected
(Refer to I.M. of M-NET Adapter for how to install.)

*1. MODEL SELECT

The black square (■) indicates a switch position.

MODEL	SW6-4, 5, 6, 7, 8 *2	SW5-5 *2
PUZ-AK12	ON OFF 1 2 3 4 5 6 7 8	ON OFF 1 2 3 4 5 6
PUZ-AK18	ON OFF 1 2 3 4 5 6 7 8	ON OFF 1 2 3 4 5 6
PUY-AK12	ON OFF 1 2 3 4 5 6 7 8	ON OFF 1 2 3 4 5 6
PUY-AK18	ON OFF 1 2 3 4 5 6 7 8	ON OFF 1 2 3 4 5 6

*2. SW6-1 to 3, SW5-1 to 4, 6 : Function Switch

POWER SUPPLY
208/230 V AC 60 Hz

*Use copper supply wires.
*Utiliser des fils d'alimentation en cuivre.

M-NET ADAPTER

SYMBOL	NAME
TB7	Terminal Block (M-NET connection)
CN5	Connector (Transmission)
CND	Connector (Power Supply)
CN2M	Connector (M-NET communication)

【LEGEND】

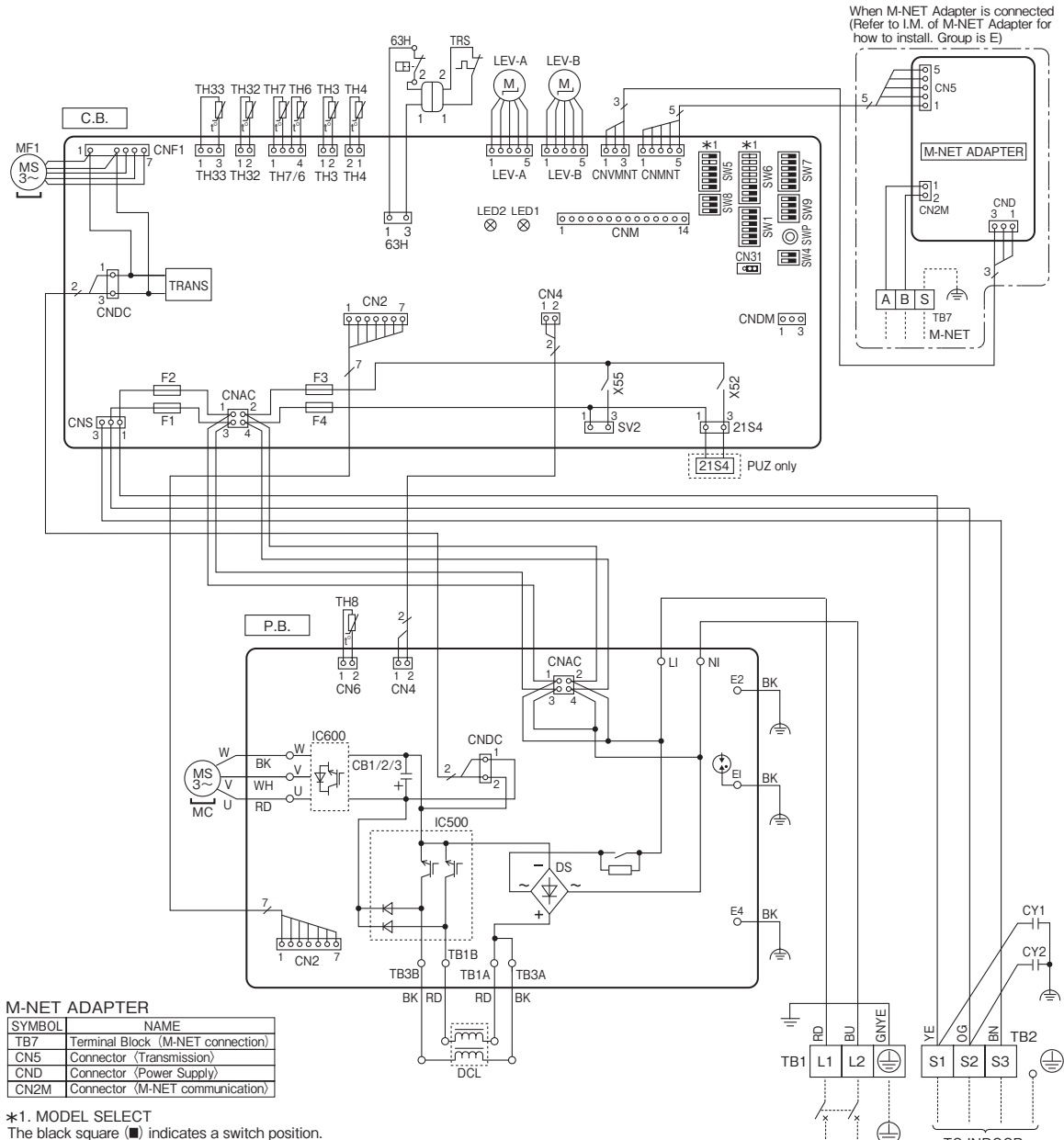
SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block (Power Supply, Indoor/Outdoor)	C. B.	Controller Circuit Board
MC	Motor for Compressor	F1, F2	Fuse (T10AL250V)
MF1	Fan Motor	F3, F4	Fuse (T3.15AL250V)
21S4	Solenoid Valve (4-Way Valve)	CNDM	Connector (Connection for Option)
63H	High Pressure Switch	S. B.	Switch Board
TRS	Thermal Protector	SW1	Switch (Manual Defrost, Defect History Record Reset, Refrigerant Address)
TH3	Thermistor (Liquid)	SW4	Switch (Function Switch)
TH4	Thermistor (Discharge)	SW5	Switch (Function Switch, Model Select)
TH6	Thermistor (2-Phase Pipe)	SW6	Switch (Model Select)
TH7	Thermistor (Ambient)	SW7	Switch (Function Switch)
TH8	Thermistor (Heat Sink)	SW8	Switch (Function Switch)
TH32	Thermistor (Suction)	SWP	Switch (Pump Down)
TH33	Thermistor (Comp. Surface)	CNM	Connector (Connection for Option)
LEV-A, LEV-B	Linear Expansion Valve	CN31	Connector (Emergency Operation)
ACL	Reactor		

PUZ-AH24NL-U1

PUZ-AH30NL-U1

PUY-AH24NL-U1

PUY-AH30NL-U1



M-NET ADAPTER

SYMBOL	NAME
TB7	Terminal Block (M-NET connection)
CN5	Connector (Transmission)
CND	Connector (Power Supply)
CN2M	Connector (M-NET communication)

*1. MODEL SELECT

The black square (■) indicates a switch position.

MODEL	SW6-4, 5, 6, 7, 8 *2	SW5-5 *2	MODEL	SW6-4, 5, 6, 7, 8 *2	SW5-5 *2
PUZ-AH24	ON OFF	ON OFF	PUY-AH24	ON OFF	ON OFF
PUZ-AH30	ON OFF	ON OFF	PUY-AH30	ON OFF	ON OFF

*2. SW6-1 to 3, SW5-1 to 4, 6 : Function Switch

[LEGEND]

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block (Power Supply)	TH32	Thermistor (Suction)	SW5	Switch (Function Switch, Model Select)
TB2	Terminal Block (Indoor/Outdoor)	TH33	Thermistor (Comp. Surface)	SW6	Switch (Model Select)
MC	Motor for Compressor	LEV-A, LEV-B	Linear Expansion Valve	SW7	Switch (Function Switch)
MF1	Fan Motor	DCL	Reactor	SW8	Switch (Function Switch)
21S4	Solenoid Valve (4-Way Valve)	CY1, CY2	Capacitor	SW9	Switch (Function Switch)
63H	High Pressure Switch	P. B.	Power Circuit Board	SWP	Switch (Pump Down)
TRS	Thermal Protector	C. B.	Controller Circuit Board	CNM	Connector (Connection for Option)
TH3	Thermistor (Liquid)	F1, F2	Fuse (T10AL250V)	CN31	Connector (Emergency Operation)
TH4	Thermistor (Discharge)	F3, F4	Fuse (T6.3AL250V)	CNDM	Connector (Connection for Option)
TH6	Thermistor (2-Phase Pipe)	SW1	Switch (Manual Defrost, Defect History Record Reset, Refrigerant Address)	SW2	Base Heater
TH7	Thermistor (Ambient)	SW4	Switch (Function Switch)		
TH8	Thermistor (Heat Sink)				

POWER SUPPLY

208/230 V AC 60 Hz

*Use copper supply wires.

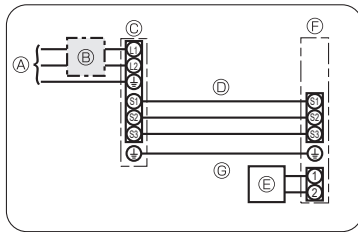
*Utiliser des fils d'alimentation en cuivre.

8-1. INDOOR UNIT POWER SUPPLIED FROM OUTDOOR UNIT (A-control application)

The following connection patterns are available.

The outdoor unit power supply patterns vary depending on models.

1:1 System



- (A) Outdoor unit power supply
- (B) Wiring circuit breaker or isolating switch
- (C) Outdoor unit
- (D) Indoor unit/outdoor unit connecting cords
- (E) Remote controller
- (F) Indoor unit
- (G) Indoor unit/outdoor unit ground

Note: Affix a label A that is included with the manuals near each wiring diagram for the indoor and outdoor units.

Outdoor unit model	PU*-AK12NL	PU*-AK18NL	PU*-AH24NL	PU*-AH30NL
Outdoor unit power supply	~N (single), 60 Hz, 208/230 V	~N (single), 60 Hz, 208/230 V	~N (single), 60 Hz, 208/230 V	~N (single), 60 Hz, 208/230 V
Breaker size *1	20 A	20 A	25 A	25 A
Minimum circuit ampacity	16 A	16 A	22 A	22 A
Maximum rating of overcurrent protective device	27 A	27 A	37 A	37 A
Wiring Wire No. x size (mm ²)	Outdoor unit power supply	2 × Min. AWG 14	2 × Min. AWG 14	2 × Min. AWG 12
	Outdoor unit power supply ground	1 × Min. AWG 12	1 × Min. AWG 12	1 × Min. AWG 10
	Indoor unit-Outdoor unit *2	3 × AWG 14 (polar)	3 × AWG 14 (polar)	3 × AWG 14 (polar)
	Indoor unit-Outdoor unit ground *2	1 × Min. AWG 14	1 × Min. AWG 14	1 × Min. AWG 14
	Remote controller-Indoor unit *3	2 × AWG 22 (Non-polar)	2 × AWG 22 (Non-polar)	2 × AWG 22 (Non-polar)
Circuit rating	Outdoor unit L1-L2 (single) *4	208/230 VAC	208/230 VAC	208/230 VAC
	Indoor unit-Outdoor unit S1-S2 (single) *4	208/230 VAC	208/230 VAC	208/230 VAC
	Indoor unit-Outdoor unit S2-S3 (single) *4	27 VDC	27 VDC	27 VDC
	Remote controller-Indoor unit *4	12 VDC	12 VDC	12 VDC

*1. Please follow applicable federal, state, or local codes to prevent potential leakage/electric shock. Or install a ground fault interrupt for the prevention of leakage and electric shock.

IMPORTANT

If you use a ground fault circuit interrupter, it should be compatible with higher harmonics as this unit is equipped with an inverter. The use of an inadequate breaker can cause the incorrect operation of inverter.

*2. Max. 50 m, 164 ft

S3 separated, Max. 80 m, 262 ft

*3. The wire with a length of 10 m (30 ft) is attached in the remote controller accessory.

*4. The figures are NOT always against the ground.

S3 terminal has 27 VDC against S2 terminal. However between S3 and S1, these terminals are NOT electrically insulated by the transformer or other devices.

Note: 1. The wiring size must comply with the applicable local and national codes.

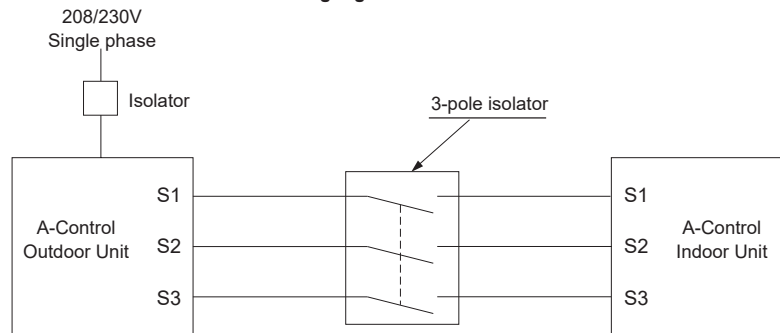
2. Use copper supply wires.

3. Use wires rated 600 V or more for the power supply cables and the indoor/outdoor unit connecting cables.

4. Power supply cables, the cable connecting the indoor and outdoor units (indoor-outdoor connecting cable), and the cable connecting the water heater and outdoor unit (water heater-outdoor connecting cable) shall not be lighter than polychloroprene sheathed flexible cord. (Design 60245 IEC 57)

5. Use a ground wire which is longer than the other cords so that it will not become disconnected when tension is applied.

6. The appliance shall be installed in accordance with national wiring regulations.



Warning:

For A-control wiring, there is high voltage potential on the S3 terminal caused by electrical circuit design that has no electrical insulation between power line and communication signal line. Therefore, please turn off the main power supply when servicing. And do not touch the S1, S2, S3 terminals when the power is energized. If isolator should be used between indoor unit and outdoor unit, please use 3-pole type.

Never splice the power cable or the indoor-outdoor connection cable, otherwise it may result in a smoke, a fire or communication failure.

Warning:

When the outdoor unit is connected to the indoor unit with the refrigerant sensor installed, the outdoor unit shall be always ON except during servicing. (Refer to the installation manual for the indoor unit whether an alarm is installed or not.)

The local switch and the breaker shall be always ON except during servicing.

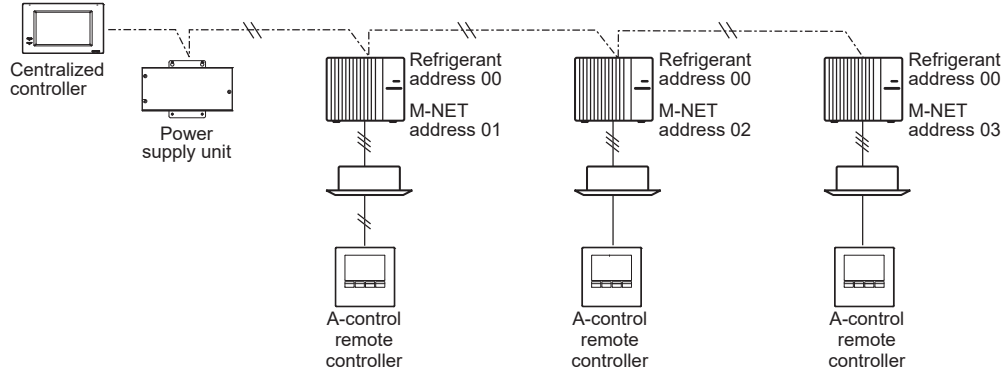
Explain to customers to affix the included labels both on the main breaker and the sub-panel.

If the local switch or the breaker is OFF, the refrigerant sensor cannot detect the refrigerant leakage since the electricity is not supplied.

8-2. M-NET WIRING METHOD

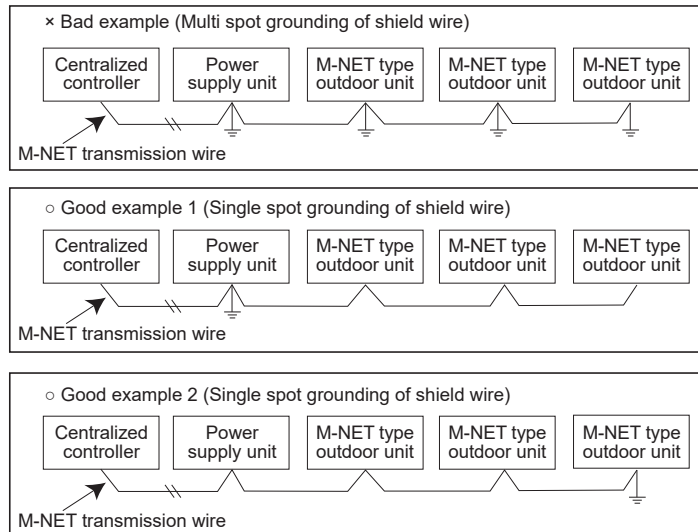
Points to notice:

- (1) Outside the unit, transmission wires should stay away from electric wires in order to prevent electromagnetic noise from making an influence on the signal communication. Place them at intervals of 5 cm [2 in.] or more. Do not put them in the same conduit tube.
- (2) Terminal block (TB7) for transmission wires should never be connected to 208/230 V power supply. If it is connected, electronic parts on M-NET P.C. board may be burnt out.
- (3) Use 2-core x 1.25 mm² [AWG16] shield wire (CVVS, CPEVS) for the transmission wire. Transmission signals may not be sent or received normally if different types of transmission wires are put together in the same multi-conductor cable. Failure to do so may cause a malfunction.



It is acceptable if M-NET wire (non-polar, 2-core) is arranged in addition to the wiring for A-control.

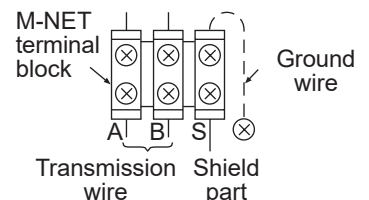
- (4) Ground only one of any appliances through M-NET transmission wire (shield wire). Communication error may occur due to the influence of electromagnetic noise.
 "Ed" error will appear on the LED display of outdoor unit.
 "0403" error will appear on the centralized remote controller.



If there are more than 2 grounding spots on the shield wire, noise may enter into the shield wire because the ground wire and shield wire form one circuit and the electric potential difference occurs due to the impedance difference among grounding spots. In the case of single spot grounding, noise does not enter into the shield wire because the ground wire and shield wire do not form 1 circuit. To avoid communication errors caused by noise, make sure to observe the single spot grounding method described in the installation manual.

● M-NET wiring

- (1) Use 2-core x 1.25 mm² [AWG16] shield wire for electric wires.
(Excluding the case connecting to system controller.)
- (2) Connect the wire to the M-NET terminal block. Connect one core of the transmission wire (non-polar) to A terminal and the other to B. Peel the shield wire, twist the shield part to a string and connect it to S terminal.
- (3) In the system which several outdoor units are being connected, the terminal (A(M1), B(M2), S) on M-NET terminal block should be individually wired to the other outdoor unit's terminal. (i.e. A to A; B to B; and S to S) In this case, choose one of those outdoor units and drive a screw to fix an ground wire on the plate as shown on the right figure.



8-2-1. M-NET address setting

In A-control models, M-NET address and refrigerant address should be set only for the outdoor unit. Similar to CITY MULTI series, there is no need to set the address of outdoor unit and remote controller. To construct a central control system, the setting of M-NET address should be conducted only upon the outdoor unit. The setting range should be 1 to 50 (the same as that of the indoor unit in CITY MULTI system), and the address number should be consecutively set in a same group.

Address number can be set by using rotary switches (SW11 for ones digit and SW12 for tens digit), which is located on the M-NET board of outdoor unit. (Initial setting: all addresses are set to "0".)

<Setting example>

M-NET Address No.		1	2	~	50
Switching setting	SW11 ones digit			~	
	SW12 tens digit			~	

8-2-2. Refrigerant address setting

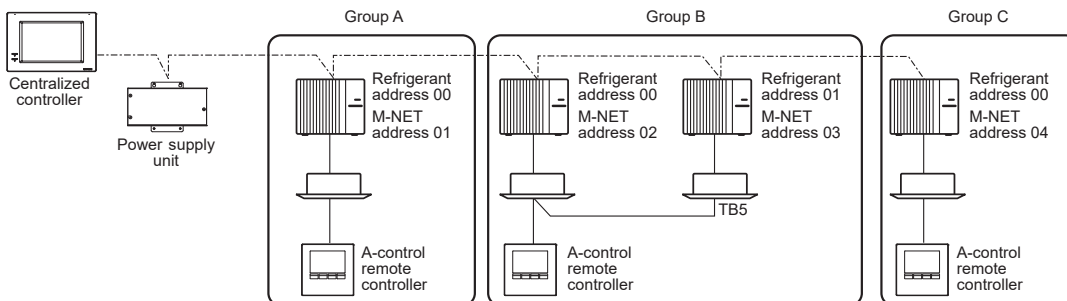
In the case of multiple grouping system (multiple refrigerant circuits in one group), indoor units should be connected by remote controller wiring (TB5) and the refrigerant address needs to be set. Leave the refrigerant addresses to "00" if the group setting is not conducted. Set the refrigerant address by using SW1-3 to 1-6 on the outdoor controller board. Initial setting: all switches are OFF. (All refrigerant addresses are "00".)

Refrigerant address

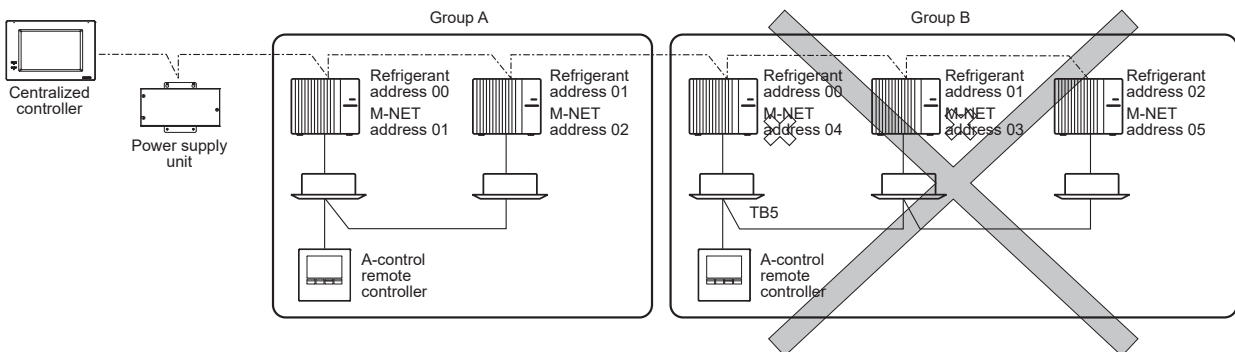
0	1	2	3	4	5	6	7
8	9	10	11	12	13	14	15

8-2-3. Regulations in address settings

In the case of multiple grouping system, M-NET and refrigerant address settings should be done as explained in the above section. Set the lowest number in the group for the outdoor unit whose refrigerant address is "00" as its M-NET address.



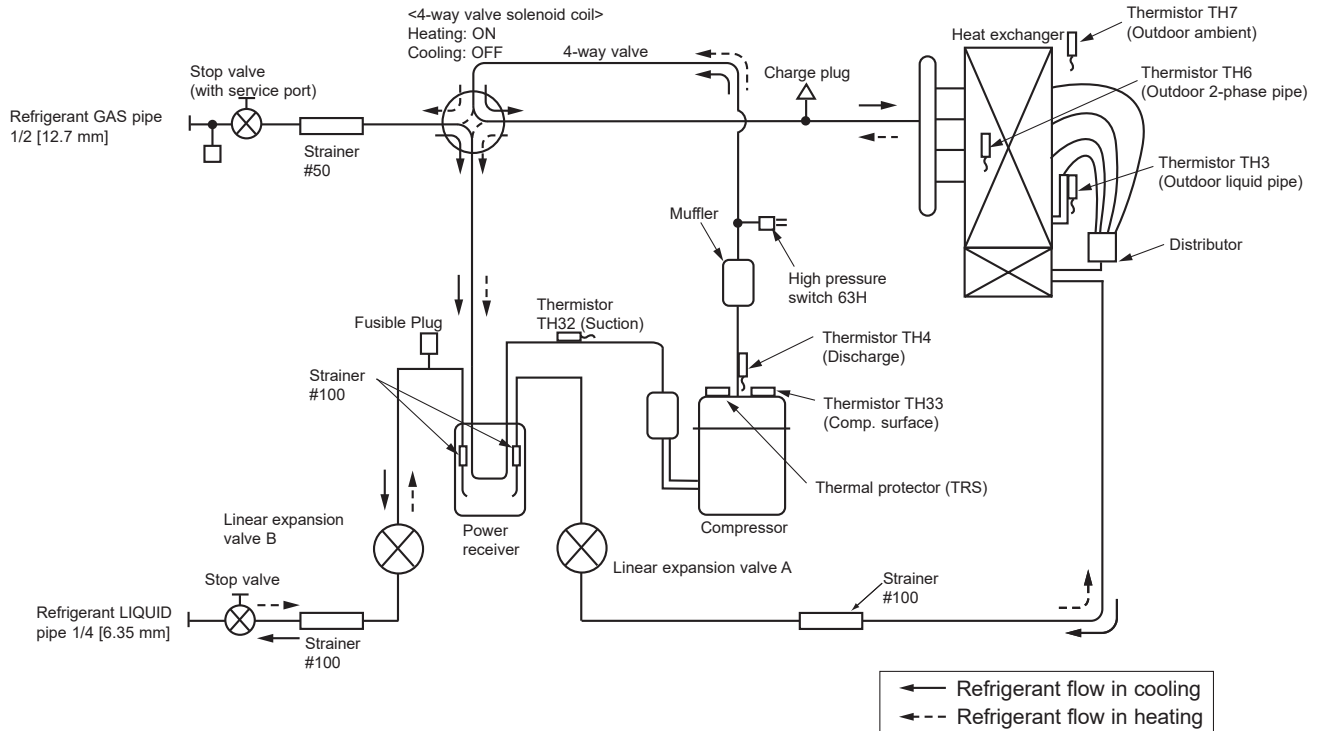
Note: Refrigerant addresses can be overlapped if they are in the different group.



In group B, M-NET address of the outdoor unit whose refrigerant address is "00" is not set to the minimum in the group. As "03" is right for this situation, the setting is wrong. Taking group A as a good sample, set the minimum M-NET address in the group for the outdoor unit whose refrigerant address is "00".

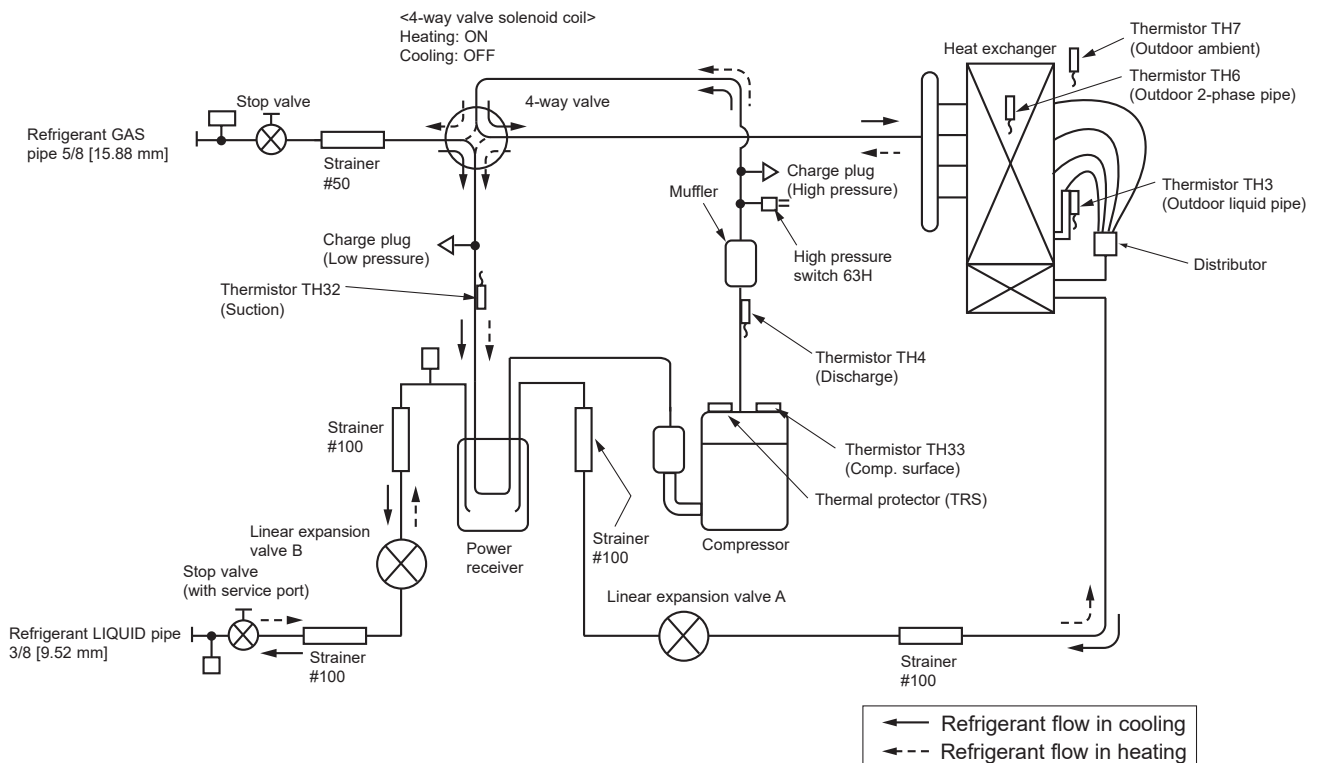
PUZ-AK12NL-U1 PUY-AK12NL-U1
 PUZ-AK18NL-U1 PUY-AK18NL-U1

Unit: inch [mm]



PUZ-AH24NL-U1 PUY-AH24NL-U1
 PUZ-AH30NL-U1 PUY-AH30NL-U1

Unit: inch [mm]



1. Refrigerant collecting (pump down)

Perform the following procedures to collect the refrigerant when moving the indoor unit or the outdoor unit.

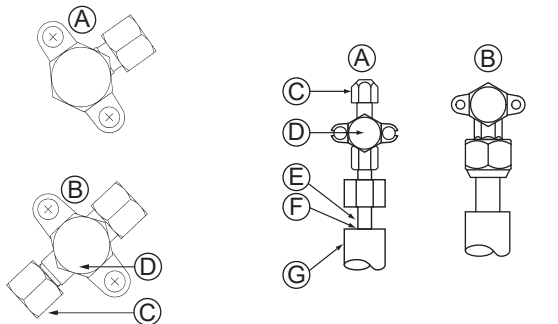
- ① Supply power (circuit breaker).
 - When power is supplied, make sure that [Centrally controlled] is not displayed on the remote controller. If [Centrally controlled] is displayed, the refrigerant collecting (pump down) cannot be completed normally.
 - Startup of the indoor-outdoor communication takes about 3 minutes after the power (circuit breaker) is turned on. Start the pump-down operation 3 to 4 minutes after the power (circuit breaker) is turned ON.
- ② After the liquid stop valve is closed, set SWP on the control board of the outdoor unit to ON. The compressor (outdoor unit) and ventilators (indoor and outdoor units) start operating and refrigerant collecting operation begins. LED1 and LED2 on the control board of the outdoor unit are lit.
 - Only set SWP to ON if the unit is stopped. However, even if the unit is stopped and SWP is set to ON less than 3 minutes after the compressor stops, the refrigerant collecting operation cannot be performed. Wait until compressor has been stopped for 3 minutes and then set SWP to ON again.
- ③ Because the unit automatically stops in about 2 to 3 minutes when the refrigerant collecting operation is completed (LED1 off, LED2 lit), be sure to quickly close the gas stop valve. If LED1 is lit and LED2 is off and the outdoor unit is stopped, refrigerant collection is not properly performed. Open the liquid stop valve completely, and then repeat step ② after 3 minutes have passed.
 - If the refrigerant collecting operation has been completed normally (LED1 off, LED2 lit), the unit will remain stopped until the power supply is turned off.
- ④ Turn off the power supply (circuit breaker).
 - Note that it may not be possible to perform a pump-down operation if the extension piping is very long with large refrigerant amount.

⚠ Warning:

- **When pumping down the refrigerant, stop the compressor before disconnecting the refrigerant pipes. The compressor may burst if air etc. get into it.**
- **Do not perform pump down work when there is a gas leak. The intake of air or other gases causes abnormally high pressure in the refrigerant cycle, which may cause explosion or injury.**

2. Refrigerant Pipe Nitrogen Pressure Test Method

- (1) Connect the testing tools.
 - Make sure the stop valves A B are closed and do not open them.
 - Add pressure to the refrigerant lines through the service port. <Removed "C of the liquid stop valve D">
- (2) Do not add pressure to the specified pressure all at once; add pressure little by little.
 - ① Pressurize to 0.5 MPa (73 psig, 5 kgf/cm²G), wait 5 minutes, and make sure the pressure does not decrease.
 - ② Pressurize to 1.5 MPa (218 psig, 15 kgf/cm²G), wait 5 minutes, and make sure the pressure does not decrease.
 - ③ Pressurize to 4.15 MPa (602 psig, 41.5 kgf/cm²G) and measure the surrounding temperature and refrigerant pressure.
- (3) If the specified pressure holds for about 24 hours and does not decrease, the pipes have passed the test and there are no leaks.
 - If the surrounding temperature changes by 1°C (1.8°F), the pressure will change by about 0.01 MPa (1.45 psig, 0.1 kgf/cm²G). Make the necessary corrections.
- (4) If the pressure decreases in steps (2) or (3), there is a gas leak. Look for the source of the gas leak.



- A Stop valve <Liquid side>
- B Stop valve <Gas side>
- C Service port
- D Open/Close section
- E Local pipe
- F Sealed, same way for gas side
- G Pipe cover

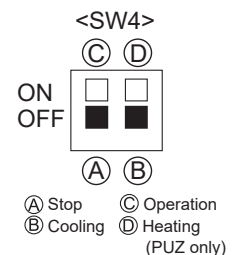
3. Start and finish of test run

- Operation from the indoor unit
Execute the test run using the installation manual for the indoor unit.
- Operation from the outdoor unit
SW4, located on the control board of the outdoor unit, starts and finishes the test run. It also sets the operation mode (cooling/heating).
 - ① Set the operation mode (cooling/heating) with SW4-2.
 - ② Turn on SW4-1 to start test run with the operation mode set by SW4-2.
 - ③ Turn off SW4-1 to finish the test run.

- There may be a faint knocking sound around the machine room after power is supplied. However, this is not a problem with the product because the linear expansion valve is just moving to adjust opening pulse.
- There may be a knocking sound around the machine room for several seconds after compressor starts operating. However, this is not a problem with a product because the check valve itself generates the sound when pressure difference is small in the refrigerant circuit.

Note:

The operation mode cannot be changed by SW4-2 during the test run. (To change test run mode, stop the unit by SW4-1, change the operation mode and restart the test run by SW4-1.)



10-1. TROUBLESHOOTING

<Error code displayed by self-diagnosis and actions required for service (summary)>

Present and past error codes are logged, and they can be displayed on the wired remote controller and control board of outdoor unit. Actions required service, which depends on whether or not the trouble is reoccurring in the field, are summarized in the table below. Check the contents below before investigating details.

Unit conditions at service	Error code	Actions required for service (summary)
The trouble is reoccurring.	Displayed	Judge the problem and take a corrective action according to "10-3. SELF-DIAGNOSIS ACTION TABLE".
	Not displayed	Conduct troubleshooting and ascertain the cause of the trouble according to "10-4. TROUBLESHOOTING OF PROBLEMS".
The trouble is not reoccurring.	Logged	<ol style="list-style-type: none"> ① Consider the temporary defects such as the work of protection devices in the refrigerant circuit including compressor, poor connection of wiring, noise, etc. Re-check the symptom and check the installation environment, refrigerant amount, weather when the trouble occurred, and matters related to wiring, etc. ② Reset error code logs and restart the unit after finishing service. ③ There is no abnormality in electrical component, controller board, or remote controller, etc.
	Not logged	<ol style="list-style-type: none"> ① Re-check the abnormal symptom. ② Conduct troubleshooting to identify the cause of the trouble according to "10-4. TROUBLESHOOTING OF PROBLEMS". ③ Continue to operate unit for the time being if the cause is not identified. ④ There is no abnormality concerning of parts such as electrical component, controller board, and remote controller, etc.

10-2. CHECK POINT UNDER TEST RUN

10-2-1 Before the test run

- After installation of indoor and outdoor units, piping work, and electric wiring work, re-check that there is no refrigerant leakage, loosened connections, and incorrect polarity.
- Measure impedance between the ground and the power supply terminal block (L1, L2) on the outdoor unit by 500 V Megger and check that it is 1.0MΩ or over.
Note: Do not use 500V Megger to the indoor/outdoor connecting wire terminal block (S1, S2, S3) and the remote controller terminal block (1, 2). This may cause malfunction.
- Make sure that the test run switch (SW4) is set to OFF before turning on power supply.
- Turn on power supply 12 hours before the test run in order to protect compressor.
- For specific models which requires higher ceiling settings or auto-recovery feature from power failure, make proper changes of settings referring to the description of "12. FUNCTION SETTING".
- Make sure to read the operation manual before the test run. (Especially items to secure safety.)

10-2-2. TEST RUN

Refer to "15-4. TEST RUN" for operation procedure.

10-2-3. ERROR INFORMATION

Refer to "15-2. ERROR INFORMATION" when an error occurs.

10-2-4. ERROR HISTORY

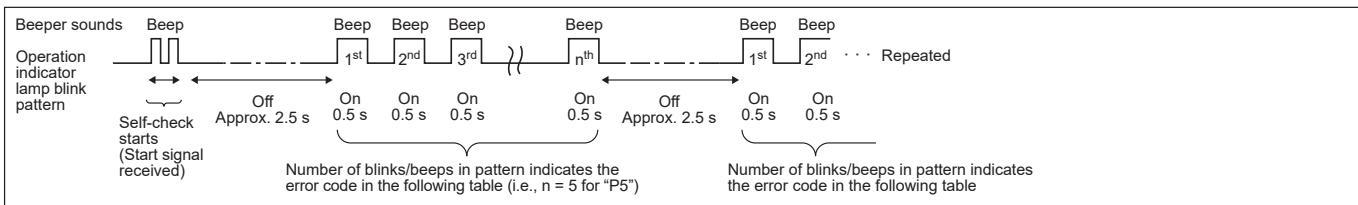
Refer to "15-6. ERROR HISTORY" to check the errors occurred in the past.

10-2-5. SELF-DIAGNOSIS

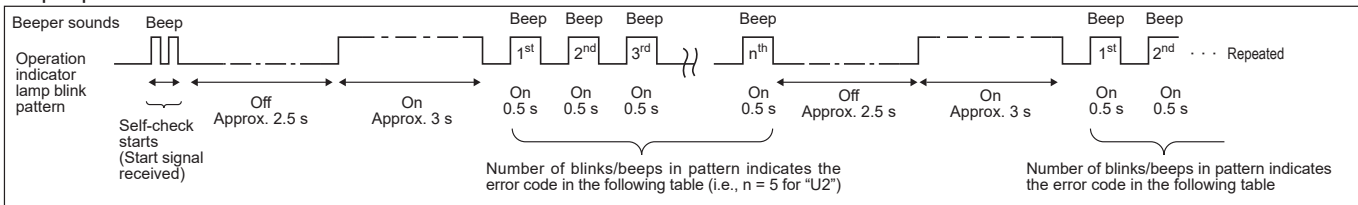
Refer to "15-7. SELF-DIAGNOSIS" to search for the error history.

• Refer to the following tables for details on the error codes.

Output pattern A



Output pattern B



Output pattern A: Errors detected by indoor unit

IR wireless remote controller Beeper sounds/operation indicator lamp blinks (Number of times)	Wired remote controller ① Error code	Symptom	Remark
1	P1	Intake sensor error	As for indoor unit, refer to indoor unit's service manual.
2	P2	Pipe (TH2) sensor error	
	P9	Pipe (TH5) sensor error	
3	E6, E7	Indoor/outdoor unit communication error	
4	P4	Drain sensor error/Float switch connector open	
5	P5	Drain pump error	
	PA	Forced compressor stop (due to water leakage abnormality)	
6	P6	Freezing/Overheating protection operation	
7	EE	Combination error between indoor and outdoor units	
8	P8	Pipe temperature error	
9	E4, E5	Remote controller signal receiving error	
10	–	–	
11	–	–	
12	FB (Fb)	Indoor unit control system error (memory error, etc.)	
14	PL	Abnormal refrigerant circuit	
–	E0, E3	Remote controller transmission error	
–	E1, E2	Remote controller control board error	

Output pattern B: Errors detected by unit other than indoor unit (outdoor unit, etc.)

IR wireless remote controller Beeper sounds/operation indicator lamp blinks (Number of times)	Wired remote controller Error code	Symptom	Remark
1	E9	Indoor/outdoor unit communication error (Transmitting error) (Outdoor unit)	For details, check the LED display of the outdoor controller board.
2	UP	Compressor overcurrent interruption	
3	U3,U4	Open/short of outdoor unit thermistors	
4	UF	Compressor overcurrent interruption (When the compressor is locked)	
5	U2	Abnormal high discharge temperature/49C worked/insufficient refrigerant	
6	U1,Ud	Abnormal high pressure (63H worked)/Overheating protection operation	
7	U5	Abnormal temperature of heatsink	
8	U8	Outdoor unit fan protection stop	
9	U6	Compressor overcurrent interruption/Abnormal of power module	
10	U7	Abnormality of super heat due to low discharge temperature	
11	U9,UH	Abnormality such as overvoltage or voltage shortage and abnormal synchronous signal to the main circuit/current sensor error	
12	–	–	
13	–	–	
14	Others	Other errors	

Note:

1. If the beeper does not sound again after the initial 2 beeps to confirm the self-check start signal was received and the operation indicator lamp does not come on, there are no error records.
2. If the beeper sounds 3 times continuously "beep, beep, beep (0.4 + 0.4 + 0.4 s)" after the initial 2 beeps to confirm the self-check start signal was received, the specified refrigerant address is incorrect.

10-3. SELF-DIAGNOSIS ACTION TABLE

<Abnormalities detected when the power is turned on>

Note: Refer to the indoor unit section for the codes starting with P and E.

Error code	Abnormal points and detection method	Cause	Judgment and action
None	—	<p>① No voltage is supplied to terminal block (TB1) of the outdoor unit. a) The power supply breaker is turned off. b) Contact failure or disconnection of the power supply terminal c) Open phase (L1 or L2 phase)</p> <p>② Electric power is not charged to the power supply terminal of the outdoor power circuit board. a) Contact failure of the power supply terminal b) Open phase on the outdoor power circuit board (Disconnection of the terminal on the outdoor power circuit board)</p> <p>③ Electric power is not supplied to the outdoor controller circuit board. a) Disconnection of the connector (CNDC) (AH24, 30 only)</p> <p>④ Disconnection of the reactor (DCL or ACL)</p> <p>⑤ Defective outdoor power circuit board</p> <p>⑥ Defective outdoor controller circuit board</p>	<p>① Check following items. a) The power supply breaker b) Connection of the power supply terminal block (TB1) c) Connection of the power supply terminal block (TB1)</p> <p>② Check following items. a) Connection of the power supply terminal block (TB1) b) Connection of the terminal on the outdoor power circuit board</p> <p>③ Check connection of the connector (CNDC) on the outdoor controller circuit board. Check connection of the connector CNDC on the outdoor power circuit board. (AH24, 30 only) Refer to "10-8. TEST POINT DIAGRAM".</p> <p>④ Check connection of the reactor. (DCL or ACL) Refer to "7. WIRING DIAGRAM".</p> <p>⑤ Replace the outdoor power circuit board.</p> <p>⑥ Replace the controller board (When items above are checked but the units cannot be repaired).</p>
F5 (5201)	<p>63H or TRS connector open Abnormal if 63H or TRS connector circuit is open for 3 minutes continuously after power supply. 63H: High pressure switch TRS: Thermal protector</p>	<p>① Disconnection or contact failure of 63H or TRS connector on outdoor controller circuit board</p> <p>② Disconnection or contact failure of 63H or TRS</p> <p>③ 63H or TRS is working due to defective parts.</p> <p>④ Defective outdoor controller circuit board</p>	<p>① Check connection of 63H and TRS connector on outdoor controller circuit board. Refer to "10-8. TEST POINT DIAGRAM".</p> <p>② Check the 63H and TRS side of connecting wire.</p> <p>③ Check continuity by multimeter. Replace the parts if the parts are defective.</p> <p>④ Replace outdoor controller circuit board.</p>

Error code	Abnormal points and detection method	Cause	judgment and action
EA (6844)	Miswiring of the indoor/outdoor unit connecting wire (1) The outdoor controller circuit board can automatically check the number of connected indoor units. Abnormal if the number cannot be checked automatically due to miswiring of the indoor/outdoor unit connecting wire, etc. after power is turned on for 4 minutes. (2) Abnormal if the outdoor controller circuit board detects excessive number of indoor units.	① Contact failure or miswiring of the indoor/outdoor unit connecting wire ② Diameter or length of the indoor/outdoor unit connecting wire is out of specified capacity. ③ Excessive number of indoor units are connected to 1 indoor unit. (4 units or more) ④ Defective transmitting receiving circuit of the outdoor controller circuit board ⑤ Defective transmitting receiving circuit of indoor controller board ⑥ Defective indoor power board ⑦ 2 or more outdoor units have refrigerant address "0". (In the case of group control) ⑧ Noise has entered into power supply or the indoor/outdoor unit connecting wire.	① Check disconnection or looseness or polarity of the indoor/outdoor unit connecting wire of the indoor and outdoor units. ② Check diameter and length of the indoor/outdoor unit connecting wire. Total wiring length: 262 ft [80 m] (including wiring connecting each indoor unit and between the indoor and outdoor unit) Also check if the connection order of flat cable is S1, S2, S3. ③ Check the number of indoor units that are connected to one outdoor unit. (If EA is detected) ④-⑥ Turn the power off once and on again to check. Replace the outdoor controller circuit board, indoor controller board, or indoor power board if abnormality is detected again.
Eb (6845)	Miswiring of the indoor/outdoor unit connecting wire (converse wiring or disconnection) (1) The outdoor controller circuit board can automatically set the unit number of indoor units. (2) Abnormal if the indoor unit number cannot be set within 4 minutes after power on because of miswiring (converse wiring or disconnection) of the indoor/outdoor unit connecting wire.	① Contact failure or miswiring of the indoor/outdoor unit connecting wire ② Diameter or length of the indoor/outdoor unit connecting wire is out of specified capacity. ④ Defective transmitting receiving circuit of the outdoor controller circuit board ⑤ Defective transmitting receiving circuit of the indoor controller board ⑥ Defective indoor power board ⑦ 2 or more outdoor units have refrigerant address "0". (In the case of group control) ⑧ Noise has entered into power supply or the indoor/outdoor unit connecting wire.	⑦ Check if the refrigerant addresses (SW1-3 to SW1-6 on the outdoor controller circuit board) are overlapping in the case of group control system. ⑧ Check transmission path and remove the cause. Note: The descriptions above, ①-⑧, are for EA, Eb and EC.
EC (6846)	Startup time over The unit cannot finish Startup process within 4 minutes after power on.	① Contact failure of the indoor/outdoor unit connecting wire ② Diameter or length of the indoor/outdoor unit connecting wire is out of specified capacity. ⑦ 2 or more outdoor units have refrigerant address "0". (In the case of group control) ⑧ Noise has entered into power supply or the indoor/outdoor unit connecting wire.	
U1 (1302)	High pressure (High pressure switch 63H operated) /High compressor temperature (Thermal protector TRS operated) Abnormal if the high pressure switch 63H (4.15 MPa, 602 psig) or thermal protector TRS (230°F [110°C]) operated during compressor operation	① Short cycle of the indoor unit ② Clogged filter of the indoor unit ③ Decreased airflow caused by dirt of the indoor fan ④ Dirt of the indoor heat exchanger ⑤ Locked indoor fan motor ⑥ Malfunction of the indoor fan motor ⑦ Defective operation of the stop valve (Not full open) ⑧ Clogged or broken pipe ⑨ Locked outdoor fan motor ⑩ Malfunction of the outdoor fan motor ⑪ Short cycle of the outdoor unit ⑫ Dirt of the outdoor heat exchanger ⑬ Decreased airflow caused by defective inspection of the outside temperature thermistor (It detects lower temperature than actual temperature.) ⑭ Disconnection or contact failure of the connector (63H or TRS) on the outdoor controller board ⑮ Disconnection or contact failure of 63H or TRS connection ⑯ Defective outdoor controller board ⑰ Defective action of the linear expansion valve ⑱ Malfunction of the fan driving circuit ⑲ Overheated compressor operation caused by shortage of refrigerant ⑳ Defective operation of the stop valve	①-⑥ Check the indoor unit and repair defects. ⑦ Check if the stop valve is fully open. ⑧ Check the piping and repair defects. ⑨-⑫ Check the outdoor unit and repair defects. ⑬ Check the detected temperature of the outside temperature thermistor on the LED display. (SW2 on A-Control Service Tool : Refer to "10-9. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS".) ⑭-⑯ Turn the power off and check if F5 is displayed when the power is turned on again. When F5 is displayed, refer to "Judgment and action" for F5. ⑰ Check the linear expansion valve. Refer to "10-5. HOW TO CHECK THE PARTS". ⑱ Replace the outdoor controller board. ⑲ Check intake superheat. Check leakage of refrigerant. Charge additional refrigerant. ⑳ Check if stop valve is fully open.

<Abnormalities detected while unit is operating>

Error code	Abnormal points and detection method	Cause	Judgment and action																										
U2 (TH4: 1102) (TH33: 1132) (Refrigerant shortage: 1501)	<p>(1) High discharge temperature Abnormal if discharge temperature thermistor (TH4) exceeds 257°F [125°C] or 221°F [105°C] continuously for 5 minutes. Abnormal if condenser/evaporator temperature thermistor (TH5) exceeds 104°F [40°C] during defrosting and discharge temperature thermistor (TH4) exceeds 230°F [110°C].</p> <p>(2) High discharge superheat Abnormal if discharge superheat (Cooling: [Higher temperature of TH4 or TH33] – TH6 / Heating: [Higher temperature of TH4 or TH33] – TH5) exceeds 126°F [70°C] continuously for 10 minutes.</p> <p>(3) High comp. surface temperature Abnormal if comp. surface temperature thermistor (TH33) exceeds 230°F [110°C] or 212°F [100°C] continuously for 5 minutes.</p>	<p>① Overheated compressor operation caused by shortage of refrigerant</p> <p>② Defective operation of stop valve</p> <p>③ Defective thermistor</p> <p>④ Defective outdoor controller board</p> <p>⑤ Defective action of linear expansion valve</p> <p>⑥ Clogging with foreign objects in refrigerant circuit Note: Clogging occur in the parts which become below freezing point when water enters in refrigerant circuit.</p> <p>⑦ In the case of the unit does not restart: Detection temp. of thermistor (TH33) ≥ 203°F [95°C]</p>	<p>① Check intake superheat. Check leakage of refrigerant. Charge additional refrigerant.</p> <p>② Check if stop valve is fully open.</p> <p>③④ Turn the power off and check if U3 is displayed when the power is on again. When U3 is displayed, refer to "Judgment and action" for U3.</p> <p>⑤ Check linear expansion valve. Refer to "10-5. HOW TO CHECK THE PARTS" and "10-6. HOW TO CHECK THE COMPONENTS".</p> <p>⑥ After recovering refrigerant, remove water from entire refrigerant circuit under vacuum more than 1 hour.</p>																										
U3 (TH4: 5104) (TH33: 5132)	<p>Open/short circuit of outdoor unit temperature thermistor (TH4, TH33) Abnormal if open (–4°F [–20°C] or less) or short (422°F [217°C] or more) is detected during compressor operation. (Detection is inoperative for 10 minutes of compressor starting process and for 10 minutes after and during defrosting.)</p> <p>TH4: Thermistor <Discharge> TH33: Thermistor <Comp. surface></p>	<p>① Disconnection or contact failure of connectors (TH4, TH33) on the outdoor controller circuit board</p> <p>② Defective thermistor</p> <p>③ Defective outdoor controller circuit board</p>	<p>① Check connection of connector (TH4, TH33) on the outdoor controller circuit board. Check breaking of the lead wire for TH4 or TH33. Refer to "10-8. TEST POINT DIAGRAM".</p> <p>② Check resistance value of TH4, TH33, or temperature by microprocessor. (Thermistor/TH4, TH33: Refer to "10-5. HOW TO CHECK THE PARTS".) (SW2 on A-Control Service Tool: Refer to "10-9. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS".)</p> <p>③ Replace outdoor controller board.</p>																										
U4 (TH3: 5105) (TH6: 5107) (TH7: 5106) (TH8: 5110) (TH32: 5105)	<p>Open/short of outdoor unit thermistors (TH3, TH6, TH7, TH8 and TH32) Abnormal if open or short is detected during compressor operation. Open detection of thermistors TH3 and TH6 is inoperative for 10 seconds to 10 minutes after compressor starting and 10 minutes after and during defrosting. Note: Check which unit has abnormality in its thermistor by switching the mode of SW2. (PAC-SK52ST) (Refer to "10-9. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS".)</p>	<p>① Disconnection or contact failure of connectors (Outdoor controller circuit board: TH3,TH6/TH7, TH32) (Outdoor power circuit board: CN3)</p> <p>② Defective thermistor</p> <p>③ Defective outdoor controller circuit board</p>	<p>① Check connection of connector (TH3,TH6/TH7, TH32) on the outdoor controller circuit board. Check connection of connector (CN3) on the outdoor power circuit board. Check breaking of the lead wire for thermistor (TH3,TH6,TH7,TH8, TH32). Refer to "10-8. TEST POINT DIAGRAM".</p> <p>② Check resistance value of thermistor (TH3,TH6,TH7,TH8, TH32) or check temperature by microprocessor. (Thermistor/TH3, TH6, TH7, TH8, TH32: Refer to "10-5. HOW TO CHECK THE PARTS".) (SW2 on A-Control Service Tool: Refer to "10-9. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS".)</p> <p>③ Replace outdoor controller circuit board. Note: Emergency operation is available in the case of abnormalities of TH3, TH6, TH7 and TH32. Refer to "10-7. EMERGENCY OPERATION".</p>																										
	<table border="1"> <thead> <tr> <th colspan="2">Thermistors</th> <th rowspan="2">Open detection</th> <th rowspan="2">Short detection</th> </tr> <tr> <th>Symbol</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>TH3</td> <td>Thermistor <Liquid></td> <td>–58°F [–50°C] or below</td> <td>194°F [90°C] or above</td> </tr> <tr> <td>TH6</td> <td>Thermistor <2-phase pipe></td> <td>–58°F [–50°C] or below</td> <td>194°F [90°C] or above</td> </tr> <tr> <td>TH7</td> <td>Thermistor <Ambient></td> <td>–58°F [–50°C] or below</td> <td>194°F [90°C] or above</td> </tr> <tr> <td>TH8</td> <td>Thermistor <Heat sink></td> <td>–54°F [–48°C] or below</td> <td>216°F [102°C] or above</td> </tr> <tr> <td>TH32</td> <td>Thermistor <Suction></td> <td>–58°F [–50°C] or below</td> <td>167°F [75°C] or above</td> </tr> </tbody> </table>	Thermistors		Open detection	Short detection	Symbol	Name	TH3	Thermistor <Liquid>	–58°F [–50°C] or below	194°F [90°C] or above	TH6	Thermistor <2-phase pipe>	–58°F [–50°C] or below	194°F [90°C] or above	TH7	Thermistor <Ambient>	–58°F [–50°C] or below	194°F [90°C] or above	TH8	Thermistor <Heat sink>	–54°F [–48°C] or below	216°F [102°C] or above	TH32	Thermistor <Suction>	–58°F [–50°C] or below	167°F [75°C] or above		
Thermistors		Open detection	Short detection																										
Symbol	Name																												
TH3	Thermistor <Liquid>	–58°F [–50°C] or below	194°F [90°C] or above																										
TH6	Thermistor <2-phase pipe>	–58°F [–50°C] or below	194°F [90°C] or above																										
TH7	Thermistor <Ambient>	–58°F [–50°C] or below	194°F [90°C] or above																										
TH8	Thermistor <Heat sink>	–54°F [–48°C] or below	216°F [102°C] or above																										
TH32	Thermistor <Suction>	–58°F [–50°C] or below	167°F [75°C] or above																										

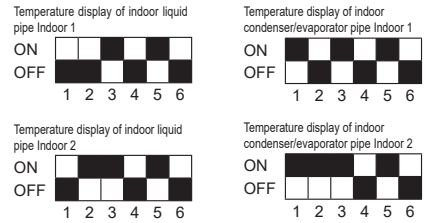
Error code	Abnormal points and detection method	Cause	Judgment and action
U5 (4230)	Temperature of heat sink Abnormal if heat sink thermistor (TH8) detects temperature indicated below. AK12, 18 169°F [76°C] AH24, 30 170°F [77°C]	① The outdoor fan motor is locked. ② Failure of outdoor fan motor ③ Airflow path is clogged. ④ Rise of ambient temperature ⑤ Defective thermistor ⑥ Defective input circuit of outdoor power circuit board ⑦ Failure of outdoor fan drive circuit	①② Check outdoor fan. ③ Check airflow path for cooling. ④ Check if there is something which causes temperature rise around outdoor unit. (Upper limit of ambient temperature is 114°F [46°C].) Turn off power and on again to check if U5 is displayed within 30 minutes. If U4 is displayed instead of U5, follow the action to be taken for U4. ⑤ Check resistance value of thermistor (TH8) or temperature by microprocessor. (Thermistor/TH8: Refer to "10-5. HOW TO CHECK THE PARTS".) (SW2 on A-Control Service Tool: Refer to "10-9. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS".) ⑥ Replace outdoor power circuit board. ⑦ Replace outdoor controller circuit board.
U6 (4250)	Power module Check abnormality by driving power module if overcurrent is detected. (UF or UP error condition)	① Outdoor stop valve is closed. ② Decrease of power supply voltage ③ Looseness, disconnection or converse of compressor wiring connection ④ Defective compressor ⑤ Defective outdoor power circuit board	① Open stop valve. ② Check facility of power supply. ③ Correct the wiring (U·V·W phase) to compressor. Refer to "10-8. TEST POINT DIAGRAM" (Outdoor power circuit board). ④ Check compressor referring to "10-5. HOW TO CHECK THE PARTS". ⑤ Replace outdoor power circuit board.
U7 (1502)	Too low superheat due to low discharge temperature Abnormal if discharge superheat is continuously detected less than or equal to 5°F [-15°C] for 3 minutes even though linear expansion valve has minimum open pulse after compressor starts operating for 15 minutes.	① Disconnection or loose connection of discharge thermistor (TH4) ② Defective holder of Discharge thermistor ③ Disconnection or loose connection of linear expansion valve's coil ④ Disconnection or loose connection of linear expansion valve's connector ⑤ Defective linear expansion valve	①② Check the installation conditions of discharge thermistor (TH4). ③ Check the coil of linear expansion valve. Refer to "10-6. HOW TO CHECK THE COMPONENTS". ④ Check the connection or contact of LEV-A and LEV-B on outdoor controller circuit board. ⑤ Check linear expansion valve. Refer to "10-5. HOW TO CHECK THE PARTS".
U8 (4400)	Outdoor fan motor Abnormal if the rotational frequency of fan motor is not detected during DC fan motor operation. Fan motor rotational frequency is abnormal if the following conditions are observed: • 100 rpm or below detected continuously for 15 seconds at 68°F [20°C] or more outside air temperature. • 50 rpm or below or 1500 rpm or more detected continuously for 1 minute.	① Failure in the operation of the DC fan motor ② Failure in the outdoor circuit controller board	① Failure in the operation of the DC fan motor ② Failure in the outdoor circuit controller board

Error code	Abnormal points and detection method	Cause	judgment and action	
U9 (4220)	Detailed codes	To find out the detail history (latest) about U9 error, turn ON SW2-1, 2-2, and 2-6. Refer to "10-9. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS".		
	01	Overvoltage error • Increase to DC bus voltage to 430V	① Abnormal increase in power source voltage ② Disconnection of compressor wiring ③ Defective outdoor power circuit board ④ Compressor has a ground fault.	① Check the field facility for the power supply. ② Correct the wiring (U·V·W phase) to compressor. Refer to "10-8. TEST POINT DIAGRAM" (Outdoor power circuit board). ③ Replace outdoor power circuit board. ④ Check compressor for electrical insulation. Replace compressor.
	02	Undervoltage error • Instantaneous decrease in DC bus voltage to 200 V	① Decrease in power source voltage, instantaneous stop. ② Defective converter drive circuit in outdoor power circuit board ③ Defective 52C drive circuit in outdoor power circuit board ④ Disconnection or loose connection of CN2 on the outdoor power circuit board/controller circuit board ⑤ Power circuit failure on DC supply for 15 VDC output on outdoor controller circuit board	① Check the field facility for the power supply. ② Replace outdoor power circuit board. ③ Replace outdoor power circuit board. ④ Check CN2 wiring. ⑤ Replace outdoor controller circuit board.
	04	Input current sensor error • Decrease in input current through outdoor unit to 0.1 A only if operation frequency is more than or equal to 40 Hz or compressor current is more than or equal to 6 A.	① Defective input current detection circuit in outdoor power circuit board ② Defective outdoor controller circuit board	① Replace outdoor power circuit board. ② Replace outdoor controller circuit board.
	08	Abnormal power synchronous signal • No input of power synchronous signal to power circuit board • Power synchronous signal of 44 Hz or less, or 65 Hz or more is detected on power circuit board.	① Distortion of power source voltage, noise superimposition ② Disconnection or loose connection of the ground wiring ③ Disconnection or loose connection of CN2 on the outdoor power circuit board/controller circuit board ④ Defective power synchronous signal in outdoor controller circuit board ⑤ Defective power synchronous signal circuit in outdoor power circuit board	① Check the field facility for the power supply. ② Check the ground wiring. ③ Check CN2 wiring. ④ Replace outdoor controller circuit board. ⑤ Replace outdoor power circuit board.
	10	PFC error (Overvoltage/Undervoltage/Overcurrent) • PFC detected any of the following: a) Decrease in PFC control voltage to 13 VDC or lower (AH24, 30 only) b) Increase in input current as follows: AK12, 18: 50 A peak AH24, 30: 42 A peak	① Abnormal increase in power source voltage ② Decrease in power source voltage, instantaneous stop ③ Disconnection of compressor wiring ④ Misconnection of reactor (DCL) ⑤ Defective outdoor power circuit board ⑥ Defective reactor (DCL) ⑦ Disconnection or loose connection of CN2 on the outdoor power circuit board/controller circuit board	①② Check the field facility for the power supply. ③ Correct the wiring (U·V·W phase) to compressor. Refer to "10-8. TEST POINT DIAGRAM". ④ Correct the wiring (U·V·W phase) or reactor (DCL). ⑤ Replace outdoor power circuit board. ⑥ Replace reactor (DCL). ⑦ Check CN2 wiring.

Error code	Abnormal points and detection method	Cause	judgment and action
U9 (4220)	Detailed codes	To find out the detail history (latest) about U9 error, turn ON SW2-1, 2-2, and 2-6. Refer to "10-9. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS".	
	80	Input voltage sensor error (AH24, 30 only) a) Increase in input voltage to 290 V or higher. b) Decrease in input voltage to 162 V or lower. c) A short or open circuit is detected in the input voltage detection circuit.	① Distortion of power source voltage, noise superimposition. ② Disconnection or loose connection of the ground wiring ③ Disconnection or loose connection of power supply wiring on the outdoor power circuit board/ controller circuit board ④ Defective input voltage signal circuit in outdoor power circuit board
UF (4100)	Compressor overcurrent interruption (When compressor locked) Abnormal if overcurrent of DC bus or compressor is detected within 30 seconds after compressor starts operating.	① Stop valve is closed. ② Decrease of power supply voltage ③ Looseness, disconnection or reverse of compressor wiring connection ④ Defective compressor ⑤ Defective outdoor power board ⑥ DIP switch setting for selecting model is incorrect on the outdoor power circuit board.	① Open stop valve. ② Check facility of power supply. ③ Correct the wiring (U·V·W phase) to compressor. Refer to "10-8. TEST POINT DIAGRAM". (Outdoor power circuit board). ④ Check compressor. Refer to "10-5. HOW TO CHECK THE PARTS". ⑤ Replace outdoor power circuit board. ⑥ Check that the DIP switch setting is correct on the outdoor power circuit board by referring to "Model Select" in "1) Function of switches" in "10-9. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS".
UH (5300)	Current sensor error • It is abnormal for 38A the input current or 10 seconds continuous 34A or more.	① Defective circuit of current sensor on outdoor power circuit board ② Decrease of power supply voltage	① Replace outdoor power circuit board. ② Check the facility of power supply.
Ud (1504)	Overheat protection Abnormal if outdoor liquid pipe thermistor (TH3) detects 158°F [70°C] or more during compressor operation.	① Defective outdoor fan (fan motor) or short cycle of outdoor unit during cooling operation ② Defective outdoor liquid pipe thermistor (TH3) ③ Defective outdoor controller board	① Check outdoor unit air passage. ②③ Turn the power off and on again to check the error code. If U4 is displayed, follow the U4 processing direction.
UL (1300)	Low pressure Abnormal if the following conditions are detected continuously for 3 minutes after compressor starts heating operating for 10 minutes. (1) Heating mode Detection mode 1 TH7 – TH3 ≤ 7°F [4°C] and TH5 – Indoor room temperature ≤ 4°F [2°C] Detection mode 2 TH7 – TH3 ≤ 4°F [2°C] and TH5 – Indoor room temperature ≤ 7°F [4°C] and TH2 – Indoor room temperature ≤ 7°F [4°C] Detection mode 3 TH7 – TH3 ≤ 7°F [4°C] and TH5 – Indoor room temperature ≤ 4°F [2°C] and TH4 – TH5 ≥ 36°F [20°C] (2) Cooling mode TH6 – TH7 ≤ 4°F [2°C] and TH3 – TH7 ≤ 4°F [2°C] and Indoor room temperature - Indoor liquid pipe temperature (TH2) ≤ 9°F [5°C] Note that it applies when the compressor accumulated operating time is under 30 minutes, and 7 minutes has passed after the compressor operation. TH32 - TH4 ≥ 36°F [20°C] and TH32 > 144°F [80°C] Thermistors: TH3: Liquid pipe temperature TH33: Comp. surface temperature TH4: Discharge temperature TH5: Indoor 2-phase pipe temperature TH7: Ambient temperature Thermistor TH3: Outdoor liquid pipe temperature TH4: Discharge temperature TH5: Indoor cond./eva. temperature TH6: Outdoor 2-phase pipe temperature TH7: Outdoor ambient temperature	① Stop valve of outdoor unit is closed during operation. ② Leakage or shortage of refrigerant ③ Malfunction of linear expansion valve ④ Clogging with foreign objects in refrigerant circuit Note: If water enters in refrigerant circuit, clogging may occur where the part becomes below freezing point.	① Check stop valve. ② Check intake superheat. Check leakage of refrigerant. Check additional refrigerant. ③ Check linear expansion valve. Refer to "10-5. HOW TO CHECK THE PARTS". ④ After recovering refrigerant, remove water from entire refrigerant circuit under vacuum more than 1 hour.

Error code	Abnormal points and detection method	Cause	judgment and action
UP (4210)	Compressor overcurrent interruption Abnormal if overcurrent DC bus or compressor is detected after compressor starts operating for 30 seconds.	① Stop valve of outdoor unit is closed. ② Decrease of power supply voltage ③ Looseness, disconnection or reverse of compressor wiring connection ④ Defective fan of indoor/outdoor units ⑤ Short cycle of indoor/outdoor units ⑥ Defective input circuit of outdoor controller board ⑦ Defective compressor	① Open stop valve. ② Check facility of power supply. ③ Correct the wiring (U-V-W phase) to compressor. Refer to "10-8. TEST POINT DIAGRAM" (Outdoor power circuit board). ④ Check indoor/outdoor fan. ⑤ Solve short cycle. ⑥ Replace outdoor controller circuit board. ⑦ Check compressor. Refer to "10-5. HOW TO CHECK THE PARTS". Note: Before the replacement of the outdoor controller circuit board, disconnect the wiring to compressor from the outdoor power circuit board and check the output voltage among phases, U, V, W, during test run. No defect on board if voltage among phases (U-V, V-W and W-U) is same. Make sure to perform the voltage check with same performing frequency.
E0 or E4 (6831, 6834)	Remote controller transmission error (E0)/signal receiving error (E4) (1) Abnormal if main or sub remote controller cannot receive any transmission normally from indoor unit of refrigerant address "0" for 3 minutes. (Error code: E0) (2) Abnormal if sub-remote controller could not receive for any signal for 2 minutes. (Error code: E0) (1) Abnormal if indoor controller board cannot receive any data normally from remote controller board or from other indoor controller boards for 3 minutes. (Error code: E4) (2) The indoor controller board cannot receive any signal from remote controller for 2 minutes. (Error code: E4)	① Contact failure at transmission wire of remote controller ② All remote controllers are set as "sub" remote controller. In this case, E0 is displayed on remote controller, and E4 is displayed at LED (LED1, LED2) on the outdoor controller circuit board. ③ Miswiring of remote controller ④ Defective transmitting receiving circuit of remote controller ⑤ Defective transmitting receiving circuit of indoor controller board of refrigerant address "0". ⑥ Noise has entered into the transmission wire of remote controller.	① Check disconnection or looseness of indoor unit or transmission wire of remote controller. ② Set one of the remote controllers as "main". If there is no problem with the action above. ③ Check wiring of remote controller. • Total wiring length: max. 500 m [1640ft] (Do not use cable with 3 or more cores.) • The number of connecting indoor units: max. 16 units • The number of connecting remote controller: max. 2 units If the cause of trouble is not in above ①-③, ④ Diagnose remote controllers. a) When [OK] is displayed, remote controllers have no problem. Turn the power off and on again to check. If abnormality occurs again, replace indoor controller board. b) When [NG] is displayed, replace remote controller. c) When [E3] or [ERC] is displayed, noise may be causing abnormality. Note: If the unit is not normal after replacing indoor controller board in group control, indoor controller board of address "0" may be abnormal.
E1 or E2 (6201, 6202)	Remote controller control board (1) Abnormal if data cannot be normally read from the nonvolatile memory of the remote controller control board. (Error code: E1) (2) Abnormal if the clock function of remote controller cannot be normally operated. (Error code: E2)	① Defective remote controller	① Replace remote controller.
E3 or E5 (6832, 6833)	Remote controller transmission error (E3)/signal receiving error (E5) (1) Abnormal if remote controller could not find blank of transmission path for 6 seconds and could not transmit. (Error code: E3) (2) Remote controller receives and transmits data simultaneously for comparison. If different data is detected 30 times in a row, it is judged to be an error. (Error code: E3) (1) Abnormal if indoor controller board could not find blank of transmission path. (Error code: E5) (2) The Indoor controller board receives and transmits data simultaneously for comparison. If different data is detected 30 times in a row, it is judged to be an error. (Error code: E5)	① 2 remote controllers are set as "main." (In the case of 2 remote controllers) ② Remote controller is connected with 2 indoor units or more. ③ Repetition of refrigerant address ④ Defective transmitting receiving circuit of remote controller ⑤ Defective transmitting receiving circuit of indoor controller board ⑥ Noise has entered into transmission wire of remote controller.	① Set a remote controller to main, and the other to sub. ② Remote controller is connected with only one indoor unit. ③ The address changes to a separate setting. ④-⑥ Diagnose remote controller. a) When [OK] is displayed, remote controllers have no problem. Turn the power off and on again to check. When becoming abnormal again, replace indoor controller board. b) When [NG] is displayed, replace remote controller. c) When [E3] or [ERC] is displayed, noise may be causing abnormality.

Error code	Abnormal points and detection method	Cause	Judgment and action
E6 (6840)	Indoor/outdoor unit communication error (Signal receiving error) (1) Abnormal if indoor controller board could not receive any signal normally for 6 minutes after turning the power on. (2) Abnormal if indoor controller board could not receive any signal normally for 3 minutes. (3) Consider the unit as abnormal under the following conditions: When 2 or more indoor units are connected to an outdoor unit; when the indoor controller board could not receive a signal for 3 minutes from the outdoor controller circuit board; or when a signal which allows the outdoor controller circuit board to transmit signals.	① Contact failure, short circuit or miswiring (reversed wiring) of indoor/outdoor unit connecting wire ② Defective transmitting receiving circuit of outdoor controller circuit board ③ Defective transmitting receiving circuit of indoor controller board ④ Noise has entered into indoor/outdoor unit connecting wire. ⑤ High pressure (High pressure switch 63H operated) or High compressor temperature (Thermal protector TRS operated) ⑥ Defective fan motor ⑦ Defective rush current resistor of outdoor power circuit board	Note: Check LED display on outdoor controller circuit board. (Connect A-Control service tool (PAC-SK52ST)) Refer to EA-EC item if LED displays EA-AC. ① Check disconnecting or looseness of indoor/outdoor unit connecting wire of indoor unit or outdoor unit. Check all the units in the case of twin indoor unit system. ②-⑤ Turn the power off, wait 10 minutes and on again to check. If abnormality occurs again, replace indoor controller board or outdoor controller circuit board. ⑥ Turn the power off and detach fan motor from connector (CNF1). Then turn the power on again. If abnormality is not displayed, replace fan motor. If abnormality is displayed, replace outdoor controller circuit board. ⑦ Check RS1 on outdoor noise filter board with multimeter. If open is detected, replace the board. Note: Other indoor controller boards may have defect for twin indoor unit system.
E7	Indoor/outdoor unit communication error (Transmitting error) Abnormal if "1" receiving is detected 30 times continuously though indoor controller board has transmitted "0".	① Defective transmitting receiving circuit of indoor controller board ② Noise has entered into power supply. ③ Noise has entered into outdoor control wire.	①-③ Turn the power off and on again to check. Replace indoor controller board if abnormality is displayed again.
E8 (6840)	Indoor/outdoor unit communication error (Signal receiving error) (Outdoor unit) (1) Abnormal if outdoor controller circuit board could not receive anything normally for 3 minutes.	① Contact failure of indoor/outdoor unit connecting wire ② Defective communication circuit of outdoor controller circuit board ③ Defective communication circuit of indoor controller board ④ Noise has entered into indoor/outdoor unit connecting wire.	① Check disconnection or looseness of indoor/outdoor unit connecting wire of indoor or outdoor units. ②-④ Turn the power off and on again to check. Replace indoor controller board or outdoor controller circuit board if abnormality is displayed again.
E9 (6841)	Indoor/outdoor unit communication error (Transmitting error) (Outdoor unit) (1) Abnormal if "0" receiving is detected 30 times continuously though outdoor controller circuit board has transmitted "1". (2) Abnormal if outdoor controller circuit board could not find blank of transmission path for 3 minutes.	① Indoor/outdoor unit connecting wire has contact failure. ② Defective communication circuit of outdoor controller circuit board ③ Noise has entered power supply. ④ Noise has entered indoor/outdoor unit connecting wire.	① Check disconnection or looseness of indoor/outdoor unit connecting wire. ②-④ Turn the power off and on again to check. Replace outdoor controller circuit board if abnormality is displayed again.
EF (6607 or 6608)	Non defined error code This code is displayed when non defined error code is received.	① Noise has entered transmission wire of remote controller. ② Noise has entered indoor/outdoor unit connecting wire. ③ Outdoor unit is not a power-inverter models.	①② Turn the power off and on again to check. Replace indoor controller board or outdoor controller circuit board if abnormality is displayed again. ③ Replace outdoor unit with power-inverter type outdoor unit.
EE (7130)	Abnormal if a connection of indoor unit and outdoor unit which uses different refrigerant is detected.	Unauthorized connection of indoor unit and outdoor unit The following combinations are not authorized; Outdoor unit: Models with R454B refrigerant Indoor unit: Ducted type indoor unit (PVA/PEAD/PAA) with R410A refrigerant	Change the connection referring to the combination shown in the "Cause" column.

Error code	Abnormal points and detection method	Cause	Judgment and action
Ed (0403)	Serial communication error (1) Abnormal if serial communication between outdoor controller circuit board and outdoor power circuit board is defective.	① Breaking of wire or contact failure of connector CN2 between the outdoor controller circuit board and the outdoor power circuit board ② Breaking of wire or contact failure of connector CN4 between the outdoor controller circuit board and the outdoor power circuit board ③ Defective communication circuit of outdoor power circuit board ④ Defective communication circuit of outdoor controller circuit board for outdoor power circuit board	①② Check connection of each connector CN2 and CN4 between the outdoor controller circuit board and the outdoor power circuit board. ③ Replace outdoor power circuit board. ④ Replace outdoor controller circuit board.
	(2) Abnormal if communication between outdoor controller circuit board and M-NET board is not available.	① Breaking of wire or contact failure of connector between outdoor controller circuit board and M-NET board ② Contact failure of M-NET board power supply line ③ Noise has entered into M-NET transmission wire.	① Check disconnection, looseness, or breaking of connection wire between outdoor controller circuit board (CNMNT) and M-NET board (CN5). ② Check disconnection, looseness, or breaking of connection wire between outdoor controller circuit board (CNVMNT) and M-NET board (CND). ③ Check M-NET transmission wiring method.
P8	Pipe temperature <Cooling mode> Detected as abnormal when the pipe temperature is not in the cooling range 3 minutes after compressor start and 6 minutes after the liquid or condenser/evaporator pipe is out of cooling range. Note 1: It takes at least 9 minutes to detect. Note 2: Abnormality P8 is not detected in dry mode. Cooling range: Indoor pipe temperature (TH2 or TH5) – intake temperature (TH1) $\leq -5.4^{\circ}\text{F}$ [-3°C] TH: Lower temperature between liquid pipe temperature and condenser/evaporator temperature <Heating mode> When 10 seconds have passed after the compressor starts operation and the hot adjustment mode has finished, the unit is detected as abnormal when condenser/evaporator pipe temperature is not in heating range within 20 minutes. Note 3: It takes at least 27 minutes to detect abnormality. Note 4: It excludes the period of defrosting (Detection restarts when defrosting mode is over.) Heating range: 5.4°F [3°C] \leq (Condenser/evaporator temperature (TH5) – intake temperature (TH1))	① Slight temperature difference between indoor room temperature and pipe <liquid or condenser/evaporator> temperature thermistor • Shortage of refrigerant • Disconnected holder of pipe <liquid or condenser/evaporator> thermistor • Defective refrigerant circuit ② Reversed connection of extension pipe (on plural units connection) ③ Reversed wiring of indoor/outdoor unit connecting wire (on plural units connection) ④ Defective detection of indoor room temperature and pipe <condenser/evaporator> temperature thermistor ⑤ Stop valve is not opened completely.	①–④ Check pipe <liquid or condenser/evaporator> temperature with room temperature display on remote controller and outdoor controller circuit board. Pipe <liquid or condenser/evaporator> temperature display is indicated by setting SW2 of outdoor controller circuit board as follows. (Conduct temperature check with outdoor controller circuit board after connecting 'A-Control Service Tool (PAC-SK52ST)')  <p style="text-align: center;">A-Control Service Tool SW2 setting</p> ②③ Check reversed connection of extension pipe or reversed wiring of indoor/outdoor unit connecting wire.
PL	Abnormal refrigerant circuit During Cooling, Dry, or Auto Cooling operation, the following conditions are regarded as failures when they are detected for 1 second. a) The compressor continues to run for 30 or more seconds. b) The liquid pipe temperature or the condenser/evaporator temperature is 167°F [75°C] or more. <u>These detected errors will not be cancelled until the power source is reset.</u>	① Abnormal operation of 4-way valve ② Disconnection of or leakage in refrigerant pipes ③ Air into refrigerant piping ④ Abnormal operation (no rotation) of indoor fan • Defective fan motor. • Defective indoor control board. ⑤ Defective refrigerant circuit (clogging)	① <u>When this error occurs, be sure to replace the 4-way valve.</u> ② Check refrigerant pipes for disconnection or leakage. ③ After the recovery of refrigerant, vacuum dry the whole refrigerant circuit. ④ Refer to "10-5. HOW TO CHECK THE PARTS". ⑤ Check refrigerant circuit for operation. <u>To avoid entry of moisture or air into refrigerant circuit which could cause abnormal high pressure, purge air in refrigerant circuit or replace refrigerant.</u>
FH	Refrigerant sensor error Abnormal if refrigerant sensor cannot detect errors normally.	① The refrigerant sensor mounted on the indoor unit does not work. ② The refrigerant sensor is not connected properly or the wire is broken.	①② Turn the power off, check the connection of some parts such as connectors and turn the power on again. When the error has not been cleared, replace the refrigerant sensor.

Error code	Abnormal points and detection method	Cause	judgment and action
FL	Refrigerant leakage Abnormal if the refrigerant leakage detected by a refrigerant sensor.	① Refrigerant leaks from the piping or the heat exchanger in the indoor unit. ② The following items are used around the indoor unit. • Spray (LP gas including Freon, and whose main ingredient is propane and butane) • Aerosol insecticide (including ethanol) • Air spray painting (including dichloromethane) • Charcoal (charcoal fire) • Chemicals (such as ethanol) ③ Refrigerant leaks from piping or heat exchangers, or sensor errors in the indoor units in other rooms.	• Turn off the power after FAN operation is finished. (FAN operation continues for 8 hours.) • Check the indoor unit to detect the part where the refrigerant leaks. • Repair the part where the refrigerant leaks. • Turn on the power again. • Replace the refrigerant sensor if the problem is not fixed.

<M-NET communication error>

Note: "Indoor unit" in the text indicates M-NET board in outdoor unit.

Error code	Abnormal points and detection method	Cause	judgment and action
A0 (6600)	Address duplicate definition This error is displayed when transmission from the units of same address is detected. Note: The address and attribute displayed at remote controller indicate the controller that detected abnormality.	① There are 2 or more same address of controller of outdoor unit, indoor unit, FRESH MASTER, or LOSSNAY. ② Noise has entered into transmission signal and signal was transformed.	Search the unit with same address as abnormality is detected. If the same address is found, turn off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for 2 minutes or more after the address is corrected, and turn the power on again. Check transmission waveform or noise on transmission wire.
A2 (6602)	Hardware error of transmission processor Transmission processor intended to transmit "0", but "1" appeared on transmission wire. Note: The address and attribute display at remote controller indicate the controller that detected abnormality.	① Error is detected if waveform is transformed when wiring works of transmission wire of outdoor unit, indoor unit, FRESH MASTER, or LOSSNAY are done, or polarity is changed with the power on and transmission data collide each other. ② Defective transmitting receiving circuit of transmission processor ③ Transmission data is changed by the noise on transmission.	① If the works of transmission wire is done with the power on, turn off the power supply of outdoor unit, indoor unit, FRESH MASTER, or LOSSNAY at the same time for 2 minutes or more, and turn the power on again. ② Check transmission waveform or noise on transmission wire.
A3 (6603)	BUS BUSY (1) Overtime error by collision damage Abnormal if transmitting signal is not possible for 8–10 minutes continuously because of collision of transmission. (2) Data could not reach transmission wire for 8–10 minutes continuously because of noise, etc. Note: The address and attribute displayed at remote controller indicate the controller that detected abnormality.	① Transmission processor could not transmit signal because short cycle voltage of noise and the like have entered into transmission wire continuously. ② Transmission quantity has increased and transmission is not possible because there was wiring mistake of terminal block for transmission wire (TB3) and terminal block for central control (TB7) in outdoor unit. ③ Mixed transmissions due to failure of outdoor unit repeater, which is a function to connect or disconnect transmission of control and central control system, increases occupation rate on transmission wire, detecting an error.	① Check if transmission wire of indoor unit, FRESH MASTER, LOSSNAY, or remote controller is not connected to terminal block for central control (TB7) of outdoor unit. ② Check if transmission wire of indoor unit, FRESH MASTER, or LOSSNAY is not connected to terminal block for transmission wire of outdoor unit. ③ Check if terminal block for transmission wire (TB3) and terminal block for central control (TB7) are not connected. ④ Check transmission waveform or noise on transmission wire.
A6 (6606)	Communication error with communication processor Defective communication between unit processor and transmission processor Note: The address and attribute display at remote controller indicate the controller that detected abnormality.	① Data of transmission processor or unit processor is not transmitted normally because of accidental trouble such as noise or lightning surge. ② Address forwarding from unit processor is not transmitted normally because of defective transmission processor hardware.	Turn off the power supply of outdoor unit, indoor unit, FRESH MASTER, and LOSSNAY at the same time for 2 minutes or more, and turn the power on again. System returns to normal if abnormality was accidental malfunction. If the same abnormality occurs again, abnormality-occurred controller may be defective.

Error code	Abnormal points and detection method	Cause	judgment and action
A7 (6607)	<p>NO ACK signal</p> <p>(1) Transmitting side controller detects abnormal if a message was transmitted but there is no reply (ACK) that a message was received. Transmitting side detects abnormality every 30 seconds, 6 times continuously.</p> <p>Note: The address and attribute displayed at remote controller is indicate the controller that did not reply (ACK).</p>	<p>Common factors that have no relation with abnormality source.</p> <p>① The unit of former address does not exist as address switch has changed while the unit was energized.</p> <p>② Voltage drop and weak signal causing communication error, are caused by over-range transmission wire.</p> <ul style="list-style-type: none"> • Maximum distance …… 656 ft [200 m] • Remote controller line… (39ft [12 m]) <p>③ Voltage drop and weak signal causing communication error are caused by type-unmatched transmission wire.</p> <p>Type……</p> <ul style="list-style-type: none"> With shield wire- CVVS, CPEVS With normal wire (no shield)- VCTF, VCTFK, CVV CVS, VVR, VVF, VCT <p>Diameter …… 1.25 mm² [AWG16] or more</p> <p>④ Voltage drop and weak signal causing communication error are caused by over-numbered units.</p> <p>⑤ Accidental malfunction of causing abnormality-detected controller (noise, lightning surge)</p> <p>⑥ Defective of abnormality occurred controller</p>	<p>Always try the following when the error “A7” occurs.</p> <p>① Turn off the power supply of outdoor unit, indoor unit, FRESH MASTER, and LOSSNAY at the same time for 2 minutes or more, and turn the power on again. If malfunction was accidental, the unit returns to normal.</p> <p>② Check address switch of abnormality occurred address.</p> <p>③ Check disconnection or looseness of abnormality occurred or abnormality detected transmission wire (terminal block and connector)</p> <p>④ Check if tolerance range of transmission wire is not exceeded.</p> <p>⑤ Check if type of transmission wire is correct or not.</p> <p>If the cause of trouble is included in ①–⑤ above, repair the defective, then turn off the power supply of outdoor unit, indoor unit, FRESH MASTER, and LOSSNAY at the same time for 2 minutes or more, and turn the power on again.</p> <ul style="list-style-type: none"> • If the cause of trouble is not described in ①–⑤ above, in single refrigerant system (one outdoor unit), controller of displayed address or attribute is defective. • If the cause of trouble is not included in ①–⑤ above in different refrigerant system (2 or more outdoor units), judge with ⑥. <p>⑥ If address of abnormality source is the address that should not exist, there is the unit that memorizes nonexistent address information. Delete unused address information with manual setting function of remote controller.</p> <p>Only the system FRESH MASTER or LOSSNAY are connected to, or the system that is equipped with group setting of different refrigerant system.</p> <p>If the cause of trouble is not included any of ①–⑤ above, replace the controller board of displayed address or attribute.</p> <p>If the unit does not return to normal, multi controller board of outdoor unit may be defective (repeater circuit).</p> <p>Replace multi-controller board one by one to check if the unit returns to normal.</p>
	(2) If displayed address or attribute is outdoor unit, Indoor unit detects abnormality when indoor unit transmitted to outdoor unit and there was no reply (ACK).	<p>① Contact failure of transmission wire of outdoor unit or indoor unit</p> <p>② Disconnection of transmission connector (CN2M) of outdoor unit</p> <p>③ Defective transmitting receiving circuit of outdoor unit or indoor unit</p>	
	(3) If displayed address or attribute is indoor unit, remote controller detects abnormality when remote controller transmitted to indoor unit and there was no reply (ACK).	<p>① During group operation with indoor unit of multi- refrigerant system, if remote controller transmit to indoor unit while outdoor unit power supply of one refrigerant system is turned off or within 2 minutes of restart, abnormality is detected.</p> <p>② Contact failure of transmission wire of remote controller or indoor unit</p> <p>③ Disconnection of transmission connector (CN2M) of indoor unit</p> <p>④ Defective transmitting receiving circuit of indoor unit or remote controller</p>	
	(4) If displayed address or attribute is remote controller, Indoor unit detects abnormality when indoor unit transmitted to remote controller and there was no reply (ACK).	<p>① During group operation with indoor unit of multi-refrigerant system, if indoor unit transmit to remote controller while outdoor unit power supply of one refrigerant system is turned off or within 2 minutes of restart, abnormality is detected.</p> <p>② Contact failure of transmission wire of remote controller or indoor unit</p> <p>③ Disconnection of transmission connector (CN2M) of indoor unit</p> <p>④ Defective transmitting receiving circuit of indoor unit or remote controller</p>	

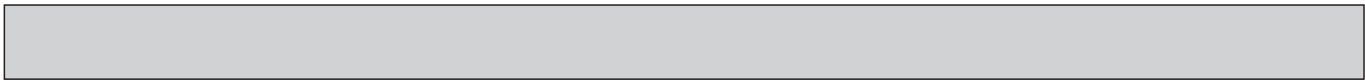
Continued to the next page.

From the previous page.

Error code	Abnormal points and detection method	Cause	judgment and action
A7 (6607)	(5) If displayed address or attribute is FRESH MASTER, the indoor unit detects abnormality when indoor unit transmitted to FRESH MASTER and there was no reply (ACK).	① During sequential operation of indoor unit and FRESH MASTER of other refrigerant system, if indoor unit transmits to FRESH MASTER while outdoor unit power supply of same refrigerant system with FRESH MASTER is turned off or within 2 minutes of restart, abnormality is detected. ② Contact failure of transmission wire of indoor unit or FRESH MASTER ③ Disconnection of transmission connector (CN2M) of indoor unit or FRESH MASTER ④ Defective transmitting receiving circuit of indoor unit or FRESH MASTER	Same as mentioned in "A7" of the previous page.
	(6) If displayed address or attribute is LOSSNAY, the indoor unit detects abnormality when indoor unit transmitted to LOSSNAY and there was no reply (ACK).	① If the power supply of LOSSNAY is turned off, indoor unit detects abnormality when it transmits to LOSSNAY. ② During sequential operation of indoor unit and LOSSNAY of other refrigerant system, if indoor unit transmits to LOSSNAY while outdoor unit power supply of same refrigerant system with LOSSNAY is turned off or within 2 minutes of restart, abnormality is detected. ③ Contact failure of transmission wire of indoor unit of LOSSNAY ④ Disconnection of transmission connector (CN2M) of indoor unit ⑤ Defective transmitting receiving circuit of indoor unit or LOSSNAY	
	(7) If displayed address or attribute is non-existent,	① The unit of former address does not exist as address switch has changed while the unit was energized. ② Abnormality is detected when indoor unit transmitted because the address of FRESH MASTER and LOSSNAY are changed after sequential operation of FRESH MASTER and LOSSNAY by remote controller.	
A8 (6608)	M-NET NO RESPONSE Abnormal if a message was transmitted and there were reply (ACK) that message was received, but response command does not return. Transmitting side detects abnormality every 30 seconds, 6 times continuously. Note: The address and attribute displayed at remote controller indicate the controller that did not reply (ACK).	① Transmitting condition is repeated fault because of noise and the like. ② Extension of transmission wire voltage and signal is caused by over-range transmission wire. • Maximum distance …… 656 ft [200 m] • Remote controller line … (39 ft [12 m]) ③ Extension of transmission wire voltage and signal is caused by type-unmatched transmission wire. Type…… With shield wire- CVVS, CPEVS With normal wire (no shield)- VCTF, VCTFK, CVV CVS, VVR, VVF, VCT Diameter … 1.25 mm ² [AWG16] or more ④ Accidental malfunction of abnormality-occurred controller	① Check transmission waveform or noise on transmission wire. ② Turn off the power supply of the outdoor unit, indoor unit, FRESH MASTER, and LOSSNAY at the same time for 2 minutes or more, and turn the power on again. If malfunction was accidental, the unit returns to normal. If the same abnormality occurs again, controller of displayed address and attribute may be defective.

10-4. TROUBLESHOOTING OF PROBLEMS

Phenomena	Factor	Countermeasure
(1) Remote controller display does not work.	<p>① 12 VDC is not supplied to remote controller.</p> <p>② 12–15 VDC is supplied to remote controller, however, no display is indicated.</p> <ul style="list-style-type: none"> • [Please Wait] is not displayed. • [Please Wait] is displayed. 	<p>① Check LED2 on indoor controller board.</p> <p>(1) When LED2 is lit, check the remote controller wiring for breaking or contact failure.</p> <p>(2) When LED2 is blinking, check short circuit of remote controller wiring.</p> <p>(3) When LED2 is not lit, refer to phenomena No.3 below.</p> <p>② Check the following.</p> <ul style="list-style-type: none"> • Failure of remote controller if [Please Wait] is not displayed • Refer to phenomena No.2 below if [Please Wait] is displayed.
(2) [Please Wait] display is remained on the remote controller.	<p>① At longest 2 minutes after the power supply [Please Wait] is displayed to start up.</p> <p>② Communication error between the remote controller and indoor unit</p> <p>③ Communication error between the indoor and outdoor unit</p> <p>④ Outdoor unit protection device connector is open.</p>	<p>① Normal operation</p> <p>② Self-diagnosis of remote controller</p> <p>③ "Please Wait" is displayed for 6 minutes at most in the case of indoor/outdoor unit communication error. Check LED3 on indoor controller board.</p> <p>(1) When LED3 is not blinking, check indoor/outdoor connecting wire for mis-wiring. (Reversed wiring of S1 and S2, or break of S3 wiring.)</p> <p>(2) When LED3 is blinking, indoor/outdoor connecting wire is normal.</p> <p>④ Check LED display on outdoor controller circuit board. Refer to "10-9. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS". Check protection device connector (63H and TRS) for contact failure. Refer to "10-8. TEST POINT DIAGRAM".</p>
(3) When pressing the remote controller operation switch the OPERATION display is appeared but it will be turned off soon.	<p>① After cancelling to select function from the remote controller, the remote controller operation switch will not be accepted for approx. 30 seconds.</p>	<p>① Normal operation</p>
(4) Even controlling by the IR wireless remote controller no beep is heard and the unit does not start operating. Operation display is indicated on IR wireless remote controller.	<p>① The pair number settings of the IR wireless remote controller and indoor controller board are mismatched.</p>	<p>① Check the pair number settings.</p>
(5) When operating by the IR wireless remote controller, beep sound is heard, however, unit does not start operating.	<p>① No operation for 2 minutes at most after the power supply ON.</p> <p>② Hand-held remote controller operation is prohibited.</p> <ul style="list-style-type: none"> • Remote controlling adaptor is connected to CN32 on the indoor controller board. • Hand-held remote controller operation is prohibited by centralized controller etc. since it is connected to MELANS. <p>③ Refer to factor of phenomena No.2.</p>	<p>① Normal operation</p> <p>② Normal operation</p> <p>③ Check the details of phenomena No.2.</p>



Phenomena	Factor	Countermeasure
(6) Remote controller display works normally and the unit performs cooling operation, however, the capacity cannot be fully obtained. (The air does not cool well.)	① Refrigerant shortage ② Filter clogging ③ Heat exchanger clogging ④ Air duct short cycle	① If refrigerant leaks, discharge temperature rises and LEV opening increases. Inspect leakage by checking the temperature and opening. Check pipe connections for gas leakage. ② Open intake grille and check the filter. Clean the filter by removing dirt or dust on it. ③ If the filter is clogged, indoor pipe temperature rises and discharge pressure increases. Check if heat exchanger is clogged by inspecting discharge pressure. Clean the heat exchanger. ④ Remove the blockage.
(7) Remote controller display works normally and the unit performs heating operation, however, the capacity cannot be fully obtained.	① Linear expansion valve fault Opening cannot be adjusted well due to linear expansion valve fault. ② Refrigerant shortage ③ Lack of insulation for refrigerant piping ④ Filter clogging ⑤ Heat exchanger clogging ⑥ Air duct short cycle ⑦ Bypass circuit of outdoor unit fault	① Discharge temperature and indoor heat exchanger temperature does not rise. Inspect the failure by checking discharge pressure. Replace linear expansion valve. ② If refrigerant leaks, discharge temperature rises and LEV opening increases. Inspect leakage by checking the temperature and opening. Check pipe connections for gas leakage. ③ Check the insulation. ④ Open intake grill and check the filter. Clean the filter by removing dirt or dust on it. ⑤ If the filter is clogged, indoor pipe temperature rises and discharge pressure increases. Check if heat exchanger is clogged by inspecting discharge pressure. Clean the heat exchanger. ⑥ Remove the blockage. ⑦ Check refrigerant system during operation.
(8) ① For 3 minutes after temperature adjuster turns off, the compressor will not start operating even if temperature adjuster is turned on. ② For 3 minutes after temperature adjuster turns on, the compressor will not stop operating even if temperature adjuster is turned off. (Compressor stops operating immediately when turning off by the remote controller.)	①② Normal operation (For protection of compressor)	①② Normal operation

Symptoms: [Please Wait] is kept being displayed on the remote controller.

Diagnosis flow	Cause	Inspection method and troubleshooting
<pre> graph TD Start[Check the display time of [Please Wait] after turning on the main power.] --> D1{How long is [Please Wait] kept being displayed on the remote controller?} D1 -- "2 minutes or less" --> C1[• [Please Wait] will be displayed during the startup diagnosis after turning on the main power] D1 -- "2 to 6 minutes" --> D2{Are any error codes displayed on the remote controller?} D2 -- NO --> C1 D2 -- YES --> S1[Check the LED display of the outdoor controller circuit board.] S1 --> D3{Are any error codes displayed on the LED?} D3 -- YES --> C2[• Miswiring of indoor/outdoor connecting wire • Breaking of indoor/outdoor connecting wire (S3) • Defective indoor controller board • Defective outdoor controller circuit board] D3 -- NO --> C3[• Defective indoor controller board • Defective remote controller] D1 -- "6 minutes or more" --> C3 </pre>	<ul style="list-style-type: none"> • [Please Wait] will be displayed during the startup diagnosis after turning on the main power • Miswiring of indoor/outdoor connecting wire • Breaking of indoor/outdoor connecting wire (S3) • Defective indoor controller board • Defective outdoor controller circuit board • Defective indoor controller board • Defective remote controller 	<ul style="list-style-type: none"> • Normal The startup diagnosis will be over in around 2 minutes • Refer to “Self-diagnosis action table” in order to solve the trouble. • In the case of communication errors, the display of remote controller may not match the LED display of the outdoor unit.

Symptoms: Nothing is displayed on the remote controller. ①

LED display of the indoor controller board
 LED1: ○
 LED2: ○
 LED3: ○

Diagnosis flow	Cause	Inspection method and troubleshooting
<pre> graph TD Start[Check the voltage between S1 and S2 on the terminal block (TB4) of the indoor unit.] --> D1{198 to 264 VAC?} D1 -- NO --> C1[Check the voltage among L1 and L2 on the terminal block (TB1) of the outdoor power circuit board.] D1 -- YES --> D2{198 to 264 VAC?} C1 --> D2 D2 -- NO --> C2[• Troubles concerning power supply] D2 -- YES --> C3[Check the voltage between S1 and S2 on the terminal block (TB1 or TB2) of the outdoor unit which is used to connect the indoor unit and the outdoor unit.] C3 --> D3{198 to 264 VAC?} D3 -- NO --> C4[• Bad wiring of the outdoor controller board • The fuses on the outdoor controller circuit board are blown.] D3 -- YES --> C5[• Bad wiring of the outdoor controller board • The fuses on the outdoor controller circuit board are blown] C4 --> C6[• Check the wiring of the outdoor unit. • Check if the wiring is bad. The fuses on the outdoor controller circuit board will be blown when the indoor/outdoor connecting wire short-circuits.] C5 --> C7[• Check if miswiring, breaking or poor contact is causing this problem. The indoor/outdoor connecting wire is polarized 3-core type. Connect the indoor unit and the outdoor unit by wiring each pair of S1, S2 and S3 on the both side of indoor/outdoor terminal blocks.] C6 --> C8[• Check the wiring of the outdoor unit. • Check if the wiring is bad. The fuses on the outdoor controller circuit board will be blown when the indoor/outdoor connecting wire short-circuits.] C7 --> C9[• Check if miswiring, breaking or poor contact is causing this problem. The indoor/outdoor connecting wire is polarized 3-core type. Connect the indoor unit and the outdoor unit by wiring each pair of S1, S2 and S3 on the both side of indoor/outdoor terminal blocks.] C8 --> C10[• Replace the indoor controller board.] C9 --> C11[• Replace the indoor controller board.] C10 --> C12[• Defective indoor controller board] C11 --> C13[• Defective indoor controller board] C12 --> C14[• Check the LED display of the outdoor controller circuit board.] C13 --> D4{12 to 16 VDC?} C14 --> D4 D4 -- YES --> C15[• Miswiring, breaking or poor connection of indoor/outdoor connecting wire] D4 -- NO --> C16[• Defective indoor power board] C15 --> C17[• Check if there is miswiring or breaking of wire.] C16 --> C18[• Replace the indoor power board.] C17 --> C19[• Check if there is miswiring or breaking of wire.] C18 --> C20[• Replace the indoor power board.] </pre>	<p>• Troubles concerning power supply</p> <p>• Bad wiring of the outdoor controller board • The fuses on the outdoor controller circuit board are blown.</p> <p>• Bad wiring of the outdoor controller board • The fuses on the outdoor controller circuit board are blown</p> <p>• Defective indoor controller board</p> <p>• Miswiring, breaking or poor connection of indoor/outdoor connecting wire</p> <p>• Defective indoor power board</p>	<p>• Check the power wiring to the outdoor unit. • Check the breaker.</p> <p>• Check the wiring of the outdoor unit. • Check if the wiring is bad. The fuses on the outdoor controller circuit board will be blown when the indoor/outdoor connecting wire short-circuits.</p> <p>• Check if miswiring, breaking or poor contact is causing this problem. The indoor/outdoor connecting wire is polarized 3-core type. Connect the indoor unit and the outdoor unit by wiring each pair of S1, S2 and S3 on the both side of indoor/outdoor terminal blocks.</p> <p>• Replace the indoor controller board.</p> <p>• Check if there is miswiring or breaking of wire.</p> <p>• Replace the indoor power board.</p>

Symptoms: Nothing is displayed on the remote controller. ②

LED display of the indoor controller board
 LED1: ●
 LED2: ○
 LED3: ○ or ●




Diagnosis flow	Cause	Inspection method and troubleshooting
<pre> graph TD Start[Check the voltage between S1 and S2 on the terminal block (TB4) of the indoor unit.] --> D1{198 to 264 VAC?} D1 -- NO --> C1[Check the looseness or disconnection of the indoor/outdoor connecting wire.] D1 -- YES --> D2{Check the status of the indoor controller board LED3 display.} D2 -- Not lighting --> C1 D2 -- Blinking --> C2[Check the refrigerant address of the outdoor unit. (SW1-3 to 1-6)] C1 --> D3{Are there looseness or disconnection of the indoor/outdoor connecting wire?} D3 -- YES --> C1 D3 -- NO --> C2 C2 --> D4{Is the refrigerant address "0"?} D4 -- NO --> C3[Normal Only the unit which has the refrigerant address "0" supplies power to the remote controller.] D4 -- YES --> C4[Check the LED display of the outdoor unit after turning on the main power again.] C4 --> D5{Is anything displayed?} D5 -- NO --> C5[Defective outdoor controller circuit board] D5 -- YES --> D6{Is "EA" or "Eb" displayed?} D6 -- NO --> D7{Is "E8" displayed?} D7 -- YES --> C6[Defective outdoor controller circuit board] D7 -- NO --> C7[Can the unit be restarted?] C7 --> D8{Can all the indoor unit be operated?} D8 -- NO --> C8[Defective indoor controller board] D8 -- YES --> C9[Check the voltage between S2 and S3 on the terminal block of the outdoor unit.] C9 --> D9{17 to 28 VDC?} D9 -- NO --> C10[Defective outdoor power circuit board] D9 -- YES --> C11[Defective indoor power board] </pre>	<ul style="list-style-type: none"> • Breaking or poor contact of the indoor/outdoor connecting wire • Normal Only the unit which has the refrigerant address "0" supplies power to the remote controller. • Defective outdoor controller circuit board • Defective outdoor controller circuit board • Defective indoor controller board • Influence of electromagnetic noise • Defective outdoor power circuit board • Defective indoor power board 	<ul style="list-style-type: none"> • Fix the breaking or poor contact of the indoor/outdoor connecting wire. • Set the refrigerant address to "0". In the case of the multiple grouping system, recheck the refrigerant address again. • Replace the outdoor controller circuit board. • Replace the outdoor controller circuit board. • Replace the indoor controller board of the indoor unit which does not operate. • Not abnormal. There may be the influence of electromagnetic noise. Check the transmission wire and get rid of the causes. • Replace the outdoor power circuit board. • Replace the indoor power board.

Symptoms: Nothing is displayed on the remote controller. ③

LED display of the indoor controller board
 LED1: ●
 LED2: ● or ●
 LED3: —

Diagnosis flow	Cause	Inspection method and troubleshooting
<pre> graph TD A[Check the voltage of the terminal block (TB6) of the remote controller.] --> B{12 to 16 VDC?} B -- YES --> C[Defective remote controller] B -- NO --> D{Check the status of the LED2.} D -- Lighting --> E[Breaking or poor contact of the remote controller wire] D -- Blinking --> F[Check the status of the LED2 after disconnecting the remote controller wire from the terminal block (TB5) of the indoor unit.] F --> G{Check the status of the LED2.} G -- Lighting --> H[The remote controller wire short-circuits] G -- Blinking --> I[Defective indoor controller board] </pre> <p>The flowchart starts with a rectangular box: "Check the voltage of the terminal block (TB6) of the remote controller." This leads to a diamond decision: "12 to 16 VDC?". If "YES", it points to "Defective remote controller". If "NO", it leads to another diamond: "Check the status of the LED2.". From here, "Lighting" points to "Breaking or poor contact of the remote controller wire", and "Blinking" leads to a rectangular box: "Check the status of the LED2 after disconnecting the remote controller wire from the terminal block (TB5) of the indoor unit.". This leads to a final diamond: "Check the status of the LED2.". From here, "Lighting" points to "The remote controller wire short-circuits", and "Blinking" points to "Defective indoor controller board".</p>	<ul style="list-style-type: none"> Defective remote controller Breaking or poor contact of the remote controller wire The remote controller wire short-circuits Defective indoor controller board 	<ul style="list-style-type: none"> Replace the remote controller. Check if there is breaking or poor contact of the remote controller wire. Check the voltage of the terminal block (TB5) connecting the remote controller wire. If it is not between 10 and 16 VDC, the indoor controller board must be defective. Check if the remote controller wire is short-circuited. Replace the indoor controller board.

• Before repair
Frequently Asked Questions

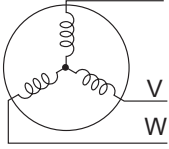
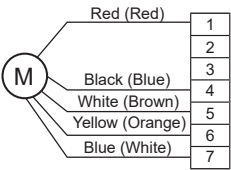
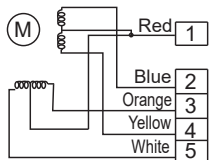
Questions from customers		Answers	Note
Unit does not operate at all.	① The operating display of remote controller does not come on.	① Check if power is supplied to air conditioner. Nothing appears on the display unless power is supplied.	
	② Unit cannot be restarted for a while after it is stopped.	② Wait around 3 minutes to restart unit. The air conditioner is in a state of being protected by the microprocessor's directive. Once the compressor is stopped, the unit cannot be restarted for 3 minutes. This control is also applied when the unit is turned on and off by remote controller or thermostat.	
	③ Error code appears and blinks on the display of remote controller.	③ Error code will be displayed if any protection devices of the air conditioner are actuated. What is error code?	Refer to "SELF-DIAGNOSIS ACTION TABLE". Check if servicing is required for the error.
Remote controller	① [Please Wait] is displayed on the screen.	① Wait around 2 minutes. An automatic startup test will be conducted for 2 minutes when power is supplied to the air conditioner. [Please Wait] will be kept displayed while that time.	
	② [] is displayed on the screen.	② This indicates that it is time to clean the air filters. Clean the air filters. [] can be cleared from the filter information of the maintenance menu. See the operation manual that came with the product for how to clean the filters.	Display time of [] depends on the model. Long life filter: 2500 hrs. Standard filter: 100 hrs.
	③ [Heat Standby] is displayed on the screen.	③ This is displayed when the unit starts HEAT operation, when the thermostat puts the compressor in operation mode, or when the outdoor unit ends DEFROST operation and returns to HEAT operation. The display will automatically disappear around 10 minutes later. While [Heat Standby] is displayed on the remote controller, the airflow amount will be restricted because the indoor unit's heat exchanger is not fully heated up. In addition to that, the up/down vane will be automatically set to horizontal blow in order to prevent cold air from directly blowing out to human body. The up/down vane will return to the setting specified by the remote controller when [Heat Standby] is released	
	④ [Heat Defrost] is displayed on the screen. (No air comes out of the unit.)	④ The outdoor unit gets frosted when the outside temperature is low and the humidity is high. [Heat Defrost] indicates the DEFROST operation is being performed to melt this frost. The DEFROST operation ends in around 10 minutes (at most 15 minutes). During the DEFROST operation, the indoor unit's heat exchanger becomes cold, so the blower is stopped. The up/down vane will be automatically set to horizontal blow in order to prevent cold air from directly blowing out to human body. The display will turn into [Heat Standby] when DEFROST operation ends.	

Questions from customers	Answers	Note	
The room cannot be cooled or heated sufficiently.	① Check the set temperature of remote controller. The outdoor unit cannot be operated if the set temperature is not appropriate. The outdoor unit operates in the following modes. COOL: When the set temperature is lower than the room temperature. HEAT: When the set temperature is higher than the room temperature.		
	② Check if filters are not dirty and clogged. If filters are clogged, the airflow amount will be reduced and the unit capacity will be lowered. See the instruction manual that came with the product for how to clean the filters.		
	③ Check there is enough space around the air conditioner. If there are any obstacles in the air intake or air outlet of indoor/outdoor units, they block the airflow direction so that the unit capacity will be lowered.		
Sound comes out from the air conditioner.	① A gas escaping sound is heard sometimes.	① This is not a malfunction. This is the sound when the flow of refrigerant in the air conditioner is switched.	
	② A cracking sound is heard sometimes.	② This is not a malfunction. This is the sound when internal parts of units expand or contract when the temperature changes.	
	③ A buzzing sound is heard sometimes.	③ This is not a malfunction. This is the sound when the outdoor unit starts operating.	
	④ A ticking sound is heard from the outdoor unit sometimes.	④ This is not a malfunction. This is the sound when the fan of the outdoor unit is controlling the airflow amount in order to keep the optimum operating condition.	
	⑤ A sound similar to water flowing is heard from the unit.	⑤ This is not a malfunction. This is the sound when the refrigerant is flowing inside the indoor unit.	
Something is wrong with the blower.	① The fan speed does not match the setting of the remote controller during DRY operation (No air comes out sometimes during DRY operation.)	① This is not a malfunction. During the DRY operation, the blower's ON/OFF is controlled by the microprocessor to prevent overcooling and to ensure efficient dehumidification. The fan speed cannot be set by the remote controller during DRY operation.	
	② The fan speed does not match the setting of the remote controller in HEAT operation.	② This is not a malfunction. 1) When HEAT operation starts, to prevent the unit from blowing cold air, the fan speed is gradually increased from 0 to the set speed, in proportion to the temperature rise of the discharged air. 2) When the room temperature reaches the set temperature and the outdoor unit stops, the unit starts the LOW AIR operation. 3) During HEAT operation, the DEFROST operation is performed to defrost the outdoor unit. During the DEFROST operation, the fan is stopped to prevent cold air coming out of the indoor unit.	The up/down vane will be automatically set to horizontal blow in these cases listed up on the left (1)–(3)). After a while, the up/down vane will be automatically moved according to the setting of the remote controller.

Questions from customers		Answers	Note
Something is wrong with the blower.	③ Air blows out for a while after HEAT operation is stopped.	③ This is not a malfunction. The blower is operating just for cooling down the heated-up air conditioner. This will be done within 1 minute. This control is conducted only when HEAT operation is stopped with the electric heater ON.	However, this control is also applied to the models which has no electric heater.
Something is wrong with the airflow direction.	① The airflow direction is changed during COOL operation.	① If the up/down vane is set to downward in COOL operation, it will be automatically set to horizontal blow by the microprocessor in order to prevent water from dropping down. [1h] will be displayed on the remote controller if the up/down vane is set to downward with the fan speed set to be less than [LOW].	
	② The airflow direction is changed during HEAT operation. (The airflow direction cannot be set by remote controller.)	② In HEAT operation, the up/down vane is automatically controlled according to the temperature of the indoor unit's heat exchanger. In the following cases written below, the up/down vane will be set to horizontal blow, and the setting cannot be changed by remote controller. 1) At the beginning of HEAT operation 2) While the outdoor unit is being stopped by thermostat or when the outdoor unit gets started to operate. 3) During DEFROST operation The airflow direction will be back to the setting of remote controller when the above situations are released.	[Heat Standby] will be displayed on the remote controller in the case of 1) and 2). [Heat Defrost] will be displayed on the screen in the case of 3).
	③ The airflow direction does not change. (Up/down vane, left/right louver).	③ 1) Check if the vane is set to a fixed position. (Check if the vane motor connector is removed.) 2) Check if the air conditioner has a function for switching the air direction. 3) If the air conditioner does not have that function, [Unsupported function] will be displayed on the remote controller when the air direction or the louver button is pressed.	
The air conditioner starts operating even though any buttons on the remote controller are not pressed.	① Check if you set ON/OFF timer. The air conditioner starts operating at the time designated if ON timer has been set before.		
	② Check if any operations are ordered by distant control system or the central remote controller. While [Centrally controlled] is displayed on the remote controller, the air conditioner is under the control of external directive.		There might be a case that [Centrally controlled] will not be displayed.
	③ Check if power is recovered from power failure (black out). The units will automatically start operating when power is recovered after power failure (black out) occurs. This function is called "auto recovery feature from power".		
The air conditioner stops even though any buttons on the remote controller are not pressed.	① Check if you set ON/OFF timer. The air conditioner stops operating at the time designated if OFF timer has been set before. ② Check if any operations are ordered by distant control system or the central remote controller. While [Centrally controlled] is displayed on the remote controller, the air conditioner is under the control of external directive.		There might be a case that [Centrally controlled] will not be displayed.

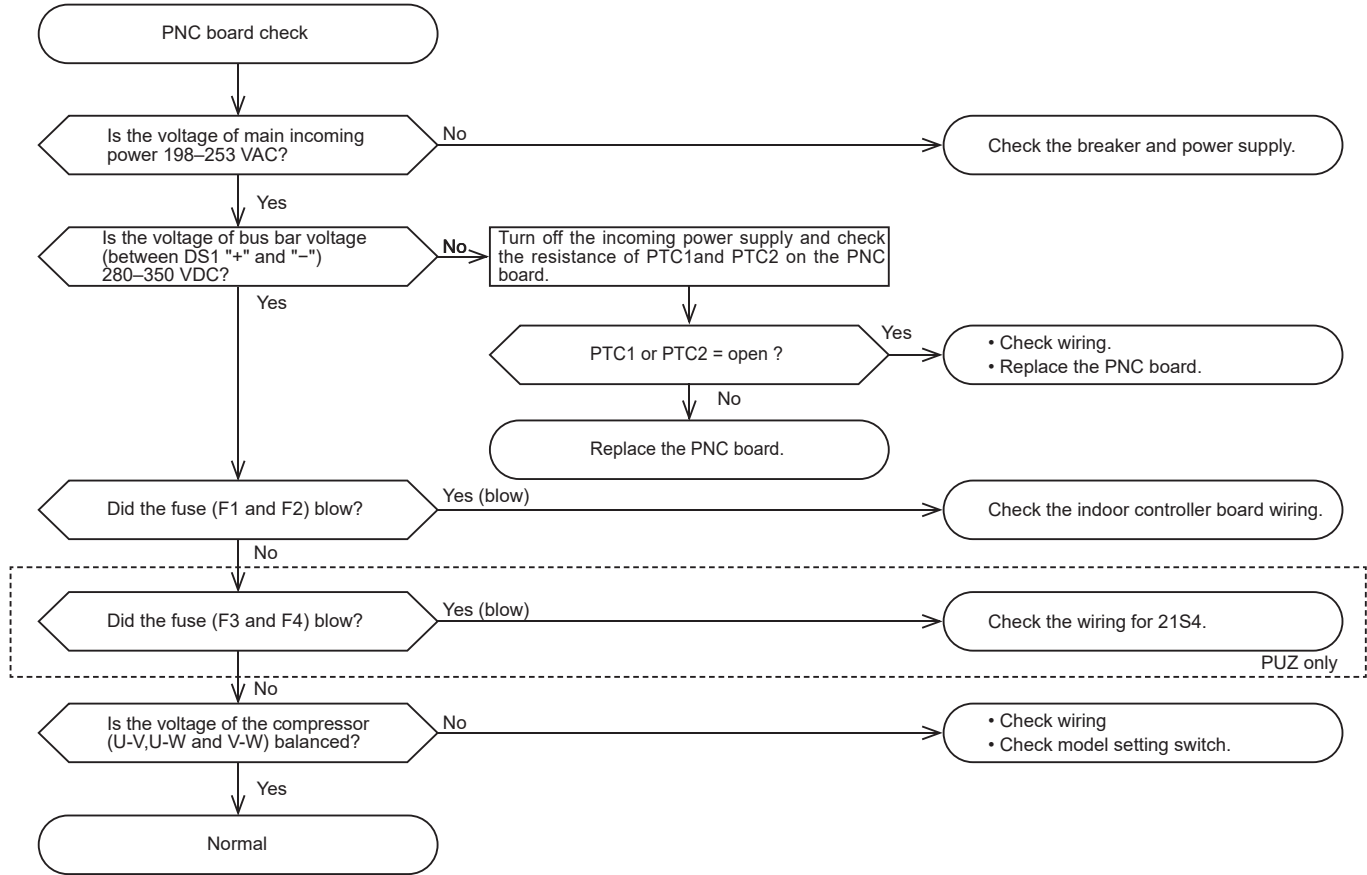
Questions from customers	Answers	Note
A white mist is expelled from the indoor unit.	This is not a malfunction. This may occur when the operation is started in the room with high humidity.	
Water or moisture is expelled from the outdoor unit.	COOL: when pipes or piping joints are cooled, they sweat and water drips down. HEAT: water drips down from the heat exchanger. Note: Use optional parts "Drain Socket" and "Drain pan" if these water needs to be collected and drained out for once.	
The display of IR wireless remote controller gets dim or does not come on. The indoor unit does not receive a signal from remote controller at a long distance.	Batteries are being exhausted. Replace them and press the reset button of remote controller.	

10-5. HOW TO CHECK THE PARTS

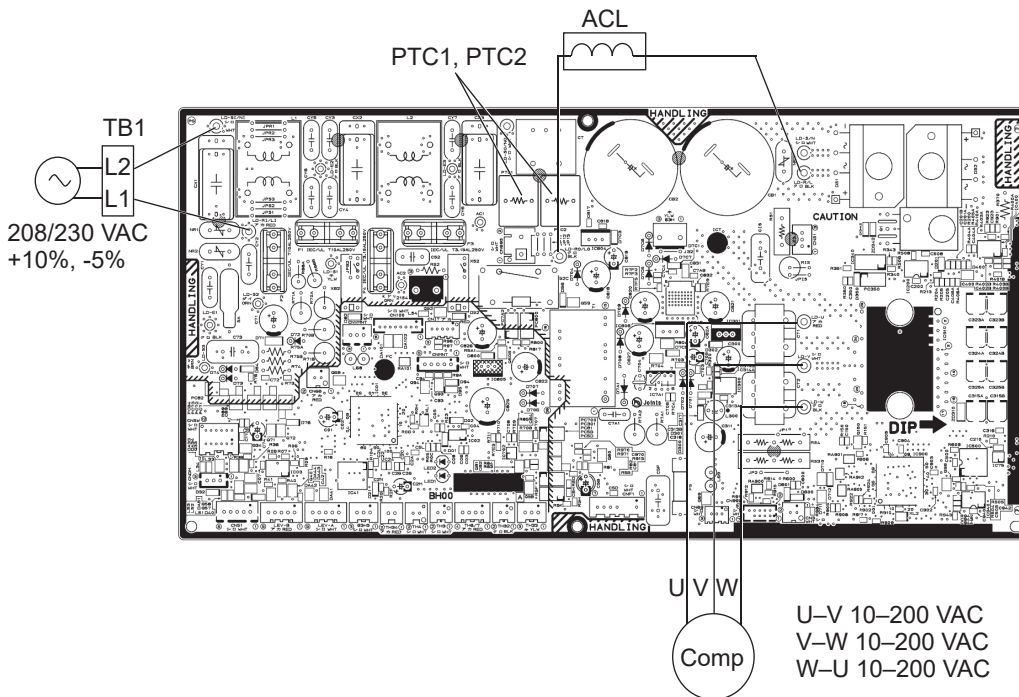
Parts name	Checkpoints																		
Thermistor (TH3) <Liquid> Thermistor (TH4) <Discharge> Thermistor (TH6) < 2-phase pipe> Thermistor (TH7) <Ambient> Thermistor (TH8) <Heat sink> Thermistor (TH32) <Suction> Thermistor (TH33) <Comp. surface>	Disconnect the connector then measure the resistance with a multimeter. (At the ambient temperature 50 to 86°F [10 to 30°C]) <table border="1" style="margin-top: 10px;"> <thead> <tr> <th></th> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>TH4 TH33</td> <td>160 to 410 kΩ</td> <td rowspan="3">Open or short</td> </tr> <tr> <td>TH3 TH6 TH7 TH32</td> <td>4.3 to 9.6 kΩ</td> </tr> <tr> <td>TH8</td> <td>39 to 105 kΩ</td> </tr> </tbody> </table>		Normal	Abnormal	TH4 TH33	160 to 410 kΩ	Open or short	TH3 TH6 TH7 TH32	4.3 to 9.6 kΩ	TH8	39 to 105 kΩ								
	Normal	Abnormal																	
TH4 TH33	160 to 410 kΩ	Open or short																	
TH3 TH6 TH7 TH32	4.3 to 9.6 kΩ																		
TH8	39 to 105 kΩ																		
Fan motor (MF1, MF2)	Refer to "10-5-3. Check method of DC fan motor (fan motor/ outdoor controller circuit board)".																		
Solenoid valve coil <4-way valve> (21S4)	Measure the resistance between the terminals with a multimeter. (At the ambient temperature 68°F [20°C]) <table border="1" style="margin-top: 10px;"> <thead> <tr> <th colspan="2">Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>A12, 18</td> <td>A24, 30</td> <td rowspan="2">Open or short</td> </tr> <tr> <td>1200±150Ω</td> <td>1707±170Ω</td> </tr> </tbody> </table>	Normal		Abnormal	A12, 18	A24, 30	Open or short	1200±150Ω	1707±170Ω										
Normal		Abnormal																	
A12, 18	A24, 30	Open or short																	
1200±150Ω	1707±170Ω																		
Motor for compressor (MC) 	Measure the resistance between the terminals with a multimeter. (Winding temperature 68°F [20°C]) <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>1.56 Ω</td> <td>Open or short</td> </tr> </tbody> </table>	Normal	Abnormal	1.56 Ω	Open or short														
Normal	Abnormal																		
1.56 Ω	Open or short																		
Fan motor (MF)  <p>Note: The colors in parentheses are for AH24, 30 models.</p>	Measure the resistance between the connector pins with a multimeter. (At the ambient temperature 68°F [20°C]) Note that the resistance between the connector pins may vary depending on the ambient temperature, so use those values as reference. <table border="1" style="margin-top: 10px;"> <thead> <tr> <th></th> <th colspan="4">Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>AK12, 18</td> <td>Red - Black Over load</td> <td>White - Black 390 kΩ</td> <td>Yellow - Black 74 kΩ</td> <td>Blue - Black Over load</td> <td>Open or short (short, for White - Blue)</td> </tr> <tr> <td>AH24, 30</td> <td>Red - Blue 1.3 MΩ</td> <td>Brown - Blue 6.1 MΩ</td> <td>Orange - Blue 220 kΩ</td> <td>White - Blue Over load</td> <td>Open or short (short, for White - Blue)</td> </tr> </tbody> </table>		Normal				Abnormal	AK12, 18	Red - Black Over load	White - Black 390 kΩ	Yellow - Black 74 kΩ	Blue - Black Over load	Open or short (short, for White - Blue)	AH24, 30	Red - Blue 1.3 MΩ	Brown - Blue 6.1 MΩ	Orange - Blue 220 kΩ	White - Blue Over load	Open or short (short, for White - Blue)
	Normal				Abnormal														
AK12, 18	Red - Black Over load	White - Black 390 kΩ	Yellow - Black 74 kΩ	Blue - Black Over load	Open or short (short, for White - Blue)														
AH24, 30	Red - Blue 1.3 MΩ	Brown - Blue 6.1 MΩ	Orange - Blue 220 kΩ	White - Blue Over load	Open or short (short, for White - Blue)														
Linear expansion valve (LEV-A/B) 	Disconnect the connector then measure the resistance with a multimeter. (Winding temperature 68°F [20°C]) <table border="1" style="margin-top: 10px;"> <thead> <tr> <th colspan="4">Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>Red - White</td> <td>Red - Orange</td> <td>Red - Yellow</td> <td>Red - Blue</td> <td rowspan="2">Open or short</td> </tr> <tr> <td colspan="4" style="text-align: center;">46 ± 4 Ω</td> </tr> </tbody> </table>	Normal				Abnormal	Red - White	Red - Orange	Red - Yellow	Red - Blue	Open or short	46 ± 4 Ω							
Normal				Abnormal															
Red - White	Red - Orange	Red - Yellow	Red - Blue	Open or short															
46 ± 4 Ω																			

10-5-1. Check methods of the outdoor controller circuit board

PUZ-AK12NL-U1 PUZ-AK18NL-U1 PUY-AK12NL-U1 PUY-AK18NL-U1



Outdoor controller circuit board

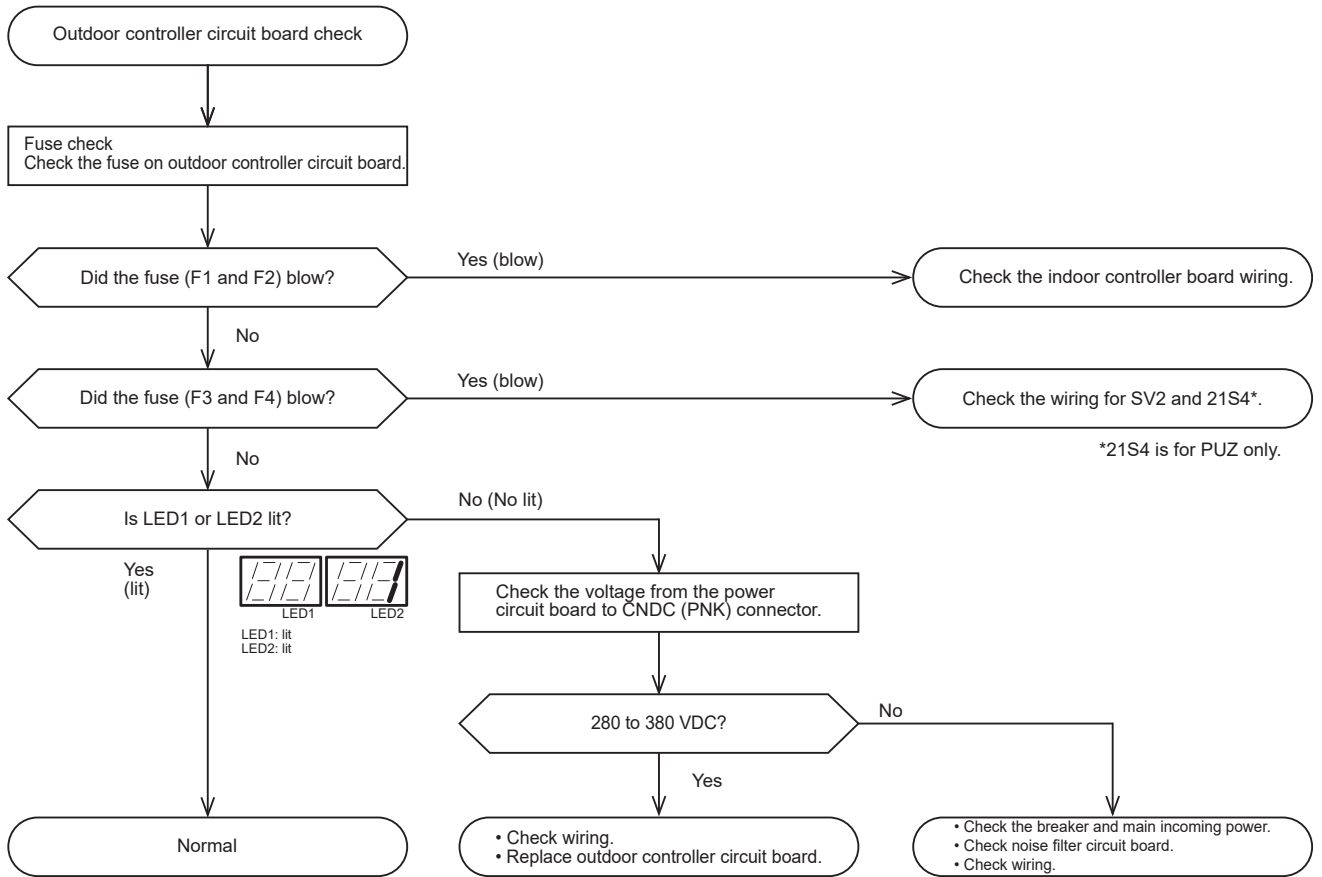


PUZ-AH24NL-U1

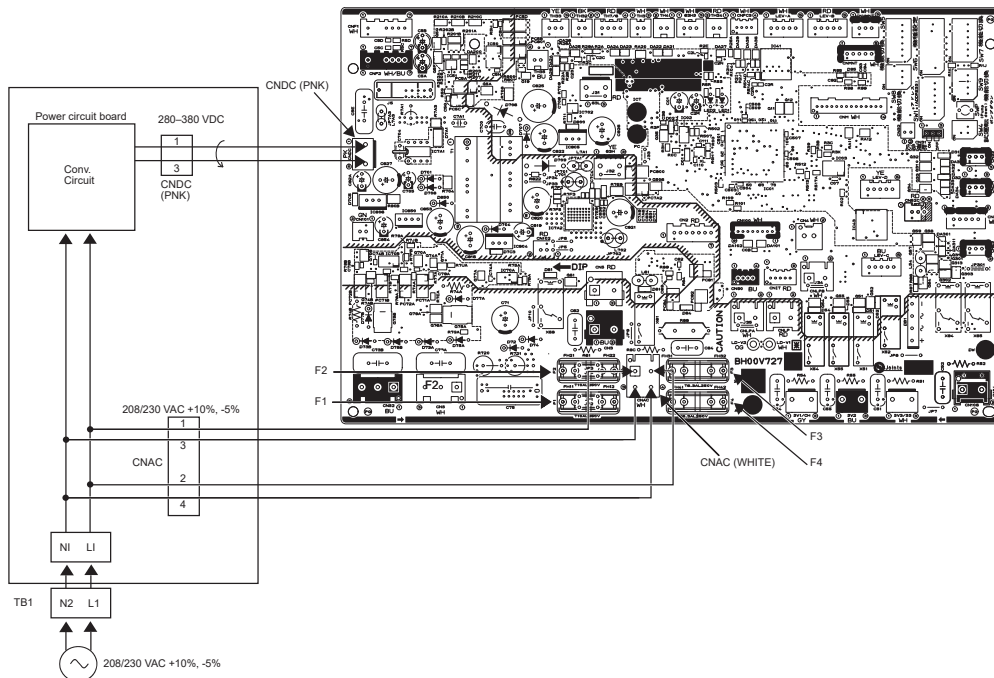
PUZ-AH30NL-U1

PUY-AH24NL-U1

PUY-AH30NL-U1



Outdoor controller circuit board



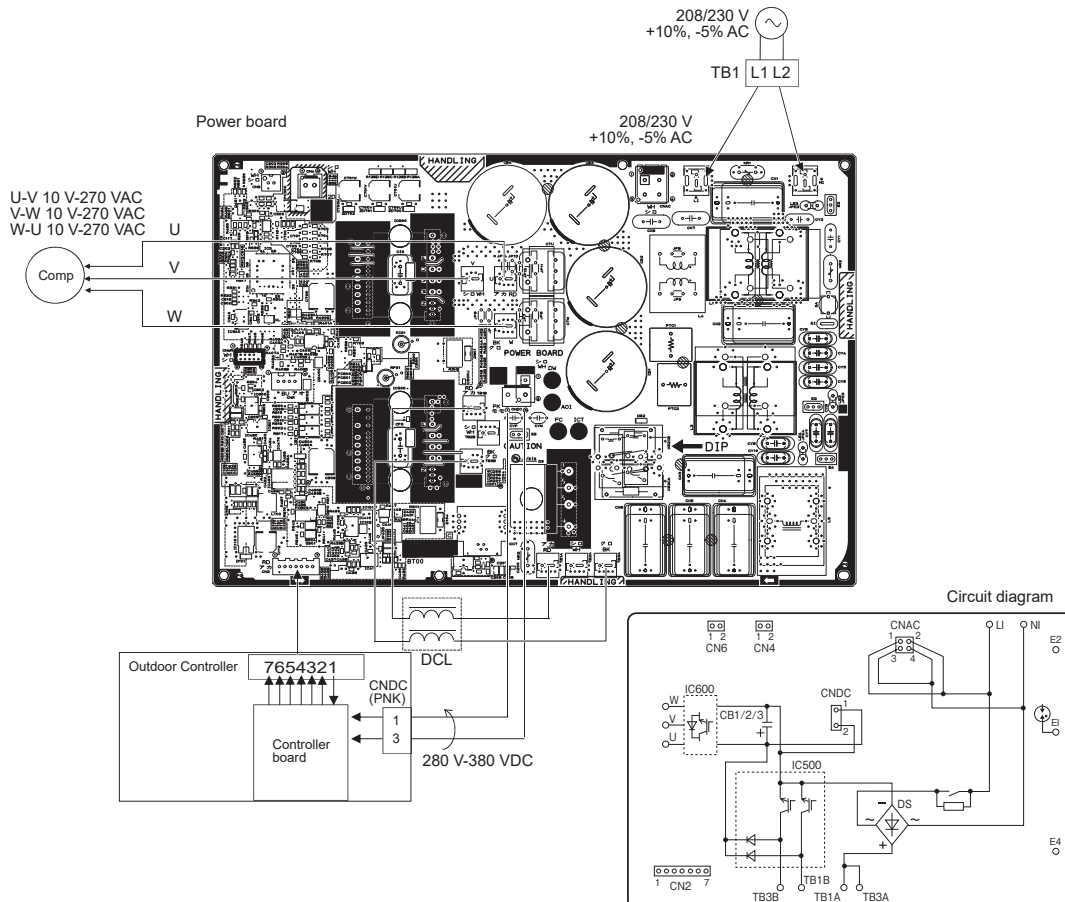
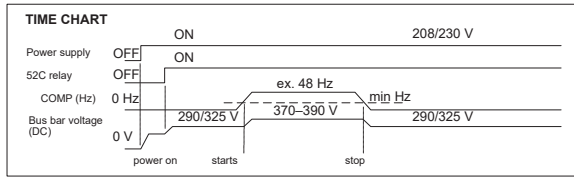
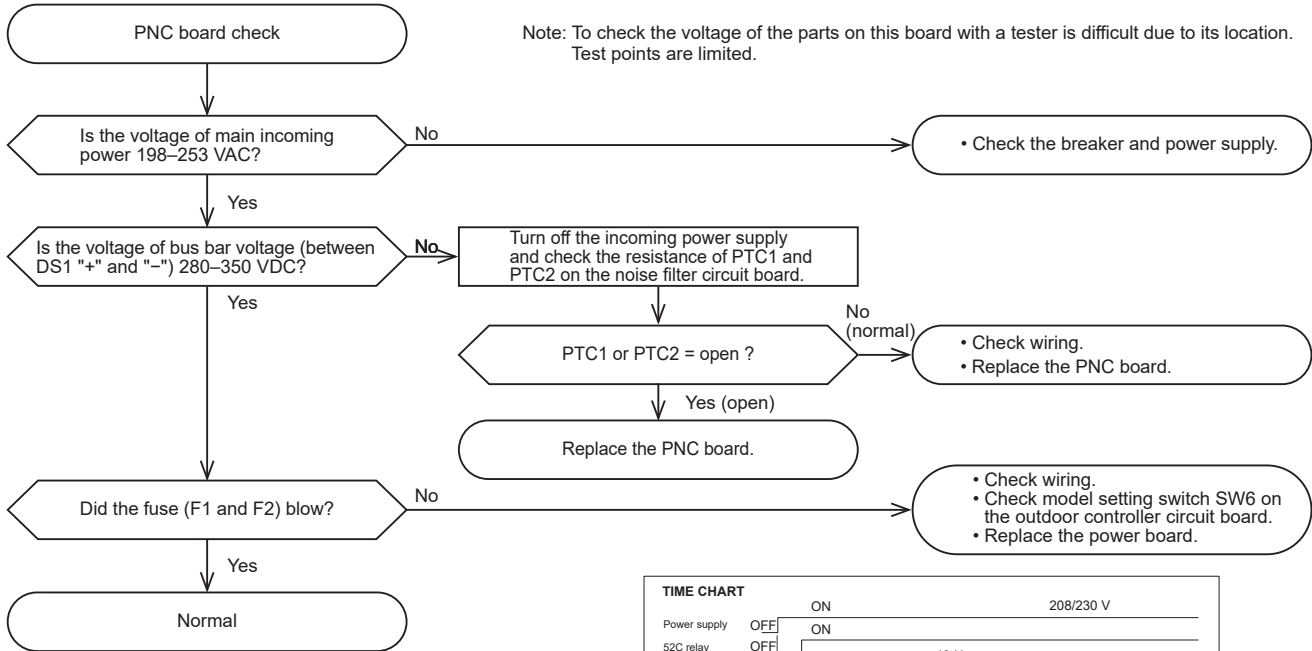
10-5-2. Check method of power circuit board

PUZ-AH24NL-U1

PUZ-AH30NL-U1

PUY-AH24NL-U1

PUY-AH30NL-U1



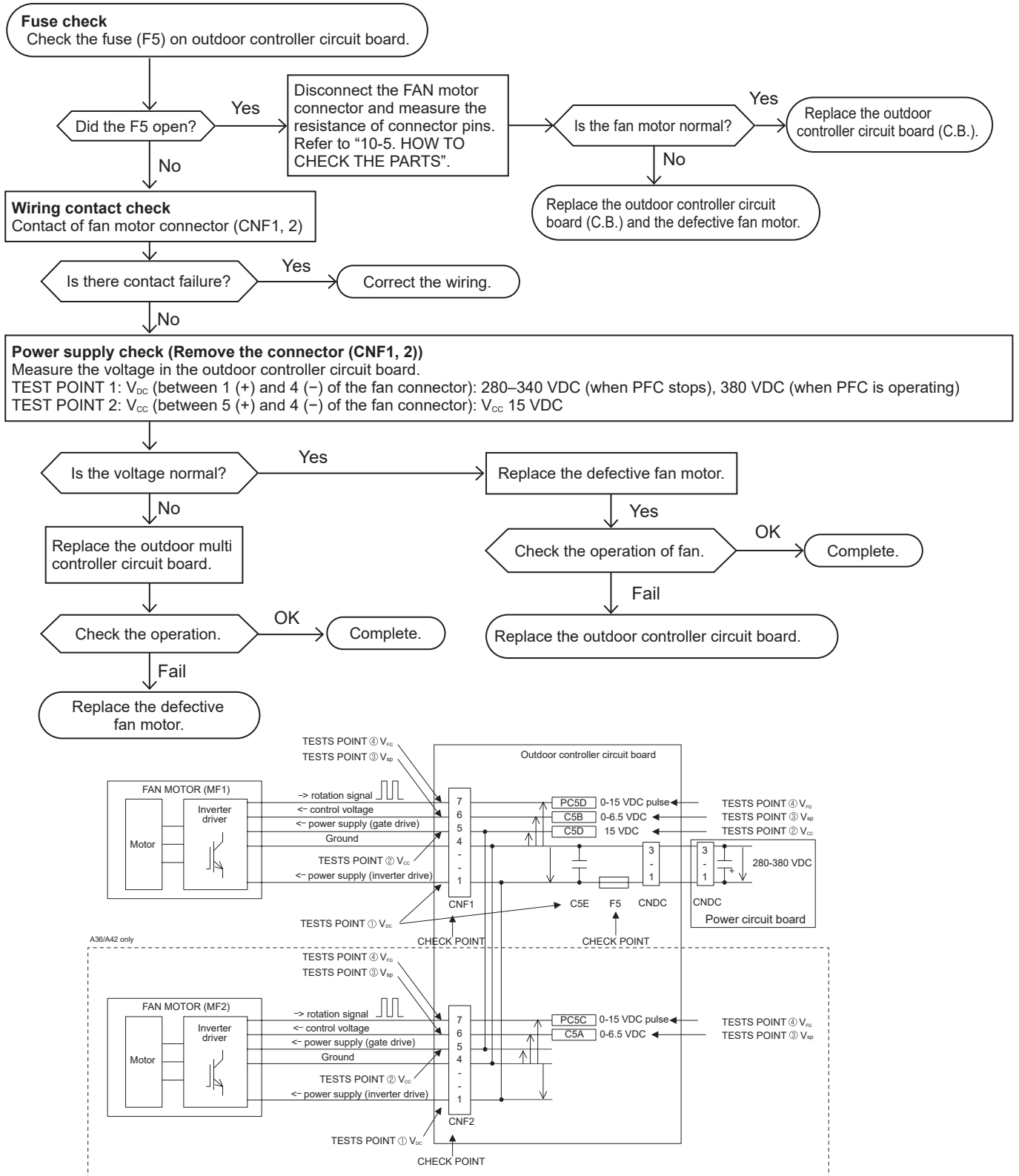
10-5-3. Check method of DC fan motor (fan motor/ outdoor controller circuit board)

① Notes

- High voltage is applied to the connector (CNF1, 2) for the fan motor. Pay attention to the service.
- Do not pull out the connector (CNF1, 2) for the motor with the power supply on.
(It causes trouble of the outdoor multi controller circuit board and fan motor.)

② Self check

Symptom: The outdoor fan cannot rotate.



- The inverter control P. C. board is built in the fan motor of this outdoor unit.
- When F5 that is on controller board is opened, change the fan motor and outdoor controller board at the same time (F5 is impossible to change).
- It is abnormal when the abnormality is detected from either both fan motors or only one side.

10-6. HOW TO CHECK THE COMPONENTS

<Thermistor feature chart>

Low temperature thermistors

- Thermistor <Liquid> (TH3)
- Thermistor <2-phase pipe> (TH6)
- Thermistor <Ambient> (TH7)
- Thermistor <Suction> (TH32)

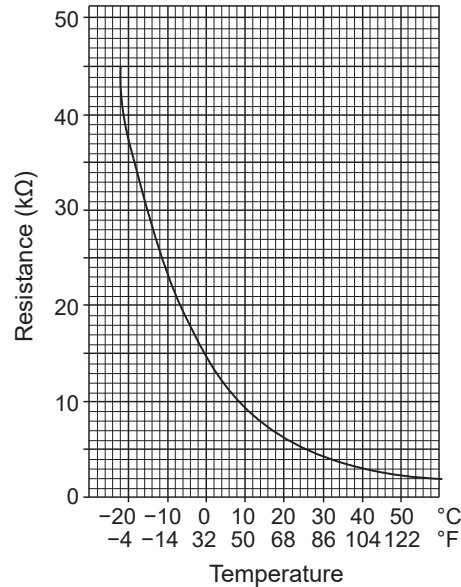
Thermistor R0 = 15 kΩ ± 3%

B constant = 3480 ± 1%

$$t (^{\circ}\text{C}): R_t = 15 \exp\left\{3480 \left(\frac{1}{273+t} - \frac{1}{273}\right)\right\}$$

$$T (^{\circ}\text{F}): R_T = 15 \exp\left\{3480 \left(\frac{1}{273+(T-32)/1.8} - \frac{1}{273}\right)\right\}$$

32°F [0°C]	15 kΩ	86°F [30°C]	4.3 kΩ
50°F [10°C]	9.6 kΩ	104°F [40°C]	3.0 kΩ
68°F [20°C]	6.3 kΩ		
77°F [25°C]	5.2 kΩ		



Medium temperature thermistor

- Thermistor <Heat sink> (TH8)

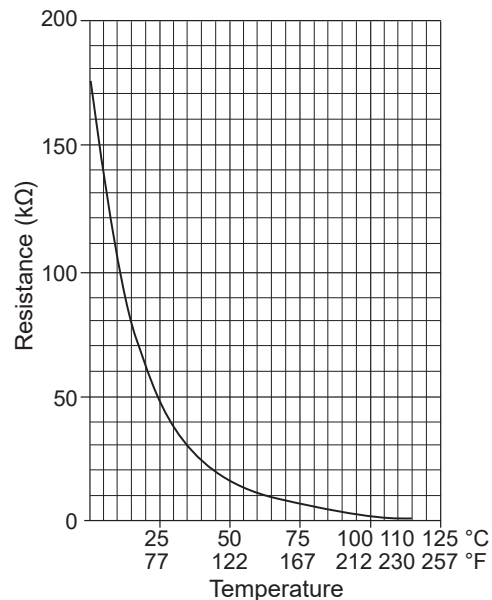
Thermistor R50 = 17 kΩ ± 2%

B constant = 4150 ± 3%

$$t (^{\circ}\text{C}): R_t = 17 \exp\left\{4150 \left(\frac{1}{273+t} - \frac{1}{323}\right)\right\}$$

$$T (^{\circ}\text{F}): R_T = 17 \exp\left\{4150 \left(\frac{1}{273+(T-32)/1.8} - \frac{1}{323}\right)\right\}$$

32°F [0°C]	180 kΩ
77°F [25°C]	50 kΩ
122°F [50°C]	17 kΩ
158°F [70°C]	8 kΩ
194°F [90°C]	4 kΩ



High temperature thermistors

- Thermistor <Comp. surface> (TH33)
- Thermistor <Discharge> (TH4)

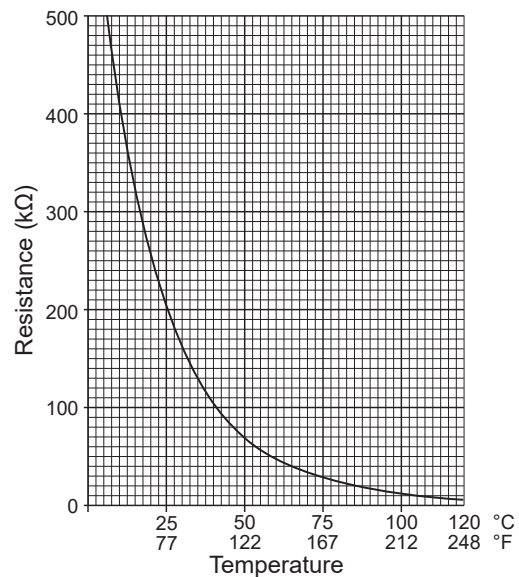
Thermistor R120 = 7.465 kΩ ± 2%

B constant = 4057 ± 2%

$$t (^{\circ}\text{C}): R_t = 7.465 \exp\left\{4057 \left(\frac{1}{273+t} - \frac{1}{393}\right)\right\}$$

$$T (^{\circ}\text{F}): R_T = 7.465 \exp\left\{4057 \left(\frac{1}{273+(T-32)/1.8} - \frac{1}{393}\right)\right\}$$

68°F [20°C]	250 kΩ	158°F [70°C]	34 kΩ
86°F [30°C]	160 kΩ	176°F [80°C]	24 kΩ
104°F [40°C]	104 kΩ	194°F [90°C]	17.5 kΩ
122°F [50°C]	70 kΩ	212°F [100°C]	13.0 kΩ
140°F [60°C]	48 kΩ	230°F [110°C]	9.8 kΩ

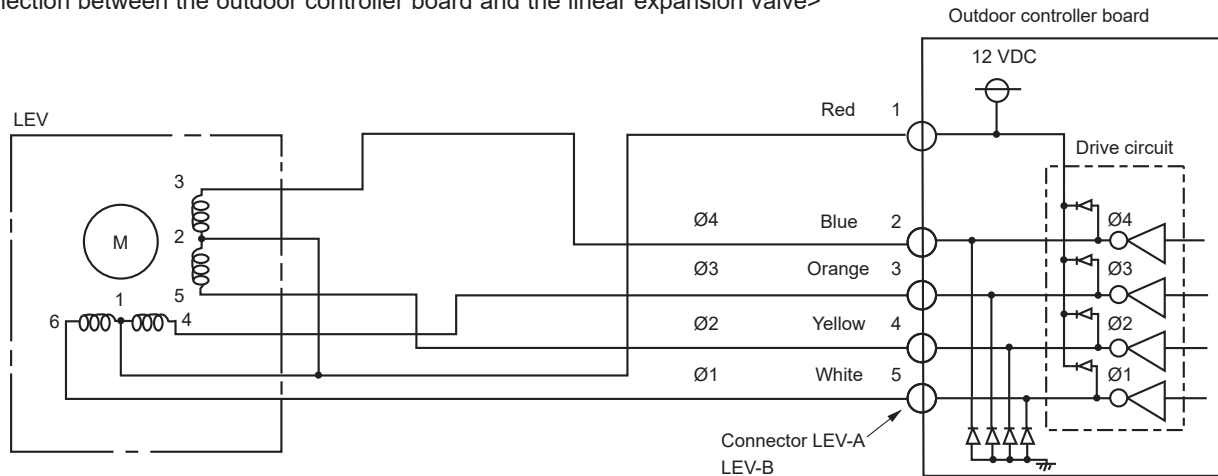


Linear expansion valve

(1) Operation summary of the linear expansion valve

- The linear expansion valve opens/closes through stepping motor after receiving the pulse signal from the outdoor controller board.
- The valve position can be changed in proportion to the number of the pulse signal.

<Connection between the outdoor controller board and the linear expansion valve>



<Output pulse signal and the valve operation>

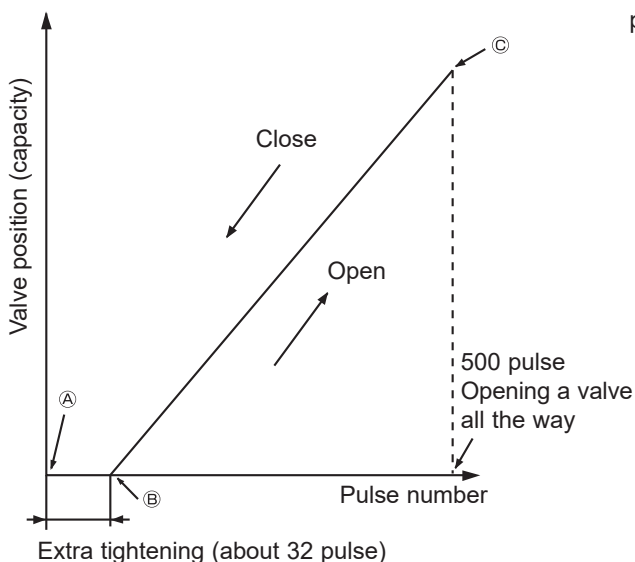
Output (Phase)	Output							
	1	2	3	4	5	6	7	8
ø1	ON	ON	OFF	OFF	OFF	OFF	OFF	ON
ø2	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
ø3	OFF	OFF	OFF	ON	ON	ON	OFF	OFF
ø4	OFF	OFF	OFF	OFF	OFF	ON	ON	ON

The output pulse shifts in the following order.

Opening a valve: 8 → 7 → 6 → 5 → 4 → 3 → 2 → 1 → 8

Closing a valve: 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 1

(2) Linear expansion valve operation



- When the linear expansion valve operation stops, all output phases become OFF.

- When the power is turned on, 700 pulse closing the valve signal will be sent till it goes to ① point in order to define the valve position. (The pulse signal is being sent for about 20 seconds.)

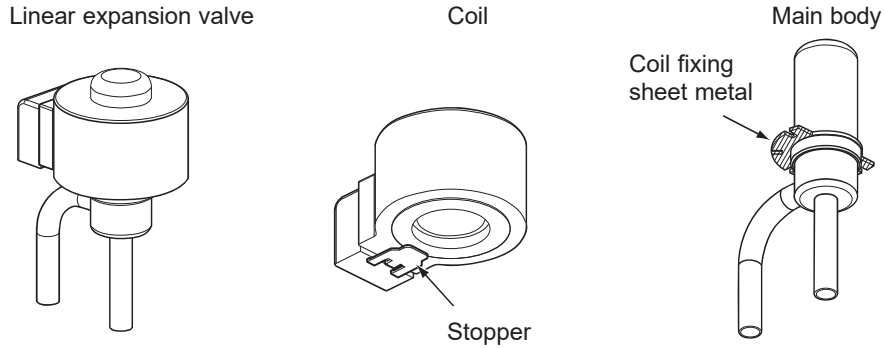
- When the valve moves smoothly, there is no sound or vibration occurring from the linear expansion valve; however, when the pulse number moves from ② to ① or when the valve is locked, sound can be heard than the normal situation. No sound is heard when the pulse number moves from ② to ① in case coil is burn out or motor is locked by the open-phase.

- Sound can be detected by placing the ear against the screw driver handle while putting the screw driver to the linear expansion valve.

(3) How to attach and detach the coil of linear expansion valve

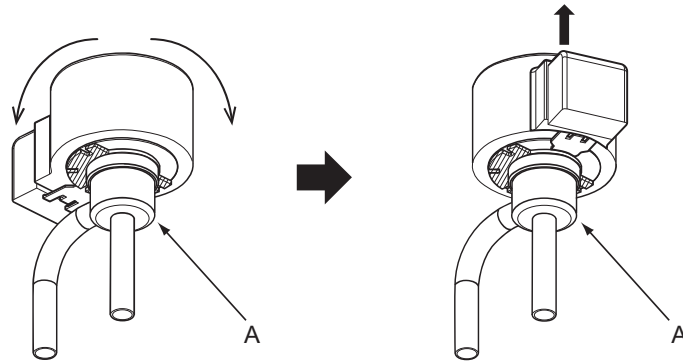
<Composition>

The linear expansion valve is separable into the main body and the coil as shown in the diagram below.



<How to detach the coil>

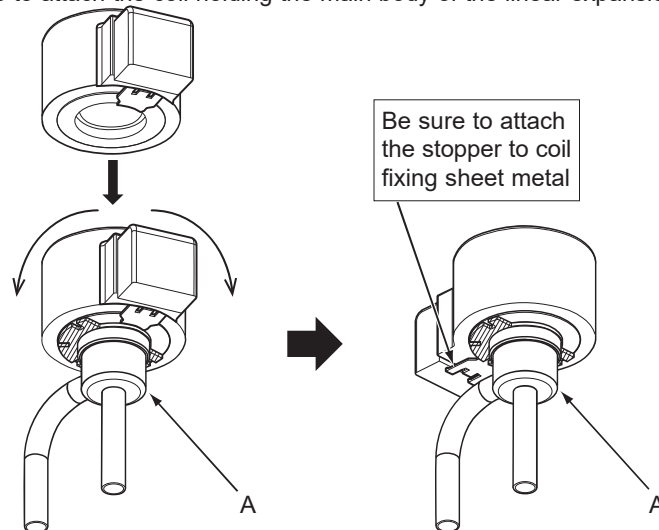
Hold the lower part of the main body (shown as A) firmly so that the main body does not move and detach the coil by pulling it upward. Be sure to detach the coil holding main body firmly. Otherwise the pipes can bend due to stress.



<How to attach the coil>

Hold the lower part of the main body (shown as A) firmly so that the main body does not move and attach the coil by inserting it downward into the main body. Then securely attach the coil stopper to coil fixing sheet metal. (At this time, be careful that stress is not added to the lead wire and the main body is not wound by the lead wire.) If the stopper is not firmly attached to the coil fixing sheet metal, the coil may be detached from the main body and that can cause defective operation of the linear expansion valve.

To prevent piping stress, be sure to attach the coil holding the main body of the linear expansion valve firmly. Otherwise the pipe may break.



10-7. EMERGENCY OPERATION

- (1) When the error codes shown below are displayed on outdoor unit or microprocessor for wired remote controller or indoor unit has a failure, but no other problems are found, emergency operation will be available by setting the emergency operation switch (SWE) to ON at the indoor unit control board and short-circuiting the connector (CN31) on the outdoor controller board.

When following abnormalities occur, emergency operation will be available.

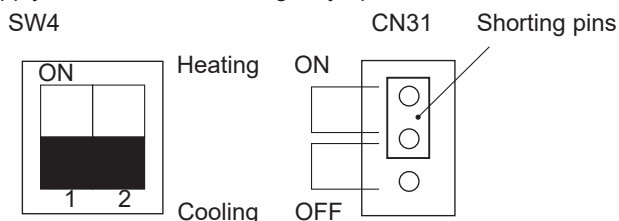
Error code	Inspected content
U4	Open/short of pipe thermistor (TH3/TH6/TH7/TH8/TH32)
E8	The indoor/outdoor unit communication error •Signal receiving error (Outdoor unit)
E9	The indoor/outdoor unit communication error •Transmitting error (Outdoor unit)
E0-7	Communication error other than outdoor unit
Ed	Communication error between outdoor controller board and M-NET board (Serial communication error)

(2) Check the following items and cautions for emergency operation

- ① Make sure that there is no abnormality in the outdoor unit other than the above abnormalities. (Emergency operation will not be available when error codes other than the above are indicated.)
- ② For emergency operation, it is necessary to set the emergency operation switch (SWE) on the indoor controller board. Refer to the electrical wiring diagram of the indoor unit for how to set the indoor unit.)
- ③ During emergency operation, the air-conditioner will continuously be operated by supplying power and stopping it: it cannot be turned on or off by the remote control, and the temperature control is not possible.
- ④ Do not perform emergency heating operation for an extended period of time: if the outdoor unit starts defrosting during this period, cold air will blow out from the indoor unit.
- ⑤ Do not perform emergency cooling operation for more than 10 hours; otherwise, it could result in freezing the heat exchanger of the indoor unit.

(3) Emergency operation procedure

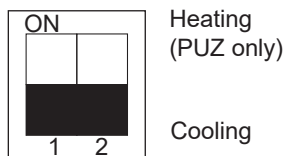
- ① Turn the main power supply off.
- ② Turn on the emergency operation switch (SWE) on the indoor controller board.
- ③ Set the shorting pins of the emergency operation connector (CN31) on the outdoor controller board to ON.
- ④ Use SW4-2 on the outdoor controller board to set the operation mode (cooling or heating). (SW4-1 is not used.)
- ⑤ Turning the main power supply on will start the emergency operation.



(4) Releasing emergency operation

- ① Turn the main power supply off.
- ② Set the emergency operation switch (SWE) on the indoor controller board to OFF.
- ③ Set the shorting pins of emergency operation connector (CN31) on the outdoor controller board to OFF.
- ④ Set SW4-2 on the outdoor controller board as shown below.

Note: If the shorting pins are not set on the emergency operation connector (CN31), the setting remains OFF.



(5) Operation data during emergency operation

During emergency operation, no communication is performed with the indoor unit, so the data items needed for operation shall be set to the following values:

Operation data	Operation mode		Remarks
	COOL	HEAT	
Intake temperature (TH1)	81°F [27°C]	69°F [20.5°C]	
Indoor fluid pipe temperature (TH2)	41°F [5°C]	113°F [45°C]	
Indoor 2-phase pipe temperature (TH5)	41°F [5°C]	122°F [50°C]	
Set temperature	77°F [25°C]	72°F [22°C]	
Outdoor liquid pipe temperature (TH3)	113°F [45°C]	41°F [5°C]	*1
Outdoor 2-phase pipe temperature (TH6)	122°F [50°C]	41°F [5°C]	*1
Outdoor ambient temperature (TH7)	95°F [35°C]	45°F [7°C]	*1
Outdoor suction (TH32)	41°F [5°C]	41°F [5°C]	*2
Temperature difference code (intake temperature – set temperature) (ΔT_j)	5	5	
Discharge super heat (SHd)	54°F [30°C]	54°F [30°C]	*2
Subcooling (SC)	9°F [5°C]	9°F [5°C]	*2

*1 If the thermistor temperature data is normal (not open/short), that data is loaded into the control as valid data. When the unit enters emergency operation and TH values are mismatched, set the thermistors to open/short. And the unit runs emergency operation with the values listed above.

*2 If one thermistor is set to open/short, the values of SHd/SC will be different from the list above.

[Example] When the liquid pipe temperature thermistor (TH3) has an open or short circuit.

Thermistor	COOL	HEAT
TH3	113°F [45°C]	41°F [5°C]
TH6	Ta	Tb
	Regard normal figure as effective data.	
TH4	Tc	Td
	Regard normal figure as effective data.	
TH5	41°F [5°C]	122°F [50°C]
TH2	41°F [5°C]	113°F [45°C]
TH33	Regard normal figure as effective data.	

Discharge superheat (SHd)

Cooling = TH4 – TH6 = Tc – Ta

Heating = TH4 – TH5 = Td – 122°F [50°C]

Degree of subcooling (SC)

Cooling = TH6 – TH3 = Ta – 113°F [45°C]

Heating = TH5 – TH2 = 50°C – 45°C = 5°C

or

= 122°F – 113°F = 9°F

10-8. TEST POINT DIAGRAM
Outdoor controller circuit board
PUZ-AK12NL-U1
PUZ-AK18NL-U1
PUY-AK12NL-U1
PUY-AK18NL-U1

Note: PUZ-AK12/ 18NL checks solder side.

Brief check for power module

If they are short-circuited, they are broken.

Measure the resistance at the following points (connectors, etc.).

1. Check of diode (DS1, DS2)

$\boxed{P-L1}$, $\boxed{P-N1}$, $\boxed{N-L1}$, $\boxed{N-N1}$

2. Check Q1

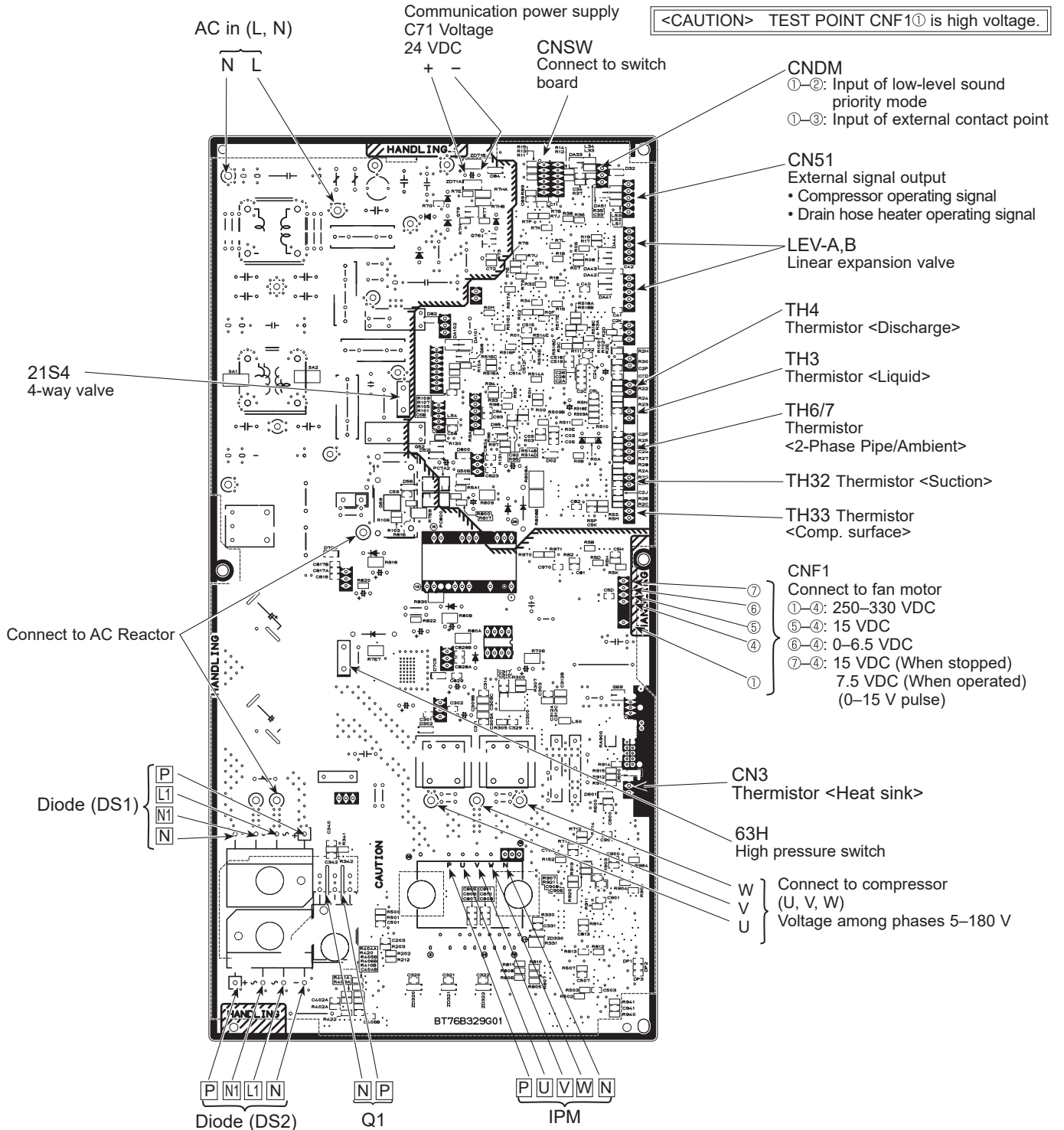
$\boxed{P-N}$

3. Check IPM

$\boxed{P-N}$, $\boxed{P-U}$, $\boxed{P-V}$, $\boxed{P-W}$, $\boxed{N-U}$, $\boxed{N-V}$, $\boxed{N-W}$

P-N keeps being short-circuited until the smoothing condenser is charged by a multimeter.

Note: The marks, \boxed{P} , \boxed{N} , \boxed{L} , $\boxed{L1}$, $\boxed{N1}$, \boxed{U} , \boxed{V} and \boxed{W} shown in the diagram are not actually printed on the board.

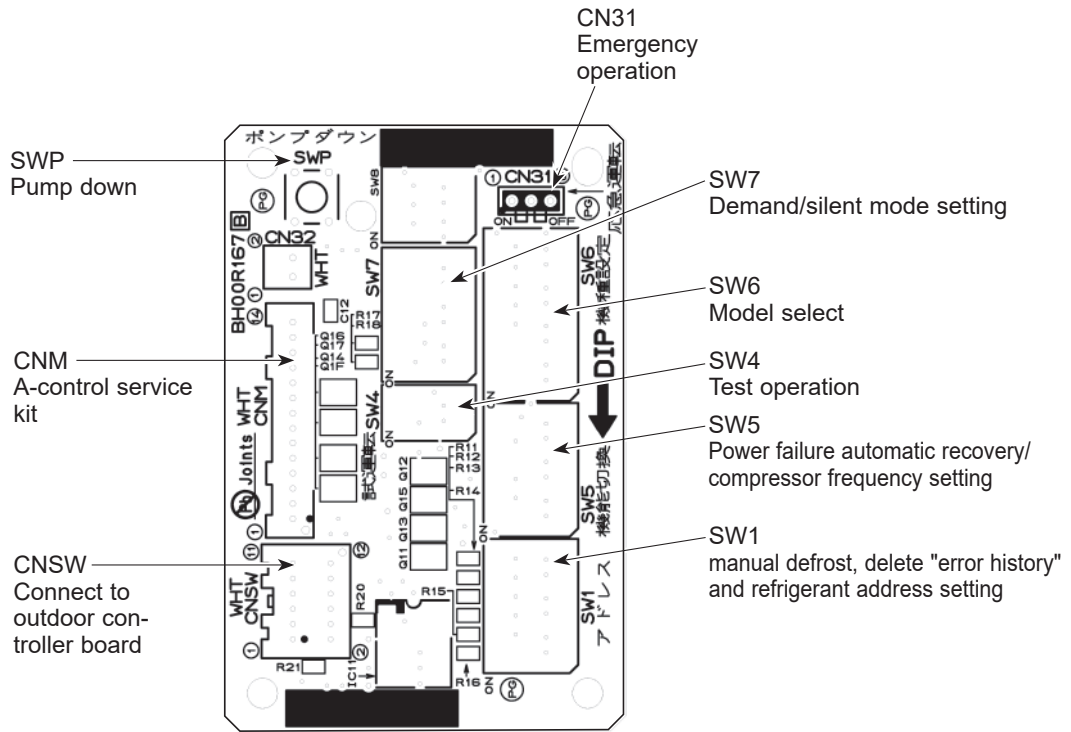


Switch board
PUZ-AK12NL-U1

PUZ-AK18NL-U1

PUY-AK12NL-U1

PUY-AK18NL-U1



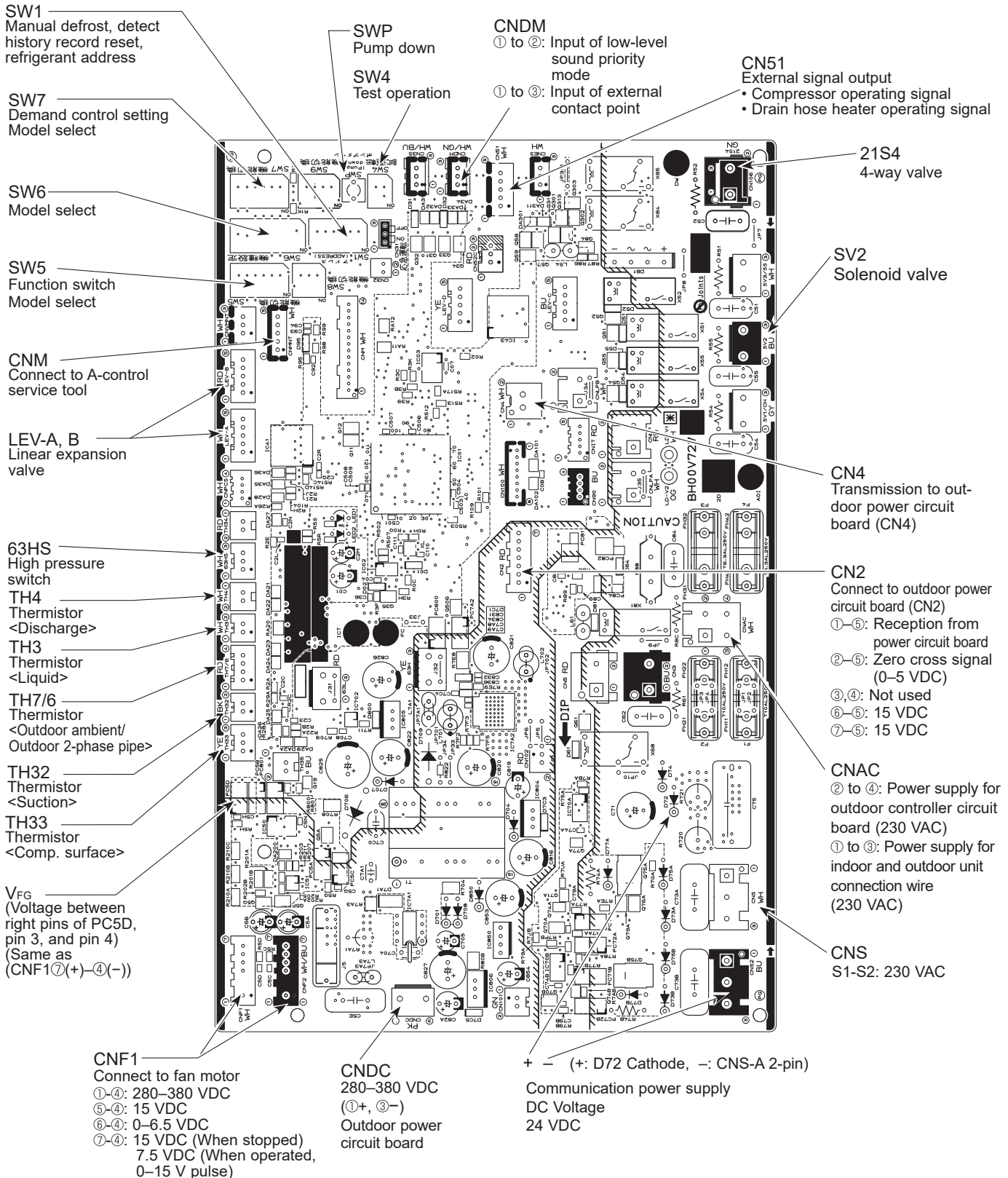
Outdoor controller circuit board

PUZ-AH24NL-U1

PUZ-AH30NL-U1

PUY-AH24NL-U1

PUY-AH30NL-U1



Outdoor power circuit board

- PUZ-AH24NL-U1
- PUZ-AH30NL-U1
- PUY-AH24NL-U1
- PUY-AH30NL-U1

Brief check for power module

If they are short-circuited, they are broken.

Measure the resistance in the following points (connectors, etc.).

1. Check power module

① Check of diode circuit

R - P1 S - P1 R - N1 S - N1

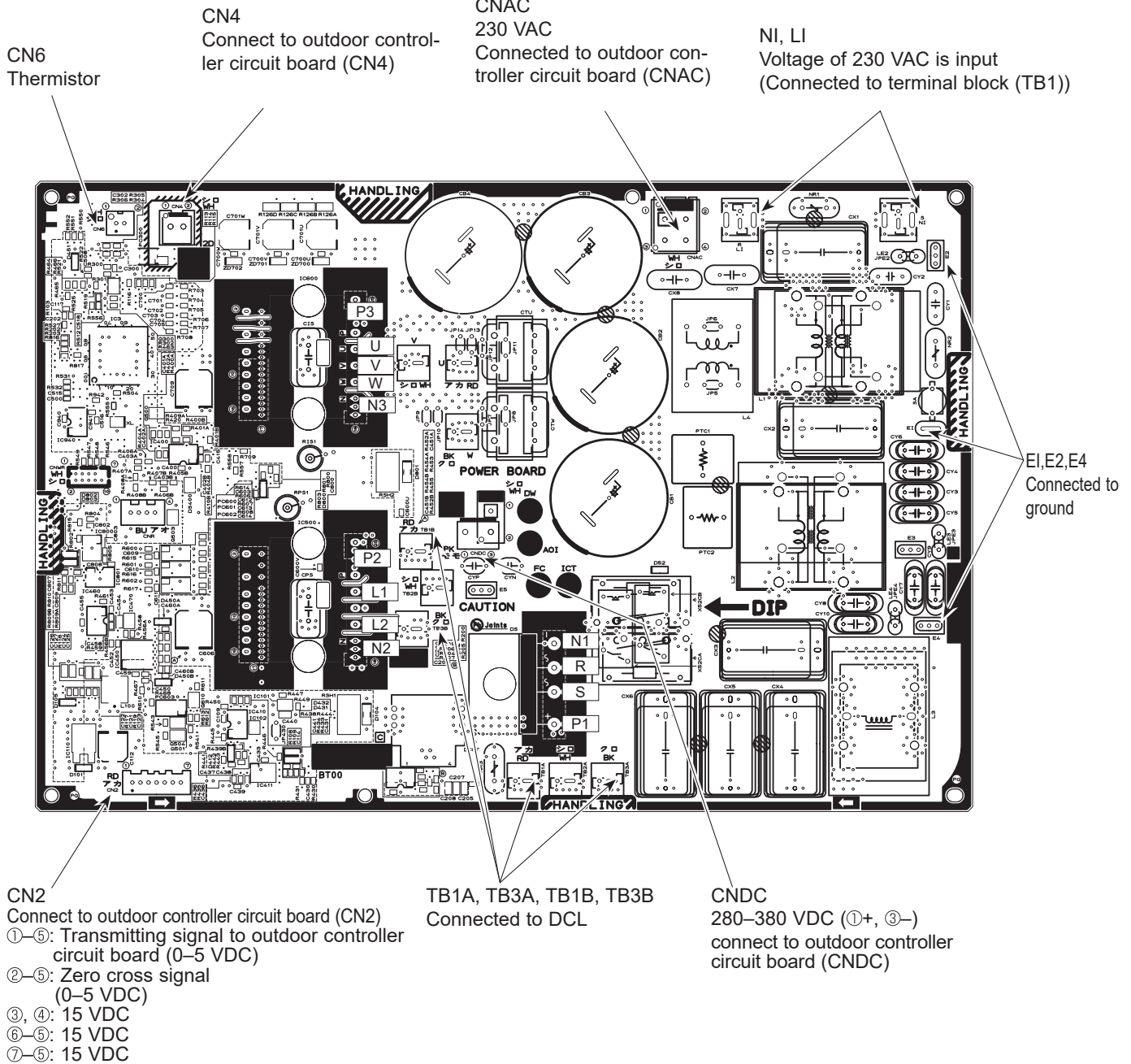
② Check IGBT circuit

P2 - L1 P2 - L2 N2 - L1 N2 - L2

③ Check inverter circuit

P3 - U, P3 - V, P3 - W, N3 - U, N3 - V, N3 - W

Note: The marks **R**, **S**, **L1**, **L2**, **P1**, **N1**, **U**, **V**, and **W** shown in the diagram are not actually printed on the board.



10-9. FUNCTIONS OF SWITCHES, CONNECTORS AND JUMPERS

(1) Switch functions

The black square (■) indicates a switch position.

Type of switch	Switch	No.	Function	Action by switch operation		Effective timing					
				ON	OFF						
DIP Switch	SW1	1	Manual defrost *1	Start	Normal	When compressor is operating in heating operation. *1					
		2	Abnormal history clear	Clear	Normal	Off or operating					
		3	Refrigerant address setting		0		1		2		3
		4			4		5		6		7
		5			8		9		10		11
		6			12		13		14		15
	SW4	1		Test run	Operating	OFF	Under suspension				
	2	Test run mode setting		Heating	Cooling						
	SW8	1	Use of existing pipe	Used	Not used	Always					
		2	No function	—	—	—					
		3	Separate indoor/ outdoor unit power supplies	Used	Not used	When power supply ON					
	Push switch	SWP		Pump down	Start	Normal	Under suspension				

*1 Manual defrost should be done as follows.

① Change SW1-1 on the outdoor controller board from OFF to ON.

② Manual defrost will start by the above operation ① if all of the following conditions are satisfied.

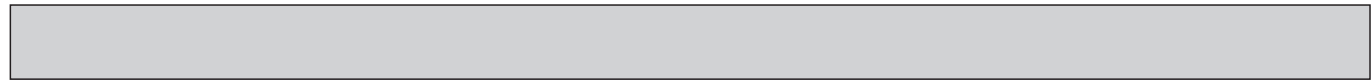
- Heat mode setting
- 10 minutes have passed since the compressor started operating or the previous manual defrost is finished.
- Pipe temperature is less than or equal to 46°F [8°C].

Manual defrost will finish if certain conditions are satisfied.

Manual defrost can be done if the above conditions are satisfied when SW1-1 is changed from OFF to ON.

After SW1-1 is changed from OFF to ON, there is no problem if SW1-1 is left ON or changed to OFF again. This depends on the service conditions.

Continue to the next page.



Type of Switch	Switch	No.	Function	Action by the switch operation		Effective timing
				ON	OFF	
DIP switch	SW5	1	No function	—	—	—
		2	Power failure automatic recovery *2	Auto recovery	No auto recovery	When power supply is ON
		3,4	No function	—	—	—
		6	No function	—	—	—
	SW7 *4	1	Mode select *3	—	Low noise mode	Always
		2	No function	—	—	—
		3	Max Hz setting (cooling)	Max Hz (cooling) × 0.8	Normal	Always
		4	Max Hz setting (heating)	Max Hz (heating) × 0.8	Normal	Always
		5	No function	—	—	—
		6	Defrost setting	For high humidity	Normal	Always
	SW9	1	No function	—	—	—
		2	Function switch	Valid	Normal	Always
		3	No function	—	—	—
		4	No function	—	—	—
	SW6	1	No function			
		2				
		3				
		4	Model select	Refer to "7. WIRING DIAGRAM".		
		5				
		6				
		7				
		8				
	SW5	5				

*2 The power failure automatic recovery can be set by either the remote controller or this DIP switch. If one of them is set to ON, the auto recovery is activated. Please set the auto recovery mainly by the remote controller because not all the units have the DIP switch.

Please refer to the indoor unit installation manual.

*3 SW7-1 is setting change over of Demand/Low noise. It is effective only in the case of the external input. (Local wiring is necessary. Refer to the next page: Special function)

*4 Please do not use SW7-3 to 6 usually. The conditions of use may cause problems.

(2) Function of connector

Type	Connector	Function	Action by open/short operation		Effective timing
			Short	Open	
Connector	CN31	Emergency operation	Start	Normal	When power supply is ON

<Display function of inspection for outdoor unit>

The blinking patterns of both LED1 (green) and LED2 (red) indicate the types of abnormality when it occurs. Types of abnormality can be indicated in details by connecting an optional part 'A-Control Service Tool (PAC-SK52ST)' to the connector CNM on the outdoor controller board.

Display

(1) Normal condition

Unit condition	Outdoor controller board		A-Control Service Tool	
	LED1 (Green)	LED2 (Red)	Error code	Indication of the display
When power is turned on	Lit	Lit	- ↔ -	Alternately blinking display
When unit stops	Lit	Not lit	00, etc.	Operation mode
When compressor is warming up	Lit	Not lit	08, etc.	
When unit operates	Lit	Lit	C5, H7, etc.	

(2) Abnormal condition

Indication		Error			Detailed reference page
Outdoor controller board		Contents	Check code*1	Inspection method	
LED (Green)	LED2 (Red)				
1 blinking	2 blinking	Connector (63H/TRS) is open.	F5	① Check if connector (63H and TRS) on the outdoor controller board is not disconnected. ② Check continuity of pressure switch (63H)/Thermal protector (TRS) by multimeter.	p.27
	4 blinking	Abnormality of indoor controller board	Fb	① Replace indoor controller board.	*2
	5 blinking	Refrigerant leakage	FL	① Check the indoor unit to detect the part where refrigerant leaks.	p.36
Refrigerant sensor error		FH	① Check the connectors of the refrigerant sensor.	p.35	
2 blinking	1 blinking	Miswiring of indoor/outdoor unit connecting wire, excessive number of indoor units (4 units or more)	—	① Check if indoor/outdoor connecting wire is connected correctly. ② Check if 4 or more indoor units are connected to outdoor unit. ③ Check if noise entered into indoor/outdoor connecting wire or power supply.	p.28 (EA)
		Miswiring of indoor/outdoor unit connecting wire (reversed wiring or disconnection)	—	④ Re-check error by turning off power, and on again.	p.28 (Eb)
		Startup time over	—		p.28 (EC)
	2 blinking	Indoor/outdoor unit communication error (signal receiving error) is detected by indoor unit.	E6	① Check if indoor/outdoor connecting wire is connected correctly. ② Check if noise entered into indoor/outdoor connecting wire or power supply.	*2 or p.34 (E6)
			E7	③ Check if noise entered into indoor/outdoor controller board. ④ Re-check error by turning off power, wait 10 minutes and on again.	*2
		Indoor/outdoor unit communication error (signal receiving error) is detected by outdoor unit.	—		p.34 (E8)
		Indoor/outdoor unit communication error (transmitting error) is detected by outdoor unit.	—		p.34 (E9)
	3 blinking	Remote controller signal receiving error is detected by remote controller.	E0	① Check if connecting wire of indoor unit or remote controller is connected correctly. ② Check if noise entered into transmission wire of remote controller.	p.33
		Remote controller transmitting error is detected by remote controller.	E3	③ Re-check error by turning off power, and on again.	p.33
		Remote controller signal receiving error is detected by indoor unit.	E4		p.33
		Remote controller transmitting error is detected by indoor unit.	E5		p.33
	4 blinking	Error code is not defined.	EF	① Check if remote controller is MA remote controller(PAR-42MAA). ② Check if noise entered into transmission wire of remote controller. ③ Check if noise entered into indoor/outdoor connecting wire. ④ Re-check error by turning off power, and on again.	p.34
		Abnormal if a connection of indoor unit and outdoor unit using different refrigerant is detected.	EE	Check if indoor/outdoor unit combination is authorized.	p.34

*1 Error code displayed on remote controller

*2 Refer to the indoor unit service manual.

Continue to the next page

Indication		Error			Detailed reference page	
Outdoor controller board		Contents	Check code*1	Inspection method		
LED (Green)	LED2 (Red)					
2 blinking	4 blinking	Abnormality of refrigerant circuit	PL	① Be sure to replace 4-way valve. ② Check refrigerant pipes for disconnection or leakage. ③ After the recovery of refrigerant, vacuum dry the whole refrigerant circuit. ④ Refer to "10-5. HOW TO CHECK THE PARTS". ⑤ Check refrigerant circuit for operation.	p.35	
		Float switch connector open (FS)	P4	① Check if connector (CN4F) on indoor controller board is not disconnected. ② Measure resistance value among terminals on drain pump using a multimeter. ③ Check if drain pump works. ④ Check drain function.	*2	
	5 blinking	Serial communication error <Communication between outdoor controller board and outdoor power board> <Communication between outdoor controller board and M-NET P.C. board>	Ed	① Check if connector (CN4) on outdoor controller board and outdoor power board is not disconnected. ② Check if there is poor connection of connector on outdoor controller board (CNMNT and CNVMNT). ③ Check M-NET communication signal.	p.35	
		Communication error of M-NET system	A0–A8		p.36– p.38	
3 blinking	1 blinking	Abnormality of shell thermistor (TH33) and discharge temperature (TH4)	U2	① Check if stop valves are open. ② Check if connectors (TH4, TH33, LEV-A, and LEV-B) on outdoor controller board are not disconnected. ③ Check if unit is filled with specified amount of refrigerant. ④ Measure resistance values among terminals on indoor valve and outdoor linear expansion valve using a multimeter.	p.29	
		Abnormality of superheat due to low discharge temperature	U7		p.30	
	2 blinking	Abnormal high pressure (63H operated)/High compressor temperature (TRS operated)	U1	① Check if indoor/outdoor units have a short cycle on their air ducts. ② Check if connector (63H) on outdoor controller board is not disconnected. ③ Check if heat exchanger and filter is not dirty. ④ Measure resistance values among terminals on linear expansion valve using a multimeter. ⑤ Check if stop valves are open. ⑥ Check if unit is filled with specified amount of refrigerant.	p.28	
		Abnormal low pressure (Low pressure switch 63L worked.)	UL		p.32	
	3 blinking	Abnormality of outdoor fan motor rotational speed	U8	① Check the outdoor fan motor. ② Check if connector (TH3) on outdoor controller board is disconnected.	p.30	
		Protection from overheat operation (TH3)	Ud		p.32	
	4 blinking	Compressor overcurrent breaking (Startup locked)	Compressor overcurrent breaking (Startup locked)	UF	① Check if stop valves are open. ② Check looseness, disconnection, and reversed connection of compressor wiring. ③ Measure resistance values among terminals on compressor using a multimeter. ④ Check if outdoor unit has a short cycle on its air duct.	p.32
			Compressor overcurrent breaking	UP		p.33
			Abnormality of current sensor (P.B.)	UH		p.32
			Abnormality of power module	U6		p.30
5 blinking	Open/short of discharge/Comp. surface thermistor (TH4, TH33)	Open/short of discharge/Comp. surface thermistor (TH4, TH33)	U3	① Check if connectors (TH3, TH4, TH6, TH7, TH8, TH32, and TH33) on outdoor controller board and connector (CN3) on outdoor power board are not disconnected. ② Measure resistance value of outdoor thermistors	p.29	
		Open/short of outdoor thermistors (TH3, TH6, TH7, TH8 and TH32)	U4		p.29	
6 blinking	Abnormality of Heat sink temperature	U5	① Check if indoor/outdoor units have a short cycle on their air ducts. ② Measure resistance value of outdoor heat sink thermistor (TH8).	p.30		
7 blinking	Abnormality of voltage	U9	① Check looseness, disconnection, and reversed connection of compressor wiring. ② Measure resistance value among terminals on compressor using a multimeter. ③ Check continuity of contactor (52C). ④ Check if power supply voltage decreases. ⑤ Check the wiring of CN52C. ⑥ Check the wiring of CNAF.	p.32		

*1 Error code displayed on remote controller

*2 Refer to the indoor unit service manual.

Indication		Error			
Outdoor controller board		Contents	Check code*1	Inspection method	Detailed reference page
LED (Green)	LED2 (Red)				
4 blinking	1 blinking	Abnormality of room temperature thermistor (TH1)	P1	① Check if connectors (CN20, CN21, CN29, and CN44) on indoor controller board are not disconnected. ② Measure resistance value of indoor thermistors.	*2
		Abnormality of pipe temperature thermistor/Liquid (TH2)	P2		*2
		Abnormality of pipe temperature thermistor/Condenser-Evaporator (TH5)	P9		*2
	2 blinking	Abnormality of drain sensor (DS)	P4	① Check if connector (CN31) on indoor controller board is not disconnected. ② Measure resistance value of indoor thermistors. ③ Measure resistance value among terminals on drain pump using a multimeter. ④ Check if drain pump works. ⑤ Check drain function.	*2
		Indoor drain overflow protection	P5		*2
	3 blinking	Freezing (cooling)/overheating (heating) protection	P6	① Check if indoor unit has a short cycle on its air duct. ② Check if heat exchanger and filter are not dirty. ③ Measure resistance value on indoor and outdoor fan motors. ④ Check if the inside of refrigerant piping is not clogged.	*2
4 blinking	Abnormality of pipe temperature	P8	① Check if indoor thermistors (TH2 and TH5) are not disconnected from holder. ② Check if stop valve is open. ③ Check reversed connection of extension pipe. (for plural unit connection) ④ Check if indoor/outdoor connecting wire is connected correctly. (for plural unit connection)	*2	
5 blinking	Indoor fan motor trouble	Pb	① Check the winding of an indoor unit fan motor.	*2	
—	—	Abnormality of remote controller board	E1 E2	① Replace remote controller.	p.33

*1 Error code displayed on remote controller

*2 Refer to the indoor unit service manual.

<Outdoor unit operation monitor function>

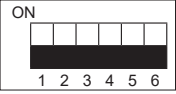
When optional part 'A-Control Service Tool (PAC-SK52ST)' is connected to outdoor controller board (CNM)

By controlling SW2 on the 'A-Control Service Tool', a 2-digit number or code is displayed on the digital indicator LED1 to indicate the operating status and the meaning of the error code.

Operation indicator

SW2: Change self-diagnostic indicators

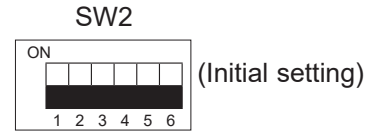
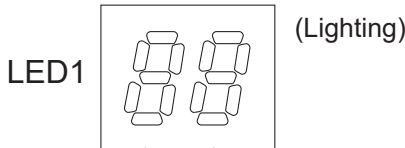
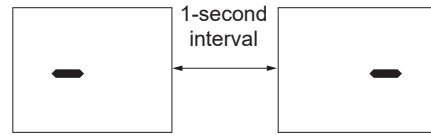
The black square (■) indicates a switch position.

SW2 setting	Display detail	Explanation for display	Unit
			

<Digital indicator LED1 working details>

(Be sure that 1 to 6 on SW2 are set to OFF.)

- (1) When the power supply turns ON
The displays blink alternately. Wait for 4 minutes at the longest.
- (2) When the display lights (Normal operation)



The tens digit: Operation mode The ones digit: Relay output

Display	Operation mode
O	OFF/FAN
C	COOLING/DRY
H	HEATING
d	DEFROSTING

Display	Warming-up compressor	Compressor	4-way valve	Solenoid valve
0	-	-	-	-
1	-	-	-	ON
2	-	-	ON	-
3	-	-	ON	ON
4	-	ON	-	-
5	-	ON	-	ON
6	-	ON	ON	-
7	-	ON	ON	ON
8	ON	-	-	-
A	ON	-	ON	-

- ② Display during error postponement
Postponement code is displayed when compressor stops due to the work of protection device.
Postponement code is displayed while error is being postponed.

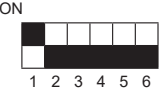
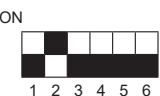
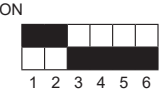
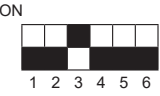

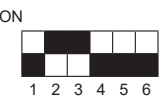
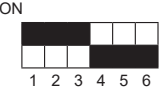

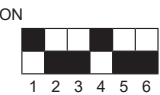
- (3) When the display blinks
Inspection code is displayed when compressor stops due to the work of protection devices.

Display	Inspection unit
0	Outdoor unit
1	Indoor unit 1
2	Indoor unit 2


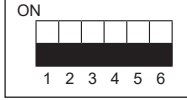

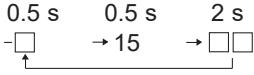

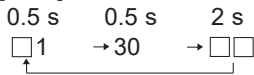




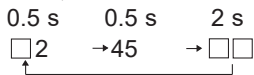
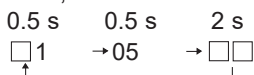
Display	Contents to be inspected (During operation)
U1	Abnormal high pressure (63H operated)/High compressor temperature (TRS operated)
U2	Abnormal high discharge temperature, shortage of refrigerant
U3	Open/short circuit of comp. surface thermistor (TH33) and discharge temperature thermistor (TH4)
U4	Open/short of outdoor unit thermistors (TH3, TH6, TH7, TH8, and TH32)
U5	Abnormal temperature of heat sink
U6	Abnormality of power module
U8	Abnormality in outdoor fan motor
UF	Compressor overcurrent interruption (When Comp. locked)
UH	Current sensor error
UL	Abnormal low pressure
UP	Compressor overcurrent interruption
P1-P8	Abnormality of indoor units
A0-A'	Communication error of M-NET system

Display	Contents to be inspected (When power is turned on)
F5	63H connector (yellow) is open. /TRS connector is open.
E8	Indoor/outdoor communication error (Signal receiving error) (Outdoor unit)
E9	Indoor/outdoor error (Transmitting error) (Outdoor unit)
EA	Miswiring of indoor/outdoor unit connecting wire, excessive number of indoor units (4 units or more)
Eb	Miswiring of indoor/outdoor unit connecting wire (reversed wiring or disconnection)
EC	Startup time over
E0-E7	Communication error except for outdoor unit

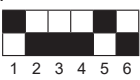

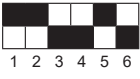





The black square (■) indicates a switch position.

SW2 setting	Display detail	Explanation for display	Unit
ON 	Pipe temperature/Liquid (TH3) -58 to 194	-58 to 194°F [-50 to 90°C] (When the coil thermistor detects 0°F [-17°C] or below, “-” and temperature are displayed alternately.) (Example) When -10°F [-23°C]; 0.5 s 0.5 s 2 s -□ → 10 → □□ ↑	°F [°C]
ON 	Discharge temperature (TH4) -4 to 422	-4 to 422°F [-20 to 217°C] (When the discharge thermistor detects 100°F [37°C] or more, hundreds digit, tens digit, and ones digit are displayed alternately.) (Example) When 105°F [40°C]; 0.5 s 0.5 s 2 s □ 1 → 05 → □□ ↑	°F [°C]
ON 	Output step of outdoor FAN 0 to 25	0 to 25	Step
ON 	Number of ON/OFF times of compressor 0 to 9999	0 to 9999 (When the number of times is 100 or more, hundreds digit, tens digit, and ones digit are displayed alternately.) (Example) When 42500 times (425 × 100 times); 0.5 s 0.5 s 2 s □ 4 → 25 → □□ ↑	100 times
ON 	Compressor integrating operation times 0 to 9999	0 to 9999 (When it is 100 hours or more, hundreds digit, tens digit, and ones digit are displayed alternately.) (Example) When 2450 hours (245 × 10 hours); 0.5 s 0.5 s 2 s □ 2 → 45 → □□ ↑	10 hours
ON 	Compressor operating current 0 to 50	0 to 50 Note: Omit the figures after the decimal fractions.	A
ON 	Compressor operating frequency 0 to 9999	0 to 9999 (When it is 100Hz or more, hundreds digit, tens digit, and ones digit are displayed alternately.) (Example) When 125Hz; 0.5 s 0.5 s 2 s 12 → 50 → □□ ↑	0.1 Hz
ON 	LEV-A opening pulse 0 to 500	0 to 500 (When it is 100 pulse or more, hundreds digit, tens digit, and ones digit, are displayed alternately.) (Example) When 150 pulse; 0.5 s 0.5 s 2 s □ 1 → 50 → □□ ↑	Pulse
ON 	Error postponement code history (1) of outdoor unit	Postponement code display Blinking: During postponement Lighting: Cancellation of postponement “00” is displayed in the case of no postponement.	Code display

The black square (■) indicates a switch position.

SW2 setting	Display detail	Explanation for display	Unit
ON 	Operation mode on error occurring	Operation mode of when operation stops due to error is displayed by setting SW2 as below. (SW2) 	Code display
ON 	Pipe temperature/Liquid (TH3) on error occurring -58 to 194	-58 to 194°F [-50 to 90°C] (When the coil thermistor detects 0°F [-17°C] or below, “-” and temperature are displayed alternately.) (Example) When -15°F [-26°C]; 0.5 s 0.5 s 2 s -□ → 15 → □□ 	°F [°C]
ON 	Discharge temperature (TH4) on error occurring -4 to 422	-4 to 422°F [-20 to 217°C] (When the temperature is 100°F [37°C] or more, the hundreds digit, tens digit, and ones digit are displayed alternately.) (Example) When 130°F [54°C]; 0.5 s 0.5 s 2 s □1 → 30 → □□ 	°F [°C]
ON 	Compressor operating current on error occurring 0 to 50	Compressor operating current on error occurring 0 to 50	A
ON 	Error history (1) (latest) Alternate display of abnormal unit number and code	When no error history, “0” and “-” are displayed alternately.	Code display
ON 	Error history (2) Alternate display of error unit number and code	When no error history, “0” and “-” are displayed alternately.	Code display
ON 	Thermostat ON time 0 to 999	0 to 999 (When it is 100 minutes or more, the hundreds digit, tens digit, and ones digit are displayed alternately.) (Example) When 245 minutes; 0.5 s 0.5 s 2 s □2 → 45 → □□ 	Minute
	Test run elapsed time 0 to 120	0 to 120 (When it is 100 minutes or more, the hundreds digit, tens digit, and ones digit are displayed alternately.) (Example) When 105 minutes; 0.5 s 0.5 s 2 s □1 → 05 → □□ 	

The black square (■) indicates a switch position.

SW2 setting	Display detail	Explanation for display	Unit												
ON 	The number of connected indoor units	0 to 4 (The number of connected indoor units are displayed.)	Unit												
ON 	Capacity setting display	Displayed as an outdoor capacity code <table border="1"> <thead> <tr> <th>Capacity</th> <th>Code</th> <th>Capacity</th> <th>Code</th> </tr> </thead> <tbody> <tr> <td>AK12NL</td> <td>9</td> <td>AH24NL</td> <td>11</td> </tr> <tr> <td>AK18NL</td> <td>10</td> <td>AH30NL</td> <td>14</td> </tr> </tbody> </table>	Capacity	Code	Capacity	Code	AK12NL	9	AH24NL	11	AK18NL	10	AH30NL	14	Code display
Capacity	Code	Capacity	Code												
AK12NL	9	AH24NL	11												
AK18NL	10	AH30NL	14												
ON 	Outdoor unit setting information	<ul style="list-style-type: none"> The tens digit (Total display for applied setting) <table border="1"> <thead> <tr> <th>Setting details</th> <th>Display details</th> </tr> </thead> <tbody> <tr> <td>H•P/Cooling only</td> <td>0: H•P 1: Cooling only</td> </tr> <tr> <td>Single phase/3-phase</td> <td>0: Single phase 2: 3-phase</td> </tr> </tbody> </table> The ones digit <table border="1"> <thead> <tr> <th>Setting details</th> <th>Display details</th> </tr> </thead> <tbody> <tr> <td>Defrosting switch</td> <td>0: Normal 1: For high humidity</td> </tr> </tbody> </table> (Example) When heat pump, 3-phase and defrosting (normal) are set up, "20" is displayed.	Setting details	Display details	H•P/Cooling only	0: H•P 1: Cooling only	Single phase/3-phase	0: Single phase 2: 3-phase	Setting details	Display details	Defrosting switch	0: Normal 1: For high humidity	Code display		
Setting details	Display details														
H•P/Cooling only	0: H•P 1: Cooling only														
Single phase/3-phase	0: Single phase 2: 3-phase														
Setting details	Display details														
Defrosting switch	0: Normal 1: For high humidity														
ON 	Indoor pipe temperature/Liquid (TH2 [1]) Indoor 1 -38 to 190	-38 to 190°F [-39 to 88°C] (When the temperature is 0°F [-17°C] or less, "-" and temperature are displayed alternately.)	°F [°C]												
ON 	Indoor pipe temperature/Cond./Eva. (TH5 [1]) Indoor 1 -38 to 190	-38 to 190°F [-39 to 88°C] (When the temperature is 0°F [-17°C] or less, "-" and temperature are displayed alternately.)	°F [°C]												
ON 	Indoor pipe temperature/Liquid (TH2 [2]) Indoor 2 -38 to 190	-38 to 190°F [-39 to 88°C] (When the temperature is 0°F [-17°C] or less, "-" and temperature are displayed alternately.)	°F [°C]												
ON 	Indoor pipe temperature/Cond./Eva. (TH5 [2]) Indoor 2 -38 to 190	-38 to 190°F [-39 to 88°C] (When the temperature is 0°F [-17°C] or less, "-" and temperature are displayed alternately.)	°F [°C]												
ON 	Indoor room temperature (TH1) 46 to 102	Indoor room temperature (TH1) 46 to 102°F [8 to 39°C]	°F [°C]												

The black square (■) indicates a switch position.

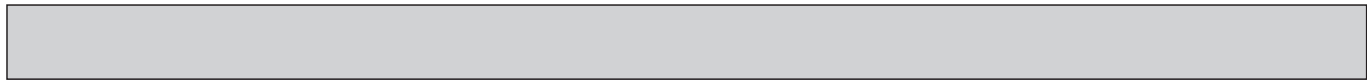
SW2 setting	Display detail	Explanation for display	Unit																		
ON 	Indoor setting temperature 62 to 86	62 to 86°F [17 to 30°C]	°F [°C]																		
ON 	Outdoor pipe temperature/2-phase pipe (TH6) -58 to 194	-58 to 194°F [-50 to 90°C] (When the temperature is 0°F [-17°C] or less, “-” and temperature are displayed alternately.)	°F [°C]																		
ON 	Outdoor ambient temperature (TH7) -58 to 194	-58 to 194°F [-50 to 90°C] (When the temperature is 0°F [-17°C] or less, “-” and temperature are displayed alternately.)	°F [°C]																		
ON 	Outdoor heat sink temperature (TH8) -40 to 392	-40 to 392°F [-40 to 200°C] (When the temperature is 0°F [-17°C] or less, “-” and temperature are displayed alternately.) (When the thermistor detects 100°F [37°C] or more, hundreds digit, tens digit, and ones digit are displayed alternately.)	°F [°C]																		
ON 	Discharge superheat. SHd 32 to 491 [Cooling = TH4 or TH33 - TH6] [Heating = TH4 or TH33 - TH5]	32 to 491°F [0 to 255°C] (When the temperature is 100°F [37°C] or more, hundreds digit, tens digit, and ones digit are displayed alternately.)	°F [°C]																		
ON 	Number of defrost cycles 0 to FFFE	0 to FFFE (in hexadecimal notation) (When more than FF in hex (255 in decimal), the number is displayed in order of 16 ³ 's and 16 ² 's, and 16 ¹ 's and 16 ⁰ 's places. (Example) When 5000 cycles; <div style="text-align: center;"> 0.5 s 0.5 s 2 s □9 →C4 →□□ ↑ └──────────┘ </div>	2 cycles																		
ON 	Input current of outdoor unit	0 to 500 (When it is 100 or more, hundreds digit, tens digit, and ones digit are displayed alternately.)	0.1 A																		
ON 	LEV-B opening pulse	0 to 500 (When it is 100 pulse or more, hundreds digit, tens digit, and ones digit are displayed alternately.)	Pulse																		
ON 	U9 error detail history (latest)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Description</th> <th>Display</th> </tr> </thead> <tbody> <tr> <td>Normal</td> <td>00</td> </tr> <tr> <td>Overvoltage error</td> <td>01</td> </tr> <tr> <td>Undervoltage error</td> <td>02</td> </tr> <tr> <td>Input current sensor error</td> <td></td> </tr> <tr> <td>L₁-phase open error</td> <td>04</td> </tr> <tr> <td>Abnormal power synchronous signal</td> <td>08</td> </tr> <tr> <td>PFC error (Overvoltage/Undervoltage/Overcurrent)</td> <td>10</td> </tr> <tr> <td>Input voltage sensor error</td> <td>80</td> </tr> </tbody> </table> <p>* Display examples for multiple errors: Overvoltage (01) + Undervoltage (02) = 03 Undervoltage (02) + Power sync signal error (08) = 0A L₁ phase open error (04) + PFC error (10) = 14</p>	Description	Display	Normal	00	Overvoltage error	01	Undervoltage error	02	Input current sensor error		L ₁ -phase open error	04	Abnormal power synchronous signal	08	PFC error (Overvoltage/Undervoltage/Overcurrent)	10	Input voltage sensor error	80	Code display
Description	Display																				
Normal	00																				
Overvoltage error	01																				
Undervoltage error	02																				
Input current sensor error																					
L ₁ -phase open error	04																				
Abnormal power synchronous signal	08																				
PFC error (Overvoltage/Undervoltage/Overcurrent)	10																				
Input voltage sensor error	80																				

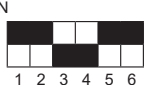


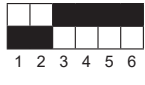


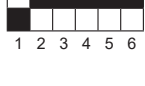
The black square (■) indicates a switch position.

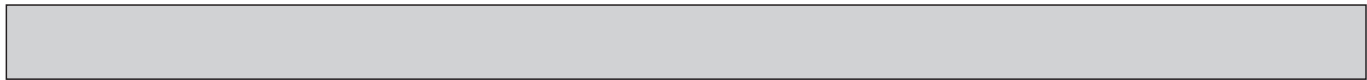
SW2 setting	Display detail	Explanation for display	Unit
ON 	DC bus voltage 180 to 500	180 to 500 (When it is 100V or more, hundreds digit, tens digit, and ones digit are displayed alternately.)	V
ON 	Capacity save 0 to 100 When air conditioner is connected to M-NET and capacity save mode is demanded, a value from "0" to "100" is displayed. [When there is no setting of capacity save, "100" is displayed.]	0 to 100 (When the capacity is 100%, hundreds digit, tens digit, and ones digit are displayed alternately.) (Example) When 100%; 0.5 s 0.5 s 2 s □ 1 → 00 → □ □ ↑	%
ON 	Error postponement code history (2) of outdoor unit	Postponement code display Blinking: During postponement Lighting: Cancellation of postponement "00" is displayed in the case of no postponement.	Code display
ON 	Error postponement code history (3) of outdoor unit	Postponement code display Blinking: During postponement Lighting: Cancellation of postponement "00" is displayed in the case of no postponement.	Code display
ON 	Error history (3) (Oldest) Alternate display of abnormal unit number and code.	When no error history, "0" and "—" are displayed alternately.	Code display
ON 	Error thermistor display [When there is no error thermistor, "—" is displayed.]	3: Liquid/Suction pipe temperature (TH3, TH32) 4: Discharge pipe temperature (TH4) 6: 2-phase pipe temperature (TH6) 7: Ambient temperature (TH7) 8: Heat sink temperature (TH8) 33: Comp. surface temperature (TH33)	Code display
ON 	Operation frequency on error occurring 0 to 255	0 to 255 (When it is 100 Hz or more, hundreds digit, tens digit, and ones digit are displayed alternately.) (Example) When 125 Hz; 0.5 s 0.5 s 2 s □ 1 → 25 → □ □ ↑	Hz
ON 	Fan step on error occurring 0 to 25	0 to 25	Step




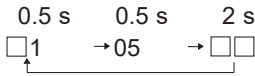
The black square (■) indicates a switch position.

SW2 setting	Display detail	Explanation for display	Unit
ON 	Indoor room temperature (TH1) on error occurring 46 to 102	46 to 102°F [8 to 39°C]	°F [°C]
ON 	Indoor pipe temperature/Liquid (TH2) on error occurring -38 to 190	-38 to 190°F [-39 to 88°C] (When the temperature is 0°F [-17°C] or less, “-” and temperature are displayed alternately.) (Example) When -15°F [-26°C]; 0.5 s 0.5 s 2 s -□ → 15 → □□	°F [°C]
ON 	Indoor pipe temperature/Cond./Eva. (TH5) on error occurring -38 to 190	-38 to 190°F [-39 to 88°C] (When the temperature is 0°F [-17°C] or less, “-” and temperature are displayed alternately.) (Example) When -15°F [-26°C]; 0.5 s 0.5 s 2 s -□ → 15 → □□	°F [°C]
ON 	Outdoor pipe temperature/2-phase (TH6) on error occurring -58 to 194	-58 to 194°F [-50 to 90°C] (When the temperature is 0°F [-17°C] or less, “-” and temperature are displayed alternately.) (Example) When -15°F [-26°C]; 0.5 s 0.5 s 2 s -□ → 15 → □□	°F [°C]
ON 	Outdoor ambient temperature (TH7) on error occurring -58 to 194	-58 to 194°F [-50 to 90°C] (When the temperature is 0°F [-17°C] or less, “-” and temperature are displayed alternately.) (Example) When -15°F [-26°C]; 0.5 s 0.5 s 2 s -□ → 15 → □□	°F [°C]
ON 	Outdoor heat sink temperature (TH8) on error occurring -40 to 392	-40 to 392°F [-40 to 200°C] (When the temperature is 0°F [-17°C] or less, “-” and temperature are displayed alternately.) (When the temperature is 100°F [37°C] or more, hundreds digit, tens digit, and ones digit are displayed alternately.)	°F [°C]



SW2 setting	Display detail	Explanation for display	Unit
ON  1 2 3 4 5 6	Discharge superheat on error occurring SHd 32 to 491 [Cooling = TH4-TH6 Heating = TH4-TH5]	32 to 491°F [0 to 255°C] (When the temperature is 100°F [37°C] or more, hundreds digit, tens digit, and ones digit are displayed alternately.) (Example) When 150°F [65°C]; 0.5 s 0.5 s 2 s □1 → 50 → □□ ↑	°F [°C]
ON  1 2 3 4 5 6	Subcooling on error occurring. SC 32 to 266 [Cooling = TH6-TH3 Heating = TH5-TH2]	32 to 266°F [0 to 130°C] (When the temperature is 100°F [37°C] or more, hundreds digit, tens digit, and ones digit are displayed alternately.) (Example) When 115°F [46°C]; 0.5 s 0.5 s 2 s □1 → 15 → □□ ↑	°F [°C]
ON  1 2 3 4 5 6	Thermostat-on time until error stops 0 to 999	0 to 999 (When it is 100 minutes or more, hundreds digit, tens digit, and ones digit are displayed alternately.) (Example) When 415 minutes; 0.5 s 0.5 s 2 s □4 → 15 → □□ ↑	Minute
ON  1 2 3 4 5 6	Pipe temperature/Suction (TH32) -58 to 194	-58 to 194°F [-50 to 90°C] (When the coil thermistor detects 0°F [-17°C] or below, “-” and temperature are displayed alternately.) (Example) When -10°F [-23°C]; 0.5 s 0.5 s 2 s -□ → 10 → □□ ↑	°F [°C]
ON  1 2 3 4 5 6	Indoor pipe temperature/Liquid (TH2 (3)) Indoor 3 -38 to 190	-38 to 190°F [-39 to 88°C] (When the temperature is 0°F [-17°C] or less, “-” and temperature are displayed alternately.)	°F [°C]
ON  1 2 3 4 5 6	Indoor pipe temperature/Cond./Eva. (TH5 (3)) Indoor 3 -38 to 190	-38 to 190°F [-39 to 88°C] (When the temperature is 0°F [-17°C] or less, “-” and temperature are displayed alternately.) When there is no indoor unit, “00” is displayed.	°F [°C]
ON  1 2 3 4 5 6	Indoor pipe temperature/Liquid (TH2 (4)) Indoor 4 -38 to 190	-38 to 190°F [-39 to 88°C] (When the temperature is 0°F [-17°C] or less, “-” and temperature are displayed alternately.)	°F [°C]



SW2 setting	Display detail	Explanation for display	Unit																
<p>ON</p>  <p>1 2 3 4 5 6</p>	<p>Controlling status of compressor operating frequency</p>	<p>The following code will be a help to know the operating status of unit.</p> <ul style="list-style-type: none"> The tens digit <table border="1"> <tr> <th>Display</th> <th>Compressor operating frequency control</th> </tr> <tr> <td>1</td> <td>Primary current control</td> </tr> <tr> <td>2</td> <td>Secondary current control</td> </tr> </table> <ul style="list-style-type: none"> The ones digit (In this digit, the total number of activated control is displayed) <table border="1"> <tr> <th>Display</th> <th>Compressor operating frequency control</th> </tr> <tr> <td>1</td> <td>Preventive control for excessive temperature rise of discharge temperature</td> </tr> <tr> <td>2</td> <td>Preventive control for excessive temperature rise of condensing temperature</td> </tr> <tr> <td>4</td> <td>Frost prevention control</td> </tr> <tr> <td>8</td> <td>Preventive control for excessive temperature rise of heatsink</td> </tr> </table> <p>(Example) The following controls are activated.</p> <ul style="list-style-type: none"> Primary current control Preventive control for excessive temperature rise of condensing temperature Preventive control for excessive temperature rise of heat sink <p>LED</p> 	Display	Compressor operating frequency control	1	Primary current control	2	Secondary current control	Display	Compressor operating frequency control	1	Preventive control for excessive temperature rise of discharge temperature	2	Preventive control for excessive temperature rise of condensing temperature	4	Frost prevention control	8	Preventive control for excessive temperature rise of heatsink	<p>Code display</p>
Display	Compressor operating frequency control																		
1	Primary current control																		
2	Secondary current control																		
Display	Compressor operating frequency control																		
1	Preventive control for excessive temperature rise of discharge temperature																		
2	Preventive control for excessive temperature rise of condensing temperature																		
4	Frost prevention control																		
8	Preventive control for excessive temperature rise of heatsink																		
<p>ON</p>  <p>1 2 3 4 5 6</p>	<p>Comp. surface temperature (TH33) -4 to 422</p>	<p>-4 to 422°F [-20 to 217°C]</p> <p>(When the comp. surface thermistor detects 100°F [37°C] or more, hundreds digit, tens digit, and ones digit are displayed alternately.)</p> <p>(Example) When 105°F [40°C];</p> <p>0.5 s 0.5 s 2 s</p> <p>□1 → 05 → □□</p> 	<p>°F [°C]</p>																

11-1. SMOOTH MAINTENANCE

Refer to "15-9. SMOOTH MAINTENANCE" for operation procedure.

11-2. GUIDE FOR OPERATION CONDITION

Checkpoints

Enter the temperature differences between 5, 4, 7, and 8 into the graph given below. Operation state is determined according to the plotted areas on the graph. For data measurements, set the fan speed to [Hi] before activating maintenance mode.

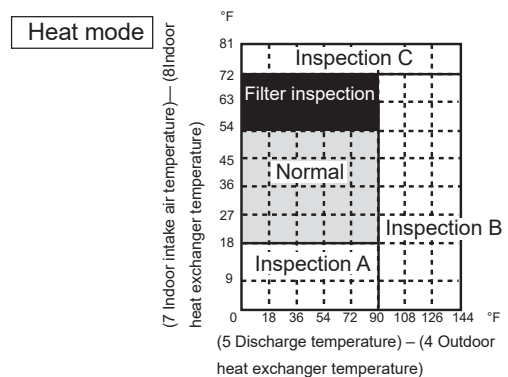
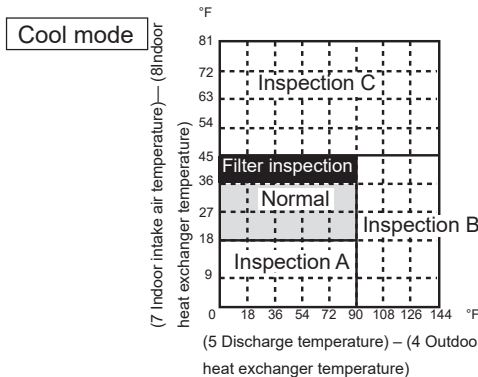
Inspection item		Result				
Power supply	Loose connection	Terminal block	Breaker	Good	Retightened	
			Outdoor Unit	Good	Retightened	
			Indoor Unit	Good	Retightened	
		(Insulation resistance)			MΩ	
	(Voltage)			V		
Compressor	1 Accumulated operating time				Time	
	2 Number of ON/OFF times				Times	
	3 Current				A	
Outdoor unit	Temperature	4 Refrigerant/heat exchanger temperature	COOL	°F	HEAT	°F
		5 Refrigerant/discharge temperature	COOL	°F	HEAT	°F
		6 Air/outside air temperature	COOL	°F	HEAT	°F
		(Air/discharge air temperature)	COOL	°F	HEAT	°F
	Cleanliness	Appearance		Good		Cleaning required
		Heat exchanger		Good		Cleaning required
		Sound/vibration		None		Present
Indoor unit	Temperature	7 Air/intake air temperature	COOL	°F	HEAT	°F
		(Air/discharge air temperature)	COOL	°F	HEAT	°F
		8 Refrigerant/heat exchanger temperature	COOL	°F	HEAT	°F
		9 Filter operating time *				Time
	Cleanliness	Decorative panel		Good		Cleaning required
		Filter		Good		Cleaning required
		Fan		Good		Cleaning required
		Heat exchanger		Good		Cleaning required
		Sound/vibration		None		Present

Classification	Item	Result		
Cool	Inspection	Is "000" displayed stably in Display D on the remote controller?	Stable	Unstable
	Temperature difference	(5 Discharge temperature) – (4 Outdoor heat exchanger temperature) (7 Indoor intake air temperature) – (8 Indoor heat exchanger temperature)	°F	
Heat	Inspection	Is "000" displayed stably in Display D on the remote controller?	Stable	Unstable
	Temperature difference	(5 Discharge temperature) – (8 Indoor heat exchanger temperature) (8 Indoor heat exchanger temperature) – (7 Indoor intake air temperature)	°F	

Note:

- Fixed Hz operation may not be possible under the following temperature ranges
 - A) In cool mode, outdoor intake air temperature is 104 °F or higher or indoor intake air temperature is 73 °F or lower.
 - B) In heat mode, outdoor intake air temperature is 68 °F or higher or indoor intake air temperature is 77 °F or lower.
- If the air conditioner is operated at a temperature range other than the ones above but operation is not stabilized after 30 minutes or more have elapsed, carry out inspection.
- In heat mode, the operation state may vary due to frost forming on the outdoor heat exchanger.

* The filter operating time is the time that has elapsed since the filter was reset.



Result

Area	Check item	Judgement	
		Cool	Heat
Normal	Normal operation state		
Filter inspection	Filter may be clogged.*		
Inspection A	Performance has dropped. Detailed inspection is necessary.		
Inspection B	Refrigerant amount is dropping.		
Inspection C	Filter or indoor heat exchanger may be clogged.		

Note: The above judgment is just guide based on Japanese standard conditions. It may be changed depending on the indoor and outdoor temperature.

* It may be judged as "filter inspection" due to the outdoor and indoor temperature, even though it is not clogged.

12-1. UNIT FUNCTION SETTING BY THE REMOTE CONTROLLER

Each function can be set as necessary using the remote controller. The setting of function for each unit can only be done by the remote controller. Select function available from the table 1.

(1) Functions available when setting the unit number to 00 (Select 00 referring to ④ setting the indoor unit number.)

<Table 1> Function selections

Function	Settings	Mode No. Wired remote controller (RF thermistor)	Setting No.	●: Initial setting (when sent from the factory)	Remarks
Power failure automatic recovery	Not available	01	1		The setting is applied to all the units in the same refrigerant system.
	Available		2	●	
Indoor temperature detection	Average data from each indoor unit	02	1	●	
	Data from the indoor unit with remote controllers		2		
	Data from main remote controllers		3		
LOSSNAY connectivity	Not supported	03	1	●	
	Supported (indoor unit dose not intake outdoor air through LOSSNAY)		2		
	Supported (indoor unit intakes outdoor air through LOSSNAY)		3		
Power supply voltage	230 V	04	1	●	
	208 V		2		
Frost prevention temperature	2°C [36°F] (Normal)	15	1	●	
	3°C [37°F]		2		
Humidifier control	When the compressor operates, the humidifier also operates.	16	1	●	
	When the fan operates, the humidifier also operates.		2		
Change of defrosting control	Standard	17	1	●	
	For high humidity		2		

Meaning of "Function setting"

Mode02: Indoor temperature detecting

No.	Indoor temperature (ta) =		Diagram 1	Diagram 2	Diagram 3	Diagram 4
No.1	Average data of sensor on all indoor units	Initial setting	$ta = (A + B) / 2$	$ta = (A + B) / 2$	$ta = A$	$ta = A$
No.2	Data of sensor on indoor unit that connected with remote controller	Initial setting	$ta = A$	$ta = B$	$ta = A$	$ta = A$
No.3	Data of sensor on main remote controller	Initial setting	$ta = C$	$ta = C$	$ta = C$	$ta = C$

(2) Functions available when setting the unit number to 01–02 or AL (07 in the case of wireless remote controller). Refer to the service manual that comes with each indoor unit.

12-2. SELECTING FUNCTIONS USING THE REMOTE CONTROLLER

Refer to "15-3. SERVICE MENU" and "15-5. FUNCTION SETTING" when selecting functions.

13

MONITORING THE OPERATION DATA BY THE REMOTE CONTROLLER

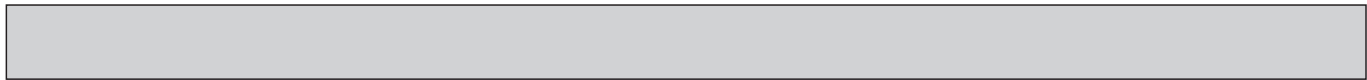
13-1. HOW TO "MONITOR THE OPERATION DATA"

Refer to "15-10. REQUEST CODE" when monitoring the operation data.

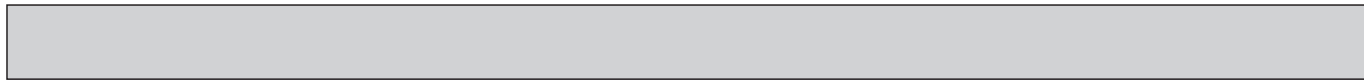
13-2. REQUEST CODE LIST

Certain indoor/outdoor combinations do not have the request code function; therefore, no request codes are displayed.

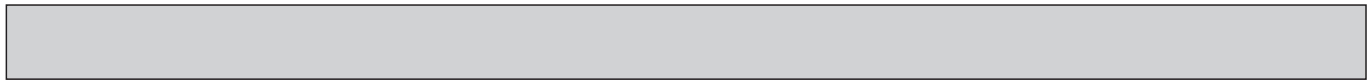
Request code	Request content	Description (Display range)	Unit	Remarks
0	Operation state	Refer to 13-2-1. Detail Contents in Request Code.	-	
1	Compressor-Operating current (rms)	0-50	A	
2	Compressor-Accumulated operating time	0-9999	10 hours	
3	Compressor-Number of operation times	0-9999	100 times	
4	Discharge temperature (TH4)	-4-422	°F	
5	Outdoor unit-Liquid pipe 1 temperature (TH3)	-58-194	°F	
6				
7	Outdoor unit-2-phase pipe temperature (TH6)	-58-194	°F	
8	Suction temperature (TH32)	-58-194	°F	
9	Outdoor unit-Ambient temperature (TH7)	-58-194	°F	
10	Outdoor unit-Heat sink temperature (TH8)	-40-392	°F	
11				
12	Discharge super heat (SHd)	0-327	°F	
13	Subcooling (SC)	0-234	°F	
14				
15				
16	Compressor-Operating frequency	0-255	Hz	
17	Compressor-Target operating frequency	0-255	Hz	
18	Outdoor unit-Fan output step	0-25	Step	
19	Outdoor unit-Fan 1 speed (Only for air conditioners with DC fan motor)	0-9999	rpm	
20	Outdoor unit-Fan 2 speed (Only for air conditioners with DC fan motor)	0-9999	rpm	"0" is displayed if air conditioner is a single-fan type.
21				
22	LEV-A opening	0-500	Pulses	
23	LEV-B opening	0-500	Pulses	
24				
25	Primary current	0-50	A	
26	DC bus voltage	180-370	V	
27				
28				
29	Number of connected indoor units	0-4	Units	
30	Indoor unit-Setting temperature	62-86	°F	
31	Indoor unit-Intake air temperature <Measured by thermostat>	46-102	°F	
32	Indoor unit-Intake air temperature (Unit No. 1) <Heat mode-4-degree correction>	46-102	°F	"0" is displayed if target unit is not present.
33	Indoor unit-Intake air temperature (Unit No. 2) <Heat mode-4-degree correction>	46-102	°F	↑
34	Indoor unit-Intake air temperature (Unit No. 3) <Heat mode-4-degree correction>	46-102	°F	↑
35	Indoor unit-Intake air temperature (Unit No. 4) <Heat mode-4-degree correction>	46-102	°F	↑
36				
37	Indoor unit-Liquid pipe temperature (Unit No. 1)	-38-190	°F	"0" is displayed if target unit is not present.
38	Indoor unit-Liquid pipe temperature (Unit No. 2)	-38-190	°F	↑
39	Indoor unit-Liquid pipe temperature (Unit No. 3)	-38-190	°F	↑
40	Indoor unit-Liquid pipe temperature (Unit No. 4)	-38-190	°F	↑
41				
42	Indoor unit-Cond./Eva. pipe temperature (Unit No. 1)	-38-190	°F	"0" is displayed if target unit is not present.
43	Indoor unit-Cond./Eva. pipe temperature (Unit No. 2)	-38-190	°F	↑
44	Indoor unit-Cond./Eva. pipe temperature (Unit No. 3)	-38-190	°F	↑
45	Indoor unit-Cond./Eva. pipe temperature (Unit No. 4)	-38-190	°F	↑
46				
47				
48	Thermo ON operating time	0-999	Minutes	
49	Test run elapsed time	0-120	Minutes	← Not possible to activate maintenance mode during test run.



Request code	Request content	Description (Display range)	Unit	Remarks
50	Indoor unit-Control state	Refer to 13-2-1. Detail Contents in Request Code.	-	
51	Outdoor unit-Control state	Refer to 13-2-1. Detail Contents in Request Code.	-	
52	Compressor-Frequency control state	Refer to 13-2-1. Detail Contents in Request Code.	-	
53	Outdoor unit-Fan control state	Refer to 13-2-1. Detail Contents in Request Code.	-	
54	Actuator output state	Refer to 13-2-1. Detail Contents in Request Code.	-	
55	Error content (U9)	Refer to 13-2-1. Detail Contents in Request Code.	-	
56				
57				
58				
59				
60	Signal transmission demand capacity	0-255	%	
61	Contact demand capacity	Refer to 13-2-1. Detail Contents in Request Code.	-	
62	External input state (silent mode, etc.)	Refer to 13-2-1. Detail Contents in Request Code.	-	
63				
64				
65				
66				
67				
68				
69				
70	Outdoor unit-Capacity setting display	Refer to 13-2-1. Detail Contents in Request Code.	-	
71	Outdoor unit-Setting information	Refer to 13-2-1. Detail Contents in Request Code.	-	
72				
73				
74				
75				
76				
77				
78				
79				
80				
81				
82				
83				
84	M-NET adapter connection (presence/absence)	"0000": Not connected "0001": Connected	-	
85				
86				
87				
88				
89	Display of execution of replace/wash operation	"0000": Not connected "0001": Connected	-	
90	Outdoor unit-Microprocessor version information	Examples) Ver 5.01 → "0501"	Ver	
91	Outdoor unit-Microprocessor version information (sub No.)	Auxiliary information (displayed after version information) Examples) Ver 5.01 A000 → "A000"	-	
92				
93				
94				
95				
96				
97				
98				
99				
100	Outdoor unit-Error postponement history 1 (latest)	Displays postponement code. ("-") is displayed if no postponement code is present)	Code	
101	Outdoor unit-Error postponement history 2 (previous)	Displays postponement code. ("-") is displayed if no postponement code is present)	Code	
102	Outdoor unit-Error postponement history 3 (second to last)	Displays postponement code. ("-") is displayed if no postponement code is present)	Code	

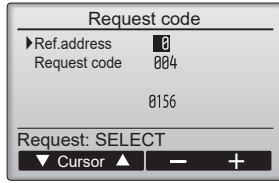


Request code	Request content	Description (Display range)	Unit	Remarks
103	Error history 1 (latest)	Displays error history. ("- -" is displayed if no history is present.)	Code	
104	Error history 2 (second to last)	Displays error history. ("- -" is displayed if no history is present.)	Code	
105	Error history 3 (third to last)	Displays error history. ("- -" is displayed if no history is present.)	Code	
106	Abnormal thermistor display (TH3/TH6/TH7/TH8)	3: TH3 6: TH6 7: TH7 8: TH8 0: No thermistor error	Sensor number	
107	Operation mode at time of error	Displayed in the same way as request code "0".	-	
108	Compressor-Operating current at time of error	0-50	A	
109	Compressor-Accumulated operating time at time of error	0-9999	10 hours	
110	Compressor-Number of operation times at time of error	0-9999	100 times	
111	Discharge temperature at time of error	-4-422	°F	
112	Outdoor unit - Liquid pipe 1 temperature (TH3) at time of error	-58-194	°F	
113				
114	Outdoor unit-2-phase pipe temperature (TH6) at time of error	-58-194	°F	
115	Outdoor suction pipe temperature (TH32) at time of error	-58-194	°F	
116	Outdoor unit-Ambient temperature (TH7) at time of error	-58-194	°F	
117	Outdoor unit-Heat sink temperature (TH8) at time of error	-40-392	°F	
118	Discharge super heat (SHd) at time of error	0-327	°F	
119	Subcooling (SC) at time of error	0-255	°F	
120	Compressor-Operating frequency at time of error	0-255	Hz	
121	Outdoor unit at time of error • Fan output step	0-10	Step	
122	Outdoor unit at time of error • Fan 1 speed (Only for air conditioners with DC fan)	0-9999	rpm	
123	Outdoor unit at time of error • Fan 2 speed (Only for air conditioners with DC fan)	0-9999	rpm	"0" is displayed if the air conditioner is a single-fan type.
124				
125	LEV-A opening at time of error	0-500	Pulses	
126	LEV-B opening at time of error	0-500	Pulses	
127				
128				
129				
130	Thermo ON time until operation stops due to error	0-999	Minutes	
131				
132	Indoor - Liquid pipe temperature at time of error	-38-190	°F	Average value of all indoor units is displayed if the air conditioner consists of two or more indoor units (twin, triple, quad).
133	Indoor-Cond./Eva. pipe temperature at time of error	-38-190	°F	Average value of all indoor units is displayed if the air conditioner consists of two or more indoor units (twin, triple, quad).
134	Indoor at time of error • Intake air temperature <Thermostat judge temperature>	-38-190	°F	
135				
136				
137				
138				
139				
140				
~				
146				
147				
148				
149				
150	Indoor-Actual intake air temperature	-38-190	°F	↑
151	Indoor - Liquid pipe temperature	-38-190	°F	↑
152	Indoor-Cond./Eva. pipe temperature	-38-190		



Request code	Request content	Description (Display range)	Unit	Remarks
153				
154	Indoor-Fan operating time (After filter is reset)	0-9999	1 hour	
155	Indoor-Total operating time (Fan motor ON time)	0-9999	10 hours	
156				
157	Indoor fan output value (Sj value)	0-255 Fan control data	-	For indoor fan phase control
158	Indoor fan output value (Pulsation ON/OFF)	"00 *** ** indicates fan control data.	-	For indoor fan pulsation control
159	Indoor fan output value (duty value)	"00 *** ** indicates fan control data.	-	For indoor DC brushless motor control
160				
161				
162	Indoor unit-Model setting information	Refer to 13-2-1. Detail Contents in Request Code.	-	
163	Indoor unit-Capacity setting information	Refer to 13-2-1. Detail Contents in Request Code.	-	
164	Indoor unit-SW3 information	Undefined	-	
165	Wireless pair No. (indoor control board side) setting	Refer to 13-2-1. Detail Contents in Request Code.	-	
166	Indoor unit-SW5 information	Undefined	-	
167				
~				
189				
190	Indoor unit-Microprocessor version information	Examples) Ver 5.01 → "0501"	Ver	
191	Indoor unit-Microprocessor version information (sub No.)	Auxiliary information (displayed after version information) Examples) Ver 5.01 A000 → "A000"	-	
192				

13-2-1. Detail Content in Request Code



[Example) Request code "004"
Discharge temperature 156°F
Refrigerant address "00"]

Operation state (Request code: "0")

Data display



Relay output state
Operation mode

Operation mode

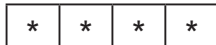
Display	Operation mode
0	STOP • FAN
C	COOL • DRY
H	HEAT
d	DEFROST

Relay output state

Display	Power currently supplied to compressor	Compressor	4-way valve	Solenoid valve
0	-	-	-	-
1				ON
2			ON	
3			ON	ON
4		ON		
5		ON		ON
6		ON	ON	
7		ON	ON	ON
8	ON			
A	ON		ON	

Indoor unit-Control state (Request code: "50")

Data display



Unit No. 4 state
Unit No. 3 state
Unit No. 2 state
Unit No. 1 state

Operation mode

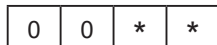
Display	State
0	Normal
1	Preparing for heat operation.
2	-
3	-
4	Heater is ON.
5	Anti-freeze protection is ON.
6	Overheat protection is ON.
7	Requesting compressor to turn OFF.
F	There are no corresponding units.

Outdoor unit-Control state (Request code: "51")

Data display	State
0 0 0 0	Normal
0 0 0 1	Preparing for heat operation.
0 0 0 2	Defrost

Compressor-Frequency control state (Request code: "52")

Data display



Frequency control state 2
Frequency control state 1

Frequency control state 1

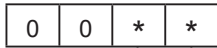
Display	State
0	No current limit
1	Primary current limit control is ON.
2	Secondary current limit control is ON.

Frequency control state 2

Display	Discharge temperature overheat prevention	Condensation temperature overheat prevention	Anti-freeze protection control	Heat sink temperature overheat prevention
0				
1	Controlled			
2		Controlled		
3	Controlled	Controlled		
4			Controlled	
5	Controlled		Controlled	
6		Controlled	Controlled	
7	Controlled	Controlled	Controlled	
8				Controlled
9	Controlled			Controlled
A		Controlled		Controlled
b	Controlled	Controlled		Controlled
C			Controlled	Controlled
d	Controlled		Controlled	Controlled
E		Controlled	Controlled	Controlled
F	Controlled	Controlled	Controlled	Controlled

Fan control state (Request code: "53")

Data display



Fan step correction value by heatsink temperature overheat prevention control
 Fan step correction value by cool condensation temperature overheat prevention control

Display	Correction valve
- (minus)	-1
0	0
1	+1
2	+2

Actuator output state (Request code: "54")

Data display



Actuator output state 1
 Actuator output state 2

Actuator output state 1

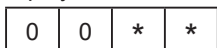
Display	SV1	4-way valve	Compressor	Compressor is warming up
0				
1	ON			
2		ON		
3	ON	ON		
4			ON	
5	ON		ON	
6		ON	ON	
7	ON	ON	ON	
8				ON
9	ON			ON
A		ON		ON
b	ON	ON		ON
C			ON	ON
d	ON		ON	ON
E		ON	ON	ON
F	ON	ON	ON	ON

Actuator output state 2

Display	52C	SV2	SS
0			
1	ON		
2		ON	
3	ON	ON	
4			ON
5	ON		ON
6		ON	ON
7	ON	ON	ON

Error content (U9) (Request code: "55")

Data display



Error content 1
 Error content 2

Error content 1

●: Detected

Display	Overtoltage error	Undervoltage error	L1-phase open error	Power synchronizing signal error
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●
A		●		●
b	●	●		●
C			●	●
d	●		●	●
E		●	●	●
F	●	●	●	●

Error content 2

●: Detected

Display	Converter Fo error	PAM error	Input voltage sensor error
0			
1	●		
2		●	
3	●	●	
8			●
9	●		●
A		●	●
b	●	●	●

Contact demand capacity (Request code: "61")

Data display

0	0	0	*
---	---	---	---

Setting content

Setting content

Display	Setting value	Setting	
		SW7-1	SW7-2
0	0%		
1	50%	ON	
2	75%		ON
3	100%	ON	ON

External input state (Request code: "62")

Data display

0	0	0	*
---	---	---	---

Input state

Input state

•: Input position

Display	Contact demand input	Silent mode input	Spare 1 input	Spare 2 input
0				
1	•			
2		•		
3	•	•		
4			•	
5	•		•	
6		•	•	
7	•	•	•	
8				•
9	•			•
A		•		•
b	•	•		•
C			•	•
d	•		•	•
E		•	•	•
F	•	•	•	•

Outdoor unit-Capacity setting display (Request code: "70")

Data Display	Capacity
9	12
10	18
11	24
14	30
20	36
25	42
28	48
34	60

Outdoor unit-Setting information (Request code: "71")

Data display

0	0	*	*
---	---	---	---

Setting information 1

Setting information 2

Setting information 1

Display	Defrost mode
0	Standard
1	For high humidity

Setting information 2

Display	Single-/3-phase	Heat pump/cooling only
0	Single-phase	Heat pump
1		Cooling only
2	3-phase	Heat pump
3		Cooling only

Indoor unit-Capacity setting information (Request code: "163")

Data display

0	0	*	*
---	---	---	---

See the table on the right.

Display	Capacity setting state	Display	Capacity setting state
00		10	42
01		11	
02		12	48
03		13	60
04		14	
05		15	
06	12	16	
07		17	
08		18	
09	18	19	
0A		1A	
0b	24	1b	
0C		1C	
0d	30	1d	
0E		1E	
0F	36	1F	

Wireless pair No. (indoor control board side) setting (Request code: "165")

Data display

0	0	*	*
---	---	---	---

See the table on the right.

Display	Pair No. setting state
00	No. 0
01	No. 1 J41 disconnected
02	No. 2 J42 disconnected
03	No. 3 J41, J42 disconnected

PUZ-AK12NL-U1

PUZ-AK18NL-U1

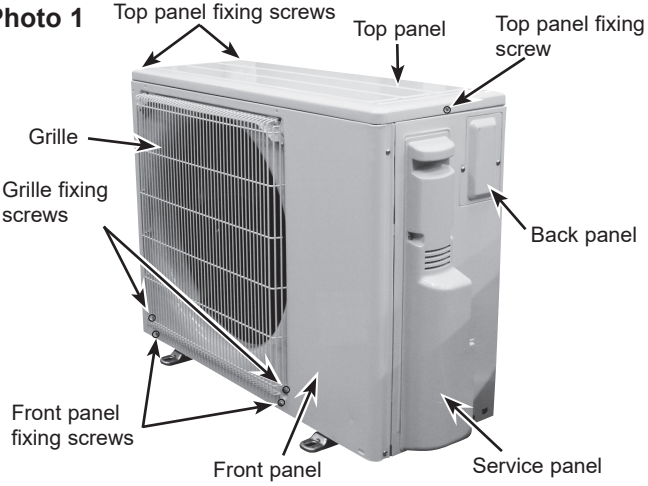
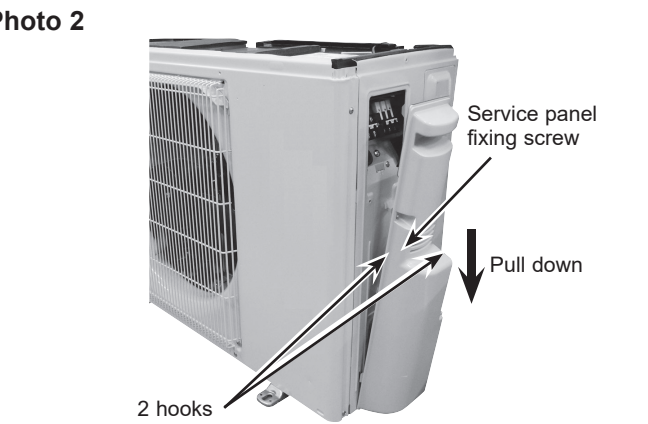
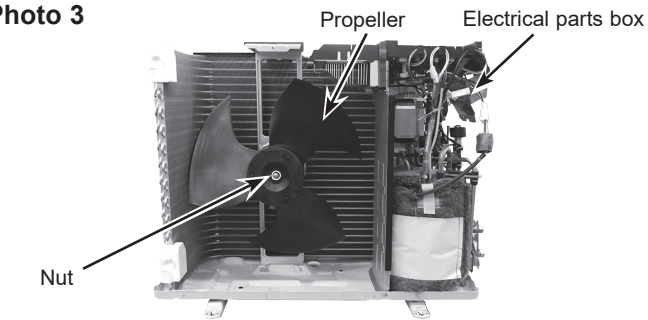
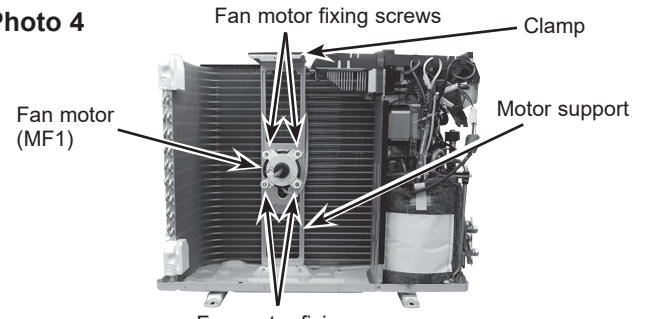
PUY-AK12NL-U1

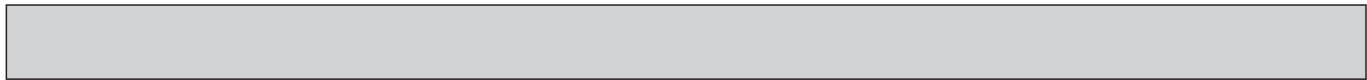
PUY-AK18NL-U1

————> : Indicates the visible parts in the photos/figures.
 - - - - -> : Indicates the invisible parts in the photos/figures.

Note: The red markings indicate that flammable refrigerant is charged. If you remove the markings, put them back to the original position after the work is completed.

Photos: PUZ-AK12NL-U1

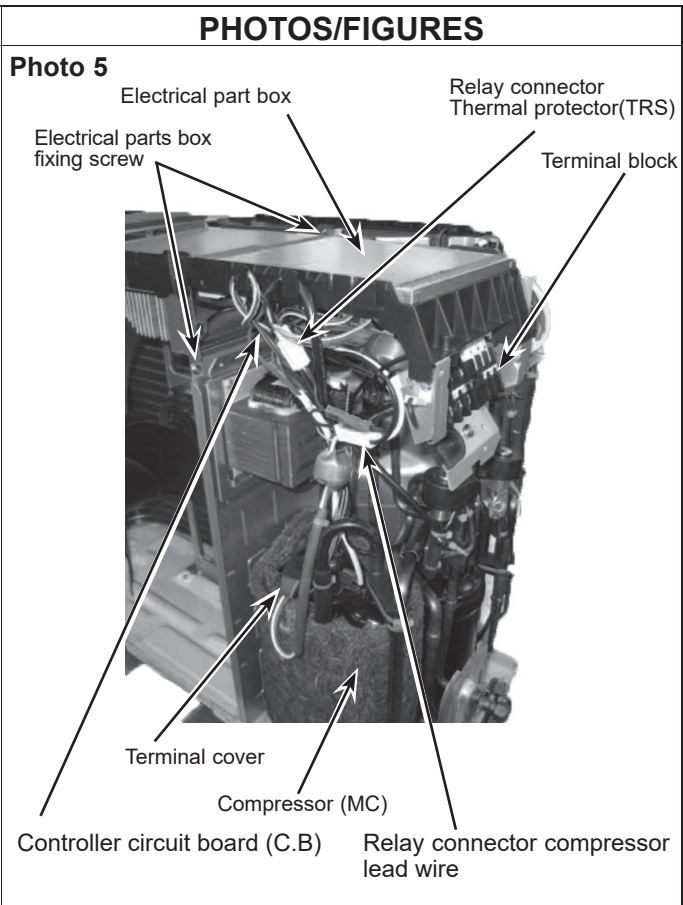
PROCEDURE	PHOTOS/FIGURES
<p>1. Removing the top panel, service panel, front panel, back panel, and grille</p> <p>(1) Remove the top panel fixing screws (4 × 10), 1 from the right and 2 from the left side, and detach the top panel.</p> <p>(2) Remove the 2 service panel fixing screws (4 × 10) and detach the service panel by pulling it downward. (See Photo 2)</p> <p>(3) Remove the front panel fixing screws (4 × 10), 3 from the front, 2 from the right, and 2 from the left side, and detach the front panel.</p> <p>(4) Remove the back panel fixing screws (4 × 10), 5 from the right, and 2 from the rear side, and detach the back panel.</p> <p>(5) Remove the 2 grille fixing screws (4 × 10) and detach the grille.</p>	<p>Photo 1</p>  <p>Photo 2</p> 
<p>2. Removing the fan motor</p> <p>(1) Remove the top panel. (See Photo 1)</p> <p>(2) Remove the front panel. (See Photo 1)</p> <p>(3) Remove the 1 nut (M6, left-screw) and detach the propeller.</p> <p>(4) Disconnect the connector CNF1 on the controller circuit board in the electrical parts box.</p> <p>(5) Loosen the clamp for the lead wire in the motor support.</p> <p>(6) Remove the 4 fan motor fixing screws (5 × 20) and detach the fan motor. (See Photo 4)</p>	<p>Photo 3</p>  <p>Photo 4</p> 



PROCEDURE

3. Removing the electrical parts box

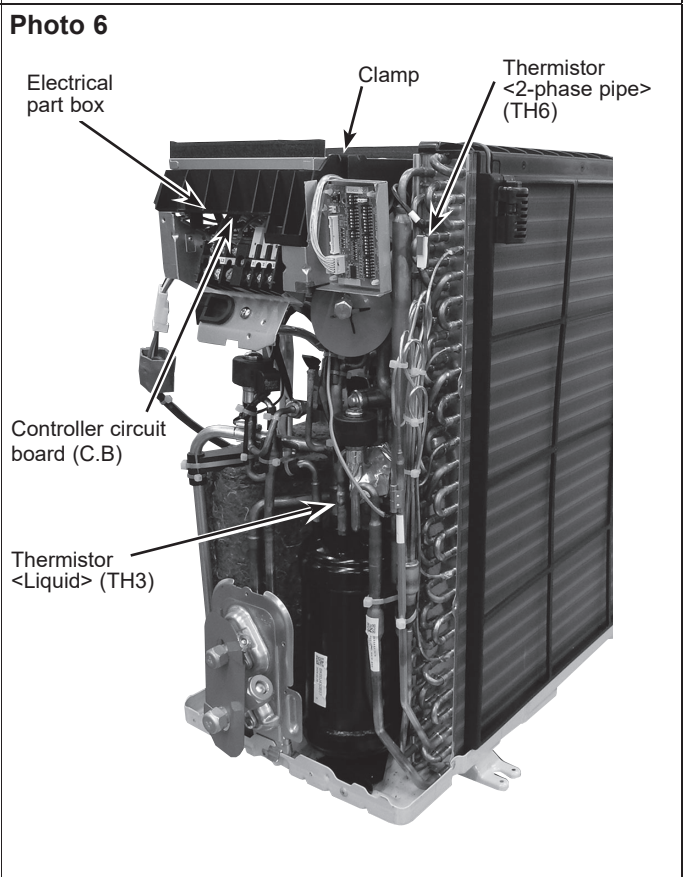
- (1) Remove the service panel. (See Photo 2)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove the front panel. (See Photo 1)
- (4) Remove the back panel. (See Photo 1)
- (5) Disconnect the indoor/outdoor connecting wire from the terminal block.
- (6) Disconnect the connector CNF1, LEV-A, and LEV-B on the controller circuit board.
<Symbols on the board>
 - CNF1: Fan motor
 - LEV-A, LEV-B: LEV
- (7) Disconnect the pipe-side connections of the following parts.
 - 4-way valve (21S4)
 - Thermistor <Liquid> (TH3)
 - Thermistor <Comp. surface> (TH33)
 - Thermistor <Discharge> (TH4)
 - Thermistor <2-phase pipe, Ambient> (TH6/7)
 - Thermistor <Suction> (TH32)
 - High pressure switch (63H)
- (8) Remove the relay connector of the following lead wires.
 - Compressor (MC)
 - Thermal protector (TRS)
- (9) Remove the electrical parts box fixing screws, 1 from the front, and 1 from the top side, and detach the electrical parts box by pulling it upward.

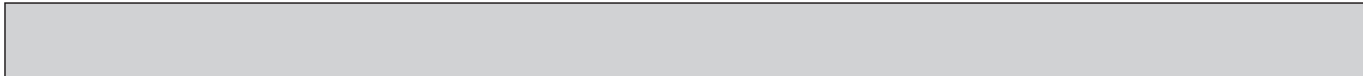


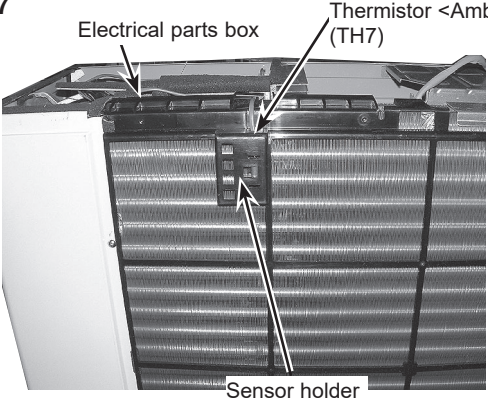
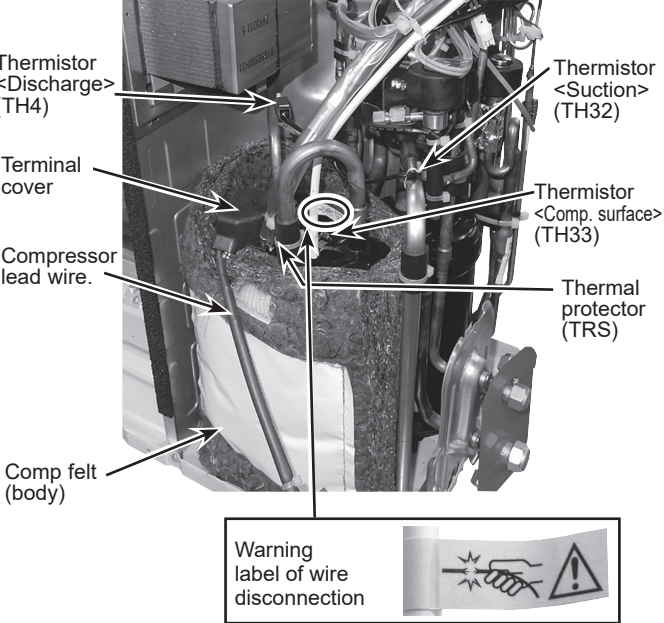
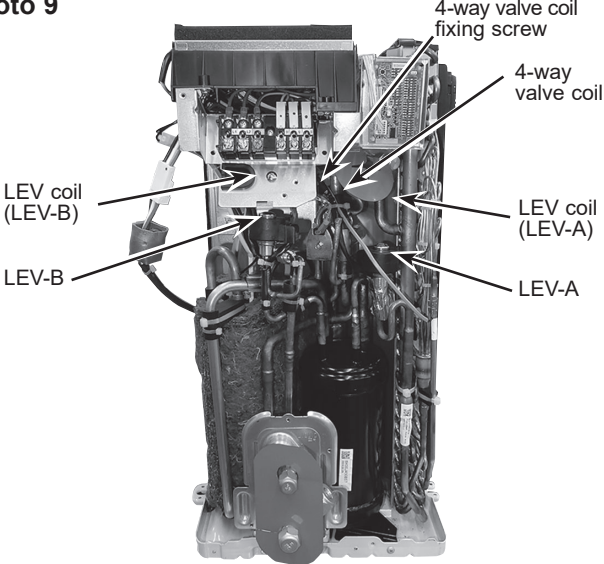
4. Removing the thermistor <2-phase pipe> (TH6) and thermistor <Liquid> (TH3)

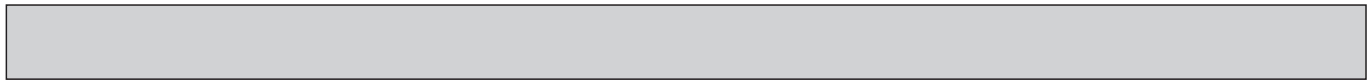
- (1) Remove the service panel. (See Photo 2)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove the front panel. (See Photo 1)
- (4) Remove the back panel fixing screws, 5 from the right. and 2 from the rear side, and detach the back panel. (See Photo 1)
- (5) Disconnect the connector TH3 (white) or TH6/7 (red) on the controller circuit board in the electrical parts box.
- (6) Loosen the clamp for the lead wire in the rear of the electrical parts box.
- (7) Pull out the thermistor <Liquid> (TH3), and thermistor <2-phase pipe> (TH6) from the sensor holder.

Note: Replace the thermistor <2-phase pipe> (TH6) and the thermistor <Ambient> (TH7) together because they are combined. Refer to procedure No. 5 to remove the thermistor <Ambient> (TH7).





PROCEDURE	PHOTOS/FIGURES
<p>5. Removing the thermistor <Ambient> (TH7)</p> <ol style="list-style-type: none"> Remove the service panel. (See Photo 2) Remove the top panel. (See Photo 1) Disconnect the connector TH7 (red) on the controller circuit board in the electrical parts box. Loosen the clamp for the lead wire in the rear of the electrical parts box. (See Photo 6) Pull out the thermistor <Ambient> (TH7) from the sensor holder. <p>Note: When replacing the thermistor <Ambient> (TH7), replace it together with the thermistor <2-phase pipe> (TH6), because they are combined together. Refer to the procedure No.4 to remove the thermistor <2-phase pipe>.</p>	<p>Photo 7</p> 
<p>6. Removing the thermistor <Discharge> (TH4), thermistor <Suction> (TH32), thermistor <Comp. surface> (TH33), thermal protector (TRS), and Compressor lead wire</p> <ol style="list-style-type: none"> Remove the service panel. (See Photo 2) Remove the top panel. (See Photo 1) Remove the front panel. (See Photo 1) Remove the back panel. (See Photo 1) Remove the electrical parts box. (See Photo 5) Remove the comp felt (top) from the compressor. <p>Thermistor <Discharge> (TH4)</p> <ol style="list-style-type: none"> Pull out the thermistor <Discharge> (TH4) from the sensor holder. (See Photo 8) <p>Thermistor <Suction> (TH32)</p> <ol style="list-style-type: none"> Pull out the thermistor <Suction> (TH32) from the sensor holder. (See Photo 8) <p>Thermistor <Comp. surface> (TH33) and thermal protector (TRS)</p> <ol style="list-style-type: none"> Remove the terminal cover and pull out the thermistor <Comp. surface> (TH33) and thermal protector (TRS) from the sensor holder. (See Photo 8) <p>Instead of holding the lead wires, hold the thermistor body when removing and installing the shell thermistor. See "Warning label of wire disconnection" in Photo 8.</p> <p>Compressor lead wire</p> <ol style="list-style-type: none"> Remove the terminal cover and disconnect the compressor lead wire. 	<p>Photo 8</p> 
<p>7. Removing the 4-way valve coil (21S4) and LEV coil (LEV-A, LEV-B)</p> <ol style="list-style-type: none"> Remove the service panel. (See Photo 2) Remove the top panel. (See Photo 1) Remove the front panel. (See Photo 1) Remove the back panel. (See Photo 1) Remove the electrical parts box. (See Photo 5) <p>Removing the 4-way valve (21S4)</p> <ol style="list-style-type: none"> Remove 1 four-way valve fixing screw (M4 × 6). Remove the 4-way valve by sliding the coil to the right. <p>Removing the LEV coils (LEV-A, LEV-B)</p> <ol style="list-style-type: none"> Remove the LEV coils by sliding the coil upward. 	<p>Photo 9</p> 



PROCEDURE

8. Removing the 4-way valve

- (1) Remove the service panel. (See Photo 2)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove the front panel. (See Photo 1)
- (4) Remove the back panel. (See Photo 1)
- (5) Remove the electrical parts box. (See Photo 5)
- (6) Remove the 4-way valve. (See Photo 9)
- (7) Recover refrigerant.
- (8) Remove the welded part of the 4-way valve.

Note 1: Recover refrigerant without spreading it in the air.

Note 2: The welded part can be removed easily by removing the back panel.

Note 3: When installing the 4-way valve, cover it with a wet cloth to prevent it from heating (248°F [120°C] or more), then braze the pipes so that the inside of pipes are not oxidized.

Note 4: Be careful not to expose the fusible plug to the braze torch flame or transfer heat to it; protect the fusible plug with a wet cloth when necessary (fusible plug breaks at 158°F [70°C]).

PHOTOS/FIGURES

Photo 10

Labels in Photo 10:
 4-way valve
 LEV coil (LEV B)
 LEV B
 Fusible plug
 LEV coil (LEV A)
 LEV A
 4-way valve (21S4)
 4-way valve coil fixing screw

9. Removing LEV

- (1) Remove the service panel. (See Photo 2)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove the front panel. (See Photo 1)
- (4) Remove the back panel. (See Photo 1)
- (5) Remove the electrical parts box. (See Photo 5)
- (6) Remove the LEV coil. (See Photo 9)
- (7) Recover refrigerant.
- (8) Remove the welded part of LEV.

Note 1: Recover refrigerant without spreading it in the air.

Note 2: The welded part can be removed easily by removing the back panel.

Note 3: When installing the LEV, cover it with a wet cloth to prevent it from heating (248°F [120°C] or more), then braze the pipes so that the inside of pipes are not oxidized.

Note 4: Be careful not to expose the fusible plug to the braze torch flame or transfer heat to it; protect the fusible plug with a wet cloth when necessary (fusible plug breaks at 158°F [70°C]).

10. Removing the LEV ASSY-B (fusible plug)

- (1) Remove the service panel. (See Photo 2)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove the front panel. (See Photo 1)
- (4) Remove the back panel. (See Photo 1)
- (5) Remove the electrical parts box. (See Photo 5)
- (6) Recover refrigerant.
- (7) Remove the welded part of LEV ASSY-B.

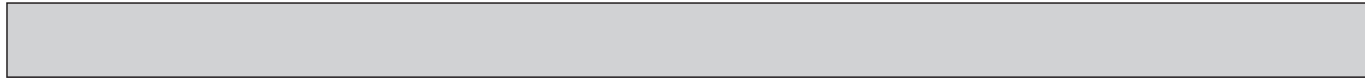
Note 1: Recover refrigerant without spreading it in the air.

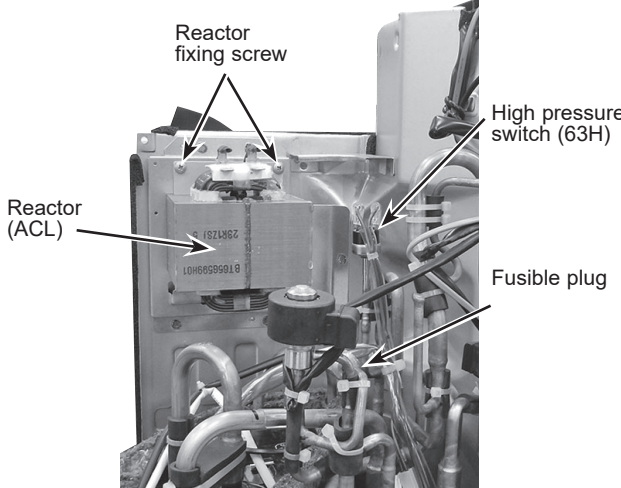
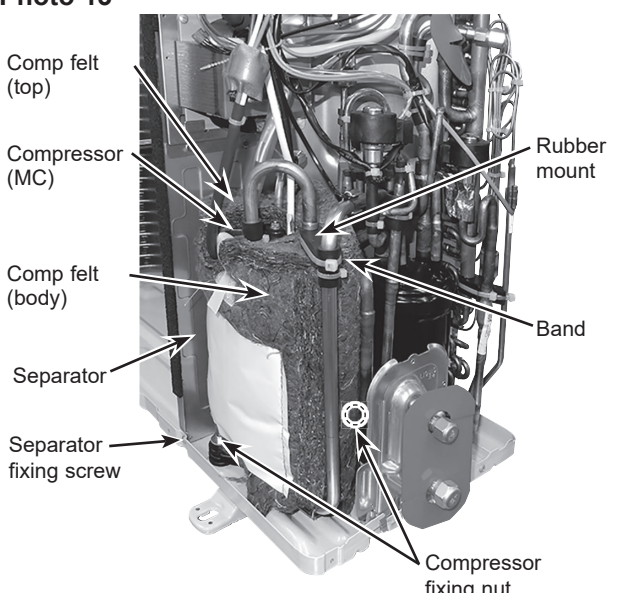
Note 2: The welded part can be removed easily by removing the back panel.

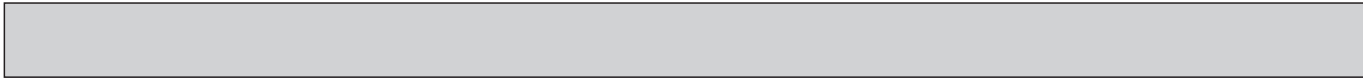
Note 3: When installing the LEV ASSY-B, cover the fusible plug with a damp cloth to prevent it from overheating (the fusible plug will break at 158°F [70 °C]), and braze the pipe so that the inside of the pipe does not oxidize.

Photo 11

Labels in Photo 11:
 LEV ASSY-B
 Fusible plug



PROCEDURE	PHOTOS/FIGURES
<p>11. Removing the high pressure switch (63H)</p> <ol style="list-style-type: none"> (1) Remove the service panel. (See Photo 2) (2) Remove the top panel. (See Photo 1) (3) Remove the front panel. (See Photo 1) (4) Remove the back panel. (See Photo 1) (5) Remove the electrical parts box. (See Photo 5) (6) Pull out the lead wire of high pressure switch. (7) Recover refrigerant. (8) Remove the welded part of high pressure switch. <p>Note 1: Recover refrigerant without spreading it in the air.</p> <p>Note 2: The welded part can be removed easily by removing the back panel.</p> <p>Note 3: When installing the high pressure switch, cover it with a wet cloth to prevent it from heating (212°F [100°C] or more), then braze the pipes so that the inside of pipes are not oxidized.</p> <p>Note 4: Be careful not to expose the fusible plug to the braze torch flame or transfer heat to it; protect the fusible plug with a wet cloth when necessary (fusible plug breaks at 158°F [70°C]).</p>	<p>Photo 12</p> 
<p>12. Removing the reactor (ACL)</p> <ol style="list-style-type: none"> (1) Remove the service panel. (See Photo 2) (2) Remove the top panel. (See Photo 1) (3) Remove the front panel. (See Photo 1) (4) Remove the back panel. (See Photo 1) (5) Remove the 2 reactor fixing screws (4 × 10) and remove the reactor. <p>Note: The reactor is attached to the rear of the electrical parts box.</p>	
<p>13. Removing the compressor (MC)</p> <ol style="list-style-type: none"> (1) Remove the service panel. (See Photo 2) (2) Remove the top panel. (See Photo 1) (3) Remove the front panel. (See Photo 1) (4) Remove the back panel. (See Photo 1) (5) Remove the electrical parts box. (See Photo 5) (6) Remove the thermistor <Discharge> (TH4), thermistor <Comp. surface> (TH33), thermal protector (TRS), and compressor lead wire. (See Photo 8) (7) Remove the 3 separator fixing screws (4 × 10) and remove the separator. (8) Remove the comp felt (body) and comp felt (top). (9) Cutting the band and remove the rubber mount. (10) Recover refrigerant. (11) Remove the 3 compressor fixing nuts by using a spanner or an adjustable wrench. (12) Remove the welded pipe of compressor inlet and outlet. <p>Note: Recover refrigerant without spreading it in the air.</p>	<p>Photo 13</p> 



PROCEDURE	PHOTOS/FIGURES
<p>14. Removing the power receiver</p> <ol style="list-style-type: none">(1) Remove the service panel. (See Photo 2)(2) Remove the top panel. (See Photo 1)(3) Remove the front panel. (See Photo 1)(4) Remove the back panel. (See Photo 1)(5) Remove the electrical parts box. (See Photo 5)(6) Recover refrigerant.(7) Remove the 4 welded pipes of power receiver inlet and outlet.(8) Remove the 2 receiver leg fixing screws (4 × 10).(9) Remove the power receiver together with the receiver leg. <p>Note: Recover refrigerant without spreading it in the air.</p>	<p>Photo 14</p> <p>Inlet</p> <p>Outlet</p> <p>Power receiver</p> <p>Valve bed</p> <p>Receiver leg fixing screw</p>

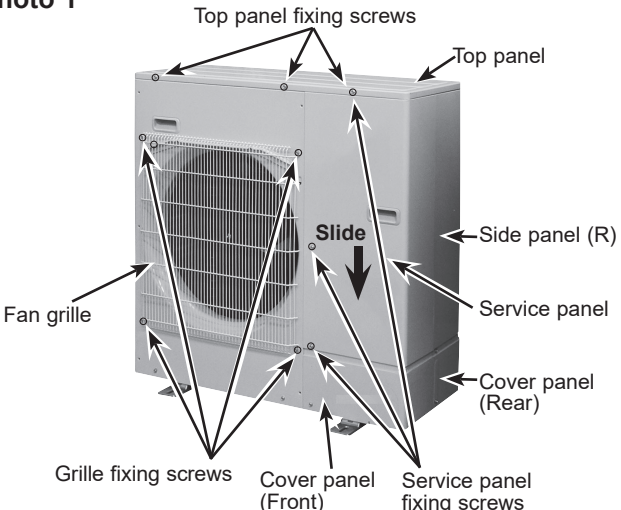
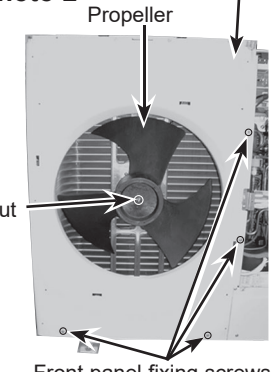
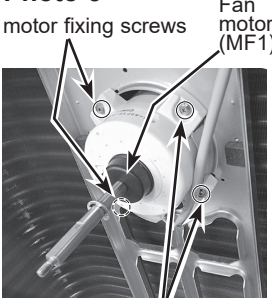
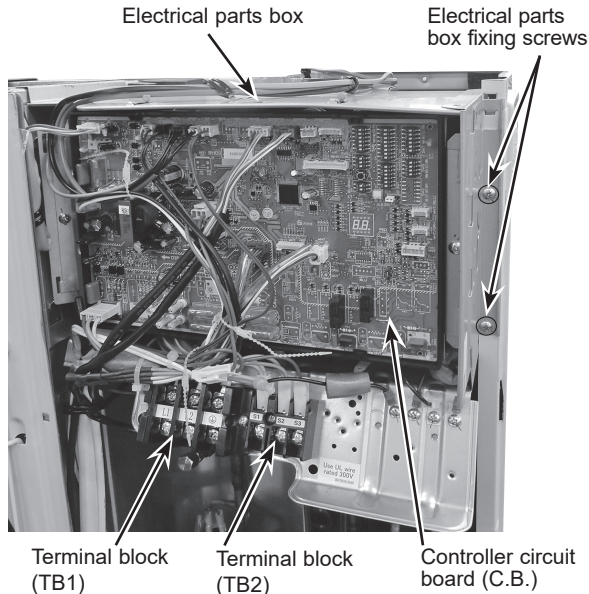
PUZ-AH24NL-U1**PUZ-AH30NL-U1****PUY-AH24NL-U1****PUY-AH30NL-U1**

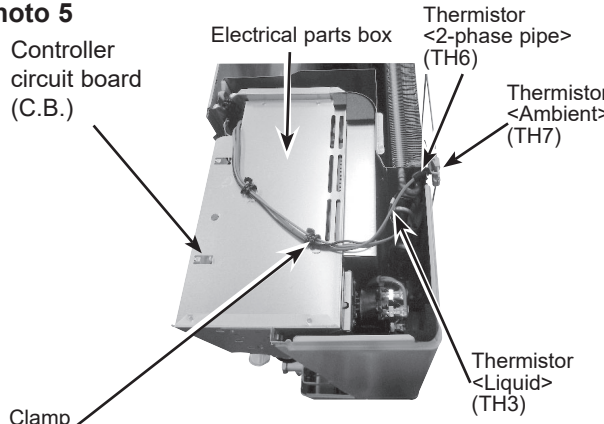
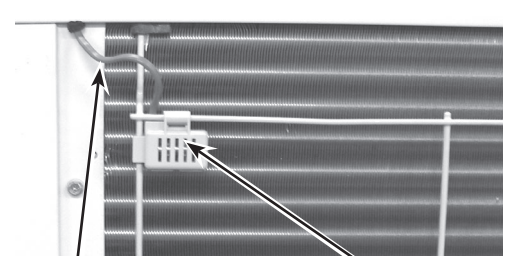
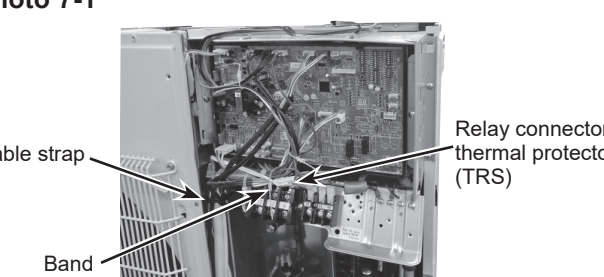
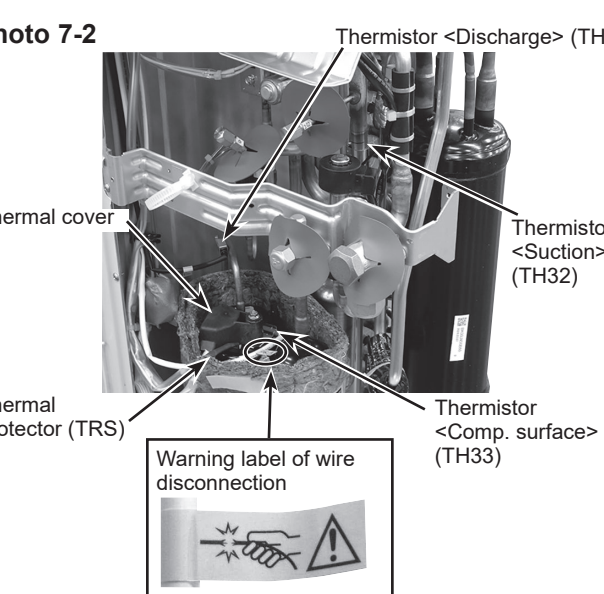
—————> : Indicates the visible parts in the photos/figures.

-----> : Indicates the invisible parts in the photos/figures.

Note: The red markings indicate that flammable refrigerant is charged. If you remove the markings, put them back to the original position after the work is completed.

Photos: PUZ-AH24NL-U1

PROCEDURE	PHOTOS/FIGURES
<p>1. Removing the service panel and top panel</p> <p>(1) Remove the 3 service panel fixing screws (5 × 12) and slide the hook on the right downward to remove the service panel.</p> <p>(2) Remove screws (3 for front, 3 for rear/5 × 12) of the top panel and remove it.</p>	<p>Photo 1</p> 
<p>2. Removing the fan motor (MF1)</p> <p>(1) Remove the service panel. (See Photo 1)</p> <p>(2) Remove the top panel. (See Photo 1)</p> <p>(3) Remove the 4 fan grille fixing screws (5 × 12) to detach the fan grille. (See Photo 1)</p> <p>(4) Remove the one nut (for right handed screw of M6) to detach the propeller. (See Photo 2)</p> <p>(5) Disconnect the connector CNF1 on the controller circuit board in electrical parts box.</p> <p>(6) Remove the 4 fan motor fixing screws (5 × 20) to detach the fan motor. (See Photo 3)</p>	<p>Photo 2</p>  <p>Photo 3</p>  <p>Fan motor fixing screws</p>
<p>3. Removing the electrical parts box</p> <p>(1) Remove the service panel. (See Photo 1)</p> <p>(2) Remove the top panel. (See Photo 1)</p> <p>(3) Disconnect the indoor/outdoor connecting wire from terminal block.</p> <p>(4) Disconnect the connector CNF1, LEV-A and LEV-B on the controller circuit board.</p> <p><Symbols on the board></p> <ul style="list-style-type: none"> • CNF1: Fan motor • LEV-A, LEV-B: LEV <p>(5) Disconnect the pipe-side connections of the following parts.</p> <ul style="list-style-type: none"> • Thermistor <Liquid> (TH3) • Thermistor <Discharge> (TH4) • Thermistor <2-phase pipe, Ambient> (TH7/6) • Thermistor <Heat sink> (TH8) • High pressure switch (63H) • 4-way valve coil (21S4) • Thermistor <Suction> (TH32) • Thermistor <Comp. surface> (TH33) <p>(6) Remove the terminal cover and disconnect the compressor lead wire and thermal protector (TRS).</p> <p>(7) Remove the one electrical parts box fixing screw (4 × 10) and detach the electrical parts box by pulling it upward.</p> <p>The electrical parts box is fixed with 2 hooks on the left and 1 hook on the right.</p>	<p>Photo 4</p> 

PROCEDURE	PHOTOS/FIGURES
<p>4. Removing the thermistor <Liquid> (TH3) and thermistor <2-phase pipe> (TH6)</p> <ol style="list-style-type: none"> Remove the service panel. (See Photo 1) Remove the top panel. (See Photo 1) Disconnect the connector TH7/6 (red) and TH3 (white) on the controller circuit board in the electrical parts box. Loosen the 2 clamps for the lead wires on the top of the electrical parts box. Pull out the thermistor <2-phase pipe> (TH6) and the thermistor <Liquid> (TH3) from each sensor holders. <p>Note: When replacing the thermistor <2-phase pipe> (TH6), replace it together with thermistor <Ambient> (TH7), because they are combined together. Refer to procedure No.5 below to remove the thermistor <Ambient>.</p>	<p>Photo 5</p>  <p>Labels in Photo 5: Controller circuit board (C.B.), Electrical parts box, Thermistor <2-phase pipe> (TH6), Thermistor <Ambient> (TH7), Thermistor <Liquid> (TH3), Clamp.</p>
<p>5. Removing the thermistor <Ambient> (TH7)</p> <ol style="list-style-type: none"> Remove the service panel. (See Photo 1) Remove the top panel. (See Photo 1) Disconnect the connector TH7/6 (red) on the controller circuit board in the electrical parts box. Loosen the clamp for the lead wire in the rear of the electrical parts box. (See Photo 5) Pull out the thermistor <Ambient> (TH7) from the sensor holder. <p>Note: When replacing the thermistor <Ambient> (TH7), replace it together with the thermistor <2-phase pipe> (TH6), because they are combined together. Refer to the procedure No.4 above to remove the thermistor <2-phase pipe>.</p>	<p>Photo 6</p>  <p>Labels in Photo 6: Lead wire of thermistor <Ambient> (TH7), Sensor holder.</p>
<p>6. Removing the thermistor <Discharge> (TH4), thermistor <Comp. surface> (TH33), and thermal protector (TRS)</p> <ol style="list-style-type: none"> Remove the service panel. (See Photo 1) Disconnect the connectors, TH4 (white), and TH33 (yellow) on the controller circuit board in the electrical parts box. Cut the band connecting the 63H lead wire and the lead wire of the thermal protector in the electrical parts box, and disconnect the relay connector of the thermal protector (TRS). Loosen the cable strap that bundles the lead wires at the bottom left of the electrical parts box. (See Photo 7-1) Pull out the thermistor <Discharge> (TH4) from the sensor holder. <p>Removing the thermistor <Comp. surface> (TH33)</p> <ol style="list-style-type: none"> Remove the comp felt (top) and pull out the thermistor <Comp. surface> (TH33) from the holder of the compressor shell. <p>Instead of holding the lead wires, hold the thermistor body when removing and installing the shell thermistor. See "Warning label of wire disconnection" in Photo 7-2.</p> <p>Removing the thermal protector (TRS)</p> <ol style="list-style-type: none"> Remove the comp felt (top) and terminal cover, and pull out the thermal protector (TRS) from the holder. 	<p>Photo 7-1</p>  <p>Labels in Photo 7-1: Cable strap, Band, Relay connector of thermal protector (TRS).</p> <p>Photo 7-2</p>  <p>Labels in Photo 7-2: Thermistor <Discharge> (TH4), Thermal cover, Thermistor <Suction> (TH32), Thermistor <Comp. surface> (TH33), Thermal protector (TRS), Warning label of wire disconnection.</p>
<p>7. Removing the thermistor <Suction> (TH32)</p> <ol style="list-style-type: none"> Remove the service panel. (See Photo 1) Disconnect the connectors TH32 (black) on the controller circuit board in the electrical parts box. Disconnect the lead wires from the wire clip on the outdoor controller board in the electrical parts box. Loosen the clamp for the lead wire in the electrical parts box. (See Photo 5) Pull out the thermistor <Suction> (TH32) from the sensor holder. 	<p>(This section is covered by the labels in Photo 7-2 above.)</p>

PROCEDURE

8. Removing the 4-way valve coil (21S4), LEV coil (LEV-A, LEV-B)

- (1) Remove the service panel. (See Photo 1)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove the electrical parts box. (See Photo 4)

Removing the 4-way valve coil

- (4) Remove the 4-way valve coil fixing screw (M4 × 6).
- (5) Remove the 4-way valve coil by sliding the coil toward you.
- (6) Disconnect the connector 21S4 (green) on the controller board in the electrical parts box.

Removing the LEV coil

- (4) Remove the LEV coil by sliding the coil upward.
- (5) Disconnect the connectors, LEV A (white), and LEV B (red) on the controller circuit board in the electrical parts box.

9. Removing the 4-way valve

- (1) Remove the service panel. (See Photo 1)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove the electrical parts box. (See Photo 4)
- (4) Remove the 3 valve bed fixing screws (4 × 10) and the 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed.
- (5) Remove the 4 right side panel fixing screws (5 × 12) in the rear of the unit and then remove the right side panel.
- (6) Remove the 4-way valve coil. (See Photo 8)
- (7) Recover refrigerant.
- (8) Remove the welded part of the 4-way valve.

Note 1: Recover refrigerant without spreading it in the air.

Note 2: The welded part can be removed easily by removing the right side panel.

Note 3: When installing the 4-way valve, cover it with a wet cloth to prevent it from heating (248°F [120°C] or more), then braze the pipes so that the inside of the pipes are not oxidized.

Note 4: Be careful not to expose the fusible plug to the braze torch flame or transfer heat to it; protect the fusible plug with a wet cloth when necessary (fusible plug breaks at 158°F [70°C]).

10. Removing the LEV

- (1) Remove the service panel. (See Photo 1)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove the electrical parts box. (See Photo 4)
- (4) Remove the 3 valve bed fixing screws (4 × 10) and the 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed.
- (5) Remove the 4 right side panel fixing screws (5 × 12) at the rear of the unit and then remove the right side panel.
- (6) Remove the LEV.
- (7) Recover refrigerant.
- (8) Remove the welded part of linear expansion valve.

Note 1: Recover refrigerant without spreading it in the air.

Note 2: The welded part can be removed easily by removing the right side panel.

Note 3: When installing the LEV, cover it with a wet cloth to prevent it from heating (248°F [120°C] or more), then braze the pipes so that the inside of pipes are not oxidized.

Note 4: Be careful not to expose the fusible plug to the braze torch flame or transfer heat to it; protect the fusible plug with a wet cloth when necessary (fusible plug breaks at 158°F [70°C]).

PHOTOS/FIGURES

Photo 8

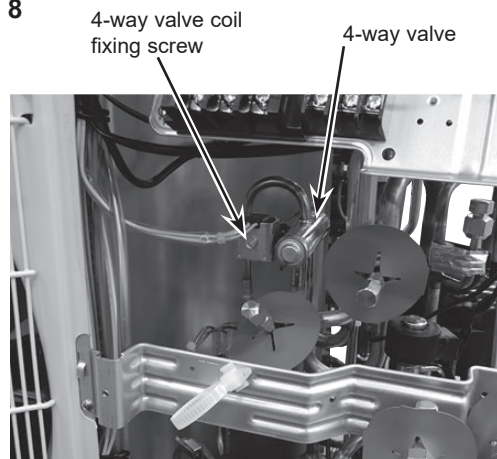
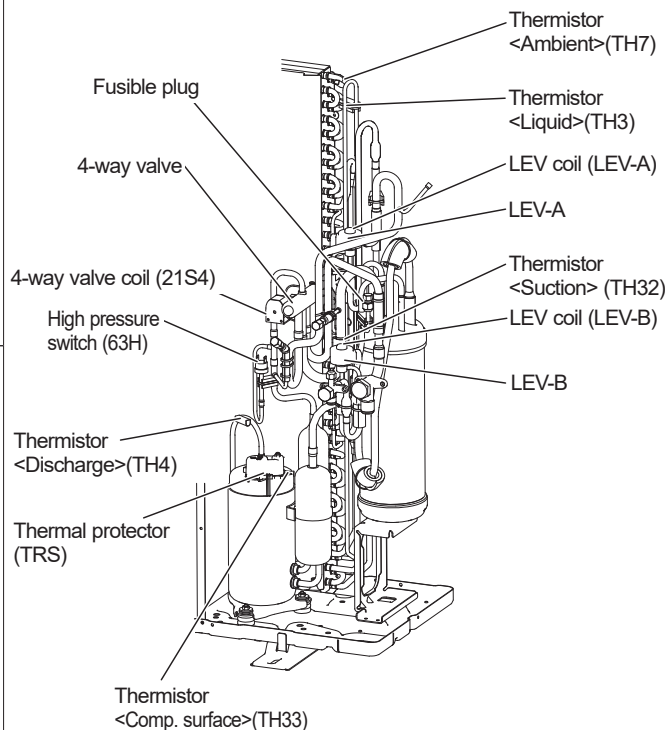
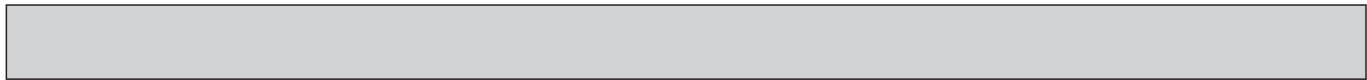


Figure 1





PROCEDURE

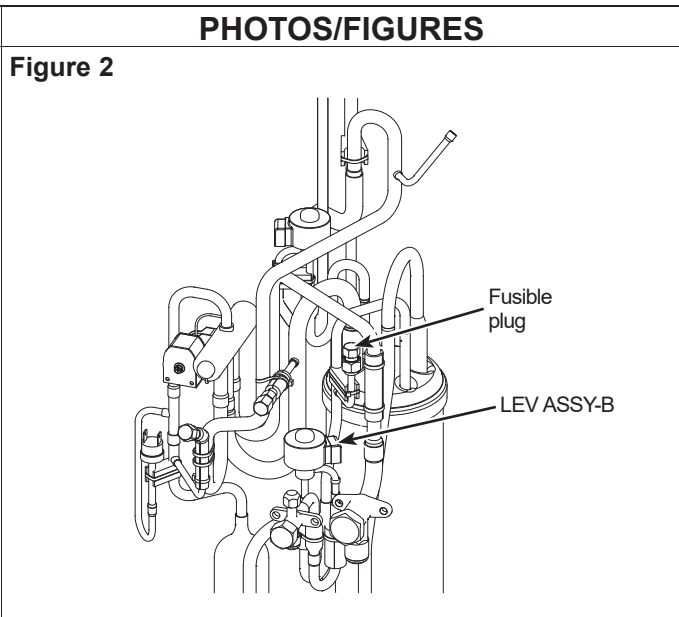
11. Removing the LEV ASSY-B (fusible plug)

- (1) Remove the service panel. (See Photo 1)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove the electrical parts box. (See Photo 4)
- (4) Remove the 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed.
- (5) Remove the 3 right side panel fixing screws (5 × 12) in the rear of the unit and then remove the right side panel.
- (6) Recover refrigerant.
- (7) Remove the welded part of LEV ASSY-B.

Note 1: Recover refrigerant without spreading it in the air.

Note 2: The welded part can be removed easily by removing the right side panel.

Note 3: When installing the LEV ASSY-B, cover the fusible plug with a damp cloth to prevent it from overheating (the fusible plug will break at 158°F [70 °C]), and braze the pipe so that the inside of the pipe does not oxidize.



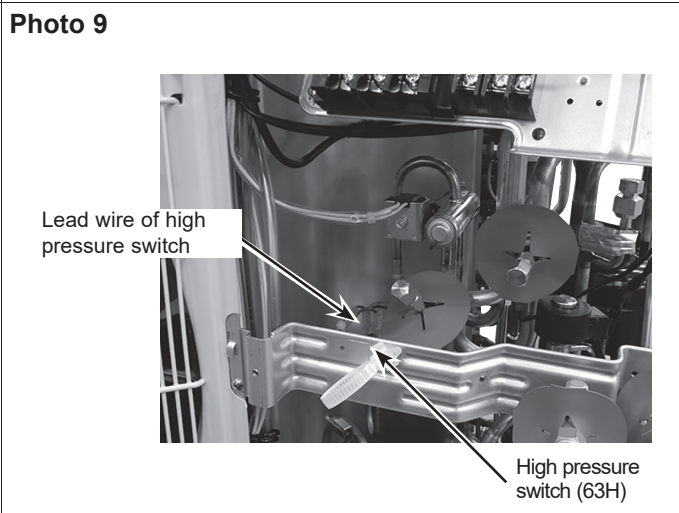
12. Removing the high pressure switch (63H)

- (1) Remove the service panel. (See Photo 1)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove the electrical parts box. (See Photo 4)
- (4) Remove the 4 right side panel fixing screws (5 × 12) in the rear of the unit and remove the right side panel.
- (5) Pull out the lead wire of high pressure switch.
- (6) Recover refrigerant.
- (7) Remove the welded part of high pressure switch.

Note 1: Recover refrigerant without spreading it in the air.

Note 2: The welded part can be removed easily by removing the right side panel.

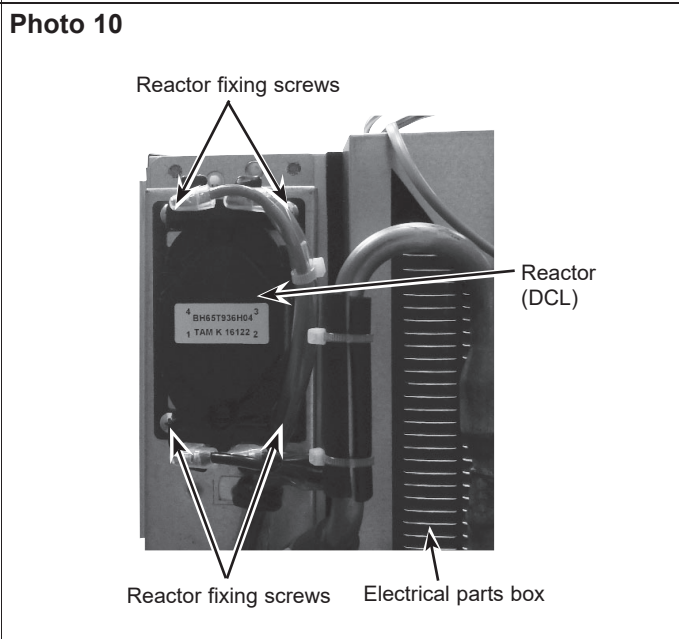
Note 3: When installing the high pressure switch, cover it with a wet cloth to prevent it from heating (212°F [100°C] or more), then braze the pipes so that the inside of pipes are not oxidized.

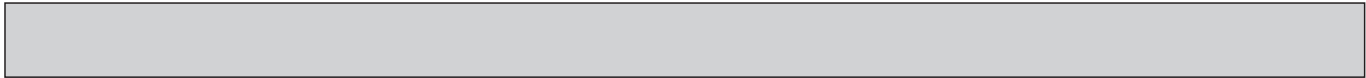


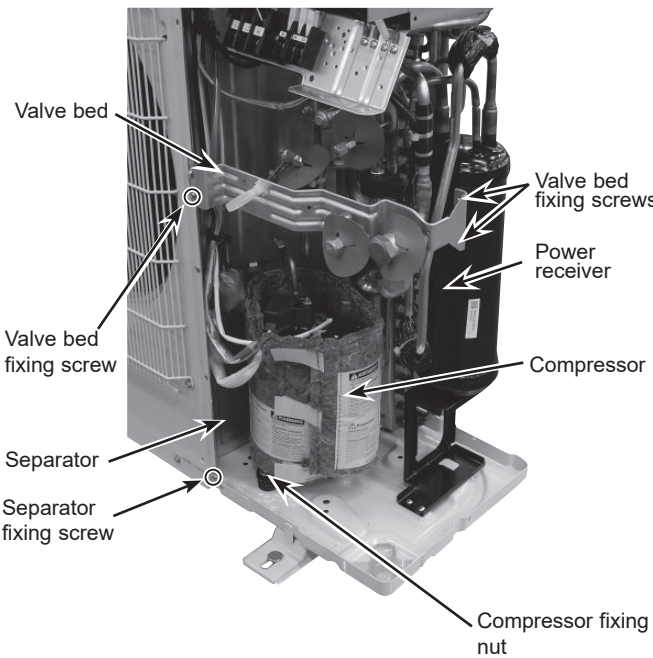
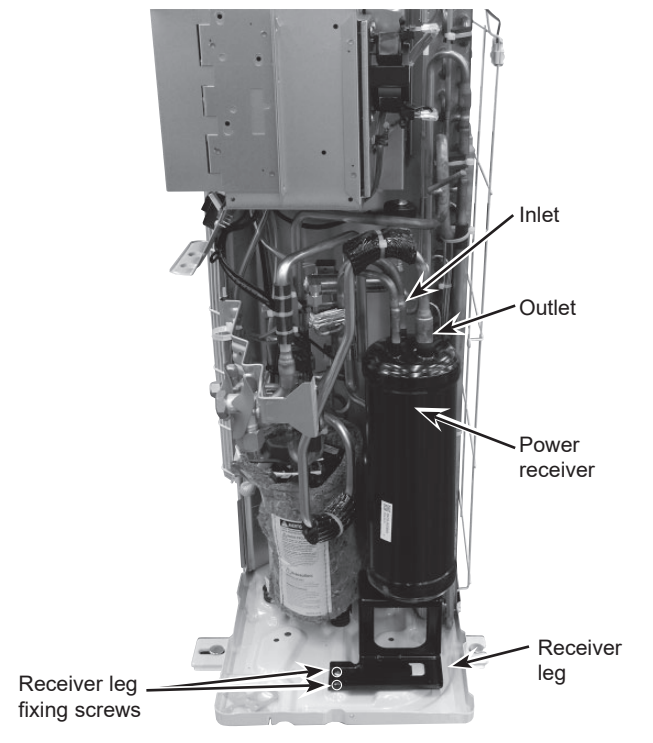
13. Removing the reactor (DCL)

- (1) Remove the service panel. (See Photo 1)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove the electrical parts box. (See Photo 4)
- (4) Remove the reactor fixing screws (4 places, 4 × 10)

Note: The reactor is attached to the rear of the electrical parts box.



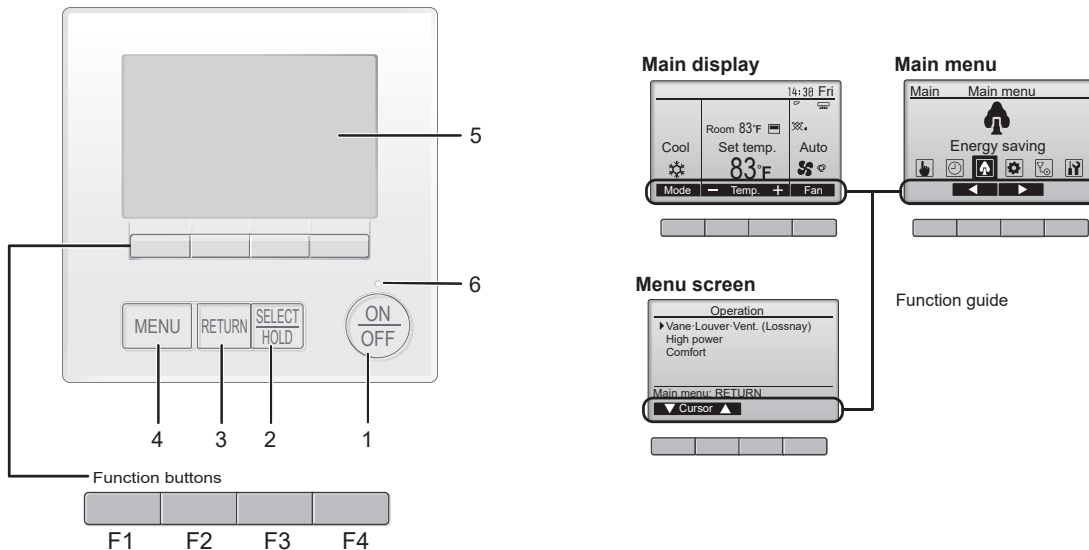


PROCEDURE	PHOTOS/FIGURES
<p>14. Removing the compressor (MC)</p> <ol style="list-style-type: none"> (1) Remove the service panel. (See Photo 1) (2) Remove the top panel. (See Photo 1) (3) Remove the 2 front cover panel fixing screws (5 × 12) and remove the front cover panel. (See Photo 1) (4) Remove the 2 back cover panel fixing screws (5 × 12) and remove the back cover panel. (5) Remove the electrical parts box. (See Photo 4) (6) Remove the 3 valve bed fixing screws (4 × 10) and the 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed. (7) Remove the 4 right side panel fixing screws (5 × 12) in the rear of the unit, then remove the right side panel. (8) Remove the 2 separator fixing screws (4 × 10) and remove the separator. (9) Recover refrigerant. (10) Remove the 3 points of the compressor fixing nut using a spanner or an adjustable wrench. (11) Remove the welded pipe of the compressor inlet and outlet then remove the compressor. <p>Note: Recover refrigerant without spreading it in the air.</p>	<p>Photo 11</p> 
<p>15. Removing the power receiver</p> <ol style="list-style-type: none"> (1) Remove the service panel. (See Photo 1) (2) Remove the top panel. (See Photo 1) (3) Remove 2 front cover panel fixing screws (5 × 12) and remove the front cover panel. (See Photo 1) (4) Remove 2 back cover panel fixing screws (5 × 12) and remove the back cover panel. (5) Remove the electrical parts box. (See Photo 4) (6) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) then remove the valve bed. (7) Remove 4 right side panel fixing screws (5 × 12) in the rear of the unit then remove the right side panel. (8) Recover refrigerant. (9) Remove 4 welded pipes of power receiver inlet and outlet. (10) Remove 2 receiver leg fixing screws (4 × 10). <p>Note: Recover refrigerant without spreading it in the air.</p>	<p>Photo 12</p> 

15-1. Remote controller functions

15-1-1. PAR-42MAAUB

Controller interface

**Note:**

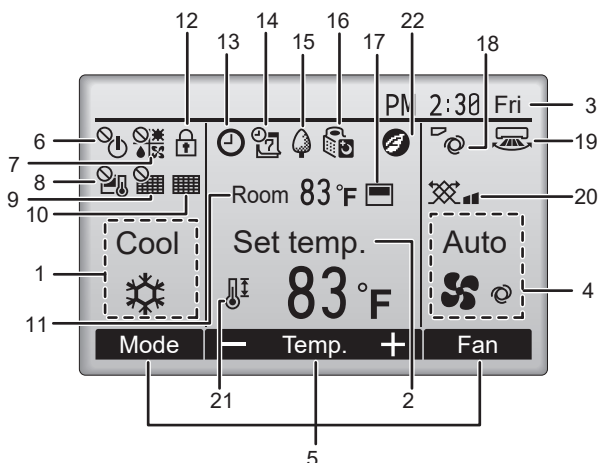
- The functions of the function buttons change depending on the screen. Refer to the button function guide that appears at the bottom of the LCD for the functions they serve on a given screen. When the system is centrally controlled, the button function guide that corresponds to the locked button will not appear.
1. [ON/OFF] button
Press to turn ON/OFF the indoor unit.
 2. [SELECT/HOLD] button
Press to save the setting.
When the main menu is displayed, pressing this button will enable/disable the [HOLD] function.
 3. [RETURN] button
Press to return to the previous screen.
 4. [MENU] button
Press to open the main menu.
 5. Backlit LCD
Operation settings will appear.
When the backlight is off, pressing any button, except for the [ON/OFF] button, turns the backlight on, and it will stay lit for a certain period of time depending on the screen.
 6. ON/OFF lamp
This lamp lights up in green while the unit is in operation. It blinks while the remote controller is starting up or when there is an error.
- F1: Function button 1
Main display: Press to change the operation mode.
Menu screen: The button function varies depending on the screen.
- F2: Function button 2
Main display: Press to decrease temperature.
Main menu: Press to move the cursor left.
Menu screen: The button function varies depending on the screen.
- F3: Function button 3
Main display: Press to increase temperature.
Main menu: Press to move the cursor right.
Menu screen: The button function varies depending on the screen.
- F4: Function button 4
Main display: Press to change the fan speed.
Menu screen: The button function varies depending on the screen.

Display

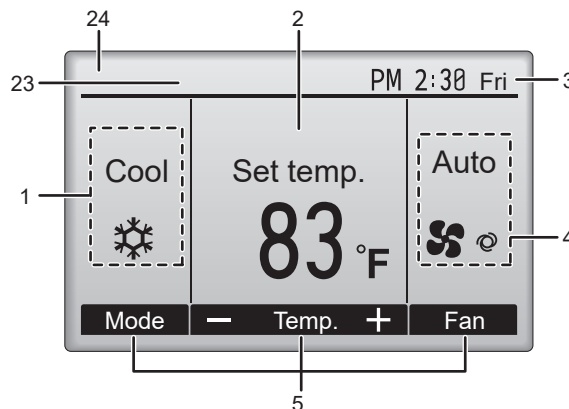
The main display can be displayed in 2 different modes: [Full] and [Basic]. The initial setting is [Full]. To switch to [Basic] mode, change the setting on the [Main display] setting. (Refer to operation manual included with remote controller.)

■ [Full] mode

All icons are displayed for explanation.



■ [Basic] mode



Note:

- Most settings (except ON/OFF, mode, fan speed, temperature) can be made from the main menu.

1. Operation mode
2. Preset temperature
3. Clock
4. Fan speed
5. Button function guide: Functions of the corresponding buttons appear here.
6. : Appears when the ON/OFF operation is centrally controlled.
7. : Appears when the operation mode is centrally controlled.
8. : Appears when the preset temperature is centrally controlled.
9. : Appears when the filter reset function is centrally controlled.
10. : Appears when filter needs maintenance.
11. Room temperature
12. : Appears when the buttons are locked.
13. : Appears when [On/Off timer] or [Auto-off] function is enabled.
: Appears when the timer is disabled by the centralized control system.
14. : Appears when [Weekly timer] is enabled.
15. : Appears while the units are operated in the energy saving mode.
(Will not appear on some models of indoor units)
16. : Appears while the outdoor units are operated in the silent mode.
17. : Appears when the built-in thermistor on the remote controller is activated to monitor the room temperature (11).
: Appears when the thermistor on the indoor unit is activated to monitor the room temperature.
18. : Indicates the vane setting.
19. : Indicates the louver setting.*1
20. : Indicates the ventilation setting.
21. : Appears when the preset temperature range is restricted.
22. : Appears when an energy saving operation is performed using [3D i-See sensor] function.*1
23. Centrally controlled: Appears for a certain period of time when a centrally-controlled item is operated.
24. Preliminary error display: A check code appears during the preliminary error.

*1. These functions are not applied to the floor standing models.

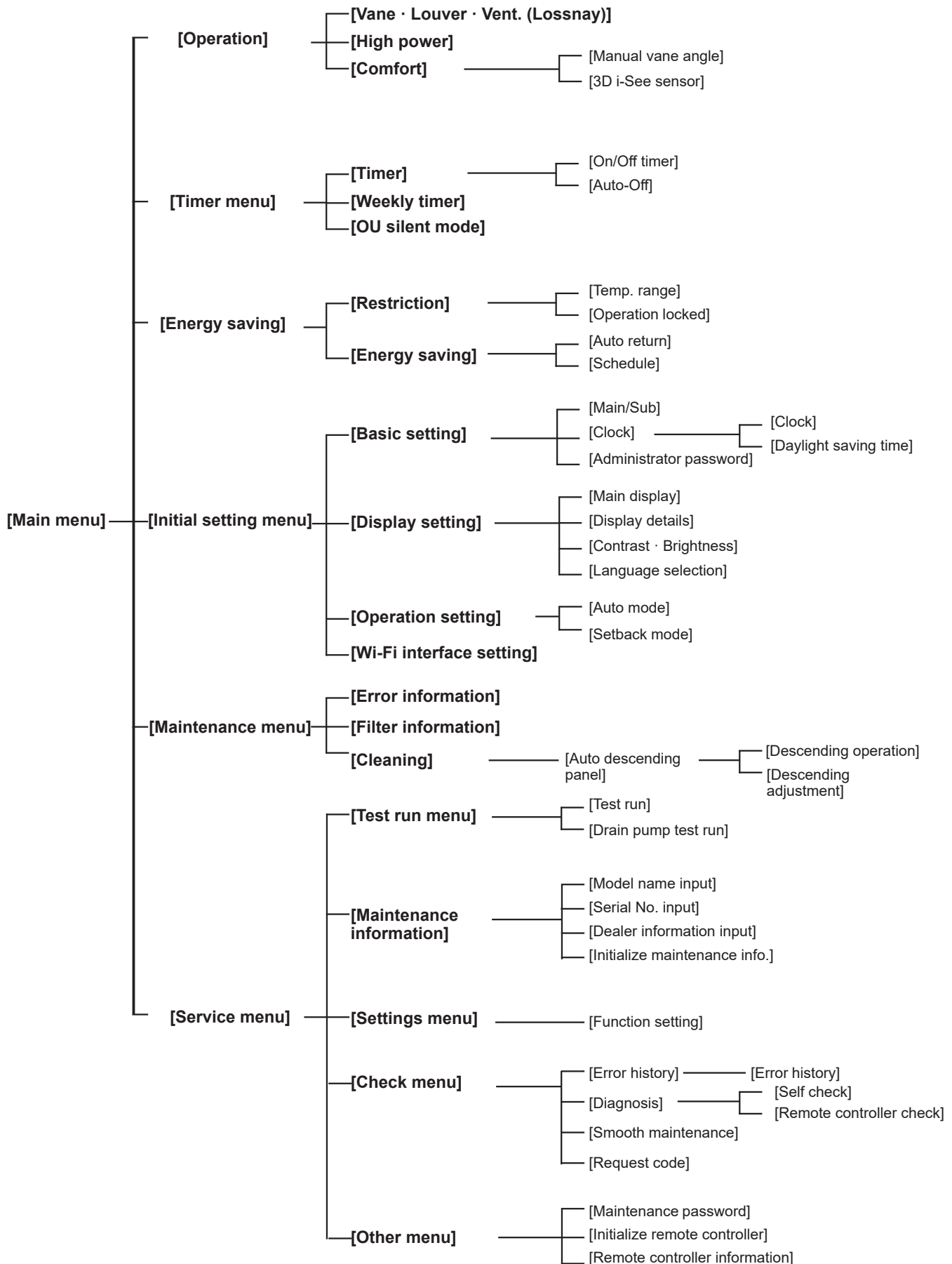
Menu structure

Press [MENU] button.

Move the cursor to the desired item with the F1 and F2 buttons, and press [SELECT] button

Note:

- Not all functions are available on all models of indoor units.



Main menu list

[Main menu]	Setting and display items		Setting details
[Operation]	[Vane · Louver · Vent. (Lossnay)]		Use to set the vane angle. • Select a desired vane setting. Use to turn on/off the louver. • Select a desired setting from [On] and [Off]. Use to set the amount of ventilation. • Select a desired setting from [Off], [Low], and [High].
	[High power] * ³		Use to reach the comfortable room temperature quickly. • Units can be operated in the High-power mode for up to 30 minutes.
	[Comfort]	[Manual vane angle]	• Use to fix each vane angle. Horizontal air direction • Sets the horizontal airflow direction (vane) of each unit.
		[3D i-See sensor]	Use to set the following functions for 3D i-See sensor. • Air distribution • Energy saving option • Seasonal airflow
[Timer]	[Timer]	[On/Off timer] * ¹	Use to set the operation ON/OFF times. • Time can be set in 5-minute increments.
		[Auto-Off]	Use to set the Auto-Off time. • Time can be set to a value from 30 to 240 in 10-minute increments.
	[Weekly timer] * ^{1, 2}		Use to set the weekly operation ON/OFF times. • Up to 8 operation patterns can be set for each day. (Not valid when [On/Off timer] is enabled.)
	[OU silent mode] * ^{1, 3}		Use to set the time periods in which priority is given to quiet operation of outdoor units over temperature control. Set the Start/Stop times for each day of the week. • Select the desired silent level from normal, middle, and quiet.
[Energy saving]	[Restriction]	[Temp. range] * ²	Use to restrict the preset temperature range. • Different temperature ranges can be set for different operation modes.
		[Operation locked]	Use to lock selected functions. • The locked functions cannot be operated.
	[Energy saving]	[Auto return] * ²	Use to get the units to operate at the preset temperature after performing energy saving operation for a specified time period. • Time can be set to a value from 30 and 120 in 10-minute increments. (This function will not be valid when the preset temperature ranges are restricted.)
		[Schedule] * ^{1, 3}	Set the start/stop times to operate the units in the energy saving mode for each day of the week, and set the energy saving rate. • Up to 4 energy saving operation patterns can be set for each day. • Time can be set in 5-minute increments. • Energy saving rate can be set to a value from 0% or 50 to 90% in 10% increments.
[Initial setting]	[Basic setting]	[Main/Sub]	When connecting 2 remote controllers, one of them needs to be designated as a sub controller.
		[Clock]	Use to set the current time.
		[Daylight saving time]	Set the daylight saving time.
		[Administrator password]	The administrator password is required to make the settings for the following items. • [Timer] setting • [Energy saving] setting • [Weekly timer] setting • [Restriction] setting • [OU silent mode] setting
		[Display setting]	[Main display]
	[Display setting]	[Display details]	Make the settings for the remote controller related items as necessary. [Clock]: The initial settings are [Yes] and [24h] format. [Temperature]: Set to either celsius (°C) or fahrenheit (°F). [Room temp.]: Set to Show or Hide. Auto mode: Set Auto mode display or Only Auto display.
		[Contrast · Brightness]	Use to adjust screen contrast and brightness.
		[Language selection]	Use to select the desired language.
	[Operation setting]	[Auto mode]	Whether or not to use [Auto mode] can be selected by using the button. This setting is valid only when indoor units with [Auto mode] function are connected.
		[Setback mode]	Whether or not to use [Setback mode] can be selected by using the button. This setting is valid only when indoor units with [Setback mode] function are connected.
[Maintenance]	[Error information]		Use to check error information when an error occurs. • Check code, error source, refrigerant address, model name, manufacturing number, contact information (dealer's phone number) can be displayed. (The model name, manufacturing number, and contact information need to be registered in advance to be displayed.)
	[Filter information]		Use to check the filter status. • The filter sign can be reset.
	[Cleaning]	[Auto descending panel]	Use to lift and lower the auto descending panel (Optional parts).

[Main menu]	Setting and display items		Setting details
[Service]	[Test run]		Select [Test run] from [Service menu] to bring up the [Test run menu]. <ul style="list-style-type: none"> • [Test run] • [Drain pump test run]
	[Input maintenance info.]		Select [Input maintenance Info.] from [Service menu] to bring up [Maintenance information] screen. The following settings can be made from [Maintenance information] screen. <ul style="list-style-type: none"> • [Model name input] • [Serial No. input] • [Dealer information input] • [Initialize maintenance info.]
	[Settings]	[Function setting]	Make the settings for the indoor unit functions via the remote controller as necessary.
	[Check]	[Error history]	Display the error history and execute [Delete error history?].
		[Diagnosis]	[Self check]: Error history of each unit can be checked via the remote controller. [Remote controller check]: When the remote controller does not work properly, use the remote controller checking function to troubleshoot the problem.
		[Smooth maintenance] ^{*3}	Use to display the maintenance data of indoor/outdoor units.
		[Request code] ^{*3}	Use to check operation data such as thermistor temperature and error information.
	[Others]	[Maintenance password]	Use to change the maintenance password.
		[Initialize remote controller]	Use to initialize the remote controller to the factory shipment status.
[Remote controller information]		Use to display the remote controller model name, software version, and serial number.	

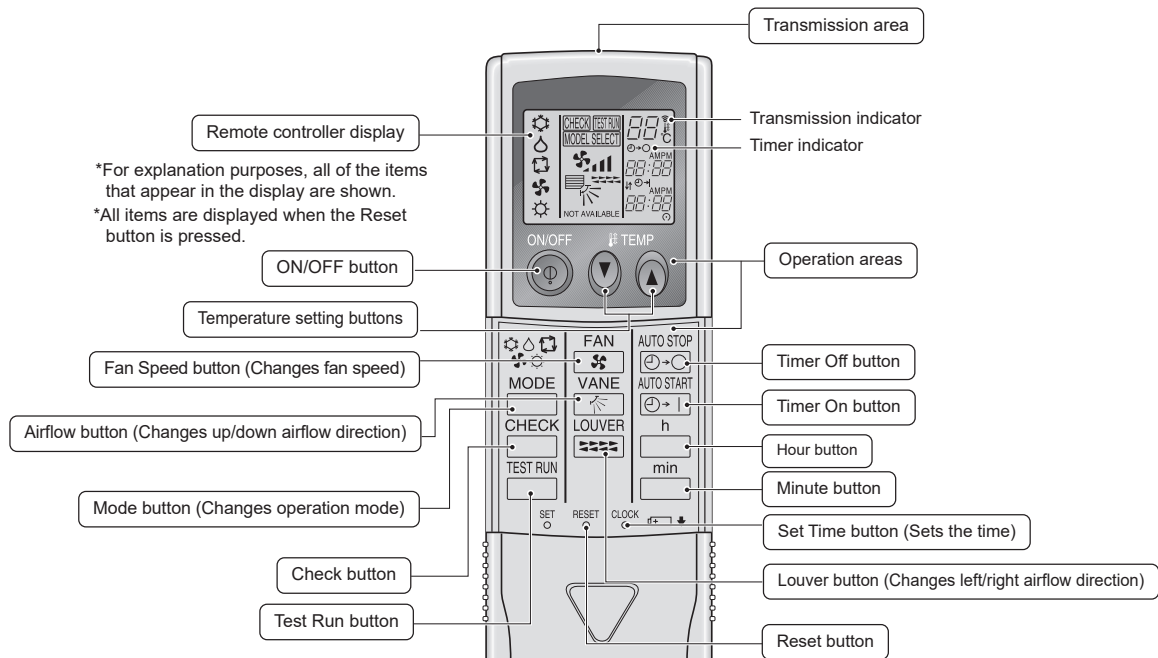
*1. Clock setting is required.

*2. 1°C (2°F) increments.

*3. This function is available only when certain outdoor units are connected.

15-1-2. PAR-FL32MA

Controller interface

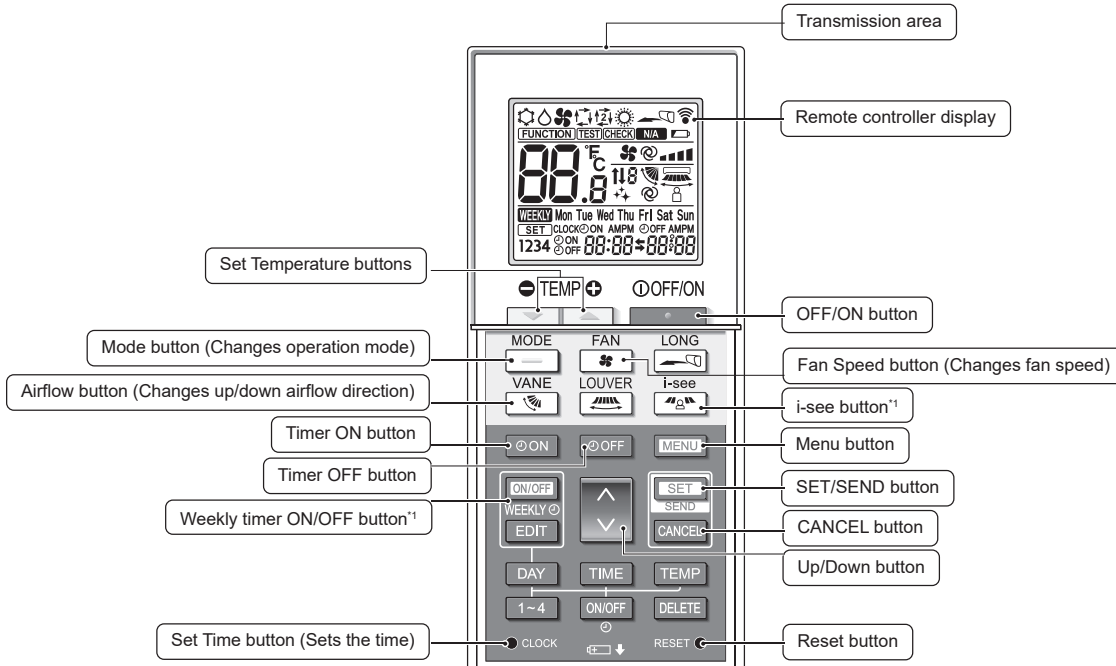


Instructions for use

- When using the wireless remote controller, point it towards the receiver on the indoor unit.
- If the remote controller is operated within approximately three minutes after power is supplied to the indoor unit, the indoor unit may beep three times as the unit is performing the initial automatic check.
- The indoor unit beeps to confirm that the signal transmitted from the remote controller has been received. Signals can be received up to approximately 7 meters in a direct line from the indoor unit in an area 45° to the left and right of the unit. However, illumination such as fluorescent lights and strong light can affect the ability of the indoor unit to receive signals.
- If the operation lamp near the receiver on the indoor unit is blinking, the unit needs to be inspected. Consult your dealer for service.
- Handle the remote controller carefully. Do not drop the remote controller or subject it to strong shocks. In addition, do not get the remote controller wet or leave it in a location with high humidity.
- To avoid misplacing the remote controller, install the holder included with the remote controller on a wall and be sure to always place the remote controller in the holder after use.

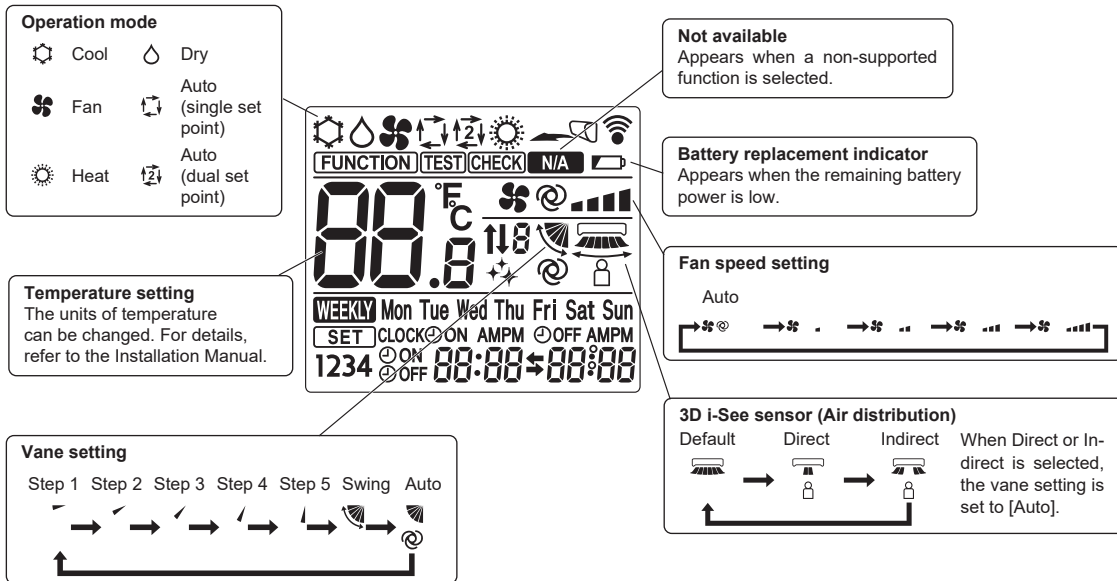
15-1-3. PAR-SL101A-E

Controller interface



*1. This button is enabled or disabled depending on the model of the indoor unit.

Display



15-2. [Error information]

Operating instructions

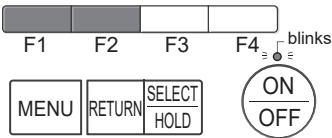
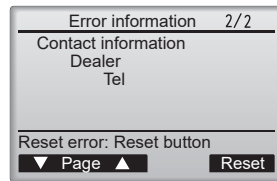
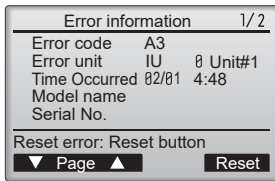
■ How to check the error information when an error occurs

When an error occurs, the following screen will appear. Check the error status, stop the operation, and consult your dealer.

1. Check the error information

Check code, error unit, refrigerant address, date and time of occurrence, model name, and serial number will appear. The model name and serial number will appear only if the information has been registered.

- Press F1 or F2 button to go to the next screen.
- Contact information (dealer's phone number) will appear if the information has been registered.

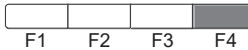
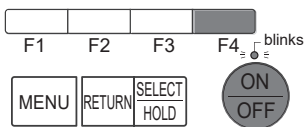
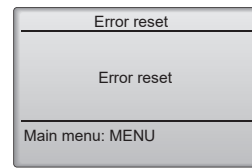
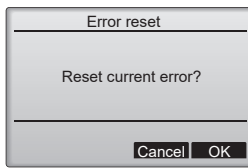
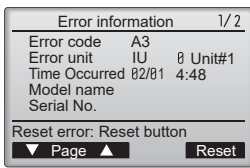


2. Reset the error

- Press F4 button or [ON/OFF] button to reset the error that is occurring.
- Select [OK] with F4 button.

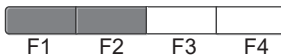
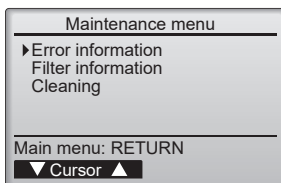
Note:

- Errors cannot be reset while the ON/OFF operation is prohibited.
- To go back to [Service menu], press [MENU] button.



■ How to check the error information later

While no errors are occurring, page 2/2 of the error information can be viewed by selecting [Error information] from [Maintenance menu]. Errors cannot be reset on this screen.



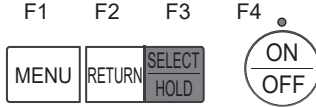
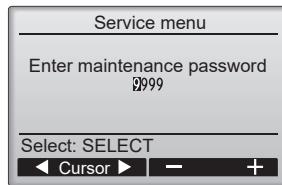
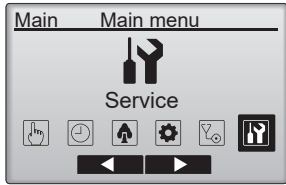
15-3. [Service menu]

Note:

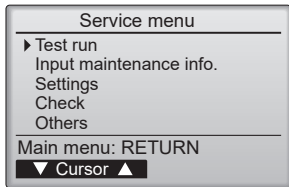
- Maintenance password is required to set each item in the service menu.

Operating instructions

1. Press [MENU] button to open the main menu.
2. Select [Service] from [Main menu], and press [SELECT] button.
A window asking for the password will appear when [Service menu] is selected.

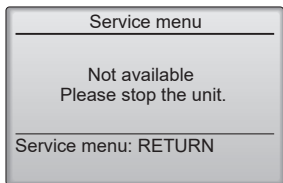


3. Enter the current maintenance password (4 numerical digits).
Move the cursor to the digit you want to change with F1 or F2 button and set each number (0 through 9) with F3 or F4 button.
4. Press [SELECT] button.
[Service menu] will appear if the password matches.



Notes:

- The initial maintenance password is “9999”. Change the default password as necessary to prevent unauthorized access. Have the password available for those who need it.
- If you forget your maintenance password, you can initialize the password to the default password “9999” by pressing and holding F1 button for 10 seconds on the maintenance password setting screen.
- Air conditioning units need to be stopped depending on the item you want to set. Remote controller might not be used when the system is centrally controlled. The following screen will appear in this case.



Notes:

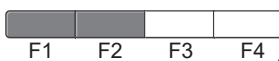
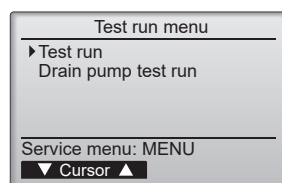
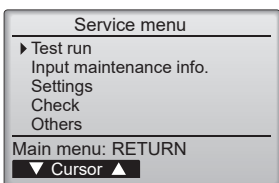
- To go back to [Service menu], press [MENU] button.
- To return to the previous screen, press [RETURN] button.

15-4. [Test run]

15-4-1. PAR-42MAAUB

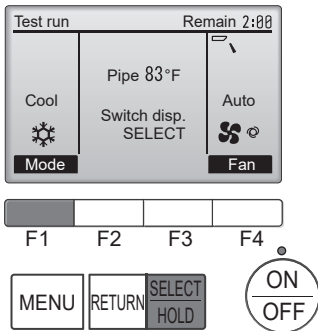
Operating instructions

1. Select [Service] from [Main menu], and press [SELECT] button.
2. Select [Test run] with F1 or F2 button, and press [SELECT] button.



■ Test run operation

1. Press F1 button to go through the operation modes in the order of [Cool] and [Heat].
Cooling mode: Check the cold air blows out.
Heating mode: Check the heat blows out.
2. Check the operation of the outdoor unit's fan.
3. Press [SELECT] button and open the vane setting screen.

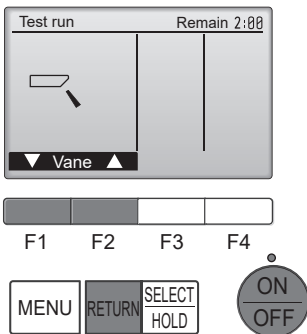


■ Auto vane check

1. Check the auto vane with F1 and F2 buttons.
2. Press [RETURN] button to return to test run operation.
3. Press [ON/OFF] button.

Notes:










- When the test run is completed, [Test run menu] screen will appear.
- The test run will automatically stop after 2 hours.
- The function is available only for the model with vanes.



15-4-2. PAR-FL32MA

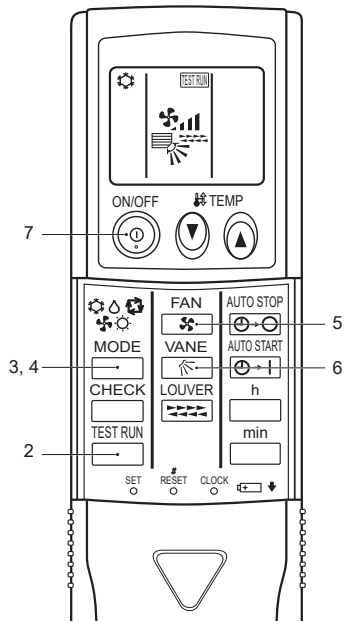
Measure an impedance between the power supply terminal block on the outdoor unit and ground with a 500 V Megger and check that it is equal to or greater than 1.0 MΩ.

Operating instructions

1. Turn on the main power to the unit.
2. Press  button twice continuously.
(Start this operation from the status of remote controller display turned off.)
The symbol of  and current operation mode are displayed.
3. Press  button to activate the cool mode , then check whether cool air blows out from the unit.
4. Press  button to activate the heat mode , then check whether warm air blows out from the unit.
5. Press  button and check whether strong air blows out from the unit.
6. Press  button and check whether the auto vane operates properly.
7. Press  button to stop the test run.















Notes:

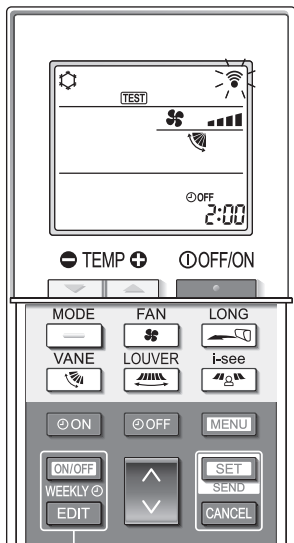
- Point the remote controller towards the indoor unit receiver to perform steps 2 to 7.
- It is not possible to run in the fan, the dry or the auto mode.



15-4-3. PAR-SL101A-E

Operating instructions

1. Stop the air conditioner
 - Press  button to stop the air conditioner.
 - If the weekly timer is enabled ( is shown on the display), press  button to disable it ( is off).
2. Start the test run
 - Press  button for 5 seconds.
 -  appears on the display and the unit starts the service mode.
 - Press  button.
 -  appears on the display and the unit starts the test run mode.
 - Press the following buttons to start the test run.
 -  : Switch the operation mode between cooling and heating and start the test run.
 -  : Switch the fan speed and start the test run.
 -  : Switch the airflow direction and start the test run.
 -  : Switch the louver and start the test run.
 -  : Start the test run.
3. Stop the test run.
 - Press  button to stop the test run.
 - After 2 hours, the stop signal is transmitted.



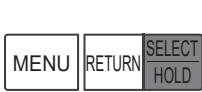
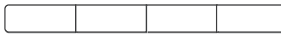
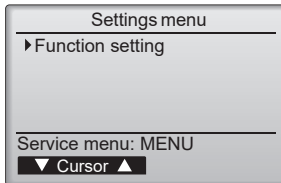
15-5. [Function setting]

15-5-1. PAR-42MAAUB

Operating instructions

1. Open the [Function setting] screen.
 - Select [Service] from [Main menu], and press [SELECT] button.
 - Select [Setting] from [Service menu], and press [SELECT] button.
 - Select [Function setting] and press [SELECT] button.

[Function setting] screen will appear.

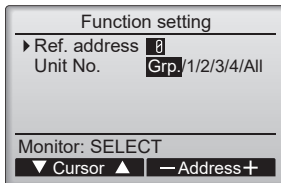


2. Set the indoor unit refrigerant addresses and indoor numbers

- Enter the indoor unit refrigerant addresses and indoor numbers with F1 - F4 buttons, and then press [SELECT] button to confirm the current setting.

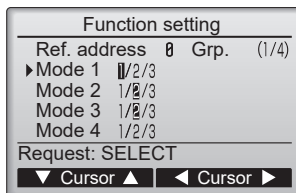
Note: Checking the indoor unit No.

- When [SELECT] button is pressed, the target indoor unit will start fan operation. If the unit is common or when running all units, all indoor units for the selected refrigerant address will start fan operation.



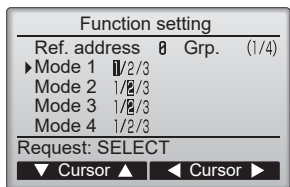
3. Check the current settings

- When data collection from the indoor units is completed, the current settings appears highlighted. Non-highlighted items indicate that no function settings are made.
Screen appearance varies depending on [Unit No.] setting.



4. Change the current settings

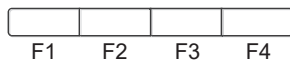
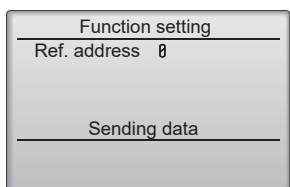
- Use F1 or F2 button to move the cursor to select the mode number, and change the setting number with F3 or F4 button.



5. Complete the function settings

- When the settings are completed, press [SELECT] button to send the setting data from the remote controller to the indoor units.

When the transmission is successfully completed, the screen will return to [Function setting] screen.



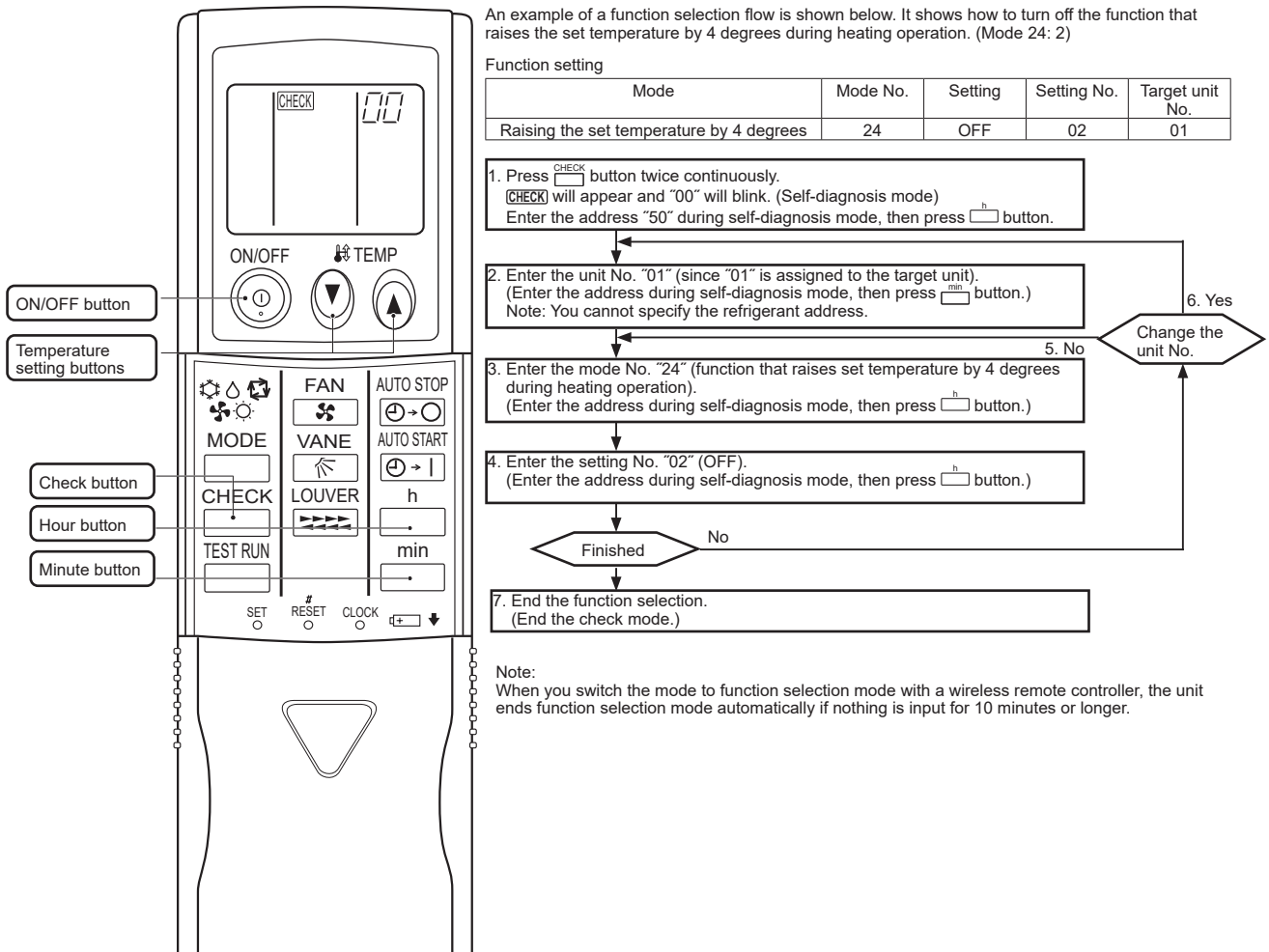
Notes:

- Make the above settings only on Mr. Slim units as necessary.
- The above function settings are not available for City Multi units.
- Refer to the installation manual of the indoor unit for the information about initial settings, mode numbers, and setting numbers of indoor units.
- Be sure to write down the settings for all functions if any of the initial settings has been changed after the completion of installation work.

15-5-2. PAR-FL32MA

Functions can be selected with the wireless remote controller. Function selection using wireless remote controller is available only for refrigerant system with wireless function. Refrigerant address cannot be specified by the wireless remote controller.

An example of function selection flow



Operating instructions



- Press **CHECK** button twice continuously. → **CHECK** appears and "00" blinks.
 - Press **TEMP** button once to set the address number to "50".
 - Direct the wireless remote controller toward the receiver of the indoor unit and press **h** button.
- Enter the unit number.
 - Press **TEMP** button to enter the unit number.
 - Direct the wireless remote controller toward the receiver of the indoor unit and press **min** button.
 By setting the unit number with **min** button, the specified indoor unit starts performing fan operation. Detect which unit is assigned to which number using this function. If unit number is set to AL, all the indoor units in the same refrigerant system start performing fan operation simultaneously.

Notes:


- If a unit number that cannot be recognized by the unit is entered, 3 beeps of 0.4 seconds will be emitted. Reenter the unit number.
- If the signal was not received by the sensor, no beep or a "double beep" will be emitted. Reenter the unit number.

- Select a mode.
 - Press **TEMP** button to set a mode.
 - Direct the wireless remote controller toward the sensor of the indoor unit and press **h** button.
 - The sensor-operation indicator will blink and beeps will be emitted to indicate the current setting number.
 Current setting number: 1 = 1 beep (1 second)
 2 = 2 beeps (1 second each)
 3 = 3 beeps (1 second each)

Notes:

- If a mode number that cannot be recognized by the unit is entered, 3 beeps of 0.4 seconds will be emitted. Reenter the mode number.
 - If the signal was not received by the sensor, no beep or a "double beep" will be emitted. Reenter the mode number.
4. Select the setting number.
 - Press TEMP  button to select the setting number.
 - Direct the wireless remote controller toward the receiver of the indoor unit and press  button.
 - The sensor-operation indicator will blink and beeps will be emitted to indicate the setting number.
- Setting number: 1 = 1 beep (0.4 seconds each)
 2 = 2 beeps (0.4 seconds each, repeated twice)
 3 = 2 beeps (0.4 seconds each, repeated 3 times)

Notes:





- If a setting number that cannot be recognized by the unit is entered, the setting will turn back to the original setting.
 - If the signal was not received by the sensor, no beep or a "double beep" will be emitted. Reenter the setting number.
5. Repeat steps 3 and 4 to make other function setting on the same unit.
 6. Repeat steps 2 to 4 to change the unit and make function settings on it.
 7. Complete the function settings
 - Press  button.

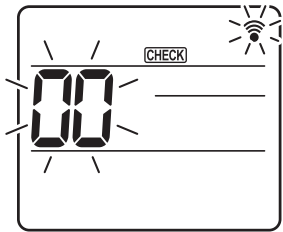
Note:



- Do not use the wireless remote controller for 30 seconds after completing the function setting.

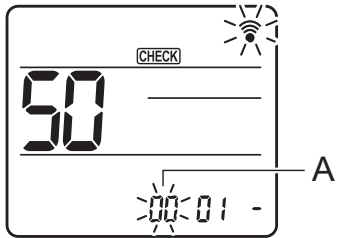
15-5-3. PAR-SL101A-E



Operating instructions

1. Go to the function select mode.
 - Press  button for 5 seconds. (Start this operation from the status of remote controller display turned off.)
 -  appears on the display and "00" blinks.
 - Press  button to enter "50".
 - Direct the wireless remote controller toward the receiver of the indoor unit and press  button.

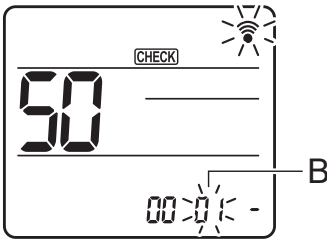


2. Set the unit number.
 - Press  button to set unit number A.
 - Direct the wireless remote controller toward the receiver of the indoor unit and press  button.

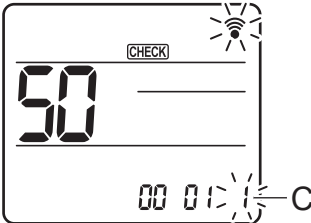


3. Select a mode
 - Press  button to set the mode number B.
 - Direct the wireless remote controller toward the receiver of the indoor unit and press  button.

Current setting number: 1=1 beep (1 second)
 2=2 beeps (1 second each)
 3=3 beeps (1 second each)



4. Select the setting number.
 - Press button to change the setting number C.
 - Direct the wireless remote controller toward the receiver of the indoor unit and press button.



5. Select multiple functions continuously.
 - Repeat the steps 3 and 4 to change multiple function settings continuously.
6. Complete function selections.
 - Direct the wireless remote controller toward the sensor of the indoor unit and press button.

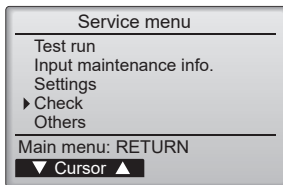
Note:

- Be sure to write down the settings for all functions if any of the initial settings has been changed after the completion of installation work.

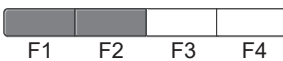
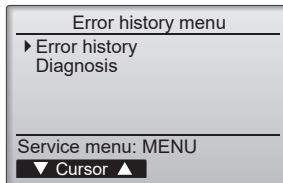
15-6. [Error history]

Operating instructions

1. Open [Service menu] and select [Check].
 - Select [Service] from [Main menu], and press [SELECT] button.
 - Select [Check] with F1 or F2 button, and press [SELECT] button.



2. Select [Error history] with F1 or F2 button, and press [SELECT] button.

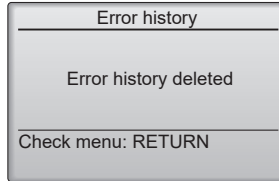
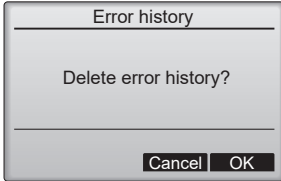


- 16 error history records will appear.
4 records are shown per page, and the top record on the first page indicates the latest error record.

Error history				1/4
Error	Unt#	dd/mm/yy		
E4	0-1	12/04/20	12:34	
E4	0-1	12/04/20	12:34	
E4	0-1	12/04/20	12:34	
E4	0-1	12/04/20	12:34	

Check menu: RETURN
 ▼ Page ▲ Delete

- Delete the error history.
 - Press F4 button [Delete].
A confirmation screen will appear asking if you want to delete the error history.
 - Press F4 button [OK] to delete the history.
[Error history deleted] will appear on the screen.
 - Press [RETURN] button to go back to [Check menu] screen.

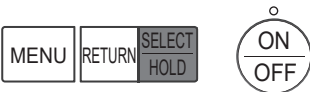
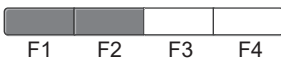
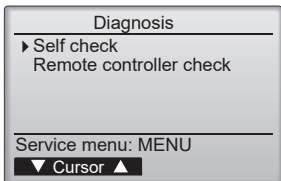


15-7. Self-diagnosis

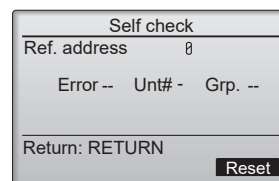
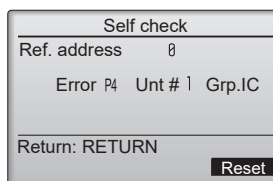
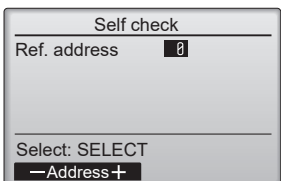
15-7-1. PAR-42MAAUB

Operating instructions

- Open [Self check] screen
 - Select [Service] from [Main menu], and press [SELECT] button.
 - Select [Check] from [Service menu], and press [SELECT] button.
 - Select [Diagnosis] from [Check menu], and press [SELECT] button.
 - Select [Self check] with F1 or F2 button, and press [SELECT] button.
[Self check] screen will appear.



- Enter the refrigerant address with F1 or F2 button, and press [SELECT] button.
 - Check code, unit number, attribute, and indoor unit demand signal ON/OFF status at the contact will appear.
[-] will appear when there is no error history.



3. Reset the error history.
 - Press F4 button [Reset].
A confirmation screen will appear to ask you if you want to delete the error history.
 - Press F4 button [OK] to delete the error history.
[Request rejected] will appear if deletion fails.
[Unit not exist] will appear if no indoor unit is assigned to the entered address.









Notes:

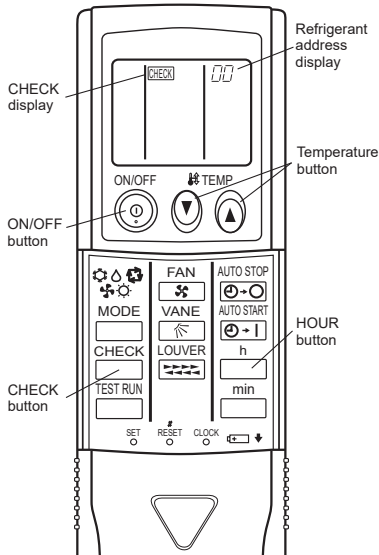
- To go back to [Service menu], press [MENU] button
- To return to the previous screen, press [RETURN] button

15-7-2. PAR-FL32MA

When a malfunction occurs to air conditioners, both of the indoor unit and the outdoor unit will stop and the operation lamp will blink to inform the unusual stop.







Operating instructions

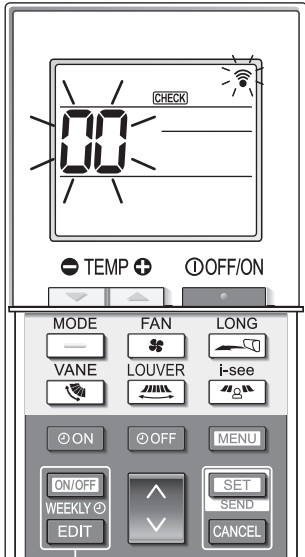
1. Press  button twice.
 appears, and the refrigerant address "00" blinks.
Make sure that the remote controller's display has stopped before continuing.
2. Press   buttons to select the refrigerant address of the indoor unit for self-diagnosis.
Set the address of the indoor unit that is to be self-diagnosed.
3. Point the remote controller at the sensor of the indoor unit and press  button.
If an air conditioner error occurs, the indoor unit's sensor emits an intermittent buzzer sound, the operation light blinks, and the check code is output.
4. Point the remote controller at the sensor of the indoor unit and press  button.
The check mode is cancelled.



15-7-3. PAR-SL101A-E

Operating instructions

1. Press  button to stop the air conditioner.
If the weekly timer is enabled (**WEEKLY** is shown on the display), press  button to disable it (**WEEKLY** is off).
2. Press  button for 5 seconds. **CHECK** appears and the unit starts the self-check mode.
3. Press  button to select the refrigerant address (M-NET address) of the indoor unit for which you want to perform the self-check.
4. Press  button.
If an error is detected, the error code is indicated by the number of beeps from the indoor unit and the number of blinks of the operation indicator lamp.
5. Press  button.
CHECK and the refrigerant address (M-NET address) go off and the self-check is completed.

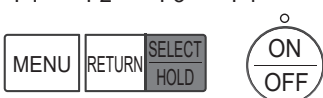
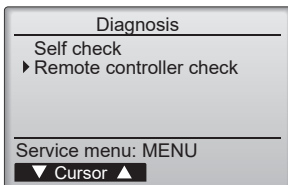


15-8. [Remote controller check]

Operating instructions

If operations cannot be completed with the remote controller, diagnose the remote controller with this function.

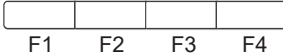
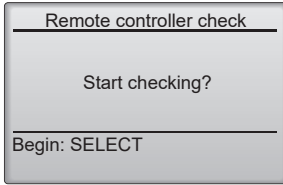
1. Go to [Remote controller check] screen.
 - Select [Service] from [Main menu], and press [SELECT] button.
 - Select [Check] from [Service menu], and press [SELECT] button.
 - Select [Diagnosis] from [Check menu], and press [SELECT] button.
 - Select [Remote controller check] with F1 or F2 button, and press [SELECT] button.



2. Start the remote controller check.
 - Select [Remote controller check] from [Diagnosis], and press [SELECT] button to start the remote controller check and see the check results.

Notes:

- To cancel the remote controller check and exit [Remote controller check] menu screen, press [MENU] or [RETURN] button.
- The remote controller will not reboot itself.



3. Check the result of the remote controller check.
See the following descriptions for each result:

[OK]:

- The remote controller has no problem. Check other parts to find problems.

[E3], [6832]:

- There is noise on the transmission line, or the indoor unit or another remote controller is faulty. Check the transmission line and the other remote controllers.

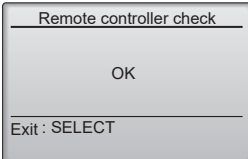
[NG] (ALLO, ALL1):

- Send-receive circuit fault. The remote controller needs to be replaced.

[ERC]:

- The number of data errors is the discrepancy between the number of bits in the data transmitted from the remote controller and that of the data that was actually transmitted over the transmission line. If data errors are found, check the transmission line for external noise interference.

If [SELECT] button is pressed after the remote controller check results are displayed, remote controller check will end, and the remote controller will automatically reboot itself.



Remote controller check results screen

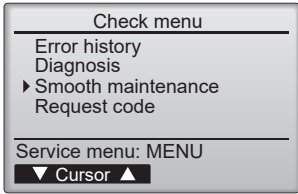
Note:

- Check the remote controller display and see if anything is displayed (including lines). Nothing will appear on the remote controller display if the correct voltage (8.5 – 12 VDC) is not supplied to the remote controller. If this is the case, check the remote controller wiring and indoor units.

15-9. [Smooth Maintenance]

Operating instructions

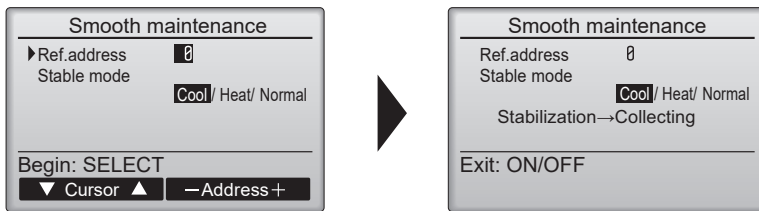
- Go to [Smooth maintenance] screen.
 - Select [Service] from [Main menu], and press [SELECT] button.
 - Select [Check] with F1 or F2 button, and press [SELECT] button.
 - Select [Smooth maintenance] with F1 or F2 button, and press [SELECT] button.



- Set the refrigerant address and the stable mode.
 - Select the item to be changed with F1 or F2 button.
 - Select the required setting with F3 or F4 button.
 - [Ref.address] setting: 0 - 15
 - [Stable mode] setting: [Cool/Heat/Normal]
 - Press [SELECT] button, Fixed operation will start.

Note:

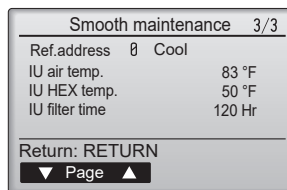
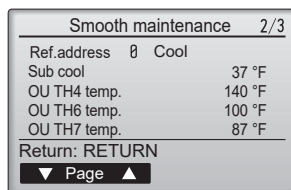
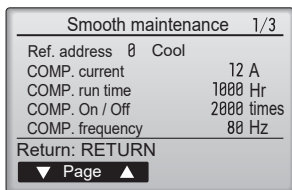
- Stable mode will take approx. 20 minutes.



- The operation data will appear. The compressor-accumulated operating (COMP. run) time is 10-hour unit, and the compressor-number of operation times (COMP. ON/OFF) is a 100-time unit (fractions discarded).

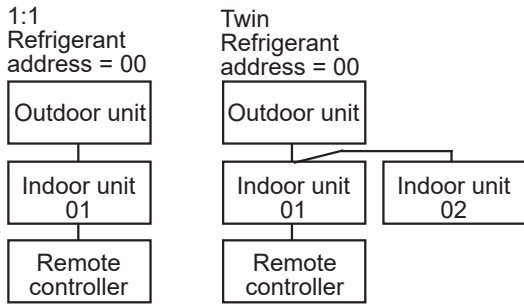
Note:

- To go back to [Service menu], press [MENU] button
- To return to the previous screen, press [RETURN] button



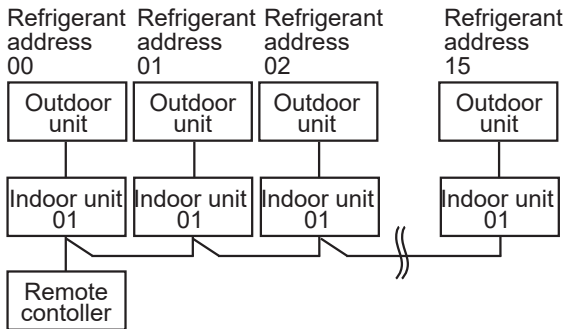
■ Refrigerant address

- Single refrigerant system
In the case of single refrigerant system, the refrigerant address is "00" and no operation is required. Simultaneous twin, triple units belong to this category (single refrigerant system).



- Multi refrigerant system (group control)

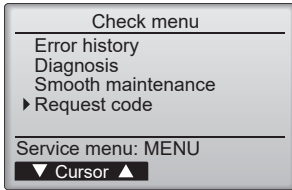
Up to 16 refrigerant systems (16 outdoor units) can be connected as a group by 1 remote controller. To check or set the refrigerant addresses.



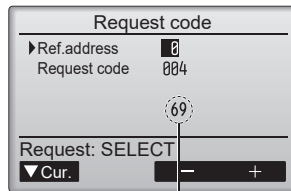
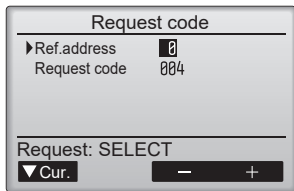
15-10. [Request code]

Details on the operation data including each thermistor temperature and error history can be confirmed with the remote controller.

1. Go to [Request code] screen.
 - Select [Service] from [Main menu], and press [SELECT] button.
 - Select [Check] with F1 or F2 button, and press [SELECT] button.
 - Select [Request code] with F1 or F2 button, and press [SELECT] button.



2. Set the refrigerant address and the request code.
 - Select the item to be changed with F1 or F2 button.
 - Select the required setting with F3 or F4 button.
[Ref.address] setting: 0 – 15
[Request code] setting
 - Press [SELECT] button. Data will be collected and displayed.



Request code: 004
Discharge temperature: 69°F

Model name		Indoor unit	PLA-AE12NL	PLA-AE18NL	PLA-AE24NL	PLA-AE30NL	
		Outdoor unit	PUZ-AK12NL	PUZ-AK18NL	PUZ-AH24NL	PUZ-AH30NL	
Cooling	at 95°F	Max. Capacity	Btu/h	12,400	18,500	24,500	30,000
		Rated Capacity	Btu/h	12,000	18,000	24,000	27,000
		Min. Capacity	Btu/h	4,900	5,000	10,300	10,300
		Total Input	W	700	1,310	1,810	2,300
		EER2	Btu/h/W	17.1	13.7	13.2	11.7
		Moisture Removal	Pints/h	1.1	3.8	4.0	9.0
		SHF		0.90	0.77	0.82	0.65
		Power factor	%	85	96	97	99
		SEER2	Btu/h/W	24.8	24.7	22.6	21.9
		Heating	at 47°F	Max. Capacity	Btu/h	20,000	24,000
Rated Capacity	Btu/h			14,000	19,000	26,000	32,000
Min. Capacity	Btu/h			4,200	4,200	8,400	8,400
Total Input	W			950	1,380	1,760	2,320
COP	W/W			4.3	4.0	4.3	4.0
Power factor	%		97	97	98	99	
at 17°F	Rated Capacity		Btu/h	10,700	12,000	15,700	17,700
	Total Input		W	1,100	1,310	1,520	1,820
	COP		W/W	2.8	2.6	3.0	2.8
HSPF2(V/V)	Btu/h/W		10.9/ 8.4	9.8/ 7.6	9.8/ 7.7	10.3/7.9	
Power supply	Phase,Cycle,Voltage	1 phase, 60 Hz, 208/ 230 V					
	Breaker size	A	20		25		
Voltage	Indoor - Outdoor S1-S2	AC208 V/ 230 V					
	Indoor - Outdoor S2-S3	DC24 V					
	Indoor - Remote controller	DC12 V					
Indoor unit	MCA	A	50		120		
	MOCP	A	15				
	Fan Motor Output	W	50		120		
	Air flow (Lo-Mid2-Mid1-Hi)	DRY(CFM)	370 - 460 - 490 - 530	460 - 490 - 570 - 600	530 - 640 - 710 - 810	570 - 670 - 780 - 880	
	External Static Pressure	in. WG [Pa]	0				
	Sound Pressure Level (Lo-Mid2-Mid1-Hi)	dB (A)	26 - 27 - 29 - 30	28 - 29 - 31 - 32	28 - 30 - 33 - 36	28 - 32 - 35 - 38	
	External Finish	PLP-41EAEU: Munsell 1.0Y 9.2/0.2					
	Dimensions Unit (Panel)	W: mm [inch]	840 (950) [33-1/16 (37-13/32)]				
		D: mm [inch]	840 (950) [33-1/16 (37-13/32)]				
		H: mm [inch]	258 (40) [10-3/16 (1-9/16)]		298 (40) [11-3/4 (1-9/16)]		
	Weight Unit	kg [lbs]	21 [46]		26 [57]		
	Field Drain pipe size	mm [inch]	32 [1-1/4]				
	Refrigerant pipe size Gas	mm [inch]	ø12.7 [1/2F]		ø15.88 [5/8F]		
Refrigerant pipe size Liquid	mm [inch]	ø6.35 [1/4F]		ø9.52 [3/8F]			
Remote Controller	Attached in indoor unit						
Outdoor unit	MCA	A	16		22		
	MOCP	A	27		37		
	SCCR	kA	5				
	Inverter input	A	11		15		
	Fan Motor Output	W	51		74		
	Compressor	Model	SRB140FQHMC-L1		SRB172FQHMC-L1		
	Air flow	CFM	1,590		1,940		
	Refrigerant Control	Electronic Expansion Valve					
	Defrost Method	Reverse Cycle					
	Sound Pressure Level at cooling	dB (A)	44		49		
	Sound Pressure Level at heating	dB (A)	46		52		
	External Finish Color	Ivory Munsell 3Y 7.8/1.1					
	Dimension	W: mm [inch]	809 + 62 [31-13/16 + 2-7/16]		950 [37-13/32]		
		D: mm [inch]	300 [11-13/16]		330 + 25 [13 + 63/64]		
		H: mm [inch]	630 [24-13/16]		943 [37-1/8]		
Weight Unit	kg [lbs]	45 [99]		70 [155]			
Refrigerant	Type	R454B					
	Charge	kg [lbs,oz]	2.0 [4 lbs + 6 oz]		3.5 [7 lbs + 11 oz]		
	Oil	Model	RM68EH				
L [oz]		0.5 [16]		0.7 [23]			
Refrigerant Pipe Size	Gas side O.D.	mm [inch]	ø12.7 [1/2F]		ø15.88 [5/8F]		
	Liquid side O.D.	mm [inch]	ø6.35 [1/4F]		ø9.52 [3/8F]		
Refrigerant pipe length	Height difference	Max. 30 m [Max.100 ft]					
	Length	Max. 30 m [Max.100 ft]		Max. 50 m [Max.165 ft]			
Refrigerant piping	Not Supplied						
Connection Method	Indoor/Outdoor	Flared					

Notes: 1. Rating conditions (cooling)-Indoor: D.B. 26.7°C (80°F), W.B. 19.4°C (67°F) Outdoor: D.B. 35°C (95°F), W.B. 23.9°C (75°F)
 (heating)-Indoor: D.B. 21.1°C (70°F), W.B. 15.6°C (60°F) Outdoor: D.B. 8.3°C (47°F), W.B. 6.1°C (43°F)
 2. Rating conditions (heating)-Indoor: D.B. 21.1°C (70°F), W.B. 15.6°C (60°F) Outdoor: D.B. -8.3°C (17°F), W.B. -9.4°C (15°F)

Operating range

		Indoor intake air temperature	Outdoor intake air temperature
Cooling	Maximum	D.B. 32°C (90°F), W.B. 23°C (73°F)	D.B. 46°C (115°F)
	Minimum	D.B. 19°C (66°F), W.B. 15°C (59°F)	D.B. -5°C (23°F) / -18°C (0°F)*
Heating	Maximum	D.B. 28°C (82°F)	D.B. 21°C (70°F), W.B. 15°C (59°F)
	Minimum	D.B. 10°C (50°F)	D.B. -20°C (-4°F), W.B. -20°C (-4°F)

* In case that the wind baffle is installed. (In case that the wind baffle is not installed, the minimum temperature will be -5°C (23°F) DB.)

Model name		Indoor unit	PLA-AE12NL	PLA-AE18NL	PLA-AE24NL	PLA-AE30NL	
		Outdoor unit	PUY-AK12NL	PUY-AK18NL	PUY-AH24NL	PUY-AH30NL	
Cooling	at 95°F	Max. Capacity	Btu/h	12,400	18,500	24,500	30,000
		Rated Capacity	Btu/h	12,000	18,000	24,000	27,000
		Min. Capacity	Btu/h	4,900	5,000	10,300	10,300
		Total Input	W	700	1,310	1,810	2,300
		EER2	Btu/h/W	17.1	13.7	13.2	11.7
		Moisture Removal	Pints/h	1.1	3.8	4.0	9.0
		SHF		0.90	0.77	0.82	0.65
		Power factor	%	85	96	97	99
		SEER2	Btu/h/W	24.8	24.7	22.6	21.9
		Heating	at 47°F	Max. Capacity	Btu/h	-	-
Rated Capacity	Btu/h			-	-	-	-
Min. Capacity	Btu/h			-	-	-	-
Total Input	W			-	-	-	-
COP	W/W			-	-	-	-
Power factor	%			-	-	-	-
at 17°F	Rated Capacity		Btu/h	-	-	-	-
	Total Input		W	-	-	-	-
	COP		W/W	-	-	-	-
	HSPF2(IV/V)		Btu/h/W	-	-	-	-
Power supply	Phase,Cycle,Voltage		1 phase, 60 Hz, 208/230 V				
	Breaker size	A	20		25		
Voltage	Indoor - Outdoor S1-S2		AC208 V / 230 V				
	Indoor - Outdoor S2-S3		DC24 V				
	Indoor - Remote controller		DC12 V				
Indoor unit	MCA	A	1				
	MOCP	A	15				
	Fan Motor Output	W	50		120		
	Air flow (Lo-Mid2-Mid1-Hi)	DRY (CFM)	370 - 460 - 490 - 530	460 - 490 - 570 - 600	530 - 640 - 710 - 810	570 - 670 - 780 - 880	
	External Pressure	in. WG [Pa]	0				
	Sound Pressure Level (Lo-Mid2-Mid1-Hi)	dB (A)	26 - 27 - 29 - 30	28 - 29 - 31 - 32	28 - 30 - 33 - 36	28 - 32 - 35 - 38	
	External Finish		PLP-41EAEU: Munsell 1.0Y 9.2/0.2				
	Dimensions Unit (Panel)	W: mm [inch]	840 (950) [33-1/16 (37-13/32)]				
		D: mm [inch]	840 (950) [33-1/16 (37-13/32)]				
		H: mm [inch]	258 (40) [10-3/16 (1-9/16)]		298 (40) [11-3/4 (1-9/16)]		
	Weight Unit	kg [lbs]	21 [46]		26 [57]		
	Field Drain pipe size	mm [inch]	32 [1-1/4]				
	Refrigerant pipe size Gas	mm [inch]	ø12.7 [1/2F]		ø15.88 [5/8F]		
	Refrigerant pipe size Liquid	mm [inch]	ø6.35 [1/4F]		ø9.52 [3/8F]		
Remote Controller	Attached in indoor unit						
Outdoor unit	MCA	A	16		22		
	MOCP	A	27		37		
	SCCR	kA	5				
	Inverter input	A	11		15		
	Fan Motor Output	W	51		74		
	Compressor	Model	SRB140FQHMC-L1		SRB172FQHMC-L1		
	Air flow	CFM	1,590		1,940		
	Refrigerant Control		Electronic Expansion Valve				
	Defrost Method		-				
	Sound Pressure Level at cooling	dB (A)	44		49		
	Sound Pressure Level at heating	dB (A)	-				
	External Finish Color		Ivory Munsell 3Y 7.8/1.1				
	Dimension	W: mm [inch]	809 + 62 [31-13/16 + 2-7/16]		950 [37-13/32]		
		D: mm [inch]	300 [11-13/16]		330 + 25 [13 + 63/64]		
		H: mm [inch]	630 [24-13/16]		943 [37-1/8]		
	Weight Unit	kg [lbs]	45 [99]		70 [155]		
Refrigerant	Type	R454B					
	Charge	kg [lbs,oz]	2.0 [4 lbs + 6 oz]		3.5 [7 lbs + 11 oz]		
		Model	RM68EH				
Refrigerant Pipe Size	L [oz]	0.5 [16]		0.7 [23]			
	Gas side O.D.	mm [inch]	ø12.7 [1/2]		ø15.88 [5/8F]		
Refrigerant pipe length	Liquid side O.D.	mm [inch]	ø6.35 [1/4]		ø9.52 [3/8F]		
	Height difference			Max. 30 m [Max.100 ft]			
Refrigerant piping	Length	Max. 50 m [Max.165 ft]		Max. 69 m [Max.225 ft]			
			Not Supplied				
Connection Method	Indoor/Outdoor	Flared					

Notes: 1.Rating conditions (cooling)-Indoor: D.B. 26.7°C (80°F), W.B. 19.4°C (67°F) Outdoor: D.B. 35°C (95°F), W.B. 23.9°C (75°F)

Operating range

		Indoor intake air temperature	Outdoor intake air temperature
Cooling	Maximum	D.B. 32°C (90°F), W.B. 23°C (73°F)	D.B. 46°C (115°F)
	Minimum	D.B. 19°C (66°F), W.B. 15°C (59°F)	D.B. -5°C (23°F) / -28.9°C (-20°F)*

* In case that the wind baffle is installed. (In case that the wind baffle is not installed, the minimum temperature will be -5°C (23°F) DB.)

Model name		Indoor unit		PKA-AL12NL	PKA-AL18NL	PKA-AK24NL	PKA-AK30NL	
		Outdoor unit		PUZ-AK12NL	PUZ-AK18NL	PUZ-AH24NL	PUZ-AH30NL	
Cooling	at 95°F	Max. Capacity	Btu/h	12,200	18,000	24,500	30,400	
		Rated Capacity	Btu/h	12,000	18,000	24,000	30,000	
		Min. Capacity	Btu/h	4,300	4,300	10,100	10,100	
		Total Input	W	810	1,630	1,990	2,950	
		EER2	Btu/h/W	14.8	11.0	12.0	10.1	
		Moisture Removal	Pints/h	3.0	6.6	6.2	10.5	
		SHF		0.73	0.60	0.72	0.62	
		Power factor	%	81	93	97	97	
		SEER2	Btu/h/W	21.1	19.5	21.1	19.7	
		Heating	at 47°F	Max. Capacity	Btu/h	18,000	23,600	31,000
Rated Capacity	Btu/h			14,000	19,000	26,000	32,000	
Min. Capacity	Btu/h			4,200	4,200	8,300	5,200	
Total Input	W			1,080	1,680	1,930	2,560	
COP	W/W			3.7	3.3	3.9	3.6	
Power factor	%			95	91	98	97	
at 17°F	Rated Capacity		Btu/h	9,400	11,700	15,300	18,700	
	Total Input		W	970	1,410	1,600	1,990	
	COP		W/W	2.8	2.4	2.8	2.7	
HSPF2(IV/V)			Btu/h/W	10.1/8.1	8.9/7.2	9.2/7.5	9.2/7.5	
Power supply			Phase,Cycle,Voltage		1 phase, 60 Hz, 208/230 V			
			Breaker size	A	20		25	
Voltage			Indoor - Outdoor S1-S2		AC208 V / 230 V			
		Indoor - Outdoor S2-S3		DC24 V				
		Indoor - Remote controller		DC12 V				
Indoor unit		MCA	A	1				
		MOCP	A	15				
		Fan Motor Output	W	30		69		
		Air flow (Lo-Mid2-Mid1-Hi) / (Lo-Mid-Hi)	DRY(CFM)	265 - 290 - 325 - 385	265 - 310 - 375 - 450	635 - 705 - 775		
			WET(CFM)	215 - 255 - 320 - 375	215 - 255 - 320 - 375	635 - 705 - 775		
		External Pressure	in. WG [Pa]	0				
		Sound Level (Lo-M2-M1-Hi) / (Lo-Mid-Hi)	dB (A)	34 - 37 - 40 - 43	34 - 39 - 44 - 48	39 - 42 - 45		
		External Finish		Munsell 0.7PB 9.2/0.4		White Munsell 0.7PB 9.2/0.4		
		Dimensions	W: mm [inch]	898 [35-11/32]		1,170 [46-1/16]		
			D: mm [inch]	237 [9-11/32]		295 [11-5/8]		
			H: mm [inch]	299 [11-25/32]		365 [14-3/8]		
		Weight Unit	kg [lbs]	12.7 [28]		21 [46]		
		Field Drain pipe size	mm [inch]	16 [5/8]		16 [5/8]		
Remote Controller				Attached in indoor unit				
Outdoor unit		MCA	A	16		22		
		MOCP	A	27		37		
		SCCR	kA	5				
		Inverter input	A	11		15		
		Fan Motor Output	W	51		74		
		Compressor	Model	SRB140FQHMC-L1		SRB172FQHMC-L1		
		Air flow	CFM	1,590		1,940		
		Refrigerant Control		Electronic Expansion Valve				
		Defrost Method		Reverse Cycle				
		Sound Pressure Level at cooling	dB (A)	44		49		
		Sound Pressure Level at heating	dB (A)	46		52		
		External Finish Color		Ivory Munsell 3Y 7.8/1.1				
		Dimension	W: mm [inch]	809 + 62 [31-13/16 + 2-7/16]		950 [37-13/32]		
			D: mm [inch]	300 [11-13/16]		330 + 25 [13 + 63/64]		
			H: mm [inch]	630 [24-13/16]		943 [37-1/8]		
		Weight Unit	kg [lbs]	45 [99]		70 [155]		
Refrigerant		Type		R454B				
		Charge	kg [lbs,oz]	2.0 [4 lbs + 6 oz]		3.5 [7 lbs + 11 oz]		
		Oil	Model	RM68EH				
			L [oz]	0.5 [16]		0.7 [23]		
Refrigerant Pipe Size		Gas side O.D.	mm [inch]	ø12.7 [1/2F]		ø15.88 [5/8F]		
		Liquid side O.D.	mm [inch]	ø6.35 [1/4F]		ø9.52 [3/8F]		
Refrigerant pipe length		Height difference		Max. 30 m [Max.100 ft]				
		Length		Max. 30 m [Max.100 ft]		Max. 50 m [Max.165 ft]		
Refrigerant Piping				Not Supplied				
Connection Method		Indoor/Outdoor		Flared				

Notes: 1 Rating conditions (cooling)-Indoor: D.B. 26.7°C(80°F), W.B. 19.4°C(67°F) Outdoor: D.B. 35°C(95°F), W.B. 23.9°C(75°F)
(heating)-Indoor: D.B. 21.1°C(70°F), W.B. 15.6°C(60°F) Outdoor: D.B. 8.3°C(47°F), W.B. 6.1°C(43°F)
2 Rating conditions (heating)-Indoor: D.B. 21.1°C(70°F), W.B. 15.6°C(60°F) Outdoor: D.B. -8.3°C(17°F), W.B. -9.4°C(15°F)

Operating range

		Indoor intake air temperature		Outdoor intake air temperature	
Cooling	Maximum	D.B. 32°C (90°F), W.B. 23°C (73°F)		D.B. 46°C (115°F)	
	Minimum	D.B. 19°C (66°F), W.B. 15°C (59°F)		D.B. -5°C (23°F) / -18°C (0°F)*	
Heating	Maximum	D.B. 28°C (82°F)		D.B. 21°C (70°F), W.B. 15°C (59°F)	
	Minimum	D.B. 10°C (50°F)		D.B. -20°C (-4°F), W.B. -20°C (-4°F)	

* In case that the wind baffle is installed. (In case that the wind baffle is not installed, the minimum temperature will be -5°C (23°F) DB.)

Model name		Indoor unit	PKA-AL12NL	PKA-AL18NL	PKA-AK24NL	PKA-AK30NL	
		Outdoor unit	PUY-AK12NL	PUY-AK18NL	PUY-AH24NL	PUY-AH30NL	
Cooling	at 95°F	Max. Capacity	Btu/h	12,200	18,000	24,500	30,400
		Rated Capacity	Btu/h	12,000	18,000	24,000	30,000
		Min. Capacity	Btu/h	4,300	4,300	10,100	10,100
		Total Input	W	810	1,630	1,990	2,950
		EER2	Btu/h/W	14.8	11.0	12.0	10.1
		Moisture Removal	Pints/h	3.0	6.6	6.2	10.5
		SHF		0.73	0.60	0.72	0.62
		Power factor	%	81	93	97	97
		SEER2	Btu/h/W	21.1	19.5	21.1	19.7
		Heating	at 47°F	Max. Capacity	Btu/h	-	-
Rated Capacity	Btu/h			-	-	-	-
Min. Capacity	Btu/h			-	-	-	-
Total Input	W			-	-	-	-
COP	W/W			-	-	-	-
Power factor	%		-	-	-	-	
at 17°F	Rated Capacity		Btu/h	-	-	-	-
	Total Input		W	-	-	-	-
	COP		W/W	-	-	-	-
HSPF2(IV/V)	Btu/h/W		-	-	-	-	
Power supply	Phase,Cycle,Voltage	1 phase, 60 Hz, 208/230 V					
	Breaker size	A	20		25		
Voltage	Indoor - Outdoor S1-S2	AC208 V / 230 V					
	Indoor - Outdoor S2-S3	DC24 V					
	Indoor - Remote controller	DC12 V					
Indoor unit	MCA	A	1				
	MOCP	A	15				
	Fan Motor Output	W	30			69	
	Air flow (Lo-Mid2-Mid1-Hi) / (Lo-Mid-Hi)	DRY(CFM)	265 - 290 - 325 - 385	265 - 310 - 375 - 450		635 - 705 - 775	
		WET(CFM)	215 - 255 - 320 - 375	215 - 255 - 320 - 375		635 - 705 - 775	
	External Pressure	in. WG [Pa]	0				
	Sound Level (Lo-M2-M1-Hi) / (Lo-Mid-Hi)	dB (A)	34 - 37 - 40 - 43	34 - 39 - 44 - 48		39 - 42 - 45	
	External Finish		Munsell 0.7PB 9.2/0.4			White Munsell 0.7PB 9.2/0.4	
	Dimensions	W: mm [inch]	898 [35-11/32]			1,170 [46-1/16]	
		D: mm [inch]	237 [9-11/32]			295 [11-5/8]	
H: mm [inch]		299 [11-25/32]			365 [14-3/8]		
Weight Unit	kg [lbs]	12.7 [28]			21 [46]		
Field Drain pipe size	mm [inch]	16 [5/8]			16 [5/8]		
Remote Controller		Attached in indoor unit					
Outdoor unit	MCA	A	16			22	
	MOCP	A	27			37	
	SCCR	kA	5				
	Inverter input	A	11			15	
	Fan Motor Output	W	51			74	
	Compressor	Model	SRB140FQHMC-L1			SRB172FQHMC-L1	
	Air flow	CFM	1,590			1,940	
	Refrigerant Control		Electronic Expansion Valve				
	Defrost Method		-				
	Sound Pressure Level at cooling	dB (A)	44			49	
	Sound Pressure Level at heating	dB (A)	-				
	External Finish Color		Ivory Munsell 3Y 7.8/1.1				
	Dimension	W: mm [inch]	809 + 62 [31-13/16 + 2-7/16]			950 [37-13/32]	
		D: mm [inch]	300 [11-13/16]			330 + 25 [13 + 63/64]	
		H: mm [inch]	630 [24-13/16]			943 [37-1/8]	
Weight Unit	kg [lbs]	45 [99]			70 [155]		
Refrigerant	Type	R454B					
	Charge	kg [lbs,oz]	2.0 [4 lbs + 6 oz]			3.5 [7 lbs + 11 oz]	
	Oil	Model	RM68EH				
L [oz]		0.5 [16]			0.7 [23]		
Refrigerant Pipe Size	Gas side O.D.	mm [inch]	ø12.7 [1/2F]			ø15.88 [5/8F]	
	Liquid side O.D.	mm [inch]	ø6.35 [1/4F]			ø9.52 [3/8F]	
Refrigerant pipe length	Height difference	Max. 30 m [Max.100 ft]					
	Length	Max. 50 m [Max.165 ft]			Max. 69 m [Max.225 ft]		
Refrigerant Piping		Not Supplied					
Connection Method	Indoor/Outdoor	Flared					

Notes: 1 Rating conditions (cooling)-Indoor: D.B. 26.7°C(80°F), W.B. 19.4°C(67°F) Outdoor: D.B. 35°C(95°F), W.B. 23.9°C(75°F)
(heating)-Indoor: D.B. 21.1°C(70°F), W.B. 15.6°C(60°F) Outdoor: D.B. 8.3°C(47°F), W.B. 6.1°C(43°F)
2 Rating conditions (heating)-Indoor: D.B. 21.1°C(70°F), W.B. 15.6°C(60°F) Outdoor: D.B. -8.3°C(17°F), W.B. -9.4°C(15°F)

Operating range

		Indoor intake air temperature	Outdoor intake air temperature
Cooling	Maximum	D.B. 32°C (90°F), W.B. 23°C (73°F)	D.B. 46°C (115°F)
	Minimum	D.B. 19°C (66°F), W.B. 15°C (59°F)	D.B. -5°C (23°F) / -18°C (0°F)*
Heating	Maximum	D.B. 28°C (82°F)	D.B. 21°C (70°F), W.B. 15°C (59°F)
	Minimum	D.B. 10°C (50°F)	D.B. -20°C (-4°F), W.B. -20°C (-4°F)

* In case that the wind baffle is installed. (In case that the wind baffle is not installed, the minimum temperature will be -5°C (23°F) DB.)

Model name		Indoor unit		PCA-AK24NL		PCA-AK30NL			
		Outdoor unit		PUZ-AH24NL		PUZ-AH30NL			
Cooling	at 95°F	Max. Capacity	Btu/h	24,000		30,000			
		Rated Capacity	Btu/h	21,800		28,200			
		Min. Capacity	Btu/h	9,800		9,800			
		Total Input	W	1,810		2,850			
		EER2	Btu/h/W	12.0		9.8			
		Moisture Removal	Pints/h	4.0		9.9			
		SHF		0.80		0.62			
		Power factor	%	95		96			
		SEER2	Btu/h/W	20.2		18.7			
		Heating	at 47°F	Max. Capacity	Btu/h	30,800		34,200	
Rated Capacity	Btu/h			26,000		32,000			
Min. Capacity	Btu/h			8,300		8,300			
Total Input	W			2,160		2,790			
COP	W/W			3.5		3.3			
Power factor	%			96		95			
at 17°F	Rated Capacity		Btu/h	15,300		18,700			
	Total Input		W	1,610		2,030			
	COP		W/W	2.7		2.6			
	HSPF2(IV/V)		Btu/h/W	9.3/7.6		9.2/7.5			
Power supply		Phase,Cycle,Voltage		1 phase, 60 Hz, 208/230 V					
		Breaker size		A 25					
Voltage		Indoor - Outdoor S1-S2		AC208 V / 230 V					
		Indoor - Outdoor S2-S3		DC24 V					
		Indoor - Remote controller		DC12 V					
Indoor unit		MCA		A 1					
		MOCP		A 15					
		Fan Motor Output		W 95					
		Air flow (Lo-M2-M1-Hi)		DRY(CFM)		530 - 565 - 600 - 670		565 - 600 - 635 - 705	
				WET(CFM)		495 - 530 - 565 - 635		530 - 565 - 600 - 670	
		External Static Pressure		in. WG [Pa]		-			
		Sound Pressure Level (Lo-M2-M1-Hi)		dB (A)		33 - 35 - 37 - 40		35 - 37 - 39 - 41	
		External Finish		White Munsell 6.4Y 8.9/0.4					
		Dimensions		W: mm [inch]		1,280 [50-3/8]			
				D: mm [inch]		680 [26-3/4]			
H: mm [inch]				230 [9-1/16]					
Weight Unit		kg [lbs]		32 [71]					
Field Drain pipe size		mm [inch]		ø26 [1-1/32]					
Refrigerant pipe size Gas		mm [inch]		ø15.88 [5/8]					
Refrigerant pipe size Liquid		mm [inch]		ø9.52 [3/8]					
Remote Controller		Attached in Indoor Unit							
Outdoor unit		MCA		A 22					
		MOCP		A 37					
		SCCR		kA 5					
		Inverter input		A 15					
		Fan Motor Output		W 74					
		Compressor		Model		SRB172FQHMC-L1			
		Air flow		CFM		1,940			
		Refrigerant Control		Electronic Expansion Valve					
		Defrost Method		Reverse Cycle					
		Sound Pressure Level at cooling		dB (A)		49			
		Sound Pressure Level at heating		dB (A)		52			
		External Finish Color		Ivory Munsell 3Y 7.8/1.1					
		Dimension		W: mm [inch]		950 [37-13/32]			
				D: mm [inch]		330 + 25 [13 + 63/64]			
				H: mm [inch]		943 [37-1/8]			
Weight Unit		kg [lbs]		70 [155]					
Refrigerant		Type		R454B					
		Charge		kg [lbs,oz]		3.5 [7 lbs + 11 oz]			
				Model		RM68EH			
Oil		L [oz]		0.7 [23]					
		Gas side O.D.		mm [inch]		ø15.88 [5/8F]			
Refrigerant Pipe Size		Liquid side O.D.		mm [inch]		ø9.52 [3/8F]			
Refrigerant pipe length		Height difference		Max. 30 m [Max.100 ft]					
		Length		Max. 50 m [Max.165 ft]					
Refrigerant Piping		Not Supplied							
Connection Method		Indoor/Outdoor		Flared					

Notes: 1.Rating conditions (cooling)-Indoor: D.B. 26.7°C(80°F), W.B. 19.4°C(67°F) Outdoor: D.B. 35°C(95°F), W.B. 23.9°C(75°F)
(h heating)-Indoor: D.B. 21.1°C(70°F), W.B. 15.6°C(60°F) Outdoor: D.B. 8.3°C(47°F), W.B. 6.1°C(43°F)
2.Rating conditions (heating)-Indoor: D.B. 21.1°C(70°F), W.B. 15.6°C(60°F) Outdoor: D.B. -8.3°C(17°F), W.B. -9.4°C(15°F)

Operating range

		Indoor intake air temperature		Outdoor intake air temperature	
Cooling	Maximum	D.B. 32°C (90°F), W.B. 23°C (73°F)		D.B. 46°C (115°F)	
	Minimum	D.B. 19°C (66°F), W.B. 15°C (59°F)		D.B. -5°C (23°F) / -18°C (0°F)*	
Heating	Maximum	D.B. 28°C (82°F)		D.B. 21°C (70°F), W.B. 15°C (59°F)	
	Minimum	D.B. 10°C (50°F)		D.B. -20°C (-4°F), W.B. -20°C (-4°F)	

* In case that the wind baffle is installed. (In case that the wind baffle is not installed, the minimum temperature will be -5°C (23°F) DB.)

Model name		Indoor unit		PCA-AK24NL		PCA-AK30NL		
		Outdoor unit		PUY-AH24NL		PUY-AH30NL		
Cooling	at 95°F	Max. Capacity	Btu/h	24,000		30,000		
		Rated Capacity	Btu/h	21,800		28,200		
		Min. Capacity	Btu/h	9,800		9,800		
		Total Input	W	1,810		2,850		
		EER2	Btu/h	12.0		9.8		
		Moisture Removal	Pints/h	4.0		9.9		
		SHF		0.80		0.62		
		Power factor	%	95		96		
SEER2		Btu/h		20.2		18.7		
Heating	at 47°F	Max. Capacity	Btu/h	-		-		
		Rated Capacity	Btu/h	-		-		
		Min. Capacity	Btu/h	-		-		
		Total Input	W	-		-		
		COP	W/W	-		-		
	Power factor	%	-		-			
	at 17°F	Rated Capacity	Btu/h	-		-		
		Total Input	W	-		-		
		COP	W/W	-		-		
	HSPF2(IV/V)		Btu/h/W		-		-	
Power supply	Phase,Cycle,Voltage		1 phase, 60 Hz, 208/230 V					
	Breaker size		A					
Voltage	Indoor - Outdoor S1-S2		AC208 V / 230 V					
	Indoor - Outdoor S2-S3		DC24 V					
	Indoor - Remote controller		DC12 V					
Indoor unit	MCA		A					
	MOCP		A					
	Fan Motor Output		W					
	Air flow (Lo-M2-M1-Hi)	DRY(CFM)		530 - 565 - 600 - 670		565 - 600 - 635 - 705		
		WET(CFM)		495 - 530 - 565 - 635		530 - 565 - 600 - 670		
	External Pressure		in. WG [Pa]					
	Sound Level (Lo-M2-M1-Hi)		dB (A)		33 - 35 - 37 - 40		35 - 37 - 39 - 41	
	External Finish		White Munsell 6.4Y 8.9/0.4					
	Dimensions	W: mm [inch]		1,280 [50-3/8]				
		D: mm [inch]		680 [26-3/4]				
		H: mm [inch]		230 [9-1/16]				
Weight Unit		kg [lbs]						
Field Drain pipe size		mm [inch]						
Refrigerant pipe size Gas		mm [inch]						
Refrigerant pipe size Liquid		mm [inch]						
Remote Controller		Attached in Indoor Unit						
Outdoor unit	MCA		A					
	MOCP		A					
	SCCR		kA					
	Inverter input		A					
	Fan Motor Output		W					
	Compressor		Model					
	Air flow		CFM					
	Refrigerant Control		Electronic Expansion Valve					
	Defrost Method		-					
	Sound Pressure Level at cooling		dB (A)		49			
	Sound Pressure Level at heating		dB (A)		-			
	External Finish Color		Ivory Munsell 3Y 7.8/1.1					
	Dimension	W: mm [inch]		950 [37-13/32]				
		D: mm [inch]		330 + 25 [13 + 63/64]				
		H: mm [inch]		943 [37-1/8]				
Weight Unit		kg [lbs]						
Refrigerant	Type		R454B					
	Charge	kg [lbs,oz]		3.5 [7 lbs + 11 oz]				
		Model		RM68EH				
Oil	L [oz]		0.7 [23]					
	Refrigerant Pipe Size		mm [inch]					
Refrigerant Pipe Size	Gas side O.D.		mm [inch]					
	Liquid side O.D.		mm [inch]					
Refrigerant pipe length	Height difference		Max. 30 m [Max.100 ft]					
	Length		Max. 69 m [Max.225 ft]					
Refrigerant piping		Not Supplied						
Connection Method		Indoor/Outdoor		Flared				

Notes: 1. Rating conditions (cooling)-Indoor: D.B. 26.7°C (80°F), W.B. 19.4°C (67°F) Outdoor: D.B. 35°C (95°F), W.B. 23.9°C (75°F)
Operating range

		Indoor intake air temperature		Outdoor intake air temperature	
Cooling	Maximum	D.B. 32°C (90°F), W.B. 23°C (73°F)		D.B. 46°C (115°F)	
	Minimum	D.B. 19°C (66°F), W.B. 15°C (59°F)		D.B. -5°C (23°F) / -28.9°C (-20°F)*	

* In case that the wind baffle is installed. (In case that the wind baffle is not installed, the minimum temperature will be -5°C (23°F) DB.)

Model name		Indoor unit	PEAD-AA12NL	PEAD-AA18NL	PEAD-AA24NL	PEAD-AA30NL	
		Outdoor unit	PUZ-AK12NL	PUZ-AK18NL	PUZ-AH24NL	PUZ-AH30NL	
Cooling	at 95°F	Max. Capacity	Btu/h	12,400	18,500	24,000	30,000
		Rated Capacity	Btu/h	12,000	18,000	21,200	27,000
		Min. Capacity	Btu/h	4,400	4,700	9,900	9,800
		Total Input	W	830	1,530	1,760	2,720
		EER2	Btu/h/W	14.4	11.7	12.0	9.9
		Moisture Removal	Pints/h	3.0	5.9	2.9	9.7
		SHF		0.73	0.65	0.85	0.61
		Power factor	%	82	92	93	95
		SEER2	Btu/h/W	20.0	20.1	19.6	18.2
		Heating	at 47°F	Max. Capacity	Btu/h	18,000	22,000
Rated Capacity	Btu/h			14,000	19,000	26,000	30,800
Min. Capacity	Btu/h			4,200	4,200	8,300	8,300
Total Input	W			1,020	1,540	2,160	2,600
COP	W/W			4.0	3.6	3.5	3.4
Power factor	%		94	95	95	96	
at 17°F	Rated Capacity		Btu/h	9,200	11,600	15,300	18,000
	Total Input		W	1,000	1,380	1,680	2,000
	COP		W/W	2.6	2.4	2.6	2.6
HSPF2(I/V)			Btu/h/W	9.5/7.6	8.8/7.1	9.1/7.4	9.1/7.4
Power supply		Phase,Cycle,Voltage 1 phase, 60 Hz, 208/230 V					
		Breaker size	A	20		25	
Voltage		Indoor - Outdoor S1-S2 AC208 V / 230 V					
		Indoor - Outdoor S2-S3 DC24 V					
		Indoor - Remote controller DC12 V					
Indoor unit		MCA	A	2.50		2.25	
		MOCP	A			15	
		Fan Motor Output	W			121	
		Air flow (Lo-Mid-Hi)	DRY(CFM)	353 - 388 - 424 - 494	403 - 424 - 512 - 600	512 - 565 - 636 - 742	618 - 671 - 742 - 883
			WET(CFM)	353 - 388 - 424 - 494	403 - 424 - 512 - 600	512 - 565 - 636 - 742	618 - 671 - 742 - 883
		External Static Pressure	in. WG [Pa]	0.14 - 0.20 - 0.28 - 0.40 - 0.60 [35 - 50 - 70 - 100 - 150]			
		Sound Pressure Level (LoLo-L-Mid-Hi) *Air flow down mode	0.14inWG* [dB(A)]	25-25-27-29	27-27-28-33	26-26-28-30	29-29-31-33
			0.14inWG [dB(A)]	25-27-29-33	27-28-33-36	26-28-30-34	29-31-33-37
			0.20inWG [dB(A)]	27-29-31-34	28-29-34-37	27-29-31-35	30-32-34-38
			0.28inWG [dB(A)]	28-30-32-36	30-32-35-39	28-30-33-37	31-33-35-39
			0.40inWG [dB(A)]	31-33-35-39	32-33-37-41	30-32-35-39	33-35-37-41
		0.60inWG [dB(A)]	33-36-38-42	34-35-40-44	33-35-38-42	35-37-39-43	
		External Finish	Galvanized				
		Dimensions	W: mm [inch]	900 [35-7/16]		1,100 [43-5/16]	
			D: mm [inch]	732 [28-7/8]			
			H: mm [inch]	250 [9-7/8]			
		Weight Unit	kg [lbs]	26 [58]	27 [60]	30 [67]	
		Field Drain pipe size	mm [inch]	ø32 [1-1/4]			
		Refrigerant pipe size Gas	mm [inch]	ø6.35 [1/4]		ø9.52 [3/8]	
		Refrigerant pipe size Liquid	mm [inch]	ø12.7 [1/2]		ø15.88 [5/8]	
Remote Controller		Attached in Indoor Unit					
Outdoor unit		MCA	A	16		22	
		MOCP	A	27		37	
		SCCR	kA	5			
		Inverter input	A	12		18	
		Fan Motor Output	W	51		74	
		Compressor	Model	SRB140FQHMC-L1		SRB172FQHMC-L1	
		Air flow	CFM	1,590		1,940	
		Refrigerant Control	Electronic Expansion Valve				
		Defrost Method	Reverse Cycle				
		Sound Pressure Level at cooling	dB (A)	44		49	
		Sound Pressure Level at heating	dB (A)	46		52	
		External Finish Color	Ivory Munsell 3Y 7.8/1.1				
		Dimensions	W: mm [inch]	809 + 62 [31-13/16 + 2-7/16]		950 [37-13/32]	
			D: mm [inch]	300 [11-13/16]			
			H: mm [inch]	630 [24-13/16]			
		Weight	kg [lbs]	45 [99]		70 [155]	
Refrigerant		Type	R454B				
		Charge	kg [lbs,oz]	2.0 [4 lbs + 6 oz]		3.5 [7 lbs + 11 oz]	
		Oil	Model	RM68EH			
			L [oz]	0.5 [16]		0.7 [23]	
Refrigerant Pipe Size		Gas side O.D.	mm [inch]	ø12.7 [1/2F]		ø15.88 [5/8F]	
		Liquid side O.D.	mm [inch]	ø6.35 [1/4F]		ø9.52 [3/8F]	
Refrigerant pipe length		Height difference	Max. 30 m [Max.100 ft]				
		Length	Max. 30 m [Max.100 ft]			Max. 50 m [Max.165 ft]	
Refrigerant piping		Not Supplied					
Connection Method		Indoor/Outdoor Flared					

Notes: 1. Rating conditions (cooling)-Indoor: D.B. 26.7°C (80°F), W.B. 19.4°C (67°F)
(heating)-Indoor: D.B. 21.1°C (70°F), W.B. 15.6°C (60°F)
2. Rating conditions (heating)-Indoor: D.B. 21.1°C (70°F), W.B. 15.6°C (60°F)

Outdoor: D.B. 35°C (95°F), W.B. 23.9°C (75°F)
Outdoor: D.B. 8.3°C (47°F), W.B. 6.1°C (43°F)
Outdoor: D.B. -8.3°C (17°F), W.B. -9.4°C (15°F)

Operating range

		Indoor intake air temperature	Outdoor intake air temperature
Cooling	Maximum	D.B. 32°C (90°F), W.B. 23°C (73°F)	D.B. 46°C (115°F)
	Minimum	D.B. 19°C (66°F), W.B. 15°C (59°F)	D.B. -5°C (23°F) / -18°C (0°F)*
Heating	Maximum	D.B. 28°C (82°F)	D.B. 21°C (70°F), W.B. 15°C (59°F)
	Minimum	D.B. 10°C (50°F)	D.B. -20°C (-4°F), W.B. -20°C (-4°F)

* In case that the wind baffle is installed. (In case that the wind baffle is not installed, the minimum temperature will be -5°C (23°F) DB.)

Model name		Indoor unit	PEAD-AA12NL	PEAD-AA18NL	PEAD-AA24NL	PEAD-AA30NL	
		Outdoor unit	PUY-AK12NL	PUY-AK18NL	PUY-AH24NL	PUY-AH30NL	
Cooling	at 95°F	Max. Capacity	Btu/h	12,400	18,500	24,000	30,000
		Rated Capacity	Btu/h	12,000	18,000	21,200	27,000
		Min. Capacity	Btu/h	4,400	4,700	9,900	9,800
		Total Input	W	830	1,530	1,760	2,720
		EER2	Btu/h/W	14.4	11.7	12.0	9.9
		Moisture Removal	Pints/h	3.0	5.9	2.9	9.7
		SHF		0.73	0.65	0.85	0.61
		Power factor	%	82	92	93	95
		SEER2	Btu/h/W	20.0	20.1	19.6	18.2
		Heating	at 47°F	Max. Capacity	Btu/h	-	-
Rated Capacity	Btu/h			-	-	-	-
Min. Capacity	Btu/h			-	-	-	-
Total Input	W			-	-	-	-
COP	W/W			-	-	-	-
Power factor	%		-	-	-	-	
at 17°F	Rated Capacity		Btu/h	-	-	-	-
	Total Input		W	-	-	-	-
	COP		W/W	-	-	-	-
HSPF2(IV/W)	Btu/h/W		-	-	-	-	
Power supply		Phase,Cycle,Voltage		1 phase, 60 Hz, 208/230 V			
		Breaker size		A	20	25	
Voltage		Indoor - Outdoor S1-S2		AC208 V / 230 V			
		Indoor - Outdoor S2-S3		DC24 V			
		Indoor - Remote controller		DC12 V			
Indoor unit	MCA	A	2.50		2.25		
	MOCP	A			15		
	Fan Motor Output	W			121		
	Air flow (Lo-Mid-Hi)	DRY(CFM)	353 - 388 - 424 - 494	403 - 424 - 512 - 600	512 - 565 - 636 - 742	618 - 671 - 742 - 883	
		WET(CFM)	353 - 388 - 424 - 494	403 - 424 - 512 - 600	512 - 565 - 636 - 742	618 - 671 - 742 - 883	
	External Static Pressure	in. WG [Pa]	0.14 - 0.20 - 0.28 - 0.40 - 0.60 [35 - 50 - 70 - 100 - 150]				
	Sound Pressure Level (LoLo-Mid-Hi) *Air flow down mode	0.14inWG* [dB(A)]	25-25-27-29	27-27-28-33	26-26-28-30	29-29-31-33	
		0.14inWG [dB(A)]	25-27-29-33	27-28-33-36	26-28-30-34	29-31-33-37	
		0.20inWG [dB(A)]	27-29-31-34	28-29-34-37	27-29-31-35	30-32-34-38	
		0.28inWG [dB(A)]	28-30-32-36	30-32-35-39	28-30-33-37	31-33-35-39	
		0.40inWG [dB(A)]	31-33-35-39	32-33-37-41	30-32-35-39	33-35-37-41	
		0.60inWG [dB(A)]	33-36-38-42	34-35-40-44	33-35-38-42	35-37-39-43	
	External Finish		Galvanized				
	Dimensions	W: mm [inch]	900 [35-7/16]			1,100 [43-5/16]	
		D: mm [inch]	732 [28-7/8]				
H: mm [inch]		250 [9-7/8]					
Weight Unit	kg [lbs]	26 [58]	27 [60]		30 [67]		
Field Drain pipe size	mm [inch]	ø32 [1-1/4]					
Refrigerant pipe size Gas	mm [inch]	ø6.35 [1/4]			ø9.52 [3/8]		
Refrigerant pipe size Liquid	mm [inch]	ø12.7 [1/2]			ø15.88 [5/8]		
Remote Controller		Attached in Indoor Unit					
Outdoor unit	MCA	A	16		22		
	MOCP	A	27		37		
	SCCR	kA		5			
	Inverter input	A	12		18		
	Fan Motor Output	W	51		74		
	Compressor	Type	SRB140FQHMC-L1		SRB172FQHMC-L1		
	Air flow	CFM	1,590		1,940		
	Refrigerant Control		Electronic Expansion Valve				
	Defrost Method		-				
	Sound Pressure Level at cooling	dB (A)	44		49		
	Sound Pressure Level at heating	dB (A)	-				
	External finish		Ivory Munsell 3Y 7.8/1.1				
	Dimension	W: mm [inch]	809 + 62 [31-13/16+2-7/16]			950 [37-13/32]	
		D: mm [inch]	300 [11-13/16]			330 + 25 [13 + 63/64]	
		H: mm [inch]	630 [24-13/16]			943 [37-1/8]	
Weight Unit	kg [lbs]	45 [99]		70 [155]			
Refrigerant	Type	R454B					
	Charge	kg [lbs,oz]	2.0 [4 lbs + 6 oz]		3.5 [7 lbs + 11 oz]		
	Oil	Model	RM68EH				
	L [oz]	0.5 [16]		0.7 [23]			
Refrigerant Pipe Size	Gas side O.D.	mm [inch]	ø12.7 [1/2F]		ø15.88 [5/8F]		
	Liquid side O.D.	mm [inch]	ø6.35 [1/4F]		ø9.52 [3/8F]		
Refrigerant pipe length	Height difference	Max. 30 m [Max.100 ft]					
	Length	Max. 50 m [Max.165 ft]			Max. 69 m [Max.225 ft]		
Refrigerant piping		Not Supplied					
Connection Method		Indoor/Outdoor Flared					

Notes: 1. Rating conditions (cooling)-Indoor: D.B. 26.7°C (80°F), W.B. 19.4°C (67°F) Outdoor: D.B. 35°C (95°F), W.B. 23.9°C (75°F)

Operating range

		Indoor intake air temperature		Outdoor intake air temperature	
Cooling	Maximum	D.B. 32°C (90°F), W.B. 23°C (73°F)		D.B. 46°C (115°F)	
	Minimum	D.B. 19°C (66°F), W.B. 15°C (59°F)		D.B.-5°C (23°F) / -28.9°C (-20°F)*	

* In case that the wind baffle is installed. (In case that the wind baffle is not installed, the minimum temperature will be -5°C (23°F) DB.)

Model name		Indoor unit	PVA-AA12NL	PVA-AA18NL	PVA-AA24NL	PVA-AA30NL	
		Outdoor unit	PUZ-AK12NL	PUZ-AK18NL	PUZ-AH24NL	PUZ-AH30NL	
Cooling	at 95°F	Max. Capacity	Btu/h	12,400	18,300	24,000	30,600
		Rated Capacity	Btu/h	12,000	18,000	23,400	30,000
		Min. Capacity	Btu/h	4,500	4,700	10,200	10,200
		Total Input	W	840	1,530	1,940	3,030
		EER2	Btu/h/W	14.2	11.7	12.0	9.9
		Moisture Removal	Pints/h	3.8	3.6	3.0	10.5
		SHF		0.66	0.78	0.86	0.62
		Power factor	%	80	88	90	93
		SEER2	Btu/h/W	20.0	18.6	19.2	18.0
		Heating	at 47°F	Max. Capacity	Btu/h	19,000	24,000
Rated Capacity	Btu/h			14,000	19,000	26,000	32,000
Min. Capacity	Btu/h			4,200	4,200	8,400	8,400
Total Input	W			1,100	1,560	1,950	2,580
COP	W/W			3.7	3.5	3.9	3.6
Power factor	%		93	90	91	93	
at 17°F	Rated Capacity		Btu/h	10,200	12,100	15,200	18,200
	Total Input		W	1,150	1,500	1,650	2,150
	COP		W/W	2.5	2.3	2.6	2.4
	HSPF2(IVV)		Btu/h/W	9.8/7.9	8.6/6.9	8.9/7.2	8.5/6.9
	Power supply	Phase,Cycle,Voltage	1 phase, 60 Hz, 208/230 V				
Voltage	Breaker size	A	20		25		
	Indoor - Outdoor S1-S2	AC208 V / 230 V					
	Indoor - Outdoor S2-S3	DC24 V					
Indoor unit	Indoor - Remote controller	DC12 V					
	MCA	A	3.00		4.13		
	MOCP	A			15		
	Fan Motor Output	W	121		244		
	Air flow (Lo-Mid-Hi)	DRY(CFM)	280 - 340 - 400	515 - 625 - 735	613 - 744 - 875		
		WET(CFM)	-				
	External Static Pressure	in. WG [Pa]	0.30 - 0.50 - 0.80 [75 - 125 - 200]				
	Sound Pressure Level (Lo-Mid-Hi)	75Pa (0.30 in.WG)	24 - 28 - 32	28 - 33 - 36	30 - 34 - 38		
		125Pa (0.50 in.WG)	31 - 35 - 38	31 - 36 - 40	34 - 40 - 44		
		200Pa (0.80 in.WG)	32 - 36 - 41	34 - 38 - 42	35 - 39 - 43		
	External Finish	Galvanized steel cabinet - Powder coated Slate Gray					
	Dimensions	W: mm [inch]	432 [17]			534 [21]	
		D: mm [inch]	548 [21-5/8]			548 [21-5/8]	
		H: mm [inch]	1,275 [50-1/4]			1,378 [54-1/4]	
	Weight Unit	kg [lbs]	51 [113]			64 [141]	
Field Drain pipe size	mm [inch]	ø19.05 [3/4]					
Refrigerant pipe size Gas	mm [inch]	ø12.7 [1/2]			ø15.88 [5/8]		
Refrigerant pipe size Liquid	mm [inch]	ø6.35 [1/4]			ø9.52 [3/8]		
Remote Controller	Attached in Indoor Unit						
Outdoor unit	MCA	A	16		22		
	MOCP	A	27		37		
	SCCR	kA	5				
	Inverter input	A	11		15		
	Fan Motor Output	W	51		74		
	Compressor	Model	SRB140FQHMC-L1			SRB172FQHMC-L1	
	Air flow	CFM	1,590			1,940	
	Refrigerant Control	Electronic Expansion Valve					
	Defrost Method	Reverse Cycle					
	Sound Pressure Level at cooling	dB (A)	44			49	
	Sound Pressure Level at heating	dB (A)	46			52	
	External Finish Color	Ivory Munsell 3Y 7.8/1.1					
	Dimension	W: mm [inch]	809+62 [31-13/16+2-7/16]			950 [37-13/32]	
		D: mm [inch]	300 [11-13/16]			330 + 25 [13 + 63/64]	
		H: mm [inch]	630 [24-13/16]			943 [37-1/8]	
Weight Unit	kg [lbs]	45 [99]			70 [155]		
Refrigerant	Type	R454B					
	Charge	kg [lbs,oz]	2.0 [4 lbs + 6 oz]			3.5 [7 lbs + 11 oz]	
	Oil	Model	RM68EH				
Refrigerant Pipe Size	L [oz]	0.5 [16]			0.7 [23]		
	Gas side O.D.	mm [inch]	ø12.7 [1/2F]			ø15.88 [5/8F]	
Refrigerant pipe length	Liquid side O.D.	mm [inch]	ø6.35 [1/4F]			ø9.52 [3/8F]	
	Height difference	Max. 30 m [Max.100 ft]					
Refrigerant Piping	Length	Max. 30 m [Max.100 ft]			Max. 50 m [Max.165 ft]		
Connection Method	Indoor/Outdoor Flared						

Notes: 1. Rating conditions (cooling)-Indoor: D.B. 26.7°C (80°F), W.B. 19.4°C (67°F) Outdoor: D.B. 35°C (95°F), W.B. 23.9°C (75°F)
(heating)-Indoor: D.B. 21.1°C (70°F), W.B. 15.6°C (60°F) Outdoor: D.B. 8.3°C (47°F), W.B. 6.1°C (43°F)
2. Rating conditions (heating)-Indoor: D.B. 21.1°C (70°F), W.B. 15.6°C (60°F) Outdoor: D.B. -8.3°C (17°F), W.B. -9.4°C (15°F)

Operating range

		Indoor intake air temperature	Outdoor intake air temperature
Cooling	Maximum	D.B. 32°C (90°F), W.B. 23°C (73°F)	D.B. 46°C (115°F)
	Minimum	D.B. 19°C (66°F), W.B. 15°C (59°F)	D.B. -5°C (23°F) / -18°C (0°F)*
Heating	Maximum	D.B. 28°C (83°F)	D.B. 21°C (70°F), W.B. 15°C (59°F)
	Minimum	D.B. 10°C (50°F)	D.B. -20°C (-4°F), W.B. -20°C (-4°F)

* In case that the wind baffle is installed. (In case that the wind baffle is not installed, the minimum temperature will be -5°C (23°F) DB.)

Model name		Indoor unit	PVA-AA12NL	PVA-AA18NL	PVA-AA24NL	PVA-AA30NL	
		Outdoor unit	PUY-AK12NL	PUY-AK18NL	PUY-AH24NL	PUY-AH30NL	
Cooling	at 95°F	Max. Capacity	Btu/h	12,400	18,300	24,000	30,600
		Rated Capacity	Btu/h	12,000	18,000	23,400	30,000
		Min. Capacity	Btu/h	4,500	4,700	10,200	10,200
		Total Input	W	840	1,530	1,940	3,030
		EER2	Btu/h/W	14.2	11.7	12.0	9.9
		Moisture Removal	Pints/h	3.8	3.6	3.0	10.5
		SHF		0.66	0.78	0.86	0.62
		Power factor	%	80	88	90	93
		SEER2	Btu/h/W	20.0	18.6	19.2	18.0
		Heating	at 47°F	Max. Capacity	Btu/h	-	-
Rated Capacity	Btu/h			-	-	-	-
Min. Capacity	Btu/h			-	-	-	-
Total Input	W			-	-	-	-
COP	W/W			-	-	-	-
Power factor	%		-	-	-	-	
at 17°F	Rated Capacity		Btu/h	-	-	-	-
	Total Input		W	-	-	-	-
	COP		W/W	-	-	-	-
	HSPF2(V/V)		Btu/h/W	-	-	-	-
	Power supply	Phase,Cycle,Voltage	1 phase, 60 Hz, 208/230 V				
	Breaker size	A	20		25		
Voltage	Indoor - Outdoor S1-S2	AC208 V / 230 V					
	Indoor - Outdoor S2-S3	DC24 V					
	Indoor - Remote controller	DC12 V					
Indoor unit	MCA	A	3.00		4.13		
	MOCP	A		15			
	Fan Motor Output	W	121		244		
	Air flow (Lo-Mid-Hi)	DRY(CFM)	280 - 340 - 400	515 - 625 - 735		613 - 744 - 875	
		WET(CFM)					
	External Static Pressure	in. WG [Pa]	0.30 - 0.50 - 0.80 [75 - 125 - 200]				
	Sound Pressure Level (Lo-Mid-Hi)	75Pa (0.30 in.WG)	24 - 28 - 32	28 - 33 - 36		30 - 34 - 38	
		125Pa (0.50 in.WG)	31 - 35 - 38	31 - 36 - 40		34 - 40 - 44	
		200Pa (0.80 in.WG)	32 - 36 - 41	34 - 38 - 42		35 - 39 - 43	
	External Finish	Galvanized steel cabinet - Powder coated Slate Gray					
	Dimensions	W: mm [inch]	432 [17]			534 [21]	
		D: mm [inch]	548 [21-5/8]			548 [21-5/8]	
H: mm [inch]		1,275 [50-1/4]			1,378 [54-1/4]		
Weight	kg [lbs]	51 [113]			64 [141]		
Field Drain pipe size	mm [inch]	ø19.05 [3/4]					
Refrigerant pipe size Gas	mm [inch]	ø12.7 [1/2]			ø15.88 [5/8]		
Refrigerant pipe size Liquid	mm [inch]	ø6.35 [1/4]			ø9.52 [3/8]		
Remote Controller	Attached in Indoor Unit						
Outdoor unit	MCA	A	16		22		
	MOCP	A	27		37		
	SCCR	kA	5				
	Inverter input	A	11		15		
	Fan Motor Output	W	51		74		
	Compressor	Type	SRB140FQHMC-L1			SRB172FQHMC-L1	
	Air flow	CFM	1,590			1,940	
	Refrigerant Control	Electronic Expansion Valve					
	Defrost Method	-					
	Sound Pressure Level at cooling	dB (A)	44			49	
	Sound Pressure Level at heating	dB (A)	-				
	External Finish Color	Ivory Munsell 3Y 7.8/1.1					
	Dimension	W: mm [inch]	809 + 62 [31-13/16 + 2-7/16]			950 [37-13/32]	
D: mm [inch]		300 [11-13/16]			330 + 25 [13 + 63/64]		
H: mm [inch]		630 [24-13/16]			943 [37-1/8]		
Weight Unit	kg [lbs]	45 [99]			70 [155]		
Refrigerant	Type	R454B					
	Charge	kg [lbs,oz]	2.0 [4 lbs + 6 oz]		3.5 [7 lbs + 11 oz]		
	Oil	Model	RM68EH				
Refrigerant Pipe Size	L [oz]	0.5 [16]				0.7 [23]	
	Gas side O.D.	mm [inch]	ø12.7 [1/2F]			ø15.88 [5/8F]	
	Liquid side O.D.	mm [inch]	ø6.35 [1/4F]			ø9.52 [3/8F]	
Refrigerant pipe length	Height difference	Max. 30 m [Max.100 ft]					
	Length	Max. 50 m [Max.165 ft]			Max. 69 m [Max.225 ft]		
Refrigerant Piping	Not Supplied						
Connection Method	Indoor/Outdoor	Flared					

Notes: 1. Rating conditions (cooling)-Indoor: D.B. 26.7°C (80°F), W.B. 19.4°C (67°F) Outdoor: D.B. 35°C (95°F), W.B. 23.9°C (75°F)

Operating range

Cooling	Indoor intake air temperature		Outdoor intake air temperature	
	Maximum	D.B. 32°C (90°F), W.B. 23°C (73°F)	D.B. 46°C (115°F)	
Minimum	D.B. 19°C (66°F), W.B. 15°C (59°F)	D.B. -5°C (23°F) / -28.9°C (-20°F)*		

* In case that the wind baffle is installed. (In case that the wind baffle is not installed, the minimum temperature will be -5°C (23°F) DB.)

Model name		Indoor unit	PAA-AA18NL	PAA-AA24NL	PAA-AA30NL	
		Outdoor unit	PUZ-AH24NL	PUZ-AH24NL	PUZ-AH30NL	
Cooling	at 95°F	Max. Capacity	Btu/h	18,500	24,000	31,500
		Rated Capacity	Btu/h	18,000	23,600	31,000
		Min. Capacity	Btu/h	9,500	9,800	10,100
		Total Input	W	1,400	1,960	3,130
		EER2	Btu/h/W	12.8	12.0	9.9
		Moisture Removal	Pints/h	5.1	5.7	7.7
		SHF		0.71	0.75	0.73
		Power factor	%	86	86	89
		SEER2	Btu/h/W	17.9	17.8	16.1
		Heating	at 47°F	Max. Capacity	Btu/h	30,100
Rated Capacity	Btu/h			19,000	26,000	32,000
Min. Capacity	Btu/h			11,400	11,700	10,100
Total Input	W			1,560	1,900	2,480
COP	W/W			3.5	4.0	3.7
Power factor	%		90	86	89	
at 17°F	Rated Capacity		Btu/h	10,200	14,200	20,400
	Total Input		W	1,150	1,580	2,270
	COP		W/W	2.5	2.6	2.6
HSPF2(IVV)			Btu/h/W	8.8/6.9	8.7/7.0	8.9/7.3
Power supply		Phase,Cycle,Voltage		1 phase, 60 Hz, 208/230 V		
		Breaker size		25		
Voltage		Indoor - Outdoor S1-S2		AC208 V / 230 V		
		Indoor - Outdoor S2-S3		DC24 V		
		Indoor - Remote controller		DC12 V		
Indoor unit		MCA		A		
		Air flow (Min.-Max.)		DRY(CFM) 424 - 812		
				WET(CFM) 551 - 830		
		Internal Static Pressure		in. WG [Pa] -		
				0.3 [75]		
		External Finish		Galvanized steel cabinet - Powder coated Slate Gray		
		Dimensions		W: mm [inch] 368 [14-1/2]		
				D: mm [inch] 551 [21-2/3]		
				H: mm [inch] 696 [27-2/5]		
		Weight Unit		kg [lbs] 24.59 [54.10]		
				29.36 [64.60]		
				29.27 [64.40]		
		Field Drain pipe size		mm [inch] ø19.05 [3/4]		
		Refrigerant pipe size Gas		mm [inch] ø12.7 [1/2]		
				ø15.88 [5/8]		
		Refrigerant pipe size Liquid		mm [inch] ø6.35 [1/4]		
				ø9.52 [3/8]		
Remote Controller				Attached in Indoor Unit		
Outdoor unit		MCA		A		
		MOCP		A		
		SCCR		kA		
		Inverter input		A		
		Fan Motor Output		W		
		Compressor		Model		
				SRB172FQHMC-L1		
		Air flow		CFM		
				1,940		
		Refrigerant Control		Electronic Expansion Valve		
		Defrost Method		Reverse Cycle		
		Sound Pressure Level at cooling		dB (A)		
				49		
		Sound Pressure Level at heating		dB (A)		
				52		
		External Finish Color		Ivory Munsell 3Y 7.8/1.1		
		Dimension		W: mm [inch] 950 [37-13/32]		
				D: mm [inch] 330 + 25 [13 + 63/64]		
				H: mm [inch] 943 [37-1/8]		
		Weight Unit		kg [lbs] 70 [155]		
Refrigerant		Type		R454B		
		Charge		kg [lbs,oz] 3.5 [7 lbs + 11 oz]		
		Oil		Model		
				RM68EH		
				L [oz] 0.7 [23]		
Refrigerant Pipe Size		Gas side O.D.		mm [inch] ø15.88 [5/8]		
		Liquid side O.D.		mm [inch] ø9.52 [3/8]		
Refrigerant pipe length		Height difference		Max. 30 m [Max.100 ft]		
		Length		Max. 30 m [Max.100 ft]		
Refrigerant Piping				Not Supplied		
Connection Method		Indoor/Outdoor		Flared		

Notes: 1. Rating conditions (cooling)-Indoor: D.B. 26.7°C (80°F), W.B. 19.4°C (67°F) Outdoor: D.B. 35°C (95°F), W.B. 23.9°C (75°F)
(heating)-Indoor: D.B. 21.1°C (70°F), W.B. 15.6°C (60°F) Outdoor: D.B. 8.3°C (47°F), W.B. 6.1°C (43°F)
2. Rating conditions (heating)-Indoor: D.B. 21.1°C (70°F), W.B. 15.6°C (60°F) Outdoor: D.B. -8.3°C (17°F), W.B. -9.4°C (15°F)

Operating range

		Indoor intake air temperature	Outdoor intake air temperature
Cooling	Maximum	D.B. 32°C (90°F), W.B. 23°C (73°F)	D.B. 46°C (115°F)
	Minimum	D.B. 19°C (66°F), W.B. 15°C (59°F)	D.B. -5°C (23°F) / -18°C (0°F)*
Heating	Maximum	D.B. 28°C (83°F)	D.B. 21°C (70°F), W.B. 15°C (59°F)
	Minimum	D.B. 10°C (50°F)	D.B. -20°C (-4°F), W.B. -20°C (-4°F)

* In case that the wind baffle is installed. (In case that the wind baffle is not installed, the minimum temperature will be -5°C (23°F) DB.)

Model name		Indoor unit	PAA-AA18NL	PAA-AA24NL	PAA-AA30NL	
		Outdoor unit	PUY-AH24NL	PUY-AH24NL	PUY-AH30NL	
Cooling	at 95°F	Max. Capacity	Btu/h	18,500	24,000	31,500
		Rated Capacity	Btu/h	18,000	23,600	31,000
		Min. Capacity	Btu/h	9,500	9,800	10,100
		Total Input	W	1,400	1,960	3,130
		EER2	Btu/h/W	12.8	12.0	9.9
		Moisture Removal	Pints/h	5.1	5.7	7.7
		SHF		0.71	0.75	0.73
		Power factor	%	90	86	89
		SEER2	Btu/h/W	17.9	17.8	16.1
		Heating	at 47°F	Max. Capacity	Btu/h	-
Rated Capacity	Btu/h			-	-	-
Min. Capacity	Btu/h			-	-	-
Total Input	W			-	-	-
COP	W/W			-	-	-
Power factor	%			-	-	-
at 17°F	Rated Capacity		Btu/h	-	-	-
	Total Input		W	-	-	-
	COP		W/W	-	-	-
	HSPF2(IV/V)		Btu/h/W	-	-	-
Power supply	Phase,Cycle,Voltage		1 phase, 60 Hz, 208/230 V			
	Breaker size	A	25			
Voltage	Indoor - Outdoor S1-S2		AC208 V / 230 V			
	Indoor - Outdoor S2-S3		DC24 V			
	Indoor - Remote controller		DC12 V			
Indoor unit	MCA	A	0.2			
	Air flow (Min.-Max.)	DRY(CFM)	424 - 812	551 - 830	700 - 1024	
		WET(CFM)	-			
	Internal Static Pressure	in. WG [Pa]	0.3 [75]			
	External Finish		Galvanized steel cabinet - Powder coated Slate Gray			
	Dimensions	W: mm [inch]	368 [14-1/2]			
		D: mm [inch]	551 [21-2/3]			
		H: mm [inch]	696 [27-2/5]			
	Weight Unit	kg [lbs]	24.59 [54.10]	29.36 [64.60]	29.27 [64.40]	
	Field Drain pipe size	mm [inch]	ø19.05 [3/4]			
Refrigerant pipe size Gas	mm [inch]	ø12.7 [1/2]	ø15.88 [5/8]			
Refrigerant pipe size Liquid	mm [inch]	ø6.35 [1/4]	ø9.52 [3/8]			
Remote Controller		Attached in Indoor Unit				
Outdoor unit	MCA	A	22			
	MOCP	A	37			
	SCCR	kA	5			
	Inverter input	A	15			
	Fan Motor Output	W	74			
	Compressor	Model	SRB172FQHMC-L1			
	Air flow	CFM	1,940			
	Refrigerant Control	Electronic Expansion Valve				
	Defrost Method	-				
	Sound Pressure Level at cooling	dB (A)	49			
	Sound Pressure Level at heating	dB (A)	-			
	External Finish Color		Ivory Munsell 3Y 7.8/1.1			
	Dimension	W: mm [inch]	950 [37-13/32]			
		D: mm [inch]	330 + 25 [13 + 63/64]			
		H: mm [inch]	943 [37-1/8]			
	Weight Unit	kg [lbs]	70 [155]			
Refrigerant	Type	R454B				
	Charge	kg [lbs,oz]	3.5 [7 lbs + 11 oz]			
		Model	RM68EH			
	Oil	L [oz]	0.7 [23]			
Refrigerant Pipe Size	Gas side O.D.	mm [inch]	ø15.88 [5/8]			
	Liquid side O.D.	mm [inch]	ø9.52 [3/8]			
Refrigerant pipe length	Height difference	Max. 30 m [Max.100 ft]				
	Length	Max. 30 m [Max.100 ft]				
Refrigerant Piping	Not Supplied					
Connection Method	Indoor/Outdoor	Flared				

Notes: 1. Rating conditions (cooling)-Indoor: D.B. 26.7°C (80°F), W.B. 19.4°C (67°F) Outdoor: D.B. 35°C (95°F), W.B. 23.9°C (75°F)

Operating range

		Indoor intake air temperature		Outdoor intake air temperature	
Cooling	Maximum	D.B. 32°C (90°F), W.B. 23°C (73°F)		D.B. 46°C (115°F)	
	Minimum	D.B. 19°C (66°F), W.B. 15°C (59°F)		D.B. -5°C (23°F) / -28.9°C (-20°F)*	

* In case that the wind baffle is installed. (In case that the wind baffle is not installed, the minimum temperature will be -5°C (23°F) DB.)

Model name		Indoor unit	PAA-BA18NL	PAA-BA24NL	PAA-BA30NL	
		Outdoor unit	PUZ-AH24NL	PUZ-AH24NL	PUZ-AH30NL	
Cooling	at 95°F	Max. Capacity	Btu/h	18,500	24,000	31,500
		Rated Capacity	Btu/h	18,000	23,600	31,000
		Min. Capacity	Btu/h	9,500	9,800	10,100
		Total Input	W	1,400	1,960	3,130
		EER2	Btu/h/W	12.8	12.0	9.9
		Moisture Removal	Pints/h	5.1	5.7	7.7
		SHF		0.71	0.75	0.73
		Power factor	%	86	86	89
		SEER2	Btu/h/W	17.9	17.8	16.1
		Heating	at 47°F	Max. Capacity	Btu/h	30,100
Rated Capacity	Btu/h			19,000	26,000	32,000
Min. Capacity	Btu/h			11,400	11,700	10,100
Total Input	W			1,560	1,900	2,480
COP	W/W			3.5	4.0	3.7
Power factor	%			90	86	89
at 17°F	Rated Capacity			Btu/h	10,200	14,200
Total Input	W		1,150	1,580	2,270	
COP	W/W		2.5	2.6	2.6	
HSPF2(I/V)			Btu/h/W	8.8/6.9	8.7/7.0	8.9/7.3
Power supply		Phase,Cycle,Voltage	1 phase, 60 Hz, 208/230 V			
		Breaker size	25			
Voltage		Indoor - Outdoor S1-S2	AC208 V / 230 V			
		Indoor - Outdoor S2-S3	DC24 V			
		Indoor - Remote controller	DC12 V			
Indoor unit		MCA	A			
		Air flow (Min.-Max.)	DRY(CFM)	424 - 812	551 - 830	700 - 1024
			WET(CFM)	-		
		Internal Static Pressure	in. WG [Pa]	0.3 [75]		
		External Finish	Galvanized steel cabinet - Powder coated Slate Gray			
		Dimensions	W: mm [inch]	445 [17-1/2]		
			D: mm [inch]	551 [21-2/3]		
			H: mm [inch]	696 [27-2/5]		
		Weight Unit	kg [lbs]	26.77 [58.90]	31.50 [69.30]	31.32 [68.90]
		Field Drain pipe size	mm [inch]	ø19.05 [3/4]		
		Refrigerant pipe size Gas	mm [inch]	ø12.7 [1/2]	ø15.88 [5/8]	
		Refrigerant pipe size Liquid	mm [inch]	ø6.35 [1/4]	ø9.52 [3/8]	
Remote Controller		Attached in Indoor Unit				
Outdoor unit		MCA	A	22		
		MOCP	A	37		
		SCCR	kA	5		
		Inverter input	A	15		
		Fan Motor Output	W	74		
		Compressor	Model	SRB172FQHMC-L1		
		Air flow	CFM	1,940		
		Refrigerant Control	Electronic Expansion Valve			
		Defrost Method	Reverse Cycle			
		Sound Pressure Level at cooling	dB (A)	49		
		Sound Pressure Level at heating	dB (A)	52		
		External Finish Color	Ivory Munsell 3Y 7.8/1.1			
		Dimension	W: mm [inch]	950 [37-13/32]		
			D: mm [inch]	330 + 25 [13 + 63/64]		
			H: mm [inch]	943 [37-1/8]		
		Weight Unit	kg [lbs]	70 [155]		
Refrigerant		Type	R454B			
		Charge	kg [lbs,oz]	3.5 [7 lbs + 11 oz]		
		Oil	Model	RM68EH		
			L [oz]	0.7 [23]		
Refrigerant Pipe Size		Gas side O.D.	mm [inch]	ø15.88 [5/8]		
		Liquid side O.D.	mm [inch]	ø9.52 [3/8]		
Refrigerant pipe length		Height difference	Max. 30 m [Max.100 ft]			
		Length	Max. 30 m [Max.100 ft]			
Refrigerant Piping		Not Supplied				
Connection Method		Indoor/Outdoor	Flared			

Notes: 1. Rating conditions (cooling)-Indoor: D.B. 26.7°C (80°F), W.B. 19.4°C (67°F) Outdoor: D.B. 35°C (95°F), W.B. 23.9°C (75°F)
(heating)-Indoor: D.B. 21.1°C (70°F), W.B. 15.6°C (60°F) Outdoor: D.B. 8.3°C (47°F), W.B. 6.1°C (43°F)
2. Rating conditions (heating)-Indoor: D.B. 21.1°C (70°F), W.B. 15.6°C (60°F) Outdoor: D.B. -8.3°C (17°F), W.B. -9.4°C (15°F)

Operating range

		Indoor intake air temperature	Outdoor intake air temperature
Cooling	Maximum	D.B. 32°C (90°F), W.B. 23°C (73°F)	D.B. 46°C (115°F)
	Minimum	D.B. 19°C (66°F), W.B. 15°C (59°F)	D.B. -5°C (23°F) / -18°C (0°F)*
Heating	Maximum	D.B. 28°C (83°F)	D.B. 21°C (70°F), W.B. 15°C (59°F)
	Minimum	D.B. 10°C (50°F)	D.B. -20°C (-4°F), W.B. -20°C (-4°F)

* In case that the wind baffle is installed. (In case that the wind baffle is not installed, the minimum temperature will be -5°C (23°F) DB.)

Model name		Indoor unit	PAA-BA18NL	PAA-BA24NL	PAA-BA30NL	
		Outdoor unit	PUY-AH24NL	PUY-AH24NL	PUY-AH30NL	
Cooling	at 95°F	Max. Capacity	Btu/h	18,500	24,000	31,500
		Rated Capacity	Btu/h	18,000	23,600	31,000
		Min. Capacity	Btu/h	9,500	9,800	10,100
		Total Input	W	1,400	1,960	3,130
		EER2	Btu/h/W	12.8	12.0	9.9
		Moisture Removal	Pints/h	5.1	5.7	7.7
		SHF		0.71	0.75	0.73
		Power factor	%	90	86	89
		SEER2	Btu/h/W	17.9	17.8	16.1
		Heating	at 47°F	Max. Capacity	Btu/h	-
Rated Capacity	Btu/h			-	-	-
Min. Capacity	Btu/h			-	-	-
Total Input	W			-	-	-
COP	W/W			-	-	-
Power factor	%			-	-	-
at 17°F	Rated Capacity		Btu/h	-	-	-
	Total Input		W	-	-	-
	COP		W/W	-	-	-
	HSPF2(IV/V)		Btu/h/W	-	-	-
Power supply	Phase,Cycle,Voltage		1 phase, 60 Hz, 208/230 V			
	Breaker size		25			
Voltage	Indoor - Outdoor S1-S2		AC208 V / 230 V			
	Indoor - Outdoor S2-S3		DC24 V			
	Indoor - Remote controller		DC12 V			
Indoor unit	MCA		A			
	Air flow (Min.-Max.)	DRY(CFM)	424 - 812	551 - 830	700 - 1024	
		WET(CFM)	-			
	Internal Static Pressure		in. WG [Pa]			
			0.3 [75]			
	External Finish		Galvanized steel cabinet - Powder coated Slate Gray			
	Dimensions	W: mm [inch]	445 [17-1/2]			
		D: mm [inch]	551 [21-2/3]			
		H: mm [inch]	696 [27-2/5]			
	Weight Unit	kg [lbs]	26.77 [58.90]	31.50 [69.30]	31.32 [68.90]	
Field Drain pipe size		mm [inch]				
Refrigerant pipe size Gas		mm [inch]				
Refrigerant pipe size Liquid		mm [inch]				
		ø12.7 [1/2]				
		ø6.35 [1/4]				
		ø15.88 [5/8]				
		ø9.52 [3/8]				
Remote Controller		Attached in Indoor Unit				
Outdoor unit	MCA		A			
	MOCP		A			
	SCCR		kA			
	Inverter input		A			
	Fan Motor Output		W			
	Compressor		Model			
	Air flow		CFM			
	Refrigerant Control		SRB172FQHMC-L1			
	Defrost Method		Electronic Expansion Valve			
	Sound Pressure Level at cooling		dB (A)			
	Sound Pressure Level at heating		dB (A)			
	External Finish Color		Ivory Munsell 3Y 7.8/1.1			
	Dimension	W: mm [inch]	950 [37-13/32]			
		D: mm [inch]	330 + 25 [13 + 63/64]			
		H: mm [inch]	943 [37-1/8]			
	Weight Unit	kg [lbs]	70 [155]			
	Refrigerant	Type		R454B		
Charge		kg [lbs,oz]	3.5 [7 lbs + 11 oz]			
		Model	RM68EH			
Oil		L [oz]	0.7 [23]			
Refrigerant Pipe Size	Gas side O.D.	mm [inch]				
	Liquid side O.D.	mm [inch]				
Refrigerant pipe length	Height difference	Max. 30 m [Max.100 ft]				
	Length	Max. 30 m [Max.100 ft]				
Refrigerant Piping		Not Supplied				
Connection Method		Indoor/Outdoor				
		Flared				

Notes: 1. Rating conditions (cooling)-Indoor: D.B. 26.7°C (80°F), W.B. 19.4°C (67°F) Outdoor: D.B. 35°C (95°F), W.B. 23.9°C (75°F)

Operating range

		Indoor intake air temperature		Outdoor intake air temperature	
Cooling	Maximum	D.B. 32°C (90°F), W.B. 23°C (73°F)		D.B. 46°C (115°F)	
	Minimum	D.B. 19°C (66°F), W.B. 15°C (59°F)		D.B. -5°C (23°F) / --28.9°C (-20°F)*	

* In case that the wind baffle is installed. (In case that the wind baffle is not installed, the minimum temperature will be -5°C (23°F) DB.)

PKA-AL12NL/PUZ-AK12NL, PUY-AK12NL

CAPACITY (Btu/h): 12,000 INPUT (kW): 0.81 SHF: 0.73

Table with columns for Indoor intake air (D.B., W.B.), Outdoor intake air (D.B.), and various performance metrics (CA, SHC, SHF, P.C.) for different conditions (20/68, 25/77, 30/86, 35/95, 40/104, 46/115).

PKA-AL18NL/PUZ-AK18NL, PUY-AK18NL

CAPACITY (Btu/h): 18,000 INPUT (kW): 1.63 SHF: 0.6

Table with columns for Indoor intake air (D.B., W.B.), Outdoor intake air (D.B.), and various performance metrics (CA, SHC, SHF, P.C.) for different conditions (20/68, 25/77, 30/86, 35/95, 40/104, 46/115).

Note: CA : Capacity (Btu/h) SHC : Sensible heat capacity (Btu/h) SHF : Sensible heat factor P.C. : Power consumption (kW)
D.B. : Dry-bulb temperature W.B. : Wet-bulb temperature

PKA-AK24NL/PUZ-AH24NL, PUY-AH24NL

CAPACITY (Btu/h): 24,000 INPUT (kW): 1.99 SHF: 0.72

Indoor intake air D.B.(°C)	Indoor intake air D.B.(°F)	Indoor intake air W.B.(°C)	Indoor intake air W.B.(°F)	Outdoor intake air °C/°F D.B.																							
				20/68				25/77				30/86				35/95				40/104				46/115			
				CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.
19	66	16	61	25,146	15,490	0.62	1.32	23,652	14,570	0.62	1.50	21,760	13,404	0.62	1.64	19,967	12,300	0.62	1.77	18,175	11,196	0.62	1.86	16,382	10,092	0.62	1.95
19	66	18	64	27,485	13,633	0.50	1.45	25,992	12,892	0.50	1.63	24,100	11,953	0.50	1.77	22,307	11,064	0.50	1.91	20,515	10,175	0.50	2.00	18,722	9,286	0.50	2.09
20	68	16	61	25,146	16,496	0.66	1.32	23,652	15,516	0.66	1.50	21,760	14,275	0.66	1.64	19,967	13,099	0.66	1.77	18,175	11,923	0.66	1.86	16,382	10,747	0.66	1.95
20	68	18	64	27,485	14,732	0.54	1.45	25,992	13,932	0.54	1.63	24,100	12,917	0.54	1.77	22,307	11,957	0.54	1.91	20,515	10,996	0.54	2.00	18,722	10,035	0.54	2.09
20	68	20	68	28,680	11,931	0.42	1.54	27,485	11,434	0.42	1.67	25,892	10,771	0.42	1.84	24,000	9,984	0.42	1.99	22,108	9,197	0.42	2.09	20,515	8,534	0.42	2.18
22	72	16	61	25,146	18,507	0.74	1.32	23,652	17,408	0.74	1.50	21,760	16,015	0.74	1.64	19,967	14,696	0.74	1.77	18,175	13,377	0.74	1.86	16,382	12,057	0.74	1.95
22	72	18	64	27,485	16,931	0.62	1.45	25,992	16,011	0.62	1.63	24,100	14,845	0.62	1.77	22,307	13,741	0.62	1.91	20,515	12,637	0.62	2.00	18,722	11,533	0.62	2.09
22	72	20	68	28,680	14,226	0.50	1.54	27,485	13,633	0.50	1.67	25,892	12,842	0.50	1.84	24,000	11,904	0.50	1.99	22,108	10,966	0.50	2.09	20,515	10,175	0.50	2.18
24	75	16	61	25,146	20,519	0.82	1.32	23,652	19,300	0.82	1.50	21,760	17,756	0.82	1.64	19,967	16,293	0.82	1.77	18,175	14,831	0.82	1.86	16,382	13,368	0.82	1.95
24	75	18	64	27,485	19,130	0.70	1.45	25,992	18,090	0.70	1.63	24,100	16,773	0.70	1.77	22,307	15,526	0.70	1.91	20,515	14,278	0.70	2.00	18,722	13,031	0.70	2.09
24	75	20	68	28,680	16,520	0.58	1.54	27,485	15,832	0.58	1.67	25,892	14,914	0.58	1.84	24,000	13,824	0.58	1.99	22,108	12,734	0.58	2.09	20,515	11,816	0.58	2.18
24	75	22	72	30,274	13,805	0.46	1.60	29,278	13,351	0.46	1.77	27,485	12,533	0.46	1.93	25,693	11,716	0.46	2.07	23,900	10,899	0.46	2.17	21,909	9,990	0.46	2.24
26	79	16	61	25,146	22,531	0.90	1.32	23,652	21,192	0.90	1.50	21,760	19,497	0.90	1.64	19,967	17,891	0.90	1.77	18,175	16,285	0.90	1.86	16,382	14,679	0.90	1.95
26	79	18	64	27,485	21,329	0.78	1.45	25,992	20,170	0.78	1.63	24,100	18,701	0.78	1.77	22,307	17,310	0.78	1.91	20,515	15,919	0.78	2.00	18,722	14,528	0.78	2.09
26	79	20	68	28,680	18,814	0.66	1.54	27,485	18,030	0.66	1.67	25,892	16,985	0.66	1.84	24,000	15,744	0.66	1.99	22,108	14,503	0.66	2.09	20,515	13,458	0.66	2.18
26	79	22	72	30,274	16,227	0.54	1.60	29,278	15,693	0.54	1.77	27,485	14,732	0.54	1.93	25,693	13,771	0.54	2.07	23,900	12,811	0.54	2.17	21,909	11,743	0.54	2.24
27	81	16	61	25,146	23,537	0.94	1.32	23,652	22,138	0.94	1.50	21,760	20,367	0.94	1.64	19,967	18,690	0.94	1.77	18,175	17,012	0.94	1.86	16,382	15,334	0.94	1.95
27	81	18	64	27,485	22,428	0.82	1.45	25,992	21,209	0.82	1.63	24,100	19,665	0.82	1.77	22,307	18,203	0.82	1.91	20,515	16,740	0.82	2.00	18,722	15,277	0.82	2.09
27	81	20	68	28,680	19,962	0.70	1.54	27,485	19,130	0.70	1.67	25,892	18,021	0.70	1.84	24,000	16,704	0.70	1.99	22,108	15,387	0.70	2.09	20,515	14,278	0.70	2.18
27	81	22	72	30,274	17,438	0.58	1.60	29,278	16,864	0.58	1.77	27,485	15,832	0.58	1.93	25,693	14,799	0.58	2.07	23,900	13,767	0.58	2.17	21,909	12,619	0.58	2.24
28	82	16	61	25,146	24,542	0.98	1.32	23,652	23,084	0.98	1.50	21,760	21,238	0.98	1.64	19,967	19,488	0.98	1.77	18,175	17,739	0.98	1.86	16,382	15,989	0.98	1.95
28	82	18	64	27,485	23,528	0.86	1.45	25,992	22,249	0.86	1.63	24,100	20,629	0.86	1.77	22,307	19,095	0.86	1.91	20,515	17,560	0.86	2.00	18,722	16,026	0.86	2.09
28	82	20	68	28,680	21,109	0.74	1.54	27,485	20,229	0.74	1.67	25,892	19,057	0.74	1.84	24,000	17,664	0.74	1.99	22,108	16,271	0.74	2.09	20,515	15,099	0.74	2.18
28	82	22	72	30,274	18,649	0.62	1.60	29,278	18,035	0.62	1.77	27,485	16,931	0.62	1.93	25,693	15,827	0.62	2.07	23,900	14,723	0.62	2.17	21,909	13,496	0.62	2.24
30	86	16	61	25,146	25,146	1.00	1.32	23,652	23,652	1.00	1.50	21,760	21,760	1.00	1.64	19,967	19,967	1.00	1.77	18,175	18,175	1.00	1.86	16,382	16,382	1.00	1.95
30	86	18	64	27,485	25,726	0.94	1.45	25,992	24,328	0.94	1.63	24,100	22,557	0.94	1.77	22,307	20,879	0.94	1.91	20,515	19,202	0.94	2.00	18,722	17,524	0.94	2.09
30	86	20	68	28,680	23,403	0.82	1.54	27,485	22,428	0.82	1.67	25,892	21,128	0.82	1.84	24,000	19,584	0.82	1.99	22,108	18,040	0.82	2.09	20,515	16,740	0.82	2.18
30	86	22	72	30,274	21,071	0.70	1.60	29,278	20,377	0.70	1.77	27,485	19,130	0.70	1.93	25,693	17,882	0.70	2.07	23,900	16,635	0.70	2.17	21,909	15,248	0.70	2.24
32	90	16	61	25,146	25,146	1.00	1.32	23,652	23,652	1.00	1.50	21,760	21,760	1.00	1.64	19,967	19,967	1.00	1.77	18,175	18,175	1.00	1.86	16,382	16,382	1.00	1.95
32	90	18	64	27,485	27,485	1.00	1.45	25,992	25,992	1.00	1.63	24,100	24,100	1.00	1.77	22,307	22,307	1.00	1.91	20,515	20,515	1.00	2.00	18,722	18,722	1.00	2.09
32	90	20	68	28,680	25,698	0.90	1.54	27,485	24,627	0.90	1.67	25,892	23,199	0.90	1.84	24,000	21,504	0.90	1.99	22,108	19,809	0.90	2.09	20,515	18,381	0.90	2.18
32	90	22	72	30,274	23,493	0.78	1.60	29,278	22,720	0.78	1.77	27,485	21,329	0.78	1.93	25,693	19,938	0.78	2.07	23,900	18,547	0.78	2.17	21,909	17,001	0.78	2.24

PKA-AK30NL/PUZ-AH30NL, PUY-AH30NL

CAPACITY (Btu/h): 30,000 INPUT (kW): 2.95 SHF: 0.62

Indoor intake air D.B.(°C)	Indoor intake air D.B.(°F)	Indoor intake air W.B.(°C)	Indoor intake air W.B.(°F)	Outdoor intake air °C/°F D.B.																							
				20/68				25/77				30/86				35/95				40/104				46/115			
				CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.
19	66	16	61	31,432	16,219	0.52	1.95	29,565	15,256	0.52	2.22	27,884	14,035	0.52	2.43	24,959	12,879	0.52	2.63	22,719	11,723	0.52	2.76	20,478	10,567	0.52	2.90
19	66	18	64	34,357	13,605	0.40	2.16	32,490	12,866	0.40	2.42	30,124	11,929	0.40	2.63	27,884	11,042	0.40	2.83	25,643	10,155	0.40	2.96	23,402	9,267	0.40	3.10
20	68	16	61	31,432	17,476	0.56	1.95	29,565	16,438	0.56	2.22	27,884	15,123	0.56	2.43	24,959	13,877	0.56	2.63	22,719	12,632	0.56	2.76	20,478	11,386	0.56	2.90
20	68	18	64	34,357	14,980	0.44	2.16	32,490	14,165	0.44	2.42	30,124	13,134	0.44	2.63	27,884	12,157	0.44	2.83	25,643	11,180	0.44	2.96	23,402	10,203	0.44	3.10
20	68	20	68	35,851	11,329	0.32	2.28	34,357	10,857	0.32	2.48	32,365	10,227	0.32	2.72	30,000	9,480	0.32	2.95	27,635	8,733	0.32	3.10	25,643	8,103	0.32	3.23
22	72	16	61	31,432	19,991	0.64	1.95	29,565	18,803	0.64	2.22	27,884	17,299	0.64	2.43	24,959	15,874	0.64	2.63	22,719	14,449	0.64	2.76	20,478	13,024	0.64	2.90
22	72	18	64	34,357	17,728	0.52	2.16	32,490	16,765	0.52	2.42	30,124	15,544	0.52	2.63	27,884	14,388	0.52	2.83	25,643	13,232	0.52	2.96	23,402	12,076	0.52	3.10
22	72	20	68	35,851	14,197	0.40	2.28	34,357	13,605	0.40	2.48	32,365	12,817	0.40	2.72	30,000	11,880	0.40	2.95	27,635	10,943	0.40	3.10	25,643	10,155	0.40	3.23
24	75	16	61	31,432	22,506	0.72	1.95	29,565	21,169	0.72	2.22	27,884	19,475	0.72	2.43	24,959	17,871	0.72	2.63	22,719	16,267	0.72	2.76	20,478	14,662	0.72	2.90
24	75	18	64	34,357	20,477	0.60	2.16																				

PCA-AK24NL/PUZ-AH24NL, PUY-AH24NL

CAPACITY (Btu/h): 21,800 INPUT (kW): 1.81 SHF: 0.8

Indoor intake air D.B.(°C)	Indoor intake air D.B.(°F)	Indoor intake air W.B.(°C)	Indoor intake air W.B.(°F)	Outdoor intake air °C/°F D.B.																							
				20/68				25/77				30/86				35/95				40/104				46/115			
				CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.
19	66	16	61	22,841	15,897	0.70	1.20	21,484	14,953	0.70	1.36	19,765	13,757	0.70	1.49	18,137	12,623	0.70	1.61	16,509	11,490	0.70	1.70	14,881	10,357	0.70	1.78
19	66	18	64	24,966	14,380	0.58	1.32	23,609	13,599	0.58	1.49	21,890	12,609	0.58	1.61	20,262	11,671	0.58	1.74	18,634	10,733	0.58	1.82	17,006	9,795	0.58	1.90
20	68	16	61	22,841	16,811	0.74	1.20	21,484	15,812	0.74	1.36	19,765	14,547	0.74	1.49	18,137	13,349	0.74	1.61	16,509	12,151	0.74	1.70	14,881	10,952	0.74	1.78
20	68	18	64	24,966	15,379	0.62	1.32	23,609	14,543	0.62	1.49	21,890	13,485	0.62	1.61	20,262	12,482	0.62	1.74	18,634	11,479	0.62	1.82	17,006	10,476	0.62	1.90
20	68	20	68	26,051	12,922	0.50	1.40	24,966	12,383	0.50	1.52	23,519	11,665	0.50	1.67	21,800	10,813	0.50	1.81	20,081	9,960	0.50	1.90	18,634	9,242	0.50	1.98
22	72	16	61	22,841	18,638	0.82	1.20	21,484	17,531	0.82	1.36	19,765	16,129	0.82	1.49	18,137	14,800	0.82	1.61	16,509	13,471	0.82	1.70	14,881	12,143	0.82	1.78
22	72	18	64	24,966	17,376	0.70	1.32	23,609	16,432	0.70	1.49	21,890	15,236	0.70	1.61	20,262	14,103	0.70	1.74	18,634	12,969	0.70	1.82	17,006	11,836	0.70	1.90
22	72	20	68	26,051	15,006	0.58	1.40	24,966	14,380	0.58	1.52	23,519	13,547	0.58	1.67	21,800	12,557	0.58	1.81	20,081	11,567	0.58	1.90	18,634	10,733	0.58	1.98
24	75	16	61	22,841	20,465	0.90	1.20	21,484	19,250	0.90	1.36	19,765	17,710	0.90	1.49	18,137	16,251	0.90	1.61	16,509	14,972	0.90	1.70	14,881	13,333	0.90	1.78
24	75	18	64	24,966	19,374	0.78	1.32	23,609	18,201	0.78	1.49	21,890	16,987	0.78	1.61	20,262	15,723	0.78	1.74	18,634	14,460	0.78	1.82	17,006	13,197	0.78	1.90
24	75	20	68	26,051	17,090	0.66	1.40	24,966	16,378	0.66	1.52	23,519	15,428	0.66	1.67	21,800	14,301	0.66	1.81	20,081	13,173	0.66	1.90	18,634	12,224	0.66	1.98
24	75	22	72	27,499	14,739	0.54	1.45	26,594	14,254	0.54	1.61	24,966	13,382	0.54	1.75	23,338	12,509	0.54	1.88	21,710	11,636	0.54	1.98	19,900	10,667	0.54	2.03
26	79	16	61	22,841	22,293	0.98	1.20	21,484	20,968	0.98	1.36	19,765	19,291	0.98	1.49	18,137	17,702	0.98	1.61	16,509	16,113	0.98	1.70	14,881	14,524	0.98	1.78
26	79	18	64	24,966	21,371	0.86	1.32	23,609	20,209	0.86	1.49	21,890	18,738	0.86	1.61	20,262	17,344	0.86	1.74	18,634	15,951	0.86	1.82	17,006	14,557	0.86	1.90
26	79	20	68	26,051	19,174	0.74	1.40	24,966	18,375	0.74	1.52	23,519	17,310	0.74	1.67	21,800	16,045	0.74	1.81	20,081	14,780	0.74	1.90	18,634	13,715	0.74	1.98
26	79	22	72	27,499	16,939	0.62	1.45	26,594	16,382	0.62	1.61	24,966	15,379	0.62	1.75	23,338	14,376	0.62	1.88	21,710	13,373	0.62	1.98	19,900	12,259	0.62	2.03
27	81	16	61	22,841	22,841	1.00	1.20	21,484	21,484	1.00	1.36	19,765	19,765	1.00	1.49	18,137	18,137	1.00	1.61	16,509	16,509	1.00	1.70	14,881	14,881	1.00	1.78
27	81	18	64	24,966	22,370	0.90	1.32	23,609	21,154	0.90	1.49	21,890	19,614	0.90	1.61	20,262	18,155	0.90	1.74	18,634	16,696	0.90	1.82	17,006	15,237	0.90	1.90
27	81	20	68	26,051	20,216	0.78	1.40	24,966	19,374	0.78	1.52	23,519	18,250	0.78	1.67	21,800	16,917	0.78	1.81	20,081	15,583	0.78	1.90	18,634	14,460	0.78	1.98
27	81	22	72	27,499	18,039	0.66	1.45	26,594	17,446	0.66	1.61	24,966	16,378	0.66	1.75	23,338	15,310	0.66	1.88	21,710	14,241	0.66	1.98	19,900	13,055	0.66	2.03
28	82	16	61	22,841	22,841	1.00	1.20	21,484	21,484	1.00	1.36	19,765	19,765	1.00	1.49	18,137	18,137	1.00	1.61	16,509	16,509	1.00	1.70	14,881	14,881	1.00	1.78
28	82	18	64	24,966	23,368	0.94	1.32	23,609	22,098	0.94	1.49	21,890	20,489	0.94	1.61	20,262	18,965	0.94	1.74	18,634	17,441	0.94	1.82	17,006	15,917	0.94	1.90
28	82	20	68	26,051	21,258	0.82	1.40	24,966	20,372	0.82	1.52	23,519	19,191	0.82	1.67	21,800	17,789	0.82	1.81	20,081	16,386	0.82	1.90	18,634	15,205	0.82	1.98
28	82	22	72	27,499	19,139	0.70	1.45	26,594	18,510	0.70	1.61	24,966	17,376	0.70	1.75	23,338	16,243	0.70	1.88	21,710	15,110	0.70	1.98	19,900	13,851	0.70	2.03
30	86	16	61	22,841	22,841	1.00	1.20	21,484	21,484	1.00	1.36	19,765	19,765	1.00	1.49	18,137	18,137	1.00	1.61	16,509	16,509	1.00	1.70	14,881	14,881	1.00	1.78
30	86	18	64	24,966	24,966	1.00	1.32	23,609	23,609	1.00	1.49	21,890	21,890	1.00	1.61	20,262	20,262	1.00	1.74	18,634	18,634	1.00	1.82	17,006	17,006	1.00	1.90
30	86	20	68	26,051	23,342	0.90	1.40	24,966	22,370	0.90	1.52	23,519	21,073	0.90	1.67	21,800	19,533	0.90	1.81	20,081	17,993	0.90	1.90	18,634	16,696	0.90	1.98
30	86	22	72	27,499	21,339	0.78	1.45	26,594	20,637	0.78	1.61	24,966	19,374	0.78	1.75	23,338	18,110	0.78	1.88	21,710	16,847	0.78	1.98	19,900	15,443	0.78	2.03
32	90	16	61	22,841	22,841	1.00	1.20	21,484	21,484	1.00	1.36	19,765	19,765	1.00	1.49	18,137	18,137	1.00	1.61	16,509	16,509	1.00	1.70	14,881	14,881	1.00	1.78
32	90	18	64	24,966	24,966	1.00	1.32	23,609	23,609	1.00	1.49	21,890	21,890	1.00	1.61	20,262	20,262	1.00	1.74	18,634	18,634	1.00	1.82	17,006	17,006	1.00	1.90
32	90	20	68	26,051	25,426	0.98	1.40	24,966	24,367	0.98	1.52	23,519	22,954	0.98	1.67	21,800	21,277	0.98	1.81	20,081	19,599	0.98	1.90	18,634	18,187	0.98	1.98
32	90	22	72	27,499	23,539	0.86	1.45	26,594	22,765	0.86	1.61	24,966	21,371	0.86	1.75	23,338	19,977	0.86	1.88	21,710	18,583	0.86	1.98	19,900	17,035	0.86	2.03

PCA-AK30NL/PUZ-AH30NL, PUY-AH30NL

CAPACITY (Btu/h): 28,200 INPUT (kW): 2.85 SHF: 0.62

Indoor intake air D.B.(°C)	Indoor intake air D.B.(°F)	Indoor intake air W.B.(°C)	Indoor intake air W.B.(°F)	Outdoor intake air °C/°F D.B.																							
				20/68				25/77				30/86				35/95				40/104				46/115			
				CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.
19	66	16	61	29,546	15,246	0.52	1.89	27,791	14,340	0.52	2.15	25,568	13,193	0.52	2.34	23,462	12,106	0.52	2.54	21,356	11,019	0.52	2.67	19,249	9,933	0.52	2.80
19	66	18	64	32,295	12,789	0.40	2.08	30,540	12,094	0.40	2.34	28,317	11,214	0.40	2.54	26,211	10,379	0.40	2.73	24,105	9,545	0.40	2.86	21,998	8,711	0.40	2.99
20	68	16	61	29,546	16,428	0.56	1.89	27,791	15,452	0.56	2.15	25,568	14,216	0.56	2.34	23,462	13,045	0.56	2.54	21,356	11,874	0.56	2.67	19,249	10,703	0.56	2.80
20	68	18	64	32,295	14,081	0.44	2.08	30,540	13,316	0.44	2.34	28,317	12,346	0.44	2.54	26,211	11,428	0.44	2.73	24,105	10,510	0.44	2.86	21,998	9,591	0.44	2.99
20	68	20	68	33,700	10,649	0.32	2.20	32,295	10,205	0.32	2.39	30,423	9,614	0.32	2.63	28,200	8,911	0.32	2.85	25,977	8,209	0.32	2.99	24,105	7,617	0.32	3.12
22	72	16	61	29,546	18,792	0.64	1.89	27,791	17,675	0.64	2.15	25,568	16,261	0.64	2.34	23,462	14,922	0.64	2.54	21,356	13,582	0.64	2.67	19,249	12,243	0.64	2.80
22	72	18	64	32,295	16,664	0.52	2.08	30,540	15,759	0.52	2.34	28,317	14,612	0.52	2.54	26,211	13,525	0.52	2.73	24,105	12,438	0.52	2.86	21,998	11,351	0.52	2.99
22	72	20	68	33,700	13,345	0.40	2.20	32,295	12,789	0.40	2.39	30,423	12,048	0.40	2.63	28,200	11,167	0.40	2.85	25,977	10,287	0.40	2.99	24,105	9,545	0.40	3.12
24	75	16	61	29,546	21,155	0.72	1.89	27,791	19,899	0.72	2.15	25,568	18,307	0.72	2.34	23,462	16,799	0.72	2.54	21,356	15,291	0.72	2.67	19,249	13,783	0.72	2.80
24	75	18	64	32,295	19,248	0.60	2.08	30,540	18,202	0.60	2.34																

PEAD-AA12NL/PUZ-AK12NL, PUY-AK12NL

CAPACITY (Btu/h): 12,000 INPUT (kW): 0.83 SHF: 0.73

Table with 20 columns: Indoor intake air (D.B., W.B.), Outdoor intake air (20/68, 25/77, 30/86, 35/95, 40/104, 46/115) with sub-columns CA, SHC, SHF, P.C.

PEAD-AA18NL/PUZ-AK18NL, PUY-AK18NL

CAPACITY (Btu/h): 18,000 INPUT (kW): 1.53 SHF: 0.65

Table with 20 columns: Indoor intake air (D.B., W.B.), Outdoor intake air (20/68, 25/77, 30/86, 35/95, 40/104, 46/115) with sub-columns CA, SHC, SHF, P.C.

Note: CA : Capacity (Btu/h) D.B. : Dry-bulb temperature SHC : Sensible heat capacity (Btu/h) W.B. : Wet-bulb temperature SHF : Sensible heat factor P.C. : Power consumption (kW)



PEAD-AA24NL/PUZ-AH24NL, PUY-AH24NL

CAPACITY (Btu/h): 21,200 INPUT (kW): 1.76 SHF: 0.85

Table with columns for Indoor intake air (D.B., W.B.), Outdoor intake air (D.B.), and performance metrics (CA, SHC, SHF, P.C.) for various configurations (20/68, 25/77, 30/86, 35/95, 40/104, 46/115).

PEAD-AA30NL/PUZ-AH30NL, PUY-AH30NL

CAPACITY (Btu/h): 27,000 INPUT (kW): 2.72 SHF: 0.61

Table with columns for Indoor intake air (D.B., W.B.), Outdoor intake air (D.B.), and performance metrics (CA, SHC, SHF, P.C.) for various configurations (20/68, 25/77, 30/86, 35/95, 40/104, 46/115).

Note: CA : Capacity (Btu/h) D.B. : Dry-bulb temperature SHC : Sensible heat capacity (Btu/h) W.B. : Wet-bulb temperature SHF : Sensible heat factor P.C. : Power consumption (kW)

PVA-AA12NL/PUZ-AK12NL, PUY-AK12NL

CAPACITY (Btu/h): 12,000 INPUT (kW): 0.84 SHF: 0.66

Indoor intake air D.B.(°C)	Indoor intake air D.B.(°F)	Indoor intake air W.B.(°C)	Indoor intake air W.B.(°F)	Outdoor intake air °C/°F D.B.																							
				20/68				25/77				30/86				35/95				40/104				46/115			
				CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.
19	66	16	61	12,573	6,991	0.56	0.56	11,826	6,575	0.56	0.63	10,880	6,049	0.56	0.69	9,984	5,551	0.56	0.75	9,087	5,053	0.56	0.79	8,191	4,554	0.56	0.83
19	66	18	64	13,743	5,992	0.44	0.61	12,996	5,666	0.44	0.69	12,050	5,254	0.44	0.75	11,154	4,863	0.44	0.81	10,257	4,472	0.44	0.84	9,361	4,081	0.44	0.88
20	68	16	61	12,573	7,493	0.60	0.56	11,826	7,048	0.60	0.63	10,880	6,484	0.60	0.69	9,984	5,950	0.60	0.75	9,087	5,416	0.60	0.79	8,191	4,882	0.60	0.83
20	68	18	64	13,743	6,542	0.48	0.61	12,996	6,186	0.48	0.69	12,050	5,736	0.48	0.75	11,154	5,309	0.48	0.81	10,257	4,882	0.48	0.84	9,361	4,456	0.48	0.88
20	68	20	68	14,340	5,105	0.36	0.65	13,743	4,892	0.36	0.71	12,946	4,609	0.36	0.77	12,000	4,272	0.36	0.84	11,054	3,935	0.36	0.88	10,257	3,652	0.36	0.92
22	72	16	61	12,573	8,499	0.68	0.56	11,826	7,994	0.68	0.63	10,880	7,355	0.68	0.69	9,984	6,749	0.68	0.75	9,087	6,143	0.68	0.79	8,191	5,537	0.68	0.83
22	72	18	64	13,743	7,641	0.56	0.61	12,996	7,226	0.56	0.69	12,050	6,700	0.56	0.75	11,154	6,201	0.56	0.81	10,257	5,703	0.56	0.84	9,361	5,205	0.56	0.88
22	72	20	68	14,340	6,252	0.44	0.65	13,743	5,992	0.44	0.71	12,946	5,644	0.44	0.77	12,000	5,232	0.44	0.84	11,054	4,820	0.44	0.88	10,257	4,472	0.44	0.92
24	75	16	61	12,573	9,505	0.76	0.56	11,826	8,940	0.76	0.63	10,880	8,225	0.76	0.69	9,984	7,548	0.76	0.75	9,087	6,870	0.76	0.79	8,191	6,193	0.76	0.83
24	75	18	64	13,743	8,740	0.64	0.61	12,996	8,265	0.64	0.69	12,050	7,664	0.64	0.75	11,154	7,094	0.64	0.81	10,257	6,524	0.64	0.84	9,361	5,954	0.64	0.88
24	75	20	68	14,340	7,400	0.52	0.65	13,743	7,091	0.52	0.71	12,946	6,680	0.52	0.77	12,000	6,192	0.52	0.84	11,054	5,704	0.52	0.88	10,257	5,293	0.52	0.92
24	75	22	72	15,137	5,994	0.40	0.68	14,639	5,797	0.40	0.75	13,743	5,442	0.40	0.81	12,846	5,087	0.40	0.87	11,950	4,732	0.40	0.92	10,954	4,338	0.40	0.94
26	79	16	61	12,573	10,511	0.84	0.56	11,826	9,887	0.84	0.63	10,880	9,096	0.84	0.69	9,984	8,346	0.84	0.75	9,087	7,597	0.84	0.79	8,191	6,848	0.84	0.83
26	79	18	64	13,743	9,840	0.72	0.61	12,996	9,305	0.72	0.69	12,050	8,628	0.72	0.75	11,154	7,986	0.72	0.81	10,257	7,344	0.72	0.84	9,361	6,702	0.72	0.88
26	79	20	68	14,340	8,547	0.60	0.65	13,743	8,191	0.60	0.71	12,946	7,716	0.60	0.77	12,000	7,152	0.60	0.84	11,054	6,588	0.60	0.88	10,257	6,113	0.60	0.92
26	79	22	72	15,137	7,205	0.48	0.68	14,639	6,968	0.48	0.75	13,743	6,542	0.48	0.81	12,846	6,115	0.48	0.87	11,950	5,688	0.48	0.92	10,954	5,214	0.48	0.94
27	81	16	61	12,573	11,014	0.88	0.56	11,826	10,360	0.88	0.63	10,880	9,531	0.88	0.69	9,984	8,746	0.88	0.75	9,087	7,961	0.88	0.79	8,191	7,175	0.88	0.83
27	81	18	64	13,743	10,390	0.76	0.61	12,996	9,825	0.76	0.69	12,050	9,110	0.76	0.75	11,154	8,432	0.76	0.81	10,257	7,754	0.76	0.84	9,361	7,077	0.76	0.88
27	81	20	68	14,340	9,120	0.64	0.65	13,743	8,740	0.64	0.71	12,946	8,234	0.64	0.77	12,000	7,632	0.64	0.84	11,054	7,030	0.64	0.88	10,257	6,524	0.64	0.92
27	81	22	72	15,137	7,811	0.52	0.68	14,639	7,554	0.52	0.75	13,743	7,091	0.52	0.81	12,846	6,629	0.52	0.87	11,950	6,166	0.52	0.92	10,954	5,652	0.52	0.94
28	82	16	61	12,573	11,517	0.92	0.56	11,826	10,833	0.92	0.63	10,880	9,966	0.92	0.69	9,984	9,145	0.92	0.75	9,087	8,324	0.92	0.79	8,191	7,503	0.92	0.83
28	82	18	64	13,743	10,939	0.80	0.61	12,996	10,345	0.80	0.69	12,050	9,592	0.80	0.75	11,154	8,878	0.80	0.81	10,257	8,165	0.80	0.84	9,361	7,451	0.80	0.88
28	82	20	68	14,340	9,694	0.68	0.65	13,743	9,290	0.68	0.71	12,946	8,752	0.68	0.77	12,000	8,112	0.68	0.84	11,054	7,472	0.68	0.88	10,257	6,934	0.68	0.92
28	82	22	72	15,137	8,416	0.56	0.68	14,639	8,139	0.56	0.75	13,743	7,641	0.56	0.81	12,846	7,143	0.56	0.87	11,950	6,644	0.56	0.92	10,954	6,091	0.56	0.94
30	86	16	61	12,573	12,523	1.00	0.56	11,826	11,779	1.00	0.63	10,880	10,836	1.00	0.69	9,984	9,944	1.00	0.75	9,087	9,051	1.00	0.79	8,191	8,158	1.00	0.83
30	86	18	64	13,743	12,039	0.88	0.61	12,996	11,384	0.88	0.69	12,050	10,556	0.88	0.75	11,154	9,770	0.88	0.81	10,257	8,985	0.88	0.84	9,361	8,200	0.88	0.88
30	86	20	68	14,340	10,841	0.76	0.65	13,743	10,390	0.76	0.71	12,946	9,787	0.76	0.77	12,000	9,072	0.76	0.84	11,054	8,357	0.76	0.88	10,257	7,754	0.76	0.92
30	86	22	72	15,137	9,627	0.64	0.68	14,639	9,310	0.64	0.75	13,743	8,740	0.64	0.81	12,846	8,170	0.64	0.87	11,950	7,600	0.64	0.92	10,954	6,967	0.64	0.94
32	90	16	61	12,573	12,573	1.00	0.56	11,826	11,826	1.00	0.63	10,880	10,880	1.00	0.69	9,984	9,984	1.00	0.75	9,087	9,087	1.00	0.79	8,191	8,191	1.00	0.83
32	90	18	64	13,743	13,138	0.96	0.61	12,996	12,424	0.96	0.69	12,050	11,520	0.96	0.75	11,154	10,663	0.96	0.81	10,257	9,806	0.96	0.84	9,361	8,949	0.96	0.88
32	90	20	68	14,340	11,988	0.84	0.65	13,743	11,489	0.84	0.71	12,946	10,823	0.84	0.77	12,000	10,032	0.84	0.84	11,054	9,241	0.84	0.88	10,257	8,575	0.84	0.92
32	90	22	72	15,137	10,838	0.72	0.68	14,639	10,482	0.72	0.75	13,743	9,840	0.72	0.81	12,846	9,198	0.72	0.87	11,950	8,556	0.72	0.92	10,954	7,843	0.72	0.94

PVA-AA18NL/PUZ-AK18NL, PUY-AK18NL

CAPACITY (Btu/h): 18,000 INPUT (kW): 1.53 SHF: 0.78

Indoor intake air D.B.(°C)	Indoor intake air D.B.(°F)	Indoor intake air W.B.(°C)	Indoor intake air W.B.(°F)	Outdoor intake air °C/°F D.B.																							
				20/68				25/77				30/86				35/95				40/104				46/115			
				CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.
19	66	16	61	18,859	12,749	0.68	1.01	17,739	11,992	0.68	1.15	16,320	11,032	0.68	1.26	14,976	10,124	0.68	1.36	13,631	9,215	0.68	1.43	12,287	8,306	0.68	1.50
19	66	18	64	20,614	11,461	0.56	1.12	19,494	10,839	0.56	1.26	18,075	10,050	0.56	1.36	16,730	9,302	0.56	1.47	15,386	8,555	0.56	1.54	14,041	7,807	0.56	1.61
20	68	16	61	18,859	13,503	0.72	1.01	17,739	12,701	0.72	1.15	16,320	11,685	0.72	1.26	14,976	10,723	0.72	1.36	13,631	9,760	0.72	1.43	12,287	8,797	0.72	1.50
20	68	18	64	20,614	12,286	0.60	1.12	19,494	11,618	0.60	1.26	18,075	10,773	0.60	1.36	16,730	9,971	0.60	1.47	15,386	9,170	0.60	1.54	14,041	8,369	0.60	1.61
20	68	20	68	21,510	10,239	0.48	1.18	20,614	9,812	0.48	1.29	19,419	9,243	0.48	1.41	18,000	8,568	0.48	1.53	16,581	7,893	0.48	1.61	15,386	7,324	0.48	1.68
22	72	16	61	18,859	15,012	0.80	1.01	17,739	14,120	0.80	1.15	16,320	12,911	0.80	1.26	14,976	11,921	0.80	1.36	13,631	10,850	0.80	1.43	12,287	9,780	0.80	1.50
22	72	18	64	20,614	13,935	0.68	1.12	19,494	13,178	0.68	1.26	18,075	12,118	0.68	1.36	16,730	11,310	0.68	1.47	15,386	10,401	0.68	1.54	14,041	9,492	0.68	1.61
22	72	20	68	21,510	11,960	0.56	1.18	20,614	11,461	0.56	1.29	19,419	10,797	0.56	1.41	18,000	10,008	0.56	1.53	16,581	9,219	0.56	1.61	15,386	8,555	0.56	1.68
24	75	16	61	18,859	16,521	0.88	1.01	17,739	15,539	0.88	1.15	16,320	14,296	0.88	1.26	14,976	13,119	0.88	1.36	13,631	11,941	0.88	1.43	12,287	10,763	0.88	1.50
24	75	18	64	20,614	15,584	0.76	1.12	19,494	14,737	0.76	1.26	18,075	13,664	0.76	1.36	16,730	12,648	0.76	1.47	15,386	11,632	0.76	1.54	14,041	10,615	0.76	1.61
24	75	20																									

PVA-AA24NL/PUZ-AH24NL, PUY-AH24NL

CAPACITY (Btu/h): 23,400 INPUT (kW): 1.94 SHF: 0.86

Table with 4 columns for indoor intake air (D.B., W.B., D.B., W.B.) and 16 columns for outdoor intake air conditions (20/68, 25/77, 30/86, 35/95, 40/104, 46/115) with sub-columns for CA, SHC, SHF, P.C.

PVA-AA30NL/PUZ-AH30NL, PUY-AH30NL

CAPACITY (Btu/h): 30,000 INPUT (kW): 3.03 SHF: 0.62

Table with 4 columns for indoor intake air (D.B., W.B., D.B., W.B.) and 16 columns for outdoor intake air conditions (20/68, 25/77, 30/86, 35/95, 40/104, 46/115) with sub-columns for CA, SHC, SHF, P.C.

Note: CA : Capacity (Btu/h) SHC : Sensible heat capacity (Btu/h) SHF : Sensible heat factor P.C. : Power consumption (kW) D.B. : Dry-bulb temperature W.B. : Wet-bulb temperature

PAA-A/BA18NL/PUZ-AH24NL, PUY-AH24NL

CAPACITY (Btu/h): 18,000 INPUT (kW): 1.4 SHF: 0.71

Indoor Intake Air				Outdoor Intake Air °C/°F D.B.																							
D.B.(°C)	D.B.(°F)	W.B.(°C)	W.B.(°F)	20/68				25/77				30/86				35/95				40/104				46/115			
				CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.
19	66	16	61	18,859	11,429	0.61	0.93	17,739	10,750	0.61	1.05	16,320	9,890	0.61	1.15	14,976	9,075	0.61	1.25	13,631	8,261	0.61	1.31	12,287	7,446	0.61	1.38
19	66	18	64	20,614	10,018	0.49	1.02	19,494	9,474	0.49	1.15	18,075	8,784	0.49	1.25	16,730	8,131	0.49	1.34	15,386	7,478	0.49	1.41	14,041	6,824	0.49	1.47
20	68	16	61	18,859	12,183	0.65	0.93	17,739	11,459	0.65	1.05	16,320	10,543	0.65	1.15	14,976	9,674	0.65	1.25	13,631	8,806	0.65	1.31	12,287	7,937	0.65	1.38
20	68	18	64	20,614	10,843	0.53	1.02	19,494	10,254	0.53	1.15	18,075	9,507	0.53	1.25	16,730	8,800	0.53	1.34	15,386	8,093	0.53	1.41	14,041	7,386	0.53	1.47
20	68	20	68	21,510	8,733	0.41	1.08	20,614	8,369	0.41	1.18	19,419	7,884	0.41	1.29	18,000	7,308	0.41	1.40	16,581	6,732	0.41	1.47	15,386	6,247	0.41	1.53
22	72	16	61	18,859	13,692	0.73	0.93	17,739	12,879	0.73	1.05	16,320	11,848	0.73	1.15	14,976	10,872	0.73	1.25	13,631	9,896	0.73	1.31	12,287	8,920	0.73	1.38
22	72	18	64	20,614	12,492	0.61	1.02	19,494	11,813	0.61	1.15	18,075	10,953	0.61	1.25	16,730	10,139	0.61	1.34	15,386	9,324	0.61	1.41	14,041	8,509	0.61	1.47
22	72	20	68	21,510	10,454	0.49	1.08	20,614	10,018	0.49	1.18	19,419	9,438	0.49	1.29	18,000	8,748	0.49	1.40	16,581	8,058	0.49	1.47	15,386	7,478	0.49	1.53
24	75	16	61	18,859	15,201	0.81	0.93	17,739	14,298	0.81	1.05	16,320	13,154	0.81	1.15	14,976	12,070	0.81	1.25	13,631	10,987	0.81	1.31	12,287	9,903	0.81	1.38
24	75	18	64	20,614	14,141	0.69	1.02	19,494	13,373	0.69	1.15	18,075	12,399	0.69	1.25	16,730	11,477	0.69	1.34	15,386	10,555	0.69	1.41	14,041	9,632	0.69	1.47
24	75	20	68	21,510	12,175	0.57	1.08	20,614	11,668	0.57	1.18	19,419	10,991	0.57	1.29	18,000	10,188	0.57	1.40	16,581	9,385	0.57	1.47	15,386	8,708	0.57	1.53
24	75	22	72	22,705	10,127	0.45	1.13	21,959	9,793	0.45	1.25	20,614	9,194	0.45	1.36	19,270	8,594	0.45	1.46	17,925	7,995	0.45	1.53	16,432	7,328	0.45	1.57
26	79	16	61	18,859	16,709	0.89	0.93	17,739	15,717	0.89	1.05	16,320	14,460	0.89	1.15	14,976	13,268	0.89	1.25	13,631	12,077	0.89	1.31	12,287	10,886	0.89	1.38
26	79	18	64	20,614	15,790	0.77	1.02	19,494	14,932	0.77	1.15	18,075	13,845	0.77	1.25	16,730	12,815	0.77	1.34	15,386	11,786	0.77	1.41	14,041	10,756	0.77	1.47
26	79	20	68	21,510	13,896	0.65	1.08	20,614	13,317	0.65	1.18	19,419	12,545	0.65	1.29	18,000	11,628	0.65	1.40	16,581	10,711	0.65	1.47	15,386	9,939	0.65	1.53
26	79	22	72	22,705	11,943	0.53	1.13	21,959	11,550	0.53	1.25	20,614	10,843	0.53	1.36	19,270	10,136	0.53	1.46	17,925	9,429	0.53	1.53	16,432	8,643	0.53	1.57
27	81	16	61	18,859	17,464	0.93	0.93	17,739	16,426	0.93	1.05	16,320	15,112	0.93	1.15	14,976	13,867	0.93	1.25	13,631	12,622	0.93	1.31	12,287	11,378	0.93	1.38
27	81	18	64	20,614	16,615	0.81	1.02	19,494	15,712	0.81	1.15	18,075	14,568	0.81	1.25	16,730	13,485	0.81	1.34	15,386	12,401	0.81	1.41	14,041	11,317	0.81	1.47
27	81	20	68	21,510	14,756	0.69	1.08	20,614	14,141	0.69	1.18	19,419	13,321	0.69	1.29	18,000	12,348	0.69	1.40	16,581	11,375	0.69	1.47	15,386	10,555	0.69	1.53
27	81	22	72	22,705	12,851	0.57	1.13	21,959	12,429	0.57	1.25	20,614	11,668	0.57	1.36	19,270	10,907	0.57	1.46	17,925	10,146	0.57	1.53	16,432	9,300	0.57	1.57
28	82	16	61	18,859	18,218	0.97	0.93	17,739	17,136	0.97	1.05	16,320	16,765	0.97	1.15	14,976	14,466	0.97	1.25	13,631	13,168	0.97	1.31	12,287	11,869	0.97	1.38
28	82	18	64	20,614	17,440	0.85	1.02	19,494	16,492	0.85	1.15	18,075	15,291	0.85	1.25	16,730	14,154	0.85	1.34	15,386	13,016	0.85	1.41	14,041	11,879	0.85	1.47
28	82	20	68	21,510	15,617	0.73	1.08	20,614	14,966	0.73	1.18	19,419	14,098	0.73	1.29	18,000	13,068	0.73	1.40	16,581	12,038	0.73	1.47	15,386	11,170	0.73	1.53
28	82	22	72	22,705	13,759	0.61	1.13	21,959	13,307	0.61	1.25	20,614	12,492	0.61	1.36	19,270	11,677	0.61	1.46	17,925	10,863	0.61	1.53	16,432	9,958	0.61	1.57
30	86	16	61	18,859	18,859	1.00	0.93	17,739	17,739	1.00	1.05	16,320	16,320	1.00	1.15	14,976	14,976	1.00	1.25	13,631	13,631	1.00	1.31	12,287	12,287	1.00	1.38
30	86	18	64	20,614	19,089	0.93	1.02	19,494	18,051	0.93	1.15	18,075	16,737	0.93	1.25	16,730	15,492	0.93	1.34	15,386	14,247	0.93	1.41	14,041	13,002	0.93	1.47
30	86	20	68	21,510	17,337	0.81	1.08	20,614	16,615	0.81	1.18	19,419	15,652	0.81	1.29	18,000	14,508	0.81	1.40	16,581	13,364	0.81	1.47	15,386	12,401	0.81	1.53
30	86	22	72	22,705	15,576	0.69	1.13	21,959	15,064	0.69	1.25	20,614	14,141	0.69	1.36	19,270	13,219	0.69	1.46	17,925	12,297	0.69	1.53	16,432	11,272	0.69	1.57
32	90	16	61	18,859	18,859	1.00	0.93	17,739	17,739	1.00	1.05	16,320	16,320	1.00	1.15	14,976	14,976	1.00	1.25	13,631	13,631	1.00	1.31	12,287	12,287	1.00	1.38
32	90	18	64	20,614	20,614	1.00	1.02	19,494	19,494	1.00	1.15	18,075	18,075	1.00	1.25	16,730	16,730	1.00	1.34	15,386	15,386	1.00	1.41	14,041	14,041	1.00	1.47
32	90	20	68	21,510	19,058	0.89	1.08	20,614	18,264	0.89	1.18	19,419	17,205	0.89	1.29	18,000	15,948	0.89	1.40	16,581	14,691	0.89	1.47	15,386	13,632	0.89	1.53
32	90	22	72	22,705	17,392	0.77	1.13	21,959	16,820	0.77	1.25	20,614	15,790	0.77	1.36	19,270	14,761	0.77	1.46	17,925	13,731	0.77	1.53	16,432	12,587	0.77	1.57

PAA-A/BA24NL/PUZ-AH24NL, PUY-AH24NL

CAPACITY (Btu/h): 23,600 INPUT (kW): 1.96 SHF: 0.75

Indoor Intake Air				Outdoor Intake Air °C/°F D.B.																							
D.B.(°C)	D.B.(°F)	W.B.(°C)	W.B.(°F)	20/68				25/77				30/86				35/95				40/104				46/115			
				CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.
19	66	16	61	24,727	15,974	0.65	1.30	23,258	15,025	0.65	1.48	21,397	13,823	0.65	1.61	19,635	12,684	0.65	1.75	17,872	11,545	0.65	1.84	16,109	10,407	0.65	1.93
19	66	18	64	27,027	14,216	0.53	1.43	25,559	13,444	0.53	1.61	23,698	12,465	0.53	1.75	21,935	11,538	0.53	1.88	20,173	10,611	0.53	1.97	18,410	9,684	0.53	2.06
20	68	16	61	24,727	16,963	0.69	1.30	23,258	15,955	0.69	1.48	21,397	14,679	0.69	1.61	19,635	13,469	0.69	1.75	17,872	12,260	0.69	1.84	16,109	11,051	0.69	1.93
20	68	18	64	27,027	15,298	0.57	1.43	25,559	14,466	0.57	1.61	23,698	13,413	0.57	1.75	21,935	12,415	0.57	1.88	20,173	11,418	0.57	1.97	18,410	10,420	0.57	2.06
20	68	20	68	28,202	12,578	0.45	1.51	27,027	12,054	0.45	1.65	25,461	11,355	0.45	1.81	23,600	10,526	0.45	1.96	21,739	9,696	0.45	2.06	20,173	8,997	0.45	2.15
22	72	16	61	24,727	18,941	0.77	1.30	23,258	17,816	0.77	1.48	21,397	16,390	0.77	1.61	19,635	15,040	0.77	1.75	17,872	13,690	0.77	1.84	16,109	12,340	0.77	1.93
22	72	18	64	27,027	17,460	0.65	1.43	25,559	16,511	0.65	1.61	23,698	15,309	0.65	1.75	21,935	14,170	0.65	1.88	20,173	13,032	0.65	1.97	18,410	11,893	0.65	2.06
22	72	20	68	28,202	14,835	0.53	1.51	27,027	14,216	0.53	1.65	25,461	13,392	0.53	1.81	23,600	12,414	0.53	1.96	21,739	11,435	0.53	2.06	20,173	10,611	0.53	2.15
24	75	16	61	24,727	20,919	0.85	1.30	23,258	19,676	0.85	1.48	21,397	18,102	0.85	1.61	19,635	16,611	0.85	1.75	17,872	15,120	0.85	1.84	16,109	13,629	0.85	1.93
24	75	18	64	27,027	19,622	0.73	1.43	25,559	18,555	0.73	1.61	23,698	17,205	0.73	1.75	2											

PAA-A/BA30NL/PUZ-AH30NL, PUY-AH30NL

CAPACITY (Btu/h): 31,000 INPUT (kW): 3.13 SHF: 0.73

Indoor intake air D.B.(°C)	Indoor intake air D.B.(°F)	Indoor intake air W.B.(°C)	Indoor intake air W.B.(°F)	Outdoor intake air °C/°F D.B.																							
				20/68				25/77				30/86				35/95				40/104				46/115			
				CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.
19	66	16	61	32,480	20,333	0.63	2.07	30,551	19,125	0.63	2.36	28,107	17,595	0.63	2.57	25,791	16,145	0.63	2.79	23,476	14,696	0.63	2.93	21,161	13,247	0.63	3.07
19	66	18	64	35,502	17,964	0.51	2.29	33,573	16,988	0.51	2.57	31,129	15,751	0.51	2.79	28,813	14,580	0.51	3.00	26,498	13,408	0.51	3.14	24,183	12,236	0.51	3.29
20	68	16	61	32,480	21,632	0.67	2.07	30,551	20,347	0.67	2.36	28,107	18,719	0.67	2.57	25,791	17,177	0.67	2.79	23,476	15,635	0.67	2.93	21,161	14,093	0.67	3.07
20	68	18	64	35,502	19,384	0.55	2.29	33,573	18,331	0.55	2.57	31,129	16,996	0.55	2.79	28,813	15,732	0.55	3.00	26,498	14,468	0.55	3.14	24,183	13,204	0.55	3.29
20	68	20	68	37,046	15,781	0.43	2.42	35,502	15,124	0.43	2.63	33,444	14,247	0.43	2.89	31,000	13,206	0.43	3.13	28,556	12,165	0.43	3.29	26,498	11,288	0.43	3.43
22	72	16	61	32,480	24,230	0.75	2.07	30,551	22,791	0.75	2.36	28,107	20,968	0.75	2.57	25,791	19,240	0.75	2.79	23,476	17,513	0.75	2.93	21,161	15,786	0.75	3.07
22	72	18	64	35,502	22,224	0.63	2.29	33,573	21,016	0.63	2.57	31,129	19,487	0.63	2.79	28,813	18,037	0.63	3.00	26,498	16,588	0.63	3.14	24,183	15,138	0.63	3.29
22	72	20	68	37,046	18,745	0.51	2.42	35,502	17,964	0.51	2.63	33,444	16,923	0.51	2.89	31,000	15,686	0.51	3.13	28,556	14,449	0.51	3.29	26,498	13,408	0.51	3.43
24	75	16	61	32,480	26,829	0.83	2.07	30,551	25,235	0.83	2.36	28,107	23,216	0.83	2.57	25,791	21,304	0.83	2.79	23,476	19,391	0.83	2.93	21,161	17,479	0.83	3.07
24	75	18	64	35,502	22,224	0.71	2.29	33,573	23,702	0.71	2.57	31,129	21,977	0.71	2.79	28,813	20,342	0.71	3.00	26,498	18,708	0.71	3.14	24,183	17,073	0.71	3.29
24	75	20	68	37,046	21,709	0.59	2.42	35,502	20,804	0.59	2.63	33,444	19,598	0.59	2.89	31,000	18,166	0.59	3.13	28,556	16,734	0.59	3.29	26,498	15,528	0.59	3.43
24	75	22	72	39,104	18,222	0.47	2.52	37,817	17,623	0.47	2.79	35,502	16,544	0.47	3.03	33,187	15,465	0.47	3.26	30,871	14,386	0.47	3.42	28,299	13,187	0.47	3.52
26	79	16	61	32,480	29,427	0.91	2.07	30,551	27,679	0.91	2.36	28,107	25,465	0.91	2.57	25,791	23,367	0.91	2.79	23,476	21,269	0.91	2.93	21,161	19,172	0.91	3.07
26	79	18	64	35,502	27,905	0.79	2.29	33,573	26,388	0.79	2.57	31,129	24,467	0.79	2.79	28,813	22,647	0.79	3.00	26,498	20,827	0.79	3.14	24,183	19,008	0.79	3.29
26	79	20	68	37,046	24,672	0.67	2.42	35,502	23,644	0.67	2.63	33,444	22,274	0.67	2.89	31,000	20,646	0.67	3.13	28,556	19,018	0.67	3.29	26,498	17,648	0.67	3.43
26	79	22	72	39,104	21,351	0.55	2.52	37,817	20,648	0.55	2.79	35,502	19,384	0.55	3.03	33,187	18,120	0.55	3.26	30,871	16,856	0.55	3.42	28,299	15,451	0.55	3.52
27	81	16	61	32,480	30,726	0.95	2.07	30,551	28,901	0.95	2.36	28,107	26,589	0.95	2.57	25,791	24,399	0.95	2.79	23,476	22,208	0.95	2.93	21,161	20,018	0.95	3.07
27	81	18	64	35,502	29,325	0.83	2.29	33,573	27,731	0.83	2.57	31,129	25,712	0.83	2.79	28,813	23,800	0.83	3.00	26,498	21,887	0.83	3.14	24,183	19,975	0.83	3.29
27	81	20	68	37,046	26,154	0.71	2.42	35,502	25,064	0.71	2.63	33,444	23,611	0.71	2.89	31,000	21,886	0.71	3.13	28,556	20,161	0.71	3.29	26,498	18,708	0.71	3.43
27	81	22	72	39,104	22,915	0.59	2.52	37,817	22,161	0.59	2.79	35,502	20,804	0.59	3.03	33,187	19,447	0.59	3.26	30,871	18,091	0.59	3.42	28,299	16,583	0.59	3.52
28	82	16	61	32,480	32,025	0.99	2.07	30,551	30,123	0.99	2.36	28,107	27,713	0.99	2.57	25,791	25,430	0.99	2.79	23,476	23,147	0.99	2.93	21,161	20,864	0.99	3.07
28	82	18	64	35,502	30,745	0.87	2.29	33,573	29,074	0.87	2.57	31,129	26,957	0.87	2.79	28,813	24,952	0.87	3.00	26,498	22,947	0.87	3.14	24,183	20,942	0.87	3.29
28	82	20	68	37,046	27,636	0.75	2.42	35,502	26,485	0.75	2.63	33,444	24,949	0.75	2.89	31,000	23,126	0.75	3.13	28,556	21,303	0.75	3.29	26,498	19,767	0.75	3.43
28	82	22	72	39,104	24,479	0.63	2.52	37,817	23,674	0.63	2.79	35,502	22,224	0.63	3.03	33,187	20,775	0.63	3.26	30,871	19,325	0.63	3.42	28,299	17,715	0.63	3.52
30	86	16	61	32,480	32,480	1.00	2.07	30,551	30,551	1.00	2.36	28,107	28,107	1.00	2.57	25,791	25,791	1.00	2.79	23,476	23,476	1.00	2.93	21,161	21,161	1.00	3.07
30	86	18	64	35,502	33,585	0.95	2.29	33,573	31,760	0.95	2.57	31,129	29,448	0.95	2.79	28,813	27,257	0.95	3.00	26,498	25,067	0.95	3.14	24,183	22,877	0.95	3.29
30	86	20	68	37,046	30,600	0.83	2.42	35,502	29,325	0.83	2.63	33,444	27,625	0.83	2.89	31,000	25,606	0.83	3.13	28,556	23,587	0.83	3.29	26,498	21,887	0.83	3.43
30	86	22	72	39,104	27,607	0.71	2.52	37,817	26,699	0.71	2.79	35,502	25,064	0.71	3.03	33,187	23,430	0.71	3.26	30,871	21,795	0.71	3.42	28,299	19,979	0.71	3.52
32	90	16	61	32,480	32,480	1.00	2.07	30,551	30,551	1.00	2.36	28,107	28,107	1.00	2.57	25,791	25,791	1.00	2.79	23,476	23,476	1.00	2.93	21,161	21,161	1.00	3.07
32	90	18	64	35,502	35,502	1.00	2.29	33,573	33,573	1.00	2.57	31,129	31,129	1.00	2.79	28,813	28,813	1.00	3.00	26,498	26,498	1.00	3.14	24,183	24,183	1.00	3.29
32	90	20	68	37,046	33,563	0.91	2.42	35,502	32,165	0.91	2.63	33,444	30,300	0.91	2.89	31,000	28,086	0.91	3.13	28,556	25,872	0.91	3.29	26,498	24,007	0.91	3.43
32	90	22	72	39,104	30,736	0.79	2.52	37,817	29,724	0.79	2.79	35,502	27,905	0.79	3.03	33,187	26,085	0.79	3.26	30,871	24,265	0.79	3.42	28,299	22,243	0.79	3.52

Note: CA : Capacity (Btu/h) SHC : Sensible heat capacity (Btu/h) SHF : Sensible heat factor P.C. : Power consumption (kW)
 D.B. : Dry-bulb temperature W.B. : Wet-bulb temperature

T2-1-2. HEATING CAPACITY PUZ-AK-NL

Model Name	Capacity Btu/h	Input kW	Indoor intake air D.B.(°C)	Indoor intake air D.B.(°F)	Outdoor intake air °C/°F W.B.											
					-10/14		-5/23		0/32		5/41		10/50		15/59	
					CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.
PLA-AE12NL	14,000	0.95	15	59	9,026	0.63	10,993	0.75	11,982	0.80	13,971	0.90	15,972	0.97	17,982	1.02
			20	68	8,536	0.68	10,523	0.80	11,522	0.85	13,518	0.93	15,492	1.00	17,423	1.05
			25	77	7,703	0.73	9,776	0.84	10,807	0.89	12,841	0.98	14,817	1.04	16,711	1.08
PLA-AE18NL	19,000	1.38	15	59	12,250	0.91	14,919	1.09	16,261	1.16	18,960	1.30	21,676	1.41	24,404	1.48
			20	68	11,585	0.99	14,281	1.16	15,637	1.23	18,346	1.36	21,025	1.45	23,645	1.52
			25	77	10,454	1.06	13,267	1.22	14,666	1.30	17,427	1.42	20,109	1.51	22,679	1.57
PLA-AE24NL	26,000	1.76	15	59	16,763	1.16	20,415	1.38	22,252	1.49	25,946	1.66	29,661	1.80	33,395	1.89
			20	68	15,853	1.26	19,542	1.48	21,398	1.57	25,104	1.73	28,771	1.85	32,356	1.94
			25	77	14,306	1.35	18,155	1.56	20,069	1.65	23,847	1.81	27,518	1.93	31,035	2.00
PLA-AE30NL	32,000	2.32	15	59	20,632	1.54	25,126	1.83	27,387	1.96	31,933	2.19	36,506	2.37	41,101	2.49
			20	68	19,511	1.66	24,052	1.95	26,336	2.07	30,898	2.28	35,411	2.44	39,823	2.55
			25	77	17,607	1.78	22,345	2.06	24,701	2.18	29,350	2.39	33,868	2.54	38,197	2.64

Model Name	Capacity Btu/h	Input kW	Indoor intake air D.B.(°C)	Indoor intake air D.B.(°F)	Outdoor intake air °C/°F W.B.											
					-10/14		-5/23		0/32		5/41		10/50		15/59	
					CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.
PKA-AL12NL	14,000	1.08	15	59	9,026	0.71	10,993	0.85	11,982	0.91	13,971	1.02	15,972	1.10	17,982	1.16
			20	68	8,536	0.77	10,523	0.91	11,522	0.96	13,518	1.06	15,492	1.14	17,423	1.19
			25	77	7,703	0.83	9,776	0.96	10,807	1.02	12,841	1.11	14,817	1.18	16,711	1.23
PKA-AL18NL	19,000	1.68	15	59	12,250	1.11	14,919	1.32	16,261	1.42	18,960	1.59	21,676	1.72	24,404	1.80
			20	68	11,585	1.20	14,281	1.41	15,637	1.50	18,346	1.65	21,025	1.77	23,645	1.85
			25	77	10,454	1.29	13,267	1.49	14,666	1.58	17,427	1.73	20,109	1.84	22,679	1.91
PKA-AL24NL	26,000	1.93	15	59	16,763	1.28	20,415	1.52	22,252	1.63	25,946	1.82	29,661	1.97	33,395	2.07
			20	68	15,853	1.38	19,542	1.62	21,398	1.72	25,104	1.90	28,771	2.03	32,356	2.12
			25	77	14,306	1.48	18,155	1.71	20,069	1.81	23,847	1.99	27,518	2.11	31,035	2.20
PKA-AL30NL	32,000	2.56	15	59	20,632	1.69	25,126	2.01	27,387	2.16	31,933	2.42	36,506	2.62	41,101	2.74
			20	68	19,511	1.84	24,052	2.15	26,336	2.28	30,898	2.52	35,411	2.69	39,823	2.82
			25	77	17,607	1.96	22,345	2.27	24,701	2.41	29,350	2.63	33,868	2.80	38,197	2.91

Model Name	Capacity Btu/h	Input kW	Indoor intake air D.B.(°C)	Indoor intake air D.B.(°F)	Outdoor intake air °C/°F W.B.											
					-10/14		-5/23		0/32		5/41		10/50		15/59	
					CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.
PCA-AK24NL	26,000	2.16	15	59	16,763	1.43	20,415	1.70	22,252	1.82	25,946	2.04	29,661	2.21	33,395	2.31
			20	68	15,853	1.55	19,542	1.81	21,398	1.93	25,104	2.12	28,771	2.27	32,356	2.38
			25	77	14,306	1.65	18,155	1.92	20,069	2.03	23,847	2.22	27,518	2.36	31,035	2.46
PCA-AK30NL	32,000	2.79	15	59	20,632	1.85	25,126	2.20	27,387	2.35	31,933	2.63	36,506	2.85	41,101	2.99
			20	68	19,511	2.00	24,052	2.34	26,336	2.49	30,898	2.74	35,411	2.94	39,823	3.07
			25	77	17,607	2.14	22,345	2.48	24,701	2.62	29,350	2.87	33,868	3.05	38,197	3.18

Model Name	Capacity Btu/h	Input kW	Indoor intake air D.B.(°C)	Indoor intake air D.B.(°F)	Outdoor intake air °C/°F W.B.											
					-10/14		-5/23		0/32		5/41		10/50		15/59	
					CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.
PEAD-AA12NL	14,000	1.02	15	59	9,026	0.68	10,993	0.80	11,982	0.86	13,971	0.96	15,972	1.04	17,982	1.09
			20	68	8,536	0.73	10,523	0.86	11,522	0.91	13,518	1.00	15,492	1.07	17,423	1.12
			25	77	7,703	0.78	9,776	0.91	10,807	0.96	12,841	1.05	14,817	1.12	16,711	1.16
PEAD-AA18NL	19,000	1.54	15	59	12,250	1.02	14,919	1.21	16,261	1.30	18,960	1.45	21,676	1.57	24,404	1.65
			20	68	11,585	1.10	14,281	1.29	15,637	1.37	18,346	1.51	21,025	1.62	23,645	1.69
			25	77	10,454	1.18	13,267	1.37	14,666	1.45	17,427	1.58	20,109	1.69	22,679	1.75
PEAD-AA24NL	26,000	2.16	15	59	16,763	1.43	20,415	1.70	22,252	1.82	25,946	2.04	29,661	2.21	33,395	2.31
			20	68	15,853	1.55	19,542	1.81	21,398	1.93	25,104	2.12	28,771	2.27	32,356	2.38
			25	77	14,306	1.65	18,155	1.92	20,069	2.03	23,847	2.22	27,518	2.36	31,035	2.46
PEAD-AA30NL	30,800	2.60	15	59	19,858	1.72	24,184	2.05	26,360	2.19	30,736	2.45	35,137	2.66	39,560	2.79
			20	68	18,779	1.86	23,150	2.18	25,348	2.32	29,739	2.56	34,083	2.74	38,330	2.86
			25	77	16,947	1.99	21,507	2.31	23,774	2.44	28,250	2.67	32,598	2.85	36,765	2.96

Note: CA : Capacity (Btu/h) P.C. : Power consumption (kW)
D.B. : Dry-bulb temperature W.B. : Wet-bulb temperature

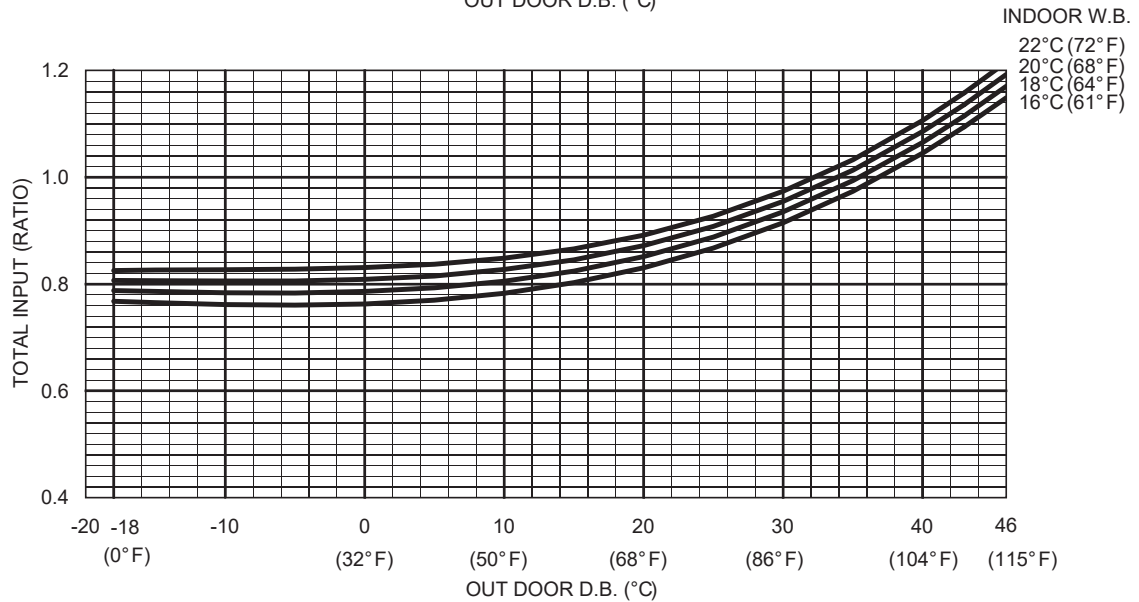
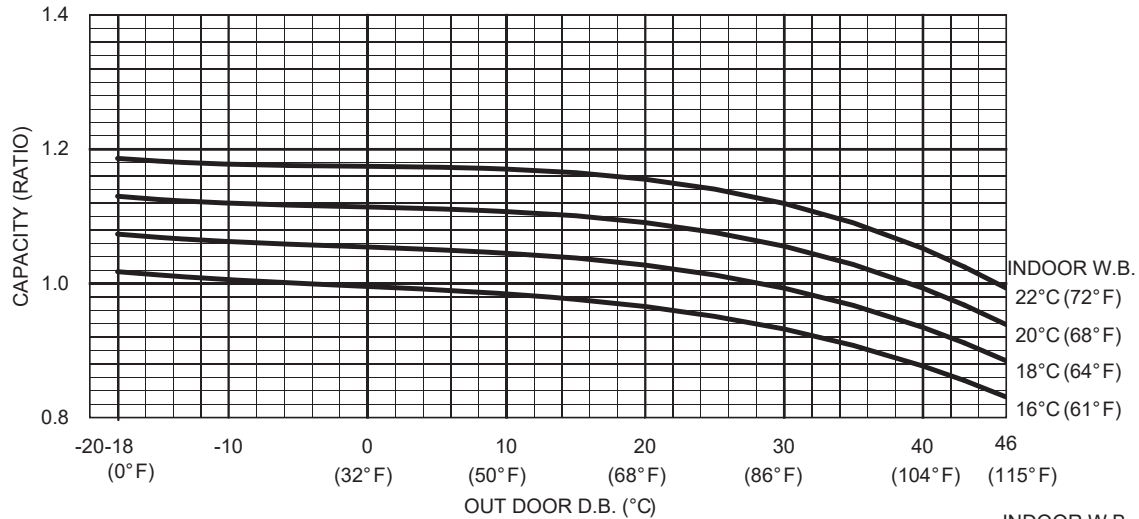
Model Name	Capacity Btu/h	Input kW	Indoor intake air D.B.(°C)	Indoor intake air D.B.(°F)	Outdoor intake air °C/°F W.B.											
					-10/14		-5/23		0/32		5/41		10/50		15/59	
					CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.
PVA-AA12NL	14,000	1.10	15	59	9,026	0.73	10,993	0.87	11,982	0.93	13,971	1.04	15,972	1.12	17,982	1.18
			20	68	8,536	0.79	10,523	0.92	11,522	0.98	13,518	1.08	15,492	1.16	17,423	1.21
			25	77	7,703	0.84	9,776	0.98	10,807	1.03	12,841	1.13	14,817	1.20	16,711	1.25
PVA-AA18NL	19,000	1.56	15	59	12,250	1.03	14,919	1.23	16,261	1.32	18,960	1.47	21,676	1.59	24,404	1.67
			20	68	11,585	1.12	14,281	1.31	15,637	1.39	18,346	1.53	21,025	1.64	23,645	1.72
			25	77	10,454	1.19	13,267	1.38	14,666	1.47	17,427	1.60	20,109	1.71	22,679	1.78
PVA-AA24NL	26,000	1.95	15	59	16,763	1.29	20,415	1.53	22,252	1.65	25,946	1.84	29,661	1.99	33,395	2.09
			20	68	15,853	1.40	19,542	1.64	21,398	1.74	25,104	1.92	28,771	2.05	32,356	2.15
			25	77	14,306	1.49	18,155	1.73	20,069	1.83	23,847	2.01	27,518	2.13	31,035	2.22
PVA-AA30NL	32,000	2.58	15	59	20,632	1.71	25,126	2.03	27,387	2.18	31,933	2.44	36,506	2.64	41,101	2.77
			20	68	19,511	1.85	24,052	2.17	26,336	2.30	30,898	2.54	35,411	2.71	39,823	2.84
			25	77	17,607	1.97	22,345	2.29	24,701	2.43	29,350	2.65	33,868	2.82	38,197	2.94

Model Name	Capacity Btu/h	Input kW	Indoor intake air D.B.(°C)	Indoor intake air D.B.(°F)	Outdoor intake air °C/°F W.B.											
					-10/14		-5/23		0/32		5/41		10/50		15/59	
					CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.
PAA-A/BA18NL	19,000	1.56	15	59	12,250	1.03	14,919	1.23	16,261	1.32	18,960	1.47	21,676	1.59	24,404	1.67
			20	68	11,585	1.12	14,281	1.31	15,637	1.39	18,346	1.53	21,025	1.64	23,645	1.72
			25	77	10,454	1.19	13,267	1.38	14,666	1.47	17,427	1.60	20,109	1.71	22,679	1.78
PAA-A/BA24NL	26,000	1.90	15	59	16,763	1.26	20,415	1.50	22,252	1.60	25,946	1.79	29,661	1.94	33,395	2.04
			20	68	15,853	1.36	19,542	1.59	21,398	1.70	25,104	1.87	28,771	2.00	32,356	2.09
			25	77	14,306	1.45	18,155	1.69	20,069	1.79	23,847	1.95	27,518	2.08	31,035	2.16
PAA-A/BA30NL	32,000	2.48	15	59	20,632	1.64	25,126	1.95	27,387	2.09	31,933	2.34	36,506	2.53	41,101	2.66
			20	68	19,511	1.78	24,052	2.08	26,336	2.21	30,898	2.44	35,411	2.61	39,823	2.73
			25	77	17,607	1.90	22,345	2.20	24,701	2.33	29,350	2.55	33,868	2.72	38,197	2.82

Note: CA : Capacity (Btu/h) P.C. : Power consumption (kW)
D.B. : Dry-bulb temperature W.B. : Wet-bulb temperature

FOR THE COMBINATION OF OUTDOOR UNIT
PUZ-AK12/18NL, PUZ-AH24/30NL

Cooling performance curve



Note: This diagram shows the case where the operation frequency of a compressor is fixed.

CAPACITY (RATIO)

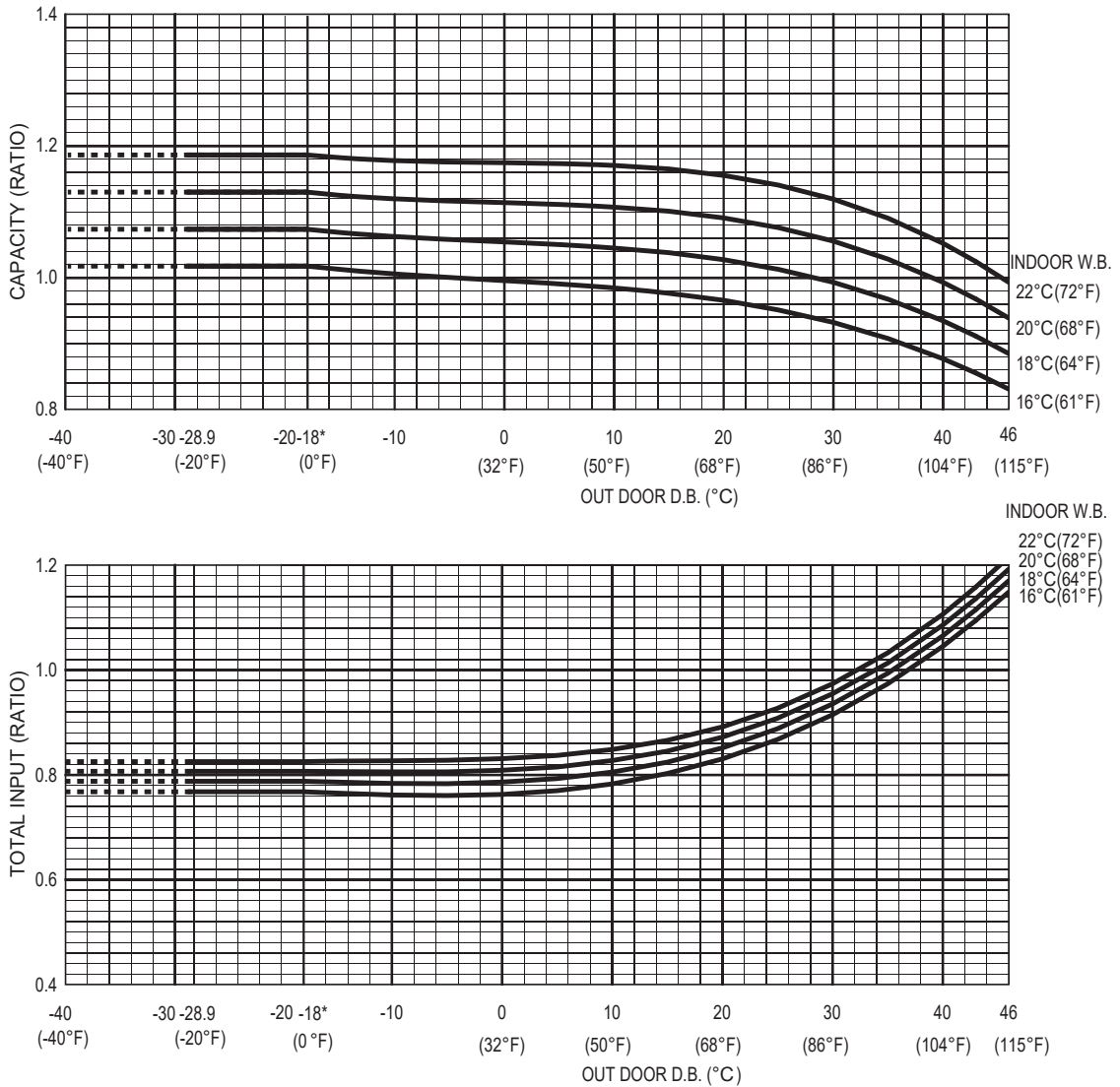
Outdoor D.B. [°C]	-18	-15	-10	-5	0	5	10	15	20	25	30	35	40	43	46
Outdoor D.B. [°F]	0	-	-	23	32	-	50	-	68	-	86	-	104	-	115
Indoor W.B. 22°C (72°F)	1.186	1.182	1.178	1.175	1.174	1.173	1.170	1.165	1.155	1.141	1.119	1.090	1.052	1.024	0.993
Indoor W.B. 20°C (68°F)	1.130	1.125	1.120	1.116	1.114	1.111	1.107	1.101	1.091	1.076	1.056	1.028	0.993	0.968	0.939
Indoor W.B. 18°C (64°F)	1.073	1.068	1.062	1.058	1.054	1.050	1.045	1.038	1.027	1.013	0.993	0.967	0.934	0.911	0.885
Indoor W.B. 16°C (61°F)	1.018	1.012	1.006	1.000	0.995	0.990	0.984	0.976	0.965	0.951	0.932	0.908	0.877	0.855	0.831

TOTAL INPUT (RATIO)

Outdoor D.B. [°C]	-18	-15	-10	-5	0	5	10	15	20	25	30	35	40	43	46
Outdoor D.B. [°F]	0	-	-	23	-	-	50	-	68	-	86	-	104	-	115
Indoor W.B. 22°C (72°F)	0.825	0.826	0.827	0.828	0.831	0.837	0.848	0.866	0.892	0.927	0.973	1.033	1.106	1.158	1.216
Indoor W.B. 20°C (68°F)	0.807	0.806	0.805	0.806	0.809	0.815	0.827	0.845	0.872	0.908	0.954	1.013	1.086	1.136	1.192
Indoor W.B. 18°C (64°F)	0.788	0.786	0.784	0.783	0.786	0.793	0.805	0.824	0.852	0.888	0.935	0.994	1.065	1.115	1.170
Indoor W.B. 16°C (61°F)	0.768	0.765	0.761	0.760	0.763	0.770	0.783	0.802	0.830	0.867	0.915	0.974	1.045	1.094	1.149

**FOR THE COMBINATION OF OUTDOOR UNIT
PUY-AK12/18NL, PUY-AH24/30NL**

Cooling performance curve



Note: This diagram shows the case where the operation frequency of a compressor is fixed.

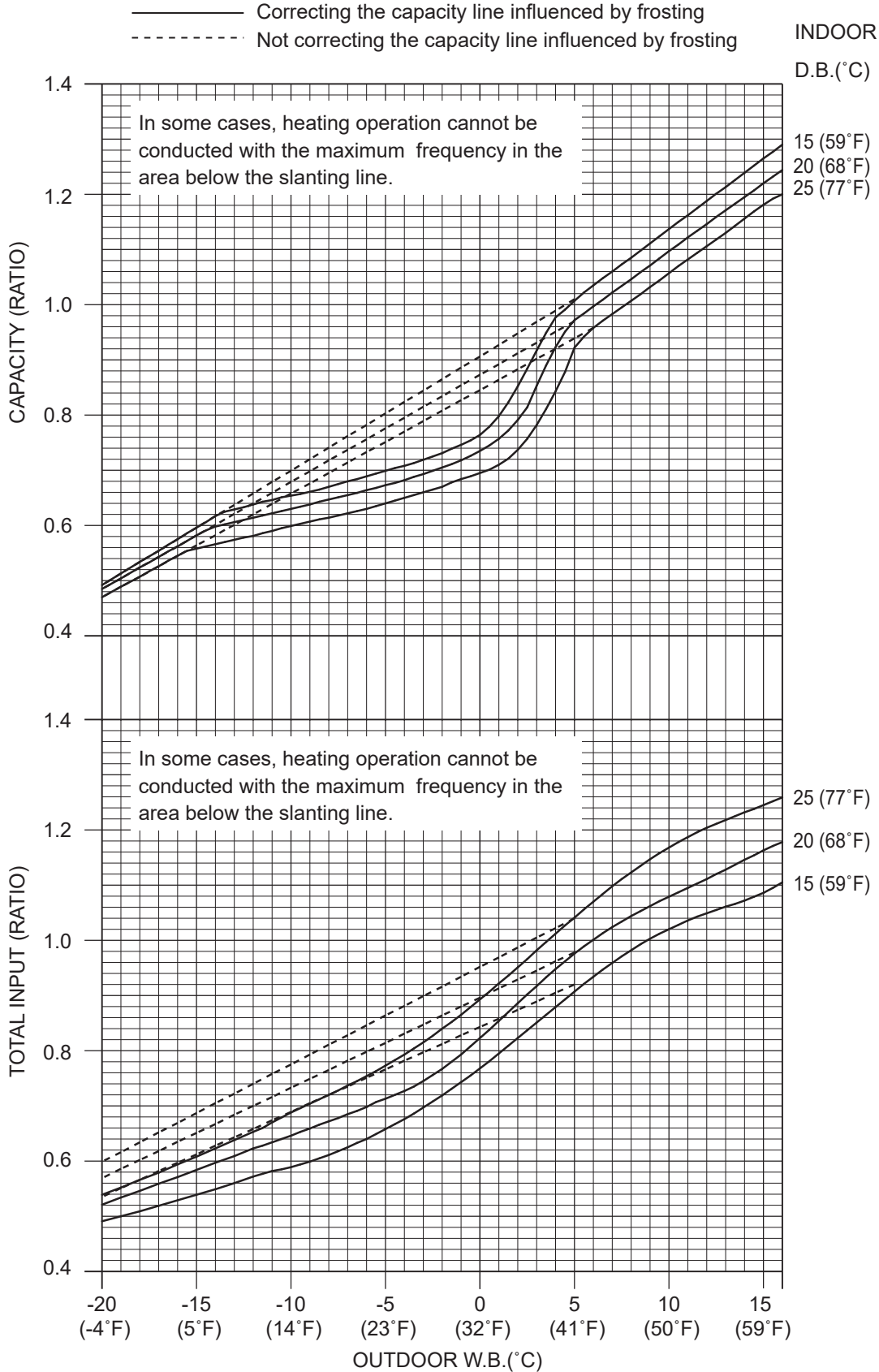
CAPACITY (RATIO)

Outdoor D.B.[°C]	-28.9	-18	-15	-10	-5	0	5	10	15	20	25	30	35	40	43	46
Outdoor D.B.[°F]	-20	0	-	-	23	32	-	50	-	68	-	86	-	104	-	115
Indoor W.B. 22°C (72°F)	1.186	1.186	1.182	1.178	1.175	1.174	1.173	1.170	1.165	1.155	1.141	1.119	1.090	1.052	1.024	0.993
Indoor W.B. 20°C (68°F)	1.130	1.130	1.125	1.120	1.116	1.114	1.111	1.107	1.101	1.091	1.076	1.056	1.028	0.993	0.968	0.939
Indoor W.B. 18°C (64°F)	1.073	1.073	1.068	1.062	1.058	1.054	1.050	1.045	1.038	1.027	1.013	0.993	0.967	0.934	0.911	0.885
Indoor W.B. 16°C (61°F)	1.018	1.018	1.012	1.006	1.000	0.995	0.990	0.984	0.976	0.965	0.951	0.932	0.908	0.877	0.855	0.831

TOTAL INPUT (RATIO)

Outdoor D.B.[°C]	-28.9	-18	-15	-10	-5	0	5	10	15	20	25	30	35	40	43	46
Outdoor D.B.[°F]	-20	0	-	-	23	-	-	50	-	68	-	86	-	104	-	115
Indoor W.B. 22°C (72°F)	0.825	0.825	0.826	0.827	0.828	0.831	0.837	0.848	0.866	0.892	0.927	0.973	1.033	1.106	1.158	1.216
Indoor W.B. 20°C (68°F)	0.807	0.807	0.806	0.805	0.806	0.809	0.815	0.827	0.845	0.872	0.908	0.954	1.013	1.086	1.136	1.192
Indoor W.B. 18°C (64°F)	0.788	0.788	0.786	0.784	0.783	0.786	0.793	0.805	0.824	0.852	0.888	0.935	0.994	1.065	1.115	1.170
Indoor W.B. 16°C (61°F)	0.768	0.768	0.765	0.761	0.760	0.763	0.770	0.783	0.802	0.830	0.867	0.915	0.974	1.045	1.094	1.149

Heating performance curve



Note This diagram shows the case where the operation frequency of a compressor is fixed.

T4**CORRECTION FACTORS****T4-1. COOLING CAPACITY CORRECTION FACTORS**

Outdoor unit	Refrigerant piping length (one way)							
	5m(16ft)	10m(33ft)	20m (70ft)	30m (100ft)	40m (130ft)	50m (165ft)	55m (180ft)	60m (195ft)
PUZ-AK12/18NL	1.000	0.999	0.966	0.947	-	-	-	-
PUZ-AH24/30NL	1.000	0.997	0.981	0.889	0.854	0.818	-	-
PUY-AK12/18NL	1.000	0.999	0.966	0.947	0.851	0.732	-	-
PUY-AH24/30NL	1.000	0.997	0.981	0.889	0.854	0.818	0.800	0.783

T4-2. HEATING CAPACITY CORRECTION FACTORS

Outdoor unit	Refrigerant piping length (one way)					
	5m(16ft)	10m(33ft)	20m (70ft)	30m (100ft)	40m (130ft)	50m (165ft)
PUZ-AK12/18NL	1.000	0.986	0.952	0.916	-	-
PUZ-AH24/30NL	1.000	0.995	0.933	0.817	0.749	0.668

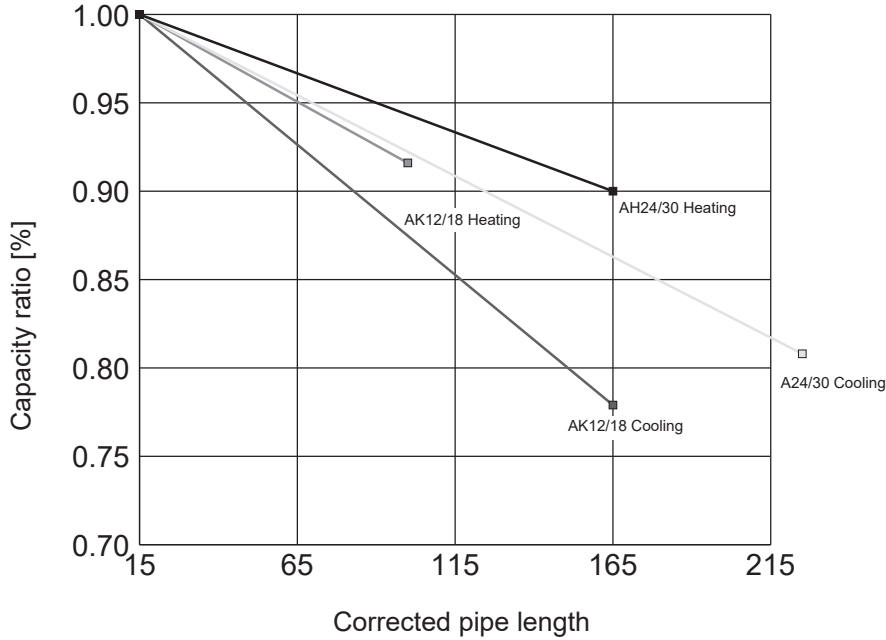
Refer to the following graphs as to the connection with each indoor unit.

T4-3. CAPACITY CORRECTION

Cooling and heating capacity is lowered according to pipe length. Capacity can be obtained by referring to the capacity curves below.

Corrected pipe length (m) = actual pipe length (m) + number of bends x 0.3 (m)

Corrected pipe length (ft) = actual pipe length (ft) + number of bends x 1 (ft)



When pipe is one size larger than standard size, capacity can be obtained by referring to capacity curves of standard size.

PLA-AE12NL
PUZ-AK12NL PUY-AK12NL
1) COOLING

Rated
Q(Btu/h): 12000
W: 700

Indoor W.B.		72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C									
Outdoor D.B. (°F) (°C)		Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	
115	46.1	Q(Btu/h)	11,978	11,592	8,694	5,796	-	4,733	11,321	10,956	8,217	5,478	-	4,474	10,676	10,332	7,749	5,166	-	4,219	10,019	9,696	7,272	4,848	-	3,959
		W	879	843	632	421	-	289	861	826	620	413	-	283	845	811	608	405	-	278	831	797	597	398	-	273
110	43.3	Q(Btu/h)	12,301	11,904	8,928	5,952	-	4,861	11,606	11,232	8,424	5,616	-	4,586	10,900	10,548	7,911	5,274	-	4,307	10,280	9,948	7,461	4,974	-	4,062
		W	840	805	604	403	-	276	824	790	593	395	-	271	810	776	582	388	-	266	795	762	572	381	-	261
106	41.1	Q(Btu/h)	12,574	12,168	9,126	6,084	-	4,969	11,867	11,484	8,613	5,742	-	4,689	11,148	10,788	8,091	5,394	-	4,405	10,490	10,152	7,614	5,076	-	4,145
		W	817	783	587	392	-	269	795	762	572	381	-	261	780	748	561	374	-	257	767	735	551	368	-	252
102	38.9	Q(Btu/h)	12,784	12,372	9,279	6,186	-	5,052	12,090	11,700	8,775	5,850	-	4,778	11,334	10,968	8,226	5,484	-	4,479	10,639	10,296	7,722	5,148	-	4,204
		W	791	759	569	379	-	260	777	745	559	372	-	255	759	728	546	364	-	250	745	714	536	357	-	245
98	36.7	Q(Btu/h)	12,970	12,552	9,414	6,276	-	5,125	12,239	11,844	8,883	5,922	-	4,836	11,520	11,148	8,361	5,574	-	4,552	10,800	10,452	7,839	5,226	-	4,268
		W	767	735	551	368	-	252	752	721	541	361	-	247	737	707	530	354	-	242	723	693	520	347	-	238
94	34.4	Q(Btu/h)	13,144	12,720	9,540	6,360	-	5,194	12,400	12,000	9,000	6,000	-	4,900	11,668	11,292	8,469	5,646	-	4,611	10,949	10,596	7,947	5,298	-	4,327
		W	745	714	536	357	-	245	730	700	525	350	-	240	717	687	516	344	-	236	699	671	503	335	-	230
90	32.2	Q(Btu/h)	13,330	12,900	9,675	6,450	-	5,268	12,549	12,144	9,108	6,072	-	4,959	11,817	11,436	8,577	5,718	-	4,670	11,098	10,740	8,055	5,370	-	4,386
		W	723	693	520	347	-	238	708	679	509	340	-	233	694	665	499	333	-	228	680	652	489	326	-	223
86	30.0	Q(Btu/h)	13,504	13,068	9,801	6,534	-	5,336	12,735	12,324	9,243	6,162	-	5,032	11,978	11,592	8,694	5,796	-	4,733	11,247	10,884	8,163	5,442	-	4,444
		W	703	674	506	337	-	231	690	662	496	331	-	227	676	648	486	324	-	222	661	634	476	317	-	217
82	27.8	Q(Btu/h)	13,628	13,188	9,891	6,594	-	5,385	12,846	12,432	9,324	6,216	-	5,076	12,065	11,676	8,757	5,838	-	4,768	11,334	10,968	8,226	5,484	-	4,479
		W	691	662	497	331	-	227	676	648	486	324	-	222	658	631	473	315	-	216	647	620	465	310	-	213
78	25.6	Q(Btu/h)	13,752	13,308	9,981	6,654	-	5,434	12,970	12,552	9,414	6,276	-	5,125	12,202	11,808	8,856	5,904	-	4,822	11,433	11,064	8,298	5,532	-	4,518
		W	674	646	485	323	-	222	661	634	475	317	-	217	646	620	465	310	-	212	630	604	453	302	-	207
74	23.3	Q(Btu/h)	13,814	13,368	10,026	6,684	-	5,459	13,032	12,612	9,459	6,306	-	5,150	12,301	11,904	8,928	5,952	-	4,861	11,520	11,148	8,361	5,574	-	4,552
		W	661	634	476	317	-	217	647	620	465	310	-	213	632	606	455	303	-	208	618	593	445	296	-	203
70	21.1	Q(Btu/h)	13,876	13,428	10,071	6,714	-	5,483	13,082	12,660	9,495	6,330	-	5,170	12,363	11,964	8,973	5,982	-	4,885	11,582	11,208	8,406	5,604	-	4,577
		W	650	624	468	312	-	214	636	610	457	305	-	209	621	596	447	298	-	204	607	582	437	291	-	200
66	18.9	Q(Btu/h)	13,962	13,512	10,134	6,756	-	5,517	13,206	12,780	9,585	6,390	-	5,209	12,425	12,024	9,018	6,012	-	4,910	11,706	11,328	8,496	5,664	-	4,626
		W	639	613	460	307	-	210	625	599	449	300	-	205	611	586	439	293	-	201	596	572	429	286	-	196
62	16.7	Q(Btu/h)	13,987	13,536	10,152	6,768	-	5,527	13,243	12,816	9,612	6,408	-	5,233	12,487	12,084	9,063	6,042	-	4,934	11,755	11,376	8,532	5,688	-	4,645
		W	632	606	455	303	-	208	621	596	447	298	-	204	604	579	434	289	-	198	589	565	424	282	-	194
58	14.4	Q(Btu/h)	14,037	13,584	10,188	6,792	-	5,547	13,268	12,840	9,630	6,420	-	5,243	12,474	12,072	9,054	6,036	-	4,929	11,743	11,364	8,523	5,682	-	4,640
		W	624	599	449	299	-	205	609	584	438	292	-	200	594	570	427	285	-	195	578	554	416	277	-	190
54	12.2	Q(Btu/h)	14,086	13,632	10,224	6,816	-	5,566	13,330	12,900	9,675	6,450	-	5,268	12,549	12,144	9,108	6,072	-	4,959	11,817	11,436	8,577	5,718	-	4,670
		W	621	596	447	298	-	204	607	582	437	291	-	200	591	567	425	284	-	194	575	551	413	275	-	189
50	10.0	Q(Btu/h)	14,111	13,656	10,242	6,828	-	5,576	13,355	12,924	9,693	6,462	-	5,277	12,611	12,204	9,153	6,102	-	4,983	11,867	11,484	8,613	5,742	-	4,689
		W	613	588	441	294	-	202	598	573	430	287	-	197	582	558	418	279	-	191	566	543	407	271	-	186
46	7.8	Q(Btu/h)	14,136	13,680	10,260	6,840	-	5,586	13,392	12,960	9,720	6,480	-	5,292	12,636	12,228	9,171	6,114	-	4,993	11,916	11,532	8,649	5,766	-	4,709
		W	609	584	438	292	-	200	594	570	427	285	-	195	578	554	416	277	-	190	562	539	404	270	-	185
42	5.6	Q(Btu/h)	14,148	13,692	10,269	6,846	-	5,591	13,392	12,960	9,720	6,480	-	5,292	12,660	12,252	9,189	6,126	-	5,003	11,929	11,544	8,658	5,772	-	4,714
		W	607	582	437	291	-	200	592	568	426	284	-	195	575	551	413	275	-	189	558	535	401	267	-	183
38	3.3	Q(Btu/h)	14,148	13,692	10,269	6,846	-	5,591	13,417	12,984	9,738	6,492	-	5,302	12,685	12,276	9,207	6,138	-	5,013	11,966	11,580	8,685	5,790	-	4,729
		W	604	579	434	289	-	198	588	564	423	282	-	193	571	547	411	274	-	188	553	531	398	265	-	182
34	1.1	Q(Btu/h)	14,161	13,704	10,278	6,852	-	5,596	13,429	12,996	9,747	6,498	-	5,307	12,710	12,300	9,225	6,150	-	5,023	11,991	11,604	8,703	5,802	-	4,738
		W	602	577	433	288	-	198	586	562	422	281	-	193	569	546	410	273	-	187	553	530	397	265	-	182
30	-1.1	Q(Btu/h)	14,161	13,704	10,278	6,852	-	5,596	13,429	12,996	9,747	6,498	-	5,307	12,722	12,312	9,234	6,156	-	5,027	12,003	11,616	8,712	5,808	-	4,743
		W	602	577	433	288	-	198	584	560	420	280	-	192	568	545	408	272	-	187	550	528	396	264	-	181
26	-3.3	Q(Btu/h)	14,173	13,716	10,287	6,858	-	5,601	13,454	13,020	9,765	6,510	-	5,317	12,747	12,336	9,252	6,168	-	5,037	12,040	11,652	8,739	5,826	-	4,758
		W	600	575	432	288	-	197	583	559	419	279	-	186	566	543	407	272	-	18						

PLA-AE12NL
PUZ-AK12NL
2) HEATING

Rated
Q(Btu/h): 14000
W: 950

Indoor D.B.			80°F / 26.7°C						70°F / 21.1°C						60°F / 15.6°C					
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)	Q(Btu/h)																		
70	21.1	Q(Btu/h)	26,940	18,858	14,144	9,429	-	5,657	27,760	19,432	14,574	9,716	-	5,830	28,800	20,160	15,120	10,080	-	6,048
		W	2,108	1,301	975	650	-	287	1,964	1,211	908	606	-	268	1,830	1,129	846	564	-	249
65	18.3	Q(Btu/h)	25,540	17,878	13,409	8,939	-	5,363	26,360	18,452	13,839	9,226	-	5,536	27,340	19,138	14,354	9,569	-	5,741
		W	2,037	1,257	943	628	-	278	1,891	1,167	875	583	-	258	1,766	1,090	817	545	-	241
60	15.6	Q(Btu/h)	24,200	16,940	12,705	8,470	-	5,082	25,020	17,514	13,136	8,757	-	5,254	25,940	18,158	13,619	9,079	-	5,447
		W	1,947	1,201	901	600	-	265	1,822	1,124	843	562	-	248	1,705	1,052	789	526	-	232
55	12.8	Q(Btu/h)	22,800	15,960	11,970	7,980	-	4,788	23,620	16,534	12,401	8,267	-	4,960	24,480	17,136	12,852	8,568	-	5,141
		W	1,890	1,166	874	583	-	258	1,748	1,078	809	539	-	238	1,645	1,015	761	507	-	224
50	10.0	Q(Btu/h)	21,420	14,994	11,246	7,497	-	4,498	22,220	15,554	11,666	7,777	-	4,666	23,040	16,128	12,096	8,064	-	4,838
		W	1,816	1,120	840	560	-	248	1,677	1,035	776	517	-	229	1,586	979	734	489	-	216
47	8.3	Q(Btu/h)	20,540	14,378	10,784	7,189	-	4,313	21,340	14,938	11,204	7,469	-	4,481	22,140	15,498	11,624	7,749	-	4,649
		W	1,757	1,084	813	542	-	240	1,631	1,006	755	503	-	222	1,535	947	710	474	-	209
42	5.6	Q(Btu/h)	19,160	13,412	10,059	6,706	-	4,024	20,000	14,000	10,500	7,000	-	4,200	20,760	14,532	10,899	7,266	-	4,360
		W	1,646	1,016	762	508	-	224	1,540	950	713	475	-	210	1,435	885	664	443	-	196
35	1.7	Q(Btu/h)	14,740	10,318	7,739	5,159	-	3,095	15,780	11,046	8,285	5,523	-	3,314	16,900	11,830	8,873	5,915	-	3,549
		W	1,465	903	678	452	-	200	1,361	840	630	420	-	186	1,266	781	586	390	-	173
32	0.0	Q(Btu/h)	14,080	9,856	7,392	4,928	-	2,957	14,900	10,430	7,823	5,215	-	3,129	15,480	10,836	8,127	5,418	-	3,251
		W	1,388	856	642	428	-	189	1,278	789	591	394	-	174	1,194	736	552	368	-	163
27	-2.8	Q(Btu/h)	13,420	9,394	7,046	4,697	-	2,818	14,100	9,870	7,403	4,935	-	2,961	14,620	10,234	7,676	5,117	-	3,070
		W	1,275	787	590	393	-	174	1,164	718	539	359	-	159	1,089	672	504	336	-	148
22	-5.6	Q(Btu/h)	12,840	8,988	6,741	4,494	-	2,696	13,520	9,464	7,098	4,732	-	2,839	14,040	9,828	7,371	4,914	-	2,948
		W	1,183	730	547	365	-	161	1,096	676	507	338	-	150	1,006	620	465	310	-	137
17	-8.3	Q(Btu/h)	12,400	8,680	6,510	4,340	-	2,604	13,060	9,142	6,857	4,571	-	2,743	13,520	9,464	7,098	4,732	-	2,839
		W	1,112	686	514	343	-	152	1,038	640	480	320	-	142	944	582	437	291	-	129
12	-11.1	Q(Btu/h)	11,940	8,358	6,269	4,179	-	2,507	12,600	8,820	6,615	4,410	-	2,646	13,100	9,170	6,878	4,585	-	2,751
		W	1,038	640	480	320	-	142	983	606	455	303	-	134	904	558	418	279	-	123
5	-15.0	Q(Btu/h)	11,300	7,910	5,933	3,955	-	2,373	11,780	8,246	6,185	4,123	-	2,474	12,080	8,456	6,342	4,228	-	2,537
		W	946	583	437	292	-	129	907	560	420	280	-	124	838	517	388	258	-	114
2	-16.7	Q(Btu/h)	10,780	7,546	5,660	3,773	-	2,264	11,120	7,784	5,838	3,892	-	2,335	11,360	7,952	5,964	3,976	-	2,386
		W	907	560	420	280	-	124	875	540	405	270	-	119	812	501	375	250	-	111
-3	-19.4	Q(Btu/h)	9,740	6,818	5,114	3,409	-	2,045	10,060	7,042	5,282	3,521	-	2,113	10,220	7,154	5,366	3,577	-	2,146
		W	850	524	393	262	-	116	821	506	380	253	-	112	772	476	357	238	-	105
-8	-22.2	Q(Btu/h)	8,680	6,076	4,557	3,038	-	1,823	8,960	6,272	4,704	3,136	-	1,882	9,060	6,342	4,757	3,171	-	1,903
		W	795	490	368	245	-	108	767	473	355	237	-	105	732	451	338	226	-	100
-13	-25.0	Q(Btu/h)	7,620	5,334	4,001	2,667	-	1,600	7,860	5,502	4,127	2,751	-	1,651	7,880	5,516	4,137	2,758	-	1,655
		W	742	458	343	229	-	101	711	439	329	219	-	97	695	428	321	214	-	95

**PKA-AL12NL
PUZ-AK12NL PUY-AK12NL
1) COOLING**

**Rated
Q(Btu/h): 12000
W: 810**

Indoor W.B.		72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C									
Outdoor D.B. (°F) (°C)		Max	Rated	75%	50%	25% Min	Max	Rated	75%	50%	25% Min	Max	Rated	75%	50%	25% Min	Max	Rated	75%	50%	25% Min					
115	46.1	Q(Btu/h)	11,785	11,592	8,694	5,796	-	4,154	11,139	10,956	8,217	5,478	-	3,926	10,504	10,332	7,749	5,166	-	3,702	9,858	9,696	7,272	4,848	-	3,474
		W	999	975	731	488	-	301	979	956	717	478	-	295	961	938	703	469	-	290	945	922	691	461	-	285
110	43.3	Q(Btu/h)	12,102	11,904	8,928	5,952	-	4,266	11,419	11,232	8,424	5,616	-	4,025	10,724	10,548	7,911	5,274	-	3,780	10,114	9,948	7,461	4,974	-	3,565
		W	955	932	699	466	-	288	937	914	686	457	-	282	920	898	674	449	-	277	904	882	662	441	-	272
106	41.1	Q(Btu/h)	12,371	12,168	9,126	6,084	-	4,360	11,675	11,484	8,613	5,742	-	4,115	10,968	10,788	8,091	5,394	-	3,866	10,321	10,152	7,614	5,076	-	3,638
		W	929	906	680	453	-	280	904	882	662	441	-	272	887	866	649	433	-	267	872	851	638	425	-	263
102	38.9	Q(Btu/h)	12,578	12,372	9,279	6,186	-	4,433	11,895	11,700	8,775	5,850	-	4,193	11,151	10,968	8,226	5,484	-	3,930	10,468	10,296	7,722	5,148	-	3,689
		W	900	878	659	439	-	271	883	862	646	431	-	266	863	842	632	421	-	260	847	826	620	413	-	255
98	36.7	Q(Btu/h)	12,761	12,552	9,414	6,276	-	4,498	12,041	11,844	8,883	5,922	-	4,244	11,334	11,148	8,361	5,574	-	3,995	10,626	10,452	7,839	5,226	-	3,745
		W	872	851	638	425	-	263	855	834	626	417	-	258	838	818	614	409	-	253	822	802	601	401	-	248
94	34.4	Q(Btu/h)	12,932	12,720	9,540	6,360	-	4,558	12,200	12,000	9,000	6,000	-	4,300	11,480	11,292	8,469	5,646	-	4,046	10,773	10,596	7,947	5,298	-	3,797
		W	847	826	620	413	-	255	830	810	608	405	-	250	815	795	597	398	-	246	795	776	582	388	-	240
90	32.2	Q(Btu/h)	13,115	12,900	9,675	6,450	-	4,623	12,346	12,144	9,108	6,072	-	4,352	11,627	11,436	8,577	5,718	-	4,098	10,919	10,740	8,055	5,370	-	3,849
		W	822	802	601	401	-	248	805	786	589	393	-	243	789	770	577	385	-	238	773	754	566	377	-	233
86	30.0	Q(Btu/h)	13,286	13,068	9,801	6,534	-	4,683	12,529	12,324	9,243	6,162	-	4,416	11,785	11,592	8,694	5,796	-	4,154	11,065	10,884	8,163	5,442	-	3,900
		W	799	780	585	390	-	241	784	765	574	383	-	236	769	750	563	375	-	232	752	734	550	367	-	227
82	27.8	Q(Btu/h)	13,408	13,188	9,891	6,594	-	4,726	12,639	12,432	9,324	6,216	-	4,455	11,871	11,676	8,757	5,838	-	4,184	11,151	10,968	8,226	5,484	-	3,930
		W	785	766	575	383	-	237	769	750	563	375	-	232	748	730	547	365	-	225	735	718	538	359	-	222
78	25.6	Q(Btu/h)	13,530	13,308	9,981	6,654	-	4,769	12,761	12,552	9,414	6,276	-	4,498	12,005	11,808	8,856	5,904	-	4,231	11,248	11,064	8,298	5,532	-	3,965
		W	766	748	561	374	-	231	751	733	550	367	-	226	735	717	538	358	-	221	716	699	524	350	-	216
74	23.3	Q(Btu/h)	13,591	13,368	10,026	6,684	-	4,790	12,822	12,612	9,459	6,306	-	4,519	12,102	11,904	8,928	5,952	-	4,266	11,334	11,148	8,361	5,574	-	3,995
		W	752	734	550	367	-	227	735	718	538	359	-	222	719	701	526	351	-	217	703	686	515	343	-	212
70	21.1	Q(Btu/h)	13,652	13,428	10,071	6,714	-	4,812	12,871	12,660	9,495	6,330	-	4,537	12,163	11,964	8,973	5,982	-	4,287	11,395	11,208	8,406	5,604	-	4,016
		W	740	722	541	361	-	223	723	706	529	353	-	218	706	689	517	345	-	213	691	674	505	337	-	208
66	18.9	Q(Btu/h)	13,737	13,512	10,134	6,756	-	4,842	12,993	12,780	9,585	6,390	-	4,580	12,224	12,024	9,018	6,012	-	4,309	11,517	11,328	8,496	5,664	-	4,059
		W	727	710	532	355	-	219	710	693	520	347	-	214	695	678	508	339	-	209	678	662	496	331	-	204
62	16.7	Q(Btu/h)	13,762	13,536	10,152	6,768	-	4,850	13,030	12,816	9,612	6,408	-	4,592	12,285	12,084	9,063	6,042	-	4,330	11,566	11,376	8,532	5,688	-	4,076
		W	719	701	526	351	-	217	706	689	517	345	-	213	686	670	502	335	-	207	670	654	490	327	-	202
58	14.4	Q(Btu/h)	13,810	13,584	10,188	6,792	-	4,868	13,054	12,840	9,630	6,420	-	4,601	12,273	12,072	9,054	6,036	-	4,326	11,553	11,364	8,523	5,682	-	4,072
		W	710	693	519	346	-	214	692	676	507	338	-	209	676	659	495	330	-	204	657	642	481	321	-	198
54	12.2	Q(Btu/h)	13,859	13,632	10,224	6,816	-	4,885	13,115	12,900	9,675	6,450	-	4,623	12,346	12,144	9,108	6,072	-	4,352	11,627	11,436	8,577	5,718	-	4,098
		W	706	689	517	345	-	213	691	674	505	337	-	208	672	656	492	328	-	203	653	637	478	319	-	197
50	10.0	Q(Btu/h)	13,884	13,656	10,242	6,828	-	4,893	13,139	12,924	9,693	6,462	-	4,631	12,407	12,204	9,153	6,102	-	4,373	11,675	11,484	8,613	5,742	-	4,115
		W	697	680	510	340	-	210	680	663	498	332	-	205	662	646	484	323	-	199	643	628	471	314	-	194
46	7.8	Q(Btu/h)	13,908	13,680	10,260	6,840	-	4,902	13,176	12,960	9,720	6,480	-	4,644	12,432	12,228	9,171	6,114	-	4,382	11,724	11,532	8,649	5,766	-	4,132
		W	692	676	507	338	-	209	676	659	495	330	-	204	657	642	481	321	-	198	639	624	468	312	-	193
42	5.6	Q(Btu/h)	13,920	13,692	10,269	6,846	-	4,906	13,176	12,960	9,720	6,480	-	4,644	12,456	12,252	9,189	6,126	-	4,390	11,736	11,544	8,658	5,772	-	4,137
		W	691	674	505	337	-	208	673	657	493	328	-	203	653	637	478	319	-	197	634	619	464	309	-	191
38	3.3	Q(Btu/h)	13,920	13,692	10,269	6,846	-	4,906	13,200	12,984	9,738	6,492	-	4,653	12,481	12,276	9,207	6,138	-	4,399	11,773	11,580	8,685	5,790	-	4,150
		W	686	670	502	335	-	207	668	652	489	326	-	201	649	633	475	317	-	196	629	614	460	307	-	190
34	1.1	Q(Btu/h)	13,932	13,704	10,278	6,852	-	4,911	13,213	12,996	9,747	6,498	-	4,657	12,505	12,300	9,225	6,150	-	4,408	11,797	11,604	8,703	5,802	-	4,158
		W	684	667	501	334	-	206	666	650	488	325	-	201	647	632	474	316	-	195	628	613	460	307	-	189
30	-1.1	Q(Btu/h)	13,932	13,704	10,278	6,852	-	4,911	13,213	12,996	9,747	6,498	-	4,657	12,517	12,312	9,234	6,156	-	4,412	11,810	11,616	8,712	5,808	-	4,162
		W	684	667	501	334	-	206	664	648	486	324	-	200	646	630	473	315	-	195	626	611	458	305	-	189
26	-3.3	Q(Btu/h)	13,945	13,716	10,287	6,858	-	4,915	13,237	13,020	9,765	6,510	-	4,666	12,542	12,336	9,252	6,168	-	4,420	11,846	11,652	8,739	5,826	-	4,175
		W	682	666	499	333	-	206	662	646	485	323	-	200	644	629	471	314	-	194	624	609	457	305	-	188
23	-5.0	Q(Btu/h)	13,945	13,716	10,287	6,858	-	4,915	13,249	13,032	9,774	6,516	-	4,670	12,554	12,348	9,261	6,174	-	4,425	11,871	11,676	8,757	5,838	-	4,184
		W	681	664	498	332	-	205	662	646	485	323	-	200	643	628	471	314	-	194	624	609	457	305	-	188
18	-7.8	Q(Btu/h)	13,981	13,752	10,314	6,876	-	4,928	13,286	13,068	9,801	6,534	-	4,683	12,554	12,348	9,261	6,174	-	4,425	11,932	11,736	8,802	5,868	-	4,205
		W	678	662	496	331	-	204	662	646	484	323	-	199	642	627	470	313	-	194	624	609	457	305	-	188
14	-10.0	Q(Btu/h)	13,981	13,752	10,314	6,876	-	4,928	13,286	13,068	9,801	6,534	-	4,683	12,603	12,396	9,297	6,198	-	4,442	11,944	11,748	8,811	5,874	-	4,210
		W	680	663	498	332	-	205	662	646	484	323	-	199	644	629	471	314	-	194	625	610	457	305	-	188
10	-12.2	Q(Btu/h)																								

PKA-AL12NL
PUZ-AK12NL
2) HEATING

Rated
Q(Btu/h): 14000
W: 1080

Indoor D.B.			80°F / 26.7°C						70°F / 21.1°C						60°F / 15.6°C					
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)	Q(Btu/h)																		
70	21.1	Q(Btu/h)	24,246	18,858	14,144	9,429	-	5,657	24,984	19,432	14,574	9,716	-	5,830	25,920	20,160	15,120	10,080	-	6,048
		W	2,259	1,479	1,109	739	-	315	2,104	1,377	1,033	689	-	293	1,960	1,283	962	642	-	273
65	18.3	Q(Btu/h)	22,986	17,878	13,409	8,939	-	5,363	23,724	18,452	13,839	9,226	-	5,536	24,606	19,138	14,354	9,569	-	5,741
		W	2,183	1,429	1,072	714	-	304	2,026	1,326	995	663	-	282	1,893	1,239	929	619	-	264
60	15.6	Q(Btu/h)	21,780	16,940	12,705	8,470	-	5,082	22,518	17,514	13,136	8,757	-	5,254	23,346	18,158	13,619	9,079	-	5,447
		W	2,086	1,365	1,024	683	-	291	1,952	1,278	958	639	-	272	1,827	1,196	897	598	-	255
55	12.8	Q(Btu/h)	20,520	15,960	11,970	7,980	-	4,788	21,258	16,534	12,401	8,267	-	4,960	22,032	17,136	12,852	8,568	-	5,141
		W	2,025	1,325	994	663	-	282	1,873	1,226	919	613	-	261	1,762	1,153	865	577	-	246
50	10.0	Q(Btu/h)	19,278	14,994	11,246	7,497	-	4,498	19,998	15,554	11,666	7,777	-	4,666	20,736	16,128	12,096	8,064	-	4,838
		W	1,945	1,273	955	637	-	271	1,797	1,176	882	588	-	250	1,700	1,112	834	556	-	237
47	8.3	Q(Btu/h)	18,486	14,378	10,784	7,189	-	4,313	19,206	14,938	11,204	7,469	-	4,481	19,926	15,498	11,624	7,749	-	4,649
		W	1,883	1,232	924	616	-	262	1,747	1,144	858	572	-	244	1,645	1,077	808	538	-	229
42	5.6	Q(Btu/h)	17,244	13,412	10,059	6,706	-	4,024	18,000	14,000	10,500	7,000	-	4,200	18,684	14,532	10,899	7,266	-	4,360
		W	1,764	1,155	866	577	-	246	1,650	1,080	810	540	-	230	1,538	1,007	755	503	-	214
35	1.7	Q(Btu/h)	13,266	10,318	7,739	5,159	-	3,095	14,202	11,046	8,285	5,523	-	3,314	15,210	11,830	8,873	5,915	-	3,549
		W	1,569	1,027	770	514	-	219	1,459	955	716	477	-	203	1,356	888	666	444	-	189
32	0.0	Q(Btu/h)	12,672	9,856	7,392	4,928	-	2,957	13,410	10,430	7,823	5,215	-	3,129	13,932	10,836	8,127	5,418	-	3,251
		W	1,487	973	730	487	-	207	1,370	896	672	448	-	191	1,279	837	628	419	-	178
27	-2.8	Q(Btu/h)	12,078	9,394	7,046	4,697	-	2,818	12,690	9,870	7,403	4,935	-	2,961	13,158	10,234	7,676	5,117	-	3,070
		W	1,366	894	671	447	-	190	1,247	816	612	408	-	174	1,167	764	573	382	-	163
22	-5.6	Q(Btu/h)	11,556	8,988	6,741	4,494	-	2,696	12,168	9,464	7,098	4,732	-	2,839	12,636	9,828	7,371	4,914	-	2,948
		W	1,267	829	622	415	-	177	1,175	769	577	384	-	164	1,077	705	529	353	-	150
17	-8.3	Q(Btu/h)	11,160	8,680	6,510	4,340	-	2,604	11,754	9,142	6,857	4,571	-	2,743	12,168	9,464	7,098	4,732	-	2,839
		W	1,191	780	585	390	-	166	1,112	728	546	364	-	155	1,011	662	497	331	-	141
12	-11.1	Q(Btu/h)	10,746	8,358	6,269	4,179	-	2,507	11,340	8,820	6,615	4,410	-	2,646	11,790	9,170	6,878	4,585	-	2,751
		W	1,112	728	546	364	-	155	1,053	689	517	345	-	147	969	634	475	317	-	135
5	-15.0	Q(Btu/h)	10,170	7,910	5,933	3,955	-	2,373	10,602	8,246	6,185	4,123	-	2,474	10,872	8,456	6,342	4,228	-	2,537
		W	1,013	663	497	332	-	141	972	636	477	318	-	135	898	588	441	294	-	125
2	-16.7	Q(Btu/h)	9,702	7,546	5,660	3,773	-	2,264	10,008	7,784	5,838	3,892	-	2,335	10,224	7,952	5,964	3,976	-	2,386
		W	972	636	477	318	-	135	937	613	460	307	-	131	870	569	427	285	-	121
-3	-19.4	Q(Btu/h)	8,766	6,818	5,114	3,409	-	2,045	9,054	7,042	5,282	3,521	-	2,113	9,198	7,154	5,366	3,577	-	2,146
		W	911	596	447	298	-	127	879	576	432	288	-	123	827	541	406	271	-	115
-8	-22.2	Q(Btu/h)	7,812	6,076	4,557	3,038	-	1,823	8,064	6,272	4,704	3,136	-	1,882	8,154	6,342	4,757	3,171	-	1,903
		W	851	557	418	279	-	119	822	538	403	269	-	115	784	513	385	257	-	109
-13	-25.0	Q(Btu/h)	6,858	5,334	4,001	2,667	-	1,600	7,074	5,502	4,127	2,751	-	1,651	7,092	5,516	4,137	2,758	-	1,655
		W	795	521	390	260	-	111	762	499	374	249	-	106	744	487	365	244	-	104

**PEAD-AA12NL
PUZ-AK12NL PUY-AK12NL**
1) COOLING

Rated
Q(Btu/h): 12000
W: 830

Indoor W.B.	Outdoor D.B.	72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C									
		Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	
115	46.1	Q(Btu/h)	11,978	11,592	8,694	5,796	-	4,250	11,321	10,956	8,217	5,478	-	4,017	10,676	10,332	7,749	5,166	-	3,788	10,019	9,696	7,272	4,848	-	3,555
		W	1,047	999	749	500	-	325	1,027	979	735	490	-	319	1,007	961	721	481	-	313	990	945	708	472	-	307
110	43.3	Q(Btu/h)	12,301	11,904	8,928	5,952	-	4,365	11,606	11,232	8,424	5,616	-	4,118	10,900	10,548	7,911	5,274	-	3,868	10,280	9,948	7,461	4,974	-	3,648
		W	1,001	955	716	477	-	311	982	937	703	469	-	305	965	920	690	460	-	299	947	904	678	452	-	294
106	41.1	Q(Btu/h)	12,574	12,168	9,126	6,084	-	4,462	11,867	11,484	8,613	5,742	-	4,211	11,148	10,788	8,091	5,394	-	3,956	10,490	10,152	7,614	5,076	-	3,722
		W	974	929	697	464	-	302	947	904	678	452	-	294	930	887	665	444	-	289	914	872	654	436	-	284
102	38.9	Q(Btu/h)	12,784	12,372	9,279	6,186	-	4,536	12,090	11,700	8,775	5,850	-	4,290	11,334	10,968	8,226	5,484	-	4,022	10,639	10,296	7,722	5,148	-	3,775
		W	943	900	675	450	-	293	926	883	662	442	-	287	905	863	647	432	-	281	887	847	635	423	-	275
98	36.7	Q(Btu/h)	12,970	12,552	9,414	6,276	-	4,602	12,239	11,844	8,883	5,922	-	4,343	11,520	11,148	8,361	5,574	-	4,088	10,800	10,452	7,839	5,226	-	3,832
		W	914	872	654	436	-	284	896	855	641	427	-	278	879	838	629	419	-	273	861	822	616	411	-	267
94	34.4	Q(Btu/h)	13,144	12,720	9,540	6,360	-	4,664	12,400	12,000	9,000	6,000	-	4,400	11,668	11,292	8,469	5,646	-	4,140	10,949	10,596	7,947	5,298	-	3,885
		W	887	847	635	423	-	275	870	830	623	415	-	270	854	815	611	408	-	265	833	795	596	398	-	259
90	32.2	Q(Btu/h)	13,330	12,900	9,675	6,450	-	4,730	12,549	12,144	9,108	6,072	-	4,453	11,817	11,436	8,577	5,718	-	4,193	11,098	10,740	8,055	5,370	-	3,938
		W	861	822	616	411	-	267	844	805	604	403	-	262	827	789	591	394	-	257	810	773	580	386	-	251
86	30.0	Q(Btu/h)	13,504	13,068	9,801	6,534	-	4,792	12,735	12,324	9,243	6,162	-	4,519	11,978	11,592	8,694	5,796	-	4,250	11,247	10,884	8,163	5,442	-	3,991
		W	838	799	599	400	-	260	822	784	588	392	-	255	806	769	576	384	-	250	788	752	564	376	-	245
82	27.8	Q(Btu/h)	13,628	13,188	9,891	6,594	-	4,836	12,846	12,432	9,324	6,216	-	4,558	12,065	11,676	8,757	5,838	-	4,281	11,334	10,968	8,226	5,484	-	4,022
		W	823	785	589	393	-	255	806	769	576	384	-	250	784	748	561	374	-	243	771	735	552	368	-	239
78	25.6	Q(Btu/h)	13,752	13,308	9,981	6,654	-	4,880	12,970	12,552	9,414	6,276	-	4,602	12,202	11,808	8,856	5,904	-	4,330	11,433	11,064	8,298	5,532	-	4,057
		W	803	766	575	383	-	249	787	751	563	376	-	244	770	735	551	367	-	239	751	716	537	358	-	233
74	23.3	Q(Btu/h)	13,814	13,368	10,026	6,684	-	4,902	13,032	12,612	9,459	6,306	-	4,624	12,301	11,904	8,928	5,952	-	4,365	11,520	11,148	8,361	5,574	-	4,088
		W	788	752	564	376	-	245	771	735	552	368	-	239	753	719	539	359	-	234	737	703	527	352	-	229
70	21.1	Q(Btu/h)	13,876	13,428	10,071	6,714	-	4,924	13,082	12,660	9,495	6,330	-	4,642	12,363	11,964	8,973	5,982	-	4,387	11,582	11,208	8,406	5,604	-	4,110
		W	775	740	555	370	-	241	758	723	542	361	-	235	740	706	530	353	-	230	724	691	518	345	-	225
66	18.9	Q(Btu/h)	13,962	13,512	10,134	6,756	-	4,954	13,206	12,780	9,585	6,390	-	4,686	12,425	12,024	9,018	6,012	-	4,409	11,706	11,328	8,496	5,664	-	4,154
		W	762	727	545	364	-	237	745	710	533	355	-	231	728	695	521	347	-	226	711	678	509	339	-	221
62	16.7	Q(Btu/h)	13,987	13,536	10,152	6,768	-	4,963	13,243	12,816	9,612	6,408	-	4,699	12,487	12,084	9,063	6,042	-	4,431	11,755	11,376	8,532	5,688	-	4,171
		W	753	719	539	359	-	234	740	706	530	353	-	230	719	686	515	343	-	223	702	670	502	335	-	218
58	14.4	Q(Btu/h)	14,037	13,584	10,188	6,792	-	4,981	13,268	12,840	9,630	6,420	-	4,708	12,474	12,072	9,054	6,036	-	4,426	11,743	11,364	8,523	5,682	-	4,167
		W	744	710	532	355	-	231	726	692	519	346	-	225	708	676	507	338	-	220	689	657	493	329	-	214
54	12.2	Q(Btu/h)	14,086	13,632	10,224	6,816	-	4,998	13,330	12,900	9,675	6,450	-	4,730	12,549	12,144	9,108	6,072	-	4,453	11,817	11,436	8,577	5,718	-	4,193
		W	740	706	530	353	-	230	724	691	518	345	-	225	705	672	504	336	-	219	685	653	490	327	-	212
50	10.0	Q(Btu/h)	14,111	13,656	10,242	6,828	-	5,007	13,355	12,924	9,693	6,462	-	4,739	12,611	12,204	9,153	6,102	-	4,475	11,867	11,484	8,613	5,742	-	4,211
		W	731	697	523	349	-	227	713	680	510	340	-	221	693	662	496	331	-	215	674	643	482	322	-	209
46	7.8	Q(Btu/h)	14,136	13,680	10,260	6,840	-	5,016	13,392	12,960	9,720	6,480	-	4,752	12,636	12,228	9,171	6,114	-	4,484	11,916	11,532	8,649	5,766	-	4,228
		W	726	692	519	346	-	225	708	676	507	338	-	220	689	657	493	329	-	214	670	639	479	320	-	208
42	5.6	Q(Btu/h)	14,148	13,692	10,269	6,846	-	5,020	13,392	12,960	9,720	6,480	-	4,752	12,660	12,252	9,189	6,126	-	4,492	11,929	11,544	8,658	5,772	-	4,233
		W	724	691	518	345	-	225	706	673	505	337	-	219	685	653	490	327	-	212	665	634	476	317	-	206
38	3.3	Q(Btu/h)	14,148	13,692	10,269	6,846	-	5,020	13,417	12,984	9,738	6,492	-	4,761	12,685	12,276	9,207	6,138	-	4,501	11,966	11,580	8,685	5,790	-	4,246
		W	719	686	515	343	-	223	700	668	501	334	-	217	680	649	487	325	-	211	659	629	472	315	-	205
34	1.1	Q(Btu/h)	14,161	13,704	10,278	6,852	-	5,025	13,429	12,996	9,747	6,498	-	4,765	12,710	12,300	9,225	6,150	-	4,510	11,991	11,604	8,703	5,802	-	4,255
		W	717	684	513	342	-	222	699	666	500	333	-	217	679	647	486	324	-	211	659	628	471	314	-	204
30	-1.1	Q(Btu/h)	14,161	13,704	10,278	6,852	-	5,025	13,429	12,996	9,747	6,498	-	4,765	12,722	12,312	9,234	6,156	-	4,514	12,003	11,616	8,712	5,808	-	4,259
		W	717	684	513	342	-	222	696	664	498	332	-	216	677	646	484	323	-	210	656	626	469	313	-	204
26	-3.3	Q(Btu/h)	14,173	13,716	10,287	6,858	-	5,029	13,454	13,020	9,765	6,510	-	4,774	12,747	12,336	9,252	6,168	-	4,523	12,040	11,652	8,739	5,826	-	4,272
		W	715	682	512	341	-	222	694	662	497	331	-	215	675	644	483	322	-	210	654	624	468	312	-	203
23	-5.0	Q(Btu/h)	14,173	1																						

PEAD-AA12NL
PUZ-AK12NL
2) HEATING

Rated
Q(Btu/h): 14000
W: 1020

Indoor D.B.			80°F / 26.7°C						70°F / 21.1°C						60°F / 15.6°C					
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)	Q(Btu/h)																		
70	21.1	Q(Btu/h)	24,246	18,858	14,144	9,429	-	5,657	24,984	19,432	14,574	9,716	-	5,830	25,920	20,160	15,120	10,080	-	6,048
		W	2,177	1,396	1,047	698	-	329	2,027	1,301	975	650	-	306	1,889	1,212	909	606	-	285
65	18.3	Q(Btu/h)	22,986	17,878	13,409	8,939	-	5,363	23,724	18,452	13,839	9,226	-	5,536	24,606	19,138	14,354	9,569	-	5,741
		W	2,104	1,349	1,012	675	-	318	1,953	1,253	939	626	-	295	1,824	1,170	877	585	-	275
60	15.6	Q(Btu/h)	21,780	16,940	12,705	8,470	-	5,082	22,518	17,514	13,136	8,757	-	5,254	23,346	18,158	13,619	9,079	-	5,447
		W	2,010	1,289	967	645	-	303	1,881	1,207	905	603	-	284	1,760	1,129	847	565	-	266
55	12.8	Q(Btu/h)	20,520	15,960	11,970	7,980	-	4,788	21,258	16,534	12,401	8,267	-	4,960	22,032	17,136	12,852	8,568	-	5,141
		W	1,951	1,252	939	626	-	294	1,805	1,158	868	579	-	272	1,698	1,089	817	545	-	256
50	10.0	Q(Btu/h)	19,278	14,994	11,246	7,497	-	4,498	19,998	15,554	11,666	7,777	-	4,666	20,736	16,128	12,096	8,064	-	4,838
		W	1,875	1,203	902	601	-	283	1,732	1,111	833	555	-	261	1,638	1,051	788	525	-	247
47	8.3	Q(Btu/h)	18,486	14,378	10,784	7,189	-	4,313	19,206	14,938	11,204	7,469	-	4,481	19,926	15,498	11,624	7,749	-	4,649
		W	1,814	1,164	873	582	-	274	1,684	1,080	810	540	-	254	1,585	1,017	763	508	-	239
42	5.6	Q(Btu/h)	17,244	13,412	10,059	6,706	-	4,024	18,000	14,000	10,500	7,000	-	4,200	18,684	14,532	10,899	7,266	-	4,360
		W	1,700	1,090	818	545	-	257	1,590	1,020	765	510	-	240	1,482	951	713	475	-	224
35	1.7	Q(Btu/h)	13,266	10,318	7,739	5,159	-	3,095	14,202	11,046	8,285	5,523	-	3,314	15,210	11,830	8,873	5,915	-	3,549
		W	1,512	970	728	485	-	228	1,406	902	676	451	-	212	1,307	838	629	419	-	197
32	0.0	Q(Btu/h)	12,672	9,856	7,392	4,928	-	2,957	13,410	10,430	7,823	5,215	-	3,129	13,932	10,836	8,127	5,418	-	3,251
		W	1,433	919	689	460	-	216	1,320	847	635	423	-	199	1,232	791	593	395	-	186
27	-2.8	Q(Btu/h)	12,078	9,394	7,046	4,697	-	2,818	12,690	9,870	7,403	4,935	-	2,961	13,158	10,234	7,676	5,117	-	3,070
		W	1,317	845	633	422	-	199	1,202	771	578	386	-	181	1,124	721	541	361	-	170
22	-5.6	Q(Btu/h)	11,556	8,988	6,741	4,494	-	2,696	12,168	9,464	7,098	4,732	-	2,839	12,636	9,828	7,371	4,914	-	2,948
		W	1,221	783	588	392	-	184	1,132	726	545	363	-	171	1,038	666	500	333	-	157
17	-8.3	Q(Btu/h)	11,160	8,680	6,510	4,340	-	2,604	11,754	9,142	6,857	4,571	-	2,743	12,168	9,464	7,098	4,732	-	2,839
		W	1,148	736	552	368	-	173	1,072	687	516	344	-	162	975	625	469	313	-	147
12	-11.1	Q(Btu/h)	10,746	8,358	6,269	4,179	-	2,507	11,340	8,820	6,615	4,410	-	2,646	11,790	9,170	6,878	4,585	-	2,751
		W	1,072	687	516	344	-	162	1,014	651	488	325	-	153	933	599	449	299	-	141
5	-15.0	Q(Btu/h)	10,170	7,910	5,933	3,955	-	2,373	10,602	8,246	6,185	4,123	-	2,474	10,872	8,456	6,342	4,228	-	2,537
		W	976	626	470	313	-	147	937	601	451	300	-	141	865	555	416	277	-	131
2	-16.7	Q(Btu/h)	9,702	7,546	5,660	3,773	-	2,264	10,008	7,784	5,838	3,892	-	2,335	10,224	7,952	5,964	3,976	-	2,386
		W	937	601	451	300	-	141	903	579	435	290	-	136	838	538	403	269	-	126
-3	-19.4	Q(Btu/h)	8,766	6,818	5,114	3,409	-	2,045	9,054	7,042	5,282	3,521	-	2,113	9,198	7,154	5,366	3,577	-	2,146
		W	878	563	422	282	-	132	847	544	408	272	-	128	797	511	383	256	-	120
-8	-22.2	Q(Btu/h)	7,812	6,076	4,557	3,038	-	1,823	8,064	6,272	4,704	3,136	-	1,882	8,154	6,342	4,757	3,171	-	1,903
		W	820	526	395	263	-	124	792	508	381	254	-	120	755	485	363	242	-	114
-13	-25.0	Q(Btu/h)	6,858	5,334	4,001	2,667	-	1,600	7,074	5,502	4,127	2,751	-	1,651	7,092	5,516	4,137	2,758	-	1,655
		W	766	492	369	246	-	116	735	471	353	236	-	111	717	460	345	230	-	108

**PVA-AA12NL
PUZ-AK12NL PUY-AK12NL
1) COOLING**

**Rated
Q(Btu/h): 12000
W: 840**

Indoor W.B.		72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C									
Outdoor D.B. (°F) (°C)		Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	
115	46.1	Q(Btu/h)	11,978	11,592	8,694	5,796	-	4,347	11,321	10,956	8,217	5,478	-	4,109	10,676	10,332	7,749	5,166	-	3,875	10,019	9,696	7,272	4,848	-	3,636
		W	1,060	1,011	759	506	-	313	1,038	991	743	496	-	307	1,019	973	730	486	-	301	1,001	956	717	478	-	296
110	43.3	Q(Btu/h)	12,301	11,904	8,928	5,952	-	4,464	11,606	11,232	8,424	5,616	-	4,212	10,900	10,548	7,911	5,274	-	3,956	10,280	9,948	7,461	4,974	-	3,731
		W	1,012	966	725	483	-	299	994	948	711	474	-	294	976	932	699	466	-	288	958	915	686	457	-	283
106	41.1	Q(Btu/h)	12,574	12,168	9,126	6,084	-	4,563	11,867	11,484	8,613	5,742	-	4,307	11,148	10,788	8,091	5,394	-	4,046	10,490	10,152	7,614	5,076	-	3,807
		W	985	940	705	470	-	291	958	915	686	457	-	283	941	898	673	449	-	278	924	882	662	441	-	273
102	38.9	Q(Btu/h)	12,784	12,372	9,279	6,186	-	4,640	12,090	11,700	8,775	5,850	-	4,388	11,334	10,968	8,226	5,484	-	4,113	10,639	10,296	7,722	5,148	-	3,861
		W	954	911	683	455	-	282	936	894	670	447	-	277	915	874	655	437	-	270	898	857	643	428	-	265
98	36.7	Q(Btu/h)	12,970	12,552	9,414	6,276	-	4,707	12,239	11,844	8,883	5,922	-	4,442	11,520	11,148	8,361	5,574	-	4,181	10,800	10,452	7,839	5,226	-	3,920
		W	924	882	662	441	-	273	906	865	649	433	-	268	889	848	636	424	-	263	871	832	624	416	-	257
94	34.4	Q(Btu/h)	13,144	12,720	9,540	6,360	-	4,770	12,400	12,000	9,000	6,000	-	4,500	11,668	11,292	8,469	5,646	-	4,235	10,949	10,596	7,947	5,298	-	3,974
		W	898	857	643	428	-	265	880	840	630	420	-	260	864	825	619	412	-	255	843	805	604	402	-	249
90	32.2	Q(Btu/h)	13,330	12,900	9,675	6,450	-	4,838	12,549	12,144	9,108	6,072	-	4,554	11,817	11,436	8,577	5,718	-	4,289	11,098	10,740	8,055	5,370	-	4,028
		W	871	832	624	416	-	257	854	815	611	407	-	252	836	798	599	399	-	247	819	782	587	391	-	242
86	30.0	Q(Btu/h)	13,504	13,068	9,801	6,534	-	4,901	12,735	12,324	9,243	6,162	-	4,622	11,978	11,592	8,694	5,796	-	4,347	11,247	10,884	8,163	5,442	-	4,082
		W	847	809	607	404	-	250	832	794	595	397	-	246	815	778	583	389	-	241	797	761	571	381	-	236
82	27.8	Q(Btu/h)	13,628	13,188	9,891	6,594	-	4,946	12,846	12,432	9,324	6,216	-	4,662	12,065	11,676	8,757	5,838	-	4,379	11,334	10,968	8,226	5,484	-	4,113
		W	832	795	596	397	-	246	815	778	583	389	-	241	793	757	568	378	-	234	780	744	558	372	-	230
78	25.6	Q(Btu/h)	13,752	13,308	9,981	6,654	-	4,991	12,970	12,552	9,414	6,276	-	4,707	12,202	11,808	8,856	5,904	-	4,428	11,433	11,064	8,298	5,532	-	4,149
		W	812	775	581	388	-	240	796	760	570	380	-	235	779	743	558	372	-	230	759	725	544	362	-	224
74	23.3	Q(Btu/h)	13,814	13,368	10,026	6,684	-	5,013	13,032	12,612	9,459	6,306	-	4,730	12,301	11,904	8,928	5,952	-	4,464	11,520	11,148	8,361	5,574	-	4,181
		W	797	761	571	381	-	236	780	744	558	372	-	230	762	727	546	364	-	225	745	711	534	356	-	220
70	21.1	Q(Btu/h)	13,876	13,428	10,071	6,714	-	5,036	13,082	12,660	9,495	6,330	-	4,748	12,363	11,964	8,973	5,982	-	4,487	11,582	11,208	8,406	5,604	-	4,203
		W	784	748	561	374	-	232	766	732	549	366	-	226	749	715	536	357	-	221	732	699	524	349	-	216
66	18.9	Q(Btu/h)	13,962	13,512	10,134	6,756	-	5,067	13,206	12,780	9,585	6,390	-	4,793	12,425	12,024	9,018	6,012	-	4,509	11,706	11,328	8,496	5,664	-	4,248
		W	771	736	552	368	-	228	753	719	539	360	-	223	737	703	527	352	-	218	719	686	515	343	-	212
62	16.7	Q(Btu/h)	13,987	13,536	10,152	6,768	-	5,076	13,243	12,816	9,612	6,408	-	4,806	12,487	12,084	9,063	6,042	-	4,532	11,755	11,376	8,532	5,688	-	4,266
		W	762	727	546	364	-	225	749	715	536	357	-	221	728	695	521	347	-	215	710	678	508	339	-	210
58	14.4	Q(Btu/h)	14,037	13,584	10,188	6,792	-	5,094	13,268	12,840	9,630	6,420	-	4,815	12,474	12,072	9,054	6,036	-	4,527	11,743	11,364	8,523	5,682	-	4,262
		W	752	718	539	359	-	222	734	701	525	350	-	217	716	684	513	342	-	212	697	665	499	333	-	206
54	12.2	Q(Btu/h)	14,086	13,632	10,224	6,816	-	5,112	13,330	12,900	9,675	6,450	-	4,838	12,549	12,144	9,108	6,072	-	4,554	11,817	11,436	8,577	5,718	-	4,289
		W	749	715	536	357	-	221	732	699	524	349	-	216	713	680	510	340	-	211	693	661	496	331	-	205
50	10.0	Q(Btu/h)	14,111	13,656	10,242	6,828	-	5,121	13,355	12,924	9,693	6,462	-	4,847	12,611	12,204	9,153	6,102	-	4,577	11,867	11,484	8,613	5,742	-	4,307
		W	739	706	529	353	-	218	721	688	516	344	-	213	701	669	502	335	-	207	682	651	488	326	-	202
46	7.8	Q(Btu/h)	14,136	13,680	10,260	6,840	-	5,130	13,392	12,960	9,720	6,480	-	4,860	12,636	12,228	9,171	6,114	-	4,586	11,916	11,532	8,649	5,766	-	4,325
		W	734	701	525	350	-	217	716	684	513	342	-	216	697	665	499	333	-	206	678	647	485	323	-	200
42	5.6	Q(Btu/h)	14,148	13,692	10,269	6,846	-	5,135	13,392	12,960	9,720	6,480	-	4,860	12,660	12,252	9,189	6,126	-	4,595	11,929	11,544	8,658	5,772	-	4,329
		W	732	699	524	349	-	216	714	681	511	341	-	211	693	661	496	331	-	205	672	642	481	321	-	199
38	3.3	Q(Btu/h)	14,148	13,692	10,269	6,846	-	5,135	13,417	12,984	9,738	6,492	-	4,869	12,685	12,276	9,207	6,138	-	4,604	11,966	11,580	8,685	5,790	-	4,343
		W	728	695	521	347	-	215	708	676	507	338	-	209	688	657	493	328	-	203	667	637	478	318	-	197
34	1.1	Q(Btu/h)	14,161	13,704	10,278	6,852	-	5,139	13,429	12,996	9,747	6,498	-	4,874	12,710	12,300	9,225	6,150	-	4,613	11,991	11,604	8,703	5,802	-	4,352
		W	725	692	519	346	-	214	707	675	506	337	-	209	686	655	491	328	-	203	666	636	477	318	-	197
30	-1.1	Q(Btu/h)	14,161	13,704	10,278	6,852	-	5,139	13,429	12,996	9,747	6,498	-	4,874	12,722	12,312	9,234	6,156	-	4,617	12,003	11,616	8,712	5,808	-	4,356
		W	725	692	519	346	-	214	704	672	504	336	-	208	685	654	490	327	-	202	664	633	475	317	-	196
26	-3.3	Q(Btu/h)	14,173	13,716	10,287	6,858	-	5,144	13,454	13,020	9,765	6,510	-	4,883	12,747	12,336	9,252	6,168	-	4,626	12,040	11,652	8,739	5,826	-	4,370
		W	723	690	518	345	-	214	702	670	503	335	-	207	683	652	489	326	-	202	662	632	474	316	-	196
23	-5.0	Q(Btu/h)	14,173	13,716	10,287	6,858	-	5,144	13,466	13,032	9,774	6,516	-	4,887	12,760	12,348	9,261	6,174	-	4,631	12,065	11,676	8,757	5,838	-	4,379
		W	722	689	517	344	-	213	702	670	503	335	-	207	682	651	488	326	-	202	662	632	474	316	-	196
18	-7.8	Q(Btu/h)	14,210	13,752	10,314	6,876	-	5,157	13,504	13,068	9,801	6,534	-	4,901	12,760	12,348	9,261	6,174	-	4,631	12,127	11,736	8,802	5,868	-	4,401
		W	719	686	515	343	-	212	701	669	502	335	-	207	681	650	488	325	-	201	662	632	474	316	-	196
14	-10.0	Q(Btu/h)	14,210	13,752	10,314	6,876	-	5,157	13,504	13,068																

**PVA-AA12NL
PUZ-AK12NL
2) HEATING**

Rated
Q(Btu/h): 14000
W: 1100

Indoor D.B.			80°F / 26.7°C					70°F / 21.1°C					60°F / 15.6°C							
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)	Q(Btu/h)																		
70	21.1	Q(Btu/h)	25,593	18,858	14,144	9,429	-	5,657	26,372	19,432	14,574	9,716	-	5,830	27,360	20,160	15,120	10,080	-	6,048
		W	2,368	1,506	1,129	753	-	329	2,206	1,403	1,052	701	-	306	2,055	1,307	980	653	-	285
65	18.3	Q(Btu/h)	24,263	17,878	13,409	8,939	-	5,363	25,042	18,452	13,839	9,226	-	5,536	25,973	19,138	14,354	9,569	-	5,741
		W	2,289	1,455	1,091	728	-	318	2,124	1,351	1,013	675	-	295	1,984	1,262	946	631	-	275
60	15.6	Q(Btu/h)	22,990	16,940	12,705	8,470	-	5,082	23,769	17,514	13,136	8,757	-	5,254	24,643	18,158	13,619	9,079	-	5,447
		W	2,187	1,390	1,043	695	-	303	2,047	1,301	976	651	-	284	1,915	1,218	913	609	-	266
55	12.8	Q(Btu/h)	21,660	15,960	11,970	7,980	-	4,788	22,439	16,534	12,401	8,267	-	4,960	23,256	17,136	12,852	8,568	-	5,141
		W	2,123	1,350	1,012	675	-	294	1,964	1,249	936	624	-	272	1,848	1,175	881	587	-	256
50	10.0	Q(Btu/h)	20,349	14,994	11,246	7,497	-	4,498	21,109	15,554	11,666	7,777	-	4,666	21,888	16,128	12,096	8,064	-	4,838
		W	2,040	1,297	973	648	-	283	1,884	1,198	898	599	-	261	1,782	1,133	850	567	-	247
47	8.3	Q(Btu/h)	19,513	14,378	10,784	7,189	-	4,313	20,273	14,938	11,204	7,469	-	4,481	21,033	15,498	11,624	7,749	-	4,649
		W	1,974	1,255	941	628	-	274	1,832	1,165	874	582	-	254	1,725	1,097	823	548	-	239
42	5.6	Q(Btu/h)	18,202	13,412	10,059	6,706	-	4,024	19,000	14,000	10,500	7,000	-	4,200	19,722	14,532	10,899	7,266	-	4,360
		W	1,849	1,176	882	588	-	257	1,730	1,100	825	550	-	240	1,612	1,025	769	513	-	224
35	1.7	Q(Btu/h)	14,003	10,318	7,739	5,159	-	3,095	14,991	11,046	8,285	5,523	-	3,314	16,055	11,830	8,873	5,915	-	3,549
		W	1,645	1,046	785	523	-	228	1,529	972	729	486	-	212	1,422	904	678	452	-	197
32	0.0	Q(Btu/h)	13,376	9,856	7,392	4,928	-	2,957	14,155	10,430	7,823	5,215	-	3,129	14,706	10,836	8,127	5,418	-	3,251
		W	1,559	991	743	496	-	216	1,436	913	685	457	-	199	1,341	853	639	426	-	186
27	-2.8	Q(Btu/h)	12,749	9,394	7,046	4,697	-	2,818	13,395	9,870	7,403	4,935	-	2,961	13,889	10,234	7,676	5,117	-	3,070
		W	1,432	911	683	455	-	199	1,308	832	624	416	-	181	1,223	778	583	389	-	170
22	-5.6	Q(Btu/h)	12,198	8,988	6,741	4,494	-	2,696	12,844	9,464	7,098	4,732	-	2,839	13,338	9,828	7,371	4,914	-	2,948
		W	1,329	845	634	422	-	184	1,232	783	587	392	-	171	1,130	718	539	359	-	157
17	-8.3	Q(Btu/h)	11,780	8,680	6,510	4,340	-	2,604	12,407	9,142	6,857	4,571	-	2,743	12,844	9,464	7,098	4,732	-	2,839
		W	1,249	794	596	397	-	173	1,166	741	556	371	-	162	1,060	674	506	337	-	147
12	-11.1	Q(Btu/h)	11,343	8,358	6,269	4,179	-	2,507	11,970	8,820	6,615	4,410	-	2,646	12,445	9,170	6,878	4,585	-	2,751
		W	1,166	741	556	371	-	162	1,104	702	526	351	-	153	1,016	646	484	323	-	141
5	-15.0	Q(Btu/h)	10,735	7,910	5,933	3,955	-	2,373	11,191	8,246	6,185	4,123	-	2,474	11,476	8,456	6,342	4,228	-	2,537
		W	1,062	675	507	338	-	147	1,019	648	486	324	-	141	941	598	449	299	-	131
2	-16.7	Q(Btu/h)	10,241	7,546	5,660	3,773	-	2,264	10,564	7,784	5,838	3,892	-	2,335	10,792	7,952	5,964	3,976	-	2,386
		W	1,019	648	486	324	-	141	983	625	469	312	-	136	912	580	435	290	-	126
-3	-19.4	Q(Btu/h)	9,253	6,818	5,114	3,409	-	2,045	9,557	7,042	5,282	3,521	-	2,113	9,709	7,154	5,366	3,577	-	2,146
		W	955	607	455	304	-	132	922	586	440	293	-	128	867	551	413	276	-	120
-8	-22.2	Q(Btu/h)	8,246	6,076	4,557	3,038	-	1,823	8,512	6,272	4,704	3,136	-	1,882	8,607	6,342	4,757	3,171	-	1,903
		W	893	568	426	284	-	124	862	548	411	274	-	120	822	523	392	261	-	114
-13	-25.0	Q(Btu/h)	7,239	5,334	4,001	2,667	-	1,600	7,467	5,502	4,127	2,751	-	1,651	7,486	5,516	4,137	2,758	-	1,655
		W	834	530	398	265	-	116	799	508	381	254	-	111	780	496	372	248	-	108

**PLA-AE18NL
PUZ-AK18NL PUY-AK18NL**

1) COOLING

Rated
Q(Btu/h): 18000
W: 1310

Indoor W.B. Outdoor D.B. (°F) (°C)	72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C				
	Max	Rated	75%	50%	25% Min	Max	Rated	75%	50%	25% Min	Max	Rated	75%	50%	25% Min	Max	Rated	75%	50%	25% Min
115 46.1 Q(Btu/h) W	17,871	17,388	13,041	8,694	- 4,830	16,891	16,434	12,326	8,217	- 4,565	15,929	15,498	11,624	7,749	- 4,305	14,948	14,544	10,908	7,272	- 4,040
	1,637	1,577	1,183	789	- 289	1,605	1,546	1,159	773	- 283	1,575	1,517	1,138	758	- 278	1,548	1,491	1,118	745	- 273
110 43.3 Q(Btu/h) W	18,352	17,856	13,392	8,928	- 4,960	17,316	16,848	12,636	8,424	- 4,680	16,262	15,822	11,867	7,911	- 4,395	15,337	14,922	11,192	7,461	- 4,145
	1,564	1,507	1,130	753	- 276	1,535	1,479	1,109	739	- 271	1,508	1,453	1,090	726	- 266	1,481	1,427	1,070	713	- 261
106 41.1 Q(Btu/h) W	18,759	18,252	13,689	9,126	- 5,070	17,705	17,226	12,920	8,613	- 4,785	16,632	16,182	12,137	8,091	- 4,495	15,651	15,228	11,421	7,614	- 4,230
	1,522	1,466	1,099	733	- 269	1,481	1,427	1,070	713	- 261	1,454	1,400	1,050	700	- 257	1,428	1,376	1,032	688	- 252
102 38.9 Q(Btu/h) W	19,074	18,558	13,919	9,279	- 5,155	18,038	17,550	13,163	8,775	- 4,875	16,909	16,452	12,339	8,226	- 4,570	15,873	15,444	11,583	7,722	- 4,290
	1,474	1,420	1,065	710	- 260	1,447	1,394	1,045	697	- 255	1,414	1,362	1,022	681	- 250	1,387	1,336	1,002	668	- 245
98 36.7 Q(Btu/h) W	19,351	18,828	14,121	9,414	- 5,230	18,260	17,766	13,325	8,883	- 4,935	17,187	16,722	12,542	8,361	- 4,645	16,114	15,678	11,759	7,839	- 4,355
	1,428	1,376	1,032	688	- 252	1,401	1,349	1,012	675	- 247	1,374	1,323	992	662	- 242	1,346	1,297	973	648	- 238
94 34.4 Q(Btu/h) W	19,610	19,080	14,310	9,540	- 5,300	18,500	18,000	13,500	9,000	- 5,000	17,409	16,938	12,704	8,469	- 4,705	16,336	15,894	11,921	7,947	- 4,415
	1,387	1,336	1,002	668	- 245	1,360	1,310	983	655	- 240	1,336	1,286	965	643	- 236	1,303	1,255	941	627	- 230
90 32.2 Q(Btu/h) W	19,888	19,350	14,513	9,675	- 5,375	18,722	18,216	13,662	9,108	- 5,060	17,631	17,154	12,866	8,577	- 4,765	16,558	16,110	12,083	8,055	- 4,475
	1,346	1,297	973	648	- 238	1,319	1,271	953	635	- 233	1,292	1,245	933	622	- 228	1,266	1,220	915	610	- 223
86 30.0 Q(Btu/h) W	20,147	19,602	14,702	9,801	- 5,445	19,000	18,486	13,865	9,243	- 5,135	17,871	17,388	13,041	8,694	- 4,830	16,780	16,326	12,245	8,163	- 4,535
	1,310	1,262	946	631	- 231	1,285	1,238	928	619	- 227	1,259	1,213	910	607	- 222	1,232	1,187	890	593	- 217
82 27.8 Q(Btu/h) W	20,332	19,782	14,837	9,891	- 5,495	19,166	18,648	13,986	9,324	- 5,180	18,001	17,514	13,136	8,757	- 4,865	16,909	16,452	12,339	8,226	- 4,570
	1,287	1,239	929	620	- 227	1,259	1,213	910	607	- 222	1,225	1,180	885	590	- 216	1,205	1,161	870	580	- 213
78 25.6 Q(Btu/h) W	20,517	19,962	14,972	9,981	- 5,545	19,351	18,828	14,121	9,414	- 5,230	18,204	17,712	13,284	8,856	- 4,920	17,057	16,596	12,447	8,298	- 4,610
	1,255	1,209	907	605	- 222	1,231	1,186	889	593	- 217	1,204	1,159	870	580	- 212	1,174	1,131	848	565	- 207
74 23.3 Q(Btu/h) W	20,609	20,052	15,039	10,026	- 5,570	19,444	18,918	14,189	9,459	- 5,255	18,352	17,856	13,392	8,928	- 4,960	17,187	16,722	12,542	8,361	- 4,645
	1,232	1,187	890	593	- 217	1,205	1,161	870	580	- 213	1,178	1,134	851	567	- 208	1,152	1,110	832	555	- 203
70 21.1 Q(Btu/h) W	20,702	20,142	15,107	10,071	- 5,595	19,518	18,990	14,243	9,495	- 5,275	18,445	17,946	13,460	8,973	- 4,985	17,279	16,812	12,609	8,406	- 4,670
	1,212	1,167	875	584	- 214	1,185	1,141	856	571	- 209	1,157	1,115	836	557	- 204	1,132	1,090	817	545	- 200
66 18.9 Q(Btu/h) W	20,831	20,268	15,201	10,134	- 5,630	19,703	19,170	14,378	9,585	- 5,325	18,537	18,036	13,527	9,018	- 5,010	17,464	16,992	12,744	8,496	- 4,720
	1,191	1,148	861	574	- 210	1,164	1,121	841	561	- 205	1,138	1,096	822	548	- 201	1,111	1,070	803	535	- 196
62 16.7 Q(Btu/h) W	20,868	20,304	15,228	10,152	- 5,640	19,758	19,224	14,418	9,612	- 5,340	18,630	18,126	13,595	9,063	- 5,035	17,538	17,064	12,798	8,532	- 4,740
	1,178	1,134	851	567	- 208	1,157	1,115	836	557	- 204	1,125	1,083	813	542	- 198	1,098	1,057	793	529	- 194
58 14.4 Q(Btu/h) W	20,942	20,376	15,282	10,188	- 5,660	19,795	19,260	14,445	9,630	- 5,350	18,611	18,108	13,581	9,054	- 5,030	17,520	17,046	12,785	8,523	- 4,735
	1,163	1,120	840	560	- 205	1,134	1,093	819	546	- 200	1,107	1,066	800	533	- 195	1,077	1,038	778	519	- 190
54 12.2 Q(Btu/h) W	21,016	20,448	15,336	10,224	- 5,680	19,888	19,350	14,513	9,675	- 5,375	18,722	18,216	13,662	9,108	- 5,060	17,631	17,154	12,866	8,577	- 4,765
	1,157	1,115	836	557	- 204	1,132	1,090	817	545	- 200	1,102	1,061	796	531	- 194	1,070	1,031	773	515	- 189
50 10.0 Q(Btu/h) W	21,053	20,484	15,363	10,242	- 5,690	19,925	19,386	14,540	9,693	- 5,385	18,815	18,306	13,730	9,153	- 5,085	17,705	17,226	12,920	8,613	- 4,785
	1,142	1,100	825	550	- 202	1,114	1,073	805	536	- 197	1,084	1,044	783	522	- 191	1,054	1,015	761	508	- 186
46 7.8 Q(Btu/h) W	21,090	20,520	15,390	10,260	- 5,700	19,980	19,440	14,580	9,720	- 5,400	18,852	18,342	13,757	9,171	- 5,095	17,779	17,298	12,974	8,649	- 4,805
	1,134	1,093	819	546	- 200	1,107	1,066	800	533	- 195	1,077	1,038	778	519	- 190	1,047	1,009	757	504	- 185
42 5.6 Q(Btu/h) W	21,109	20,538	15,404	10,269	- 5,705	19,980	19,440	14,580	9,720	- 5,400	18,889	18,378	13,784	9,189	- 5,105	17,797	17,316	12,987	8,658	- 4,810
	1,132	1,090	817	545	- 200	1,103	1,062	797	531	- 195	1,070	1,031	773	515	- 189	1,039	1,001	751	500	- 183
38 3.3 Q(Btu/h) W	21,109	20,538	15,404	10,269	- 5,705	20,017	19,476	14,607	9,738	- 5,410	18,926	18,414	13,811	9,207	- 5,115	17,853	17,370	13,028	8,685	- 4,825
	1,125	1,083	813	542	- 198	1,095	1,055	791	527	- 193	1,064	1,024	768	512	- 188	1,031	993	745	496	- 182
34 1.1 Q(Btu/h) W	21,127	20,556	15,417	10,278	- 5,710	20,036	19,494	14,621	9,747	- 5,415	18,963	18,450	13,838	9,225	- 5,125	17,890	17,406	13,055	8,703	- 4,835
	1,121	1,079	810	540	- 198	1,092	1,052	789	526	- 193	1,061	1,022	766	511	- 187	1,030	992	744	496	- 182
30 -1.1 Q(Btu/h) W	21,127	20,556	15,417	10,278	- 5,710	20,036	19,494	14,621	9,747	- 5,415	18,981	18,468	13,851	9,234	- 5,130	17,908	17,424	13,068	8,712	- 4,840
	1,121	1,079	810	540	- 198	1,088	1,048	786	524	- 192	1,058	1,019	764	510	- 187	1,025	988	741	494	- 181
26 -3.3 Q(Btu/h) W	21,146	20,574	15,431	10,287	- 5,715	20,073	19,530	14,648	9,765	- 5,425	19,018	18,504	13,878	9,252	- 5,140	17,964	17,478	13,109	8,739	- 4,855
	1,118	1,077	808	538	- 197	1,085	1,045	784	523	- 192	1,055	1,017	762	508	- 186	1,023	985	739	493	- 180
23 -5.0 Q(Btu/h) W	21,146	20,574	15,431	10,287	- 5,715	20,091	19,548	14,661	9,774	- 5,430	19,037	18,522	13,892	9,261	- 5,145	18,001	17,514	13,136	8,757	- 4,865
	1,115	1,074	806	537	- 197	1,085	1,045	784	523	- 192	1,054	1,015	761	508	- 186	1,023	985	739	493	- 180
18 -7.8 Q(Btu/h) W	21,201	20,628	15,471	10,314	- 5,730	20,147	19,602	14,702	9,801	- 5,445	19,037	18,522	13,892	9,261	- 5,145	18,093	17,604	13,203	8,802	- 4,890
	1,111	1,070	803	535	- 196	1,084	1,044	783	522	- 191	1,053	1,014	760	507	- 186	1,023	985	739		

PLA-AE18NL
PUZ-AK18NL
2) HEATING

Rated
Q(Btu/h): 19000
W: 1380

Indoor D.B.			80°F / 26.7°C						70°F / 21.1°C						60°F / 15.6°C					
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)	Q(Btu/h)																		
70	21.1	Q(Btu/h)	30,981	25,593	19,195	12,797	6,398	5,657	31,924	26,372	19,779	13,186	6,593	5,830	33,120	27,360	20,520	13,680	6,840	6,048
		W	2,451	1,889	1,417	945	472	274	2,282	1,760	1,320	880	440	255	2,127	1,639	1,230	820	410	238
65	18.3	Q(Btu/h)	29,371	24,263	18,197	12,132	6,066	5,363	30,314	25,042	18,782	12,521	6,261	5,536	31,441	25,973	19,480	12,987	6,493	5,741
		W	2,368	1,826	1,369	913	456	265	2,198	1,695	1,271	847	424	246	2,053	1,583	1,187	791	396	229
60	15.6	Q(Btu/h)	27,830	22,990	17,243	11,495	5,748	5,082	28,773	23,769	17,827	11,885	5,942	5,254	29,831	24,643	18,482	12,322	6,161	5,447
		W	2,263	1,744	1,308	872	436	253	2,118	1,633	1,224	816	408	237	1,982	1,528	1,146	764	382	221
55	12.8	Q(Btu/h)	26,220	21,660	16,245	10,830	5,415	4,788	27,163	22,439	16,829	11,220	5,610	4,960	28,152	23,256	17,442	11,628	5,814	5,141
		W	2,196	1,693	1,270	847	423	245	2,032	1,566	1,175	783	392	227	1,912	1,474	1,105	737	368	214
50	10.0	Q(Btu/h)	24,633	20,349	15,262	10,175	5,087	4,498	25,553	21,109	15,832	10,555	5,277	4,666	26,496	21,888	16,416	10,944	5,472	4,838
		W	2,110	1,627	1,220	814	407	236	1,949	1,503	1,127	751	376	218	1,844	1,421	1,066	711	355	206
47	8.3	Q(Btu/h)	23,621	19,513	14,635	9,757	4,878	4,313	24,541	20,273	15,205	10,137	5,068	4,481	25,461	21,033	15,775	10,517	5,258	4,649
		W	2,042	1,575	1,181	787	394	228	1,896	1,461	1,096	731	365	212	1,785	1,376	1,032	688	344	199
42	5.6	Q(Btu/h)	22,034	18,202	13,652	9,101	4,551	4,024	23,000	19,000	14,250	9,500	4,750	4,200	23,874	19,722	14,792	9,861	4,931	4,360
		W	1,914	1,475	1,106	738	369	214	1,790	1,380	1,035	690	345	200	1,668	1,286	965	643	322	186
35	1.7	Q(Btu/h)	16,951	14,003	10,502	7,002	3,501	3,095	18,147	14,991	11,243	7,496	3,748	3,314	19,435	16,055	12,041	8,028	4,014	3,549
		W	1,702	1,312	984	656	328	190	1,582	1,220	915	610	305	177	1,471	1,134	851	567	284	164
32	0.0	Q(Btu/h)	16,192	13,376	10,032	6,688	3,344	2,957	17,135	14,155	10,616	7,078	3,539	3,129	17,802	14,706	11,030	7,353	3,677	3,251
		W	1,613	1,243	933	622	311	180	1,486	1,145	859	573	286	166	1,387	1,070	802	535	267	155
27	-2.8	Q(Btu/h)	15,433	12,749	9,562	6,375	3,187	2,818	16,215	13,395	10,046	6,698	3,349	2,961	16,813	13,889	10,417	6,945	3,472	3,070
		W	1,482	1,143	857	571	286	166	1,353	1,043	782	522	261	151	1,266	976	732	488	244	141
22	-5.6	Q(Btu/h)	14,766	12,198	9,149	6,099	3,050	2,696	15,548	12,844	9,633	6,422	3,211	2,839	16,146	13,338	10,004	6,669	3,335	2,948
		W	1,375	1,060	795	530	265	154	1,274	983	737	491	246	142	1,169	901	676	451	225	131
17	-8.3	Q(Btu/h)	14,260	11,780	8,835	5,890	2,945	2,604	15,019	12,407	9,305	6,204	3,102	2,743	15,548	12,844	9,633	6,422	3,211	2,839
		W	1,292	996	747	498	249	144	1,206	930	698	465	233	135	1,097	846	634	423	211	123
12	-11.1	Q(Btu/h)	13,731	11,343	8,507	5,672	2,836	2,507	14,490	11,970	8,978	5,985	2,993	2,646	15,065	12,445	9,334	6,223	3,111	2,751
		W	1,206	930	698	465	233	135	1,142	880	660	440	220	128	1,051	810	608	405	203	117
5	-15.0	Q(Btu/h)	12,995	10,735	8,051	5,368	2,684	2,373	13,547	11,191	8,393	5,596	2,798	2,474	13,892	11,476	8,607	5,738	2,869	2,537
		W	1,099	847	635	424	212	123	1,054	813	610	406	203	118	974	751	563	375	188	109
2	-16.7	Q(Btu/h)	12,397	10,241	7,681	5,121	2,560	2,264	12,788	10,564	7,923	5,282	2,641	2,335	13,064	10,792	8,094	5,396	2,698	2,386
		W	1,054	813	610	406	203	118	1,017	784	588	392	196	114	943	727	545	364	182	105
-3	-19.4	Q(Btu/h)	11,201	9,253	6,940	4,627	2,313	2,045	11,569	9,557	7,168	4,779	2,389	2,113	11,753	9,709	7,282	4,855	2,427	2,146
		W	988	762	571	381	190	110	954	736	552	368	184	107	897	691	519	346	173	100
-8	-22.2	Q(Btu/h)	9,982	8,246	6,185	4,123	2,062	1,823	10,304	8,512	6,384	4,256	2,128	1,882	10,419	8,607	6,455	4,304	2,152	1,903
		W	924	712	534	356	178	103	891	687	515	344	172	100	850	656	492	328	164	95
-13	-25.0	Q(Btu/h)	8,763	7,239	5,429	3,620	1,810	1,600	9,039	7,467	5,600	3,734	1,867	1,651	9,062	7,486	5,615	3,743	1,872	1,655
		W	863	665	499	333	166	96	827	638	478	319	159	92	807	622	467	311	156	90

**PKA-AL18NL
PUZ-AK18NL PUY-AK18NL**
1) COOLING

**Rated
Q(Btu/h): 18000
W: 1630**

Indoor W.B. Outdoor D.B. (°F) (°C)	72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C								
	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
115 46.1 Q(Btu/h) W	17,581	17,388	13,041	8,694	4,347	4,154	16,617	16,434	12,326	8,217	4,109	3,926	15,670	15,498	11,624	7,749	3,875	3,702	14,706	14,544	10,908	7,272	3,636	3,474
110 43.3 Q(Btu/h) W	18,054	17,856	13,392	8,928	4,464	4,266	17,035	16,848	12,636	8,424	4,212	4,025	15,998	15,822	11,867	7,911	3,956	3,780	15,088	14,922	11,192	7,461	3,731	3,565
106 41.1 Q(Btu/h) W	18,455	18,252	13,689	9,126	4,563	4,360	17,417	17,226	12,920	8,613	4,307	4,115	16,362	16,182	12,137	8,091	4,046	3,866	15,397	15,228	11,421	7,614	3,807	3,638
102 38.9 Q(Btu/h) W	18,764	18,558	13,919	9,279	4,640	4,433	17,745	17,550	13,163	8,775	4,388	4,193	16,635	16,452	12,339	8,226	4,113	3,930	15,616	15,444	11,583	7,722	3,861	3,689
98 36.7 Q(Btu/h) W	19,037	18,828	14,121	9,414	4,707	4,498	17,963	17,766	13,325	8,883	4,442	4,244	16,908	16,722	12,542	8,361	4,181	3,995	15,852	15,678	11,759	7,839	3,920	3,745
94 34.4 Q(Btu/h) W	19,292	19,080	14,310	9,540	4,770	4,558	18,200	18,000	13,500	9,000	4,500	4,300	17,126	16,938	12,704	8,469	4,235	4,046	16,071	15,894	11,921	7,947	3,974	3,797
90 32.2 Q(Btu/h) W	19,565	19,350	14,513	9,675	4,838	4,623	18,418	18,216	13,662	9,108	4,554	4,352	17,345	17,154	12,866	8,577	4,289	4,098	16,289	16,110	12,083	8,055	4,028	3,849
86 30.0 Q(Btu/h) W	19,820	19,602	14,702	9,801	4,901	4,683	18,691	18,486	13,865	9,243	4,622	4,416	17,581	17,388	13,041	8,694	4,347	4,154	16,507	16,326	12,245	8,163	4,062	3,900
82 27.8 Q(Btu/h) W	20,002	19,782	14,837	9,891	4,946	4,726	18,855	18,648	13,986	9,324	4,662	4,455	17,709	17,514	13,136	8,757	4,379	4,184	16,635	16,452	12,339	8,226	4,113	3,930
78 25.6 Q(Btu/h) W	20,184	19,962	14,972	9,981	4,991	4,769	19,037	18,828	14,121	9,414	4,707	4,498	17,909	17,712	13,284	8,856	4,428	4,231	16,780	16,596	12,447	8,298	4,149	3,965
74 23.3 Q(Btu/h) W	20,275	20,052	15,039	10,026	5,013	4,790	19,128	18,918	14,189	9,459	4,730	4,519	18,054	17,856	13,392	8,928	4,464	4,266	16,908	16,722	12,542	8,361	4,181	3,995
70 21.1 Q(Btu/h) W	20,366	20,142	15,107	10,071	5,036	4,812	19,201	18,990	14,243	9,495	4,748	4,537	18,145	17,946	13,460	8,973	4,487	4,287	16,999	16,812	12,609	8,406	4,203	4,016
66 18.9 Q(Btu/h) W	20,493	20,268	15,201	10,134	5,067	4,842	19,383	19,170	14,378	9,585	4,793	4,580	18,236	18,036	13,527	9,018	4,509	4,309	17,181	16,992	12,744	8,496	4,248	4,059
62 16.7 Q(Btu/h) W	20,530	20,304	15,228	10,152	5,076	4,850	19,438	19,224	14,418	9,612	4,806	4,592	18,327	18,126	13,595	9,063	4,532	4,330	17,254	17,064	12,798	8,532	4,266	4,076
58 14.4 Q(Btu/h) W	20,602	20,376	15,282	10,188	5,094	4,868	19,474	19,260	14,445	9,630	4,815	4,601	18,309	18,108	13,581	9,054	4,527	4,326	17,235	17,046	12,785	8,523	4,262	4,072
54 12.2 Q(Btu/h) W	20,675	20,448	15,336	10,224	5,112	4,885	19,565	19,350	14,513	9,675	4,838	4,629	18,418	18,216	13,662	9,108	4,554	4,352	17,345	17,154	12,866	8,577	4,289	4,098
50 10.0 Q(Btu/h) W	20,712	20,484	15,363	10,242	5,121	4,893	19,601	19,386	14,540	9,693	4,847	4,631	18,509	18,306	13,730	9,153	4,577	4,373	17,417	17,226	12,920	8,613	4,307	4,115
46 7.8 Q(Btu/h) W	20,748	20,520	15,390	10,260	5,130	4,902	19,656	19,440	14,580	9,720	4,860	4,644	18,546	18,342	13,757	9,171	4,586	4,382	17,490	17,298	12,974	8,649	4,325	4,132
42 5.6 Q(Btu/h) W	20,766	20,538	15,404	10,269	5,135	4,906	19,656	19,440	14,580	9,720	4,860	4,644	18,582	18,378	13,784	9,189	4,595	4,390	17,508	17,316	12,987	8,658	4,329	4,137
38 3.3 Q(Btu/h) W	20,766	20,538	15,404	10,269	5,135	4,906	19,692	19,476	14,607	9,738	4,869	4,653	18,619	18,414	13,811	9,207	4,604	4,399	17,563	17,370	13,028	8,685	4,343	4,150
34 1.1 Q(Btu/h) W	20,784	20,556	15,417	10,278	5,139	4,911	19,711	19,494	14,621	9,747	4,874	4,657	18,655	18,450	13,838	9,225	4,613	4,408	17,599	17,406	13,055	8,703	4,352	4,158
30 -1.1 Q(Btu/h) W	20,784	20,556	15,417	10,278	5,139	4,911	19,711	19,494	14,621	9,747	4,874	4,657	18,673	18,468	13,851	9,234	4,617	4,412	17,618	17,424	13,068	8,712	4,356	4,162
26 -3.3 Q(Btu/h) W	20,803	20,574	15,431	10,287	5,144	4,915	19,747	19,530	14,648	9,765	4,883	4,666	18,710	18,504	13,878	9,252	4,626	4,420	17,672	17,478	13,109	8,739	4,370	4,175
23 -5.0 Q(Btu/h) W	20,803	20,574	15,431	10,287	5,144	4,915	19,765	19,548	14,661	9,774	4,887	4,670	18,728	18,522	13,892	9,261	4,631	4,425	17,709	17,514	13,136	8,757	4,379	4,184
18 -7.8 Q(Btu/h) W	20,857	20,628	15,471	10,314	5,157	4,928	19,820	19,602	14,702	9,801	4,901	4,683	18,728	18,522	13,892	9,261	4,631	4,425	17,800	17,604	13,203	8,802	4,401	4,205
14 -10.0 Q(Btu/h) W	20,857	20,628	15,471	10,314	5,157	4,928	19,820	19,602	14,702	9,801	4,901	4,683	18,801	18,594	13,946	9,297	4,649	4,442	17,818	17,622	13,217	8,811	4,406	4,210
10 -12.2 Q(Btu/h) W	20,894	20,664	15,498	10,332	5,166	4,936	19,820	19,602	14,702	9,801	4,901	4,683	18,855	18,648	13,986	9,324	4,662	4,455	17,872	17,676	13,257	8,838	4,419	4,223
6 -14.4 Q(Btu/h) W	20,912	20,682	15,512	10,341	5,171	4,941	19,893	19,674	14,756	9,837	4,919	4,700	18,892	18,684	14,013	9,342	4,671	4,463	17,891	17,694	13,271	8,847	4,424	4,227
2 -16.7 Q(Btu/h) W	20,966	20,736	15,552	10,368	5,184	4,954	19,965	19,746	14,810	9,873	4,937	4,717	18,946	18,738	14,054	9,369	4,685	4,476	18,057	17,820	13,365	8,910	4,455	4,257
0 -17.8 Q(Btu/h) W	21,003	20,772	15,579	10,386	5,193	4,962	20,002	19,782	14,837	9,891	4,946	4,726	19,001	18,792	14,094	9,396	4,698	4,489	18,018	17,820	13,365	8,910	4,455	4,257

PKA-AL18NL
PUZ-AK18NL
2) HEATING

Rated
Q(Btu/h): 19000
W: 1680

Indoor D.B.			80°F / 26.7°C						70°F / 21.1°C						60°F / 15.6°C					
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)	Q(Btu/h)																		
70	21.1	Q(Btu/h)	29,634	25,593	19,195	12,797	6,398	5,657	30,536	26,372	19,779	13,186	6,593	5,830	31,680	27,360	20,520	13,680	6,840	6,048
		W	2,834	2,300	1,725	1,150	575	315	2,639	2,142	1,607	1,071	536	293	2,459	1,996	1,497	998	499	273
65	18.3	Q(Btu/h)	28,094	24,263	18,197	12,132	6,066	5,363	28,996	25,042	18,782	12,521	6,261	5,536	30,074	25,973	19,480	12,987	6,493	5,741
		W	2,739	2,223	1,667	1,111	556	304	2,542	2,063	1,547	1,032	516	282	2,374	1,927	1,445	963	482	264
60	15.6	Q(Btu/h)	26,620	22,990	17,243	11,495	5,748	5,082	27,522	23,769	17,827	11,885	5,942	5,254	28,534	24,643	18,482	12,322	6,161	5,447
		W	2,616	2,124	1,593	1,062	531	291	2,449	1,987	1,491	994	497	272	2,291	1,860	1,395	930	465	255
55	12.8	Q(Btu/h)	25,080	21,660	16,245	10,830	5,415	4,788	25,982	22,439	16,829	11,220	5,610	4,960	26,928	23,256	17,442	11,628	5,814	5,141
		W	2,540	2,061	1,546	1,031	515	282	2,349	1,907	1,430	953	477	261	2,211	1,794	1,346	897	449	246
50	10.0	Q(Btu/h)	23,562	20,349	15,262	10,175	5,087	4,498	24,442	21,109	15,832	10,555	5,277	4,666	25,344	21,888	16,416	10,944	5,472	4,838
		W	2,441	1,981	1,486	990	495	271	2,254	1,830	1,372	915	457	250	2,132	1,730	1,298	865	433	237
47	8.3	Q(Btu/h)	22,594	19,513	14,635	9,757	4,878	4,313	23,474	20,273	15,205	10,137	5,068	4,481	24,354	21,033	15,775	10,517	5,258	4,649
		W	2,362	1,917	1,438	958	479	262	2,192	1,779	1,334	890	445	244	2,064	1,675	1,256	837	419	229
42	5.6	Q(Btu/h)	21,076	18,202	13,652	9,101	4,551	4,024	22,000	19,000	14,250	9,500	4,750	4,200	22,836	19,722	14,792	9,861	4,931	4,360
		W	2,213	1,796	1,347	898	449	246	2,070	1,680	1,260	840	420	230	1,929	1,566	1,174	783	391	214
35	1.7	Q(Btu/h)	16,214	14,003	10,502	7,002	3,501	3,095	17,358	14,991	11,243	7,496	3,748	3,314	18,590	16,055	12,041	8,028	4,014	3,549
		W	1,969	1,598	1,198	799	399	219	1,830	1,485	1,114	743	371	203	1,702	1,381	1,036	690	345	189
32	0.0	Q(Btu/h)	15,488	13,376	10,032	6,688	3,344	2,957	16,390	14,155	10,616	7,078	3,539	3,129	17,028	14,706	11,030	7,353	3,677	3,251
		W	1,865	1,514	1,135	757	378	207	1,718	1,394	1,046	697	349	191	1,604	1,302	977	651	326	178
27	-2.8	Q(Btu/h)	14,762	12,749	9,562	6,375	3,187	2,818	15,510	13,395	10,046	6,698	3,349	2,961	16,082	13,889	10,417	6,945	3,472	3,070
		W	1,714	1,391	1,043	696	348	190	1,565	1,270	953	635	318	174	1,463	1,188	891	594	297	163
22	-5.6	Q(Btu/h)	14,124	12,198	9,149	6,099	3,050	2,696	14,872	12,844	9,633	6,422	3,211	2,839	15,444	13,338	10,004	6,669	3,335	2,948
		W	1,590	1,290	968	645	323	177	1,474	1,196	897	598	299	164	1,352	1,097	823	549	274	150
17	-8.3	Q(Btu/h)	13,640	11,780	8,835	5,890	2,945	2,604	14,366	12,407	9,305	6,204	3,102	2,743	14,872	12,844	9,633	6,422	3,211	2,839
		W	1,495	1,213	910	606	303	166	1,395	1,132	849	566	283	155	1,269	1,030	772	515	257	141
12	-11.1	Q(Btu/h)	13,134	11,343	8,507	5,672	2,836	2,507	13,860	11,970	8,978	5,985	2,993	2,646	14,410	12,445	9,334	6,223	3,111	2,751
		W	1,395	1,132	849	566	283	155	1,321	1,072	804	536	268	147	1,215	986	740	493	247	135
5	-15.0	Q(Btu/h)	12,430	10,735	8,051	5,368	2,684	2,373	12,958	11,191	8,393	5,596	2,798	2,474	13,288	11,476	8,607	5,738	2,869	2,537
		W	1,271	1,032	774	516	258	141	1,219	990	742	495	247	135	1,126	914	685	457	228	125
2	-16.7	Q(Btu/h)	11,858	10,241	7,681	5,121	2,560	2,264	12,232	10,564	7,923	5,282	2,641	2,335	12,496	10,792	8,094	5,396	2,698	2,386
		W	1,219	990	742	495	247	135	1,176	954	716	477	239	131	1,091	885	664	443	221	121
-3	-19.4	Q(Btu/h)	10,714	9,253	6,940	4,627	2,313	2,045	11,066	9,557	7,168	4,779	2,389	2,113	11,242	9,709	7,282	4,855	2,427	2,146
		W	1,143	927	696	464	232	127	1,103	895	672	448	224	123	1,037	842	631	421	210	115
-8	-22.2	Q(Btu/h)	9,548	8,246	6,185	4,123	2,062	1,823	9,856	8,512	6,384	4,256	2,128	1,882	9,966	8,607	6,455	4,304	2,152	1,903
		W	1,068	867	650	433	217	119	1,031	837	627	418	209	115	983	798	599	399	200	109
-13	-25.0	Q(Btu/h)	8,382	7,239	5,429	3,620	1,810	1,600	8,646	7,467	5,600	3,734	1,867	1,651	8,668	7,486	5,615	3,743	1,872	1,655
		W	998	810	607	405	202	111	956	776	582	388	194	106	934	758	568	379	189	104

PEAD-AA18NL
PUZ-AK18NL PUY-AK18NL
1) COOLING

Rated
Q(Btu/h): 18000
W: 1530

Indoor W.B.		72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C									
Outdoor D.B.		Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	
(°F) (°C)																										
115	46.1	Q(Btu/h)	17,871	17,388	13,041	8,694	-	4,540	16,891	16,434	12,326	8,217	-	4,291	15,929	15,498	11,624	7,749	-	4,047	14,948	14,544	10,908	7,272	-	3,798
		W	1,914	1,842	1,382	921	-	325	1,876	1,805	1,354	903	-	319	1,841	1,772	1,329	886	-	313	1,809	1,741	1,306	871	-	307
110	43.3	Q(Btu/h)	18,352	17,856	13,392	8,928	-	4,662	17,316	16,848	12,636	8,424	-	4,399	16,262	15,822	11,867	7,911	-	4,131	15,337	14,922	11,192	7,461	-	3,896
		W	1,829	1,760	1,320	880	-	311	1,795	1,727	1,296	864	-	305	1,763	1,697	1,273	848	-	299	1,732	1,666	1,250	833	-	294
106	41.1	Q(Btu/h)	18,759	18,252	13,689	9,126	-	4,766	17,705	17,226	12,920	8,613	-	4,498	16,632	16,182	12,137	8,091	-	4,225	15,651	15,228	11,421	7,614	-	3,976
		W	1,779	1,712	1,284	856	-	302	1,732	1,666	1,250	833	-	294	1,700	1,636	1,227	818	-	289	1,670	1,607	1,205	803	-	284
102	38.9	Q(Btu/h)	19,074	18,558	13,919	9,279	-	4,846	18,038	17,550	13,163	8,775	-	4,583	16,909	16,452	12,339	8,226	-	4,296	15,873	15,444	11,583	7,722	-	4,033
		W	1,724	1,659	1,244	829	-	293	1,692	1,628	1,221	814	-	287	1,654	1,591	1,193	796	-	281	1,622	1,561	1,170	780	-	275
98	36.7	Q(Btu/h)	19,351	18,828	14,121	9,414	-	4,916	18,260	17,766	13,325	8,883	-	4,639	17,187	16,722	12,542	8,361	-	4,366	16,114	15,678	11,759	7,839	-	4,094
		W	1,670	1,607	1,205	803	-	284	1,638	1,576	1,182	788	-	278	1,606	1,545	1,159	773	-	273	1,574	1,515	1,136	757	-	267
94	34.4	Q(Btu/h)	19,610	19,080	14,310	9,540	-	4,982	18,500	18,000	13,500	9,000	-	4,700	17,409	16,938	12,704	8,469	-	4,423	16,336	15,894	11,921	7,947	-	4,150
		W	1,622	1,561	1,170	780	-	275	1,590	1,530	1,148	765	-	270	1,561	1,502	1,127	751	-	265	1,523	1,466	1,099	733	-	259
90	32.2	Q(Btu/h)	19,888	19,350	14,513	9,675	-	5,053	18,722	18,216	13,662	9,108	-	4,756	17,631	17,154	12,866	8,577	-	4,479	16,558	16,110	12,083	8,055	-	4,207
		W	1,574	1,515	1,136	757	-	267	1,542	1,484	1,113	742	-	262	1,511	1,454	1,090	727	-	257	1,480	1,424	1,068	712	-	251
86	30.0	Q(Btu/h)	20,147	19,602	14,702	9,801	-	5,118	19,000	18,486	13,865	9,243	-	4,827	17,871	17,388	13,041	8,694	-	4,540	16,780	16,326	12,245	8,163	-	4,263
		W	1,531	1,473	1,105	737	-	260	1,503	1,446	1,084	723	-	255	1,472	1,417	1,063	708	-	250	1,441	1,386	1,040	693	-	245
82	27.8	Q(Btu/h)	20,332	19,782	14,837	9,891	-	5,165	19,166	18,648	13,986	9,324	-	4,869	18,001	17,514	13,136	8,757	-	4,573	16,909	16,452	12,339	8,226	-	4,296
		W	1,504	1,447	1,086	724	-	255	1,472	1,417	1,063	708	-	250	1,433	1,379	1,034	689	-	243	1,409	1,356	1,017	678	-	239
78	25.6	Q(Btu/h)	20,517	19,962	14,972	9,981	-	5,212	19,351	18,828	14,121	9,414	-	4,916	18,204	17,712	13,284	8,856	-	4,625	17,057	16,596	12,447	8,298	-	4,333
		W	1,468	1,412	1,059	706	-	249	1,439	1,385	1,038	692	-	244	1,407	1,354	1,016	677	-	239	1,372	1,320	990	660	-	233
74	23.3	Q(Btu/h)	20,609	20,052	15,039	10,026	-	5,236	19,444	18,918	14,189	9,459	-	4,940	18,352	17,856	13,392	8,928	-	4,662	17,187	16,722	12,542	8,361	-	4,366
		W	1,441	1,386	1,040	693	-	245	1,409	1,356	1,017	678	-	239	1,377	1,325	994	662	-	234	1,347	1,296	972	648	-	229
70	21.1	Q(Btu/h)	20,702	20,142	15,107	10,071	-	5,259	19,518	18,990	14,243	9,495	-	4,959	18,445	17,946	13,460	8,973	-	4,686	17,279	16,812	12,609	8,406	-	4,390
		W	1,417	1,363	1,022	682	-	241	1,385	1,333	999	666	-	235	1,353	1,302	977	651	-	230	1,323	1,273	955	636	-	225
66	18.9	Q(Btu/h)	20,831	20,268	15,201	10,134	-	5,292	19,703	19,170	14,378	9,585	-	5,006	18,537	18,036	13,527	9,018	-	4,709	17,464	16,992	12,744	8,496	-	4,437
		W	1,393	1,340	1,005	670	-	237	1,361	1,310	982	655	-	231	1,331	1,281	960	640	-	226	1,299	1,250	938	625	-	221
62	16.7	Q(Btu/h)	20,868	20,304	15,228	10,152	-	5,302	19,758	19,224	14,418	9,612	-	5,020	18,630	18,126	13,595	9,063	-	4,733	17,538	17,064	12,798	8,532	-	4,456
		W	1,377	1,325	994	662	-	234	1,353	1,302	977	651	-	230	1,315	1,265	949	633	-	223	1,283	1,235	926	617	-	218
58	14.4	Q(Btu/h)	20,942	20,376	15,282	10,188	-	5,320	19,795	19,260	14,445	9,630	-	5,029	18,611	18,108	13,581	9,054	-	4,728	17,520	17,046	12,785	8,523	-	4,451
		W	1,359	1,308	981	654	-	231	1,326	1,276	957	638	-	225	1,294	1,245	934	623	-	220	1,259	1,212	909	606	-	214
54	12.2	Q(Btu/h)	21,016	20,448	15,336	10,224	-	5,339	19,888	19,350	14,513	9,675	-	5,053	18,722	18,216	13,662	9,108	-	4,756	17,631	17,154	12,866	8,577	-	4,479
		W	1,353	1,302	977	651	-	230	1,323	1,273	955	636	-	225	1,288	1,239	929	620	-	219	1,251	1,204	903	602	-	212
50	10.0	Q(Btu/h)	21,053	20,484	15,363	10,242	-	5,349	19,925	19,386	14,540	9,693	-	5,062	18,815	18,306	13,730	9,153	-	4,780	17,705	17,226	12,920	8,613	-	4,498
		W	1,336	1,285	964	643	-	227	1,302	1,253	940	627	-	221	1,267	1,219	915	610	-	215	1,232	1,186	889	593	-	209
46	7.8	Q(Btu/h)	21,090	20,520	15,390	10,260	-	5,358	19,980	19,440	14,580	9,720	-	5,076	18,852	18,342	13,757	9,171	-	4,789	17,779	17,298	12,974	8,649	-	4,517
		W	1,326	1,276	957	638	-	225	1,294	1,245	934	623	-	220	1,259	1,212	909	606	-	214	1,224	1,178	884	589	-	208
42	5.6	Q(Btu/h)	21,109	20,538	15,404	10,269	-	5,363	19,980	19,440	14,580	9,720	-	5,076	18,889	18,378	13,784	9,189	-	4,799	17,797	17,316	12,987	8,658	-	4,521
		W	1,323	1,273	955	636	-	225	1,289	1,241	931	620	-	219	1,251	1,204	903	602	-	212	1,215	1,169	877	584	-	206
38	3.3	Q(Btu/h)	21,109	20,538	15,404	10,269	-	5,363	20,017	19,476	14,607	9,738	-	5,085	18,926	18,414	13,811	9,207	-	4,808	17,853	17,370	13,028	8,685	-	4,536
		W	1,315	1,265	949	633	-	223	1,280	1,232	924	616	-	217	1,243	1,196	897	598	-	211	1,205	1,160	870	580	-	205
34	1.1	Q(Btu/h)	21,127	20,556	15,417	10,278	-	5,367	20,036	19,494	14,621	9,747	-	5,090	18,963	18,450	13,838	9,225	-	4,818	17,890	17,406	13,055	8,703	-	4,545
		W	1,310	1,261	946	630	-	222	1,277	1,229	921	614	-	217	1,240	1,193	895	597	-	211	1,204	1,158	869	579	-	204
30	-1.1	Q(Btu/h)	21,127	20,556	15,417	10,278	-	5,367	20,036	19,494	14,621	9,747	-	5,090	18,981	18,468	13,851	9,234	-	4,822	17,908	17,424	13,068	8,712	-	4,550
		W	1,310	1,261	946	630	-	222	1,272	1,224	918	612	-	216	1,237	1,190	893	595	-	210	1,199	1,154	865	577	-	204
26	-3.3	Q(Btu/h)</																								

PEAD-AA18NL
PUZ-AK18NL
2) HEATING

Rated
Q(Btu/h): 19000
W: 1540

Indoor D.B.			80°F / 26.7°C						70°F / 21.1°C						60°F / 15.6°C					
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)	Q(Btu/h)																		
70	21.1	Q(Btu/h)	29,634	25,593	19,195	12,797	6,398	5,657	30,536	26,372	19,779	13,186	6,593	5,830	31,680	27,360	20,520	13,680	6,840	6,048
		W	2,560	2,108	1,581	1,054	527	329	2,384	1,964	1,473	982	491	306	2,222	1,830	1,372	915	457	285
65	18.3	Q(Btu/h)	28,094	24,263	18,197	12,132	6,066	5,363	28,996	25,042	18,782	12,521	6,261	5,536	30,074	25,973	19,480	12,987	6,493	5,741
		W	2,474	2,037	1,528	1,019	509	318	2,296	1,891	1,418	946	473	295	2,145	1,766	1,325	883	442	275
60	15.6	Q(Btu/h)	26,620	22,990	17,243	11,495	5,748	5,082	27,522	23,769	17,827	11,885	5,942	5,254	28,534	24,643	18,482	12,322	6,161	5,447
		W	2,364	1,947	1,460	973	487	303	2,212	1,822	1,366	911	455	284	2,070	1,705	1,279	852	426	266
55	12.8	Q(Btu/h)	25,080	21,660	16,245	10,830	5,415	4,788	25,982	22,439	16,829	11,220	5,610	4,960	26,928	23,256	17,442	11,628	5,814	5,141
		W	2,294	1,890	1,417	945	472	294	2,122	1,748	1,311	874	437	272	1,997	1,645	1,234	822	411	256
50	10.0	Q(Btu/h)	23,562	20,349	15,262	10,175	5,087	4,498	24,442	21,109	15,832	10,555	5,277	4,666	25,344	21,888	16,416	10,944	5,472	4,838
		W	2,205	1,816	1,362	908	454	283	2,036	1,677	1,258	839	419	261	1,926	1,586	1,190	793	397	247
47	8.3	Q(Btu/h)	22,594	19,513	14,635	9,757	4,878	4,313	23,474	20,273	15,205	10,137	5,068	4,481	24,354	21,033	15,775	10,517	5,258	4,649
		W	2,134	1,757	1,318	879	439	274	1,980	1,631	1,223	815	408	254	1,864	1,535	1,152	768	384	239
42	5.6	Q(Btu/h)	21,076	18,202	13,652	9,101	4,551	4,024	22,000	19,000	14,250	9,500	4,750	4,200	22,836	19,722	14,792	9,861	4,931	4,360
		W	1,999	1,646	1,235	823	412	257	1,870	1,540	1,155	770	385	240	1,743	1,435	1,076	718	359	224
35	1.7	Q(Btu/h)	16,214	14,003	10,502	7,002	3,501	3,095	17,358	14,991	11,243	7,496	3,748	3,314	18,590	16,055	12,041	8,028	4,014	3,549
		W	1,778	1,465	1,098	732	366	228	1,653	1,361	1,021	681	340	212	1,537	1,266	949	633	316	197
32	0.0	Q(Btu/h)	15,488	13,376	10,032	6,688	3,344	2,957	16,390	14,155	10,616	7,078	3,539	3,129	17,028	14,706	11,030	7,353	3,677	3,251
		W	1,685	1,388	1,041	694	347	216	1,552	1,278	959	639	320	199	1,449	1,194	895	597	298	186
27	-2.8	Q(Btu/h)	14,762	12,749	9,562	6,375	3,187	2,818	15,510	13,395	10,046	6,698	3,349	2,961	16,082	13,889	10,417	6,945	3,472	3,070
		W	1,548	1,275	956	638	319	199	1,414	1,164	873	582	291	181	1,322	1,089	817	544	272	170
22	-5.6	Q(Btu/h)	14,124	12,198	9,149	6,099	3,050	2,696	14,872	12,844	9,633	6,422	3,211	2,839	15,444	13,338	10,004	6,669	3,335	2,948
		W	1,436	1,183	887	591	296	184	1,331	1,096	822	548	274	171	1,221	1,006	754	503	251	157
17	-8.3	Q(Btu/h)	13,640	11,780	8,835	5,890	2,945	2,604	14,366	12,407	9,305	6,204	3,102	2,743	14,872	12,844	9,633	6,422	3,211	2,839
		W	1,350	1,112	834	556	278	173	1,260	1,038	778	519	259	162	1,146	944	708	472	236	147
12	-11.1	Q(Btu/h)	13,134	11,343	8,507	5,672	2,836	2,507	13,860	11,970	8,978	5,985	2,993	2,646	14,410	12,445	9,334	6,223	3,111	2,751
		W	1,260	1,038	778	519	259	162	1,193	983	737	491	246	153	1,098	904	678	452	226	141
5	-15.0	Q(Btu/h)	12,430	10,735	8,051	5,368	2,684	2,373	12,958	11,191	8,393	5,596	2,798	2,474	13,288	11,476	8,607	5,738	2,869	2,537
		W	1,148	946	709	473	236	147	1,101	907	680	454	227	141	1,017	838	628	419	209	131
2	-16.7	Q(Btu/h)	11,858	10,241	7,681	5,121	2,560	2,264	12,232	10,564	7,923	5,282	2,641	2,335	12,496	10,792	8,094	5,396	2,698	2,386
		W	1,101	907	680	454	227	141	1,062	875	656	437	219	136	985	812	609	406	203	126
-3	-19.4	Q(Btu/h)	10,714	9,253	6,940	4,627	2,313	2,045	11,066	9,557	7,168	4,779	2,389	2,113	11,242	9,709	7,282	4,855	2,427	2,146
		W	1,032	850	638	425	213	132	997	821	616	410	205	128	937	772	579	386	193	120
-8	-22.2	Q(Btu/h)	9,548	8,246	6,185	4,123	2,062	1,823	9,856	8,512	6,384	4,256	2,128	1,882	9,966	8,607	6,455	4,304	2,152	1,903
		W	965	795	596	397	199	124	931	767	575	383	192	120	888	732	549	366	183	114
-13	-25.0	Q(Btu/h)	8,382	7,239	5,429	3,620	1,810	1,600	8,646	7,467	5,600	3,734	1,867	1,651	8,668	7,486	5,615	3,743	1,872	1,655
		W	901	742	557	371	186	116	864	711	534	356	178	111	843	695	521	347	174	108

**PVA-AA18NL
PUZ-AK18NL PUY-AK18NL**

1) COOLING

Rated
Q(Btu/h): 18000
W: 1530

Indoor W.B.		72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C									
Outdoor D.B. (°F) (°C)		Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	
115	46.1	Q(Btu/h)	17,678	17,388	13,041	8,694	-	4,540	16,708	16,434	12,326	8,217	-	4,291	15,756	15,498	11,624	7,749	-	4,047	14,786	14,544	10,908	7,272	-	3,798
		W	1,890	1,842	1,382	921	-	361	1,853	1,805	1,354	903	-	354	1,818	1,772	1,329	886	-	347	1,787	1,741	1,306	871	-	341
110	43.3	Q(Btu/h)	18,154	17,856	13,392	8,928	-	4,662	17,129	16,848	12,636	8,424	-	4,399	16,086	15,822	11,867	7,911	-	4,131	15,171	14,922	11,192	7,461	-	3,896
		W	1,806	1,760	1,320	880	-	345	1,773	1,727	1,296	864	-	339	1,741	1,697	1,273	848	-	333	1,710	1,666	1,250	833	-	327
106	41.1	Q(Btu/h)	18,556	18,252	13,689	9,126	-	4,766	17,513	17,226	12,920	8,613	-	4,498	16,452	16,182	12,137	8,091	-	4,225	15,482	15,228	11,421	7,614	-	3,976
		W	1,757	1,712	1,284	856	-	336	1,710	1,666	1,250	833	-	327	1,678	1,636	1,227	818	-	321	1,649	1,607	1,205	803	-	315
102	38.9	Q(Btu/h)	18,867	18,558	13,919	9,279	-	4,846	17,843	17,550	13,163	8,775	-	4,583	16,726	16,452	12,339	8,226	-	4,296	15,701	15,444	11,583	7,722	-	4,033
		W	1,702	1,659	1,244	829	-	325	1,670	1,628	1,221	814	-	319	1,633	1,591	1,193	796	-	312	1,601	1,561	1,170	780	-	306
98	36.7	Q(Btu/h)	19,142	18,828	14,121	9,414	-	4,916	18,062	17,766	13,325	8,883	-	4,639	17,001	16,722	12,542	8,361	-	4,366	15,939	15,678	11,759	7,839	-	4,094
		W	1,649	1,607	1,205	803	-	315	1,617	1,576	1,182	788	-	309	1,586	1,545	1,159	773	-	303	1,554	1,515	1,136	757	-	297
94	34.4	Q(Btu/h)	19,398	19,080	14,310	9,540	-	4,982	18,300	18,000	13,500	9,000	-	4,700	17,220	16,938	12,704	8,469	-	4,423	16,159	15,894	11,921	7,947	-	4,150
		W	1,601	1,561	1,170	780	-	306	1,570	1,530	1,148	765	-	300	1,542	1,502	1,127	751	-	295	1,504	1,466	1,099	733	-	287
90	32.2	Q(Btu/h)	19,673	19,350	14,513	9,675	-	5,053	18,520	18,216	13,662	9,108	-	4,756	17,440	17,154	12,866	8,577	-	4,479	16,379	16,110	12,083	8,055	-	4,207
		W	1,554	1,515	1,136	757	-	297	1,523	1,484	1,113	742	-	291	1,492	1,454	1,090	727	-	285	1,462	1,424	1,068	712	-	279
86	30.0	Q(Btu/h)	19,929	19,602	14,702	9,801	-	5,118	18,794	18,486	13,865	9,243	-	4,827	17,678	17,388	13,041	8,694	-	4,540	16,598	16,326	12,245	8,163	-	4,263
		W	1,512	1,473	1,105	737	-	289	1,484	1,446	1,084	723	-	284	1,454	1,417	1,063	708	-	278	1,422	1,386	1,040	693	-	272
82	27.8	Q(Btu/h)	20,112	19,782	14,837	9,891	-	5,165	18,959	18,648	13,986	9,324	-	4,869	17,806	17,514	13,136	8,757	-	4,573	16,726	16,452	12,339	8,226	-	4,296
		W	1,485	1,447	1,086	724	-	284	1,454	1,417	1,063	708	-	278	1,415	1,379	1,034	689	-	270	1,391	1,356	1,017	678	-	266
78	25.6	Q(Btu/h)	20,295	19,962	14,972	9,981	-	5,212	19,142	18,828	14,121	9,414	-	4,916	18,007	17,712	13,284	8,856	-	4,625	16,873	16,596	12,447	8,298	-	4,333
		W	1,449	1,412	1,059	706	-	277	1,421	1,385	1,038	692	-	272	1,389	1,354	1,016	677	-	266	1,355	1,320	990	660	-	259
74	23.3	Q(Btu/h)	20,386	20,052	15,039	10,026	-	5,236	19,233	18,918	14,189	9,459	-	4,940	18,154	17,856	13,392	8,928	-	4,662	17,001	16,722	12,542	8,361	-	4,366
		W	1,422	1,386	1,040	693	-	272	1,391	1,356	1,017	678	-	266	1,360	1,325	994	662	-	260	1,330	1,296	972	648	-	254
70	21.1	Q(Btu/h)	20,478	20,142	15,107	10,071	-	5,259	19,307	18,990	14,243	9,495	-	4,959	18,245	17,946	13,460	8,973	-	4,686	17,092	16,812	12,609	8,406	-	4,390
		W	1,399	1,363	1,022	682	-	267	1,367	1,333	999	666	-	261	1,336	1,302	977	651	-	255	1,306	1,273	955	636	-	250
66	18.9	Q(Btu/h)	20,606	20,268	15,201	10,134	-	5,292	19,490	19,170	14,378	9,585	-	5,006	18,337	18,036	13,527	9,018	-	4,709	17,275	16,992	12,744	8,496	-	4,437
		W	1,375	1,340	1,005	670	-	263	1,344	1,310	982	655	-	257	1,314	1,281	960	640	-	251	1,283	1,250	938	625	-	245
62	16.7	Q(Btu/h)	20,642	20,304	15,228	10,152	-	5,302	19,544	19,224	14,418	9,612	-	5,020	18,428	18,126	13,595	9,063	-	4,733	17,348	17,064	12,798	8,532	-	4,456
		W	1,360	1,325	994	662	-	260	1,336	1,302	977	651	-	255	1,298	1,265	949	633	-	248	1,267	1,235	926	617	-	242
58	14.4	Q(Btu/h)	20,716	20,376	15,282	10,188	-	5,320	19,581	19,260	14,445	9,630	-	5,029	18,410	18,108	13,581	9,054	-	4,728	17,330	17,046	12,785	8,523	-	4,451
		W	1,342	1,308	981	654	-	257	1,309	1,276	957	638	-	250	1,278	1,245	934	623	-	244	1,243	1,212	909	606	-	238
54	12.2	Q(Btu/h)	20,789	20,448	15,336	10,224	-	5,339	19,673	19,350	14,513	9,675	-	5,053	18,520	18,216	13,662	9,108	-	4,756	17,440	17,154	12,866	8,577	-	4,479
		W	1,336	1,302	977	651	-	255	1,306	1,273	955	636	-	250	1,272	1,239	929	620	-	243	1,236	1,204	903	602	-	236
50	10.0	Q(Btu/h)	20,825	20,484	15,363	10,242	-	5,349	19,709	19,386	14,540	9,693	-	5,062	18,611	18,306	13,730	9,153	-	4,780	17,513	17,226	12,920	8,613	-	4,498
		W	1,319	1,285	964	643	-	252	1,286	1,253	940	627	-	246	1,251	1,219	915	610	-	239	1,217	1,186	889	593	-	233
46	7.8	Q(Btu/h)	20,862	20,520	15,390	10,260	-	5,358	19,764	19,440	14,580	9,720	-	5,076	18,648	18,342	13,757	9,171	-	4,789	17,586	17,298	12,974	8,649	-	4,517
		W	1,309	1,276	957	638	-	250	1,278	1,245	934	623	-	244	1,243	1,212	909	606	-	238	1,209	1,178	884	589	-	231
42	5.6	Q(Btu/h)	20,880	20,538	15,404	10,269	-	5,363	19,764	19,440	14,580	9,720	-	5,076	18,684	18,378	13,784	9,189	-	4,799	17,605	17,316	12,987	8,658	-	4,521
		W	1,306	1,273	955	636	-	250	1,273	1,241	931	620	-	243	1,236	1,204	903	602	-	236	1,199	1,169	877	584	-	229
38	3.3	Q(Btu/h)	20,880	20,538	15,404	10,269	-	5,363	19,801	19,476	14,607	9,738	-	5,085	18,721	18,414	13,811	9,207	-	4,808	17,660	17,370	13,028	8,685	-	4,536
		W	1,298	1,265	949	633	-	248	1,264	1,232	924	616	-	242	1,228	1,196	897	598	-	235	1,190	1,160	870	580	-	227
34	1.1	Q(Btu/h)	20,899	20,556	15,417	10,278	-	5,367	19,819	19,494	14,621	9,747	-	5,090	18,758	18,450	13,838	9,225	-	4,818	17,696	17,406	13,055	8,703	-	4,545
		W	1,294	1,261	946	630	-	247	1,261	1,229	921	614	-	241	1,225	1,193	895	597	-	234	1,188	1,158	869	579	-	227
30	-1.1	Q(Btu/h)	20,899	20,556	15,417	10,278	-	5,367	19,819	19,494	14,621	9,747	-	5,090	18,776	18,468	13,851	9,234	-	4,822	17,714	17,424	13,068	8,712	-	4,550
		W	1,294	1,261	946	630	-	247	1,256	1,224	918	612	-	240	1,221	1,190	893	595	-	233	1,184	1,154	865	577	-	226
26	-3																									

PVA-AA18NL
PUZ-AK18NL
2) HEATING

Rated
Q(Btu/h): 19000
W: 1560

Indoor D.B.			80°F / 26.7°C							70°F / 21.1°C							60°F / 15.6°C						
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min			
(°F)	(°C)	Q(Btu/h)																					
70	21.1	Q(Btu/h)	30,981	25,593	19,195	12,797	6,398	5,657	31,924	26,372	19,779	13,186	6,593	5,830	33,120	27,360	20,520	13,680	6,840	6,048			
		W	2,670	2,136	1,602	1,068	534	356	2,486	1,989	1,492	995	497	332	2,317	1,853	1,390	927	463	309			
65	18.3	Q(Btu/h)	29,371	24,263	18,197	12,132	6,066	5,363	30,314	25,042	18,782	12,521	6,261	5,536	31,441	25,973	19,480	12,987	6,493	5,741			
		W	2,580	2,064	1,548	1,032	516	344	2,395	1,916	1,437	958	479	319	2,237	1,789	1,342	895	447	298			
60	15.6	Q(Btu/h)	27,830	22,990	17,243	11,495	5,748	5,082	28,773	23,769	17,827	11,885	5,942	5,254	29,831	24,643	18,482	12,322	6,161	5,447			
		W	2,465	1,972	1,479	986	493	329	2,307	1,845	1,384	923	461	308	2,159	1,727	1,295	863	432	288			
55	12.8	Q(Btu/h)	26,220	21,660	16,245	10,830	5,415	4,788	27,163	22,439	16,829	11,220	5,610	4,960	28,152	23,256	17,442	11,628	5,814	5,141			
		W	2,393	1,914	1,436	957	479	319	2,213	1,771	1,328	885	443	295	2,083	1,666	1,250	833	417	278			
50	10.0	Q(Btu/h)	24,633	20,349	15,262	10,175	5,087	4,498	25,553	21,109	15,832	10,555	5,277	4,666	26,496	21,888	16,416	10,944	5,472	4,838			
		W	2,299	1,839	1,379	920	460	307	2,124	1,699	1,274	849	425	283	2,009	1,607	1,205	803	402	268			
47	8.3	Q(Btu/h)	23,621	19,513	14,635	9,757	4,878	4,313	24,541	20,273	15,205	10,137	5,068	4,481	25,461	21,033	15,775	10,517	5,258	4,649			
		W	2,225	1,780	1,335	890	445	297	2,065	1,652	1,239	826	413	275	1,944	1,555	1,166	778	389	259			
42	5.6	Q(Btu/h)	22,034	18,202	13,652	9,101	4,551	4,024	23,000	19,000	14,250	9,500	4,750	4,200	23,874	19,722	14,792	9,861	4,931	4,360			
		W	2,085	1,668	1,251	834	417	278	1,950	1,560	1,170	780	390	260	1,817	1,454	1,090	727	363	242			
35	1.7	Q(Btu/h)	16,951	14,003	10,502	7,002	3,501	3,095	18,147	14,991	11,243	7,496	3,748	3,314	19,435	16,055	12,041	8,028	4,014	3,549			
		W	1,854	1,484	1,113	742	371	247	1,724	1,379	1,034	690	345	230	1,603	1,282	962	641	321	214			
32	0.0	Q(Btu/h)	16,192	13,376	10,032	6,688	3,344	2,957	17,135	14,155	10,616	7,078	3,539	3,129	17,802	14,706	11,030	7,353	3,677	3,251			
		W	1,757	1,406	1,054	703	351	234	1,619	1,295	971	647	324	216	1,511	1,209	907	605	302	202			
27	-2.8	Q(Btu/h)	15,433	12,749	9,562	6,375	3,187	2,818	16,215	13,395	10,046	6,698	3,349	2,961	16,813	13,889	10,417	6,945	3,472	3,070			
		W	1,615	1,292	969	646	323	215	1,474	1,179	885	590	295	197	1,379	1,103	827	551	276	184			
22	-5.6	Q(Btu/h)	14,766	12,198	9,149	6,099	3,050	2,696	15,548	12,844	9,633	6,422	3,211	2,839	16,146	13,338	10,004	6,669	3,335	2,948			
		W	1,498	1,198	899	599	300	200	1,388	1,111	833	555	278	185	1,273	1,019	764	509	255	170			
17	-8.3	Q(Btu/h)	14,260	11,780	8,835	5,890	2,945	2,604	15,019	12,407	9,305	6,204	3,102	2,743	15,548	12,844	9,633	6,422	3,211	2,839			
		W	1,408	1,126	845	563	282	188	1,314	1,051	789	526	263	175	1,195	956	717	478	239	159			
12	-11.1	Q(Btu/h)	13,731	11,343	8,507	5,672	2,836	2,507	14,490	11,970	8,978	5,985	2,993	2,646	15,065	12,445	9,334	6,223	3,111	2,751			
		W	1,314	1,051	789	526	263	175	1,244	995	746	498	249	166	1,145	916	687	458	229	153			
5	-15.0	Q(Btu/h)	12,995	10,735	8,051	5,368	2,684	2,373	13,547	11,191	8,393	5,596	2,798	2,474	13,892	11,476	8,607	5,738	2,869	2,537			
		W	1,197	958	718	479	239	160	1,149	919	689	459	230	153	1,061	849	636	424	212	141			
2	-16.7	Q(Btu/h)	12,397	10,241	7,681	5,121	2,560	2,264	12,788	10,564	7,923	5,282	2,641	2,335	13,064	10,792	8,094	5,396	2,698	2,386			
		W	1,149	919	689	459	230	153	1,108	886	665	443	222	148	1,028	822	617	411	206	137			
-3	-19.4	Q(Btu/h)	11,201	9,253	6,940	4,627	2,313	2,045	11,569	9,557	7,168	4,779	2,389	2,113	11,753	9,709	7,282	4,855	2,427	2,146			
		W	1,076	861	646	431	215	144	1,039	831	624	416	208	139	977	782	586	391	195	130			
-8	-22.2	Q(Btu/h)	9,982	8,246	6,185	4,123	2,062	1,823	10,304	8,512	6,384	4,256	2,128	1,882	10,419	8,607	6,455	4,304	2,152	1,903			
		W	1,006	805	604	402	201	134	971	777	583	388	194	129	926	741	556	371	185	124			
-13	-25.0	Q(Btu/h)	8,763	7,239	5,429	3,620	1,810	1,600	9,039	7,467	5,600	3,734	1,867	1,651	9,062	7,486	5,615	3,743	1,872	1,655			
		W	940	752	564	376	188	125	901	721	541	360	180	120	879	704	528	352	176	117			

**PLA-AE24NL
PUZ-AH24NL PUY-AH24NL
1) COOLING**

**Rated
Q(Btu/h): 24000
W: 1810**

Indoor W.B.		72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C									
Outdoor D.B.		Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	
(°F)	(°C)																									
115	46.1	Q(Btu/h)	23,667	23,184	17,388	11,592	-	6,569	22,369	21,912	16,434	10,956	-	6,208	21,095	20,664	15,498	10,332	-	5,855	19,796	19,392	14,544	9,696	-	5,494
		W	2,239	2,179	1,634	1,090	-	265	2,195	2,136	1,602	1,068	-	260	2,154	2,096	1,572	1,048	-	255	2,117	2,060	1,545	1,030	-	250
110	43.3	Q(Btu/h)	24,304	23,808	17,856	11,904	-	6,746	22,932	22,464	16,848	11,232	-	6,365	21,536	21,096	15,822	10,548	-	5,977	20,311	19,896	14,922	9,948	-	5,637
		W	2,139	2,082	1,561	1,041	-	253	2,100	2,043	1,533	1,022	-	248	2,063	2,007	1,505	1,004	-	244	2,026	1,971	1,478	986	-	240
106	41.1	Q(Btu/h)	24,843	24,336	18,252	12,168	-	6,895	23,447	22,968	17,226	11,484	-	6,508	22,026	21,576	16,182	10,788	-	6,113	20,727	20,304	15,228	10,152	-	5,753
		W	2,081	2,025	1,519	1,013	-	246	2,026	1,971	1,478	986	-	240	1,988	1,935	1,451	967	-	235	1,953	1,901	1,425	950	-	231
102	38.9	Q(Btu/h)	25,260	24,744	18,558	12,372	-	7,011	23,888	23,400	17,550	11,700	-	6,630	22,393	21,936	16,452	10,968	-	6,215	21,021	20,592	15,444	10,296	-	5,834
		W	2,016	1,962	1,472	981	-	238	1,979	1,926	1,444	963	-	234	1,934	1,882	1,412	941	-	229	1,897	1,846	1,385	923	-	224
98	36.7	Q(Btu/h)	25,627	25,104	18,828	12,552	-	7,113	24,182	23,688	17,766	11,844	-	6,712	22,761	22,296	16,722	11,148	-	6,317	21,340	20,904	15,678	10,452	-	5,923
		W	1,953	1,901	1,425	950	-	231	1,916	1,864	1,398	932	-	227	1,879	1,828	1,371	914	-	222	1,841	1,792	1,344	896	-	218
94	34.4	Q(Btu/h)	25,970	25,440	19,080	12,720	-	7,208	24,500	24,000	18,000	12,000	-	6,800	23,055	22,584	16,938	11,292	-	6,399	21,634	21,192	15,894	10,596	-	6,004
		W	1,897	1,846	1,385	923	-	224	1,860	1,810	1,358	905	-	220	1,827	1,777	1,333	889	-	216	1,782	1,734	1,300	867	-	211
90	32.2	Q(Btu/h)	26,338	25,800	19,350	12,900	-	7,310	24,794	24,288	18,216	12,144	-	6,882	23,349	22,872	17,154	11,436	-	6,480	21,928	21,480	16,110	10,740	-	6,086
		W	1,841	1,792	1,344	896	-	218	1,804	1,756	1,317	878	-	213	1,767	1,720	1,290	860	-	209	1,732	1,685	1,264	843	-	205
86	30.0	Q(Btu/h)	26,681	26,136	19,602	13,068	-	7,405	25,162	24,648	18,486	12,324	-	6,984	23,667	23,184	17,388	11,592	-	6,569	22,222	21,768	16,326	10,884	-	6,168
		W	1,791	1,743	1,307	872	-	212	1,758	1,710	1,283	855	-	208	1,722	1,676	1,257	838	-	204	1,685	1,640	1,230	820	-	199
82	27.8	Q(Btu/h)	26,926	26,376	19,782	13,188	-	7,473	25,382	24,864	18,648	12,432	-	7,045	23,839	23,352	17,514	11,676	-	6,616	22,393	21,936	16,452	10,968	-	6,215
		W	1,760	1,712	1,284	856	-	208	1,722	1,676	1,257	838	-	204	1,676	1,631	1,223	815	-	198	1,648	1,604	1,203	802	-	195
78	25.6	Q(Btu/h)	27,171	26,616	19,962	13,308	-	7,541	25,627	25,104	18,828	12,552	-	7,113	24,108	23,616	17,712	11,808	-	6,691	22,589	22,128	16,596	11,064	-	6,270
		W	1,717	1,671	1,253	835	-	203	1,683	1,638	1,229	819	-	199	1,646	1,602	1,201	801	-	195	1,605	1,562	1,172	781	-	190
74	23.3	Q(Btu/h)	27,293	26,736	20,052	13,368	-	7,575	25,750	25,224	18,918	12,612	-	7,147	24,304	23,808	17,856	11,904	-	6,746	22,761	22,296	16,722	11,148	-	6,317
		W	1,685	1,640	1,230	820	-	199	1,648	1,604	1,203	802	-	195	1,611	1,567	1,176	784	-	191	1,575	1,533	1,150	767	-	186
70	21.1	Q(Btu/h)	27,416	26,856	20,142	13,428	-	7,609	25,848	25,320	18,990	12,660	-	7,174	24,427	23,928	17,946	11,964	-	6,780	22,883	22,416	16,812	11,208	-	6,351
		W	1,657	1,613	1,210	806	-	196	1,620	1,577	1,182	788	-	192	1,583	1,540	1,155	770	-	187	1,548	1,506	1,129	753	-	183
66	18.9	Q(Btu/h)	27,587	27,024	20,268	13,512	-	7,657	26,093	25,560	19,170	12,780	-	7,242	24,549	24,048	18,036	12,024	-	6,814	23,128	22,656	16,992	11,328	-	6,419
		W	1,629	1,586	1,189	793	-	193	1,592	1,549	1,162	775	-	188	1,557	1,515	1,136	757	-	184	1,520	1,479	1,109	739	-	180
62	16.7	Q(Btu/h)	27,636	27,072	20,304	13,536	-	7,670	26,166	25,632	19,224	12,816	-	7,262	24,672	24,168	18,126	12,084	-	6,848	23,226	22,752	17,064	11,376	-	6,446
		W	1,611	1,567	1,176	784	-	191	1,583	1,540	1,155	770	-	187	1,538	1,497	1,123	748	-	182	1,501	1,461	1,096	730	-	178
58	14.4	Q(Btu/h)	27,734	27,168	20,376	13,584	-	7,698	26,215	25,680	19,260	12,840	-	7,276	24,647	24,144	18,108	12,072	-	6,841	23,202	22,728	17,046	11,364	-	6,440
		W	1,590	1,548	1,161	774	-	188	1,551	1,510	1,132	755	-	183	1,514	1,473	1,105	737	-	179	1,473	1,434	1,075	717	-	174
54	12.2	Q(Btu/h)	27,832	27,264	20,448	13,632	-	7,725	26,338	25,800	19,350	12,900	-	7,310	24,794	24,288	18,216	12,144	-	6,882	23,349	22,872	17,154	11,436	-	6,480
		W	1,583	1,540	1,155	770	-	187	1,548	1,506	1,129	753	-	183	1,507	1,466	1,100	733	-	178	1,464	1,424	1,068	712	-	173
50	10.0	Q(Btu/h)	27,881	27,312	20,484	13,656	-	7,738	26,387	25,848	19,386	12,924	-	7,324	24,917	24,408	18,306	12,204	-	6,916	23,447	22,968	17,226	11,484	-	6,508
		W	1,562	1,520	1,140	760	-	185	1,523	1,482	1,112	741	-	180	1,482	1,443	1,082	721	-	175	1,442	1,403	1,052	701	-	171
46	7.8	Q(Btu/h)	27,930	27,360	20,520	13,680	-	7,752	26,460	25,920	19,440	12,960	-	7,344	24,966	24,456	18,342	12,228	-	6,929	23,545	23,064	17,298	11,532	-	6,535
		W	1,551	1,510	1,132	755	-	183	1,514	1,473	1,105	737	-	179	1,473	1,434	1,075	717	-	174	1,432	1,394	1,045	697	-	169
42	5.6	Q(Btu/h)	27,955	27,384	20,538	13,692	-	7,759	26,460	25,920	19,440	12,960	-	7,344	25,015	24,504	18,378	12,252	-	6,943	23,569	23,088	17,316	11,544	-	6,542
		W	1,548	1,506	1,129	753	-	183	1,508	1,468	1,101	734	-	178	1,464	1,424	1,068	712	-	173	1,421	1,383	1,037	691	-	168
38	3.3	Q(Btu/h)	27,955	27,384	20,538	13,692	-	7,759	26,509	25,968	19,476	12,984	-	7,358	25,064	24,552	18,414	12,276	-	6,956	23,643	23,160	17,370	11,580	-	6,562
		W	1,538	1,497	1,123	748	-	182	1,497	1,457	1,093	729	-	177	1,455	1,415	1,062	708	-	172	1,410	1,372	1,029	686	-	167
34	1.1	Q(Btu/h)	27,979	27,408	20,556	13,704	-	7,766	26,534	25,992	19,494	12,996	-	7,364	25,113	24,600	18,450	12,300	-	6,970	23,692	23,208	17,406	11,604	-	6,576
		W	1,533	1,491	1,119	746	-	181	1,494	1,453	1,090	727	-	177	1,451	1,412	1,059	706	-	172	1,408	1,370	1,028	685	-	167
30	-1.1	Q(Btu/h)	27,979	27,408	20,556	13,704	-	7,766	26,534	25,992	19,494	12,996	-	7,364	25,137	24,624	18,468	12,312	-	6,977	23,716	23,232	17,424	11,616	-	6,582
		W	1,533	1,491	1,119	746	-	181	1,488	1,448	1,086	724	-	176	1,447	1,408	1,056	704	-	171	1,402	1,365	1,024	682	-	166
26	-3.3	Q(Btu/h)	28,004	27,432	20,574	13,716	-	7,772	26,583	26,040	19,530	13,020	-	7,378	25,186	24,672	18,504	12,336	-	6,990	23,799	23,304	17,478	11,652	-	6,603
		W	1,529	1,488	1,116	744	-	181	1,484	1,444	1,083	722	-	176	1,443	1,405	1,053	702	-	171	1,399	1,361	1,021	681	-	165
23	-5.0	Q(Btu/h)	28,004	27,432	20,574	13,716	-	7,772	26,607	26,064	19,548	13,032	-	7,385	25,211	24,696	18,522	12,348	-	6,997	23,839	23,352	17,514	11,676	-	6,616
		W	1,525	1,484	1,113	742	-	180	1,484	1,444	1,083	722	-	176	1,442	1,403	1,052	701	-	171	1,399	1,361	1,021	681	-	165

PLA-AE24NL
PUZ-AH24NL
2) HEATING

Rated
 Q(Btu/h): 26000
 W: 1760

Indoor D.B.			80°F / 26.7°C					70°F / 21.1°C					60°F / 15.6°C							
Outdoor W.B.		Q(Btu/h)	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)																			
70	21.1	Q(Btu/h)	42,565	35,022	26,267	17,511	-	11,315	43,861	36,088	27,066	18,044	-	11,659	45,504	37,440	28,080	18,720	-	12,096
		W	3,176	2,409	1,807	1,205	-	685	2,958	2,244	1,683	1,122	-	638	2,756	2,091	1,568	1,045	-	594
65	18.3	Q(Btu/h)	40,353	33,202	24,902	16,601	-	10,727	41,649	34,268	25,701	17,134	-	11,071	43,197	35,542	26,657	17,771	-	11,483
		W	3,069	2,328	1,746	1,164	-	662	2,849	2,161	1,621	1,081	-	614	2,661	2,019	1,514	1,009	-	574
60	15.6	Q(Btu/h)	38,236	31,460	23,595	15,730	-	10,164	39,532	32,526	24,395	16,263	-	10,508	40,985	33,722	25,292	16,861	-	10,895
		W	2,932	2,225	1,668	1,112	-	632	2,745	2,082	1,562	1,041	-	592	2,568	1,948	1,461	974	-	554
55	12.8	Q(Btu/h)	36,024	29,640	22,230	14,820	-	9,576	37,320	30,706	23,030	15,353	-	9,920	38,678	31,824	23,868	15,912	-	10,282
		W	2,847	2,160	1,620	1,080	-	614	2,633	1,998	1,498	999	-	568	2,478	1,880	1,410	940	-	534
50	10.0	Q(Btu/h)	33,844	27,846	20,885	13,923	-	8,996	35,108	28,886	21,665	14,443	-	9,332	36,403	29,952	22,464	14,976	-	9,677
		W	2,735	2,075	1,556	1,038	-	590	2,526	1,917	1,437	958	-	545	2,390	1,813	1,360	906	-	515
47	8.3	Q(Btu/h)	32,453	26,702	20,027	13,351	-	8,627	33,717	27,742	20,807	13,871	-	8,963	34,981	28,782	21,587	14,391	-	9,299
		W	2,647	2,008	1,506	1,004	-	571	2,457	1,864	1,398	932	-	530	2,313	1,755	1,316	877	-	499
42	5.6	Q(Btu/h)	30,273	24,908	18,681	12,454	-	8,047	31,600	26,000	19,500	13,000	-	8,400	32,801	26,988	20,241	13,494	-	8,719
		W	2,480	1,881	1,411	941	-	535	2,320	1,760	1,320	880	-	500	2,162	1,640	1,230	820	-	466
35	1.7	Q(Btu/h)	23,289	19,162	14,372	9,581	-	6,191	24,932	20,514	15,386	10,257	-	6,628	26,702	21,970	16,478	10,985	-	7,098
		W	2,206	1,674	1,255	837	-	476	2,051	1,556	1,167	778	-	442	1,907	1,447	1,085	723	-	411
32	0.0	Q(Btu/h)	22,246	18,304	13,728	9,152	-	5,914	23,542	19,370	14,528	9,685	-	6,258	24,458	20,124	15,093	10,062	-	6,502
		W	2,090	1,586	1,189	793	-	451	1,926	1,461	1,096	730	-	415	1,798	1,364	1,023	682	-	388
27	-2.8	Q(Btu/h)	21,204	17,446	13,085	8,723	-	5,636	22,278	18,330	13,748	9,165	-	5,922	23,100	19,006	14,255	9,503	-	6,140
		W	1,921	1,457	1,093	729	-	414	1,754	1,331	998	665	-	378	1,640	1,244	933	622	-	354
22	-5.6	Q(Btu/h)	20,287	16,692	12,519	8,346	-	5,393	21,362	17,576	13,182	8,788	-	5,678	22,183	18,252	13,689	9,126	-	5,897
		W	1,782	1,352	1,014	676	-	384	1,652	1,253	940	627	-	356	1,515	1,149	862	575	-	327
17	-8.3	Q(Btu/h)	19,592	16,120	12,090	8,060	-	5,208	20,635	16,978	12,734	8,489	-	5,485	21,362	17,576	13,182	8,788	-	5,678
		W	1,675	1,271	953	635	-	361	1,564	1,186	890	593	-	337	1,422	1,079	809	539	-	307
12	-11.1	Q(Btu/h)	18,865	15,522	11,642	7,761	-	5,015	19,908	16,380	12,285	8,190	-	5,292	20,698	17,030	12,773	8,515	-	5,502
		W	1,564	1,186	890	593	-	337	1,480	1,123	842	561	-	319	1,362	1,033	775	517	-	294
5	-15.0	Q(Btu/h)	17,854	14,690	11,018	7,345	-	4,746	18,612	15,314	11,486	7,657	-	4,948	19,086	15,704	11,778	7,852	-	5,074
		W	1,424	1,081	810	540	-	307	1,366	1,037	777	518	-	295	1,262	957	718	479	-	272
2	-16.7	Q(Btu/h)	17,032	14,014	10,511	7,007	-	4,528	17,570	14,456	10,842	7,228	-	4,670	17,949	14,768	11,076	7,384	-	4,771
		W	1,366	1,037	777	518	-	295	1,318	1,000	750	500	-	284	1,223	928	696	464	-	264
-3	-19.4	Q(Btu/h)	15,389	12,662	9,497	6,331	-	4,091	15,895	13,078	9,809	6,539	-	4,225	16,148	13,286	9,965	6,643	-	4,292
		W	1,281	972	729	486	-	276	1,237	938	704	469	-	267	1,162	882	661	441	-	251
-8	-22.2	Q(Btu/h)	13,714	11,284	8,463	5,642	-	3,646	14,157	11,648	8,736	5,824	-	3,763	14,315	11,778	8,834	5,889	-	3,805
		W	1,197	908	681	454	-	258	1,155	876	657	438	-	249	1,102	836	627	418	-	238
-13	-25.0	Q(Btu/h)	12,040	9,906	7,430	4,953	-	3,200	12,419	10,218	7,664	5,109	-	3,301	12,450	10,244	7,683	5,122	-	3,310
		W	1,118	848	636	424	-	241	1,072	813	610	407	-	231	1,046	794	595	397	-	226

**PKA-AK24NL
PUZ-AH24NL PUY-AH24NL
1) COOLING**

**Rated
Q(Btu/h): 24000
W: 1990**

Indoor W.B.		72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C									
Outdoor D.B. (°F) (°C)		Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	
115	46.1	Q(Btu/h)	23,667	23,184	17,388	11,592	-	6,472	22,369	21,912	16,434	10,956	-	6,117	21,095	20,664	15,498	10,332	-	5,769	19,796	19,392	14,544	9,696	-	5,414
		W	2,468	2,396	1,797	1,198	-	277	2,419	2,348	1,761	1,174	-	271	2,374	2,304	1,728	1,152	-	266	2,333	2,265	1,698	1,132	-	262
110	43.3	Q(Btu/h)	24,304	23,808	17,856	11,904	-	6,646	22,932	22,464	16,848	11,232	-	6,271	21,536	21,096	15,822	10,548	-	5,889	20,311	19,896	14,922	9,948	-	5,554
		W	2,358	2,289	1,716	1,144	-	265	2,314	2,247	1,685	1,123	-	260	2,273	2,207	1,655	1,103	-	255	2,232	2,167	1,625	1,084	-	250
106	41.1	Q(Btu/h)	24,843	24,336	18,252	12,168	-	6,794	23,447	22,968	17,226	11,484	-	6,412	22,026	21,576	16,182	10,788	-	6,023	20,727	20,304	15,228	10,152	-	5,668
		W	2,294	2,227	1,670	1,113	-	257	2,232	2,167	1,625	1,084	-	250	2,191	2,127	1,595	1,064	-	246	2,153	2,090	1,567	1,045	-	242
102	38.9	Q(Btu/h)	25,260	24,744	18,558	12,372	-	6,908	23,888	23,400	17,550	11,700	-	6,533	22,393	21,936	16,452	10,968	-	6,124	21,021	20,592	15,444	10,296	-	5,749
		W	2,222	2,157	1,618	1,079	-	249	2,181	2,117	1,588	1,059	-	245	2,132	2,070	1,552	1,035	-	239	2,091	2,030	1,522	1,015	-	235
98	36.7	Q(Btu/h)	25,627	25,104	18,828	12,552	-	7,008	24,182	23,688	17,766	11,844	-	6,613	22,761	22,296	16,722	11,148	-	6,224	21,340	20,904	15,678	10,452	-	5,836
		W	2,153	2,090	1,567	1,045	-	242	2,112	2,050	1,537	1,025	-	237	2,071	2,010	1,507	1,005	-	232	2,030	1,970	1,478	985	-	228
94	34.4	Q(Btu/h)	25,970	25,440	19,080	12,720	-	7,102	24,500	24,000	18,000	12,000	-	6,700	23,055	22,584	16,938	11,292	-	6,305	21,634	21,192	15,894	10,596	-	5,916
		W	2,091	2,030	1,522	1,015	-	235	2,050	1,990	1,493	995	-	230	2,013	1,954	1,466	977	-	226	1,964	1,906	1,430	953	-	220
90	32.2	Q(Btu/h)	26,338	25,800	19,350	12,900	-	7,203	24,794	24,288	18,216	12,144	-	6,780	23,349	22,872	17,154	11,436	-	6,385	21,928	21,480	16,110	10,740	-	5,997
		W	2,030	1,970	1,478	985	-	228	1,989	1,930	1,448	965	-	223	1,948	1,891	1,418	945	-	219	1,909	1,853	1,390	926	-	214
86	30.0	Q(Btu/h)	26,681	26,136	19,602	13,068	-	7,296	25,162	24,648	18,486	12,324	-	6,881	23,667	23,184	17,388	11,592	-	6,472	22,222	21,768	16,326	10,884	-	6,077
		W	1,974	1,916	1,437	958	-	221	1,937	1,881	1,410	940	-	217	1,898	1,843	1,382	921	-	213	1,857	1,803	1,352	901	-	208
82	27.8	Q(Btu/h)	26,926	26,376	19,782	13,188	-	7,363	25,382	24,864	18,648	12,432	-	6,941	23,839	23,352	17,514	11,676	-	6,519	22,393	21,936	16,452	10,968	-	6,124
		W	1,939	1,883	1,412	941	-	218	1,898	1,843	1,382	921	-	213	1,847	1,793	1,345	896	-	207	1,816	1,763	1,322	882	-	204
78	25.6	Q(Btu/h)	27,171	26,616	19,962	13,308	-	7,430	25,627	25,104	18,828	12,552	-	7,008	24,108	23,616	17,712	11,808	-	6,593	22,589	22,128	16,596	11,064	-	6,177
		W	1,892	1,837	1,378	918	-	212	1,855	1,801	1,351	900	-	208	1,814	1,761	1,321	881	-	204	1,769	1,717	1,288	859	-	198
74	23.3	Q(Btu/h)	27,293	26,736	20,052	13,368	-	7,464	25,750	25,224	18,918	12,612	-	7,042	24,304	23,808	17,856	11,904	-	6,646	22,761	22,296	16,722	11,148	-	6,224
		W	1,857	1,803	1,352	901	-	208	1,816	1,763	1,322	882	-	204	1,775	1,723	1,293	862	-	199	1,736	1,686	1,264	843	-	195
70	21.1	Q(Btu/h)	27,416	26,856	20,142	13,428	-	7,497	25,848	25,320	18,990	12,660	-	7,069	24,427	23,928	17,946	11,964	-	6,680	22,883	22,416	16,812	11,208	-	6,258
		W	1,827	1,773	1,330	887	-	205	1,786	1,733	1,300	867	-	200	1,745	1,693	1,270	847	-	196	1,706	1,656	1,242	828	-	191
66	18.9	Q(Btu/h)	27,587	27,024	20,268	13,512	-	7,544	26,093	25,560	19,170	12,780	-	7,136	24,549	24,048	18,036	12,024	-	6,713	23,128	22,656	16,992	11,328	-	6,325
		W	1,796	1,743	1,307	872	-	201	1,755	1,703	1,278	852	-	197	1,716	1,666	1,249	833	-	193	1,675	1,626	1,219	813	-	188
62	16.7	Q(Btu/h)	27,636	27,072	20,304	13,536	-	7,558	26,166	25,632	19,224	12,816	-	7,156	24,672	24,168	18,126	12,084	-	6,747	23,226	22,752	17,064	11,376	-	6,352
		W	1,775	1,723	1,293	862	-	199	1,745	1,693	1,270	847	-	196	1,695	1,646	1,234	823	-	190	1,654	1,606	1,204	803	-	186
58	14.4	Q(Btu/h)	27,734	27,168	20,376	13,584	-	7,584	26,215	25,680	19,260	12,840	-	7,169	24,647	24,144	18,108	12,072	-	6,740	23,202	22,728	17,046	11,364	-	6,345
		W	1,753	1,701	1,276	851	-	197	1,710	1,660	1,245	830	-	192	1,669	1,620	1,215	810	-	187	1,624	1,576	1,182	788	-	182
54	12.2	Q(Btu/h)	27,832	27,264	20,448	13,632	-	7,611	26,338	25,800	19,350	12,900	-	7,203	24,794	24,288	18,216	12,144	-	6,780	23,349	22,872	17,154	11,436	-	6,385
		W	1,745	1,693	1,270	847	-	196	1,706	1,656	1,242	828	-	191	1,661	1,612	1,209	806	-	186	1,613	1,566	1,175	783	-	181
50	10.0	Q(Btu/h)	27,881	27,312	20,484	13,656	-	7,625	26,387	25,848	19,386	12,924	-	7,216	24,917	24,408	18,306	12,204	-	6,814	23,447	22,968	17,226	11,484	-	6,412
		W	1,722	1,672	1,254	836	-	193	1,679	1,630	1,222	815	-	188	1,634	1,586	1,190	793	-	183	1,589	1,542	1,157	771	-	178
46	7.8	Q(Btu/h)	27,930	27,360	20,520	13,680	-	7,638	26,460	25,920	19,440	12,960	-	7,236	24,966	24,456	18,342	12,228	-	6,827	23,545	23,064	17,298	11,532	-	6,439
		W	1,710	1,660	1,245	830	-	192	1,669	1,620	1,215	810	-	187	1,624	1,576	1,182	788	-	182	1,579	1,532	1,149	766	-	177
42	5.6	Q(Btu/h)	27,955	27,384	20,538	13,692	-	7,645	26,460	25,920	19,440	12,960	-	7,236	25,015	24,504	18,378	12,252	-	6,841	23,569	23,088	17,316	11,544	-	6,445
		W	1,706	1,656	1,242	828	-	191	1,663	1,614	1,210	807	-	187	1,613	1,566	1,175	783	-	181	1,566	1,520	1,140	760	-	176
38	3.3	Q(Btu/h)	27,955	27,384	20,538	13,692	-	7,645	26,509	25,968	19,476	12,984	-	7,249	25,064	24,552	18,414	12,276	-	6,854	23,643	23,160	17,370	11,580	-	6,466
		W	1,695	1,646	1,234	823	-	190	1,650	1,602	1,201	801	-	185	1,603	1,556	1,167	778	-	180	1,554	1,508	1,131	754	-	174
34	1.1	Q(Btu/h)	27,979	27,408	20,556	13,704	-	7,651	26,534	25,992	19,494	12,996	-	7,256	25,113	24,600	18,450	12,300	-	6,868	23,692	23,208	17,406	11,604	-	6,479
		W	1,689	1,640	1,230	820	-	190	1,646	1,598	1,198	799	-	185	1,599	1,552	1,164	776	-	179	1,552	1,506	1,130	753	-	174
30	-1.1	Q(Btu/h)	27,979	27,408	20,556	13,704	-	7,651	26,534	25,992	19,494	12,996	-	7,256	25,137	24,624	18,468	12,312	-	6,874	23,716	23,232	17,424	11,616	-	6,486
		W	1,689	1,640	1,230	820	-	190																		

PKA-AK24NL
PUZ-AH24NL
2) HEATING

Rated
Q(Btu/h): 26000
W: 1930

Indoor D.B.			80°F / 26.7°C					70°F / 21.1°C					60°F / 15.6°C							
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)																			
70	21.1	Q(Btu/h)	41,757	35,022	26,267	17,511	-	11,180	43,028	36,088	27,066	18,044	-	11,520	44,640	37,440	28,080	18,720	-	11,952
		W	3,792	2,642	1,982	1,321	-	712	3,532	2,461	1,846	1,230	-	663	3,291	2,293	1,720	1,146	-	618
65	18.3	Q(Btu/h)	39,587	33,202	24,902	16,601	-	10,599	40,858	34,268	25,701	17,134	-	10,939	42,377	35,542	26,657	17,771	-	11,346
		W	3,665	2,553	1,915	1,277	-	688	3,402	2,370	1,778	1,185	-	639	3,177	2,214	1,660	1,107	-	596
60	15.6	Q(Btu/h)	37,510	31,460	23,595	15,730	-	10,043	38,781	32,526	24,395	16,263	-	10,383	40,207	33,722	25,292	16,861	-	10,765
		W	3,501	2,440	1,830	1,220	-	657	3,277	2,283	1,712	1,142	-	615	3,066	2,137	1,602	1,068	-	576
55	12.8	Q(Btu/h)	35,340	29,640	22,230	14,820	-	9,462	36,611	30,706	23,030	15,353	-	9,802	37,944	31,824	23,868	15,912	-	10,159
		W	3,399	2,368	1,776	1,184	-	638	3,144	2,191	1,643	1,095	-	590	2,958	2,061	1,546	1,031	-	555
50	10.0	Q(Btu/h)	33,201	27,846	20,885	13,923	-	8,889	34,441	28,886	21,665	14,443	-	9,221	35,712	29,952	22,464	14,976	-	9,562
		W	3,266	2,275	1,707	1,138	-	613	3,017	2,102	1,576	1,051	-	566	2,853	1,988	1,491	994	-	536
47	8.3	Q(Btu/h)	31,837	26,702	20,027	13,351	-	8,524	33,077	27,742	20,807	13,871	-	8,856	34,317	28,782	21,587	14,391	-	9,188
		W	3,161	2,202	1,652	1,101	-	593	2,933	2,044	1,533	1,022	-	551	2,762	1,924	1,443	962	-	518
42	5.6	Q(Btu/h)	29,698	24,908	18,681	12,454	-	7,951	31,000	26,000	19,500	13,000	-	8,300	32,178	26,988	20,241	13,494	-	8,615
		W	2,961	2,063	1,547	1,032	-	556	2,770	1,930	1,448	965	-	520	2,582	1,799	1,349	899	-	485
35	1.7	Q(Btu/h)	22,847	19,162	14,372	9,581	-	6,117	24,459	20,514	15,386	10,257	-	6,549	26,195	21,970	16,478	10,985	-	7,014
		W	2,634	1,835	1,377	918	-	495	2,449	1,706	1,280	853	-	460	2,277	1,586	1,190	793	-	427
32	0.0	Q(Btu/h)	21,824	18,304	13,728	9,152	-	5,843	23,095	19,370	14,528	9,685	-	6,184	23,994	20,124	15,093	10,062	-	6,424
		W	2,496	1,739	1,304	869	-	469	2,299	1,602	1,201	801	-	432	2,147	1,496	1,122	748	-	403
27	-2.8	Q(Btu/h)	20,801	17,446	13,085	8,723	-	5,569	21,855	18,330	13,748	9,165	-	5,852	22,661	19,006	14,255	9,503	-	6,067
		W	2,294	1,598	1,199	799	-	431	2,094	1,459	1,094	730	-	393	1,958	1,365	1,023	682	-	368
22	-5.6	Q(Btu/h)	19,902	16,692	12,519	8,346	-	5,329	20,956	17,576	13,182	8,788	-	5,611	21,762	18,252	13,689	9,126	-	5,827
		W	2,127	1,482	1,112	741	-	399	1,972	1,374	1,031	687	-	370	1,809	1,260	945	630	-	340
17	-8.3	Q(Btu/h)	19,220	16,120	12,090	8,060	-	5,146	20,243	16,978	12,734	8,489	-	5,420	20,956	17,576	13,182	8,788	-	5,611
		W	2,000	1,393	1,045	697	-	375	1,867	1,301	976	650	-	350	1,698	1,183	887	592	-	319
12	-11.1	Q(Btu/h)	18,507	15,522	11,642	7,761	-	4,955	19,530	16,380	12,285	8,190	-	5,229	20,305	17,030	12,773	8,515	-	5,437
		W	1,867	1,301	976	650	-	350	1,767	1,231	924	616	-	332	1,626	1,133	850	566	-	305
5	-15.0	Q(Btu/h)	17,515	14,690	11,018	7,345	-	4,690	18,259	15,314	11,486	7,657	-	4,889	18,724	15,704	11,778	7,852	-	5,013
		W	1,701	1,185	889	593	-	319	1,632	1,137	853	568	-	306	1,507	1,050	787	525	-	283
2	-16.7	Q(Btu/h)	16,709	14,014	10,511	7,007	-	4,474	17,236	14,456	10,842	7,228	-	4,615	17,608	14,768	11,076	7,384	-	4,714
		W	1,632	1,137	853	568	-	306	1,573	1,096	822	548	-	295	1,460	1,017	763	509	-	274
-3	-19.4	Q(Btu/h)	15,097	12,662	9,497	6,331	-	4,042	15,593	13,078	9,809	6,539	-	4,175	15,841	13,286	9,965	6,643	-	4,241
		W	1,529	1,065	799	533	-	287	1,476	1,029	772	514	-	277	1,388	967	725	483	-	261
-8	-22.2	Q(Btu/h)	13,454	11,284	8,463	5,642	-	3,602	13,888	11,648	8,736	5,824	-	3,718	14,043	11,778	8,834	5,889	-	3,760
		W	1,429	996	747	498	-	268	1,379	961	721	481	-	259	1,316	917	688	458	-	247
-13	-25.0	Q(Btu/h)	11,811	9,906	7,430	4,953	-	3,162	12,183	10,218	7,664	5,109	-	3,262	12,214	10,244	7,683	5,122	-	3,270
		W	1,335	930	698	465	-	251	1,280	892	669	446	-	240	1,249	870	653	435	-	235

**PCA-AK24NL
PUZ-AH24NL PUY-AH24NL
1) COOLING**

Rated
Q(Btu/h): 21800
W: 1810

Indoor W.B.		72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C									
Outdoor D.B.		Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	
(°F) (°C)																										
115	46.1	Q(Btu/h)	23,184	21,059	15,794	10,529	-	6,376	21,912	19,903	14,928	9,952	-	6,026	20,664	18,770	14,077	9,385	-	5,683	19,392	17,614	13,211	8,807	-	5,333
		W	2,552	2,179	1,634	1,090	-	289	2,502	2,136	1,602	1,068	-	283	2,455	2,096	1,572	1,048	-	278	2,413	2,060	1,545	1,030	-	273
110	43.3	Q(Btu/h)	23,808	21,626	16,219	10,813	-	6,547	22,464	20,405	15,304	10,202	-	6,178	21,096	19,162	14,372	9,581	-	5,801	19,896	18,072	13,554	9,036	-	5,471
		W	2,438	2,082	1,561	1,041	-	276	2,393	2,043	1,533	1,022	-	271	2,351	2,007	1,505	1,004	-	266	2,309	1,971	1,478	986	-	261
106	41.1	Q(Btu/h)	24,336	22,105	16,579	11,053	-	6,692	22,968	20,863	15,647	10,431	-	6,316	21,576	19,598	14,699	9,799	-	5,933	20,304	18,443	13,832	9,221	-	5,584
		W	2,372	2,025	1,519	1,013	-	269	2,309	1,971	1,478	986	-	261	2,266	1,935	1,451	967	-	257	2,226	1,901	1,425	950	-	252
102	38.9	Q(Btu/h)	24,744	22,476	16,857	11,238	-	6,805	23,400	21,255	15,941	10,628	-	6,435	21,936	19,925	14,944	9,963	-	6,032	20,592	18,704	14,028	9,352	-	5,663
		W	2,298	1,962	1,472	981	-	260	2,256	1,926	1,444	963	-	255	2,205	1,882	1,412	941	-	250	2,162	1,846	1,385	923	-	245
98	36.7	Q(Btu/h)	25,104	22,803	17,102	11,401	-	6,904	23,688	21,517	16,137	10,758	-	6,514	22,296	20,252	15,189	10,126	-	6,131	20,904	18,988	14,241	9,494	-	5,749
		W	2,226	1,901	1,425	950	-	252	2,184	1,864	1,398	932	-	247	2,141	1,828	1,371	914	-	242	2,099	1,792	1,344	896	-	238
94	34.4	Q(Btu/h)	25,440	23,108	17,331	11,554	-	6,996	24,000	21,800	16,350	10,900	-	6,600	22,584	20,514	15,385	10,257	-	6,211	21,192	19,249	14,437	9,625	-	5,828
		W	2,162	1,846	1,385	923	-	245	2,120	1,810	1,358	905	-	240	2,082	1,777	1,333	889	-	236	2,031	1,734	1,300	867	-	230
90	32.2	Q(Btu/h)	25,800	23,435	17,576	11,718	-	7,095	24,288	22,062	16,546	11,031	-	6,679	22,872	20,775	15,582	10,388	-	6,290	21,480	19,511	14,633	9,756	-	5,907
		W	2,099	1,792	1,344	896	-	238	2,056	1,756	1,317	878	-	233	2,014	1,720	1,290	860	-	228	1,974	1,685	1,264	843	-	223
86	30.0	Q(Btu/h)	26,136	23,740	17,805	11,870	-	7,187	24,648	22,389	16,791	11,194	-	6,778	23,184	21,059	15,794	10,529	-	6,376	21,768	19,773	14,829	9,886	-	5,986
		W	2,042	1,743	1,307	872	-	231	2,003	1,710	1,283	855	-	227	1,963	1,676	1,257	838	-	222	1,921	1,640	1,230	820	-	217
82	27.8	Q(Btu/h)	26,376	23,958	17,969	11,979	-	7,253	24,864	22,585	16,939	11,292	-	6,838	23,352	21,211	15,909	10,606	-	6,422	21,936	19,925	14,944	9,963	-	6,032
		W	2,006	1,712	1,284	856	-	227	1,963	1,676	1,257	838	-	222	1,910	1,631	1,223	815	-	216	1,878	1,604	1,203	802	-	213
78	25.6	Q(Btu/h)	26,616	24,176	18,132	12,088	-	7,319	25,104	22,803	17,102	11,401	-	6,904	23,616	21,451	16,088	10,726	-	6,494	22,128	20,100	15,075	10,050	-	6,085
		W	1,957	1,671	1,253	835	-	222	1,919	1,638	1,229	819	-	217	1,876	1,602	1,201	801	-	212	1,830	1,562	1,172	781	-	207
74	23.3	Q(Btu/h)	26,736	24,285	18,214	12,143	-	7,352	25,224	22,912	17,184	11,456	-	6,937	23,808	21,626	16,219	10,813	-	6,547	22,296	20,252	15,189	10,126	-	6,131
		W	1,921	1,640	1,230	820	-	217	1,878	1,604	1,203	802	-	213	1,836	1,567	1,176	784	-	208	1,796	1,533	1,150	767	-	203
70	21.1	Q(Btu/h)	26,856	24,394	18,296	12,197	-	7,385	25,320	22,999	17,249	11,500	-	6,963	23,928	21,735	16,301	10,867	-	6,580	22,416	20,361	15,271	10,181	-	6,164
		W	1,889	1,613	1,210	806	-	214	1,847	1,577	1,182	788	-	209	1,804	1,540	1,155	770	-	204	1,764	1,506	1,129	753	-	200
66	18.9	Q(Btu/h)	27,024	24,547	18,410	12,273	-	7,432	25,560	23,217	17,413	11,609	-	7,029	24,048	21,844	16,383	10,922	-	6,613	22,656	20,579	15,434	10,290	-	6,230
		W	1,857	1,586	1,189	793	-	210	1,815	1,549	1,162	775	-	205	1,774	1,515	1,136	757	-	201	1,732	1,479	1,109	739	-	196
62	16.7	Q(Btu/h)	27,072	24,590	18,443	12,295	-	7,445	25,632	23,282	17,462	11,641	-	7,049	24,168	21,953	16,464	10,976	-	6,646	22,752	20,666	15,500	10,333	-	6,257
		W	1,836	1,567	1,176	784	-	208	1,804	1,540	1,155	770	-	204	1,753	1,497	1,123	748	-	198	1,711	1,461	1,096	730	-	194
58	14.4	Q(Btu/h)	27,168	24,678	18,508	12,339	-	7,471	25,680	23,326	17,495	11,663	-	7,062	24,144	21,931	16,448	10,965	-	6,640	22,728	20,645	15,483	10,322	-	6,250
		W	1,813	1,548	1,161	774	-	205	1,768	1,510	1,132	755	-	200	1,726	1,473	1,105	737	-	195	1,679	1,434	1,075	717	-	190
54	12.2	Q(Btu/h)	27,264	24,765	18,574	12,382	-	7,498	25,800	23,435	17,576	11,718	-	7,095	24,288	22,062	16,546	11,031	-	6,679	22,872	20,775	15,582	10,388	-	6,290
		W	1,804	1,540	1,155	770	-	204	1,764	1,506	1,129	753	-	200	1,717	1,466	1,100	733	-	194	1,668	1,424	1,068	712	-	189
50	10.0	Q(Btu/h)	27,312	24,808	18,606	12,404	-	7,511	25,848	23,479	17,609	11,739	-	7,108	24,408	22,171	16,628	11,085	-	6,712	22,968	20,863	15,647	10,431	-	6,316
		W	1,781	1,520	1,140	760	-	202	1,736	1,482	1,112	741	-	197	1,690	1,443	1,082	721	-	191	1,643	1,403	1,052	701	-	186
46	7.8	Q(Btu/h)	27,360	24,852	18,639	12,426	-	7,524	25,920	23,544	17,658	11,772	-	7,128	24,456	22,214	16,661	11,107	-	6,725	23,064	20,950	15,712	10,475	-	6,343
		W	1,768	1,510	1,132	755	-	200	1,726	1,473	1,105	737	-	195	1,679	1,434	1,075	717	-	190	1,632	1,394	1,045	697	-	185
42	5.6	Q(Btu/h)	27,384	24,874	18,655	12,437	-	7,531	25,920	23,544	17,658	11,772	-	7,128	24,504	22,258	16,693	11,129	-	6,739	23,088	20,972	15,729	10,486	-	6,349
		W	1,764	1,506	1,129	753	-	200	1,719	1,468	1,101	734	-	195	1,668	1,424	1,068	712	-	189	1,620	1,383	1,037	691	-	183
38	3.3	Q(Btu/h)	27,384	24,874	18,655	12,437	-	7,531	25,968	23,588	17,691	11,794	-	7,141	24,552	22,301	16,726	11,151	-	6,752	23,160	21,037	15,778	10,519	-	6,369
		W	1,753	1,497	1,123	748	-	198	1,707	1,457	1,093	729	-	193	1,658	1,415	1,062	708	-	188	1,607	1,372	1,029	686	-	182
34	1.1	Q(Btu/h)	27,408	24,896	18,672	12,448	-	7,537	25,992	23,609	17,707	11,805	-	7,148	24,600	22,345	16,759	11,173	-	6,765	23,208	21,081	15,810	10,540	-	6,382
		W	1,747	1,491	1,119	746	-	198	1,702	1,453	1,090	727	-	193	1,654	1,412	1,059	706	-	187	1,605	1,370	1,028	685	-	182
30	-1.1	Q(Btu/h)	27,408	24,896	18,672	12,448	-	7,537	25,992	23,609	17,707	11,805	-	7,148	24,624	22,367	16,775	11,183	-	6,772	23,232	21,102	15,827	10,551	-	6,389
		W	1,747	1,491	1,119	746	-	198	1,696	1,448	1,086	724	-	192	1,649	1,408	1,056	704	-	187	1,598	1,365	1,024	682	-	181
26	-3.3	Q(Btu/h)	27,432	24,917	18,688	12,459	-	7,544	26,040	23,653	17,740	11,827	-	7,161	24,672	22,410	16,808	11,205	-	6,785	23,304	21,168	15,876	10,584	-	6,409
		W	1,743	1,488	1,116	744	-	197	1,692	1,444	1,083	722	-	192	1,645	1,405	1,053	702	-	186	1,594	1,361	1,021	681	-	180
23	-5.0	Q(Btu/h)	27,432	24,917	18,688	12,459	-	7,544	26,064	23,675	17,756	11,837	-	7,168	24,696	22,432	16,824	11,216	-	6,791	23,352	21,211	15,909	10,606	-	6,422
		W	1,738	1,484	1,113	742	-	197	1,692	1,444	1,083	722	-	192	1,643	1,403	1,052	701	-	186	1,594	1,361	1,021	681	-	180
18</																										

**PCA-AK24NL
PUZ-AH24NL
2) HEATING**

Rated
Q(Btu/h): 26000
W: 2160

Indoor D.B.			80°F / 26.7°C					70°F / 21.1°C					60°F / 15.6°C							
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)	Q(Btu/h)																		
70	21.1	Q(Btu/h)	41,488	35,022	26,267	17,511	-	11,180	42,750	36,088	27,066	18,044	-	11,520	44,352	37,440	28,080	18,720	-	11,952
		W	3,778	2,957	2,218	1,479	-	753	3,519	2,754	2,066	1,377	-	701	3,279	2,566	1,925	1,283	-	653
65	18.3	Q(Btu/h)	39,332	33,202	24,902	16,601	-	10,599	40,594	34,268	25,701	17,134	-	10,939	42,104	35,542	26,657	17,771	-	11,346
		W	3,651	2,858	2,143	1,429	-	728	3,389	2,652	1,989	1,326	-	675	3,166	2,478	1,858	1,239	-	631
60	15.6	Q(Btu/h)	37,268	31,460	23,595	15,730	-	10,043	38,531	32,526	24,395	16,263	-	10,383	39,948	33,722	25,292	16,861	-	10,765
		W	3,489	2,730	2,048	1,365	-	695	3,265	2,555	1,916	1,278	-	651	3,055	2,391	1,793	1,196	-	609
55	12.8	Q(Btu/h)	35,112	29,640	22,230	14,820	-	9,462	36,375	30,706	23,030	15,353	-	9,802	37,699	31,824	23,868	15,912	-	10,159
		W	3,387	2,650	1,988	1,325	-	675	3,133	2,452	1,839	1,226	-	624	2,948	2,307	1,730	1,153	-	587
50	10.0	Q(Btu/h)	32,987	27,846	20,885	13,923	-	8,889	34,219	28,886	21,665	14,443	-	9,221	35,482	29,952	22,464	14,976	-	9,562
		W	3,254	2,547	1,910	1,273	-	648	3,006	2,352	1,764	1,176	-	599	2,843	2,225	1,669	1,112	-	567
47	8.3	Q(Btu/h)	31,632	26,702	20,027	13,351	-	8,524	32,864	27,742	20,807	13,871	-	8,856	34,096	28,782	21,587	14,391	-	9,188
		W	3,149	2,465	1,848	1,232	-	628	2,923	2,287	1,716	1,144	-	582	2,752	2,154	1,615	1,077	-	548
42	5.6	Q(Btu/h)	29,506	24,908	18,681	12,454	-	7,951	30,800	26,000	19,500	13,000	-	8,300	31,970	26,988	20,241	13,494	-	8,615
		W	2,950	2,309	1,732	1,155	-	588	2,760	2,160	1,620	1,080	-	550	2,572	2,013	1,510	1,007	-	513
35	1.7	Q(Btu/h)	22,700	19,162	14,372	9,581	-	6,117	24,301	20,514	15,386	10,257	-	6,549	26,026	21,970	16,478	10,985	-	7,014
		W	2,625	2,054	1,541	1,027	-	523	2,440	1,909	1,432	955	-	486	2,269	1,776	1,332	888	-	452
32	0.0	Q(Btu/h)	21,683	18,304	13,728	9,152	-	5,843	22,946	19,370	14,528	9,685	-	6,184	23,839	20,124	15,093	10,062	-	6,424
		W	2,487	1,946	1,460	973	-	496	2,291	1,793	1,345	896	-	457	2,139	1,674	1,256	837	-	426
27	-2.8	Q(Btu/h)	20,667	17,446	13,085	8,723	-	5,569	21,714	18,330	13,748	9,165	-	5,852	22,515	19,006	14,255	9,503	-	6,067
		W	2,285	1,788	1,341	894	-	455	2,087	1,633	1,225	816	-	416	1,951	1,527	1,145	764	-	389
22	-5.6	Q(Btu/h)	19,774	16,692	12,519	8,346	-	5,329	20,821	17,576	13,182	8,788	-	5,611	21,622	18,252	13,689	9,126	-	5,827
		W	2,120	1,659	1,244	829	-	422	1,965	1,538	1,153	769	-	392	1,802	1,410	1,058	705	-	359
17	-8.3	Q(Btu/h)	19,096	16,120	12,090	8,060	-	5,146	20,112	16,978	12,734	8,489	-	5,420	20,821	17,576	13,182	8,788	-	5,611
		W	1,993	1,560	1,170	780	-	397	1,860	1,456	1,092	728	-	371	1,692	1,324	993	662	-	337
12	-11.1	Q(Btu/h)	18,388	15,522	11,642	7,761	-	4,955	19,404	16,380	12,285	8,190	-	5,229	20,174	17,030	12,773	8,515	-	5,437
		W	1,860	1,456	1,092	728	-	371	1,761	1,378	1,034	689	-	351	1,620	1,268	951	634	-	323
5	-15.0	Q(Btu/h)	17,402	14,690	11,018	7,345	-	4,690	18,141	15,314	11,486	7,657	-	4,889	18,603	15,704	11,778	7,852	-	5,013
		W	1,695	1,326	995	663	-	338	1,626	1,272	954	636	-	324	1,501	1,175	881	588	-	299
2	-16.7	Q(Btu/h)	16,601	14,014	10,511	7,007	-	4,474	17,125	14,456	10,842	7,228	-	4,615	17,494	14,768	11,076	7,384	-	4,714
		W	1,626	1,272	954	636	-	324	1,568	1,227	920	613	-	312	1,455	1,138	854	569	-	290
-3	-19.4	Q(Btu/h)	15,000	12,662	9,497	6,331	-	4,042	15,492	13,078	9,809	6,539	-	4,175	15,739	13,286	9,965	6,643	-	4,241
		W	1,524	1,192	894	596	-	304	1,471	1,151	863	576	-	293	1,383	1,082	812	541	-	276
-8	-22.2	Q(Btu/h)	13,367	11,284	8,463	5,642	-	3,602	13,798	11,648	8,736	5,824	-	3,718	13,952	11,778	8,834	5,889	-	3,760
		W	1,424	1,115	836	557	-	284	1,374	1,076	807	538	-	274	1,311	1,026	770	513	-	261
-13	-25.0	Q(Btu/h)	11,735	9,906	7,430	4,953	-	3,162	12,104	10,218	7,664	5,109	-	3,262	12,135	10,244	7,683	5,122	-	3,270
		W	1,330	1,041	781	521	-	265	1,275	998	748	499	-	254	1,245	974	731	487	-	248

PEAD-AA24NL
PUZ-AH24NL PUY-AH24NL

Rated
Q(Btu/h): 21200
W: 1760

1) COOLING

Indoor W.B.		72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C									
Outdoor D.B.		Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	
(°F) (°C)																										
115	46.1	Q(Btu/h)	23,184	20,479	15,359	10,240	-	6,376	21,912	19,356	14,517	9,678	-	6,026	20,664	18,253	13,690	9,127	-	5,683	19,392	17,130	12,847	8,565	-	5,333
		W	2,625	2,119	1,589	1,060	-	313	2,572	2,077	1,558	1,038	-	307	2,524	2,038	1,529	1,019	-	301	2,481	2,003	1,502	1,001	-	296
110	43.3	Q(Btu/h)	23,808	21,030	15,773	10,515	-	6,547	22,464	19,843	14,882	9,922	-	6,178	21,096	18,635	13,976	9,317	-	5,801	19,896	17,575	13,181	8,787	-	5,471
		W	2,507	2,024	1,518	1,012	-	299	2,461	1,987	1,490	994	-	294	2,418	1,952	1,464	976	-	288	2,374	1,917	1,437	958	-	283
106	41.1	Q(Btu/h)	24,336	21,497	16,123	10,748	-	6,692	22,968	20,288	15,216	10,144	-	6,316	21,576	19,059	14,294	9,529	-	5,933	20,304	17,935	13,451	8,968	-	5,584
		W	2,439	1,969	1,477	985	-	291	2,374	1,917	1,437	958	-	283	2,330	1,881	1,411	941	-	278	2,289	1,848	1,386	924	-	273
102	38.9	Q(Btu/h)	24,744	21,857	16,393	10,929	-	6,805	23,400	20,670	15,503	10,335	-	6,435	21,936	19,377	14,533	9,688	-	6,032	20,592	18,190	13,642	9,095	-	5,663
		W	2,363	1,908	1,431	954	-	282	2,320	1,873	1,404	936	-	277	2,267	1,830	1,373	915	-	270	2,224	1,795	1,346	898	-	265
98	36.7	Q(Btu/h)	25,104	22,175	16,631	11,088	-	6,904	23,688	20,924	15,693	10,462	-	6,514	22,296	19,695	14,771	9,847	-	6,131	20,904	18,465	13,849	9,233	-	5,749
		W	2,289	1,848	1,386	924	-	273	2,245	1,813	1,360	906	-	268	2,202	1,778	1,333	889	-	263	2,158	1,742	1,307	871	-	257
94	34.4	Q(Btu/h)	25,440	22,472	16,854	11,236	-	6,996	24,000	21,200	15,900	10,600	-	6,600	22,584	19,949	14,962	9,975	-	6,211	21,192	18,720	14,040	9,360	-	5,828
		W	2,224	1,795	1,346	898	-	265	2,180	1,760	1,320	880	-	260	2,141	1,728	1,296	864	-	255	2,088	1,686	1,265	843	-	249
90	32.2	Q(Btu/h)	25,800	22,790	17,093	11,395	-	7,095	24,288	21,454	16,091	10,727	-	6,679	22,872	20,204	15,153	10,102	-	6,290	21,480	18,974	14,231	9,487	-	5,907
		W	2,158	1,742	1,307	871	-	257	2,115	1,707	1,280	854	-	252	2,071	1,672	1,254	836	-	247	2,030	1,639	1,229	819	-	242
86	30.0	Q(Btu/h)	26,136	23,087	17,315	11,543	-	7,187	24,648	21,772	16,329	10,886	-	6,778	23,184	20,479	15,359	10,240	-	6,376	21,768	19,228	14,421	9,614	-	5,986
		W	2,099	1,695	1,271	847	-	250	2,060	1,663	1,247	832	-	246	2,019	1,630	1,222	815	-	241	1,975	1,595	1,196	797	-	236
82	27.8	Q(Btu/h)	26,376	23,299	17,474	11,649	-	7,253	24,864	21,963	16,472	10,982	-	6,838	23,352	20,628	15,471	10,314	-	6,422	21,936	19,377	14,533	9,688	-	6,032
		W	2,062	1,665	1,249	832	-	246	2,019	1,630	1,222	815	-	241	1,964	1,586	1,189	793	-	234	1,931	1,559	1,170	780	-	230
78	25.6	Q(Btu/h)	26,616	23,511	17,633	11,755	-	7,319	25,104	22,175	16,631	11,088	-	6,904	23,616	20,861	15,646	10,430	-	6,494	22,128	19,546	14,660	9,773	-	6,085
		W	2,012	1,624	1,218	812	-	240	1,973	1,593	1,195	796	-	235	1,929	1,558	1,168	779	-	230	1,881	1,519	1,139	759	-	224
74	23.3	Q(Btu/h)	26,736	23,617	17,713	11,808	-	7,352	25,224	22,281	16,711	11,141	-	6,937	23,808	21,030	15,773	10,515	-	6,547	22,296	19,695	14,771	9,847	-	6,131
		W	1,975	1,595	1,196	797	-	236	1,931	1,559	1,170	780	-	230	1,888	1,524	1,143	762	-	225	1,846	1,491	1,118	745	-	220
70	21.1	Q(Btu/h)	26,856	23,723	17,792	11,861	-	7,385	25,320	22,366	16,775	11,183	-	6,963	23,928	21,136	15,852	10,568	-	6,580	22,416	19,801	14,851	9,900	-	6,164
		W	1,942	1,568	1,176	784	-	232	1,899	1,533	1,150	766	-	226	1,855	1,498	1,123	749	-	221	1,814	1,464	1,098	732	-	216
66	18.9	Q(Btu/h)	27,024	23,871	17,903	11,936	-	7,432	25,560	22,578	16,934	11,289	-	7,023	24,048	21,242	15,932	10,621	-	6,613	22,656	20,013	15,010	10,006	-	6,230
		W	1,910	1,542	1,156	771	-	228	1,866	1,507	1,130	753	-	223	1,825	1,473	1,105	737	-	218	1,781	1,438	1,078	719	-	212
62	16.7	Q(Btu/h)	27,072	23,914	17,935	11,957	-	7,445	25,632	22,642	16,981	11,321	-	7,049	24,168	21,348	16,011	10,674	-	6,646	22,752	20,098	15,073	10,049	-	6,257
		W	1,888	1,524	1,143	762	-	225	1,855	1,498	1,123	749	-	221	1,803	1,456	1,092	728	-	215	1,759	1,420	1,065	710	-	210
58	14.4	Q(Btu/h)	27,168	23,998	17,999	11,999	-	7,471	25,680	22,684	17,013	11,342	-	7,062	24,144	21,327	15,995	10,664	-	6,640	22,728	20,076	15,057	10,038	-	6,250
		W	1,864	1,505	1,129	752	-	222	1,818	1,468	1,101	734	-	217	1,775	1,433	1,074	716	-	212	1,727	1,394	1,045	697	-	206
54	12.2	Q(Btu/h)	27,264	24,083	18,062	12,042	-	7,498	25,800	22,790	17,093	11,395	-	7,095	24,288	21,454	16,091	10,727	-	6,679	22,872	20,204	15,153	10,102	-	6,290
		W	1,855	1,498	1,123	749	-	221	1,814	1,464	1,098	732	-	216	1,766	1,426	1,069	713	-	211	1,716	1,385	1,039	693	-	205
50	10.0	Q(Btu/h)	27,312	24,126	18,094	12,063	-	7,511	25,848	22,832	17,124	11,416	-	7,108	24,408	21,560	16,170	10,780	-	6,712	22,968	20,288	15,216	10,144	-	6,316
		W	1,831	1,478	1,109	739	-	218	1,785	1,441	1,081	721	-	213	1,737	1,403	1,052	701	-	207	1,690	1,364	1,023	682	-	202
46	7.8	Q(Btu/h)	27,360	24,168	18,126	12,084	-	7,524	25,920	22,896	17,172	11,448	-	7,128	24,456	21,603	16,202	10,801	-	6,725	23,064	20,373	15,280	10,187	-	6,343
		W	1,818	1,468	1,101	734	-	217	1,775	1,433	1,074	716	-	212	1,727	1,394	1,045	697	-	206	1,679	1,355	1,016	678	-	200
42	5.6	Q(Btu/h)	27,384	24,189	18,142	12,095	-	7,531	25,920	22,896	17,172	11,448	-	7,128	24,504	21,645	16,234	10,823	-	6,739	23,088	20,394	15,296	10,197	-	6,349
		W	1,814	1,464	1,098	732	-	216	1,768	1,427	1,071	714	-	211	1,716	1,385	1,039	693	-	205	1,666	1,345	1,008	672	-	199
38	3.3	Q(Btu/h)	27,384	24,189	18,142	12,095	-	7,531	25,968	22,938	17,204	11,469	-	7,141	24,552	21,688	16,266	10,844	-	6,752	23,160	20,458	15,344	10,229	-	6,369
		W	1,803	1,456	1,092	728	-	215	1,755	1,417	1,063	708	-	209	1,705	1,376	1,032	688	-	203	1,652	1,334	1,001	667	-	197
34	1.1	Q(Btu/h)	27,408	24,210	18,158	12,105	-	7,537	25,992	22,960	17,220	11,480	-	7,148	24,600	21,730	16,298	10,865	-	6,765	23,208	20,500	15,375	10,250	-	6,382
		W	1,796	1,450	1,088	725	-	214	1,751	1,413	1,060	707	-	209	1,700	1,373	1,030	686	-	203	1,650	1,332	999	666	-	197
30	-1.1	Q(Btu/h)	27,408	24,210	18,158	12,105	-	7,537	25,992	22,960	17,220	11,480	-	7,148	24,624	21,751	16,313	10,876	-	6,772	23,232	20,522	15,391	10,261	-	6,389
		W	1,796	1,450	1,088	725	-	214	1,744	1,408	1,056															

PEAD-AA24NL
PUZ-AH24NL
2) HEATING

Rated
Q(Btu/h): 26000
W: 2160

Indoor D.B. Outdoor W.B. (°F) (°C)	80°F / 26.7°C						70°F / 21.1°C						60°F / 15.6°C						
	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	
70 21.1	Q(Btu/h)	42,296	35,022	26,267	17,511	-	11,180	43,583	36,088	27,066	18,044	-	11,520	45,216	37,440	28,080	18,720	-	11,952
	W	3,751	2,957	2,218	1,479	-	767	3,494	2,754	2,066	1,377	-	714	3,255	2,566	1,925	1,283	-	665
65 18.3	Q(Btu/h)	40,098	33,202	24,902	16,601	-	10,599	41,385	34,268	25,701	17,134	-	10,939	42,924	35,542	26,657	17,771	-	11,346
	W	3,625	2,858	2,143	1,429	-	741	3,365	2,652	1,989	1,326	-	688	3,143	2,478	1,858	1,239	-	642
60 15.6	Q(Btu/h)	37,994	31,460	23,595	15,730	-	10,043	39,281	32,526	24,395	16,263	-	10,383	40,726	33,722	25,292	16,861	-	10,765
	W	3,463	2,730	2,048	1,365	-	708	3,241	2,555	1,916	1,278	-	662	3,033	2,391	1,793	1,196	-	620
55 12.8	Q(Btu/h)	35,796	29,640	22,230	14,820	-	9,462	37,083	30,706	23,030	15,353	-	9,802	38,434	31,824	23,868	15,912	-	10,159
	W	3,362	2,650	1,988	1,325	-	687	3,110	2,452	1,839	1,226	-	636	2,926	2,307	1,730	1,153	-	598
50 10.0	Q(Btu/h)	33,629	27,846	20,885	13,923	-	8,889	34,885	28,886	21,665	14,443	-	9,221	36,173	29,952	22,464	14,976	-	9,562
	W	3,230	2,547	1,910	1,273	-	660	2,984	2,352	1,764	1,176	-	610	2,822	2,225	1,669	1,112	-	577
47 8.3	Q(Btu/h)	32,248	26,702	20,027	13,351	-	8,524	33,504	27,742	20,807	13,871	-	8,856	34,760	28,782	21,587	14,391	-	9,188
	W	3,126	2,465	1,848	1,232	-	639	2,902	2,287	1,716	1,144	-	593	2,732	2,154	1,615	1,077	-	558
42 5.6	Q(Btu/h)	30,081	24,908	18,681	12,454	-	7,951	31,400	26,000	19,500	13,000	-	8,300	32,593	26,988	20,241	13,494	-	8,615
	W	2,929	2,309	1,732	1,155	-	599	2,740	2,160	1,620	1,080	-	560	2,554	2,013	1,510	1,007	-	522
35 1.7	Q(Btu/h)	23,142	19,162	14,372	9,581	-	6,117	24,775	20,514	15,386	10,257	-	6,549	26,533	21,970	16,478	10,985	-	7,014
	W	2,606	2,054	1,541	1,027	-	533	2,422	1,909	1,432	955	-	495	2,252	1,776	1,332	888	-	460
32 0.0	Q(Btu/h)	22,106	18,304	13,728	9,152	-	5,843	23,393	19,370	14,528	9,685	-	6,184	24,304	20,124	15,093	10,062	-	6,424
	W	2,469	1,946	1,460	973	-	505	2,274	1,793	1,345	896	-	465	2,124	1,674	1,256	837	-	434
27 -2.8	Q(Btu/h)	21,069	17,446	13,085	8,723	-	5,569	22,137	18,330	13,748	9,165	-	5,852	22,953	19,006	14,255	9,503	-	6,067
	W	2,269	1,788	1,341	894	-	464	2,071	1,633	1,225	816	-	423	1,937	1,527	1,145	764	-	396
22 -5.6	Q(Btu/h)	20,159	16,692	12,519	8,346	-	5,329	21,226	17,576	13,182	8,788	-	5,611	22,043	18,252	13,689	9,126	-	5,827
	W	2,104	1,659	1,244	829	-	430	1,951	1,538	1,153	769	-	399	1,789	1,410	1,058	705	-	366
17 -8.3	Q(Btu/h)	19,468	16,120	12,090	8,060	-	5,146	20,504	16,978	12,734	8,489	-	5,420	21,226	17,576	13,182	8,788	-	5,611
	W	1,978	1,560	1,170	780	-	404	1,847	1,456	1,092	728	-	377	1,680	1,324	993	662	-	343
12 -11.1	Q(Btu/h)	18,746	15,522	11,642	7,761	-	4,955	19,782	16,380	12,285	8,190	-	5,229	20,567	17,030	12,773	8,515	-	5,437
	W	1,847	1,456	1,092	728	-	377	1,748	1,378	1,034	689	-	357	1,608	1,268	951	634	-	329
5 -15.0	Q(Btu/h)	17,741	14,690	11,018	7,345	-	4,690	18,495	15,314	11,486	7,657	-	4,889	18,966	15,704	11,778	7,852	-	5,013
	W	1,682	1,326	995	663	-	344	1,614	1,272	954	636	-	330	1,491	1,175	881	588	-	305
2 -16.7	Q(Btu/h)	16,925	14,014	10,511	7,007	-	4,474	17,458	14,456	10,842	7,228	-	4,615	17,835	14,768	11,076	7,384	-	4,714
	W	1,614	1,272	954	636	-	330	1,556	1,227	920	613	-	318	1,444	1,138	854	569	-	295
-3 -19.4	Q(Btu/h)	15,292	12,662	9,497	6,331	-	4,042	15,794	13,078	9,809	6,539	-	4,175	16,045	13,286	9,965	6,643	-	4,241
	W	1,512	1,192	894	596	-	309	1,460	1,151	863	576	-	298	1,373	1,082	812	541	-	281
-8 -22.2	Q(Btu/h)	13,628	11,284	8,463	5,642	-	3,602	14,067	11,648	8,736	5,824	-	3,718	14,224	11,778	8,834	5,889	-	3,760
	W	1,414	1,115	836	557	-	289	1,365	1,076	807	538	-	279	1,302	1,026	770	513	-	266
-13 -25.0	Q(Btu/h)	11,963	9,906	7,430	4,953	-	3,162	12,340	10,218	7,664	5,109	-	3,262	12,372	10,244	7,683	5,122	-	3,270
	W	1,321	1,041	781	521	-	270	1,266	998	748	499	-	259	1,236	974	731	487	-	253

**PVA-AA24NL
PUZ-AH24NL PUY-AH24NL**
1) COOLING

Rated
Q(Btu/h): 23400
W: 1940

Indoor W.B.		72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C								
Outdoor D.B. (°F) (°C)		Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
115	46.1 Q(Btu/h)	23,184	22,604	16,953	11,302	-	6,569	21,912	21,364	16,023	10,682	-	6,208	20,664	20,147	15,111	10,074	-	5,855	19,392	18,907	14,180	9,454	-	5,494
	W	2,456	2,336	1,752	1,168	-	349	2,407	2,289	1,717	1,145	-	342	2,362	2,247	1,685	1,123	-	336	2,322	2,208	1,656	1,104	-	330
110	43.3 Q(Btu/h)	23,808	23,213	17,410	11,606	-	6,746	22,464	21,902	16,427	10,951	-	6,365	21,096	20,569	15,426	10,284	-	5,977	19,896	19,399	14,549	9,699	-	5,637
	W	2,346	2,231	1,673	1,116	-	334	2,303	2,190	1,643	1,095	-	327	2,262	2,151	1,614	1,076	-	322	2,222	2,113	1,584	1,056	-	316
106	41.1 Q(Btu/h)	24,336	23,728	17,796	11,864	-	6,895	22,968	22,394	16,795	11,197	-	6,508	21,576	21,037	15,777	10,518	-	6,113	20,304	19,796	14,847	9,898	-	5,753
	W	2,283	2,171	1,628	1,085	-	325	2,222	2,113	1,584	1,056	-	316	2,181	2,074	1,555	1,037	-	310	2,142	2,037	1,528	1,019	-	305
102	38.9 Q(Btu/h)	24,744	24,125	18,094	12,063	-	7,011	23,400	22,815	17,111	11,408	-	6,630	21,936	21,388	16,041	10,694	-	6,215	20,592	20,077	15,058	10,039	-	5,834
	W	2,211	2,103	1,577	1,051	-	314	2,171	2,064	1,548	1,032	-	309	2,122	2,018	1,513	1,009	-	302	2,081	1,979	1,484	989	-	296
98	36.7 Q(Btu/h)	25,104	24,476	18,357	12,238	-	7,113	23,688	23,096	17,322	11,548	-	6,712	22,296	21,739	16,304	10,869	-	6,317	20,904	20,381	15,286	10,191	-	5,923
	W	2,142	2,037	1,528	1,019	-	305	2,101	1,998	1,499	999	-	299	2,060	1,959	1,470	980	-	293	2,020	1,921	1,440	960	-	287
94	34.4 Q(Btu/h)	25,440	24,804	18,603	12,402	-	7,208	24,000	23,400	17,550	11,700	-	6,800	22,584	22,019	16,515	11,010	-	6,399	21,192	20,662	15,497	10,331	-	6,004
	W	2,081	1,979	1,484	989	-	296	2,040	1,940	1,455	970	-	290	2,003	1,905	1,429	953	-	285	1,954	1,859	1,394	929	-	278
90	32.2 Q(Btu/h)	25,800	25,155	18,866	12,578	-	7,310	24,288	23,681	17,761	11,840	-	6,882	22,872	22,300	16,725	11,150	-	6,480	21,480	20,943	15,707	10,472	-	6,086
	W	2,020	1,921	1,440	960	-	287	1,979	1,882	1,411	941	-	281	1,938	1,843	1,382	922	-	276	1,899	1,806	1,355	903	-	270
86	30.0 Q(Btu/h)	26,136	25,483	19,112	12,741	-	7,405	24,648	24,032	18,024	12,016	-	6,984	23,184	22,604	16,953	11,302	-	6,569	21,768	21,224	15,918	10,612	-	6,168
	W	1,965	1,868	1,401	934	-	279	1,928	1,833	1,375	917	-	274	1,889	1,796	1,347	898	-	269	1,848	1,758	1,318	879	-	263
82	27.8 Q(Btu/h)	26,376	25,717	19,287	12,858	-	7,473	24,864	24,242	18,182	12,121	-	7,045	23,352	22,768	17,076	11,384	-	6,616	21,936	21,388	16,041	10,694	-	6,215
	W	1,930	1,835	1,376	918	-	274	1,889	1,796	1,347	898	-	269	1,838	1,748	1,311	874	-	261	1,807	1,719	1,289	859	-	257
78	25.6 Q(Btu/h)	26,616	25,951	19,463	12,975	-	7,541	25,104	24,476	18,357	12,238	-	7,113	23,616	23,026	17,269	11,513	-	6,691	22,128	21,575	16,181	10,787	-	6,270
	W	1,883	1,791	1,343	895	-	268	1,846	1,756	1,317	878	-	262	1,805	1,717	1,288	858	-	257	1,761	1,674	1,256	837	-	250
74	23.3 Q(Btu/h)	26,736	26,068	19,551	13,034	-	7,575	25,224	24,593	18,445	12,297	-	7,147	23,808	23,213	17,410	11,606	-	6,746	22,296	21,739	16,304	10,869	-	6,317
	W	1,848	1,758	1,318	879	-	263	1,807	1,719	1,289	859	-	257	1,767	1,680	1,260	840	-	251	1,728	1,643	1,232	822	-	246
70	21.1 Q(Btu/h)	26,856	26,185	19,638	13,092	-	7,609	25,320	24,687	18,515	12,344	-	7,174	23,928	23,330	17,497	11,665	-	6,780	22,416	21,856	16,392	10,928	-	6,351
	W	1,818	1,729	1,296	864	-	258	1,777	1,690	1,267	845	-	253	1,736	1,651	1,238	825	-	247	1,697	1,614	1,211	807	-	241
66	18.9 Q(Btu/h)	27,024	26,348	19,761	13,174	-	7,657	25,560	24,921	18,691	12,461	-	7,242	24,048	23,447	17,585	11,723	-	6,814	22,656	22,090	16,567	11,045	-	6,419
	W	1,787	1,699	1,275	850	-	254	1,746	1,661	1,245	830	-	248	1,707	1,624	1,218	812	-	243	1,667	1,585	1,189	792	-	237
62	16.7 Q(Btu/h)	27,072	26,395	19,796	13,198	-	7,670	25,632	24,991	18,743	12,496	-	7,262	24,168	23,564	17,673	11,782	-	6,848	22,752	22,183	16,637	11,092	-	6,446
	W	1,767	1,680	1,260	840	-	251	1,736	1,651	1,238	825	-	247	1,687	1,604	1,203	802	-	240	1,646	1,566	1,174	783	-	234
58	14.4 Q(Btu/h)	27,168	26,489	19,867	13,244	-	7,698	25,680	25,038	18,779	12,519	-	7,276	24,144	23,540	17,655	11,770	-	6,841	22,728	22,160	16,620	11,080	-	6,440
	W	1,744	1,659	1,244	829	-	248	1,701	1,618	1,213	809	-	242	1,661	1,579	1,184	790	-	236	1,616	1,536	1,152	768	-	230
54	12.2 Q(Btu/h)	27,264	26,582	19,937	13,291	-	7,725	25,800	25,155	18,866	12,578	-	7,310	24,288	23,681	17,761	11,840	-	6,882	22,872	22,300	16,725	11,150	-	6,480
	W	1,736	1,651	1,238	825	-	247	1,697	1,614	1,211	807	-	241	1,652	1,571	1,179	786	-	235	1,605	1,527	1,145	763	-	228
50	10.0 Q(Btu/h)	27,312	26,629	19,972	13,315	-	7,738	25,848	25,202	18,901	12,601	-	7,324	24,408	23,798	17,848	11,899	-	6,916	22,968	22,394	16,795	11,197	-	6,508
	W	1,714	1,630	1,222	815	-	244	1,671	1,589	1,192	794	-	238	1,626	1,546	1,160	773	-	231	1,581	1,504	1,128	752	-	225
46	7.8 Q(Btu/h)	27,360	26,676	20,007	13,338	-	7,752	25,920	25,272	18,954	12,636	-	7,344	24,456	23,845	17,883	11,922	-	6,929	23,064	22,487	16,866	11,244	-	6,535
	W	1,701	1,618	1,213	809	-	242	1,661	1,579	1,184	790	-	236	1,616	1,536	1,152	768	-	230	1,571	1,494	1,120	747	-	223
42	5.6 Q(Btu/h)	27,384	26,699	20,025	13,350	-	7,759	25,920	25,272	18,954	12,636	-	7,344	24,504	23,891	17,919	11,946	-	6,943	23,088	22,451	16,883	11,255	-	6,542
	W	1,697	1,614	1,211	807	-	241	1,654	1,573	1,180	787	-	235	1,605	1,527	1,145	763	-	228	1,559	1,482	1,112	741	-	222
38	3.3 Q(Btu/h)	27,384	26,699	20,025	13,350	-	7,759	25,968	25,319	18,989	12,659	-	7,358	24,552	23,938	17,954	11,969	-	6,956	23,160	22,581	16,936	11,291	-	6,562
	W	1,687	1,604	1,203	802	-	240	1,642	1,562	1,171	781	-	233	1,595	1,517	1,138	759	-	227	1,546	1,471	1,103	735	-	220
34	1.1 Q(Btu/h)	27,408	26,723	20,042	13,361	-	7,766	25,992	25,342	19,007	12,671	-	7,364	24,600	23,985	17,989	11,993	-	6,970	23,208	22,628	16,971	11,314	-	6,576
	W	1,681	1,599	1,199	799	-	239	1,638	1,558	1,168	779	-	233	1,591	1,513	1,135	757	-	226	1,544	1,469	1,101	734	-	220
30	-1.1 Q(Btu/h)	27,408	26,723	20,042	13,361	-	7,766	25,992	25,342	19,007	12,671	-	7,364	24,624	24,008	18,006	12,004	-	6,977	23,232	22,651	16,988	11,326	-	6,582
	W	1,681	1,599	1,199	799	-	239	1,632	1,552	1,164	776	-	232	1,587	1,509	1,132	755	-	226	1,538	1,463	1,097	731	-	219
26	-3.3 Q(Btu/h)	27,432	26,746	20,060	13,373	-	7,772	26,040	25,389																

PVA-AA24NL
PUZ-AH24NL
2) HEATING

Rated
Q(Btu/h): 26000
W: 1950

Indoor D.B.			80°F / 26.7°C					70°F / 21.1°C					60°F / 15.6°C							
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)	Q(Btu/h)																		
70	21.1	Q(Btu/h)	42,835	35,022	26,267	17,511	-	11,315	44,138	36,088	27,066	18,044	-	11,659	45,792	37,440	28,080	18,720	-	12,096
		W	3,477	2,670	2,002	1,335	-	767	3,239	2,486	1,865	1,243	-	714	3,018	2,317	1,737	1,158	-	665
65	18.3	Q(Btu/h)	40,609	33,202	24,902	16,601	-	10,727	41,912	34,268	25,701	17,134	-	11,071	43,471	35,542	26,657	17,771	-	11,483
		W	3,360	2,580	1,935	1,290	-	741	3,119	2,395	1,796	1,197	-	688	2,913	2,237	1,677	1,118	-	642
60	15.6	Q(Btu/h)	38,478	31,460	23,595	15,730	-	10,164	39,782	32,526	24,395	16,263	-	10,508	41,245	33,722	25,292	16,861	-	10,895
		W	3,211	2,465	1,849	1,232	-	708	3,005	2,307	1,730	1,153	-	662	2,812	2,159	1,619	1,079	-	620
55	12.8	Q(Btu/h)	36,252	29,640	22,230	14,820	-	9,576	37,556	30,706	23,030	15,353	-	9,920	38,923	31,824	23,868	15,912	-	10,282
		W	3,117	2,393	1,794	1,196	-	687	2,883	2,213	1,660	1,107	-	636	2,713	2,083	1,562	1,041	-	598
50	10.0	Q(Btu/h)	34,058	27,846	20,885	13,923	-	8,996	35,330	28,886	21,665	14,443	-	9,332	36,634	29,952	22,464	14,976	-	9,677
		W	2,995	2,299	1,724	1,150	-	660	2,766	2,124	1,593	1,062	-	610	2,616	2,009	1,506	1,004	-	577
47	8.3	Q(Btu/h)	32,659	26,702	20,027	13,351	-	8,627	33,931	27,742	20,807	13,871	-	8,963	35,203	28,782	21,587	14,391	-	9,299
		W	2,898	2,225	1,669	1,112	-	639	2,690	2,065	1,549	1,033	-	593	2,532	1,944	1,458	972	-	558
42	5.6	Q(Btu/h)	30,464	24,908	18,681	12,454	-	8,047	31,800	26,000	19,500	13,000	-	8,400	33,008	26,988	20,241	13,494	-	8,719
		W	2,715	2,085	1,563	1,042	-	599	2,540	1,950	1,463	975	-	560	2,367	1,817	1,363	909	-	522
35	1.7	Q(Btu/h)	23,437	19,162	14,372	9,581	-	6,191	25,090	20,514	15,386	10,257	-	6,628	26,871	21,970	16,478	10,985	-	7,098
		W	2,416	1,854	1,391	927	-	533	2,245	1,724	1,293	862	-	495	2,088	1,603	1,202	801	-	460
32	0.0	Q(Btu/h)	22,387	18,304	13,728	9,152	-	5,914	23,691	19,370	14,528	9,685	-	6,258	24,613	20,124	15,093	10,062	-	6,502
		W	2,289	1,757	1,318	878	-	505	2,108	1,619	1,214	809	-	465	1,969	1,511	1,133	756	-	434
27	-2.8	Q(Btu/h)	21,338	17,446	13,085	8,723	-	5,636	22,419	18,330	13,748	9,165	-	5,922	23,246	19,006	14,255	9,503	-	6,140
		W	2,103	1,615	1,211	807	-	464	1,920	1,474	1,106	737	-	423	1,796	1,379	1,034	689	-	396
22	-5.6	Q(Btu/h)	20,416	16,692	12,519	8,346	-	5,393	21,497	17,576	13,182	8,788	-	5,678	22,324	18,252	13,689	9,126	-	5,897
		W	1,951	1,498	1,123	749	-	430	1,808	1,388	1,041	694	-	399	1,659	1,273	955	637	-	366
17	-8.3	Q(Btu/h)	19,716	16,120	12,090	8,060	-	5,208	20,765	16,978	12,734	8,489	-	5,485	21,497	17,576	13,182	8,788	-	5,678
		W	1,834	1,408	1,056	704	-	404	1,712	1,314	986	657	-	377	1,557	1,195	897	598	-	343
12	-11.1	Q(Btu/h)	18,985	15,522	11,642	7,761	-	5,015	20,034	16,380	12,285	8,190	-	5,292	20,829	17,030	12,773	8,515	-	5,502
		W	1,712	1,314	986	657	-	377	1,621	1,244	933	622	-	357	1,491	1,145	858	572	-	329
5	-15.0	Q(Btu/h)	17,967	14,690	11,018	7,345	-	4,746	18,730	15,314	11,486	7,657	-	4,948	19,207	15,704	11,778	7,852	-	5,074
		W	1,560	1,197	898	599	-	344	1,496	1,149	861	574	-	330	1,382	1,061	796	530	-	305
2	-16.7	Q(Btu/h)	17,140	14,014	10,511	7,007	-	4,528	17,681	14,456	10,842	7,228	-	4,670	18,062	14,768	11,076	7,384	-	4,771
		W	1,496	1,149	861	574	-	330	1,443	1,108	831	554	-	318	1,339	1,028	771	514	-	295
-3	-19.4	Q(Btu/h)	15,487	12,662	9,497	6,331	-	4,091	15,995	13,078	9,809	6,539	-	4,225	16,250	13,286	9,965	6,643	-	4,292
		W	1,402	1,076	807	538	-	309	1,354	1,039	780	520	-	298	1,273	977	733	488	-	281
-8	-22.2	Q(Btu/h)	13,801	11,284	8,463	5,642	-	3,646	14,246	11,648	8,736	5,824	-	3,763	14,405	11,778	8,834	5,889	-	3,805
		W	1,311	1,006	755	503	-	289	1,265	971	728	486	-	279	1,207	926	695	463	-	266
-13	-25.0	Q(Btu/h)	12,116	9,906	7,430	4,953	-	3,200	12,497	10,218	7,664	5,109	-	3,301	12,529	10,244	7,683	5,122	-	3,310
		W	1,224	940	705	470	-	270	1,173	901	676	450	-	259	1,146	879	660	440	-	253

**PAA-AA18NL PAA-BA18NL
PUZ-AH24NL PUY-AH24NL
1) COOLING**

**Rated
Q(Btu/h): 18000
W: 1400**

Indoor W.B. Outdoor D.B. (°F) (°C)	72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C								
	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
115 46.1 Q(Btu/h)	17,871	17,388	13,041	8,694	-	6,086	16,891	16,434	12,326	8,217	-	5,752	15,929	15,498	11,624	7,749	-	5,424	14,948	14,544	10,908	7,272	-	5,090
W	1,746	1,686	1,264	843	-	470	1,711	1,652	1,239	826	-	460	1,679	1,621	1,216	811	-	452	1,650	1,593	1,195	797	-	444
110 43.3 Q(Btu/h)	18,352	17,856	13,392	8,928	-	6,250	17,316	16,848	12,636	8,424	-	5,897	16,262	15,822	11,867	7,911	-	5,538	15,337	14,922	11,192	7,461	-	5,223
W	1,668	1,610	1,208	805	-	449	1,637	1,581	1,185	790	-	440	1,608	1,553	1,164	776	-	433	1,579	1,525	1,143	762	-	425
106 41.1 Q(Btu/h)	18,759	18,252	13,689	9,126	-	6,388	17,705	17,226	12,920	8,613	-	6,029	16,632	16,182	12,137	8,091	-	5,664	15,651	15,228	11,421	7,614	-	5,330
W	1,623	1,567	1,175	783	-	436	1,579	1,525	1,143	762	-	425	1,550	1,497	1,122	748	-	417	1,523	1,470	1,103	735	-	410
102 38.9 Q(Btu/h)	19,074	18,558	13,919	9,279	-	6,495	18,038	17,550	13,163	8,775	-	6,143	16,909	16,452	12,339	8,226	-	5,758	15,873	15,444	11,583	7,722	-	5,405
W	1,572	1,518	1,138	759	-	423	1,543	1,490	1,117	745	-	415	1,508	1,456	1,092	728	-	406	1,479	1,428	1,071	714	-	398
98 36.7 Q(Btu/h)	19,351	18,828	14,121	9,414	-	6,590	18,260	17,766	13,325	8,883	-	6,218	17,187	16,722	12,542	8,361	-	5,853	16,114	15,678	11,759	7,839	-	5,487
W	1,523	1,470	1,103	735	-	410	1,494	1,442	1,082	721	-	402	1,465	1,414	1,061	707	-	394	1,436	1,386	1,040	693	-	386
94 34.4 Q(Btu/h)	19,610	19,080	14,310	9,540	-	6,678	18,500	18,000	13,500	9,000	-	6,300	17,409	16,938	12,704	8,469	-	5,928	16,336	15,894	11,921	7,947	-	5,563
W	1,479	1,428	1,071	714	-	398	1,450	1,400	1,050	700	-	390	1,424	1,375	1,031	687	-	383	1,389	1,341	1,006	671	-	374
90 32.2 Q(Btu/h)	19,888	19,350	14,513	9,675	-	6,773	18,722	18,216	13,662	9,108	-	6,376	17,631	17,154	12,866	8,577	-	6,004	16,558	16,110	12,083	8,055	-	5,639
W	1,436	1,386	1,040	693	-	386	1,407	1,358	1,019	679	-	378	1,378	1,330	998	665	-	371	1,350	1,303	978	652	-	363
86 30.0 Q(Btu/h)	20,147	19,602	14,702	9,801	-	6,861	19,000	18,486	13,865	9,243	-	6,470	17,871	17,388	13,041	8,694	-	6,086	16,780	16,326	12,645	8,163	-	5,714
W	1,396	1,348	1,011	674	-	376	1,370	1,323	992	662	-	369	1,343	1,296	972	648	-	361	1,314	1,268	951	634	-	353
82 27.8 Q(Btu/h)	20,332	19,782	14,837	9,891	-	6,924	19,166	18,648	13,986	9,324	-	6,527	18,001	17,514	13,136	8,757	-	6,130	16,909	16,452	12,339	8,226	-	5,758
W	1,372	1,324	993	662	-	369	1,343	1,296	972	648	-	361	1,306	1,261	946	631	-	351	1,285	1,240	930	620	-	346
78 25.6 Q(Btu/h)	20,517	19,962	14,972	9,981	-	6,987	19,351	18,828	14,121	9,414	-	6,590	18,204	17,712	13,284	8,856	-	6,199	17,057	16,596	12,447	8,298	-	5,809
W	1,338	1,292	969	646	-	360	1,312	1,267	950	634	-	353	1,283	1,239	929	620	-	345	1,251	1,208	906	604	-	337
74 23.3 Q(Btu/h)	20,609	20,052	15,039	10,026	-	7,018	19,444	18,918	14,189	9,459	-	6,621	18,352	17,856	13,392	8,928	-	6,250	17,187	16,722	12,542	8,361	-	5,853
W	1,314	1,268	951	634	-	353	1,285	1,240	930	620	-	346	1,256	1,212	909	606	-	338	1,228	1,186	889	593	-	330
70 21.1 Q(Btu/h)	20,702	20,142	15,107	10,071	-	7,050	19,518	18,990	14,243	9,495	-	6,647	18,445	17,946	13,460	8,973	-	6,281	17,279	16,812	12,609	8,406	-	5,884
W	1,292	1,247	936	624	-	347	1,263	1,219	915	610	-	340	1,234	1,191	894	596	-	332	1,206	1,165	874	582	-	324
66 18.9 Q(Btu/h)	20,831	20,268	15,201	10,134	-	7,094	19,703	19,170	14,378	9,585	-	6,710	18,537	18,036	13,527	9,018	-	6,313	17,464	16,992	12,744	8,496	-	5,947
W	1,270	1,226	920	613	-	342	1,241	1,198	899	599	-	334	1,214	1,172	879	586	-	326	1,185	1,144	858	572	-	319
62 16.7 Q(Btu/h)	20,868	20,304	15,228	10,152	-	7,106	19,758	19,224	14,418	9,612	-	6,728	18,630	18,126	13,595	9,063	-	6,344	17,538	17,064	12,798	8,532	-	5,972
W	1,256	1,212	909	606	-	338	1,234	1,191	894	596	-	332	1,199	1,158	868	579	-	323	1,170	1,130	847	565	-	315
58 14.4 Q(Btu/h)	20,942	20,376	15,282	10,188	-	7,132	19,795	19,260	14,445	9,630	-	6,741	18,611	18,108	13,581	9,054	-	6,338	17,520	17,046	12,785	8,523	-	5,966
W	1,240	1,197	898	599	-	333	1,209	1,168	876	584	-	325	1,180	1,140	855	570	-	317	1,148	1,109	832	554	-	309
54 12.2 Q(Btu/h)	21,016	20,448	15,336	10,224	-	7,157	19,888	19,350	14,513	9,675	-	6,773	18,722	18,216	13,662	9,108	-	6,376	17,631	17,154	12,866	8,577	-	6,004
W	1,234	1,191	894	596	-	332	1,206	1,165	874	582	-	324	1,175	1,134	851	567	-	316	1,141	1,102	826	551	-	307
50 10.0 Q(Btu/h)	21,053	20,484	15,363	10,242	-	7,169	19,925	19,386	14,540	9,693	-	6,785	18,815	18,306	13,730	9,153	-	6,407	17,705	17,226	12,920	8,613	-	6,029
W	1,218	1,176	882	588	-	328	1,188	1,147	860	573	-	319	1,156	1,116	837	558	-	311	1,124	1,085	814	543	-	302
46 7.8 Q(Btu/h)	21,090	20,520	15,390	10,260	-	7,182	19,980	19,440	14,580	9,720	-	6,804	18,852	18,342	13,757	9,171	-	6,420	17,779	17,298	12,974	8,649	-	6,054
W	1,209	1,168	876	584	-	325	1,180	1,140	855	570	-	317	1,148	1,109	832	554	-	309	1,117	1,078	809	539	-	300
42 5.6 Q(Btu/h)	21,109	20,538	15,404	10,269	-	7,188	19,980	19,440	14,580	9,720	-	6,804	18,889	18,378	13,784	9,189	-	6,432	17,797	17,316	12,987	8,658	-	6,061
W	1,206	1,165	874	582	-	324	1,176	1,135	852	568	-	316	1,141	1,102	826	551	-	307	1,108	1,070	802	535	-	298
38 3.3 Q(Btu/h)	21,109	20,538	15,404	10,269	-	7,188	20,017	19,476	14,607	9,738	-	6,817	18,926	18,414	13,811	9,207	-	6,445	17,853	17,370	13,028	8,685	-	6,080
W	1,199	1,158	868	579	-	323	1,167	1,127	845	564	-	314	1,134	1,095	821	547	-	305	1,099	1,061	796	531	-	296
34 1.1 Q(Btu/h)	21,127	20,556	15,417	10,278	-	7,195	20,036	19,494	14,621	9,747	-	6,823	18,963	18,450	13,838	9,225	-	6,458	17,890	17,406	13,055	8,703	-	6,092
W	1,195	1,154	865	577	-	321	1,164	1,124	843	562	-	313	1,131	1,092	819	546	-	304	1,098	1,060	795	530	-	295
30 -1.1 Q(Btu/h)	21,127	20,556	15,417	10,278	-	7,195	20,036	19,494	14,621	9,747	-	6,823	18,981	18,468	13,851	9,234	-	6,464	17,908	17,424	13,068	8,712	-	6,098
W	1,195	1,154	865	577	-	321	1,160	1,120	840	560	-	312	1,128	1,089	817	545	-	303	1,093	1,056	792	528	-	294
26 -3.3 Q(Btu/h)	21,146	20,574	15,431	10,287	-	7,201	20,073	19,530	14,648	9,765	-	6,836	19,018	18,504	13,878	9,252	-	6,476	17,964	17,478	13,109	8,739	-	6,117
W	1,192	1,151	863	575	-	321	1,157	1,117	838	559	-	311	1,125	1,086	815	543	-	303	1,090	1,053	790	526	-	293
23 -5.0																								

**PAA-AA18NL PAA-BA18NL
PUZ-AH24NL
2) HEATING**

Rated
Q(Btu/h): 19000
W: 1560

Indoor D.B.			80°F / 26.7°C					70°F / 21.1°C					60°F / 15.6°C							
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)	Q(Btu/h)																		
70	21.1	Q(Btu/h)	40,545	25,593	19,195	-	-	15,356	41,779	26,372	19,779	-	-	15,823	43,344	27,360	20,520	-	-	16,416
		W	3,997	2,136	1,602	-	-	890	3,723	1,989	1,492	-	-	829	3,469	1,853	1,390	-	-	772
65	18.3	Q(Btu/h)	38,438	24,263	18,197	-	-	14,558	39,672	25,042	18,782	-	-	15,025	41,147	25,973	19,480	-	-	15,584
		W	3,863	2,064	1,548	-	-	860	3,586	1,916	1,437	-	-	798	3,349	1,789	1,342	-	-	746
60	15.6	Q(Btu/h)	36,421	22,990	17,243	-	-	13,794	37,655	23,769	17,827	-	-	14,261	39,040	24,643	18,482	-	-	14,786
		W	3,691	1,972	1,479	-	-	822	3,454	1,845	1,384	-	-	769	3,232	1,727	1,295	-	-	720
55	12.8	Q(Btu/h)	34,314	21,660	16,245	-	-	12,996	35,548	22,439	16,829	-	-	13,463	36,842	23,256	17,442	-	-	13,954
		W	3,583	1,914	1,436	-	-	798	3,314	1,771	1,328	-	-	738	3,119	1,666	1,250	-	-	694
50	10.0	Q(Btu/h)	32,237	20,349	15,262	-	-	12,209	33,441	21,109	15,832	-	-	12,665	34,675	21,888	16,416	-	-	13,133
		W	3,443	1,839	1,379	-	-	766	3,180	1,699	1,274	-	-	708	3,008	1,607	1,205	-	-	670
47	8.3	Q(Btu/h)	30,913	19,513	14,635	-	-	11,708	32,117	20,273	15,205	-	-	12,164	33,321	21,033	15,775	-	-	12,620
		W	3,332	1,780	1,335	-	-	742	3,092	1,652	1,239	-	-	688	2,911	1,555	1,166	-	-	648
42	5.6	Q(Btu/h)	28,836	18,202	13,652	-	-	10,921	30,100	19,000	14,250	-	-	11,400	31,244	19,722	14,792	-	-	11,833
		W	3,121	1,668	1,251	-	-	695	2,920	1,560	1,170	-	-	650	2,721	1,454	1,090	-	-	606
35	1.7	Q(Btu/h)	22,184	14,003	10,502	-	-	8,402	23,749	14,991	11,243	-	-	8,995	25,435	16,055	12,041	-	-	9,633
		W	2,777	1,484	1,113	-	-	618	2,581	1,379	1,034	-	-	575	2,400	1,282	962	-	-	534
32	0.0	Q(Btu/h)	21,190	13,376	10,032	-	-	8,026	22,425	14,155	10,616	-	-	8,493	23,297	14,706	11,030	-	-	8,824
		W	2,631	1,406	1,054	-	-	586	2,424	1,295	971	-	-	540	2,263	1,209	907	-	-	504
27	-2.8	Q(Btu/h)	20,197	12,749	9,562	-	-	7,649	21,221	13,395	10,046	-	-	8,037	22,003	13,889	10,417	-	-	8,333
		W	2,418	1,292	969	-	-	538	2,208	1,179	885	-	-	491	2,064	1,103	827	-	-	460
22	-5.6	Q(Btu/h)	19,324	12,198	9,149	-	-	7,319	20,348	12,844	9,633	-	-	7,706	21,130	13,338	10,004	-	-	8,003
		W	2,243	1,198	899	-	-	499	2,079	1,111	833	-	-	463	1,907	1,019	764	-	-	424
17	-8.3	Q(Btu/h)	18,662	11,780	8,835	-	-	7,068	19,655	12,407	9,305	-	-	7,444	20,348	12,844	9,633	-	-	7,706
		W	2,108	1,126	845	-	-	469	1,968	1,051	789	-	-	438	1,790	956	717	-	-	398
12	-11.1	Q(Btu/h)	17,970	11,343	8,507	-	-	6,806	18,963	11,970	8,978	-	-	7,182	19,716	12,445	9,334	-	-	7,467
		W	1,968	1,051	789	-	-	438	1,863	995	746	-	-	415	1,714	916	687	-	-	382
5	-15.0	Q(Btu/h)	17,007	10,735	8,051	-	-	6,441	17,729	11,191	8,393	-	-	6,715	18,180	11,476	8,607	-	-	6,886
		W	1,793	958	718	-	-	399	1,720	919	689	-	-	383	1,588	849	636	-	-	354
2	-16.7	Q(Btu/h)	16,224	10,241	7,681	-	-	6,145	16,736	10,564	7,923	-	-	6,338	17,097	10,792	8,094	-	-	6,475
		W	1,720	919	689	-	-	383	1,659	886	665	-	-	369	1,539	822	617	-	-	343
-3	-19.4	Q(Btu/h)	14,659	9,253	6,940	-	-	5,552	15,140	9,557	7,168	-	-	5,734	15,381	9,709	7,282	-	-	5,825
		W	1,612	861	646	-	-	359	1,556	831	624	-	-	346	1,463	782	586	-	-	326
-8	-22.2	Q(Btu/h)	13,063	8,246	6,185	-	-	4,948	13,485	8,512	6,384	-	-	5,107	13,635	8,607	6,455	-	-	5,164
		W	1,507	805	604	-	-	335	1,454	777	583	-	-	324	1,387	741	556	-	-	309
-13	-25.0	Q(Btu/h)	11,468	7,239	5,429	-	-	4,343	11,829	7,467	5,600	-	-	4,480	11,859	7,486	5,615	-	-	4,492
		W	1,407	752	564	-	-	313	1,349	721	541	-	-	300	1,317	704	528	-	-	293

PAA-AA24NL PAA-BA24NL
PUZ-AH24NL PUY-AH24NL
1) COOLING

Rated
Q(Btu/h): 23600
W: 1960

Indoor W.B. Outdoor D.B. (°F) (°C)		72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C									
		Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	
115	46.1	Q(Btu/h)	23,184	22,798	17,098	11,399	-	6,182	21,912	21,547	16,160	10,773	-	5,843	20,664	20,320	15,240	10,160	-	5,510	19,392	19,069	14,302	9,534	-	5,171
		W	2,420	2,360	1,770	1,180	-	518	2,372	2,313	1,735	1,156	-	507	2,328	2,270	1,702	1,135	-	498	2,287	2,230	1,673	1,115	-	489
110	43.3	Q(Btu/h)	23,808	23,411	17,558	11,706	-	6,349	22,464	22,090	16,567	11,045	-	5,990	21,096	20,744	15,558	10,372	-	5,626	19,896	19,564	14,673	9,782	-	5,306
		W	2,312	2,254	1,691	1,127	-	495	2,269	2,213	1,660	1,106	-	485	2,229	2,174	1,630	1,087	-	477	2,189	2,134	1,601	1,067	-	468
106	41.1	Q(Btu/h)	24,336	23,930	17,948	11,965	-	6,490	22,968	22,585	16,939	11,293	-	6,125	21,576	21,216	15,912	10,608	-	5,754	20,304	19,966	14,974	9,983	-	5,414
		W	2,249	2,193	1,645	1,097	-	481	2,189	2,134	1,601	1,067	-	468	2,149	2,095	1,571	1,048	-	460	2,111	2,058	1,544	1,029	-	452
102	38.9	Q(Btu/h)	24,744	24,332	18,249	12,166	-	6,598	23,400	23,010	17,258	11,505	-	6,240	21,936	21,570	16,178	10,785	-	5,850	20,592	20,249	15,187	10,124	-	5,491
		W	2,179	2,125	1,593	1,062	-	466	2,139	2,085	1,564	1,043	-	458	2,090	2,038	1,529	1,019	-	447	2,050	1,999	1,499	1,000	-	439
98	36.7	Q(Btu/h)	25,104	24,686	18,514	12,343	-	6,694	23,688	23,293	17,470	11,647	-	6,317	22,296	21,924	16,443	10,962	-	5,946	20,904	20,556	15,417	10,278	-	5,574
		W	2,111	2,058	1,544	1,029	-	452	2,070	2,019	1,514	1,009	-	443	2,030	1,980	1,485	990	-	434	1,990	1,940	1,455	970	-	426
94	34.4	Q(Btu/h)	25,440	25,016	18,762	12,508	-	6,784	24,000	23,600	17,700	11,800	-	6,400	22,584	22,208	16,656	11,104	-	6,022	21,192	20,839	15,629	10,419	-	5,651
		W	2,050	1,999	1,499	1,000	-	439	2,010	1,960	1,470	980	-	430	1,974	1,925	1,444	962	-	422	1,926	1,878	1,408	939	-	412
90	32.2	Q(Btu/h)	25,800	25,370	19,028	12,685	-	6,880	24,288	23,883	17,912	11,942	-	6,477	22,872	22,491	16,868	11,245	-	6,099	21,480	21,122	15,842	10,561	-	5,728
		W	1,990	1,940	1,455	970	-	426	1,950	1,901	1,426	951	-	417	1,910	1,862	1,397	931	-	409	1,871	1,825	1,369	912	-	400
86	30.0	Q(Btu/h)	26,136	25,700	19,275	12,850	-	6,970	24,648	24,237	18,178	12,119	-	6,573	23,184	22,798	17,098	11,399	-	6,182	21,768	21,405	16,054	10,703	-	5,805
		W	1,936	1,887	1,416	944	-	414	1,899	1,852	1,389	926	-	406	1,861	1,815	1,361	907	-	398	1,821	1,776	1,332	888	-	390
82	27.8	Q(Btu/h)	26,376	25,936	19,452	12,968	-	7,034	24,864	24,450	18,337	12,225	-	6,630	23,352	22,963	17,222	11,481	-	6,227	21,936	21,570	16,178	10,785	-	5,850
		W	1,901	1,854	1,391	927	-	407	1,861	1,815	1,361	907	-	398	1,811	1,766	1,324	883	-	387	1,781	1,737	1,302	868	-	381
78	25.6	Q(Btu/h)	26,616	26,172	19,629	13,086	-	7,098	25,104	24,686	18,514	12,343	-	6,694	23,616	23,222	17,417	11,611	-	6,298	22,128	21,759	16,319	10,880	-	5,901
		W	1,855	1,809	1,357	905	-	397	1,819	1,774	1,330	887	-	389	1,779	1,735	1,301	867	-	381	1,735	1,691	1,269	846	-	371
74	23.3	Q(Btu/h)	26,736	26,290	19,718	13,145	-	7,130	25,224	24,804	18,603	12,402	-	6,726	23,808	23,411	17,558	11,706	-	6,349	22,296	21,924	16,443	10,962	-	5,946
		W	1,821	1,776	1,332	888	-	390	1,781	1,737	1,302	868	-	381	1,741	1,697	1,273	849	-	372	1,702	1,660	1,245	830	-	364
70	21.1	Q(Btu/h)	26,856	26,408	19,806	13,204	-	7,162	25,320	24,898	18,674	12,449	-	6,752	23,928	23,529	17,647	11,765	-	6,381	22,416	22,042	16,532	11,021	-	5,978
		W	1,791	1,746	1,310	873	-	383	1,751	1,707	1,280	854	-	375	1,711	1,668	1,251	834	-	366	1,672	1,631	1,223	815	-	358
66	18.9	Q(Btu/h)	27,024	26,574	19,930	13,287	-	7,206	25,560	25,134	18,851	12,567	-	6,816	24,048	23,647	17,735	11,824	-	6,413	22,656	22,278	16,709	11,139	-	6,042
		W	1,761	1,717	1,288	858	-	377	1,721	1,678	1,258	839	-	368	1,682	1,641	1,230	820	-	360	1,642	1,601	1,201	801	-	351
62	16.7	Q(Btu/h)	27,072	26,621	19,966	13,310	-	7,219	25,632	25,205	18,904	12,602	-	6,835	24,168	23,765	17,824	11,883	-	6,445	22,752	22,373	16,780	11,186	-	6,067
		W	1,741	1,697	1,273	849	-	372	1,711	1,668	1,251	834	-	366	1,662	1,621	1,216	810	-	356	1,622	1,582	1,186	791	-	347
58	14.4	Q(Btu/h)	27,168	26,715	20,036	13,358	-	7,245	25,680	25,252	18,939	12,626	-	6,848	24,144	23,742	17,806	11,871	-	6,438	22,728	22,349	16,762	11,175	-	6,061
		W	1,719	1,676	1,257	838	-	368	1,676	1,635	1,226	817	-	359	1,636	1,595	1,197	798	-	350	1,592	1,552	1,164	776	-	341
54	12.2	Q(Btu/h)	27,264	26,810	20,107	13,405	-	7,270	25,800	25,370	19,028	12,685	-	6,880	24,288	23,883	17,912	11,942	-	6,477	22,872	22,491	16,868	11,245	-	6,099
		W	1,711	1,668	1,251	834	-	366	1,672	1,631	1,223	815	-	358	1,628	1,588	1,191	794	-	348	1,582	1,543	1,157	771	-	338
50	10.0	Q(Btu/h)	27,312	26,857	20,143	13,428	-	7,283	25,848	25,417	19,063	12,709	-	6,893	24,408	24,001	18,001	12,001	-	6,509	22,968	22,585	16,939	11,293	-	6,125
		W	1,688	1,646	1,235	823	-	361	1,646	1,605	1,204	803	-	352	1,602	1,562	1,172	781	-	343	1,558	1,519	1,139	760	-	333
46	7.8	Q(Btu/h)	27,360	26,904	20,178	13,452	-	7,296	25,920	25,488	19,116	12,744	-	6,912	24,456	24,048	18,036	12,024	-	6,522	23,064	22,680	17,010	11,340	-	6,150
		W	1,676	1,635	1,226	817	-	359	1,636	1,595	1,197	798	-	350	1,592	1,552	1,164	776	-	341	1,548	1,509	1,132	755	-	331
42	5.6	Q(Btu/h)	27,384	26,928	20,196	13,464	-	7,302	25,920	25,488	19,116	12,744	-	6,912	24,504	24,096	18,072	12,048	-	6,534	23,088	22,703	17,027	11,352	-	6,157
		W	1,672	1,631	1,223	815	-	358	1,630	1,590	1,192	795	-	349	1,582	1,543	1,157	771	-	338	1,536	1,497	1,123	749	-	329
38	3.3	Q(Btu/h)	27,384	26,928	20,196	13,464	-	7,302	25,968	25,535	19,151	12,768	-	6,925	24,552	24,143	18,107	12,071	-	6,547	23,160	22,774	17,081	11,387	-	6,176
		W	1,662	1,621	1,216	810	-	356	1,618	1,578	1,183	789	-	346	1,572	1,533	1,150	766	-	336	1,524	1,486	1,114	743	-	326
34	1.1	Q(Btu/h)	27,408	26,951	20,213	13,476	-	7,309	25,992	25,559	19,169	12,779	-	6,931	24,600	24,190	18,143	12,095	-	6,560	23,208	22,821	17,116	11,411	-	6,189
		W	1,656	1,615	1,211	808	-	354	1,614	1,574	1,180	787	-	345	1,568	1,529	1,147	764	-	335	1,522	1,484	1,113	742	-	326
30	-1.1	Q(Btu/h)	27,408	26,951	20,213	13,476	-	7,309	25,992	25,559	19,169	12,779	-	6,931	24,624	24,214	18,160	12,107	-	6,566	23,232	22,845	17,134	11,422	-	6,195
		W	1,656	1,615	1,211	808	-	354	1,608	1,568	1,176	784	-	344	1,564											

PAA-AA24NL PAA-BA24NL
PUZ-AH24NL
2) HEATING

Rated
Q(Btu/h): 26000
W: 1900

Indoor D.B.			80°F / 26.7°C					70°F / 21.1°C					60°F / 15.6°C							
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)	Q(Btu/h)																		
70	21.1	Q(Btu/h)	42,296	35,022	26,267	17,511	-	15,760	43,583	36,088	27,066	18,044	-	16,240	45,216	37,440	28,080	18,720	-	16,848
		W	3,997	2,601	1,951	1,301	-	890	3,723	2,423	1,817	1,211	-	829	3,469	2,257	1,693	1,129	-	772
65	18.3	Q(Btu/h)	40,098	33,202	24,902	16,601	-	14,941	41,385	34,268	25,701	17,134	-	15,421	42,924	35,542	26,657	17,771	-	15,994
		W	3,863	2,514	1,885	1,257	-	860	3,586	2,333	1,750	1,167	-	798	3,349	2,179	1,634	1,090	-	746
60	15.6	Q(Btu/h)	37,994	31,460	23,595	15,730	-	14,157	39,281	32,526	24,395	16,263	-	14,637	40,726	33,722	25,292	16,861	-	15,175
		W	3,691	2,402	1,801	1,201	-	822	3,454	2,248	1,686	1,124	-	769	3,232	2,103	1,577	1,052	-	720
55	12.8	Q(Btu/h)	35,796	29,640	22,230	14,820	-	13,338	37,083	30,706	23,030	15,353	-	13,818	38,434	31,824	23,868	15,912	-	14,321
		W	3,583	2,331	1,748	1,166	-	798	3,314	2,157	1,617	1,078	-	738	3,119	2,029	1,522	1,015	-	694
50	10.0	Q(Btu/h)	33,629	27,846	20,885	13,923	-	12,531	34,885	28,886	21,665	14,443	-	12,999	36,173	29,952	22,464	14,976	-	13,478
		W	3,443	2,240	1,680	1,120	-	766	3,180	2,069	1,552	1,035	-	708	3,008	1,957	1,468	979	-	670
47	8.3	Q(Btu/h)	32,248	26,702	20,027	13,351	-	12,016	33,504	27,742	20,807	13,871	-	12,484	34,760	28,782	21,587	14,391	-	12,952
		W	3,332	2,168	1,626	1,084	-	742	3,092	2,012	1,509	1,006	-	688	2,911	1,894	1,421	947	-	648
42	5.6	Q(Btu/h)	30,081	24,908	18,681	12,454	-	11,209	31,400	26,000	19,500	13,000	-	11,700	32,593	26,988	20,241	13,494	-	12,145
		W	3,121	2,031	1,523	1,016	-	695	2,920	1,900	1,425	950	-	650	2,721	1,771	1,328	885	-	606
35	1.7	Q(Btu/h)	23,142	19,162	14,372	9,581	-	8,623	24,775	20,514	15,386	10,257	-	9,231	26,533	21,970	16,478	10,985	-	9,887
		W	2,777	1,807	1,355	903	-	618	2,581	1,680	1,260	840	-	575	2,400	1,562	1,171	781	-	534
32	0.0	Q(Btu/h)	22,106	18,304	13,728	9,152	-	8,237	23,393	19,370	14,528	9,685	-	8,717	24,304	20,124	15,093	10,062	-	9,056
		W	2,631	1,712	1,284	856	-	586	2,424	1,577	1,183	789	-	540	2,263	1,473	1,104	736	-	504
27	-2.8	Q(Btu/h)	21,069	17,446	13,085	8,723	-	7,851	22,137	18,330	13,748	9,165	-	8,249	22,953	19,006	14,255	9,503	-	8,553
		W	2,418	1,573	1,180	787	-	538	2,208	1,436	1,077	718	-	491	2,064	1,343	1,007	672	-	460
22	-5.6	Q(Btu/h)	20,159	16,692	12,519	8,346	-	7,511	21,226	17,576	13,182	8,788	-	7,909	22,043	18,252	13,689	9,126	-	8,213
		W	2,243	1,459	1,094	730	-	499	2,079	1,353	1,015	676	-	463	1,907	1,241	931	620	-	424
17	-8.3	Q(Btu/h)	19,468	16,120	12,090	8,060	-	7,254	20,504	16,978	12,734	8,489	-	7,640	21,226	17,576	13,182	8,788	-	7,909
		W	2,108	1,372	1,029	686	-	469	1,968	1,281	960	640	-	438	1,790	1,165	874	582	-	398
12	-11.1	Q(Btu/h)	18,746	15,522	11,642	7,761	-	6,985	19,782	16,380	12,285	8,190	-	7,371	20,567	17,030	12,773	8,515	-	7,664
		W	1,968	1,281	960	640	-	438	1,863	1,212	909	606	-	415	1,714	1,115	836	558	-	382
5	-15.0	Q(Btu/h)	17,741	14,690	11,018	7,345	-	6,611	18,495	15,314	11,486	7,657	-	6,891	18,966	15,704	11,778	7,852	-	7,067
		W	1,793	1,167	875	583	-	399	1,720	1,119	839	560	-	383	1,588	1,034	775	517	-	354
2	-16.7	Q(Btu/h)	16,925	14,014	10,511	7,007	-	6,306	17,458	14,456	10,842	7,228	-	6,505	17,835	14,768	11,076	7,384	-	6,646
		W	1,720	1,119	839	560	-	383	1,659	1,079	809	540	-	369	1,539	1,001	751	501	-	343
-3	-19.4	Q(Btu/h)	15,292	12,662	9,497	6,331	-	5,698	15,794	13,078	9,809	6,539	-	5,885	16,045	13,286	9,965	6,643	-	5,979
		W	1,612	1,049	787	524	-	359	1,556	1,013	760	506	-	346	1,463	952	714	476	-	326
-8	-22.2	Q(Btu/h)	13,628	11,284	8,463	5,642	-	5,078	14,067	11,648	8,736	5,824	-	5,242	14,224	11,778	8,834	5,889	-	5,300
		W	1,507	980	735	490	-	335	1,454	946	710	473	-	324	1,387	903	677	451	-	309
-13	-25.0	Q(Btu/h)	11,963	9,906	7,430	4,953	-	4,458	12,340	10,218	7,664	5,109	-	4,598	12,372	10,244	7,683	5,122	-	4,610
		W	1,407	916	687	458	-	313	1,349	878	658	439	-	300	1,317	857	643	428	-	293

**PLA-AE30NL
PUZ-AH30NL PUY-AH30NL
1) COOLING**

**Rated
Q(Btu/h): 27000
W: 2300**

Indoor W.B.		72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C									
Outdoor D.B. (°F) (°C)		Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	
115	46.1	Q(Btu/h)	28,980	26,082	19,562	13,041	-	9,950	27,390	24,651	18,488	12,326	-	9,404	25,830	23,247	17,435	11,624	-	8,868	24,240	21,816	16,362	10,908	-	8,322
		W	3,203	2,769	2,077	1,385	-	614	3,139	2,714	2,036	1,357	-	602	3,080	2,663	1,998	1,332	-	591	3,027	2,617	1,963	1,309	-	580
110	43.3	Q(Btu/h)	29,760	26,784	20,088	13,392	-	10,218	28,080	25,272	18,954	12,636	-	9,641	26,370	23,733	17,800	11,867	-	9,054	24,870	22,383	16,787	11,192	-	8,539
		W	3,059	2,645	1,984	1,323	-	587	3,003	2,597	1,948	1,298	-	576	2,950	2,551	1,913	1,275	-	566	2,897	2,505	1,879	1,252	-	555
106	41.1	Q(Btu/h)	30,420	27,378	20,534	13,689	-	10,444	28,710	25,839	19,379	12,920	-	9,857	26,970	24,273	18,205	12,137	-	9,260	25,380	22,842	17,132	11,421	-	8,714
		W	2,977	2,574	1,930	1,287	-	571	2,897	2,505	1,879	1,252	-	555	2,844	2,459	1,844	1,229	-	545	2,793	2,415	1,811	1,208	-	536
102	38.9	Q(Btu/h)	30,930	27,837	20,878	13,919	-	10,619	29,250	26,325	19,744	13,163	-	10,043	27,420	24,678	18,509	12,339	-	9,414	25,740	23,166	17,375	11,583	-	8,837
		W	2,883	2,493	1,870	1,247	-	553	2,830	2,447	1,835	1,224	-	543	2,766	2,392	1,794	1,196	-	530	2,713	2,346	1,760	1,173	-	520
98	36.7	Q(Btu/h)	31,380	28,242	21,182	14,121	-	10,774	29,610	26,649	19,987	13,325	-	10,166	27,870	25,083	18,812	12,542	-	9,569	26,130	23,517	17,638	11,759	-	8,971
		W	2,793	2,415	1,811	1,208	-	536	2,740	2,369	1,777	1,185	-	525	2,687	2,323	1,742	1,162	-	515	2,633	2,277	1,708	1,139	-	505
94	34.4	Q(Btu/h)	31,800	28,620	21,465	14,310	-	10,918	30,000	27,000	20,250	13,500	-	10,300	28,230	25,407	19,055	12,704	-	9,692	26,490	23,841	17,881	11,921	-	9,095
		W	2,713	2,346	1,760	1,173	-	520	2,660	2,300	1,725	1,150	-	510	2,612	2,259	1,694	1,129	-	501	2,548	2,203	1,653	1,102	-	489
90	32.2	Q(Btu/h)	32,250	29,025	21,769	14,513	-	11,073	30,360	27,324	20,493	13,662	-	10,424	28,590	25,731	19,298	12,866	-	9,816	26,850	24,165	18,124	12,083	-	9,219
		W	2,633	2,277	1,708	1,139	-	505	2,580	2,231	1,673	1,116	-	495	2,527	2,185	1,639	1,093	-	485	2,476	2,141	1,606	1,071	-	475
86	30.0	Q(Btu/h)	32,670	29,403	22,052	14,702	-	11,217	30,810	27,729	20,797	13,865	-	10,578	28,980	26,082	19,562	13,041	-	9,950	27,210	24,489	18,367	12,245	-	9,342
		W	2,562	2,215	1,661	1,107	-	491	2,514	2,174	1,630	1,087	-	482	2,463	2,130	1,597	1,065	-	472	2,410	2,084	1,563	1,042	-	462
82	27.8	Q(Btu/h)	32,970	29,673	22,255	14,837	-	11,320	31,080	27,972	20,979	13,986	-	10,671	29,190	26,271	19,703	13,136	-	10,022	27,420	24,678	18,509	12,339	-	9,414
		W	2,516	2,176	1,632	1,088	-	482	2,463	2,130	1,597	1,065	-	472	2,397	2,072	1,554	1,036	-	460	2,357	2,038	1,528	1,019	-	452
78	25.6	Q(Btu/h)	33,270	29,943	22,457	14,972	-	11,423	31,380	28,242	21,182	14,121	-	10,774	29,520	26,568	19,926	13,284	-	10,135	27,660	24,894	18,671	12,447	-	9,497
		W	2,455	2,123	1,592	1,061	-	471	2,407	2,082	1,561	1,041	-	462	2,354	2,036	1,527	1,018	-	451	2,296	1,985	1,489	992	-	440
74	23.3	Q(Btu/h)	33,420	30,078	22,559	15,039	-	11,474	31,530	28,377	21,283	14,189	-	10,825	29,760	26,784	20,088	13,392	-	10,218	27,870	25,083	18,812	12,542	-	9,569
		W	2,410	2,084	1,563	1,042	-	462	2,357	2,038	1,528	1,019	-	452	2,304	1,992	1,494	996	-	442	2,253	1,948	1,461	974	-	432
70	21.1	Q(Btu/h)	33,570	30,213	22,660	15,107	-	11,526	31,650	28,485	21,364	14,243	-	10,867	29,910	26,919	20,189	13,460	-	10,269	28,020	25,218	18,914	12,609	-	9,620
		W	2,370	2,049	1,537	1,025	-	454	2,317	2,003	1,502	1,002	-	444	2,264	1,957	1,468	979	-	434	2,213	1,914	1,435	957	-	424
66	18.9	Q(Btu/h)	33,780	30,402	22,802	15,201	-	11,598	31,950	28,755	21,566	14,378	-	10,930	30,060	27,054	20,291	13,527	-	10,321	28,320	25,488	19,116	12,744	-	9,723
		W	2,330	2,015	1,511	1,007	-	447	2,277	1,969	1,477	984	-	437	2,226	1,925	1,444	963	-	427	2,173	1,879	1,409	940	-	417
62	16.7	Q(Btu/h)	33,840	30,456	22,842	15,228	-	11,618	32,040	28,836	21,627	14,418	-	11,000	30,210	27,189	20,392	13,595	-	10,372	28,440	25,596	19,197	12,798	-	9,764
		W	2,304	1,992	1,494	996	-	442	2,264	1,957	1,468	979	-	434	2,200	1,902	1,427	951	-	422	2,147	1,856	1,392	928	-	412
58	14.4	Q(Btu/h)	33,960	30,564	22,923	15,282	-	11,660	32,100	28,890	21,668	14,445	-	11,021	30,180	27,162	20,372	13,581	-	10,362	28,410	25,569	19,177	12,785	-	9,754
		W	2,274	1,967	1,475	983	-	436	2,218	1,918	1,439	959	-	425	2,165	1,872	1,404	936	-	415	2,107	1,822	1,366	911	-	404
54	12.2	Q(Btu/h)	34,080	30,672	23,004	15,336	-	11,701	32,250	29,025	21,769	14,513	-	11,073	30,360	27,324	20,493	13,662	-	10,424	28,590	25,731	19,298	12,866	-	9,816
		W	2,264	1,957	1,468	979	-	434	2,213	1,914	1,435	957	-	424	2,155	1,863	1,397	932	-	413	2,093	1,810	1,358	905	-	401
50	10.0	Q(Btu/h)	34,140	30,726	23,045	15,363	-	11,721	32,310	29,079	21,809	14,540	-	11,093	30,510	27,459	20,594	13,730	-	10,475	28,710	25,839	19,379	12,920	-	9,857
		W	2,234	1,932	1,449	966	-	428	2,179	1,884	1,413	942	-	418	2,120	1,833	1,375	917	-	406	2,062	1,783	1,337	891	-	395
46	7.8	Q(Btu/h)	34,200	30,780	23,085	15,390	-	11,742	32,400	29,160	21,870	14,580	-	11,124	30,570	27,513	20,635	13,757	-	10,496	28,830	25,947	19,420	12,974	-	9,898
		W	2,218	1,918	1,439	959	-	425	2,165	1,872	1,404	936	-	415	2,107	1,822	1,366	911	-	404	2,048	1,771	1,328	886	-	393
42	5.6	Q(Btu/h)	34,230	30,807	23,105	15,404	-	11,752	32,400	29,160	21,870	14,580	-	11,124	30,630	27,567	20,675	13,784	-	10,516	28,860	25,974	19,481	12,987	-	9,909
		W	2,213	1,914	1,435	957	-	424	2,157	1,865	1,399	933	-	414	2,093	1,810	1,358	905	-	401	2,032	1,757	1,318	879	-	390
38	3.3	Q(Btu/h)	34,230	30,807	23,105	15,404	-	11,752	32,460	29,214	21,911	14,607	-	11,145	30,690	27,621	20,716	13,811	-	10,537	28,950	26,055	19,541	13,028	-	9,940
		W	2,200	1,902	1,427	951	-	422	2,141	1,852	1,389	926	-	411	2,080	1,799	1,349	899	-	399	2,016	1,743	1,308	872	-	387
34	1.1	Q(Btu/h)	34,260	30,834	23,126	15,417	-	11,763	32,490	29,241	21,931	14,621	-	11,155	30,750	27,675	20,756	13,838	-	10,558	29,010	26,109	19,582	13,055	-	9,960
		W	2,192	1,895	1,421	948	-	420	2,136	1,847	1,385	923	-	410	2,075	1,794	1,346	897	-	398	2,014	1,741	1,306	871	-	386
30	-1.1	Q(Btu/h)	34,260	30,834	23,126	15,417	-	11,763	32,490	29,241	21,931	14,621	-	11,155	30,780	27,702	20,777	13,851	-	10,568	29,040	26,136	19,602	13,068	-	9,970
		W	2,192	1,895	1,421	948																				

PLA-AE30NL
PUZ-AH30NL
2) HEATING

Rated
Q(Btu/h): 32000
W: 2320

Indoor D.B.			80°F / 26.7°C					70°F / 21.1°C					60°F / 15.6°C							
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)	Q(Btu/h)																		
70	21.1	Q(Btu/h)	46,606	43,104	32,328	21,552	-	11,315	48,025	44,416	33,312	22,208	-	11,659	49,824	46,080	34,560	23,040	-	12,096
		W	3,546	3,176	2,382	1,588	-	685	3,302	2,958	2,219	1,479	-	638	3,077	2,756	2,067	1,378	-	594
65	18.3	Q(Btu/h)	44,184	40,864	30,648	20,432	-	10,727	45,603	42,176	31,632	21,088	-	11,071	47,298	43,744	32,808	21,872	-	11,483
		W	3,427	3,069	2,302	1,535	-	662	3,181	2,849	2,137	1,424	-	614	2,971	2,661	1,996	1,331	-	574
60	15.6	Q(Btu/h)	41,866	38,720	29,040	19,360	-	10,164	43,285	40,032	30,024	20,016	-	10,508	44,876	41,504	31,128	20,752	-	10,895
		W	3,274	2,932	2,199	1,466	-	632	3,064	2,745	2,058	1,372	-	592	2,867	2,568	1,926	1,284	-	554
55	12.8	Q(Btu/h)	39,444	36,480	27,360	18,240	-	9,576	40,863	37,792	28,344	18,896	-	9,920	42,350	39,168	29,376	19,584	-	10,282
		W	3,178	2,847	2,135	1,423	-	614	2,940	2,633	1,975	1,317	-	568	2,766	2,478	1,858	1,239	-	534
50	10.0	Q(Btu/h)	37,057	34,272	25,704	17,136	-	8,996	38,441	35,552	26,664	17,776	-	9,332	39,859	36,864	27,648	18,432	-	9,677
		W	3,054	2,735	2,051	1,368	-	590	2,821	2,526	1,895	1,263	-	545	2,668	2,390	1,792	1,195	-	515
47	8.3	Q(Btu/h)	35,534	32,864	24,648	16,432	-	8,627	36,918	34,144	25,608	17,072	-	8,963	38,302	35,424	26,568	17,712	-	9,299
		W	2,955	2,647	1,985	1,324	-	571	2,743	2,457	1,843	1,228	-	530	2,582	2,313	1,735	1,157	-	499
42	5.6	Q(Btu/h)	33,147	30,656	22,992	15,328	-	8,047	34,600	32,000	24,000	16,000	-	8,400	35,915	33,216	24,912	16,608	-	8,719
		W	2,769	2,480	1,860	1,240	-	535	2,590	2,320	1,740	1,160	-	500	2,414	2,162	1,622	1,081	-	466
35	1.7	Q(Btu/h)	25,500	23,584	17,688	11,792	-	6,191	27,299	25,248	18,936	12,624	-	6,628	29,237	27,040	20,280	13,520	-	7,098
		W	2,463	2,206	1,655	1,103	-	476	2,290	2,051	1,538	1,025	-	442	2,129	1,907	1,430	954	-	411
32	0.0	Q(Btu/h)	24,358	22,528	16,896	11,264	-	5,914	25,777	23,840	17,880	11,920	-	6,258	26,780	24,768	18,576	12,384	-	6,502
		W	2,334	2,090	1,568	1,045	-	451	2,150	1,926	1,444	963	-	415	2,007	1,798	1,349	899	-	388
27	-2.8	Q(Btu/h)	23,217	21,472	16,104	10,736	-	5,636	24,393	22,560	16,920	11,280	-	5,922	25,293	23,392	17,544	11,696	-	6,140
		W	2,145	1,921	1,441	960	-	414	1,958	1,754	1,315	877	-	378	1,831	1,640	1,230	820	-	354
22	-5.6	Q(Btu/h)	22,213	20,544	15,408	10,272	-	5,393	23,390	21,632	16,224	10,816	-	5,678	24,289	22,464	16,848	11,232	-	5,897
		W	1,989	1,782	1,336	891	-	384	1,844	1,652	1,239	826	-	356	1,691	1,515	1,136	757	-	327
17	-8.3	Q(Btu/h)	21,452	19,840	14,880	9,920	-	5,208	22,594	20,896	15,672	10,448	-	5,485	23,390	21,632	16,224	10,816	-	5,678
		W	1,870	1,675	1,256	838	-	361	1,746	1,564	1,173	782	-	337	1,588	1,422	1,067	711	-	307
12	-11.1	Q(Btu/h)	20,656	19,104	14,328	9,552	-	5,015	21,798	20,160	15,120	10,080	-	5,292	22,663	20,960	15,720	10,480	-	5,502
		W	1,746	1,564	1,173	782	-	337	1,652	1,480	1,110	740	-	319	1,520	1,362	1,021	681	-	294
5	-15.0	Q(Btu/h)	19,549	18,080	13,560	9,040	-	4,746	20,379	18,848	14,136	9,424	-	4,948	20,898	19,328	14,496	9,664	-	5,074
		W	1,590	1,424	1,068	712	-	307	1,526	1,366	1,025	683	-	295	1,409	1,262	947	631	-	272
2	-16.7	Q(Btu/h)	18,649	17,248	12,936	8,624	-	4,528	19,238	17,792	13,344	8,896	-	4,670	19,653	18,176	13,632	9,088	-	4,771
		W	1,526	1,366	1,025	683	-	295	1,471	1,318	988	659	-	284	1,365	1,223	917	611	-	264
-3	-19.4	Q(Btu/h)	16,850	15,584	11,688	7,792	-	4,091	17,404	16,096	12,072	8,048	-	4,225	17,681	16,352	12,264	8,176	-	4,292
		W	1,430	1,281	960	640	-	276	1,380	1,237	927	618	-	267	1,298	1,162	872	581	-	251
-8	-22.2	Q(Btu/h)	15,016	13,888	10,416	6,944	-	3,646	15,501	14,336	10,752	7,168	-	3,763	15,674	14,496	10,872	7,248	-	3,805
		W	1,336	1,197	898	599	-	258	1,290	1,155	867	578	-	249	1,230	1,102	827	551	-	238
-13	-25.0	Q(Btu/h)	13,183	12,192	9,144	6,096	-	3,200	13,598	12,576	9,432	6,288	-	3,301	13,632	12,608	9,456	6,304	-	3,310
		W	1,248	1,118	839	559	-	241	1,197	1,072	804	536	-	231	1,168	1,046	785	523	-	226

**PKA-AK30NL
PUZ-AH30NL PUY-AH30NL
1) COOLING**

Rated
Q(Btu/h): 30000
W: 2950

Indoor W.B.		72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C										
Outdoor D.B.		Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min		
(°F) (°C)																											
115	46.1	Q(Btu/h)	29,366	28,980	21,735	14,490	7,245	6,472	27,755	27,390	20,543	13,695	6,848	6,117	26,174	25,830	19,373	12,915	6,458	5,769	24,563	24,240	18,180	12,120	6,060	5,414	
		W	3,624	3,552	2,664	1,776	888	373	3,552	3,481	2,611	1,741	870	366	3,486	3,416	2,562	1,708	854	359	3,425	3,357	2,518	1,679	839	353	
110	43.3	Q(Btu/h)	30,157	29,760	22,320	14,880	7,440	6,646	28,454	28,080	21,060	14,040	7,020	6,271	26,722	26,370	19,778	13,185	6,593	5,889	25,202	24,870	18,653	12,435	6,218	5,554	
		W	3,462	3,393	2,544	1,696	848	357	3,398	3,331	2,498	1,665	833	350	3,338	3,272	2,454	1,636	818	344	3,278	3,213	2,409	1,606	803	338	
106	41.1	Q(Btu/h)	30,826	30,420	22,815	15,210	7,605	6,794	29,093	28,710	21,533	14,355	7,178	6,412	27,330	26,970	20,228	13,485	6,743	6,023	25,718	25,380	19,035	12,690	6,345	5,668	
		W	3,368	3,301	2,476	1,651	825	347	3,278	3,213	2,409	1,606	803	338	3,218	3,154	2,365	1,577	788	331	3,161	3,098	2,323	1,549	774	326	
102	38.9	Q(Btu/h)	31,342	30,930	23,198	15,465	7,733	6,908	29,640	29,250	21,938	14,625	7,313	6,533	27,786	27,420	20,565	13,710	6,855	6,124	26,083	25,740	19,305	12,870	6,435	5,749	
		W	3,263	3,198	2,398	1,599	799	336	3,203	3,139	2,354	1,569	785	330	3,130	3,068	2,301	1,534	767	322	3,070	3,009	2,257	1,505	752	316	
98	36.7	Q(Btu/h)	31,798	31,380	23,535	16,690	7,845	7,008	30,005	29,610	22,208	14,805	7,403	6,613	28,242	27,870	20,903	13,935	6,968	6,224	26,478	26,130	19,598	13,065	6,533	5,836	
		W	3,161	3,098	2,323	1,549	774	326	3,100	3,039	2,279	1,519	760	319	3,040	2,980	2,235	1,490	745	313	2,980	2,921	2,190	1,460	730	307	
94	34.4	Q(Btu/h)	32,224	31,800	23,850	15,900	7,950	7,102	30,400	30,000	22,500	15,000	7,500	6,700	28,606	28,230	21,173	14,115	7,058	6,305	26,843	26,490	19,868	13,245	6,623	5,916	
		W	3,070	3,009	2,257	1,505	752	316	3,010	2,950	2,213	1,475	738	310	2,956	2,897	2,173	1,448	724	304	2,884	2,826	2,120	1,413	707	297	
90	32.2	Q(Btu/h)	32,680	32,250	24,188	16,125	8,063	7,203	30,765	30,360	22,770	15,180	7,590	6,780	28,971	28,590	21,443	14,295	7,148	6,385	27,208	26,850	20,138	13,425	6,713	5,997	
		W	2,980	2,921	2,190	1,460	730	307	2,920	2,862	2,146	1,431	715	301	2,860	2,803	2,102	1,401	701	295	2,802	2,746	2,060	1,373	687	289	
86	30.0	Q(Btu/h)	33,106	32,670	24,503	16,335	8,168	7,296	31,221	30,810	23,108	15,405	7,703	6,881	29,366	28,980	21,735	14,490	7,245	6,472	27,573	27,210	20,408	13,605	6,803	6,077	
		W	2,899	2,841	2,131	1,420	710	299	2,844	2,788	2,091	1,394	697	293	2,787	2,732	2,049	1,366	683	287	2,727	2,673	2,005	1,336	668	281	
82	27.8	Q(Btu/h)	33,410	32,970	24,728	16,485	8,243	7,363	31,494	31,080	23,310	15,540	7,770	6,941	29,579	29,190	21,893	14,595	7,298	6,519	27,786	27,420	20,565	13,710	6,855	6,124	
		W	2,847	2,791	2,093	1,395	698	293	2,787	2,732	2,049	1,366	683	287	2,712	2,658	1,993	1,329	664	279	2,667	2,614	1,960	1,307	653	275	
78	25.6	Q(Btu/h)	33,714	33,270	24,953	16,635	8,318	7,430	31,798	31,380	23,535	15,690	7,845	7,008	29,914	29,520	22,140	14,760	7,380	6,593	28,029	27,660	20,745	13,830	6,915	6,177	
		W	2,778	2,723	2,042	1,361	681	286	2,724	2,670	2,002	1,335	667	281	2,664	2,611	1,958	1,305	653	274	2,598	2,546	1,909	1,273	636	268	
74	23.3	Q(Btu/h)	33,866	33,420	25,065	16,710	8,355	7,464	31,950	31,530	23,648	15,765	7,883	7,042	30,157	29,760	22,320	14,880	7,440	6,646	28,242	27,870	20,903	13,935	6,968	6,224	
		W	2,727	2,673	2,005	1,336	668	281	2,667	2,614	1,960	1,307	653	275	2,607	2,555	1,916	1,277	639	268	2,549	2,499	1,874	1,249	625	263	
70	21.1	Q(Btu/h)	34,018	33,570	25,178	16,785	8,393	7,497	32,072	31,650	23,738	15,825	7,913	7,069	30,309	29,910	22,433	14,955	7,478	6,680	28,394	28,020	21,015	14,010	7,005	6,258	
		W	2,682	2,628	1,971	1,314	657	276	2,622	2,569	1,927	1,285	642	270	2,562	2,510	1,883	1,255	628	264	2,504	2,454	1,841	1,227	614	258	
66	18.9	Q(Btu/h)	34,230	33,780	25,335	16,890	8,445	7,544	32,376	31,950	23,963	15,975	7,988	7,136	30,461	30,060	22,545	15,030	7,515	6,713	28,698	28,320	21,240	14,160	7,080	6,325	
		W	2,637	2,584	1,938	1,292	646	272	2,577	2,525	1,894	1,263	631	265	2,519	2,469	1,852	1,235	617	259	2,459	2,410	1,808	1,205	603	253	
62	16.7	Q(Btu/h)	34,291	33,840	25,380	16,920	8,460	7,558	32,467	32,040	24,030	16,020	8,010	7,156	30,613	30,210	22,658	15,105	7,553	6,747	28,819	28,440	21,330	14,220	7,110	6,352	
		W	2,607	2,555	1,916	1,277	639	268	2,562	2,510	1,883	1,255	628	264	2,489	2,440	1,830	1,220	610	256	2,429	2,381	1,785	1,190	595	250	
58	14.4	Q(Btu/h)	34,413	33,960	25,470	16,980	8,490	7,584	32,528	32,100	24,075	16,050	8,025	7,169	30,582	30,180	22,635	15,090	7,545	6,740	28,789	28,410	21,308	14,205	7,103	6,345	
		W	2,574	2,522	1,892	1,261	631	265	2,510	2,460	1,845	1,230	615	259	2,450	2,401	1,801	1,201	600	252	2,384	2,336	1,752	1,168	584	246	
54	12.2	Q(Btu/h)	34,534	34,080	25,560	17,040	8,520	7,611	32,680	32,250	24,188	16,125	8,063	7,203	30,765	30,360	22,770	15,180	7,590	6,780	28,971	28,590	21,443	14,295	7,148	6,385	
		W	2,562	2,510	1,883	1,255	628	264	2,504	2,454	1,841	1,227	614	258	2,438	2,390	1,792	1,195	597	251	2,369	2,322	1,741	1,161	580	244	
50	10.0	Q(Btu/h)	34,595	34,140	25,605	17,070	8,535	7,625	32,741	32,310	24,233	16,155	8,078	7,216	30,917	30,510	22,883	15,255	7,628	6,814	29,093	28,710	21,533	14,355	7,178	6,412	
		W	2,528	2,478	1,859	1,239	620	260	2,465	2,416	1,812	1,208	604	254	2,399	2,351	1,763	1,176	588	247	2,333	2,286	1,715	1,143	572	240	
46	7.8	Q(Btu/h)	34,656	34,200	25,650	17,100	8,550	7,638	32,832	32,400	24,300	16,200	8,100	7,236	30,978	30,570	22,928	15,285	7,643	6,827	29,214	28,830	21,623	14,415	7,208	6,439	
		W	2,510	2,460	1,845	1,230	615	259	2,450	2,401	1,801	1,201	600	252	2,384	2,336	1,752	1,168	584	246	2,318	2,272	1,704	1,136	568	239	
42	5.6	Q(Btu/h)	34,686	34,230	25,673	17,115	8,558	7,645	32,832	32,400	24,300	16,200	8,100	7,236	31,038	30,630	22,973	15,315	7,658	6,841	29,245	28,860	21,645	14,430	7,215	6,445	
		W	2,504	2,454	1,841	1,227	614	258	2,441	2,392	1,794	1,196	598	251	2,369	2,322	1,741	1,161	580	244	2,300	2,254	1,690	1,127	563	237	
38	3.3	Q(Btu/h)	34,686	34,230	25,673	17,115	8,558	7,645	32,893	32,460	24,345	16,230	8,115	7,249	31,099	30,690	23,018	15,345	7,673	6,854	29,336	28,950	21,713	14,475	7,238	6,466	
		W	2,489	2,440	1,830	1,220	610	256	2,423	2,375	1,781	1,187	594	250	2,354	2,307	1,730	1,153	577	242	2,282	2,236	1,677	1,118	559	235	
34	1.1	Q(Btu/h)	34,717	34,260	25,695	17,130	8,565	7,651	32,923	32,490																	

**PKA-AK30NL
PUZ-AH30NL
2) HEATING**

Rated
Q(Btu/h): 32000
W: 2560

Indoor D.B.			80°F / 26.7°C					70°F / 21.1°C					60°F / 15.6°C							
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)	Q(Btu/h)																		
70	21.1	Q(Btu/h)	46,337	43,104	32,328	21,552	-	11,180	47,747	44,416	33,312	22,208	-	11,520	49,536	46,080	34,560	23,040	-	11,952
		W	3,929	3,505	2,628	1,752	-	739	3,659	3,264	2,448	1,632	-	689	3,410	3,041	2,281	1,521	-	642
65	18.3	Q(Btu/h)	43,929	40,864	30,648	20,432	-	10,599	45,339	42,176	31,632	21,088	-	10,939	47,025	43,744	32,808	21,872	-	11,346
		W	3,797	3,387	2,540	1,693	-	714	3,524	3,144	2,358	1,572	-	663	3,292	2,936	2,202	1,468	-	619
60	15.6	Q(Btu/h)	41,624	38,720	29,040	19,360	-	10,043	43,034	40,032	30,024	20,016	-	10,383	44,617	41,504	31,128	20,752	-	10,765
		W	3,628	3,236	2,427	1,618	-	683	3,395	3,028	2,271	1,514	-	639	3,177	2,834	2,125	1,417	-	598
55	12.8	Q(Btu/h)	39,216	36,480	27,360	18,240	-	9,462	40,626	37,792	28,344	18,896	-	9,802	42,106	39,168	29,376	19,584	-	10,159
		W	3,521	3,141	2,356	1,571	-	663	3,257	2,906	2,179	1,453	-	613	3,065	2,734	2,051	1,367	-	577
50	10.0	Q(Btu/h)	36,842	34,272	25,704	17,136	-	8,889	38,218	35,552	26,664	17,776	-	9,221	39,629	36,864	27,648	18,432	-	9,562
		W	3,384	3,018	2,264	1,509	-	637	3,125	2,788	2,091	1,394	-	588	2,956	2,637	1,978	1,318	-	556
47	8.3	Q(Btu/h)	35,329	32,864	24,648	16,432	-	8,524	36,705	34,144	25,608	17,072	-	8,856	38,081	35,424	26,568	17,712	-	9,188
		W	3,275	2,921	2,191	1,460	-	616	3,039	2,711	2,033	1,356	-	572	2,861	2,552	1,914	1,276	-	538
42	5.6	Q(Btu/h)	32,955	30,656	22,992	15,328	-	7,951	34,400	32,000	24,000	16,000	-	8,300	35,707	33,216	24,912	16,608	-	8,615
		W	3,068	2,737	2,052	1,368	-	577	2,870	2,560	1,920	1,280	-	540	2,675	2,386	1,789	1,193	-	503
35	1.7	Q(Btu/h)	25,353	23,584	17,688	11,792	-	6,117	27,142	25,248	18,936	12,624	-	6,549	29,068	27,040	20,280	13,520	-	7,014
		W	2,729	2,435	1,826	1,217	-	514	2,537	2,263	1,697	1,132	-	477	2,359	2,104	1,578	1,052	-	444
32	0.0	Q(Btu/h)	24,218	22,528	16,896	11,264	-	5,843	25,628	23,840	17,880	11,920	-	6,184	26,626	24,768	18,576	12,384	-	6,424
		W	2,586	2,307	1,730	1,153	-	487	2,382	2,125	1,594	1,062	-	448	2,224	1,984	1,488	992	-	419
27	-2.8	Q(Btu/h)	23,082	21,472	16,104	10,736	-	5,569	24,525	22,560	16,920	11,280	-	5,852	25,146	23,392	17,544	11,696	-	6,067
		W	2,376	2,120	1,590	1,060	-	447	2,170	1,935	1,452	968	-	408	2,029	1,810	1,357	905	-	382
22	-5.6	Q(Btu/h)	22,085	20,544	15,408	10,272	-	5,329	23,254	21,632	16,224	10,816	-	5,611	24,149	22,464	16,848	11,232	-	5,827
		W	2,204	1,966	1,475	983	-	415	2,043	1,823	1,367	911	-	384	1,874	1,672	1,254	836	-	353
17	-8.3	Q(Btu/h)	21,328	19,840	14,880	9,920	-	5,146	22,463	20,896	15,672	10,448	-	5,420	23,254	21,632	16,224	10,816	-	5,611
		W	2,072	1,848	1,386	924	-	390	1,934	1,725	1,294	863	-	364	1,759	1,569	1,177	785	-	331
12	-11.1	Q(Btu/h)	20,537	19,104	14,328	9,552	-	4,955	21,672	20,160	15,120	10,080	-	5,229	22,532	20,960	15,720	10,480	-	5,437
		W	1,934	1,725	1,294	863	-	364	1,831	1,633	1,225	817	-	345	1,685	1,503	1,127	751	-	317
5	-15.0	Q(Btu/h)	19,436	18,080	13,560	9,040	-	4,690	20,262	18,848	14,136	9,424	-	4,889	20,778	19,328	14,496	9,664	-	5,013
		W	1,762	1,572	1,179	786	-	332	1,690	1,508	1,131	754	-	318	1,561	1,393	1,044	696	-	294
2	-16.7	Q(Btu/h)	18,542	17,248	12,936	8,624	-	4,474	19,126	17,792	13,344	8,896	-	4,615	19,539	18,176	13,632	9,088	-	4,714
		W	1,690	1,508	1,131	754	-	318	1,630	1,454	1,091	727	-	307	1,512	1,349	1,012	675	-	285
-3	-19.4	Q(Btu/h)	16,753	15,584	11,688	7,792	-	4,042	17,303	16,096	12,072	8,048	-	4,175	17,578	16,352	12,264	8,176	-	4,241
		W	1,584	1,413	1,060	707	-	298	1,530	1,364	1,023	682	-	288	1,438	1,283	962	641	-	271
-8	-22.2	Q(Btu/h)	14,930	13,888	10,416	6,944	-	3,602	15,411	14,336	10,752	7,168	-	3,718	15,583	14,496	10,872	7,248	-	3,760
		W	1,481	1,321	991	660	-	279	1,429	1,275	956	637	-	269	1,363	1,216	912	608	-	257
-13	-25.0	Q(Btu/h)	13,106	12,192	9,144	6,096	-	3,162	13,519	12,576	9,432	6,288	-	3,262	13,554	12,608	9,456	6,304	-	3,270
		W	1,383	1,234	925	617	-	260	1,326	1,183	887	591	-	249	1,294	1,155	866	577	-	244

**PCA-AK30NL
PUZ-AH30NL PUY-AH30NL**
1) COOLING

Rated
Q(Btu/h): 28200
W: 2850

Indoor W.B.		72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C									
Outdoor D.B. (°F) (°C)		Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	
115	46.1	Q(Btu/h)	28,980	27,241	20,431	13,621	6,810	6,376	27,390	25,747	19,310	12,873	6,437	6,026	25,830	24,280	18,210	12,140	6,070	5,683	24,240	22,786	17,089	11,393	5,696	5,333
		W	3,696	3,431	2,574	1,716	858	385	3,623	3,363	2,522	1,682	841	378	3,555	3,300	2,475	1,650	825	371	3,494	3,243	2,432	1,622	811	364
110	43.3	Q(Btu/h)	29,760	27,974	20,981	13,987	6,994	6,547	28,080	26,395	19,796	13,198	6,599	6,178	26,370	24,788	18,591	12,394	6,197	5,801	24,870	23,378	17,533	11,689	5,844	5,471
		W	3,531	3,278	2,458	1,639	819	368	3,466	3,218	2,413	1,609	804	361	3,405	3,161	2,370	1,580	790	355	3,343	3,104	2,328	1,552	776	348
106	41.1	Q(Btu/h)	30,420	28,595	21,446	14,297	7,149	6,692	28,710	26,987	20,241	13,494	6,747	6,316	26,970	25,352	19,014	12,676	6,338	5,933	25,380	23,857	17,893	11,929	5,964	5,584
		W	3,435	3,189	2,392	1,595	797	358	3,343	3,104	2,328	1,552	776	348	3,282	3,047	2,285	1,523	762	342	3,224	2,993	2,244	1,496	748	336
102	38.9	Q(Btu/h)	30,930	29,074	21,806	14,537	7,269	6,805	29,250	27,495	20,621	13,748	6,874	6,435	27,420	25,775	19,331	12,887	6,444	6,032	25,740	24,196	18,147	12,098	6,049	5,663
		W	3,328	3,089	2,317	1,545	772	347	3,266	3,032	2,274	1,516	758	340	3,193	2,964	2,223	1,482	741	333	3,131	2,907	2,180	1,454	727	326
98	36.7	Q(Btu/h)	31,380	29,497	22,123	14,749	7,374	6,904	29,610	27,833	20,875	13,917	6,958	6,514	27,870	26,198	19,648	13,099	6,549	6,131	26,130	24,562	18,422	12,281	6,141	5,749
		W	3,224	2,993	2,244	1,496	748	336	3,162	2,936	2,202	1,468	734	330	3,101	2,879	2,159	1,439	720	323	3,039	2,822	2,116	1,411	705	317
94	34.4	Q(Btu/h)	31,800	29,892	22,419	14,946	7,473	6,996	30,000	28,200	21,150	14,100	7,050	6,600	28,230	26,536	19,902	13,268	6,634	6,211	26,490	24,901	18,675	12,450	6,225	5,828
		W	3,131	2,907	2,180	1,454	727	326	3,070	2,850	2,138	1,425	713	320	3,015	2,799	2,099	1,399	700	314	2,941	2,730	2,048	1,365	683	307
90	32.2	Q(Btu/h)	32,250	30,315	22,736	15,158	7,579	7,095	30,360	28,538	21,404	14,269	7,135	6,679	28,590	26,875	20,156	13,437	6,719	6,290	26,850	25,239	18,929	12,620	6,310	5,907
		W	3,039	2,822	2,116	1,411	705	317	2,978	2,765	2,073	1,382	691	310	2,917	2,708	2,031	1,354	677	304	2,858	2,653	1,990	1,327	663	298
86	30.0	Q(Btu/h)	32,670	30,710	23,032	15,355	7,677	7,187	30,810	28,961	21,721	14,481	7,240	6,778	28,980	27,241	20,431	13,621	6,810	6,376	27,210	25,577	19,183	12,789	6,394	5,986
		W	2,956	2,745	2,058	1,372	686	308	2,901	2,693	2,020	1,347	673	302	2,843	2,639	1,979	1,320	660	296	2,781	2,582	1,937	1,291	646	290
82	27.8	Q(Btu/h)	32,970	30,992	23,244	15,496	7,748	7,253	31,080	29,215	21,911	14,608	7,304	6,838	29,190	27,439	20,579	13,719	6,860	6,422	27,420	25,775	19,331	12,887	6,444	6,032
		W	2,904	2,696	2,022	1,348	674	303	2,843	2,639	1,979	1,320	660	296	2,766	2,568	1,926	1,284	642	288	2,720	2,525	1,894	1,263	631	284
78	25.6	Q(Btu/h)	33,270	31,274	23,455	15,637	7,818	7,319	31,380	29,497	22,123	14,749	7,374	6,904	29,520	27,749	20,812	13,874	6,937	6,494	27,660	26,000	19,500	13,000	6,500	6,085
		W	2,834	2,631	1,973	1,315	658	295	2,778	2,579	1,934	1,290	645	290	2,717	2,522	1,892	1,261	631	283	2,649	2,460	1,845	1,230	615	276
74	23.3	Q(Btu/h)	33,420	31,415	23,561	15,707	7,854	7,352	31,530	29,638	22,229	14,819	7,410	6,937	29,760	27,974	20,981	13,987	6,994	6,547	27,870	26,198	19,648	13,099	6,549	6,131
		W	2,781	2,582	1,937	1,291	646	290	2,720	2,525	1,894	1,263	631	284	2,659	2,468	1,851	1,234	617	277	2,600	2,414	1,810	1,207	603	271
70	21.1	Q(Btu/h)	33,570	31,556	23,667	15,778	7,889	7,385	31,650	29,751	22,313	14,876	7,438	6,963	29,910	28,115	21,087	14,058	7,029	6,580	28,020	26,339	19,754	13,169	6,585	6,164
		W	2,735	2,539	1,905	1,270	635	285	2,674	2,482	1,862	1,241	621	279	2,613	2,425	1,819	1,213	606	272	2,554	2,371	1,778	1,186	593	266
66	18.9	Q(Btu/h)	33,780	31,753	23,815	15,877	7,938	7,432	31,950	30,033	22,525	15,017	7,508	7,029	30,060	28,256	21,192	14,128	7,064	6,613	28,320	26,621	19,966	13,310	6,655	6,230
		W	2,689	2,497	1,872	1,248	624	280	2,628	2,440	1,830	1,220	610	274	2,570	2,385	1,789	1,193	596	268	2,508	2,328	1,746	1,164	582	261
62	16.7	Q(Btu/h)	33,840	31,810	23,857	15,905	7,952	7,445	32,040	30,118	22,588	15,059	7,529	7,049	30,210	28,397	21,298	14,199	7,099	6,646	28,440	26,734	20,050	13,367	6,683	6,257
		W	2,659	2,468	1,851	1,234	617	277	2,613	2,425	1,819	1,213	606	272	2,539	2,357	1,768	1,178	589	265	2,477	2,300	1,725	1,150	575	258
58	14.4	Q(Btu/h)	33,960	31,922	23,942	15,961	7,981	7,471	32,100	30,174	22,631	15,087	7,544	7,062	30,180	28,369	21,277	14,185	7,092	6,640	28,410	26,705	20,029	13,353	6,676	6,250
		W	2,625	2,437	1,828	1,218	609	274	2,560	2,377	1,783	1,188	594	267	2,499	2,320	1,740	1,160	580	260	2,431	2,257	1,693	1,129	564	253
54	12.2	Q(Btu/h)	34,080	32,035	24,026	16,018	8,009	7,498	32,250	30,315	22,736	15,158	7,579	7,095	30,360	28,538	21,404	14,269	7,135	6,679	28,590	26,875	20,156	13,437	6,719	6,290
		W	2,613	2,425	1,819	1,213	606	272	2,554	2,371	1,778	1,186	593	266	2,487	2,309	1,731	1,154	577	259	2,416	2,243	1,682	1,121	561	252
50	10.0	Q(Btu/h)	34,140	32,092	24,069	16,046	8,023	7,511	32,310	30,371	22,779	15,186	7,593	7,108	30,510	28,679	21,510	14,340	7,170	6,712	28,710	26,987	20,241	13,494	6,747	6,316
		W	2,579	2,394	1,796	1,197	599	269	2,514	2,334	1,751	1,167	584	262	2,447	2,271	1,704	1,136	568	255	2,379	2,209	1,657	1,104	552	248
46	7.8	Q(Btu/h)	34,200	32,148	24,111	16,074	8,037	7,524	32,400	30,456	22,842	15,228	7,614	7,128	30,570	28,736	21,552	14,368	7,184	6,725	28,830	27,100	20,325	13,550	6,775	6,343
		W	2,560	2,377	1,783	1,188	594	267	2,499	2,320	1,740	1,160	580	260	2,431	2,257	1,693	1,129	564	253	2,364	2,195	1,646	1,097	549	246
42	5.6	Q(Btu/h)	34,230	32,176	24,132	16,088	8,044	7,531	32,400	30,456	22,842	15,228	7,614	7,128	30,630	28,792	21,594	14,396	7,198	6,739	28,860	27,128	20,346	13,564	6,782	6,349
		W	2,554	2,371	1,778	1,186	593	266	2,490	2,311	1,734	1,156	578	260	2,416	2,243	1,682	1,121	561	252	2,345	2,177	1,633	1,089	544	244
38	3.3	Q(Btu/h)	34,230	32,176	24,132	16,088	8,044	7,531	32,460	30,512	22,884	15,256	7,628	7,141	30,690	28,849	21,636	14,424	7,212	6,752	28,950	27,213	20,410	13,607	6,803	6,369
		W	2,539	2,357	1,768	1,178	589	265	2,471	2,294	1,721	1,147	574	258	2,401	2,229	1,672	1,114	557	250	2,327	2,160	1,620	1,080	540	243
34	1.1	Q(Btu/h)	34,260	32,204	24,153	16,102	8,051	7,537	32,490	30,541	22,905	15,2														

**PCA-AK30NL
PUZ-AH30NL
2) HEATING**

Rated
Q(Btu/h): 32000
W: 2790

Indoor D.B.			80°F / 26.7°C					70°F / 21.1°C					60°F / 15.6°C							
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)																			
70	21.1	Q(Btu/h)	46,067	43,104	32,328	21,552	-	11,180	47,470	44,416	33,312	22,208	-	11,520	49,248	46,080	34,560	23,040	-	11,952
		W	4,217	3,820	2,865	1,910	-	767	3,927	3,557	2,668	1,779	-	714	3,659	3,315	2,486	1,657	-	665
65	18.3	Q(Btu/h)	43,673	40,864	30,648	20,432	-	10,599	45,076	42,176	31,632	21,088	-	10,939	46,751	43,744	32,808	21,872	-	11,346
		W	4,075	3,691	2,768	1,846	-	741	3,782	3,426	2,570	1,713	-	688	3,533	3,200	2,400	1,600	-	642
60	15.6	Q(Btu/h)	41,382	38,720	29,040	19,360	-	10,043	42,784	40,032	30,024	20,016	-	10,383	44,357	41,504	31,128	20,752	-	10,765
		W	3,893	3,527	2,645	1,763	-	708	3,644	3,301	2,475	1,650	-	662	3,410	3,089	2,316	1,544	-	620
55	12.8	Q(Btu/h)	38,988	36,480	27,360	18,240	-	9,462	40,390	37,792	28,344	18,896	-	9,802	41,861	39,168	29,376	19,584	-	10,159
		W	3,779	3,423	2,567	1,712	-	687	3,496	3,167	2,375	1,583	-	636	3,289	2,980	2,235	1,490	-	598
50	10.0	Q(Btu/h)	36,628	34,272	25,704	17,136	-	8,889	37,996	35,552	26,664	17,776	-	9,221	39,398	36,864	27,648	18,432	-	9,562
		W	3,631	3,289	2,467	1,645	-	660	3,354	3,038	2,279	1,519	-	610	3,172	2,874	2,155	1,437	-	577
47	8.3	Q(Btu/h)	35,123	32,864	24,648	16,432	-	8,524	36,491	34,144	25,608	17,072	-	8,856	37,859	35,424	26,568	17,712	-	9,188
		W	3,514	3,183	2,388	1,592	-	639	3,262	2,955	2,216	1,477	-	593	3,071	2,782	2,086	1,391	-	558
42	5.6	Q(Btu/h)	32,764	30,656	22,992	15,328	-	7,951	34,200	32,000	24,000	16,000	-	8,300	35,500	33,216	24,912	16,608	-	8,615
		W	3,293	2,983	2,237	1,491	-	599	3,080	2,790	2,093	1,395	-	560	2,871	2,600	1,950	1,300	-	522
35	1.7	Q(Btu/h)	25,205	23,584	17,688	11,792	-	6,117	26,984	25,248	18,936	12,624	-	6,549	28,899	27,040	20,280	13,520	-	7,014
		W	2,929	2,653	1,990	1,327	-	533	2,723	2,466	1,850	1,233	-	495	2,532	2,293	1,720	1,147	-	460
32	0.0	Q(Btu/h)	24,077	22,528	16,896	11,264	-	5,843	25,479	23,840	17,880	11,920	-	6,184	26,471	24,768	18,576	12,384	-	6,424
		W	2,775	2,514	1,885	1,257	-	505	2,556	2,316	1,737	1,158	-	465	2,387	2,162	1,622	1,081	-	434
27	-2.8	Q(Btu/h)	22,948	21,472	16,104	10,736	-	5,569	24,111	22,560	16,920	11,280	-	5,852	25,000	23,392	17,544	11,696	-	6,067
		W	2,550	2,310	1,733	1,155	-	464	2,328	2,109	1,582	1,055	-	423	2,178	1,973	1,479	986	-	396
22	-5.6	Q(Btu/h)	21,956	20,544	15,408	10,272	-	5,329	23,119	21,632	16,224	10,816	-	5,611	24,008	22,464	16,848	11,232	-	5,827
		W	2,365	2,143	1,607	1,071	-	430	2,193	1,986	1,490	993	-	399	2,011	1,822	1,366	911	-	366
17	-8.3	Q(Btu/h)	21,204	19,840	14,880	9,920	-	5,146	22,333	20,896	15,672	10,448	-	5,420	23,119	21,632	16,224	10,816	-	5,611
		W	2,224	2,014	1,511	1,007	-	404	2,076	1,880	1,410	940	-	377	1,888	1,710	1,283	855	-	343
12	-11.1	Q(Btu/h)	20,417	19,104	14,328	9,552	-	4,955	21,546	20,160	15,120	10,080	-	5,229	22,401	20,960	15,720	10,480	-	5,437
		W	2,076	1,880	1,410	940	-	377	1,965	1,780	1,335	890	-	357	1,808	1,638	1,228	819	-	329
5	-15.0	Q(Btu/h)	19,323	18,080	13,560	9,040	-	4,690	20,144	18,848	14,136	9,424	-	4,889	20,657	19,328	14,496	9,664	-	5,013
		W	1,891	1,713	1,285	857	-	344	1,814	1,643	1,232	822	-	330	1,676	1,518	1,138	759	-	305
2	-16.7	Q(Btu/h)	18,434	17,248	12,936	8,624	-	4,474	19,015	17,792	13,344	8,896	-	4,615	19,426	18,176	13,632	9,088	-	4,714
		W	1,814	1,643	1,232	822	-	330	1,749	1,585	1,189	792	-	318	1,623	1,470	1,103	735	-	295
-3	-19.4	Q(Btu/h)	16,655	15,584	11,688	7,792	-	4,042	17,203	16,096	12,072	8,048	-	4,175	17,476	16,352	12,264	8,176	-	4,241
		W	1,700	1,540	1,155	770	-	309	1,642	1,487	1,115	744	-	298	1,543	1,398	1,048	699	-	281
-8	-22.2	Q(Btu/h)	14,843	13,888	10,416	6,944	-	3,602	15,322	14,336	10,752	7,168	-	3,718	15,493	14,496	10,872	7,248	-	3,760
		W	1,589	1,440	1,080	720	-	289	1,534	1,389	1,042	695	-	279	1,463	1,325	994	663	-	266
-13	-25.0	Q(Btu/h)	13,030	12,192	9,144	6,096	-	3,162	13,441	12,576	9,432	6,288	-	3,262	13,475	12,608	9,456	6,304	-	3,270
		W	1,485	1,345	1,009	672	-	270	1,423	1,289	967	644	-	259	1,389	1,258	944	629	-	253

PEAD-AA30NL
PUZ-AH30NL PUY-AH30NL
1) COOLING

Rated
Q(Btu/h): 27000
W: 2720

Indoor W.B. Outdoor D.B. (°F) (°C)	72°F / 22.2°C						67°F / 19.4°C						64°F / 17.8°C						61°F / 16.1°C					
	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
115 46.1 Q(Btu/h) W	28,980	26,082	19,562	13,041	6,521	6,376	27,390	24,651	18,488	12,326	6,163	6,026	25,830	23,247	17,435	11,624	5,812	5,683	24,240	21,816	16,362	10,908	5,454	5,333
	3,732	3,275	2,456	1,637	819	409	3,658	3,210	2,407	1,605	802	401	3,590	3,150	2,362	1,575	787	394	3,528	3,095	2,322	1,548	774	387
110 43.3 Q(Btu/h) W	29,760	26,784	20,088	13,392	6,696	6,547	28,080	25,272	18,954	12,636	6,318	6,178	26,370	23,733	17,800	11,867	5,933	5,801	24,870	22,383	16,787	11,192	5,596	5,471
	3,565	3,128	2,346	1,564	782	391	3,500	3,071	2,303	1,535	768	384	3,438	3,016	2,262	1,508	754	377	3,376	2,962	2,222	1,481	741	370
106 41.1 Q(Btu/h) W	30,420	27,378	20,534	13,689	6,845	6,692	28,710	25,839	19,379	12,920	6,460	6,316	26,970	24,273	18,205	12,137	6,068	5,933	25,380	22,842	17,132	11,421	5,711	5,584
	3,469	3,044	2,283	1,522	761	380	3,376	2,962	2,222	1,481	741	370	3,314	2,908	2,181	1,454	727	363	3,255	2,856	2,142	1,428	714	357
102 38.9 Q(Btu/h) W	30,930	27,837	20,878	13,919	6,959	6,805	29,250	26,325	19,744	13,163	6,581	6,435	27,420	24,678	18,509	12,339	6,170	6,032	25,740	23,166	17,375	11,583	5,792	5,663
	3,360	2,948	2,211	1,474	737	369	3,298	2,894	2,171	1,447	724	362	3,224	2,829	2,122	1,414	707	354	3,162	2,774	2,081	1,387	694	347
98 36.7 Q(Btu/h) W	31,380	28,242	21,182	14,121	7,061	6,904	29,610	26,649	19,987	13,325	6,662	6,514	27,870	25,083	18,812	12,542	6,271	6,131	26,130	23,517	17,638	11,759	5,879	5,749
	3,255	2,856	2,142	1,428	714	357	3,193	2,802	2,101	1,401	700	350	3,131	2,747	2,060	1,374	687	343	3,069	2,693	2,020	1,346	673	337
94 34.4 Q(Btu/h) W	31,800	28,620	21,465	14,310	7,155	6,996	30,000	27,000	20,250	13,500	6,750	6,600	28,230	25,407	19,055	12,704	6,352	6,211	26,490	23,841	17,881	11,921	5,960	5,828
	3,162	2,774	2,081	1,387	694	347	3,100	2,720	2,040	1,360	680	340	3,044	2,671	2,003	1,336	668	334	2,970	2,606	1,954	1,303	651	326
90 32.2 Q(Btu/h) W	32,250	29,025	21,769	14,513	7,256	7,095	30,360	27,324	20,493	13,662	6,831	6,679	28,590	25,731	19,298	12,866	6,433	6,290	26,850	24,165	18,124	12,083	6,041	5,907
	3,069	2,693	2,020	1,346	673	337	3,007	2,638	1,979	1,319	660	330	2,945	2,584	1,938	1,292	646	323	2,886	2,532	1,899	1,266	633	317
86 30.0 Q(Btu/h) W	32,670	29,403	22,052	14,702	7,351	7,187	30,810	27,729	20,797	13,865	6,932	6,778	28,980	26,082	19,562	13,041	6,521	6,376	27,210	24,489	18,367	12,245	6,122	5,986
	2,985	2,619	1,965	1,310	655	327	2,930	2,570	1,928	1,285	643	321	2,871	2,519	1,889	1,259	630	315	2,809	2,464	1,848	1,232	616	308
82 27.8 Q(Btu/h) W	32,970	29,673	22,255	14,837	7,418	7,253	31,080	27,972	20,979	13,986	6,993	6,838	29,190	26,271	19,703	13,136	6,568	6,422	27,420	24,678	18,509	12,339	6,170	6,032
	2,933	2,573	1,930	1,287	643	322	2,871	2,519	1,889	1,259	630	315	2,793	2,451	1,838	1,225	613	306	2,747	2,410	1,807	1,205	602	301
78 25.6 Q(Btu/h) W	33,270	29,943	22,457	14,972	7,486	7,319	31,380	28,242	21,182	14,121	7,061	6,904	29,520	26,568	19,926	13,284	6,642	6,494	27,660	24,894	18,671	12,447	6,224	6,085
	2,861	2,511	1,883	1,255	628	314	2,806	2,462	1,846	1,231	615	308	2,744	2,407	1,805	1,204	602	301	2,675	2,347	1,761	1,174	587	293
74 23.3 Q(Btu/h) W	33,420	30,078	22,559	15,039	7,520	7,352	31,530	28,377	21,283	14,189	7,094	6,937	29,760	26,784	20,088	13,392	6,696	6,547	27,870	25,083	18,812	12,542	6,271	6,131
	2,809	2,464	1,848	1,232	616	308	2,747	2,410	1,807	1,205	602	301	2,685	2,356	1,767	1,178	589	294	2,626	2,304	1,728	1,152	576	288
70 21.1 Q(Btu/h) W	33,570	30,213	22,660	15,107	7,553	7,385	31,650	28,485	21,364	14,243	7,121	6,963	29,910	26,919	20,189	13,460	6,730	6,580	28,020	25,218	18,914	12,609	6,305	6,164
	2,762	2,424	1,818	1,212	606	303	2,700	2,369	1,777	1,185	592	296	2,638	2,315	1,736	1,157	579	289	2,579	2,263	1,697	1,132	566	283
66 18.9 Q(Btu/h) W	33,780	30,402	22,802	15,201	7,601	7,432	31,950	28,755	21,566	14,378	7,189	7,029	30,060	27,054	20,291	13,527	6,764	6,613	28,320	25,488	19,116	12,744	6,372	6,230
	2,716	2,383	1,787	1,191	596	298	2,654	2,328	1,746	1,164	582	291	2,595	2,277	1,707	1,138	569	285	2,533	2,222	1,667	1,111	556	278
62 16.7 Q(Btu/h) W	33,840	30,456	22,842	15,228	7,614	7,445	32,040	28,836	21,627	14,418	7,209	7,049	30,210	27,189	20,392	13,595	6,797	6,646	28,440	25,596	19,197	12,798	6,399	6,257
	2,685	2,356	1,767	1,178	589	294	2,638	2,315	1,736	1,157	579	289	2,564	2,249	1,687	1,125	562	281	2,502	2,195	1,646	1,098	549	274
58 14.4 Q(Btu/h) W	33,960	30,564	22,923	15,282	7,641	7,471	32,100	28,890	21,668	14,445	7,223	7,062	30,180	27,162	20,372	13,581	6,791	6,640	28,410	25,569	19,177	12,785	6,392	6,250
	2,651	2,326	1,744	1,163	581	291	2,585	2,268	1,701	1,134	567	284	2,523	2,214	1,661	1,107	554	277	2,455	2,154	1,616	1,077	539	269
54 12.2 Q(Btu/h) W	34,080	30,672	23,004	15,336	7,668	7,498	32,250	29,025	21,769	14,513	7,256	7,095	30,360	27,324	20,493	13,662	6,831	6,679	28,590	25,731	19,298	12,866	6,433	6,290
	2,638	2,315	1,736	1,157	579	289	2,579	2,263	1,697	1,132	566	283	2,511	2,203	1,652	1,102	551	275	2,440	2,141	1,605	1,070	535	268
50 10.0 Q(Btu/h) W	34,140	30,726	23,045	15,363	7,682	7,511	32,310	29,079	21,809	14,540	7,270	7,108	30,510	27,459	20,594	13,730	6,865	6,712	28,710	25,839	19,379	12,920	6,460	6,316
	2,604	2,285	1,714	1,142	571	286	2,539	2,228	1,671	1,114	557	278	2,471	2,168	1,626	1,084	542	271	2,403	2,108	1,581	1,054	527	264
46 7.8 Q(Btu/h) W	34,200	30,780	23,085	15,390	7,695	7,524	32,400	29,160	21,870	14,580	7,290	7,128	30,570	27,513	20,635	13,757	6,878	6,725	28,830	25,947	19,460	12,974	6,487	6,343
	2,585	2,268	1,701	1,134	567	284	2,523	2,214	1,661	1,107	554	277	2,455	2,154	1,616	1,077	539	269	2,387	2,094	1,571	1,047	524	262
42 5.6 Q(Btu/h) W	34,230	30,807	23,105	15,404	7,702	7,531	32,400	29,160	21,870	14,580	7,290	7,128	30,630	27,567	20,675	13,784	6,892	6,739	28,860	25,974	19,481	12,987	6,494	6,349
	2,579	2,263	1,697	1,132	566	283	2,514	2,206	1,654	1,103	551	276	2,440	2,141	1,605	1,070	535	268	2,368	2,078	1,559	1,039	520	260
38 3.3 Q(Btu/h) W	34,230	30,807	23,105	15,404	7,702	7,531	32,460	29,214	21,911	14,607	7,304	7,141	30,690	27,621	20,716	13,811	6,905	6,752	28,950	26,055	19,541	13,028	6,514	6,369
	2,564	2,249	1,687	1,125	562	281	2,496	2,190	1,642	1,095	547	274	2,424	2,127	1,595	1,064	532	266	2,350	2,062	1,546	1,031	515	258
34 1.1 Q(Btu/h) W	34,260	30,834	23,126	15,417	7,709	7,537	32,490	29,241	21,931	14,621	7,310	7,148	30,750	27,675	20,756	13,838	6,919	6,765	29,010	26,109	19,582	13,055	6,527	6,382
	2,554	2,241	1,681	1,121	560	280	2,489	2,184	1,638	1,092	546	273	2,418	2,122	1,591	1,061	530	265	2,347	2,059	1,544	1,030	515	257

**PEAD-AA30NL
PUZ-AH30NL
2) HEATING**

**Rated
Q(Btu/h): 30800
W: 2600**

Indoor D.B.			80°F / 26.7°C					70°F / 21.1°C					60°F / 15.6°C							
Outdoor W.B. (°F)	(°C)		Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
70	21.1	Q(Btu/h)	46,337	41,488	31,116	20,744	-	11,180	47,747	42,750	32,063	21,375	-	11,520	49,536	44,352	33,264	22,176	-	11,952
		W	4,162	3,559	2,670	1,780	-	753	3,876	3,315	2,486	1,658	-	701	3,612	3,089	2,317	1,544	-	653
65	18.3	Q(Btu/h)	43,929	39,332	29,499	19,666	-	10,599	45,339	40,594	30,446	20,297	-	10,939	47,025	42,104	31,578	21,052	-	11,346
		W	4,022	3,440	2,580	1,720	-	728	3,733	3,193	2,395	1,596	-	675	3,487	2,982	2,237	1,491	-	631
60	15.6	Q(Btu/h)	41,624	37,268	27,951	18,634	-	10,043	43,034	38,531	28,898	19,265	-	10,383	44,617	39,948	29,961	19,974	-	10,765
		W	3,843	3,286	2,465	1,643	-	695	3,596	3,076	2,307	1,538	-	651	3,365	2,878	2,159	1,439	-	609
55	12.8	Q(Btu/h)	39,216	35,112	26,334	17,556	-	9,462	40,626	36,375	27,281	18,187	-	9,802	42,106	37,699	28,274	18,850	-	10,159
		W	3,730	3,190	2,393	1,595	-	675	3,450	2,951	2,213	1,476	-	624	3,247	2,777	2,083	1,388	-	587
50	10.0	Q(Btu/h)	36,842	32,987	24,740	16,493	-	8,889	38,218	34,219	25,664	17,109	-	9,221	39,629	35,482	26,611	17,741	-	9,562
		W	3,584	3,065	2,299	1,533	-	648	3,311	2,831	2,124	1,416	-	599	3,131	2,678	2,009	1,339	-	567
47	8.3	Q(Btu/h)	35,329	31,632	23,724	15,816	-	8,524	36,705	32,864	24,648	16,432	-	8,856	38,081	34,096	25,572	17,048	-	9,188
		W	3,469	2,967	2,225	1,483	-	628	3,219	2,753	2,065	1,377	-	582	3,031	2,592	1,944	1,296	-	548
42	5.6	Q(Btu/h)	32,955	29,506	22,130	14,753	-	7,951	34,400	30,800	23,100	15,400	-	8,300	35,707	31,970	23,978	15,985	-	8,615
		W	3,250	2,779	2,085	1,390	-	588	3,040	2,600	1,950	1,300	-	550	2,833	2,423	1,817	1,212	-	513
35	1.7	Q(Btu/h)	25,353	22,700	17,025	11,350	-	6,117	27,142	24,301	18,226	12,151	-	6,549	29,068	26,026	19,520	13,013	-	7,014
		W	2,891	2,473	1,854	1,236	-	523	2,687	2,298	1,724	1,149	-	486	2,499	2,137	1,603	1,069	-	452
32	0.0	Q(Btu/h)	24,218	21,683	16,262	10,842	-	5,843	25,628	22,946	17,210	11,473	-	6,184	26,626	23,839	17,879	11,920	-	6,424
		W	2,739	2,343	1,757	1,171	-	496	2,523	2,158	1,619	1,079	-	457	2,356	2,015	1,511	1,008	-	426
27	-2.8	Q(Btu/h)	23,082	20,667	15,500	10,333	-	5,569	24,252	21,714	16,286	10,857	-	5,852	25,146	22,515	16,886	11,257	-	6,067
		W	2,517	2,153	1,615	1,076	-	455	2,298	1,966	1,474	983	-	416	2,149	1,838	1,379	919	-	389
22	-5.6	Q(Btu/h)	22,085	19,774	14,830	9,887	-	5,329	23,254	20,821	15,616	10,410	-	5,611	24,149	21,622	16,216	10,811	-	5,827
		W	2,335	1,997	1,498	998	-	422	2,164	1,851	1,388	926	-	392	1,985	1,698	1,273	849	-	359
17	-8.3	Q(Btu/h)	21,328	19,096	14,322	9,548	-	5,146	22,463	20,112	15,084	10,056	-	5,420	23,254	20,821	15,616	10,410	-	5,611
		W	2,195	1,877	1,408	939	-	397	2,049	1,752	1,314	876	-	371	1,864	1,594	1,195	797	-	337
12	-11.1	Q(Btu/h)	20,537	18,388	13,791	9,194	-	4,955	21,672	19,404	14,553	9,702	-	5,229	22,532	20,174	15,131	10,087	-	5,437
		W	2,049	1,752	1,314	876	-	371	1,940	1,659	1,244	829	-	351	1,784	1,526	1,145	763	-	323
5	-15.0	Q(Btu/h)	19,436	17,402	13,052	8,701	-	4,690	20,262	18,141	13,606	9,071	-	4,889	20,778	18,603	13,952	9,302	-	5,013
		W	1,867	1,596	1,197	798	-	338	1,791	1,531	1,149	766	-	324	1,654	1,414	1,061	707	-	299
2	-16.7	Q(Btu/h)	18,542	16,601	12,451	8,301	-	4,474	19,126	17,125	12,844	8,562	-	4,615	19,539	17,494	13,121	8,747	-	4,714
		W	1,791	1,531	1,149	766	-	324	1,727	1,477	1,108	738	-	312	1,602	1,370	1,028	685	-	290
-3	-19.4	Q(Btu/h)	16,753	15,000	11,250	7,500	-	4,042	17,303	15,492	11,619	7,746	-	4,175	17,578	15,739	11,804	7,869	-	4,241
		W	1,678	1,435	1,076	718	-	304	1,620	1,386	1,039	693	-	293	1,523	1,303	977	651	-	276
-8	-22.2	Q(Btu/h)	14,930	13,367	10,025	6,684	-	3,602	15,411	13,798	10,349	6,899	-	3,718	15,583	13,952	10,464	6,976	-	3,760
		W	1,569	1,342	1,006	671	-	284	1,514	1,295	971	647	-	274	1,444	1,235	926	618	-	261
-13	-25.0	Q(Btu/h)	13,106	11,735	8,801	5,867	-	3,162	13,519	12,104	9,078	6,052	-	3,262	13,554	12,135	9,101	6,068	-	3,270
		W	1,465	1,253	940	627	-	265	1,404	1,201	901	601	-	254	1,371	1,173	879	586	-	248

PVA-AA30NL
PUZ-AH30NL PUY-AH30NL
1) COOLING

Rated
Q(Btu/h): 30000
W: 3030

Indoor W.B. Outdoor D.B. (°F) (°C)	72°F / 22.2°C						67°F / 19.4°C						64°F / 17.8°C						61°F / 16.1°C					
	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
115 46.1 Q(Btu/h)	29,560	28,980	21,735	14,490	7,245	6,569	27,938	27,390	20,543	13,695	6,848	6,208	26,347	25,830	19,373	12,915	6,458	5,855	24,725	24,240	18,180	12,120	6,060	5,494
W	3,732	3,648	2,736	1,824	912	361	3,658	3,575	2,682	1,788	894	354	3,590	3,509	2,632	1,754	877	347	3,528	3,448	2,586	1,724	862	341
110 43.3 Q(Btu/h)	30,355	29,760	22,320	14,880	7,440	6,746	28,642	28,080	21,060	14,040	7,020	6,365	26,897	26,370	19,778	13,185	6,593	5,977	25,367	24,870	18,653	12,435	6,218	5,637
W	3,565	3,485	2,613	1,742	871	345	3,500	3,421	2,566	1,710	855	339	3,438	3,360	2,520	1,680	840	333	3,376	3,300	2,475	1,650	825	327
106 41.1 Q(Btu/h)	31,028	30,420	22,815	15,210	7,605	6,895	29,284	28,710	21,533	14,355	7,178	6,508	27,509	26,970	20,228	13,485	6,743	6,113	25,888	25,380	19,035	12,690	6,345	5,753
W	3,469	3,391	2,543	1,695	848	336	3,376	3,300	2,475	1,650	825	327	3,314	3,239	2,429	1,620	810	321	3,255	3,182	2,386	1,591	795	315
102 38.9 Q(Btu/h)	31,549	30,930	23,198	15,465	7,733	7,011	29,835	29,250	21,938	14,625	7,313	6,630	27,968	27,420	20,565	13,710	6,855	6,215	26,255	25,740	19,305	12,870	6,435	5,834
W	3,360	3,285	2,463	1,642	821	325	3,298	3,224	2,418	1,612	806	319	3,224	3,151	2,363	1,576	788	312	3,162	3,091	2,318	1,545	773	306
98 36.7 Q(Btu/h)	32,008	31,380	23,535	15,690	7,845	7,113	30,202	29,610	22,208	14,805	7,403	6,712	28,427	27,870	20,903	13,935	6,968	6,317	26,653	26,130	19,598	13,065	6,533	5,923
W	3,255	3,182	2,386	1,591	795	315	3,193	3,121	2,341	1,560	780	309	3,131	3,060	2,295	1,530	765	303	3,069	3,000	2,250	1,500	750	297
94 34.4 Q(Btu/h)	32,436	31,800	23,850	15,900	7,950	7,208	30,600	30,000	22,500	15,000	7,500	6,800	28,795	28,230	21,173	14,115	7,058	6,399	27,020	26,490	19,868	13,245	6,623	6,004
W	3,162	3,091	2,318	1,545	773	306	3,100	3,030	2,273	1,515	758	300	3,044	2,975	2,232	1,488	744	295	2,970	2,903	2,177	1,451	726	287
90 32.2 Q(Btu/h)	32,895	32,250	24,188	16,125	8,063	7,310	30,967	30,360	22,770	15,180	7,590	6,882	29,162	28,590	21,443	14,295	7,148	6,480	27,387	26,850	20,138	13,425	6,713	6,086
W	3,069	3,000	2,250	1,500	750	297	3,007	2,939	2,204	1,470	735	291	2,945	2,879	2,159	1,439	720	285	2,886	2,821	2,116	1,410	705	279
86 30.0 Q(Btu/h)	33,323	32,670	24,503	16,335	8,168	7,405	31,426	30,810	23,108	15,405	7,703	6,984	29,560	28,980	21,735	14,490	7,245	6,569	27,754	27,210	20,408	13,605	6,803	6,168
W	2,985	2,918	2,188	1,459	729	289	2,930	2,863	2,148	1,432	716	284	2,871	2,806	2,104	1,403	701	278	2,809	2,745	2,059	1,373	686	272
82 27.8 Q(Btu/h)	33,629	32,970	24,728	16,485	8,243	7,473	31,702	31,080	23,310	15,540	7,770	7,045	29,774	29,190	21,893	14,595	7,298	6,616	27,968	27,420	20,565	13,710	6,855	6,215
W	2,933	2,866	2,150	1,433	717	284	2,871	2,806	2,104	1,403	701	278	2,793	2,730	2,048	1,365	683	270	2,747	2,685	2,013	1,342	671	266
78 25.6 Q(Btu/h)	33,935	33,270	24,953	16,635	8,318	7,541	32,008	31,380	23,535	15,690	7,845	7,113	30,110	29,520	22,140	14,760	7,380	6,691	28,213	27,660	20,745	13,830	6,915	6,270
W	2,861	2,797	2,098	1,398	699	277	2,806	2,742	2,057	1,371	686	272	2,744	2,682	2,011	1,341	670	266	2,675	2,615	1,961	1,307	654	259
74 23.3 Q(Btu/h)	34,088	33,420	25,065	16,710	8,355	7,575	32,161	31,530	23,648	15,765	7,883	7,147	30,355	29,760	22,320	14,880	7,440	6,746	28,427	27,870	20,903	13,935	6,968	6,317
W	2,809	2,745	2,059	1,373	686	272	2,747	2,685	2,013	1,342	671	266	2,685	2,624	1,968	1,312	656	260	2,626	2,566	1,925	1,283	642	254
70 21.1 Q(Btu/h)	34,241	33,570	25,178	16,785	8,393	7,609	32,283	31,650	23,738	15,825	7,913	7,174	30,508	29,910	22,433	14,955	7,478	6,780	28,580	28,020	21,015	14,010	7,005	6,351
W	2,762	2,700	2,025	1,350	675	267	2,700	2,639	1,979	1,320	660	261	2,638	2,579	1,934	1,289	645	255	2,579	2,521	1,891	1,260	630	250
66 18.9 Q(Btu/h)	34,456	33,780	25,335	16,890	8,445	7,657	32,589	31,950	23,963	15,975	7,988	7,242	30,661	30,060	22,545	15,030	7,515	6,814	28,886	28,320	21,240	14,160	7,080	6,419
W	2,716	2,654	1,991	1,327	664	263	2,654	2,594	1,945	1,297	648	257	2,595	2,536	1,902	1,268	634	251	2,533	2,476	1,857	1,238	619	245
62 16.7 Q(Btu/h)	34,517	33,840	25,380	16,920	8,460	7,670	32,681	32,040	24,030	16,020	8,010	7,262	30,814	30,210	22,658	15,105	7,553	6,848	29,009	28,440	21,330	14,220	7,110	6,446
W	2,685	2,624	1,968	1,312	656	260	2,638	2,579	1,934	1,289	645	255	2,564	2,506	1,879	1,253	626	248	2,502	2,445	1,834	1,223	611	242
58 14.4 Q(Btu/h)	34,639	33,960	25,470	16,980	8,490	7,698	32,742	32,100	24,075	16,050	8,025	7,276	30,784	30,180	22,635	15,090	7,545	6,841	28,978	28,410	21,308	14,205	7,103	6,440
W	2,651	2,591	1,943	1,295	648	257	2,585	2,527	1,895	1,264	632	250	2,523	2,466	1,850	1,233	617	244	2,455	2,400	1,800	1,200	600	238
54 12.2 Q(Btu/h)	34,762	34,080	25,560	17,040	8,520	7,725	32,895	32,250	24,188	16,125	8,063	7,310	30,967	30,360	22,770	15,180	7,590	6,882	29,162	28,590	21,443	14,295	7,148	6,480
W	2,638	2,579	1,934	1,289	645	255	2,579	2,521	1,891	1,260	630	250	2,511	2,454	1,841	1,227	614	243	2,440	2,385	1,788	1,192	596	236
50 10.0 Q(Btu/h)	34,823	34,140	25,605	17,070	8,535	7,738	32,956	32,310	24,233	16,155	8,078	7,324	31,120	30,510	22,883	15,255	7,628	6,916	29,284	28,710	21,533	14,355	7,178	6,508
W	2,604	2,545	1,909	1,273	636	252	2,539	2,482	1,861	1,241	620	246	2,471	2,415	1,811	1,207	604	239	2,403	2,348	1,761	1,174	587	233
46 7.8 Q(Btu/h)	34,884	34,200	25,650	17,100	8,550	7,752	33,048	32,400	24,300	16,200	8,100	7,344	31,181	30,570	22,928	15,285	7,643	6,929	29,407	28,830	21,623	14,415	7,208	6,535
W	2,585	2,527	1,895	1,264	632	250	2,523	2,466	1,850	1,233	617	244	2,455	2,400	1,800	1,200	600	238	2,387	2,333	1,750	1,167	583	231
42 5.6 Q(Btu/h)	34,915	34,230	25,673	17,115	8,558	7,759	33,048	32,400	24,300	16,200	8,100	7,344	31,243	30,630	22,973	15,315	7,658	6,943	29,437	28,860	21,645	14,430	7,215	6,542
W	2,579	2,521	1,891	1,260	630	250	2,514	2,457	1,843	1,229	614	243	2,440	2,385	1,788	1,192	596	236	2,368	2,315	1,736	1,157	579	229
38 3.3 Q(Btu/h)	34,915	34,230	25,673	17,115	8,558	7,759	33,109	32,460	24,345	16,230	8,115	7,358	31,304	30,690	23,018	15,345	7,673	6,956	29,529	28,950	21,713	14,475	7,238	6,562
W	2,564	2,506	1,879	1,253	626	248	2,496	2,439	1,829	1,220	610	242	2,424	2,369	1,777	1,185	592	235	2,350	2,297	1,723	1,148	574	227
34 1.1 Q(Btu/h)	34,945	34,260	25,695	17,130	8,565	7,766	33,140	32,490	24,368	16,245	8,123	7,364	31,365	30,750	23,063	15,375	7,688	6,970	29,590	29,010	21,758	14,505	7,253	6,576
W	2,554	2,497	1,873	1,248	624	247	2,489	2,433	1,825	1,217	608	241	2,418	2,363	1,773	1,182	591	234	2,347	2,294	1,720	1,147	573	227
30 -1.1 Q(Btu/h)	34,945	34,260	25,695	17,130	8,565	7,766	33,140	32,490	24,368	16,245	8,123	7,364	31,396	30,780	23,085	15,390	7,695	6,977	29,621	29,040	21,780	14,520	7,260	6,582
W	2,554	2,497	1,873	1,248	624	247	2,480	2,424	1,818	1,212	606	240	2,412	2,357	1,768	1,179	589	233	2,337	2,285	1,713	1,142	571	226
26 -3.3 Q(Btu/h)	34,976	34,290	25,718	17,145	8,573	7,772	33,201	32,550	24,413	16,275	8,138	7,378	31,457	30,840	23,130	15,420	7,710	6,990	29,713	29,130	21,848	14,565	7,283	6,603
W	2,548	2,491	1,868	1,245	623	247	2,474	2,418	1,813	1,209	604	239	2,406	2,351	1,763	1,176	588	233	2,331	2,279	1,709	1,139	570	

**PVA-AA30NL
PUZ-AH30NL
2) HEATING**

Rated
Q(Btu/h): 32000
W: 2580

Indoor D.B.			80°F / 26.7°C					70°F / 21.1°C					60°F / 15.6°C							
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)	Q(Btu/h)																		
70	21.1	Q(Btu/h)	46,337	43,104	32,328	21,552	-	11,315	47,747	44,416	33,312	22,208	-	11,659	49,536	46,080	34,560	23,040	-	12,096
		W	3,902	3,532	2,649	1,766	-	753	3,634	3,290	2,467	1,645	-	701	3,386	3,065	2,299	1,533	-	653
65	18.3	Q(Btu/h)	43,929	40,864	30,648	20,432	-	10,727	45,339	42,176	31,632	21,088	-	11,071	47,025	43,744	32,808	21,872	-	11,483
		W	3,771	3,413	2,560	1,707	-	728	3,500	3,168	2,376	1,584	-	675	3,269	2,959	2,219	1,480	-	631
60	15.6	Q(Btu/h)	41,624	38,720	29,040	19,360	-	10,164	43,034	40,032	30,024	20,016	-	10,508	44,617	41,504	31,128	20,752	-	10,895
		W	3,602	3,261	2,446	1,631	-	695	3,372	3,052	2,289	1,526	-	651	3,155	2,856	2,142	1,428	-	609
55	12.8	Q(Btu/h)	39,216	36,480	27,360	18,240	-	9,576	40,626	37,792	28,344	18,896	-	9,920	42,106	39,168	29,376	19,584	-	10,282
		W	3,497	3,166	2,374	1,583	-	675	3,235	2,928	2,196	1,464	-	624	3,044	2,755	2,067	1,378	-	587
50	10.0	Q(Btu/h)	36,842	34,272	25,704	17,136	-	8,996	38,218	35,552	26,664	17,776	-	9,332	39,629	36,864	27,648	18,432	-	9,677
		W	3,360	3,042	2,281	1,521	-	648	3,104	2,810	2,107	1,405	-	599	2,936	2,657	1,993	1,329	-	567
47	8.3	Q(Btu/h)	35,329	32,864	24,648	16,432	-	8,627	36,705	34,144	25,608	17,072	-	8,963	38,081	35,424	26,568	17,712	-	9,299
		W	3,252	2,944	2,208	1,472	-	628	3,018	2,732	2,049	1,366	-	582	2,841	2,572	1,929	1,286	-	548
42	5.6	Q(Btu/h)	32,955	30,656	22,992	15,328	-	8,047	34,400	32,000	24,000	16,000	-	8,400	35,707	33,216	24,912	16,608	-	8,719
		W	3,047	2,758	2,069	1,379	-	588	2,850	2,580	1,935	1,290	-	550	2,656	2,405	1,803	1,202	-	513
35	1.7	Q(Btu/h)	25,353	23,584	17,688	11,792	-	6,191	27,142	25,248	18,936	12,624	-	6,628	29,068	27,040	20,280	13,520	-	7,098
		W	2,710	2,454	1,840	1,227	-	523	2,519	2,281	1,711	1,140	-	486	2,343	2,121	1,591	1,060	-	452
32	0.0	Q(Btu/h)	24,218	22,528	16,896	11,264	-	5,914	25,628	23,840	17,880	11,920	-	6,258	26,626	24,768	18,576	12,384	-	6,502
		W	2,568	2,325	1,743	1,162	-	496	2,366	2,141	1,606	1,071	-	457	2,209	2,000	1,500	1,000	-	426
27	-2.8	Q(Btu/h)	23,082	21,472	16,104	10,736	-	5,636	24,252	22,560	16,920	11,280	-	5,922	25,146	23,392	17,544	11,696	-	6,140
		W	2,360	2,136	1,602	1,068	-	455	2,155	1,950	1,463	975	-	416	2,015	1,824	1,368	912	-	389
22	-5.6	Q(Btu/h)	22,085	20,544	15,408	10,272	-	5,393	23,254	21,632	16,224	10,816	-	5,678	24,149	22,464	16,848	11,232	-	5,897
		W	2,189	1,981	1,486	991	-	422	2,029	1,837	1,378	918	-	392	1,861	1,685	1,264	842	-	359
17	-8.3	Q(Btu/h)	21,328	19,840	14,880	9,920	-	5,208	22,463	20,896	15,672	10,448	-	5,485	23,254	21,632	16,224	10,816	-	5,678
		W	2,058	1,863	1,397	931	-	397	1,921	1,739	1,304	869	-	371	1,747	1,582	1,186	791	-	337
12	-11.1	Q(Btu/h)	20,537	19,104	14,328	9,552	-	5,015	21,672	20,160	15,120	10,080	-	5,292	22,532	20,960	15,720	10,480	-	5,502
		W	1,921	1,739	1,304	869	-	371	1,818	1,646	1,235	823	-	351	1,673	1,514	1,136	757	-	323
5	-15.0	Q(Btu/h)	19,436	18,080	13,560	9,040	-	4,746	20,262	18,848	14,136	9,424	-	4,948	20,778	19,328	14,496	9,664	-	5,074
		W	1,750	1,584	1,188	792	-	338	1,679	1,520	1,140	760	-	324	1,550	1,404	1,053	702	-	299
2	-16.7	Q(Btu/h)	18,542	17,248	12,936	8,624	-	4,528	19,126	17,792	13,344	8,896	-	4,670	19,539	18,176	13,632	9,088	-	4,771
		W	1,679	1,520	1,140	760	-	324	1,619	1,465	1,099	733	-	312	1,502	1,360	1,020	680	-	290
-3	-19.4	Q(Btu/h)	16,753	15,584	11,688	7,792	-	4,091	17,303	16,096	12,072	8,048	-	4,225	17,578	16,352	12,264	8,176	-	4,292
		W	1,573	1,424	1,068	712	-	304	1,519	1,375	1,031	688	-	293	1,428	1,293	969	646	-	276
-8	-22.2	Q(Btu/h)	14,930	13,888	10,416	6,944	-	3,646	15,411	14,336	10,752	7,168	-	3,763	15,583	14,496	10,872	7,248	-	3,805
		W	1,471	1,331	998	666	-	284	1,419	1,285	964	642	-	274	1,354	1,226	919	613	-	261
-13	-25.0	Q(Btu/h)	13,106	12,192	9,144	6,096	-	3,200	13,519	12,576	9,432	6,288	-	3,301	13,554	12,608	9,456	6,304	-	3,310
		W	1,374	1,244	933	622	-	265	1,317	1,192	894	596	-	254	1,285	1,164	873	582	-	248

**PAA-AA30NL/PAA-BA30NL
PUZ-AH30NL PUY-AH30NL
1) COOLING**

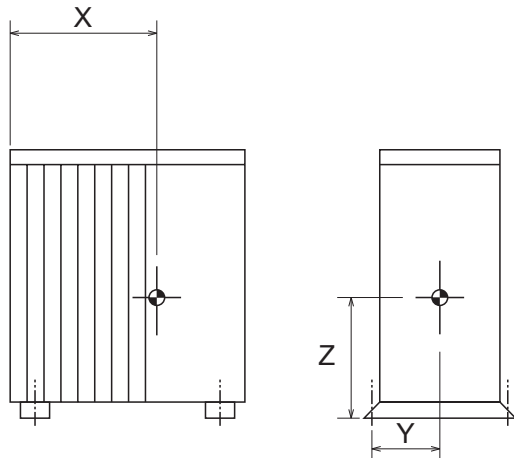
**Rated
Q(Btu/h): 31000
W: 3130**

Indoor W.B.		72°F / 22.2°C					67°F / 19.4°C					64°F / 17.8°C					61°F / 16.1°C										
Outdoor D.B.		Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min		
(°F) (°C)																											
115	46.1	Q(Btu/h)	30,429	29,946	22,460	14,973	7,487	6,279	28,760	28,303	21,227	14,152	7,076	5,935	27,122	26,691	20,018	13,346	6,673	5,597	25,452	25,048	18,786	12,524	6,262	5,252	
		W	3,853	3,769	2,826	1,884	942	578	3,776	3,693	2,770	1,847	923	566	3,706	3,625	2,718	1,812	906	556	3,642	3,562	2,671	1,781	890	546	
110	43.3	Q(Btu/h)	31,248	30,752	23,064	15,376	7,688	6,448	29,484	29,016	21,762	14,508	7,254	6,084	27,689	27,249	20,437	13,625	6,812	5,714	26,114	25,699	19,274	12,850	6,425	5,389	
		W	3,680	3,600	2,700	1,800	900	552	3,613	3,534	2,650	1,767	883	542	3,549	3,471	2,603	1,736	868	532	3,485	3,409	2,556	1,704	852	523	
106	41.1	Q(Btu/h)	31,941	31,434	23,576	15,717	7,859	6,591	30,146	29,667	22,250	14,834	7,417	6,221	28,319	27,869	20,902	13,935	6,967	5,844	26,649	26,226	19,670	13,113	6,557	5,499	
		W	3,581	3,502	2,627	1,751	876	537	3,485	3,409	2,556	1,704	852	523	3,421	3,346	2,509	1,673	836	513	3,360	3,287	2,465	1,643	822	504	
102	38.9	Q(Btu/h)	32,477	31,961	23,971	15,981	7,990	6,702	30,713	30,225	22,669	15,113	7,556	6,338	28,791	28,334	21,251	14,167	7,084	5,941	27,027	26,598	19,949	13,299	6,650	5,577	
		W	3,469	3,393	2,545	1,696	848	520	3,405	3,330	2,498	1,665	833	511	3,328	3,255	2,441	1,628	814	499	3,264	3,193	2,394	1,596	798	490	
98	36.7	Q(Btu/h)	32,949	32,426	24,320	16,213	8,107	6,799	31,091	30,597	22,948	15,299	7,649	6,416	29,264	28,799	21,599	14,400	7,200	6,039	27,437	27,001	20,251	13,501	6,750	5,662	
		W	3,360	3,287	2,465	1,643	822	504	3,296	3,224	2,418	1,612	806	494	3,232	3,161	2,371	1,581	790	485	3,168	3,099	2,324	1,549	775	475	
94	34.4	Q(Btu/h)	33,390	32,860	24,645	16,430	8,215	6,890	31,500	31,000	23,250	15,500	7,750	6,500	29,642	29,171	21,878	14,586	7,293	6,117	27,815	27,373	20,530	13,687	6,843	5,740	
		W	3,264	3,193	2,394	1,596	798	490	3,200	3,130	2,348	1,565	783	480	3,142	3,074	2,305	1,537	768	471	3,066	2,999	2,249	1,499	750	460	
90	32.2	Q(Btu/h)	33,863	33,325	24,994	16,663	8,331	6,988	31,878	31,372	23,529	15,686	7,843	6,578	30,020	29,543	22,157	14,772	7,386	6,195	28,193	27,745	20,809	13,873	6,936	5,818	
		W	3,168	3,099	2,324	1,549	775	475	3,104	3,036	2,277	1,518	759	466	3,040	2,974	2,230	1,487	743	456	2,979	2,914	2,186	1,457	729	447	
86	30.0	Q(Btu/h)	34,304	33,759	25,319	16,880	8,440	7,079	32,351	31,837	23,878	15,919	7,959	6,676	30,429	29,946	22,460	14,973	7,487	6,279	28,571	28,117	21,088	14,059	7,209	5,896	
		W	3,082	3,014	2,261	1,507	754	462	3,024	2,958	2,218	1,479	739	454	2,963	2,898	2,174	1,449	725	444	2,899	2,836	2,127	1,418	709	435	
82	27.8	Q(Btu/h)	34,619	34,069	25,552	17,035	8,517	7,144	32,634	32,116	24,087	16,058	8,029	6,734	30,650	30,163	22,622	15,082	7,541	6,325	28,791	28,334	21,251	14,167	7,084	5,941	
		W	3,027	2,961	2,221	1,480	740	454	2,963	2,898	2,174	1,449	725	444	2,883	2,820	2,115	1,410	705	432	2,835	2,773	2,080	1,387	693	425	
78	25.6	Q(Btu/h)	34,934	34,379	25,784	17,190	8,595	7,209	32,949	32,426	24,320	16,213	8,107	6,799	30,996	30,504	22,878	15,252	7,626	6,396	29,043	28,582	21,437	14,291	7,146	5,993	
		W	2,954	2,889	2,167	1,444	722	443	2,896	2,833	2,124	1,416	708	434	2,832	2,770	2,078	1,385	693	425	2,762	2,701	2,026	1,351	675	414	
74	23.3	Q(Btu/h)	35,091	34,534	25,901	17,267	8,634	7,241	33,107	32,581	24,436	16,291	8,145	6,832	31,248	30,752	23,064	15,376	7,688	6,448	29,264	28,799	21,599	14,400	7,200	6,039	
		W	2,899	2,836	2,127	1,418	709	435	2,835	2,773	2,080	1,387	693	425	2,771	2,711	2,033	1,355	678	416	2,710	2,651	1,988	1,326	663	407	
70	21.1	Q(Btu/h)	35,249	34,689	26,017	17,345	8,672	7,274	33,233	32,705	24,529	16,353	8,176	6,858	31,406	30,907	23,180	15,454	7,727	6,481	29,421	28,954	21,716	14,477	7,239	6,071	
		W	2,851	2,789	2,092	1,394	697	428	2,787	2,726	2,045	1,363	682	418	2,723	2,664	1,998	1,332	666	408	2,662	2,604	1,953	1,302	651	399	
66	18.9	Q(Btu/h)	35,469	34,906	26,180	17,453	8,727	7,319	33,548	33,015	24,761	16,508	8,254	6,923	31,563	31,062	23,297	15,531	7,766	6,513	29,736	29,264	21,948	14,632	7,316	6,136	
		W	2,803	2,742	2,056	1,371	685	420	2,739	2,679	2,009	1,340	670	411	2,678	2,620	1,965	1,310	655	402	2,614	2,557	1,918	1,279	639	392	
62	16.7	Q(Btu/h)	35,532	34,968	26,226	17,484	8,742	7,332	33,642	33,108	24,831	16,554	8,277	6,942	31,721	31,217	23,413	15,609	7,804	6,546	29,862	29,388	22,041	14,694	7,347	6,162	
		W	2,771	2,711	2,033	1,355	678	416	2,723	2,664	1,998	1,332	666	408	2,646	2,589	1,941	1,294	647	397	2,582	2,526	1,894	1,263	631	387	
58	14.4	Q(Btu/h)	35,658	35,092	26,319	17,546	8,773	7,358	33,705	33,170	24,878	16,585	8,293	6,955	31,689	31,186	23,390	15,593	7,797	6,539	29,831	29,357	22,018	14,679	7,339	6,156	
		W	2,736	2,676	2,007	1,338	669	410	2,669	2,610	1,958	1,305	653	400	2,605	2,548	1,911	1,274	637	391	2,534	2,479	1,859	1,239	620	380	
54	12.2	Q(Btu/h)	35,784	35,216	26,412	17,608	8,804	7,384	33,863	33,325	24,994	16,663	8,331	6,988	31,878	31,372	23,529	15,686	7,843	6,578	30,020	29,543	22,157	14,772	7,386	6,195	
		W	2,723	2,664	1,998	1,332	666	408	2,662	2,604	1,953	1,302	651	399	2,592	2,535	1,901	1,268	634	389	2,518	2,463	1,847	1,232	616	378	
50	10.0	Q(Btu/h)	35,847	35,278	26,459	17,639	8,820	7,397	33,926	33,387	25,040	16,694	8,347	7,001	32,036	31,527	23,645	15,764	7,882	6,611	30,146	29,667	22,250	14,834	7,417	6,221	
		W	2,688	2,629	1,972	1,315	657	403	2,621	2,563	1,923	1,282	641	393	2,550	2,495	1,871	1,247	624	383	2,480	2,426	1,819	1,213	606	372	
46	7.8	Q(Btu/h)	35,910	35,340	26,505	17,670	8,835	7,410	34,020	33,480	25,110	16,740	8,370	7,020	32,099	31,589	23,692	15,795	7,897	6,624	30,272	29,791	22,343	14,896	7,448	6,247	
		W	2,669	2,610	1,958	1,305	653	400	2,605	2,548	1,911	1,274	637	391	2,534	2,479	1,859	1,239	620	380	2,464	2,410	1,808	1,205	603	370	
42	5.6	Q(Btu/h)	35,942	35,371	26,528	17,686	8,843	7,417	34,020	33,480	25,110	16,740	8,370	7,020	32,162	31,651	23,738	15,826	7,913	6,637	30,303	29,822	22,367	14,911	7,456	6,253	
		W	2,662	2,604	1,953	1,302	651	399	2,595	2,538	1,904	1,269	635	389	2,518	2,463	1,847	1,232	616	378	2,445	2,391	1,793	1,196	598	367	
38	3.3	Q(Btu/h)	35,942	35,371	26,528	17,686	8,843	7,417	34,083	33,542	25,157	16,771	8,386	7,033	32,225	31,713	23,785	15,857	7,928	6,650	30,398	29,915	22,436	14,958	7,479	6,273	
		W	2,646	2,589	1,941	1,294	647	397	2,576	2,520	1,890	1,260	630	386	2,502	2,448	1,836	1,224	612	375	2,426	2,373	1,779	1,186	593	364	
34	1.1	Q(Btu/h)	35,973	35,402	26,552	17,701	8,851	7,423	34,115	33,573	25,180	16,787	8,393	7,040	32,288	31,775	23,831										

**PAA-AA30NL/PAA-BA30NL
PUZ-AH30NL
2) HEATING**

Rated
Q(Btu/h): 32000
W: 2480

Indoor D.B.			80°F / 26.7°C					70°F / 21.1°C					60°F / 15.6°C							
Outdoor W.B.			Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min	Max	Rated	75%	50%	25%	Min
(°F)	(°C)	Q(Btu/h)																		
70	21.1	Q(Btu/h)	47,684	43,104	32,328	21,552	-	13,605	49,135	44,416	33,312	22,208	-	14,019	50,976	46,080	34,560	23,040	-	14,544
		W	3,861	3,395	2,546	1,698	-	821	3,596	3,162	2,372	1,581	-	765	3,350	2,946	2,210	1,473	-	713
65	18.3	Q(Btu/h)	45,206	40,864	30,648	20,432	-	12,898	46,657	42,176	31,632	21,088	-	13,312	48,392	43,744	32,808	21,872	-	13,807
		W	3,731	3,281	2,461	1,641	-	794	3,463	3,045	2,284	1,523	-	737	3,235	2,845	2,133	1,422	-	688
60	15.6	Q(Btu/h)	42,834	38,720	29,040	19,360	-	12,221	44,285	40,032	30,024	20,016	-	12,635	45,914	41,504	31,128	20,752	-	13,100
		W	3,564	3,135	2,351	1,567	-	758	3,336	2,934	2,200	1,467	-	710	3,122	2,745	2,059	1,373	-	664
55	12.8	Q(Btu/h)	40,356	36,480	27,360	18,240	-	11,514	41,807	37,792	28,344	18,896	-	11,928	43,330	39,168	29,376	19,584	-	12,362
		W	3,460	3,043	2,282	1,521	-	736	3,201	2,815	2,111	1,407	-	681	3,012	2,649	1,986	1,324	-	641
50	10.0	Q(Btu/h)	37,913	34,272	25,704	17,136	-	10,817	39,329	35,552	26,664	17,776	-	11,221	40,781	36,864	27,648	18,432	-	11,635
		W	3,325	2,924	2,193	1,462	-	707	3,071	2,701	2,026	1,350	-	653	2,905	2,554	1,916	1,277	-	618
47	8.3	Q(Btu/h)	36,356	32,864	24,648	16,432	-	10,373	37,772	34,144	25,608	17,072	-	10,777	39,188	35,424	26,568	17,712	-	11,181
		W	3,218	2,830	2,122	1,415	-	685	2,986	2,626	1,970	1,313	-	635	2,812	2,473	1,854	1,236	-	598
42	5.6	Q(Btu/h)	33,913	30,656	22,992	15,328	-	9,676	35,400	32,000	24,000	16,000	-	10,100	36,745	33,216	24,912	16,608	-	10,484
		W	3,015	2,651	1,988	1,326	-	641	2,820	2,480	1,860	1,240	-	600	2,628	2,311	1,734	1,156	-	559
35	1.7	Q(Btu/h)	26,090	23,584	17,688	11,792	-	7,444	27,931	25,248	18,936	12,624	-	7,969	29,913	27,040	20,280	13,520	-	8,535
		W	2,682	2,358	1,769	1,179	-	571	2,493	2,192	1,644	1,096	-	530	2,318	2,039	1,529	1,019	-	493
32	0.0	Q(Btu/h)	24,922	22,528	16,896	11,264	-	7,110	26,373	23,840	17,880	11,920	-	7,525	27,400	24,768	18,576	12,384	-	7,817
		W	2,541	2,234	1,676	1,117	-	541	2,341	2,058	1,544	1,029	-	498	2,186	1,922	1,442	961	-	465
27	-2.8	Q(Btu/h)	23,753	21,472	16,104	10,736	-	6,777	24,957	22,560	16,920	11,280	-	7,121	25,877	23,392	17,544	11,696	-	7,383
		W	2,335	2,053	1,540	1,027	-	497	2,132	1,875	1,406	937	-	454	1,994	1,753	1,315	877	-	424
22	-5.6	Q(Btu/h)	22,727	20,544	15,408	10,272	-	6,484	23,930	21,632	16,224	10,816	-	6,828	24,851	22,464	16,848	11,232	-	7,090
		W	2,166	1,905	1,428	952	-	461	2,008	1,766	1,324	883	-	427	1,841	1,619	1,215	810	-	392
17	-8.3	Q(Btu/h)	21,948	19,840	14,880	9,920	-	6,262	23,116	20,896	15,672	10,448	-	6,595	23,930	21,632	16,224	10,816	-	6,828
		W	2,036	1,791	1,343	895	-	433	1,901	1,672	1,254	836	-	404	1,729	1,520	1,140	760	-	368
12	-11.1	Q(Btu/h)	21,134	19,104	14,328	9,552	-	6,030	22,302	20,160	15,120	10,080	-	6,363	23,187	20,960	15,720	10,480	-	6,616
		W	1,901	1,672	1,254	836	-	404	1,799	1,582	1,187	791	-	383	1,655	1,456	1,092	728	-	352
5	-15.0	Q(Btu/h)	20,001	18,080	13,560	9,040	-	5,707	20,851	18,848	14,136	9,424	-	5,949	21,382	19,328	14,496	9,664	-	6,100
		W	1,731	1,523	1,142	761	-	368	1,661	1,461	1,096	730	-	353	1,534	1,349	1,012	675	-	326
2	-16.7	Q(Btu/h)	19,081	17,248	12,936	8,624	-	5,444	19,682	17,792	13,344	8,896	-	5,616	20,107	18,176	13,632	9,088	-	5,737
		W	1,661	1,461	1,096	730	-	353	1,602	1,409	1,056	704	-	341	1,486	1,307	980	653	-	316
-3	-19.4	Q(Btu/h)	17,240	15,584	11,688	7,792	-	4,919	17,806	16,096	12,072	8,048	-	5,080	18,089	16,352	12,264	8,176	-	5,161
		W	1,557	1,369	1,027	684	-	331	1,503	1,322	991	661	-	320	1,413	1,242	932	621	-	301
-8	-22.2	Q(Btu/h)	15,364	13,888	10,416	6,944	-	4,383	15,859	14,336	10,752	7,168	-	4,525	16,036	14,496	10,872	7,248	-	4,575
		W	1,455	1,280	960	640	-	310	1,404	1,235	926	618	-	299	1,340	1,178	884	589	-	285
-13	-25.0	Q(Btu/h)	13,487	12,192	9,144	6,096	-	3,848	13,912	12,576	9,432	6,288	-	3,969	13,948	12,608	9,456	6,304	-	3,979
		W	1,359	1,195	897	598	-	289	1,303	1,146	859	573	-	277	1,272	1,118	839	559	-	271

T6**POSITION OF THE CENTER OF GRAVITY**

Unit: inch (mm)

Model name	X	Y	Z
PUZ-AK12/18NL PUY-AK12/18NL	21 (535)	6 (152)	11-1/4 (286)
PUZ-AK24/30NL PUY-AK24/30NL	22-2/5 (569)	7 (176)	16-7/9 (426)

T7

OPTIONAL PARTS

Optional Parts List for Indoor [P-series]

Series Name		P series								
		Wall-mounted				Ceiling-suspended				
		PKA				PCA				
		12	18	24	30	36	24	30	36	42
High-efficiency Filter Element	PAC-SH59KF-E									
	PAC-SH89KF-E						•	•		
	PAC-SH90KF-E								•	•
Filter Box	PAC-KE92TB-E									
	PAC-KE93TB-E									
	PAC-KE94TB-E									
Decoration panel with 3D I-see sensor	PLP-41EAEU									
Air outlet shutter Plate	PAC-SJ37SP-E									
Multi-functional Casement	PAC-SJ41TM-E									
Flange for fresh-air Intake	PAC-SH65OF-E									
Space Panel	PAC-SJ65AS-E									
Drain Pump	PAC-SL48DM-E	•	•	•	•	•				
Wi-Fi adapter	PAC-WHS01WF-1	•	•	•	•	•	•	•	•	•
T-STAT Interface	PAC-US445CN-1	•	•	•	•	•	•	•	•	•
Wired remote controller	PAR-42MAAUB	•	•	•	•	•	•	•	•	•
Signal Receiver	PAR-SR4LA-E									
Simple remote controller	PAC-YT53CRAU(-J)	•	•	•	•	•	•	•	•	•
Wireless Remote Controller	PAR-FL32MA-E	•	•	•	•	•	•	•	•	•
	PAR-SL101A-E	•	•	•	•	•	•	•	•	•
Controller Kit (Sender & Receiver)	PAR-SL93B-E						•	•	•	•
Controller Kit with i-see Sensor	PAR-SA92MW-E						•	•	•	•
Remote Sensor (extensible)	PAC-SE41TS-E	•	•	•	•	•				
Connector Cable for Remote Display	PAC-SA88HA-EP									
	PAC-725AD-E									
Connector for CN32 (remote on/off)	PAC-SE55RA-E	•	•	•	•	•	•	•	•	•
Connector for CN24 (Back up heating)	PAC-SE56RA-E									
Connector for CN30 (LLC)	PAC-SA57RA-E									
Remote Operation Adapter	PAC-SF40RM-E *1									
i-see Sensor	PAC-SH91MK-E						•	•	•	•
External fan / Heater control relay adapter	CN24RELAY-KIT-CM3									

*1 Unable to use with wireless remote controller

*2 Unable to use with the electric heat time delay

Optional Parts List for Outdoor [P-series]

Series Name		Cooling Only							
		PUY							
		AK12NL	AK18NL	AK24NL	AK30NL	AK36NL	AK42NL	AK48NL	AK60NL
Air Outlet Guide	PAC-SJ07SG-E	•	•						
	PAC-SG59SG-E			•	•				
	PAC-SH96SG-E					•	•	•	•
Air Protection Guide	PAC-SJ06AG-E	•	•						
	PAC-SH63AG-E			•	•				
	PAC-SH95AG-E					•	•	•	•
Drain socket	PAC-SJ08DS-E	•	•						
	PAC-SG61DS-E			•	•	•	•	•	•
Centralized Drain Pan	PAC-SG63DP-E	•	•						
	PAC-SG64DP-E			•	•				
	PAC-SH97DP-E					•	•	•	•
M-NET Converter	PAC-SJ96MA-E	•	•						
	PAC-SJ95MA-E			•	•	•	•	•	•
Control/Service Tool	PAC-SK52ST	•	•	•	•	•	•	•	•

Optional Parts List for Indoor [P-series]

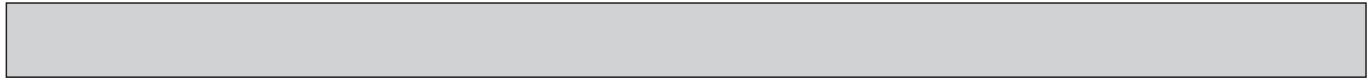
Series Name		P series																										
		4-way Cassette						Ceiling-concealed						Multi position						A-Coil								
		PLA						PEAD						PVA						PAA								
		12	18	24	30	36	42	48	9	12	18	24	30	36	12	18	24	30	36	42	18	24	30	36	42			
High-efficiency Filter Element	PAC-SH59KF-E	•	•	•	•	•	•																					
	PAC-SH89KF-E																											
	PAC-SH90KF-E																											
Filter Box	PAC-KE92TB-E							•	•					•	•													
	PAC-KE93TB-E									•	•			•	•													
	PAC-KE94TB-E											•		•	•													
Decoration panel with 3D I-see sensor	PLP-41EAEU	•	•	•	•	•	•																					
Air outlet shutter Plate	PAC-SJ37SP-E	•	•	•	•	•	•																					
Multi-functional Casement	PAC-SJ41TM-E	•	•	•	•	•	•																					
Flange for fresh-air Intake	PAC-SH65OF-E	•	•	•	•	•	•																					
Space Panel	PAC-SJ65AS-E	•	•	•	•	•	•																					
Drain Pump	PAC-SL48DM-E																											
Wi-Fi adapter	PAC-WHS01WF-1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
T-STAT Interface	PAC-US445CN-1	•	•	•	•	•	•	•	•	•	•	•	•	•	*2	*2	*2	*2	*2	*2								
Wired remote controller	PAR-42MAAUB	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Signal Receiver	PAR-SR4LA-E	•	•	•	•	•	•																					
Simple remote controller	PAC-YT53CRAU	•	•	•	•	•	•																					
Wireless Remote Controller	PAR-FL32MA-E	•	•	•	•	•	•	•						•	•	•	•	•	•	•								
	PAR-SL101A-E	•	•	•	•	•	•							•	•	•	•	•	•	•								
Controller Kit (Sender & Receiver)	PAR-SL93B-E																											
Controller Kit with i-see Sensor	PAR-SA92MW-E																											
Remote Sensor (extensible)	PAC-SE41TS-E	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Connector Cable for Remote Display	PAC-SA88HA-EP																											
	PAC-725AD-E																											
Connector for CN32 (remote on/off)	PAC-SE55RA-E	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Connector for CN 24 (Back up heating)	PAC-SE56RA-E																											
Connector for CN 30 (LLC)	PAC-SA57RA-E																											
Remote Operation Adapter	PAC-SF40RM-E *1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
i-see Sensor	PAC-SH91MK-E	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
External fan / Heater control relay adapter	CN24RELAY-KIT-CM3													•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

*1 Unable to use with wireless remote controller

*2 Unable to use with the electric heat time delay

Optional Parts List for Outdoor [P-series]

Series Name		Heat pump								Hyper heating																		
		PUZ								PUZ																		
		AK12NL	AK18NL	AK24NL	AK30NL	AK36NL	AK42NL	AK48NL	AK60NL	AK24NLHZ	AK30NLHZ	AK36NLHZ	AK42NLHZ	AK48NLHZ														
Air Outlet Guide	PAC-SJ07SG-E	•	•																									
	PAC-SG59SG-E			•	•																							
Air Protection Guide	PAC-SH96SG-E					•	•																					
	PAC-SJ06AG-E	•	•																									
	PAC-SH63AG-E					•	•																					
Drain socket	PAC-SH95AG-E							•	•																			
	PAC-SJ08DS-E	•	•																									
Centralized Drain Pan	PAC-SG61DS-E					•	•																					
	PAC-SG63DP-E	•	•																									
	PAC-SG64DP-E					•	•																					
M-NET Converter	PAC-SH97DP-E							•	•																			
	PAC-SJ96MA-E	•	•																									
Control/Service Tool	PAC-SJ95MA-E					•	•																					
	PAC-SK52ST	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Base heater	PAC-SK62BH-E					•	•																					
	PAC-SL11BH-E							•	•																			



Optional Parts List for Outdoor [S-series]

Series Name		Heat pump		Hyper heating				
		SUZ		SUZ				
		AK48NL	AK60NL	AK24NLHZ	AK30NLHZ	AK36NLHZ	AK42NLHZ	AK48NLHZ
Air Outlet Guide	PAC-SJ07SG-E							
	PAC-SG59SG-E							
	PAC-SH96SG-E	•	•	•	•	•	•	•
Air Protection Guide	PAC-SJ06AG-E							
	PAC-SH63AG-E							
	PAC-SH95AG-E	•	•	•	•	•	•	•
Drain socket	PAC-SJ08DS-E							
	PAC-SG61DS-E	•	•	•	•	•	•	•
Centralized Drain Pan	PAC-SG63DP-E							
	PAC-SG64DP-E							
	PAC-SH97DP-E	•	•	•	•	•	•	•
M-NET Converter	PAC-SJ96MA-E							
	PAC-SJ95MA-E	•	•	•	•	•	•	•
Control/Service Tool	PAC-SK52ST	•	•	•	•	•	•	•
Base heater	PAC-SK62BH-E							
	PAC-SL11BH-E	•	•					

Optional Parts

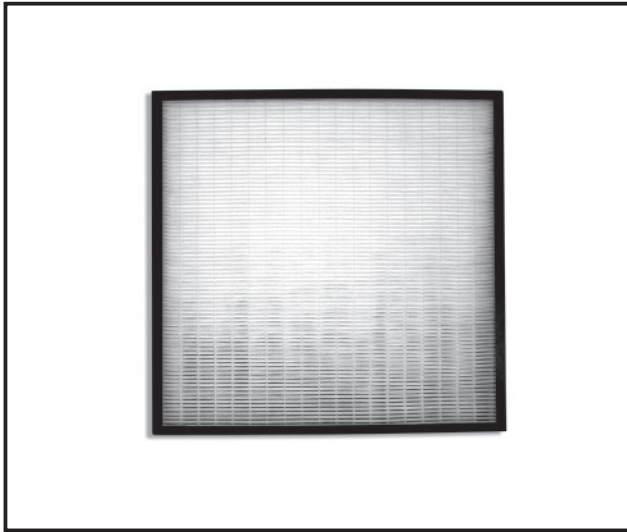
Optional parts for indoor units

1. PAC-SH59KF-E	229
2. PAC-SH89/90KF-E	231
3. PAC-KE92/93/94TB-E	232
4. PLP-41EAEU	236
5. PAC-SJ37SP-E	240
6. PAC-SJ41TM-E	242
7. PAC-SH65OF-E	247
8. PAC-SJ65AS-E	249
9. PAC-SL48DM-E	251
10. PAC-WHS01WF-1	255
11. PAC-US445CN-1	256
12. PAR-42MAAUB	264
13. PAR-SR4LA-E	290
14. PAC-YT53CRAU	293
15. PAR-FL32MA-E	315
16. PAR-SL101A-E	316
17. PAC-SH91MK-E/PAR-SA92MW-E/PAR-SL93B-E	325
18. PAC-SE41TS-E	332
19. PAC-SA88HA-E/PAC-725AD-E	334
20. PAC-SE55RA-E	336
21. PAC-SF40RM-E	338
22. CN24RELAY-KIT-CM3	342

Optional parts for outdoor units

1. PAC-SJ07SG-E	345
2. PAC-SG59SG-E	348
3. PAC-SH96SG-E	350
4. PAC-SJ06AG-E	352
5. PAC-SH63AG-E	354
6. PAC-SH95AG-E	357
7. PAC-SJ08DS-E	359
8. PAC-SG61DS-E	360
9. PAC-SG63DP-E	362
10. PAC-SG64DP-E	364
11. PAC-SH97DP-E	366
12. PAC-SJ96MA-E	368
13. PAC-SJ95MA-E	370
14. PAC-SK52ST	372
15. PAC-SK62BH-E	373
16. PAC-SL11BH-E	377

Photo



Descriptions

High-efficiency Filter is part that remove dust in air. PAC-SH53TM-E (Multi-function Casement) is required for installation.

Applicable Models

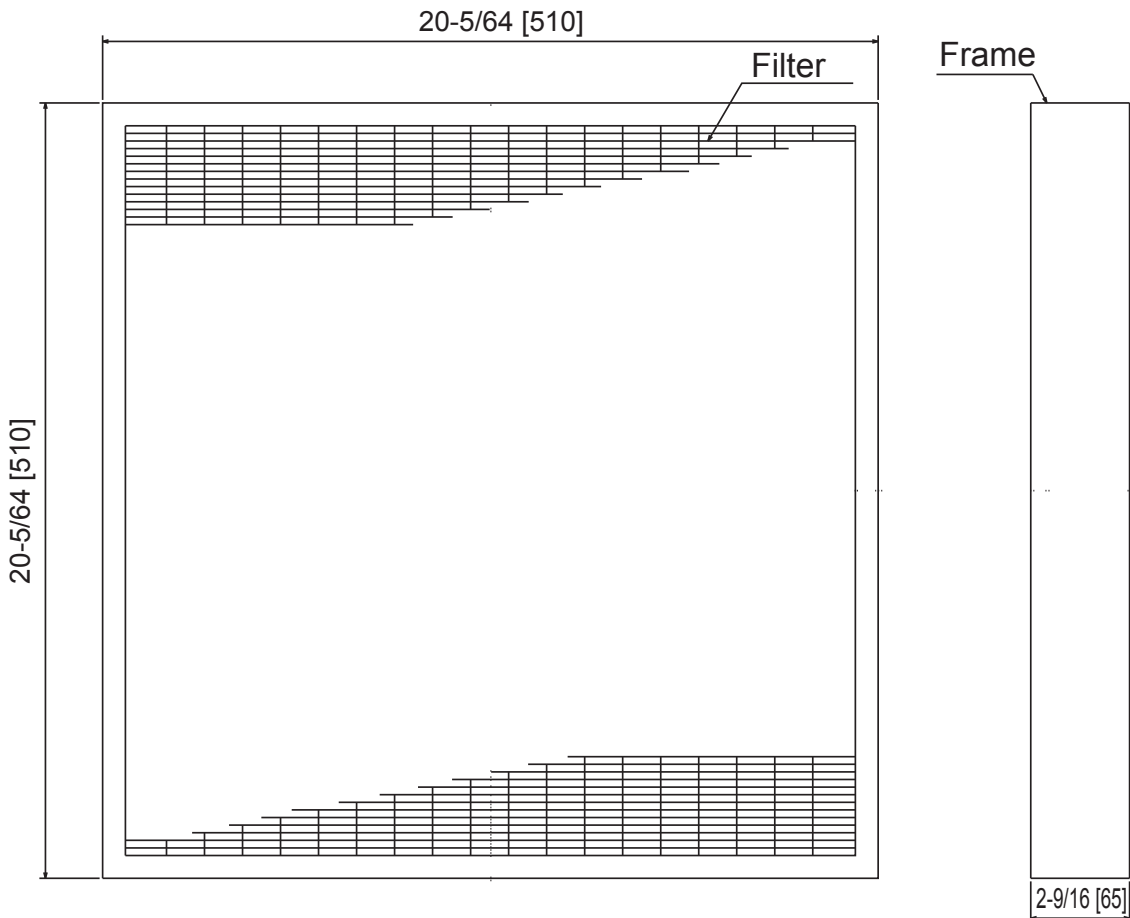
■ PLA-AE12/18/24/30/36/42/48NL

Specifications

Dust collection efficiency	Colorimetric method 65% (JIS 11 class)
Filter element material	Electrostatic polyolefin fiber
Life	Approx. 2,500 hours (at dust density 0.15 mg/m ³) *Reproduction not possible
Parts composition	This element x 1

Dimensions

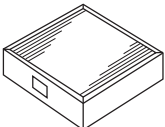
Unit: inch [mm]



How to Use / How to Install

1 Checking packed parts

(The unit is provided with this manual and following parts in the box.)

Part # Name	High-efficiency filter element
Q'ty	1
Shape	

NOTICE

In case that the High-efficiency filter element is installed, it should be installed on the Multi-functional casement which is option. Be sure to purchase the Multi-functional casement.

2 Installation of High-efficiency filter element (same procedure for replacement)

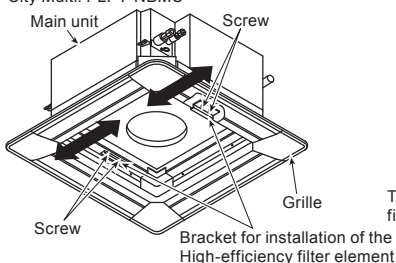
- Remove the intake grille of the grille in advance. (See the "installation instructions of grille" for details.)
- Loosen the 4 screws (B type)/8 screws (E type) of the 2 plates (B type)/4 plates (E type) for installation of the High-efficiency filter element of the Multi-functional casement as shown below. Then, slide them outward.
- Set the High-efficiency filter element in the Multi-functional casement, slide the plates inward, and then tighten the 4 screws (B type)/8 screws (E type) securely.

Note:

- When the main unit is used with "2 ways" air outlet, the High-efficiency filter element is not available.
- When the High-efficiency filter element is installed, the operation noise can be larger.
- When attaching the High-efficiency filter element, check the direction of air flow, referring to the stamp on the side.

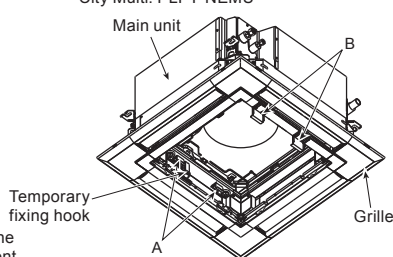
B type

Mr.Slim: PLA-BA
City Multi: PLFY-NBMU

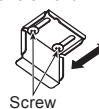


E type

Mr.Slim: PLA-EA
City Multi: PLFY-NEMU



Bracket for installation of the High-efficiency filter element "B"



Bracket for installation of the High-efficiency filter element "A"



3 Air flow volume setting when High-efficiency filter element is installed

Note:

- When the High-efficiency filter element is attached for the first time, the setting for increase in airflow rate must be performed.
- This setting is necessary only when the element is newly attached: No setting is required when the filter is replaced.

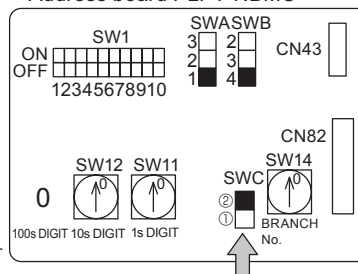


Set up for increasing air flow volume.

- If the set up is not done correctly, the air flow volume will decrease and it can lower the performance and cause dew drop.

- If the main unit to be combined is a slim air conditioner (combination with PLA):
 - Setting must be performed from the remote control: See the pages of "Function Selection" in the installation manual provided with the remote control. (Set optional assembly to "Yes".)
- If the main unit to be combined is a multi air conditioner (combination with PLFY):
 - For PLFY-NBMU: Set switch "SWC" on the address board in the main unit to the "option" side ("standard" at the factory).
 - For PLFY-NEMU: Set switch SW21-5 on the control board in the main unit to the "ON" side ("OFF" at the factory). For the location of switch SW21 on the control board, see the wiring diagram of the main unit.

<Address board PLFY-NBMU>



4 Replacement Period

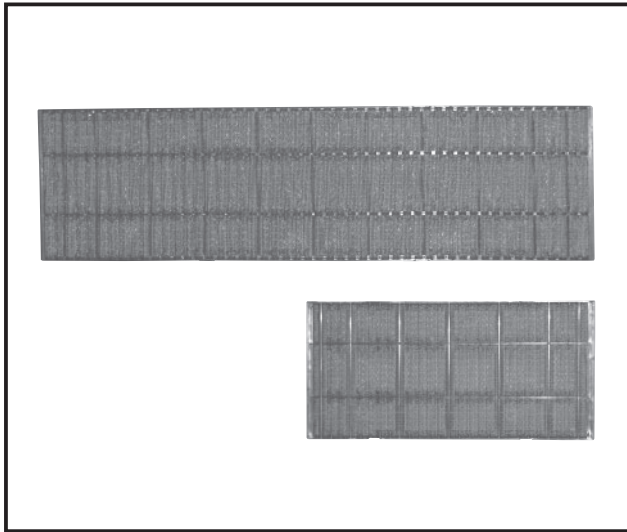
- The High-efficiency filter element is single-use (not recyclable).
- The reference for operation time is 2,500 hours (depending on the environment in which the air-conditioner is installed).



Do not wash with water.

- Washing with water will degrade the performance and could cause the element to become unusable.

Photo



Descriptions

- High-efficiency Filter is part that remove dust in air.
Dust collection efficiency: 70% (Weighing method)
- It is the best for the air-conditioning of the stove where a lot of going of the person in and out exists.

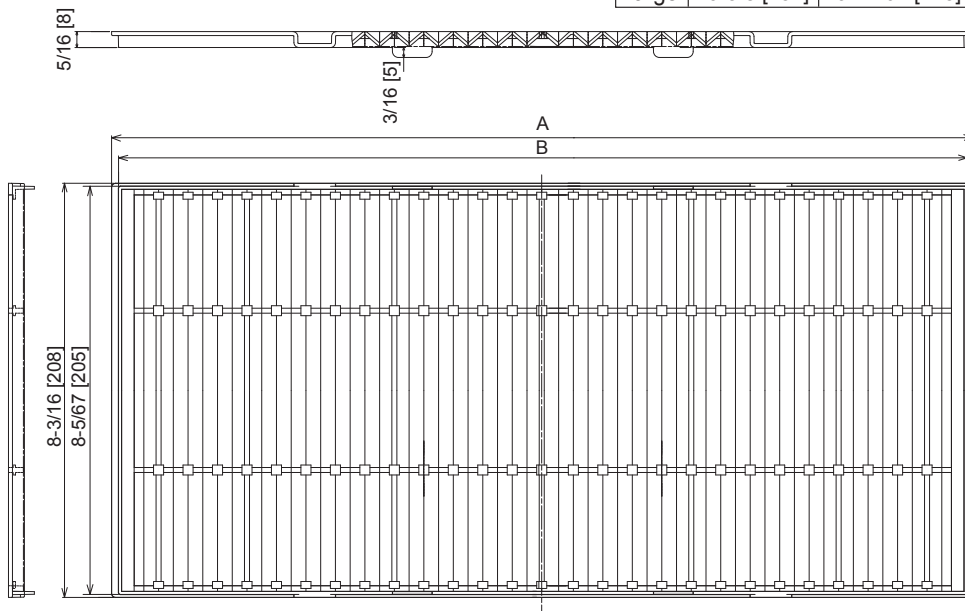
Applicable Models and Specifications

Model	PAC-SH89KF-E	PAC-SH90KF-E	
Dust collection efficiency	70% (weighing method)		
Filter material	PP fiber (antibacterial + mildew-proof), honeycomb weave (Identification: gray yarn woven)		
Maintenance	Approx. 2,500 hours (varies with operating conditions)		
Parts composition	Filter (large)	1	2
	Filter (small)	1	—
Applicable models	PCA-AK24/30NL	PCA-AK36/42NL	

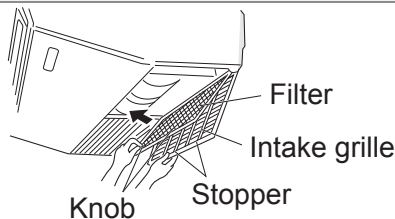
Dimensions

Unit: inch [mm]

	A	B
Small	17 [432]	16-47/64 [425]
Large	29-5/8 [752]	29-21/64 [745]



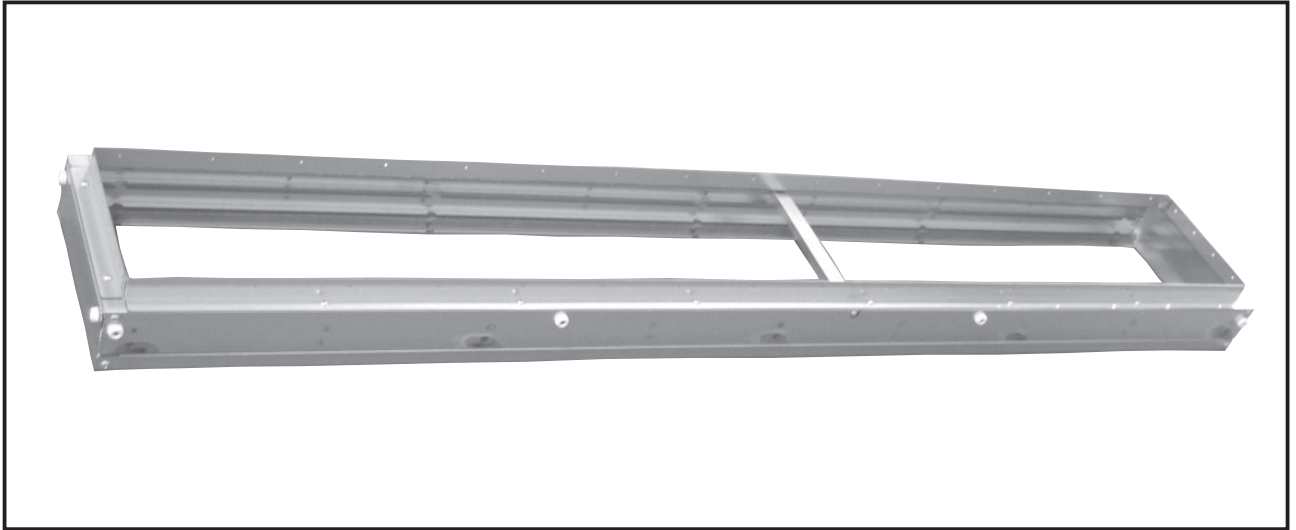
How to Use / How to Install



- 1 Open the intake grille.
- 2 Hold the knob on the filter then pull the filter up in the direction of an arrow. To replace the high efficiency filter, be sure to insert the filter far enough until it fits into the stopper.



Photo



Applicable Models

Model	PAC-KE92TB-E	PAC-KE93TB-E	PAC-KE94TB-E
Applicable models	PEAD-AA12NL PEAD-AA18NL	PEAD-AA24NL PEAD-AA30NL	PEAD-AA36NL PEAD-AA42NL

How to Use / How to Install

1 Confirming the Supplied Parts


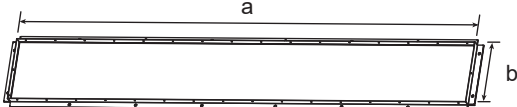
1. Model names and applicable models

Unit : inch [mm]

Model name	Applicable types	Applicable filter	
		Size	Q'ty
PAC-KE92TB-E	PEAD-AA12NL PEAD-AA18NL	35-7/16 × 9-1/2 [900×240]	1
PAC-KE93TB-E	PEAD-AA24NL PEAD-AA30NL	21-21/32 × 9-1/2 [550×240]	2
PAC-KE94TB-E	PEAD-AA36NL PEAD-AA42NL	27-9/16 × 9-1/2 [700×240]	2

2. Provided parts

Check that the packet includes the following parts in addition to this installation manual.

PARTS	SHAPE	Q'ty	Model name	
① SCREW(4 × 10)		24	PAC-KE92/93TB-E	
		30	PAC-KE94TB-E	
② SUCTION FLANGE		a × b	-	
		33-3/4 × 8-3/16 [857 × 208]	1	PAC-KE92TB-E
		41-39/64 × 8-3/16 [1057 × 208]	1	PAC-KE93TB-E
		53-27/64 × 8-3/16 [1357 × 208]	1	PAC-KE94TB-E

2 Attach the filter box

Attach the filter box before installing the indoor unit.

1. Remove the filter on the indoor unit. (Fig. 2-1)

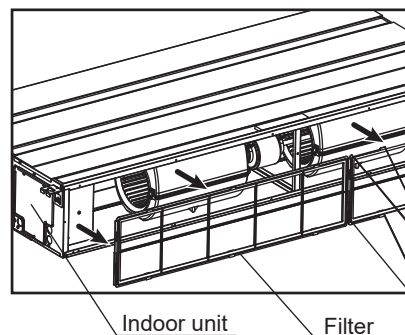


Fig.2-1

2. Install the filter box on the indoor unit with the supplied screws.
(Fig. 2-2)

PAC-KE92/93TB-E10 pcs.
PAC-KE94TB-E12 pcs.

Note) Failure to firmly tightened the screws will cause air leakage. Make sure the screws are firmly tightened.

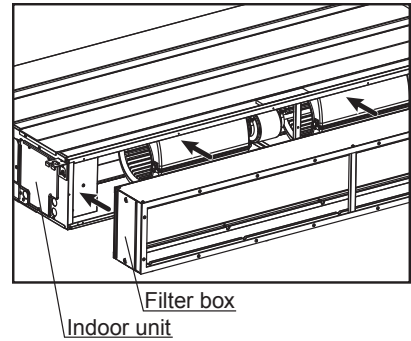


Fig.2-2

3. Install the supplied suction flange on the filter box with the supplied screws. (Fig. 2-3)

PAC-KE92/93TB-E12 pcs.
PAC-KE94TB-E16 pcs.

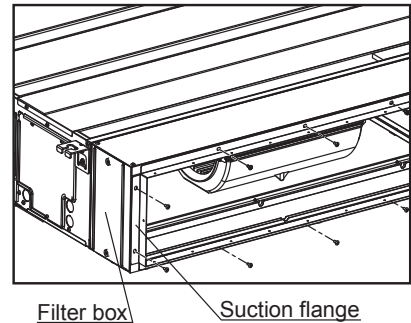


Fig.2-3

3 Installing the filter

1. Installation that allows for maintenance from the side

- (1) Remove the side panel from the filter box. (Fig. 3-1-1)
- (2) Insert the filter that was removed in step 2-1 above along the top and bottom rails. (Fig. 3-1-2)
When using the PAC-KE93 or 94TB model, join the two filters before inserting them. (Fig. 3-1-3)

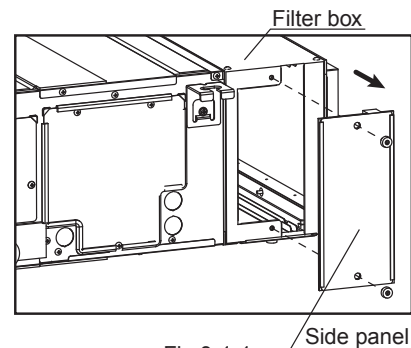


Fig.3-1-1

If the two filters are inserted without them being joined together, it will render the one in the back difficult to remove.

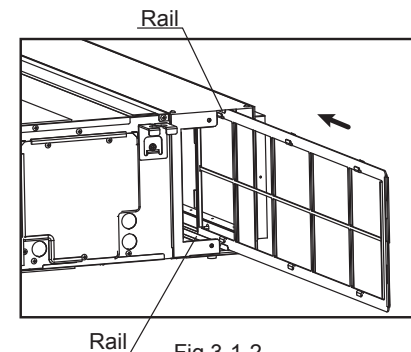


Fig.3-1-2

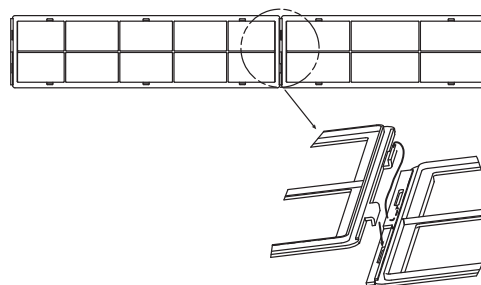


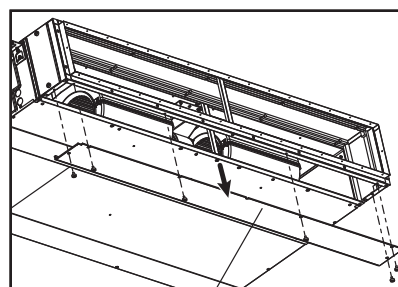
Fig.3-1-3

⚠ CAUTION

Never place your hand inside the filter box during maintenance. If the filter tabs become caught when the filter is removed for maintenance, use a long stick or similar item to remove the remaining filter.

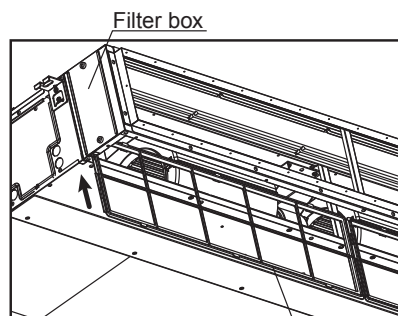
2. Installation that allows for maintenance from the bottom

- (1) Remove the under panel from the filter box. (Fig. 3-2-1)
- (2) Insert the filter that was removed in step 3-1 above through the bottom of the filter box. (Fig. 3-2-2)
- (3) Insert the filter between the insulators on the top plate of the filter box until the filter is completely inside the filter box, and place the filter on the under frame of the filter box. (Fig. 3-2-3)
- (4) Install the under panel.



Under panel

Fig.3-2-1



Filter box

Filter

Fig.3-2-2

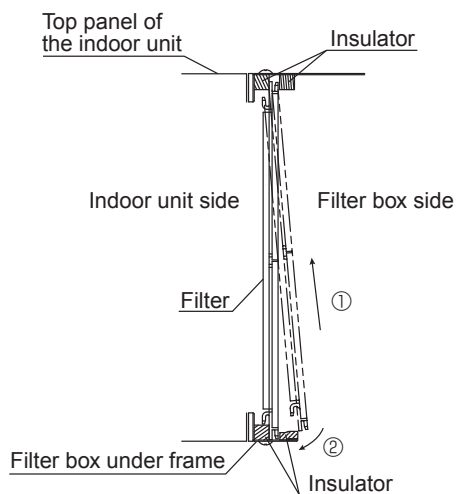


Fig.3-2-3

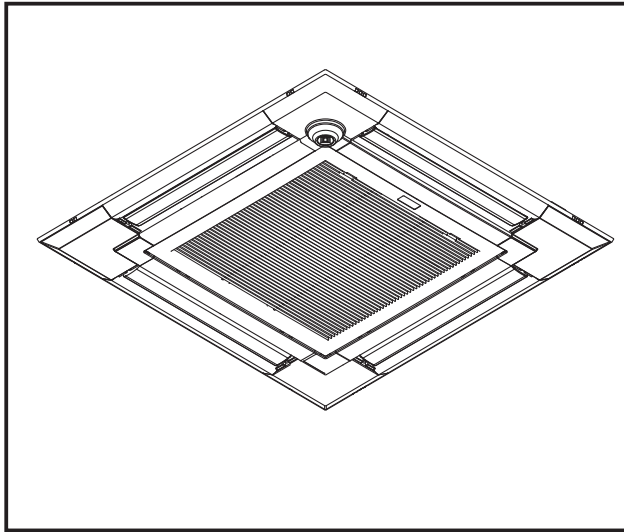
Final Check

The last step of the procedure is to make sure that nothing has been overlooked during the procedure. In addition, once the filter box has been mounted and the above procedure has been completed, carefully check for air leakage at the connections of the indoor unit.

For more detailed information, please consult your dealer.



Figure



Descriptions

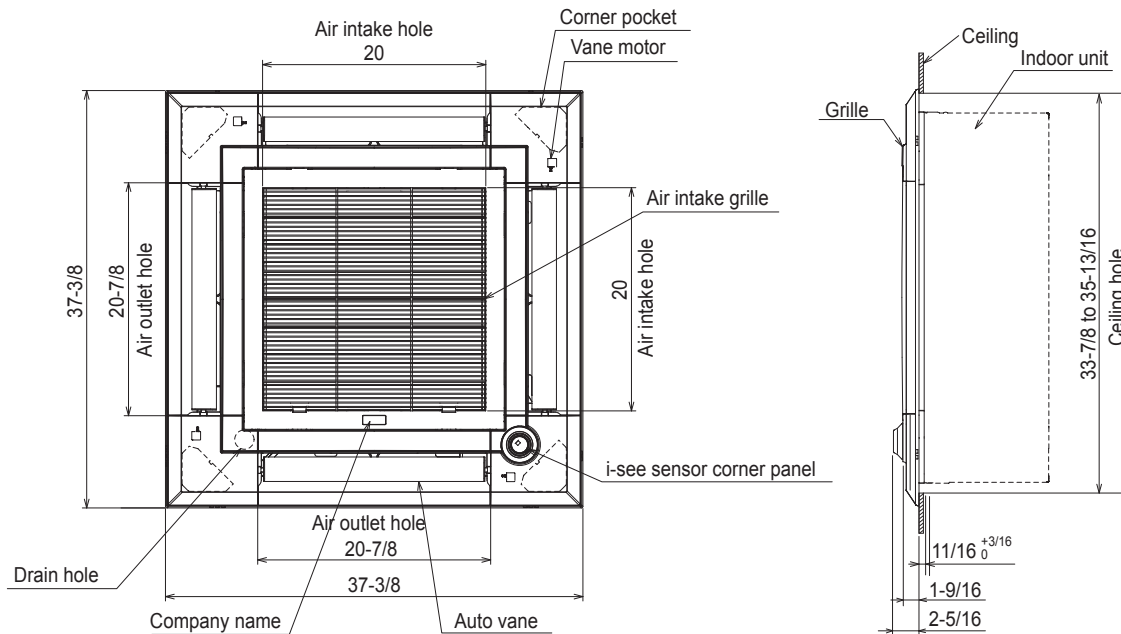
This panel is only for ceiling cassette type indoor units with i-see sensor.

Applicable Models

■ PLA-AE12/18/24/30/36/42/48NL

Dimensions

Unit : inch



How to Use / How to Install

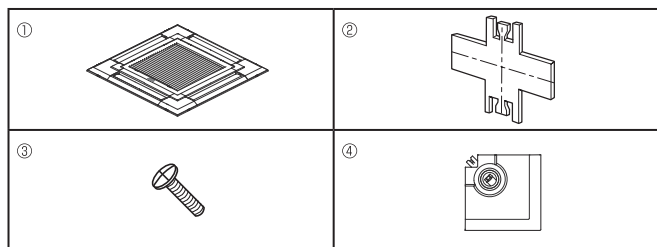


Fig. 1

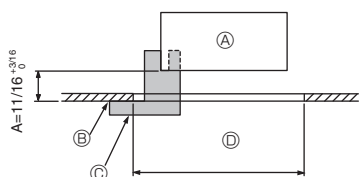


Fig. 2

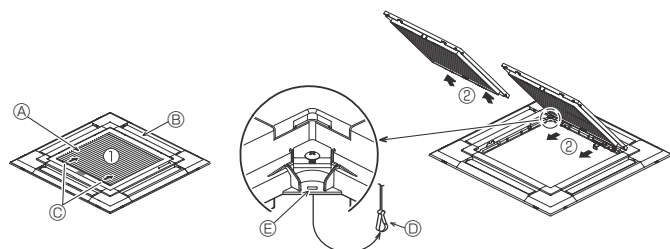


Fig. 3

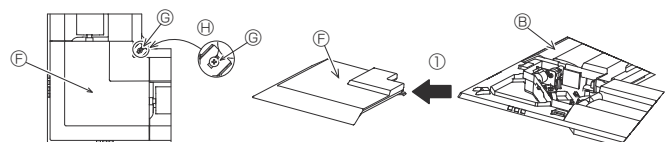


Fig. 4

	4-directional	3-directional
Blowout direction patterns	1 pattern: initial setting 	4 patterns: one air outlet fully closed
Blowout direction patterns	2-directional 	
Blowout direction patterns	6 patterns: 2 air outlet fully closed 	

Table 1

<Hook is in the raised position>

<Hook is in the lowered position>



Fig. 5

1. Checking the contents (Fig. 1)

- This kit contains this manual and the following parts.

	Accessory name	Q'ty	Remarks
①	Grille	1	950 × 950 (mm), 37-3/8 × 37-3/8 (inch)
②	Installation gauge	1	(Divided into 4 parts)
③	Screw (4 × 16)	1	
④	i-see Sensor corner panel	1	

2. Preparing to attach the grille (Fig. 2)

- With the gauge ② supplied with this kit, adjust and check the positioning of the main unit relative to the ceiling surface. If the main unit is not properly positioned relative to the ceiling surface, it may allow air leaks or cause condensation to collect.
- Make sure that the opening in the ceiling is within the following tolerances: 860 × 860-910 × 910 mm, 33-7/8 × 33-7/8 to 35-13/16 × 35-13/16 inch
- Make sure that A is performed within 17-22 mm, 11/16 to 7/8 inch. Damage could result by failing to adhere to this range.
 - Ⓐ Main unit
 - Ⓑ Ceiling surface
 - Ⓒ Installation gauge ② (inserted into the main unit)
 - Ⓓ Ceiling opening dimensions

2.1. Removing the intake grille (Fig. 3)

- Slide the levers in the direction indicated by the arrows ① to open the grille.
- Unlatch the hook that secures the grille.
 - * Do not unlatch the hook for the intake grille.
- With the intake grille in the "open" position, remove the hinge of the intake grille from the grille as indicated by the arrows ②.

2.2. Removing the corner panel (Fig. 4)

- Loose the 4 screws on the corner. Slide the corner panel in the direction of the arrow ① in the figure and remove the corner panel.

[Fig. 3] [Fig. 4]

- Ⓐ Intake grille
- Ⓑ Grille ①
- Ⓒ Intake grille levers
- Ⓓ Grille hook
- Ⓔ Hole for the grille's hook
- Ⓕ Corner panel
- Ⓖ Screw
- Ⓗ Detail

3. Selection of air outlets

For this grille the discharge direction is available in 11 patterns. Also, by setting the remote controller to the appropriate settings, you can adjust the air-flow and speed. Select the required settings from the Table 1 according to the location in which you want to install the unit. (More than two directions must be selected.)

- Decide on the discharge direction pattern.
- Be sure to set the remote controller to the appropriate settings according to the number of air outlets and the height of the ceiling on which the main unit will be installed.

Notes:

- When changing the number of directions, you need an air outlet shutter plate, which is optional part.
- Do not select 2 directions in a hot and humid environment. (Dew formation or dew drop may result.)

4. Installing the grille

4.1. Preparations (Fig. 5)

Make sure to flip 2 hooks on the grille up.

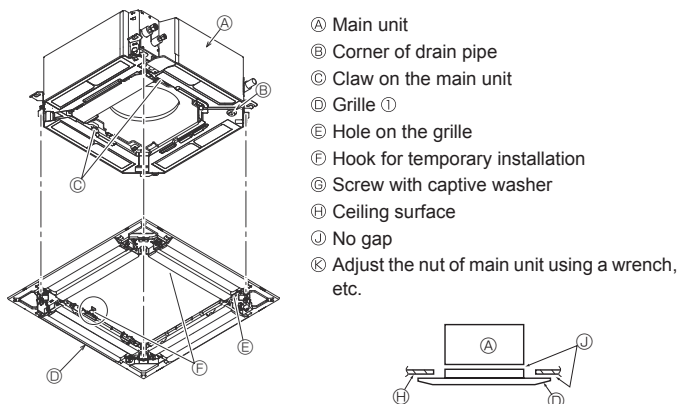


Fig. 6

< The grille temporarily installed >

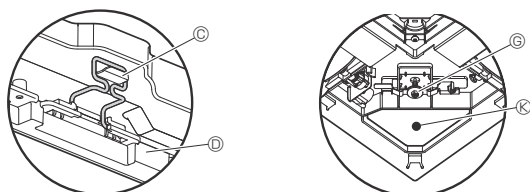


Fig. 7

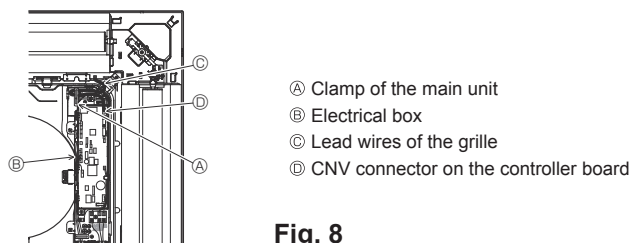


Fig. 8

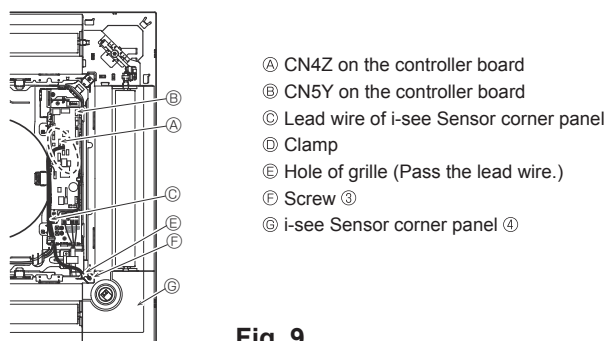


Fig. 9

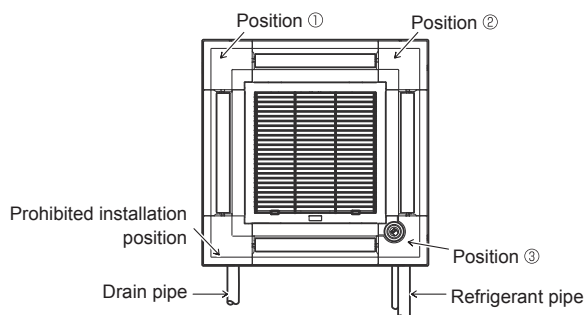


Fig. 10

4.2. Temporary installation of the grille (Fig. 6)

- Join the corner of drain pipe on the main unit with the corner with hole on the grille and put them together temporarily by hanging the hook of the grille to the claw of the main unit.

4.3. Fixing the grille

- By tightening the pre-installed screws, fix the grille onto the main unit. (Fig. 6)
Note:
Make sure there is no gap between the main unit and the grille or between the grille and the ceiling surface. (Fig. 7)

If there is a gap between the grille and the ceiling:
With the grille attached, slightly adjust the installation height of the main unit and clear the gap.

⚠ Caution:

- When tightening the screw, make sure that the tightening torque is 2.8 N·m to 3.6 N·m, 2.1 to 2.6 ft·lbs. Never use an impact screw driver.
- After tightening the screw, confirm that the two grille hooks (Fig. 6) are latched onto the hooks on the main unit.

4.4. Wire connection (Fig. 8)

- Loose the 2 screws fixing the electrical box cover on the main unit, and slide the cover to open.
- Route the lead wire from side of the electrical box.
- Make sure to connect a connector for vane motor (white, 20 poles) to CNV connector (white) on the controller board of the main unit.
- Lead wires that lead off the grille must be held together without slack using a clamp into the electrical box.

4.5. Installation of i-see Sensor corner panel (Fig. 9)

- Route the lead wire from the side of electrical box.
- Route the lead wire connector (white, 4 poles and white, 5 poles) of the i-see Sensor corner panel ④ from the side of the electrical box on the main unit and connect to the connector CN4Z and CN5Y on the controller board.
- The remaining lead wire of i-see Sensor corner panel must be held together without slack using the clamp into the electrical box.
- Put the cover back on the electrical box with 2 screws.
Note:
Make sure wires are not caught in the electrical box cover.
- The i-see Sensor corner panel should be fixed onto the grille ① with screw ③.
- * If the position of the i-see Sensor was changed from default position (Position ③) to the other position, change the function settings. (Refer to Fig. 10)
- The i-see Sensor corner panel can not installed on the drain pipe side for the main unit. (Refer to Fig. 10)

Position ①: (Air outlet identification marks □/□□□)
Position ②: (Air outlet identification marks □/□□)
Position ③: Default i-see Sensor position (Air outlet identification marks □□/□□)

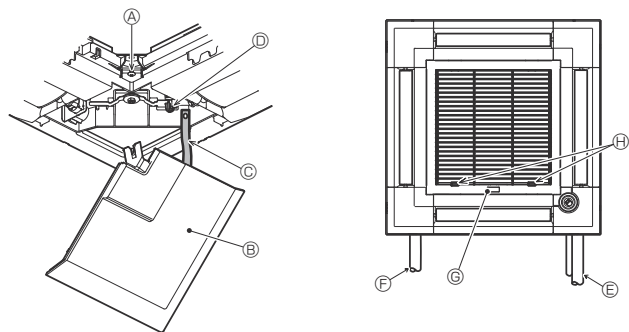


Fig. 11

5. Installing the intake grille (Fig. 11)

Note:

When reinstalling the corner panels (each with a safety strap attached), connect the other end of each safety strap to the grille as shown in the illustration.

* If the corner panels are not attached surely, they may fall off while the main unit is operating.

• Perform the procedure that is described in "2. Preparing to attach the grille" in reverse order to install the intake grille and the corner panel.

• The direction of the intake grille can be changed according to the wishes of the customer.

Ⓐ Screw (4 × 16)

Ⓑ Corner panel

Ⓒ Safety strap

Ⓓ Hook

Ⓔ Refrigerant pipe

Ⓕ Drain pipe

Ⓖ Company logo

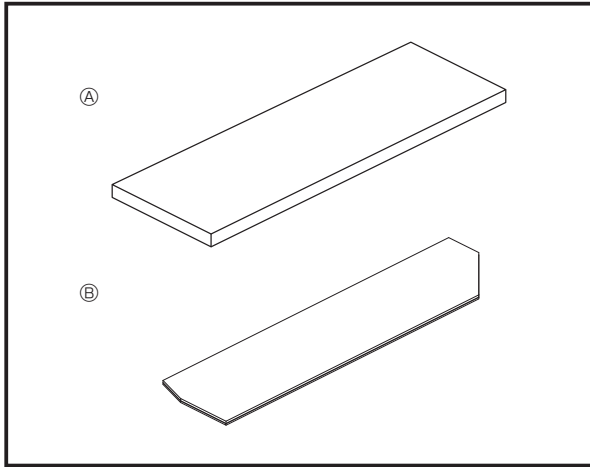
* Installation in any position is possible.

ⓓ Initial position of the levers on the intake grille

* Although the clips can be installed in any of 4 positions, the configuration shown here is recommended. (It is not necessary to remove the intake grille when maintenance is performed on the electrical box of the main unit.)



Figure



Descriptions

Part to block the air outlet of a cassette-type indoor unit.

Applicable Models

■ PLA-AE12/18/24/30/36/42/48NL

Specifications

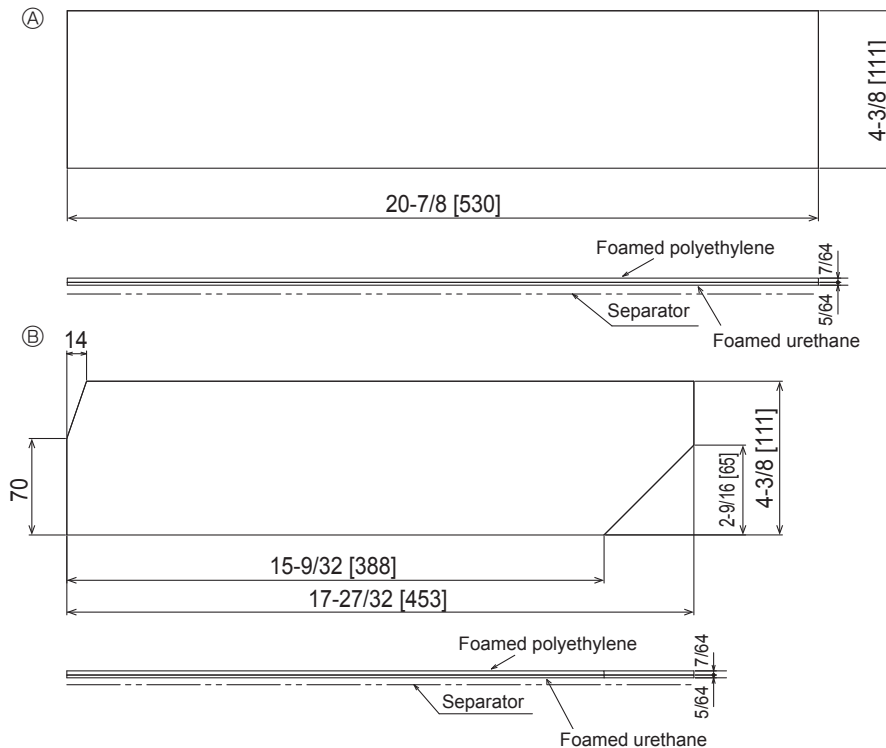
Air outlet pattern	Number of shutter plates	
	4 directions → 3 directions	1
4 directions → 2 directions	2	

(Change to 1 direction is not possible.)
 Note 1: Selecting "2 directions" requires cleaning of the filter approximately once.
 (Filter clogging may cause cooling/heating performance to drop.)
 Note 2: Selecting "3 directions" or "2 directions" may increase operating sound.
 Note 3: "2 directions" should not be selected when operating in high-temperature/high-humidity environment.
 (Dew formation or dewdrop may result.)
 Note 4: When set to "2 ways", the unit cannot be used with the optional high efficiency filter element.
 Note 5: When this air outlet shutter plate is installed, a draft reduction setting is not available.

Material	Foamed polyethylene + Foamed urethane
Color	Black
Installation method	Glued to the air outlet of the indoor unit.

Dimensions

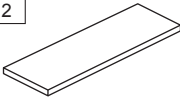
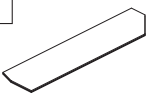
Unit : inch [mm]



How to Use / How to Install

Checking for provided parts

Make sure that the parts shown on the right are in this bag, along with the instruction sheet.

Part #, Name	① Shutter plate	② Shutter plate
Q'ty	2	1
Figure		

Air-outlet shutter plate Installation Manual

1. Locate the Shutter Plate installation position

- This is a part which is used to convert the number of air-outlet from "4 ways" to "3 ways" or "2 ways".

Note: Convert to "1 way" is not available.

- Select the outlet direction and decide the outlet to be closed.

Notes:

- When the number of outlet is selected to "2 ways", be sure to explain to the customer that the filter should be cleaned once a month. (Otherwise, the filter will be clogged, and the performance of the cooling and heating can be lower.)
- When the number of outlet is selected to "3 ways" or "2 ways", the operation noise can be larger.
- Never to select "2 ways" in the environment of high temperature and high humidity. (It can cause dew drops.)

2. Installation of shutter plate (Fig.1)

- Install the shutter plate to the indoor unit so that it can fit the air-outlet concave portion.

Notes:

- Install one piece of Shutter plate ① per one air-outlet.
- The installation should be done before the grille is installed.
- The shutter plate must be installed not to cause wrinkle or gap. (It can cause dew drops.)

- When attaching the shutter plate to the blow outlet (marked ★) between the refrigerant piping and the drain pump, attach the shutter plate ②.

3. Function setting

- When the number of air-outlet is changed, it is necessary to make function selection.

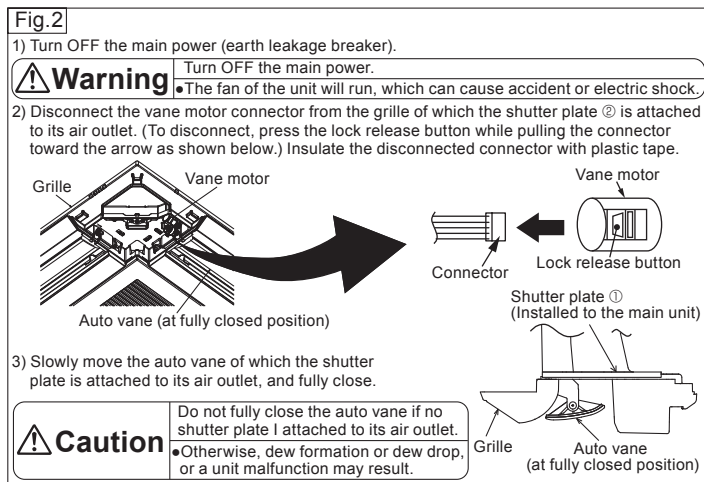
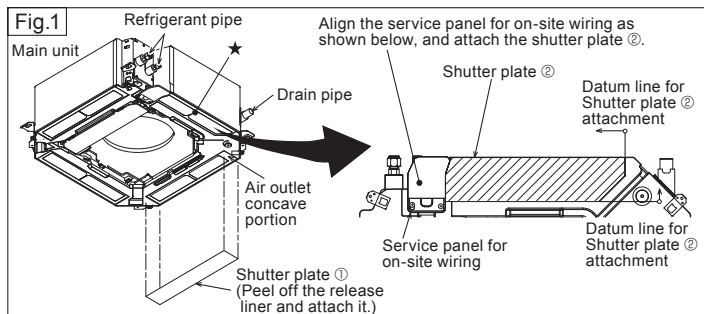
For the setting method, refer to the installation manual of the main unit.

4. Setting of the auto vane (Fig.2)

- It is possible to fix the auto vane of the grille to the fully closed position, which is applied to the air-outlet installed on the shutter plate.

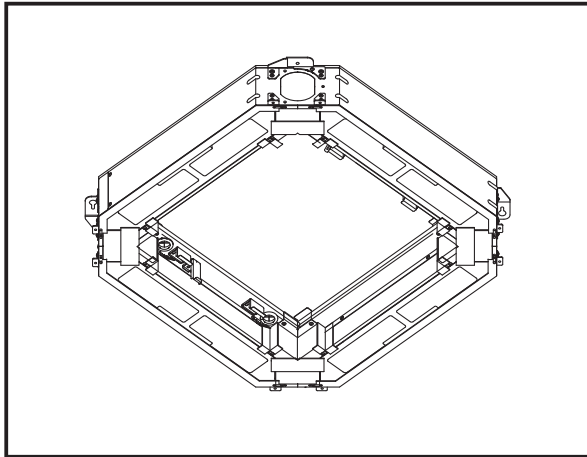
Once the auto vane is fixed, the operation of a remote controller and all of automatic control will not be available.

Note that the fixed vane angle differs from the one which is displayed on the remote controller.





Figure



Descriptions

Part to block the air outlet of a cassette-type indoor unit.

Applicable Models

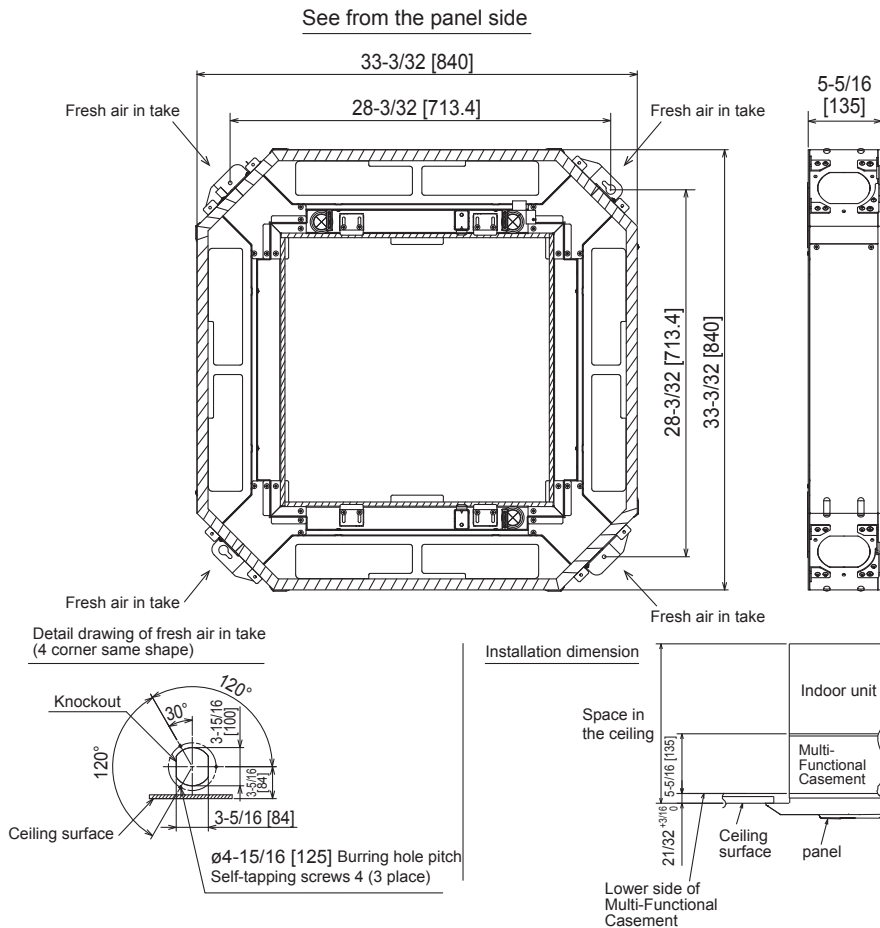
■ PLA-AE12/18/24/30/36/42/48NL

Specifications

Connected duct diameter (inch)	Ø3-15/16	
Fresh air intake	Number of intakes	Any 2 corners or less (among four corners)
	Input volume	20% or less of indoor units air volume
High-performance filter element (Optional parts)	Colorimetric method (65%)	

Dimensions

Unit: inch [mm]

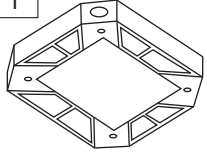


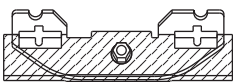


How to Use / How to Install

1 Parts check

(The unit is provided with this manual and following parts in the box.)

MULTI-FUNCTIONAL CASEMENT

Part No., Name	① Multi-functional casement	② Screw with washer (black)	③ Screw	④ Grille securing bracket
Q'ty	1	4 M5×0.8×25	8 M5×0.8×12	4 With insulator
Figure				

NOTICE

- (1) When taking in fresh air from outside, use the PAC-SH65OF-E duct flange (optional).
 In addition, procure following items at local site: duct fan, duct, and dust collecting filter.
 Intake-air volume should be 20% or less of indoor unit air volume.
 Note: It is available of fresh-air intake even when the High-efficiency filter element is installed.
- (2) Follow the procedure in this installation manual of the Multi-functional casement ①.
 Otherwise, it is possible that installation of refrigerant pipes, drain pipe, and electrical wiring will not be available.

2 Installation of Main unit

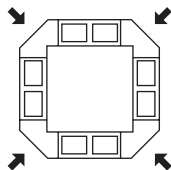
- Follow the procedure in the installation manual which is attached to the main unit.

3 Installation of Multi-functional casement

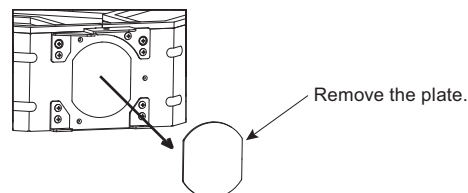
Preparation before installation

- An optional part Shutter plate to change the number of air outlet is to be installed on the main unit of the indoor unit; thus install the shutter plate before installing the Multi-functional casement ①.
- The Multi-functional casement ① has 4 knockout on each side so that the fresh air can be taken from any of four sides. Select any one or two sides in advance and make knockout holes on the Multi-functional casement ①.

— Knockout hole position for fresh-air intake. —



— Making knockout holes —



- Be sure to use the PAC-SH65OF-E (optional) for duct flange.

3 Installation of Multi-functional casement

Electrical work of main unit

- Be sure to do the wiring (indoor/outdoor unit connection cable, remote controller cable, etc.) before installing the Multi-functional casement ①:

Note: Wiring after installing the Multi-functional casement ① will be difficult.

Temporary installation

Note: Be sure to use two persons for this work.

- Fix the 2 screw with washer (black) ② to each position (drain pipe corner position and to its opposite corner).
- Align the direction of the Multi-functional casement ① according to the label for checking the installation position attached inside the Multi-functional casement ①.

Note: If installed in improper direction, parts damage, wind leakage, or dew drop may result.

- Hook the hole of the Multi-functional casement ① to the screw with washer (black) ② and hand tight.

Fixing

- Temporarily secure the 2 screws with washers ②, and also the other 2 screws with washers ②, and then tighten these screws with washers ② after making sure that the position of Multi-functional casement ① is correct.

Caution

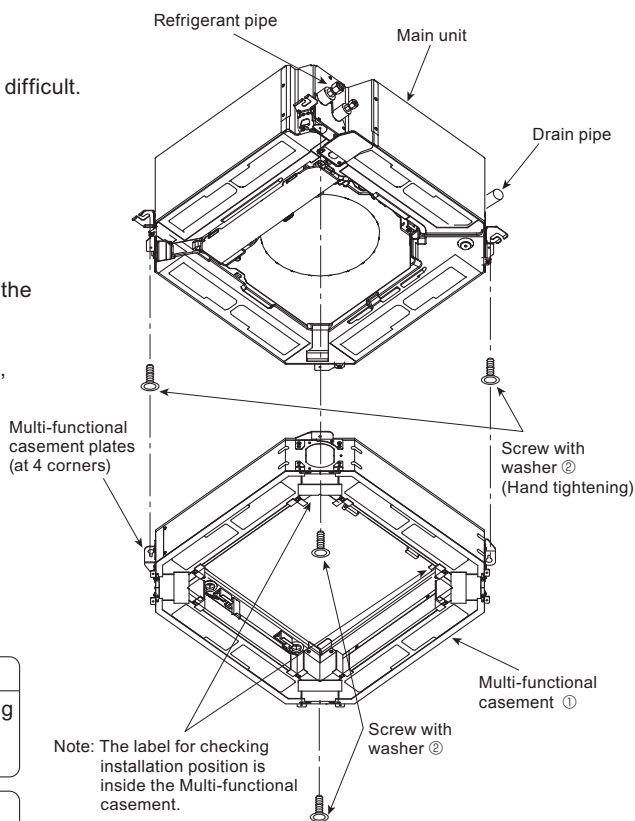
Temporarily secure the 4 screws with washers.

- Tightening the screws without temporarily securing them could damage the screws with washers, or cause air leakage.

Caution

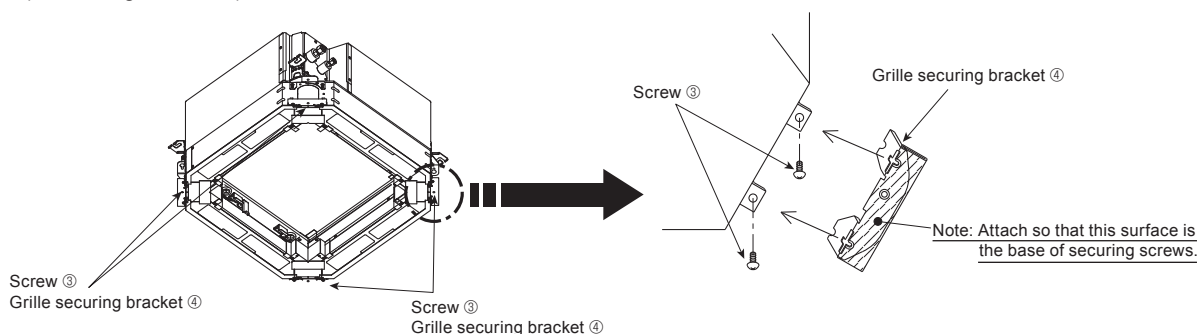
When tightening the screw with washer ②, tighten it at a torque of 2.8 to 3.6 N·m (2.1 to 2.6 ft·lbs) or less. Never use an impact screwdriver.

- It may result in parts damage.



Attaching bracket for securing grille

- Use 8 screws ③ to secure the 4 Grille securing brackets ④ to each corner of Multi-functional casement ①. (See the figure below.)

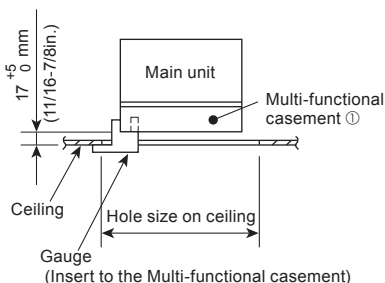


Height adjustment

Note: It is recommended to make this adjustment before installation of duct when fresh air intake.

- Readjust the height of the Multi-functional casement ① with the gauge which is attached to the grille as show right.

The gap must be in a range from 17mm(11/16in.) to 22mm(7/8in.). If out of range, it can cause malfunction.



4 Installation of duct (in case of fresh air intake)

Installation of duct flange

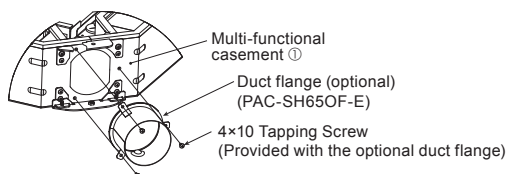
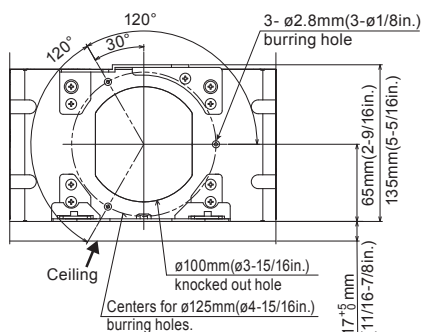
- Install the optional duct flange referring to the installation manual provided with it.



Linkage of duct fan and air conditioner.

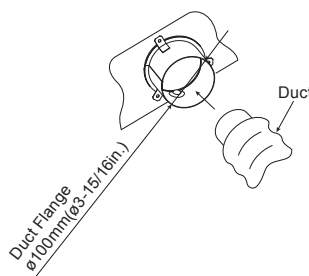
- In case that a duct fan is used, be sure to make it linked with the air conditioner when outside air is taken. Do not run the duct fan only. It can cause dew drop.

— Details of air inlet (Example) —



Installation of duct (should be prepared locally)

- Prepare a duct of which inner diameter fits into the outer diameter of the duct flange.
- In case that the environment above the ceiling is high temperature and high humidity, wrap the duct in a heat insulator to avoid causing dew drop on the wall.
- A duct must be procured at local site for dust collecting filter since the dust contained in the outside air taken into the indoor unit is not removed without such filter.

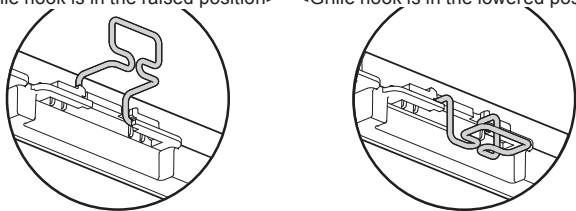


5 Installation of grille

Preparation for temporarily hanging the grille

- Check that the 2 temporary hanging hooks on the grille are in the raised position.

<Grille hook is in the raised position> <Grille hook is in the lowered position>



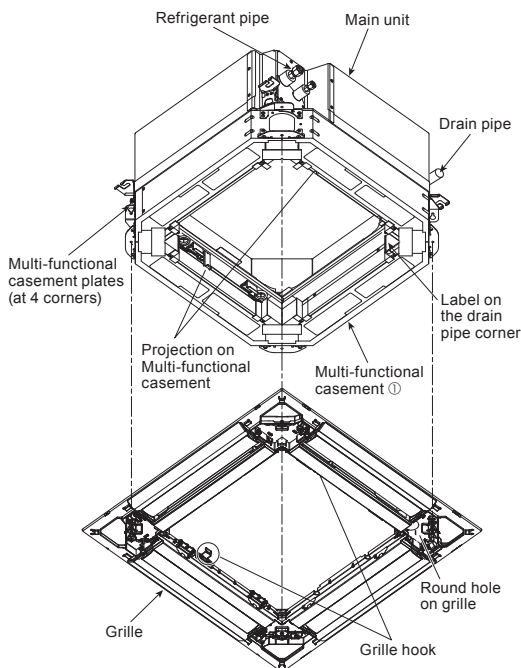
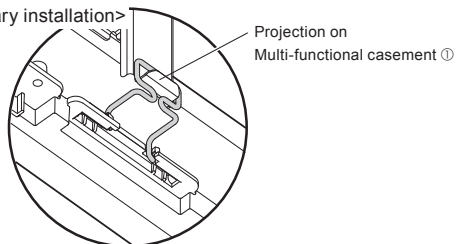
Temporary installation of the grille

- Align the label attached on the drain pipe corner of the Multi-functional casement to the corner with the round hole of the grille, and temporarily install the grille by latching the grille hooks onto the projections on the Multi-functional casement ①.

Notes:

1. Make sure electrical wires are not caught between the Multi-functional casement and the grille.
2. Never force pressure on the grille during the temporary installation. It may result in accident and damage.

<A grille in temporary installation>



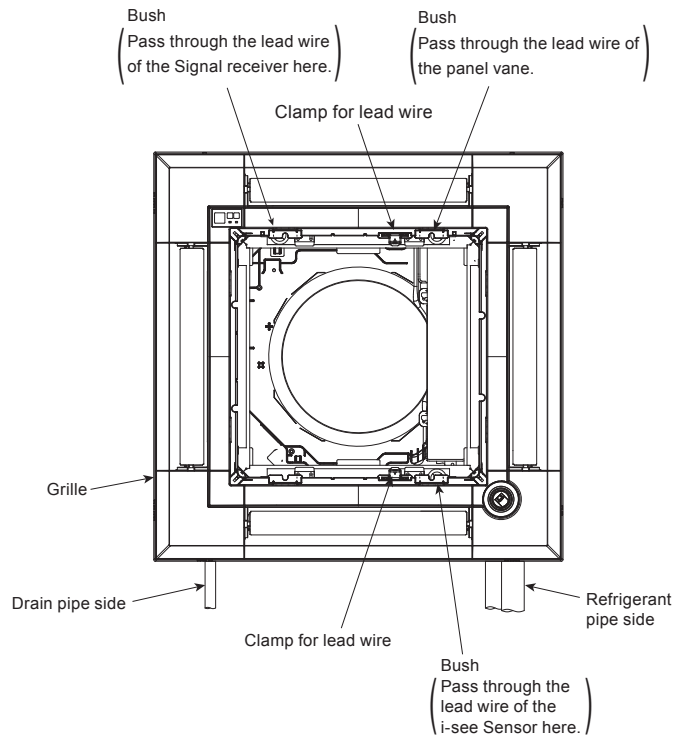
5 Installation of grille

Fixing the grille

- Refer to the installation manual of the main unit for the installation.

Electrical work

- For lead wires of the grille the Signal receiver, and the i-see Sensor make sure that they passed through the bush on the Multi-functional casement, as shown in the right figure, and connect to the main unit.



Photo



Descriptions

Part to attach a duct to take in fresh air from outdoors.

Applicable Models

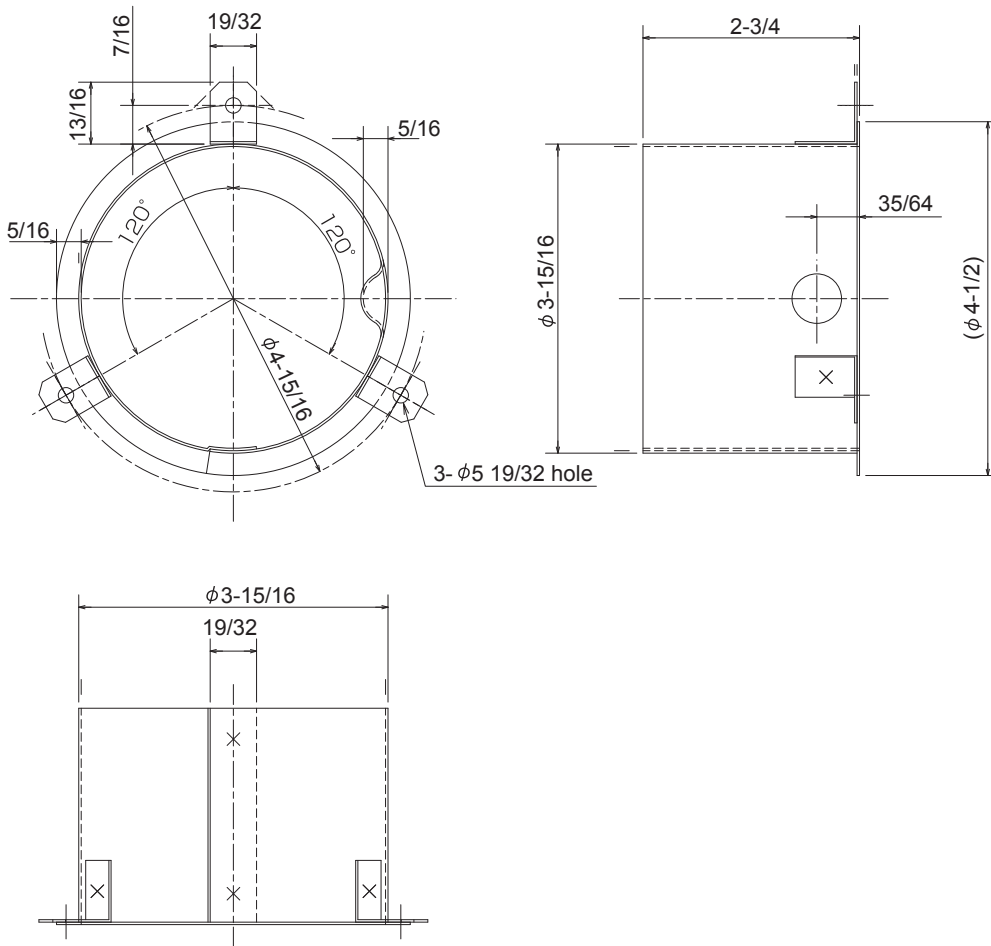
■ PLA-AE12/18/24/30/36/42/48NL

Specifications

Connection duct diameter (inch)	ø7-7/8
Material	Hot-dip zinc-coated carbon steel sheet (t0.8)
Accessory	Insulator, Fixing screw (ST4x10)x3

Dimensions

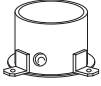
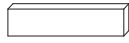

Unit : inch



How to Use / How to Install

1. Checking Parts

(This box contains the installation manual and the following parts)

Part	①Duct flange	②Insulator	③Screws(M4×10)
Qty	1	1	3
Shape			

2. Attaching Duct Flange for External Air Input

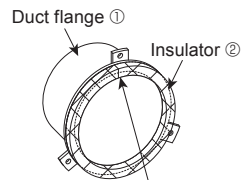
- Punch an opening for the duct flange.
 - <When attaching to main unit>
 - Cut the slit of the $\phi 100$ cut-out hole to which the duct flange is to be attached.
 - <When attaching to Multi-functional casement>
 - Remove the $\phi 100$ knockout hole to which the duct flange is to be attached.

2) Paste insulator ② on the duct flange ① (see the figure on the right).

3) Use 3 screws ③ to attach duct flange ① (see the figure below).

Note:

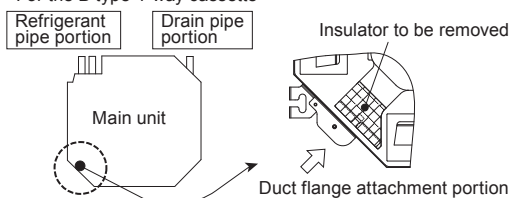
- When attaching to the main unit, **be sure to remove the insulator** that is pasted on the location of main unit (shown in the figure below).
- When attaching to Multi-functional casement, be sure to **set the concave portion of duct flange ① toward the grille attachment surface when attaching it.** (If the duct flange is attached to a location other than the specified one, the grille cannot be attached.)
- When external air is input directly through the main unit, intake-air volume should be 5% or less of indoor unit air volume.
- When external air is input through the Multi-functional casement, intake-air volume should be 20% or less of indoor unit air volume.
- To input the external air, the duct fan and dust collecting filter to prevent drawing in dust and other particles are necessary. For details, see "Fresh air intake volume & static pressure characteristics" in the P series DATA BOOK.
- When external air is input into the main unit, the operation noise can be larger.



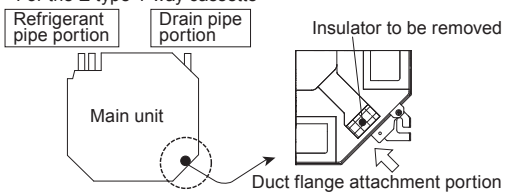
Paste insulator ② so that there is no gap at joints.

When attaching to main unit

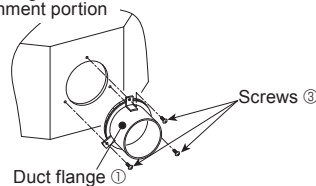
- For the B type 4-way cassette



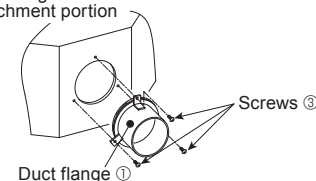
- For the E type 4-way cassette



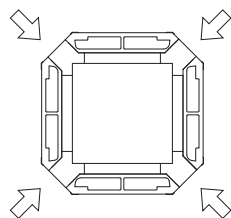
Duct flange attachment portion



Duct flange attachment portion

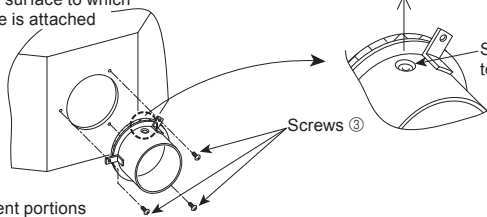


When attaching to Multi-functional casement



Arrow views (4 portions) Duct flange attachment portions

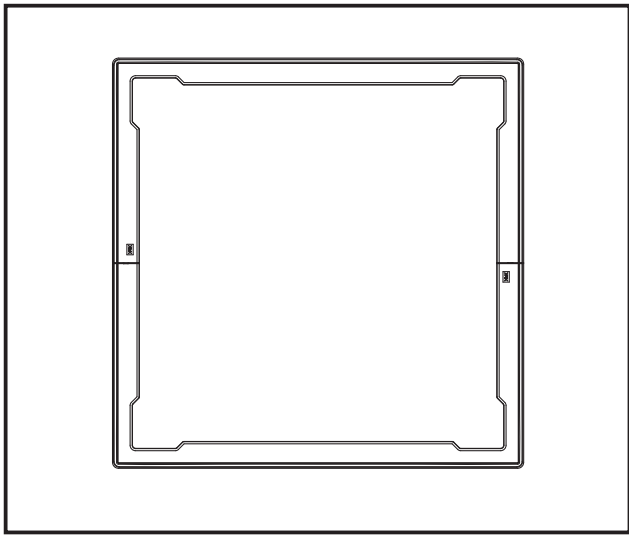
Grille surface to which flange is attached



Grille surface to which flange is attached

Set the concave portion (grille setscrew escape section) toward the grille surface to which flange is attached.

Figure



Descriptions

Enables to install cassette-type indoor units even if the ceiling height is low.
A part to the panel 40 mm lower than the ceiling surface.

Applicable Models

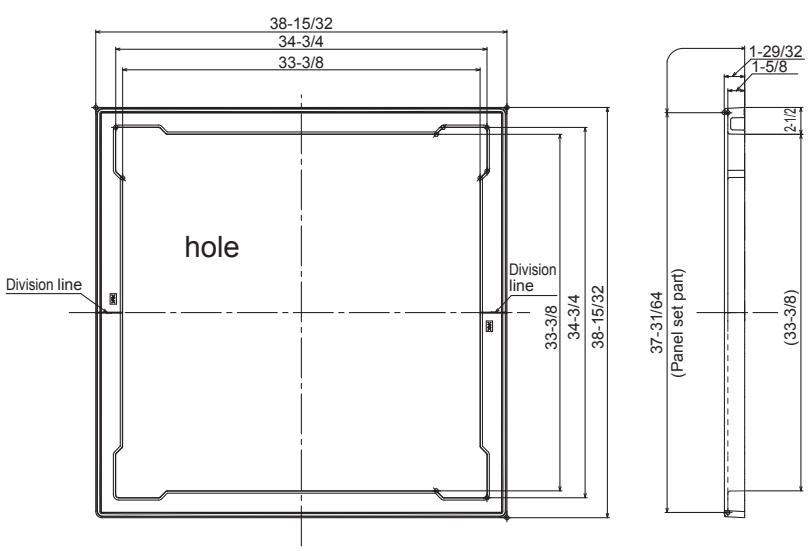
- PLA-AE12/18/24/30/36/42/48NL

Specifications

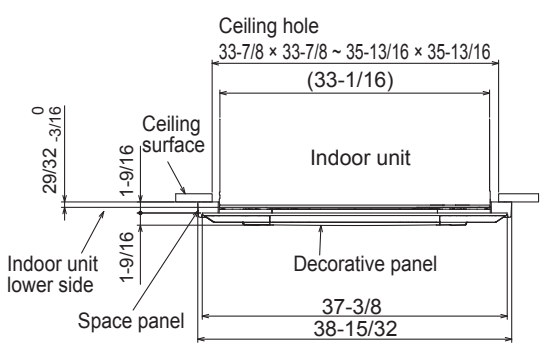
Exterior	Color (Mansell No.)	Pure White (6.4Y 8.9/0.4)
	Surface treatment	Coating
	Material	Styrofoam

Dimensions

Unit : inch



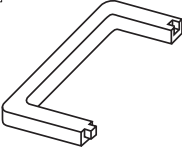
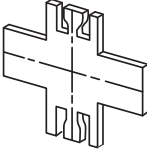
Installation dimension



How to Use / How to Install

1. Checking packed parts

Make sure that you have all the following parts, in addition to this manual in this box:

Part No. /Part name	① Space panel	② Gauge for installation
Quantity	2	1 (Split this into 4 pieces)
Shape		

2. Installing space panel

- Install before installing grille.
- This space panel is to be installed on grille before installing on main unit. (If grille has already been installed, remove it.)

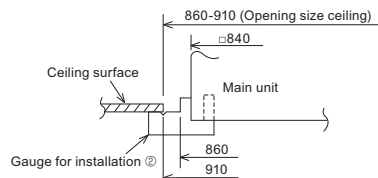
Preparation for installation

(1) Checking size of opening in ceiling

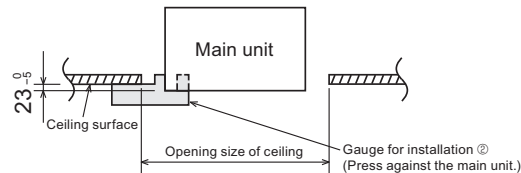
- Make sure that opening in ceiling is within the range shown below:
860×860-910×910

(2) Positioning of ceiling surface and main unit

- Divide the provided gauge for installation ② into four parts, and insert it into the unit or outlet of Multi-functional casement. Place the unit in the center of opening in ceiling, referring to the figure below.



- Using provided gauge for installation ②, position the ceiling surface and main unit. If position of ceiling surface and main unit does not match, it may result in leak of draft, drip of dewdrops and incorrect operation of horizontal vane of grille, etc.



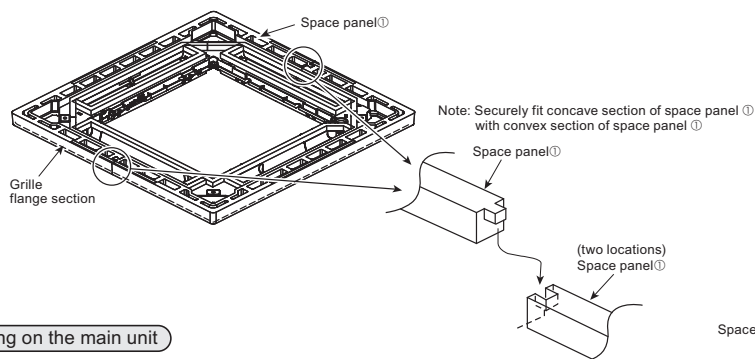
Setting the grille and space panel

- Place the space panel ① (two locations), matching the flange section of grille, and assemble space panel ① on the grille and then set them.

Note: Be sure to assemble space panel ① on the grille.

If assembled incorrectly, space panel ① may break.

Note: As an example, the illustration of the E type 4-way cassette is shown.



Installing on the main unit

- The procedures are the same as those for grille. Install the assembled set, referring to the installation manual for grille.

Photo



Descriptions

Raises drain generated during unit's operation to secure the appropriate angle of the drain pipe.

Applicable Models

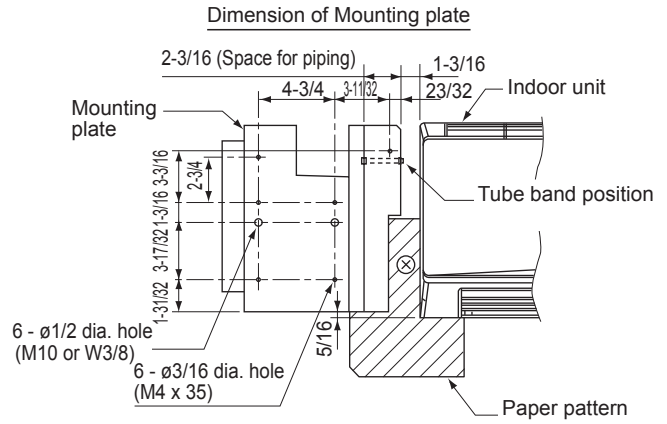
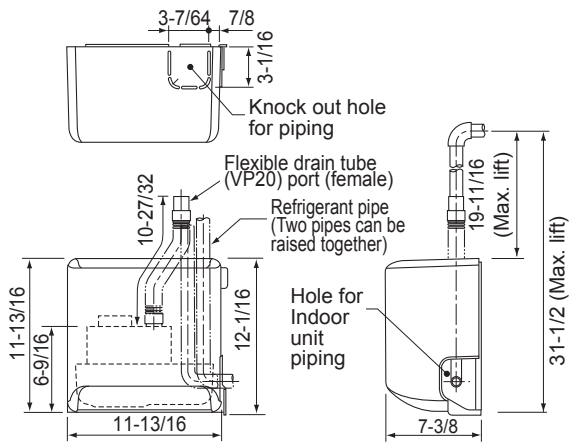
- PKA-AL12/18NL
- PKA-AK24/30/36NL

Specifications

Rated voltage	220-240V 50Hz / 60Hz
Power consumption	12 / 10.8W
Operating current	0.114 / 0.092A
Discharge lift	Max. 500 mm from drain pump's top surface
Discharge rate	24ℓ/h or more
External dimensions (inch)	11-13/16 (H) x 11-13/16 (W) x 7-3/8 (D)
Exterior	Cover : ABS resin (Munsell 6.4Y 8.9/0.4)
Driving motor	Single, shading type (Class E insulation)
Drain piping	Connected to drain outlet. PVC pipe VP-20 (O.D. 26) can be used

Dimensions

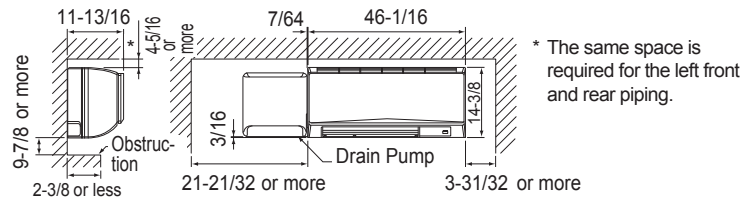
Unit : inch



Required space for installation of Drain Pump

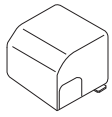


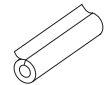


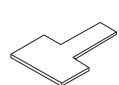
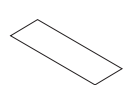
[Maintenance space]

* In case that there is a rim at the corner of ceiling, consider the dimension of the rim before installation.



Accessories

(Make sure of the following items attached with the Drain Pump before installation.)

(A) Drain Pump	(B) Screw	(C) Drain tube	(D) Drain tube cover	(E) Tube clip	(F) Pull tight	(G) Paper pattern	(H) Wiring plate
 x 1	 (M4 x 16) x 1 (M4 x 35) x 6	 x 1	 x 1	 x 1	 x 1	 x 2	 x 1

* The items (B) – (F) are packed between main body and cover of the Drain Pump. Take them out after the cover removed.

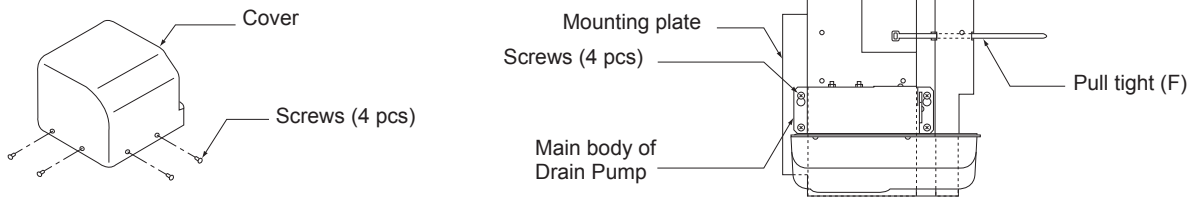
* The item (G) are one for PKA-AL and the other is for PLA-AK.

How to Use / How to Install

1. Before installation of the Drain Pump (* Position the indoor unit first.)

1-1 Set up of the Drain Pump

- Remove the cover and the mounting plate which is fixed on the back of the Drain Pump each.
 - * The packaging material which is put between the cover and the main body of Drain Pump is only for cushion for transportation. Take it out as it is unnecessary.
 - * Take out the accessories.
- Run the pull tight (F) attached through the square hole on the mounting plate.
- Cut the knock out hole on the cover with a nipper and etc.

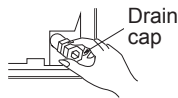


* The screws removed will be used later. Keep them not to lose.

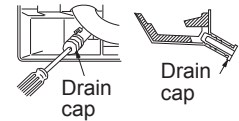
1-2 Set up and installation of the indoor unit (* See the item of piping connection set up in the installation manual of the indoor unit.)

(1) Make the knock out hole for left side piping on the left side panel of the indoor unit.

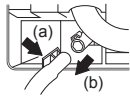
- (2) Pull out the drain cap from the left drain outlet.
- Hold the convex section at the end and pull the drain cap.



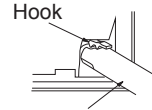
- (4) Insert the drain cap into the right drain outlet.
- Insert a screwdriver or similar tool into the hole at the end of the cap and insert the cap fully into the outlet.



- (3) Remove the drain hose from the indoor unit.
- Hold the end of the drain hose (a) (marked by the arrow) and pull the drain hose out (b).



- (5) Insert the accessory drain hose (C) into the left drain outlet.
- Insert the hose up to the base of the drain pipe connection opening.
 - * Make sure that the hook on the drain hose is securely caught on the projection in the opening in the drain pan.



(6) Install the indoor unit.



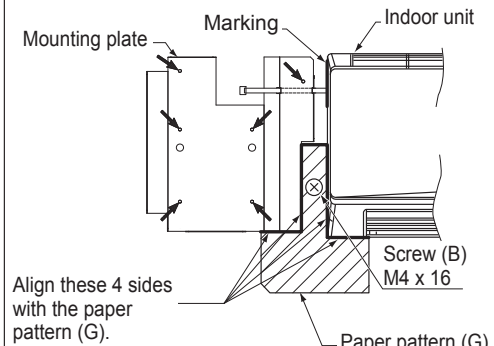
The indoor unit must be installed horizontally.

Otherwise, the water can leak and it will make the wall dirty.

2. Installation of the Drain Pump

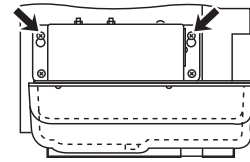
2-1 Fixing of the mounting plate

- The installation place should be carefully considered if it is proper for installation. If it is not strong enough to hold the unit, make it stronger by using board or beam before installation.
- Decide the installation position of the mounting plate by using the paper pattern (G) attached.
 - (* The left end of the indoor unit should be marked in advance.)
 - 1) Fix the paper pattern on the wall with the screw (B) (M4 × 16) attached with putting it to the left end of the indoor unit for positioning of the Drain Pump as shown in the drawing.
 - 2) Position the mounting plate with pushing it against the paper pattern.
 - Fix the mounting plate with the screws (B) (M4 × 35) attached. Fix the mounting plate using the 5 dia. holes. (6 locations pointed by arrows in the drawing.)
In case that the mounting plate is fixed by fixing bolts (through bolts, bolt anchors, or nut anchors), get M10 or W3/8 screws locally and put them into two ø 12 holes of the mounting plate to fix it.
 - When the mounting plates is installed, remove the paper pattern.
 - Check that the mounting plate is level and positioned correctly with the indoor unit. (Refer to Dimensions)



2-2 Installation of the Drain Pump

- Fix the Drain Pump on the mounting plate
- (1) Install the screws to the 2 upper holes (indicated by the arrows shown in right figure) of the mounting plate by hand tightening them about halfway, and then hook the Drain Pump on the screws.
- (2) Level the Drain Pump by using a spirit level. Then tighten the 4 screws securely to fix the Drain Pump.



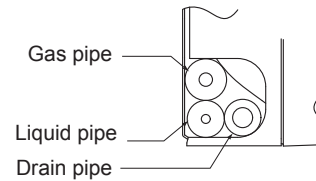
CAUTION

The Drain Pump must be leveled.

Otherwise, the water leaks and it makes wall dirty.

3. Installation of refrigerant piping (* See the item of refrigerant piping connection in the Installation of the indoor unit.)

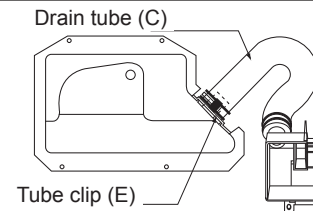
- (1) Install the refrigerant piping using the left piping method.
- (2) When the refrigerant piping and drain pipe are routed vertically together, route the piping through the space in the mounting plate.
 - Be sure that the indoor unit must be positioned at the place where was marked at 2-1.
 - The bending radius of the refrigerant pipe must be R80 or less.
 - The tube raised should be fixed with the pull tight which was put through the square hole of the mounting plate.
- (3) Position the refrigerant piping in the left piping space of the indoor unit as shown in right figure.



4. Installation of drain piping

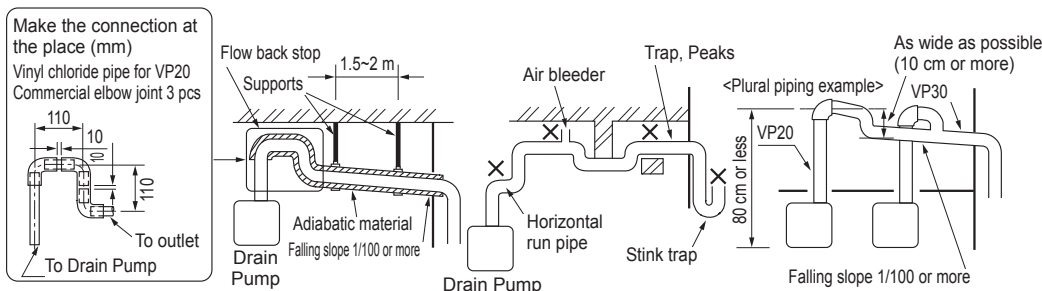
4-1 Connection of drain tube

- (1) Connect the drain tube (C) which is installed to the left side drain port of the indoor unit to the drain port of the Drain Pump.
- (2) Fix the connection port securely with the tube clip (E) attached.
- (3) Connect the flexible drain tube, which is run from the top panel of the Drain Pump, to the local drain piping. The part connected must be closed by vinyl chloride type glue.
- (4) Insulate the flexible drain tube which is run from top panel of Drain Pump with the drain tube cover (D) attached.



4-2 Installation of drain piping

- (1) The drain pipe should be installed in accordance with the following procedure.
 - The drain pipe should be installed so that the outdoor side (drain side) becomes falling slope (1/100 or more) and do not make trap or peaks.
 - The horizontal run of the drain pipe should be 20 m or less. In case that the tube is crosscut sawing for long distance, some support brackets should be installed to prevent the pipe from being wavy. Never install the air bleeder. The drain will blow out.
 - The hard vinyl chloride pipe VP20 (outer dia. 26 mm) should be used for the drain pipe. And the part connected must be closed by vinyl chloride type glue to prevent water leak.
 - Be sure to wrap the drain pipe with adiabatic material (foam polyethylene: specific gravity 0.03, thickness 9 mm or more) available on the market.
 - Do not install stink trap to the outlet of the drain pipe.
 - The outlet of the drain pipe should be installed the place where it is not possible to cause stink.
 - In case that plural drain pipes are installed, install the main pipe so that it comes approximately 10 cm lower than the drain outlet and the pipes must be made of material of VP30 or similar and they should be falling slope (1/100 or more).
 - It is possible to raise the outlet of the drain pipe to 80 cm (max. lift) from bottom face of Drain Pump. However, if there is a horizontal run pipe connected to the vertical section of the drain pipe, water will overflow from the drain pan. This is because too much water will flow back when the operation stops. Therefore, the drain pipe must be raised vertically. Also, install the flow back stop at the highest point to prevent the water from flow back from horizontal part of the pipe. See the drawing below.



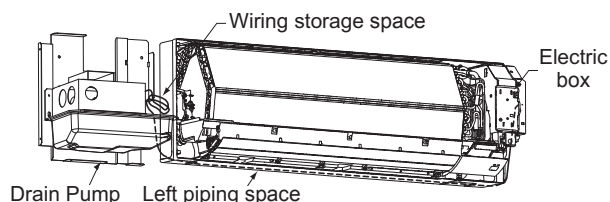
5. Electric wiring

5-1 Set up of the indoor unit (* Confirm that the power is off before starting the installation work.)

- (1) Remove the panel of indoor unit and the electric box cover. (* See the indoor unit installation section in the installation manual of the indoor unit.)

5-2 Electric wiring

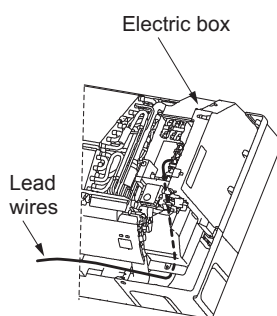
- Route the wiring through the left piping space of the indoor unit to the electric box as shown in right figure.
- Connect the lead wires to the connectors of the indoor unit control board, and then place the slack in the wires in the wiring storage space of the Drain Pump. (Fix the lead wires with the clamps.)



5-3 Electric wiring operation

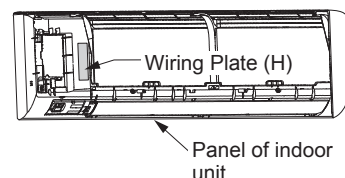
- Pull out the electric box as far as necessary to connect the lead wires to the control board connectors "CNP" and "CN4F".
- Connect the lead wires with connectors to the control board connectors "CNP" and "CN4F". At this time, remove the bypass connector (will be unused) from the terminal CN4F of the control board.
- Be sure not to have the lead wires touch the heat generator (heat sink) on the control board.

Electric wiring operation

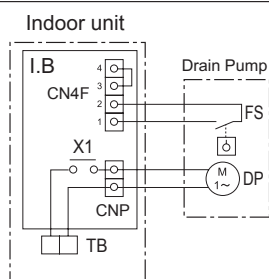


Wiring plate

- Affix the wiring plate (H) to the rear of the panel.



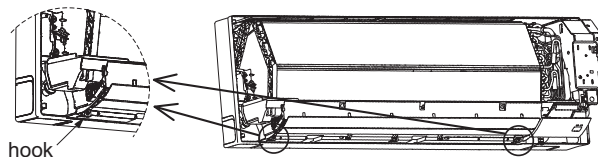
Electric circuit diagram



Symbol	Name
TB	Terminal block (indoor/outdoor connecting line)
I.B	Indoor control board
CNP	Connector (Drain Pump)
CN4F	Connector (Float switch)
DP	Drain Pump
FS	Float switch
X1	Relay (Drain Pump)

Note: □ stands for terminal connection.
 □□ stands for connector joint.

- After completing the electric wiring operation, make sure that the hooks are securely caught on the unit, and then put the electric box cover and panel back in place.



6. Test run

- After the installation of the Drain Pump has been completed, make sure that the drain works correctly and the water does not leak from any part of connection.

(1) Pour water

Pour water approximately 800 cc to the drain pan. (* See the drain pipe [checking the drain flow] section in the installation manual of the indoor unit.)

(* If the water is poured too much, it is possible that the drainage does not work due to alarm stop by activation of drain over flow protection device.)

(2) Test run

In accordance with the procedure for test run in the installation manual for the indoor unit, operate the air cooling and make sure that the drainage works and the water does not leak.

* When the Drain Pump is installed in winter season, the water must be drained.

To drain water, remove the drain plug under the Drain Pump. Prepare the pan to receive drain.

When the drainage has been completed, put the drain plug back in place.

(3) After checking, put the cover back in place.

* Make sure that the left end of the indoor unit perfectly comes on the point marked at 2-1. (If they do not match, the cover will not be able to be installed or there will be a gap between the cover and the indoor unit.)

Photo



Descriptions

Allows for a Mitsubishi Electric indoor unit to communicate with to the kumo cloud™ app and web.

Applicable Models

- MSZ-FH06/09/12/15NA
- MSZ-FH18NA2
- MSZ-EF09/12/15/18NAW(B)(S)
- MSZ-GL06/09/12/15/18/24NA
- MSZ-D30/36NA
- MSY-GL09/12/15/18/24NA
- MSY-D30/36NA
- MFZ-KJ09/12/15/18NA
- SLZ-KA09/12/15NA
- SEZ-KD09/12/15/18NA4
- MVZ-A09/12/15/18/24AA4
- PKA-A12/18HA7
- PKA-A24/30/36KA7
- PCA-A24/30/36/42KA7
- PLA-A12/18/24/30/36/42EA7
- PEAD-A12/18/24/30/36/42AA7
- PVA-A12/18/24/30/36/42AA7

Specifications

Input Voltage	DC12.7V (from indoor unit)
Power consumption	MAX 2W
Size W×H×D (mm,inch)	17.526×46.228×74.168, 0.69×1.82×2.92
RF channel	1ch ~ 11ch
Usgae environment	Temperature 32 ~ 104°F (0 ~ 40°F)

About Wireless Interface

This Wireless Interface will communicate status information and control the connected air conditioner.

- Some room air conditioners are not compatible with the Wireless Interface.

Make sure that the room air conditioner is compatible with the Wireless Interface before attempting to install the Wireless Interface.

Connecting the Wireless Interface

Note: Installation should be conducted by a professional installer.

- Turn off and verify the power has been disconnected to the complete air-conditioning system
- Dismantle the indoor unit in accordance with the service manual and locate CN105 on the main control PCB
- Connect the cable on the PAC-USWHS002-WF-1 to the CN105 connector on the indoor unit
- PAC-USWHS002-WF-1 may be attached on or in close vicinity to the indoor unit. Attach one strip to the PAC-USWHS002-WF-1 and the other to the installation site. Align the strips and press to securely attach the PAC-USWHS002-WF-1 to the installation site.
- Start up: Refer to the PAC-USWHS002-WF-1 Install guide located at <https://meus.mylinkdrive.com/item/PAC-USWHS002-WF-1.html>.

Photo



Descriptions

Allows a HVAC Thermostat or I/O Controller to control a MitsubishiElectric Cooling & Heating CITY MULTI® or M-Series or P-Series indoor unit.

Applicable Models

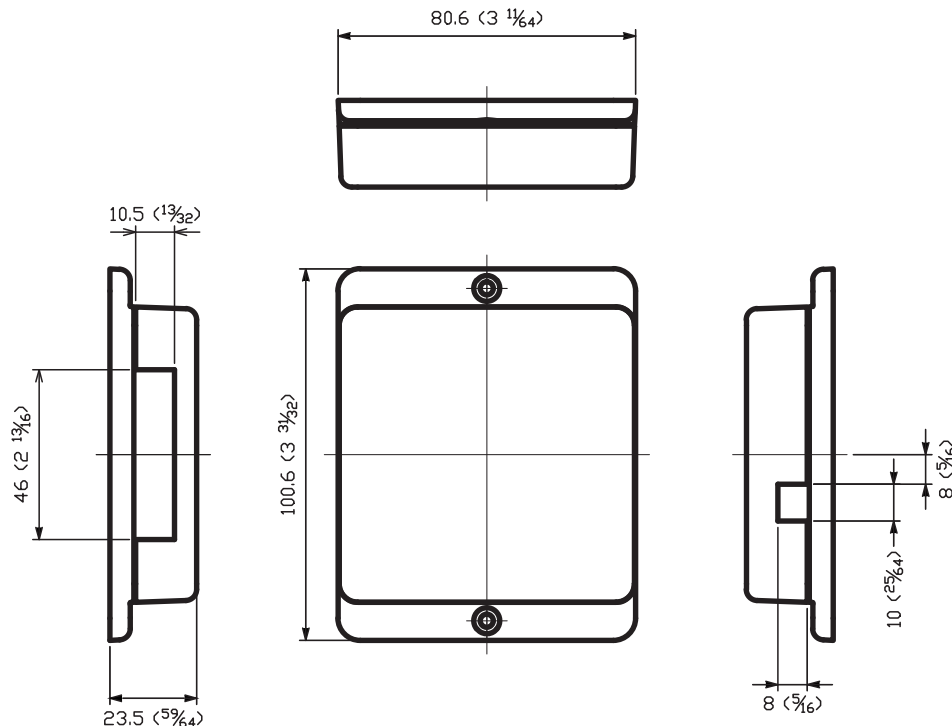
- MSZ-FH06/09/12/15NA
- MSZ-FH18NA2
- MSZ-EF09/12/15/18NAW(B)(S)
- MSZ-GL06/09/12/15/18/24NA
- MSZ-HM09/12/15/18/24NA
- MSZ-D30/36NA
- MSY-GL09/12/15/18/24NA
- MSY-D30/36NA
- MFZ-KJ09/12/15/18NA
- SLZ-KA09/12/15NA
- SEZ-KD09/12/15/18NA4
- MVZ-A12/18/24/30/36AA4
- PKA-A12/18HA7
- PKA-A24/30/36KA7
- PCA-A24/30/36/42KA7
- PLA-A12/18/24/30/36/42EA7
- PEAD-A12/18/24/30/36/42AA7
- PVA-A12/18/24/30/36/42AA7

Specifications

Indoor unit mode	Cool, Heat, Fan, and Off
Provide 3 input terminals to control fan speed control	High, Medium, Low
Addressing	No addressing required
Connection	CN105 - IT Terminal
Dimensions(H × W × D) [in]	3.96 × 3.17 × 0.93
Terminal Block	20 - 30 VAC Rated

Dimensions

Unit : mm [inch]



System Configuration

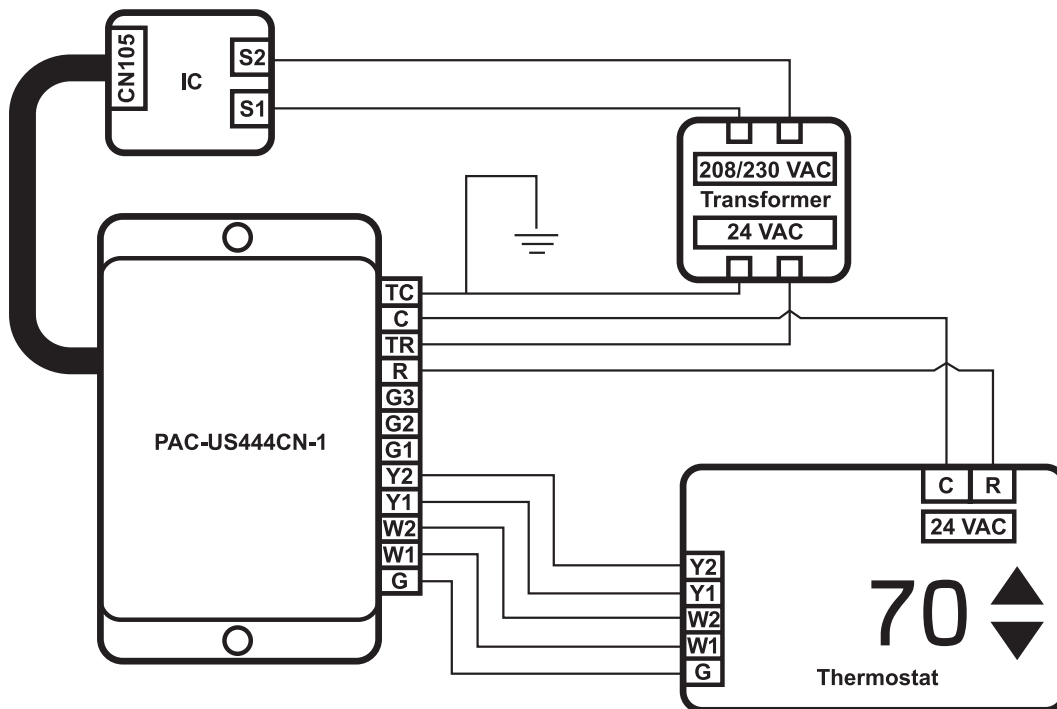
Warning: Thermostat should be configured for use with a conventional system (not heat pump).

Note: When either Y2 or W2 is left unconnected, it is recommended to set SW2-6 to the OFF position.

1. All wiring shown should be performed with 18 AWG thermostat wire.
2. Terminals on the PAC-US444CN-1 support 20-30VAC.
3. High/medium/low fan signals are optional, and may not be available on all thermostat models.
4. W2 and Y2 signals are optional, and may be omitted for single-stage thermostats.

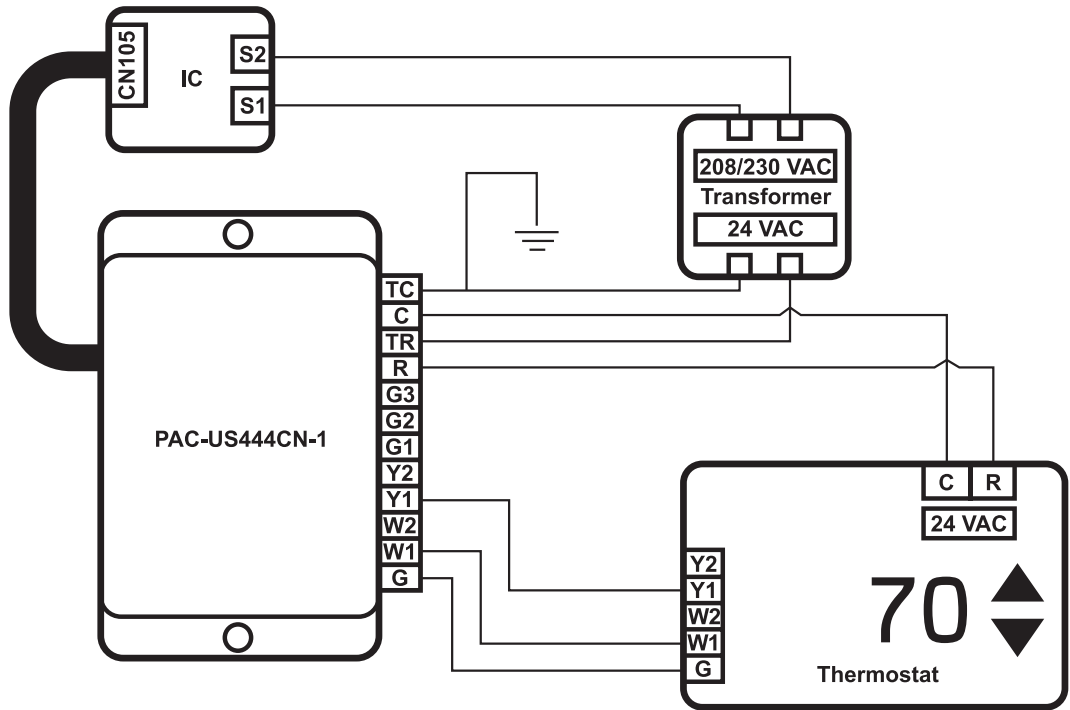
Example 1: Two-stage Cooling and Heating

Note: When both Y2 and W2 are connected, it is recommended to set SW2-6 to the ON position.



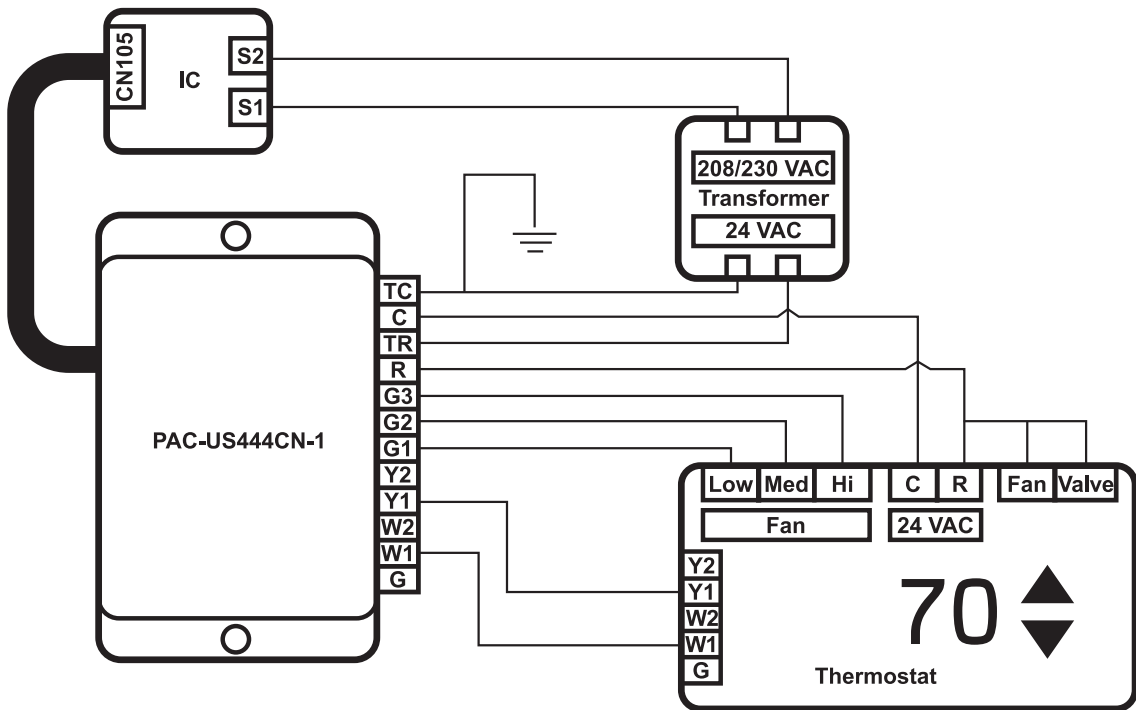
Example 2: Single-stage Cooling and Heating

Note: When either Y2 or W2 is left unconnected, it is recommended to set SW2-6 to the OFF position.



Example 3: Single-stage Cooling and Heating with Dedicated Fan Speed Relays

Note: When connecting only first stage signals (Y1/W1), it is recommended to set SW2-6 to the OFF position.



Example 4: Single-stage Cooling with Alternate Primary Heating Source

Note: For this configuration, it is recommended to set SW2-6 to the OFF position.

Follow the wiring from example 2, with the following adjustments:

1. Connect thermostat W1 to the alternate heat source.
2. Connect the thermostat W2 terminal to the PAC-US444CN-1 W1 terminal.

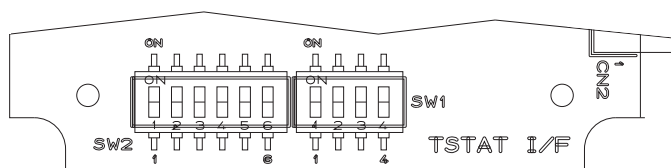
Connector	Purpose	Purpose
TC	Common (In)	C
C	Common (Out)	C
TR	24VAC (In)	R
R	24VAC (Out)	R
G3	Fan High	High Fan Speed
G2	Fan Medium	Medium Fan Speed
G1	Fan Low	Low Fan Speed
Y2	Y2	Stage 2 Cooling
Y1	Y1	Stage 1 Cooling
W2	W2	Stage 2 Heating
W1	W1	Stage 1 Heating
G	G	Fan

How to Install

1. Choose a place where to install the PAC-US444CN-1. The device provides two mounting holes that can be used to mechanically affix the case to a solid surface. Double-sided tape may be used to affix the device. When using tape, ensure that the tape is approved for use within the anticipated operating temperature ranges.
2. Install the transformer, as necessary, per building code and manufacturer's installation instructions.
3. Connect the PAC-US444CN-1 cable to the connector CN105 on the indoor unit control board.
4. Connect PAC-US444CN-1 terminals using 18 AWG wire.

Device Configuration

Initial settings can be configured via the two banks of dip switches on the circuit board, SW1 and SW2. The circuit board can be accessed by unfastening the four screws on the back of the case.



DIP Switch Definitions (Factory default is OFF for all switches):

Delayed Off

SW1-1/2: After reaching thermostat set point, the unit will continue to run for a set period of time in order to improve efficiency. The period of time is set by adjusting SW1-1 and SW1-2 according to the following table:

SW1-1	SW1-2	Result
OFF	OFF	5 minutes (Default)
ON	OFF	10 minutes
OFF	ON	30 minutes
ON	ON	0 minutes

SW1-3/4: The indoor unit fan speed can be adjusted via the following settings:

SW1-3	SW1-4	Result
OFF	OFF	Auto (Default)
ON	OFF	Medium
OFF	ON	High
ON	ON	Custom Auto

Note: Custom Auto provides more comfortable fan speed operation vs. the more efficient Auto (default).

Two-Stage Thermostat Operation

SW2-6: Adjusts indoor unit operation during stage 1 heating and stage 1 cooling according to the following table:

SW2-6	Operation during stage 1
OFF	Full capacity
ON	The capacity is adjusted so that the room temperature is adjusted (heated or cooled) at a fixed rate.

Note: When either Y2 or W2 is left unconnected, it is recommended to set SW2-6 to the OFF position. When both Y2 and W2 are connected, it is recommended to set SW2-6 to the ON position.

Static Pressure Settings

SW2-1, SW2-2, SW2-3: These adjust the static pressure function settings of the indoor unit according to the following table:

DIP switch position on PAC-US444CN-1			Indoor Unit Settings			
SW2-1	SW2-2	SW2-3	Mode 8	Mode 10	Mode 23	Mode 11
OFF	OFF	OFF	Not set	Not set	Not set	Not set
OFF	OFF	ON	Not set	Not set	Not set	Not set
OFF	ON	OFF	2	1	Set by SW2-4	2
OFF	ON	ON	2	2	Set by SW2-4	2
ON	OFF	OFF	1	1	Set by SW2-4	2
ON	OFF	ON	1	2	Set by SW2-4	2
ON	ON	OFF	3	1	Set by SW2-4	2
ON	ON	ON	3	2	Set by SW2-4	2

**Refer to the appropriate Indoor Unit Installation Manual for Mode 8 and Mode 10 function setting definitions.*

CN24 Operation During Defrost

SW2-4: Adjusts Mode 23 function settings according to the following table:

SW2-4	Result	Fan and CN24
OFF	Setting 2 (Default)	ON
ON	Setting 1	OFF

**Refer to the appropriate Indoor Unit Installation Manual for Mode 23 function setting definitions.*

Fan Speed During Heating Mode, Thermal Off

SW2-5: Adjusts Mode 25 initial setting (fan speed in thermal off for heating) according to the following table:

SW2-5	Result
OFF	Extra low (Default)
ON	Set by Thermostat Interface

In addition, the adapter also affects the following function settings of the connected indoor unit:

Mode	When using the adapter
Mode 1 (auto recovery after power failure)	Always enabled
Mode 2 (room temperature detection location)	Unused (room temperature detected by the connected thermostat)
Mode 24 (heat offset for height)	Unused

Additional function settings not addressed by the thermostat interface may be configured by temporarily connecting an MA remote controller.

Grouping

The connection of more than one PAC-US444CN-1 to a single set of thermostat dry-contacts is not supported.

Temperature Sensing

The PAC-US444CN-1 relies upon both the dry-contact thermostat and the indoor unit's thermistors in order to monitor room temperature. The thermostat's temperature sensing is used to set the room temperature. The indoor unit thermistor is used when calculating cooling and heating rates of change.

Usage

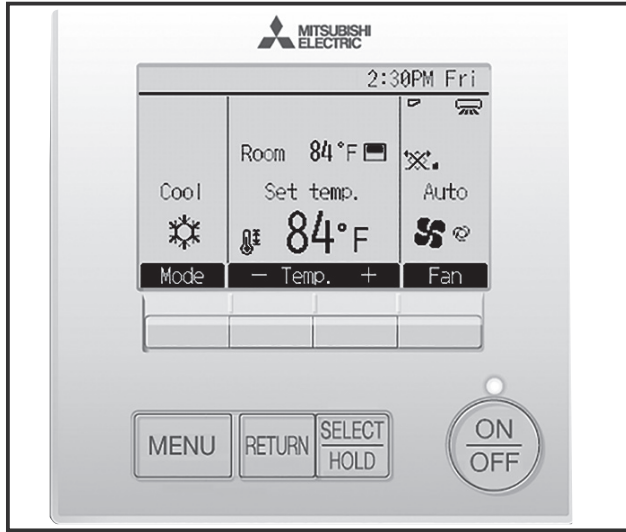
Operate the third-party thermostat per the manufacturer's instructions. During normal operation, the connection of Mitsubishi remote controllers (e.g. MA/ME) is not supported, as they will interfere with the correct operation of the PAC-US444CN-1.

Notes:

1. The indoor unit will limit the internal temperature control set point based on the indoor unit specification.
2. Fan signals G1,G2,G3, when energized, take precedence over SW1-3&4.
3. Only fan speeds available on the IDU can be set by the Thermostat Interface.
4. The G signal is used only for operating the IDU in ventilation mode when all cooling and heating signals are disabled.
5. When all cooling and signals are disabled, energizing G will place the IDU into ventilation mode.



Figure



Descriptions

Advanced MA remote controller with the large size dot liquid crystal display. Multi-language display and weekly timer function are available.

Applicable Models

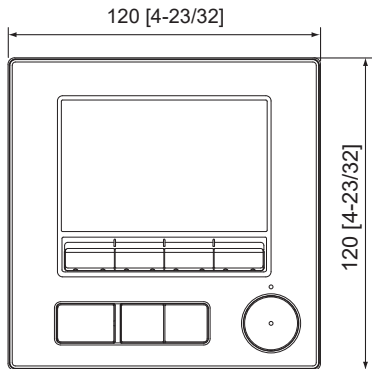
- SLZ-AF09/12/15/18NL
 - SEZ-AD09/12/15/18NL
 - SVZ-AP12/18/24/30/36NL
 - PKA-AL12/18NL
 - PKA-AK24/30/36NL
 - PCA-AK24/30/36/42NL
 - PLA-AE12/18/24/30/36/42/48NL
 - PEAD-AA09/12/15/18/24/30/36/42NL
 - PVA-AA12/18/24/30/36/42NL
- * MAC-333IF-E required

Dimensions

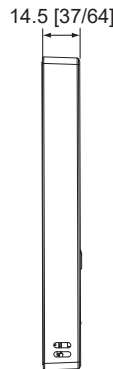
Unit : inch [mm]

Specifications

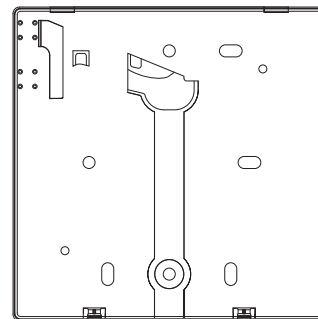
External colors	Cover	Clear white (Munsell 1.0Y 9.2/0.2)
	LCD peripheral area	Medium gray



(Front view)



(Side view)



(Rear view)

How to Use / How to Install

1. System Requirements

⚠ WARNING	The CD-ROM that is supplied with the unit can only be played on a CD-drive or a DVD-drive. Do not attempt to play this CD-ROM on an audio CD player as this may damage your ears and/or speakers.
------------------	---

Your computer must meet the following requirements to run Manual Navigation Software.

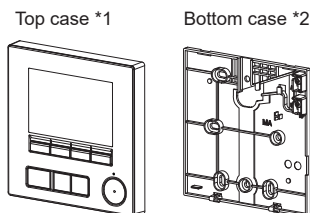
- [PC] PC/AT compatible
- [CPU] Core2 Duo 1.66 GHz or faster (Core2 Duo 1.86 GHz or faster recommended)
Pentium D 1.7 GHz or faster (Pentium D 3.0 GHz or faster recommended)
Pentium M 1.7 GHz or faster (Pentium M 2.0 GHz or faster recommended)
Pentium 4 2.4 GHz or faster (Pentium 4 2.8 GHz or faster recommended)
* Core2 Duo or faster processor is required to run Manual Navigation Software on Windows Vista or later.
- [RAM] Windows Vista or later: 1 GB minimum (2 GB or more recommended)
Windows XP: 512 MB minimum (1 GB or more recommended)
- [HDD space] 1 GB minimum (available space)
* Windows Vista or later: Available space in the drive that has the Document folder
* Windows XP: Available space in the drive that has the My Document folder
- [Resolution] SVGA 800 × 600 or greater
- [OS] Windows8/Pro/Enterprise (Pro recommended)
Windows7 Ultimate/Enterprise/Professional/Home Premium Service Pack1 (Professional recommended)
Windows Vista Ultimate/Business/Home Basic Service Pack1 (Business version recommended)
Windows XP Professional/Home Edition Service Pack2 or Service Pack3 (Professional version recommended)
- [Required software] Windows8: Adobe Reader 11.0.2 or later (Windows Reader, installed by default in Windows8, cannot be used.)
Windows7: Adobe Reader 10.1.0 or later
Windows XP and Windows Vista: Adobe Reader 8.1.3 or later
* Software to view PDF files

"Windows", "Windows XP", "Windows Vista", "Windows7" and "Windows8]]] are registered trade marks of Microsoft Corporation.
"Adobe Reader" and "Adobe Acrobat" are registered trademarks of Adobe Systems Incorporated.
"Core2 Duo" and "Pentium" are registered trademarks of Intel Corporation.

2. Component names and supplied parts

The following parts are included in the box.

Parts name	Qty.	Appearance
Remote controller (top case)	1	Right figure *1
Remote controller (bottom case)	1	Right figure *2
Roundhead cross slot screws M4×30	2	*3
Wood screw 4.1×16 (for direct wall installation)	2	*3
Simple Manual	1	
CD-ROM (this manual) Instruction Book and Installation Manual	1	



*3 ISO metric screw thread

*4 Remote controller cable is not included.

3. Field-supplied parts/Required tools

(1) Field-supplied parts

The following parts are field-supplied parts.

Parts name	Qty.	Notes
Double switch box or 86type switch box	1	Not required for direct wall installation
Thin metal conduit	Necessary	
Lock nut and bushing	Necessary	
Cable cover	Necessary	Required for routing remote controller cable along a wall
Putty	Reasonable	
Molly anchor	Necessary	
Remote controller cable (Use a 0.3 mm ² (AWG22) 2-core sheathed cable.)	Necessary	

(2) Field-supplied tools

- Flat-tip screwdriver (Width: 3 - 5 mm (1/8 - 7/32 inch))
- Nipper
- Miscellaneous tools

4. Selecting an installation site

This remote controller is for the wall installation. It can be installed either in the switch box or directly on the wall. When performing direct wall installation, wires can be thread through either back or top of the remote controller.

(1) Selecting an installation site

Install the remote controller (switch box) on the site where the following conditions are met.

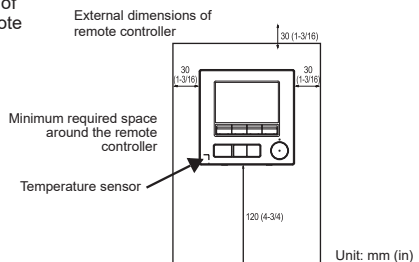
- (a) For connection to the indoor unit with an Auto descending panel, a place where people can check the Auto descending panel operation of the indoor unit while they are operating the remote controller (Refer to the indoor unit Instructions Book for how to operate Auto descending panel.)
- (b) A flat surface
- (c) A place where the remote controller can measure the accurate indoor temperature
 - Sensors to monitor indoor temperature are on the indoor unit and on the remote controller. When the room temperature is monitored with the sensor on the remote controller, the built-in sensor on the remote controller monitors the room temperature. When using the sensor on the remote controller, follow the instructions below.
 - To monitor the accurate indoor temperature, install the remote controller away from direct sunlight, heat sources, and the supply air outlet of the air conditioner.
 - Install the remote controller in a location that allows the sensor to measure the representative room temperature.
 - Install the remote controller where no wires are routed around the temperature sensor on the controller. (If wires are routed, the sensor cannot measure accurate indoor temperature.)

Important

<p>■ Discrepancy between the indoor temperature measured at the wall and the actual indoor temperature may occur. If the following conditions are met, the use of the temperature sensor on the indoor unit is recommended.</p> <ul style="list-style-type: none"> • Supply air does not reach to the wall easily where the remote controller is installed due to improper airflow distribution. • There is a great discrepancy between the wall temperature and the actual indoor temperature. • The back side of the wall is directly exposed to the outside air. <p>Note: When temperature changes rapidly, the temperature may not be detected accurately.</p>	
<p>Do not install the controller in a place where the difference between the remote controller surface temperature and the actual room temperature will be great. If the temperature difference is too high, room temperature may not be adequately controlled.</p>	<p>To avoid deformation and malfunction, do not install the remote controller in direct sunlight or where the ambient temperature may exceed 40°C (104°F) or drop below 0°C (32°F).</p>
<p>To reduce the risk of malfunctions, do not install the controller in a place where water or oil may come into contact with the controller, or in a condensing or corrosive environments.</p>	<p>To reduce the risk of malfunctions and damage to the controller, avoid installing the remote controller on an electrically conductive surface, such as an unpainted metal sheet.</p>
<p>Refer to either of the following manuals for temperature sensor setting: indoor unit Installation Manual for CITY MULTI; this manual for M/P-series.</p>	

(2) Installation space

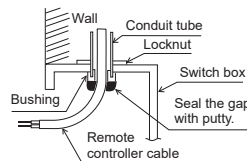
Leave a space around the remote controller as shown in the figure shown below, regardless of whether the controller is installed in the switch box or directly on the wall. Removing the remote controller will not be easy with insufficient space. Also, leave an operating space in front of the remote controller.



(3) Installation work

Controller can be installed either in the switch box or directly on the wall. Perform the installation properly according to the installation method.

- ① **Drill a hole in the wall.**
 - Installation using a switch box
 - Drill a hole in the wall, and install the switch box on the wall.
 - Connect the switch box to the conduit tube.
 - Direct wall installation
 - Drill a hole in the wall, and thread the cable through it.
- ② **Seal the cable access hole with putty.**
 - Installation using a switch box
 - Seal the remote controller cable access hole at the connection of switch box and conduit tube with putty.



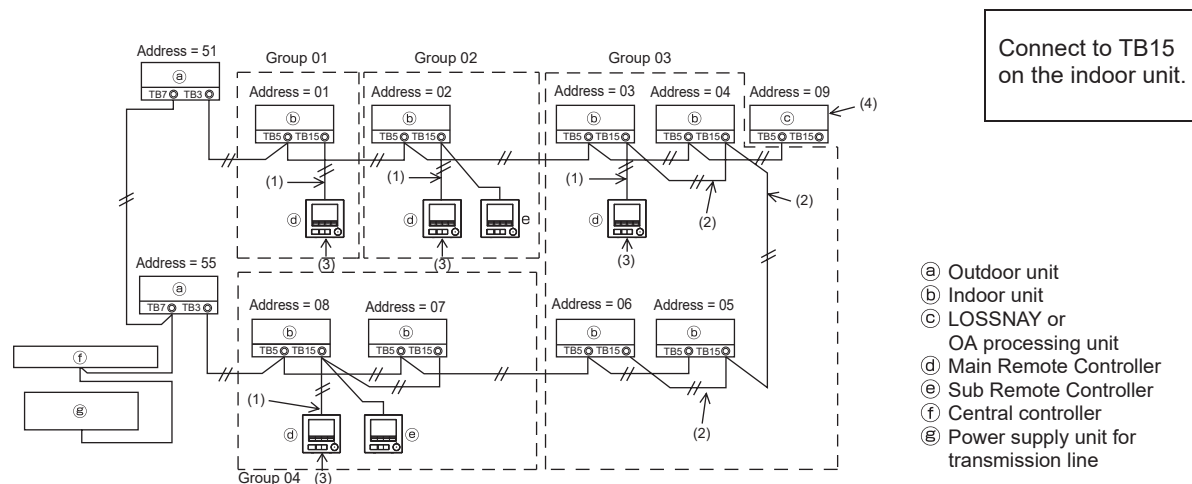
To reduce the risk of electric shock, malfunctions, or fire, seal the gap between the cables and cable access holes with putty.

5. How To Wire Transmission Line

The wiring is different when the remote controller is connected to a CITY MULTI control system (“-A” type and later) and when it is connected to M-series and P-series air conditioners (A control type). The wiring also differs with the system configuration. Check the system used.


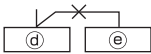
1. Connecting to CITY MULTI control system

The numbers (1) to (4) in the figure correspond to items (1) to (4) in the following description.



- (1) Wiring from the remote controller
 - Connect to the MA remote controller terminal block (TB15) on the indoor unit.
 - The terminal block has no polarity. Connect to the terminal block at the bottom of the remote controller case.
- (2) Operating in a group (Groups 03, and 04 above)
 - Interconnect the MA remote controller terminal block (TB15) of the indoor units you want to operate as a group, and connect the MA remote controller to that point.
 - When the remote controller is used in combination with the system controller as shown in the figure above, group setting at the system controller (central controller in the figure above) is necessary.
- (3) Number of connectable remote controllers
 - A main remote controller and one sub remote controller, a total of two, can be connected to a group made up of indoor units.
- (4) To interlock to a LOSSNAY or OA processing unit, make the following settings using the remote controller. (For a description of how to set an interlock, see section 10 “Service menu” (5) “LOSSNAY setting”.)

Set the LOSSNAY or OA processing unit address and the address of all the indoor units you want to interlock.
- (5) Total length of remote controller wiring
 - The MA Remote Controller can be wired up to 200 m (656 ft).

 CAUTION	Remote controllers cannot be wired together. Only one wire can be connected to the remote controller terminal block.	
--	--	---

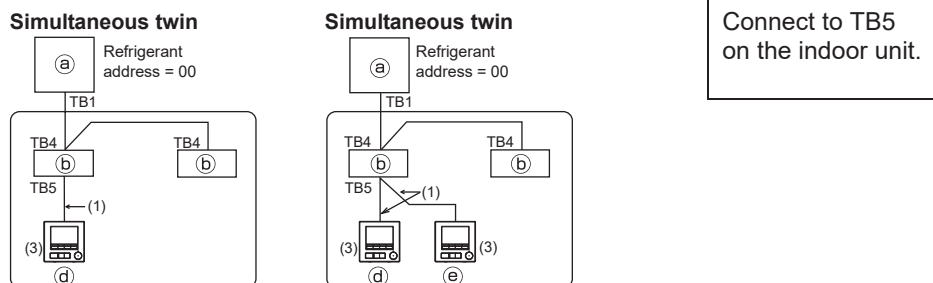
NOTE: When interlocking the MA remote controller with a LOSSNAY or OA processing unit, always set the address of all the indoor units in the group and the address of the LOSSNAY or OA processing unit.

2. Connecting to M-series and P-series air conditioners

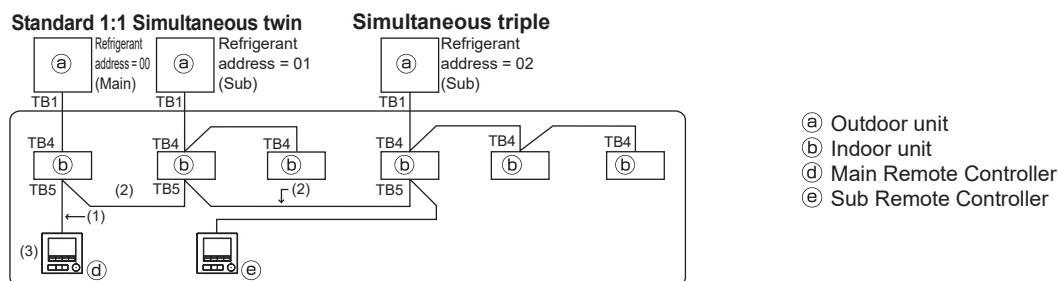
The remote controller wiring depends on the system configuration. Check the system configuration. Wire the remote controller as shown in the example below.

The numbers (1) to (3) in the figure correspond to items (1) to (3) in the following description.

- [1] Connecting the remote controller for each refrigerant system (Standard 1:1, simultaneous twin, simultaneous triple, simultaneous four)



- [2] When grouping by different refrigerant systems



* Set the refrigerant address using the outdoor unit dip switches. (For more information, refer to the outdoor unit installation manual.)

* All the indoor units enclosed in are controlled as one group.

(1) Wiring from remote controller

- Connect to indoor unit TB5 (remote controller terminal block). (The terminal block has no polarity.)
- For simultaneous multi type, when mixing various types of indoor units, always connect the remote controller to the indoor unit with the most functions (wind velocity, vane, louver, etc.).

(2) When grouping with difference refrigerant systems

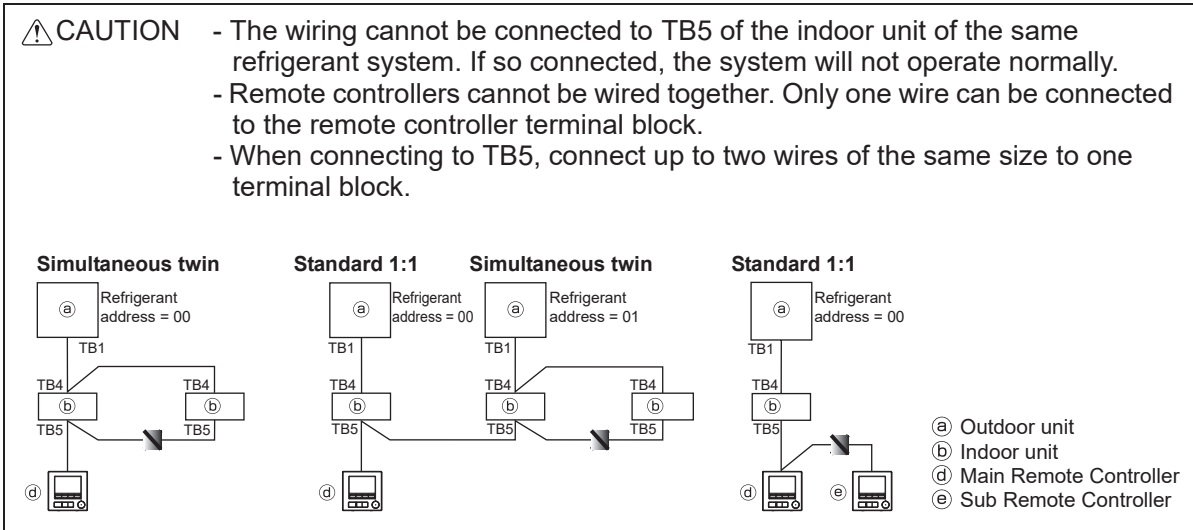
- Group using the remote controller wiring. Connect the remote controller to an arbitrary indoor unit of each refrigerant system you want to group.
- When mixing different types of indoor units in the same group, always make the outdoor unit connecting the indoor unit with the most functions (wind velocity, vane, louver, etc.) the Main unit (refrigerant address = 00). Also, when the Main unit is the simultaneous multi type, always satisfy the conditions of (1) above.
- The MA Remote Controller can control up to 16 refrigerant systems as one group.

(3) Up to two remote controllers can be connected to one group

- When only one remote controller is connected to one group, set it as the Main controller. When two remote controllers are connected to one group, set the Main remote controller and Sub remote controller. (For a description of how to set the Main/Sub setting, refer to the section on initial setting in this manual.)

(4) Total length of remote controller wiring

- The MA Remote Controller can be wired up to 450 m (1476 ft).



6. How To Install

This remote controller is for the wall installation. It can be installed either in the switch box or directly on the wall. When performing direct wall installation, wires can be thread through either back or top of the remote controller.

(1) Selecting an installation site

Install the remote controller (switch box) on the site where the following conditions are met.

- (a) For connection to the indoor unit with an Auto descending panel, a place where people can check the Auto descending panel operation of the indoor unit while they are operating the remote controller (Refer to the indoor unit Instructions Book for how to operate Auto descending panel.)
- (b) A flat surface
- (c) A place where the remote controller can measure the accurate indoor temperature
 Sensors to monitor indoor temperature are on the indoor unit and on the remote controller. When the room temperature is monitored with the sensor on the remote controller, the built-in sensor on the remote controller monitors the room temperature. When using the sensor on the remote controller, follow the instructions below.
 - To monitor the accurate indoor temperature, install the remote controller away from direct sunlight, heat sources, and the supply air outlet of the air conditioner.
 - Install the remote controller in a location that allows the sensor to measure the representative room temperature.
 - Install the remote controller where no wires are routed around the temperature sensor on the controller. (If wires are routed, the sensor cannot measure accurate indoor temperature.)

Important

■ Discrepancy between the indoor temperature measured at the wall and the actual indoor temperature may occur.

If the following conditions are met, the use of the temperature sensor on the indoor unit is recommended.

- Supply air does not reach to the wall easily where the remote controller is installed due to improper airflow distribution.
- There is a great discrepancy between the wall temperature and the actual indoor temperature.
- The back side of the wall is directly exposed to the outside air.

Note: When temperature changes rapidly, the temperature may not be detected accurately.

Do not install the controller in a place where the difference between the remote controller surface temperature and the actual room temperature will be great.
If the temperature difference is too high, room temperature may not be adequately controlled.

To reduce the risk of malfunctions, do not install the controller in a place where water or oil may come into contact with the controller, or in a condensing or corrosive environments.

To avoid deformation and malfunction, do not install the remote controller in direct sunlight or where the ambient temperature may exceed 40°C (104°F) or drop below 0°C (32°F).

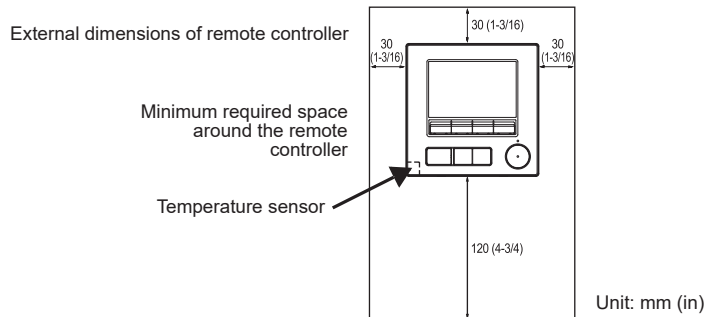
To reduce the risk of malfunctions and damage to the controller, avoid installing the remote controller on an electrically conductive surface, such as an unpainted metal sheet.

Refer to either of the following manuals for temperature sensor setting: indoor unit Installation Manual for CITY MULTI; this manual for M/P-series.

(2) Installation space

Leave a space around the remote controller as shown in the figure shown below, regardless of whether the controller is installed in the switch box or directly on the wall. Removing the remote controller will not be easy with insufficient space.

Also, leave an operating space in front of the remote controller.



(3) Installation work

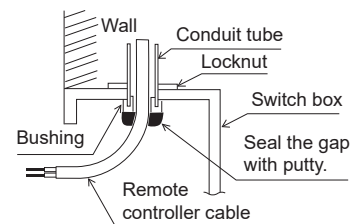
Controller can be installed either in the switch box or directly on the wall. Perform the installation properly according to the installation method.

① Drill a hole in the wall.

- Installation using a switch box
 - Drill a hole in the wall, and install the switch box on the wall.
 - Connect the switch box to the conduit tube.
- Direct wall installation
 - Drill a hole in the wall, and thread the cable through it.

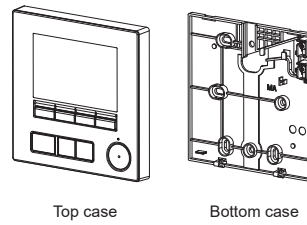
② Seal the cable access hole with putty.

- Installation using a switch box
 - Seal the remote controller cable access hole at the connection of switch box and conduit tube with putty.



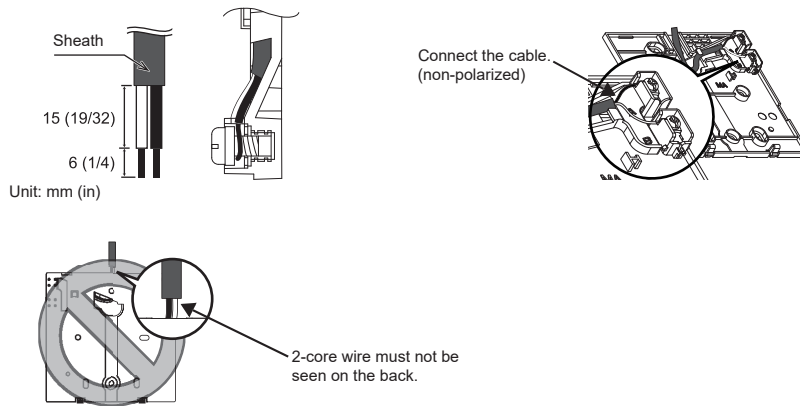
To reduce the risk of electric shock, malfunctions, or fire, seal the gap between the cables and cable access holes with putty.

③ Prepare the bottom case of the remote controller.



④ Connect the remote controller cable to the terminal block on the bottom case.

Peel off the remote controller cable sheath as shown below to connect to the terminal block properly. Secure the remote controller cable so that the peeled part of the cable will fit into the case.



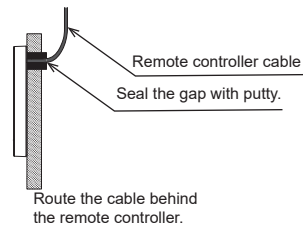
■ Direct wall installation

- Seal the hole through which the cable is threaded with putty.

To reduce the risk of electric shock, shorting, or malfunctions, keep wire pieces and sheath shavings out of the terminal block.

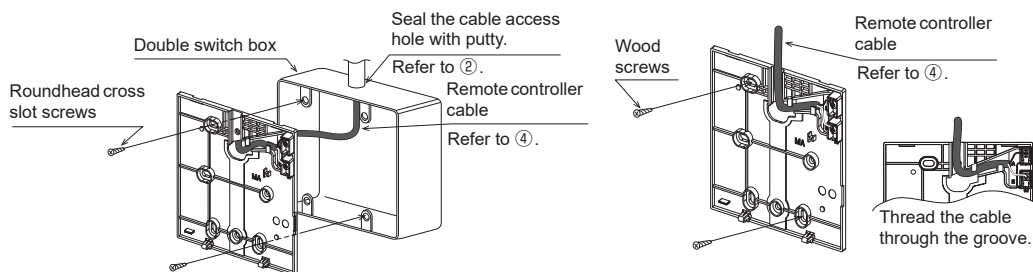
Important

Do not use solderless terminals to connect cables to the terminal block. Solderless terminals may come in contact with the circuit board and cause malfunctions or damage the controller cover.



⑤ **Install the bottom case.**

- Installation using a switch box
 - Secure at least two corners of the switch box with screws.
- Direct wall installation
 - Thread the cable through the groove.
 - Secure at least two corners of the remote controller with screws.
 - Be sure to secure top-left and bottom-right corners of the remote controller (viewed from the front) to prevent it from lifting. (Use molly anchor etc.)



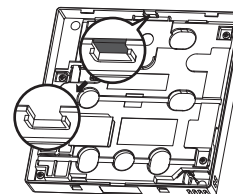
Important

To avoid damage to the controller, do not overtighten the screws.

To avoid damage to the controller, do not make holes on the controller cover.

⑥ **Cut out the cable access hole.**

- Direct wall installation (when running the cable along the wall)
 - Cut out the thin-wall part on the cover (the shaded area in the right figure) with a nipper.
 - Thread the cable from the groove behind the bottom case through this access hole.



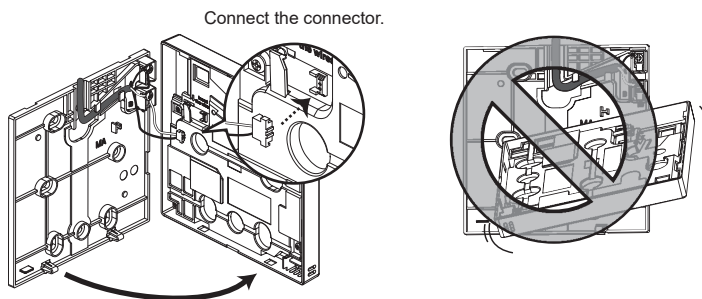
Notice

To prevent damage to the circuit board, remove the front cover from the top case before cutting out a cable access hole.

Note that accidentally touching the circuit board may damage the circuit board when cutting out a cable access hole.

⑦ **Connect the connector to the top case.**

Connect the connector on the bottom case to the socket on the top case.



Important

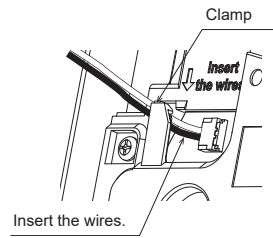
To prevent malfunctions, do not remove the protective sheet or the circuit board from the top case.

To prevent cable breakage and malfunctions, do not hang the top controller casing hang by the cable as shown in the figure above.

⑧ Insert the wires into the clamp.

Important

Hold the wires in place with the clamp to prevent undue force from being applied to the terminal block and causing cable breakage.

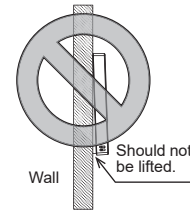
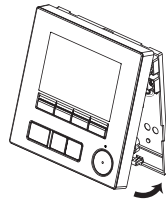


⑨ Install the top case on the bottom case.

Two mounting tabs are at the top of the top case. Hook those two tabs onto the bottom case, and click the top case into place. Check that the case is securely installed and not lifted.

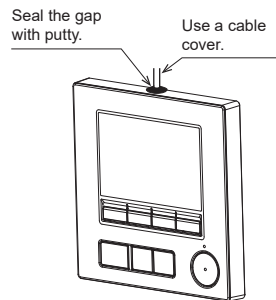
Important

When attaching the top casing to the bottom casing, push it until it they click into place. If they are not properly locked into place, they may fall, causing personal injury, controller damage, or malfunctions.



■ Direct wall installation (when running the cable along the wall)

- Thread the cable through the access hole at the top of the remote controller.
- Seal the cut-out part of the cover with putty.
- Use a cable cover.

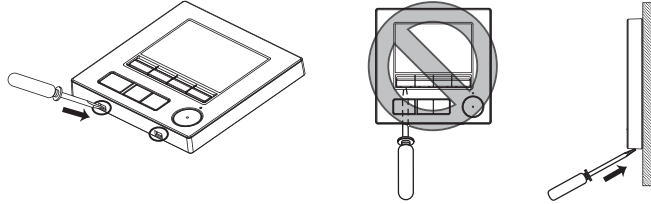


Thread the cable through the top of the remote controller.

• **Uninstalling the top case**

① Uninstalling the top case

Insert a flat-tip screwdriver with a blade width of 3-5 mm (1/8-7/32 inch) into the latches at the bottom of the remote controller and lift the latches. Then, pull up the top case.



■ **At the time of factory shipment, protective sheet is on the operation interface of the front cover. Peel off the protective sheet on the operation interface prior to use.**

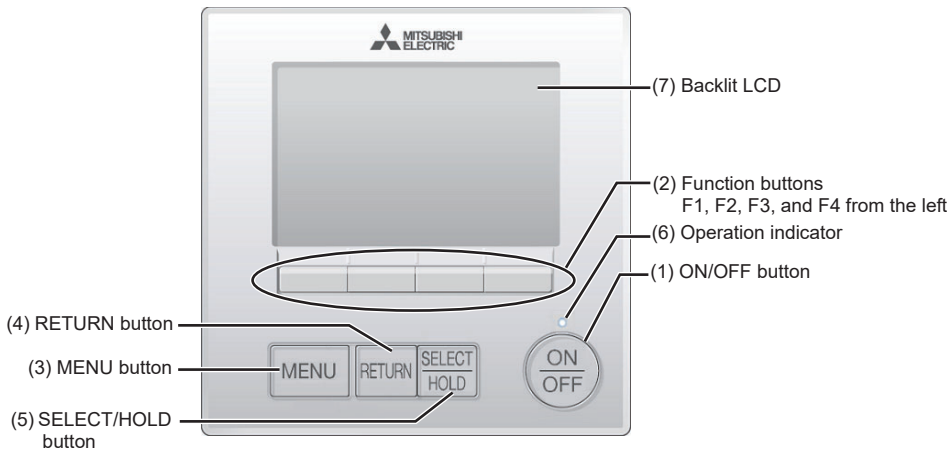
Important

To prevent damage to the controller casing, do not force the flat-tip screwdriver to turn with its tip inserted in the slot.

Do not insert the flat-tip screwdriver too far. Doing so will damage the circuit board.

To prevent damage to the controller casing, use a flat-head screwdriver with a blade width of 3-5 mm (1/8-7/32 inch).

7. Remote controller button functions



- (1) ON/OFF button**
Use to turn ON/OFF the indoor unit.
- (2) Function buttons**
Use to select the operation mode or to set the temperature and fan speed on the Main display. Use to select items on other screens.
- (3) MENU button**
Use to bring up the Main menu.
- (4) RETURN button**
Use to return to the previous screen.
- (5) SELECT/HOLD button**
Use to jump to the setting screen or to save the settings.
When the Main menu is displayed, pressing this button will enable/disable the HOLD function.
- (6) Operation indicator**
Stays lit during normal operation. Blinks during startup and when an error occurs.
- (7) Backlit LCD**
Dot display. When the backlight is off, pressing any button turns the backlight on and it will stay lit for a certain period of time depending on the screen. Performing any button operation keeps the backlight on.

Pressing the MENU button will bring up the Main menu as shown below.

Operation menu *1
Timer menu *1
Energy saving menu *1
Initial setting menu *2*3
Maintenance menu *1
Service menu *2*3

*1 Refer to the Instructions Book for details.

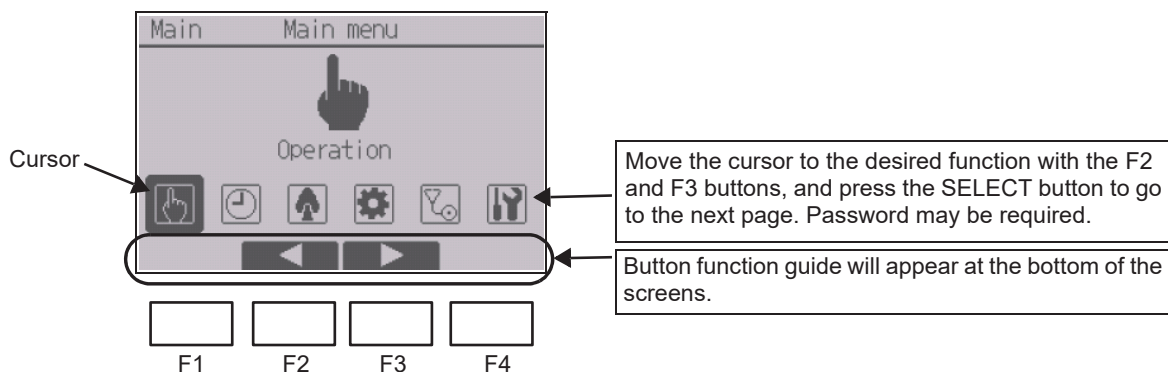
*2 Explained in this manual.

*3 If no buttons are pressed for 10 minutes on the initial setting screens, or 2 hours on the service screens (10 minutes on some screens), the screen will automatically return to the Main display. Any settings that have not been saved will be lost.

The available items on the menu depend on the connected indoor unit model. For items not described in the manuals that are enclosed with the MA Remote Controller, refer to the manuals that came with the air conditioning units.

Note: When the backlight is off, pressing any button turns the backlight on and does not perform its function. (except for the ON/OFF button)

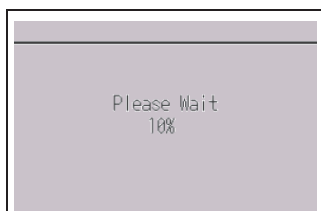
Button operations on the Main menu



8. Turning on the power

Make sure that the MA remote controller is properly installed according to the instructions in the Installation Manual and that the indoor and outdoor unit installation has been completed before turning on the power.

(1) When the power is turned on, the following screen will appear.

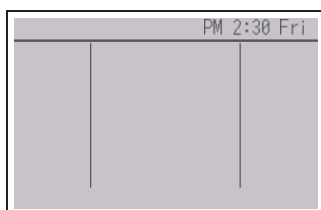


Normal start up (indicating the percentage of process completion)

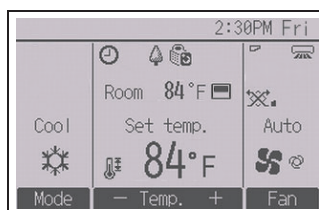
Note: When the power is on for the first time, the Language selection screen will be displayed. Refer to section 9 (5) under "Display setting menu". Select a desired language. The system will not start-up without language selection.

(2) Main display

After the successful startup, the Main display will appear. The Main display can be displayed in two different modes: "Full" and "Basic." Refer to section 9 "Initial settings" for how to select the display mode. (The factory setting is "Full.")



Main display in the Full mode (while the unit is not in operation)



Main display in the Full mode (while the unit is in operation)

Note: Refer to the Instruction Book for the icons on the display.

9. Test run

Note: Maintenance password is required.

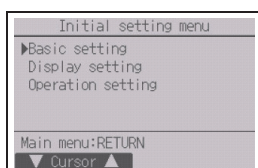
- (1) Read the section about Test run in the indoor unit Installation Manual before performing a test run.
- (2) At the Main display, press the Setting button and select Service>Test run>Test run.
- (3) Press the ON/OFF button to cancel the test run if necessary.
- (4) Refer to the indoor unit Installation Manual for the detailed information about test run and for how to handle the errors that occur during a test run.

Note: Refer to section 10 "Service menu" for information about the maintenance password.

10. Initial settings (Remote controller settings)

Note: Administrator password is required.

From the Main display, select Main menu>Initial setting, and make the remote controller settings on the screen that appears.



Basic setting menu

- Main/Sub
- Clock
- Daylight saving time
- Administrator password

Display setting menu

- Main display
- Remote controller display details setting
- Contrast•Brightness
- Language selection

Operation setting menu

- Auto mode
- Setback mode

Note: The initial administrator password is "0000." Refer to section (4) "Administrator password setting" for how to change the password.

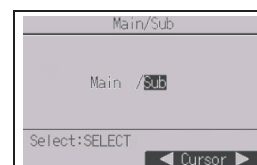
Basic setting menu

(1) Main/Sub setting

When connecting two remote controllers, one of them needs to be designated as a sub controller.

[Button operation]

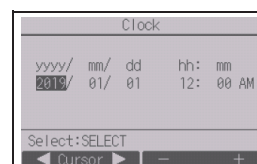
- ① When the F3 or F4 button is pressed, the currently selected setting will appear highlighted. Select "Sub", and press the SELECT button to save the change.
- ② Press the MENU button to return to the Main menu screen. (This button always brings up the Main menu screen.)



(2) Clock setting

[Button operation]

- ① Move the cursor with the F1 or F2 button to the desired item.
- ② Change the date and time with the F3 or F4 button, and press the SELECT button to save the change. The change will be reflected on the clock display on the Status display and the Main display.



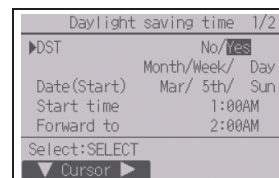
Note: Clock setting is necessary for time display, weekly timer, timer setting and error history. Make sure to perform clock setting when the unit is used for the first time or has not used for a long time.

Note: If a given system has no system controllers, the clock time will not automatically be corrected. In this case, periodically correct the clock time.

(3) Daylight saving time

The start/end time for daylight saving time can be set. The daylight saving time function will be activated based on the setting contents.

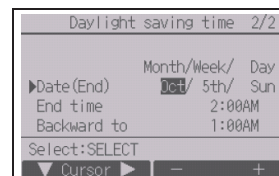
- If a given system has a system controller, disable this setting to keep the correct time.
- At the beginning and the end of daylight saving time, the timer may go into action twice or not at all.
- This function will not work unless the clock has been set.



[Button operation]

① The daylight saving time function can be activated/deactivated or the start/end times can be set by using the F1 through F4 buttons.

- DST
Select "Yes" to activate the daylight saving time, or select "No" to deactivate.
- Date(Start)
Set the start day of the week, week number, and month for daylight saving time.
- Start time
Set the start time for daylight saving time.
- Forward to
Set the time when the clock is to be set forward to at the start time above.
- Date(End) (2nd page)
Set the end day of the week, week number, and month for daylight saving time.
- End time (2nd page)
Set the end time for daylight saving time.
- Backward to (2nd page)
Set the time when the clock is to be set backward to at the end time above.



② Press the SELECT button to save the setting.

* If "5th" is selected for the week number and the 5th week does not exist in the selected month of the year, the setting is considered to be "4th."

(4) Administrator password setting

[Button operation]

- ① A window to enter a new password will appear. Enter a new password, and press the SELECT button.
- ② Press the F4 button (OK) on the password change confirmation screen to save the change. Press the F3 button (Cancel) to cancel the change.

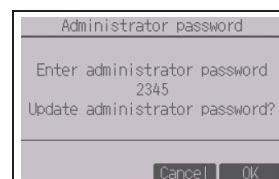
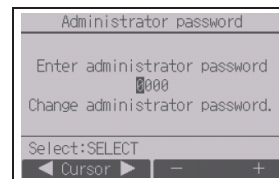
Note: The initial administrator password is "0000." Change the default password as necessary to prevent unauthorized access. Have the password available for those who need it.

Note: If you forget your administrator password, you can initialize the password to the default password "0000" by pressing and holding the F1 button for ten seconds on the administrator password setting screen.

Note: The administrator password is required to make the settings for the following items.

- Timer setting · Weekly timer setting · Energy-save setting
- Outdoor unit silent mode setting · Restriction setting
- Initial setting

Refer to the Instruction Book that came with the remote controller for the detailed information about how to make the settings for these items.

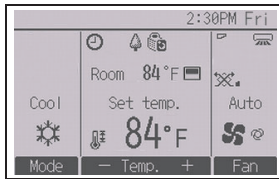


Display setting menu

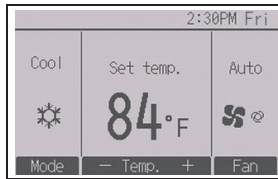
(1) Main display setting

[Button operation]

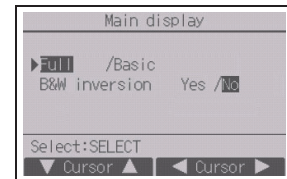
Move the cursor to “Full/Basic,” and use the F3 or F4 button to select the display mode “Full” or “Basic.” (The factory setting is “Full.”)



Full mode (Example)



Basic mode (Example)

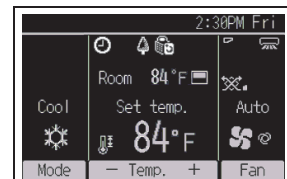


Note: This setting is only for the Main display. In the Basic mode, icons that indicate control status on timer and schedule settings will not appear on the display. Vane, louver, and ventilation settings or room temperature will not appear, either.

(2) Black and white inversion setting

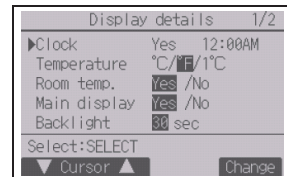
Move the cursor to “B&W inversion” and use the F3 or F4 button to select the display mode “Yes” or “No.” (The factory setting is “No.”)

Selecting “Yes” will invert the colors of the display, turning white background to black and black characters to white as shown at right.



(3) Remote controller display details setting

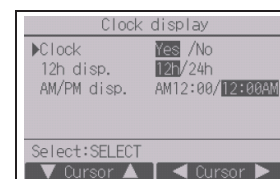
Make the settings for the remote-controller-related items as necessary. Press the SELECT button to save the changes.



[1] Clock display

[Button operation]

- ① Select "Clock" from the display details setting screen, and press the F4 button (Change) to bring up the clock display setting screen.
- ② Use the F1 through F4 buttons to select "Yes" (display) or "No" (non-display) and its format for the Status display and the Main display.
- ③ Save the settings with the SELECT button. (The factory settings are "Yes" (display) and "12 h" format.)



Clock display: Yes (Time is displayed on the Status display and the Main display.)
 No (Time is not displayed on the Status display and the Main display.)
 Display format: 24-hour format
 12-hour format
 AM/PM display (Effective when the display format is 12-hour): AM/PM before the time
 AM/PM after the time

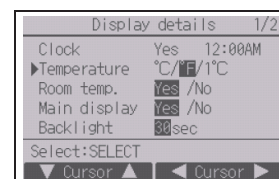
Note: Time display format will also be reflected on the timer and schedule setting display. The time is displayed as shown below.
 12-hour format: AM12:00 ~ AM1:00 ~ PM12:00 ~ PM1:00 ~ PM11:59
 24-hour format: 0:00 ~ 1:00 ~ 12:00 ~ 13:00 ~ 23:59

[2] Temperature unit setting

[Button operation]

Move the cursor to "Temperature" from the display details setting screen, and select the desired temperature unit with the F3 or F4 button. (The factory setting is Fahrenheit (°F).)

- °C: Temperature is displayed in Centigrade. Temperature is displayed in 0.5- or 1-degree increments, depending on the model of indoor units.
- °F: Temperature is displayed in Fahrenheit.
- 1 °C: Temperature is displayed in Centigrade in 1-degree increments.



[3] Room temperature display

[Button operation]

Move the cursor to "Room temp." on the display details setting screen, and select the desired setting with the F3 or F4 button.

(The factory setting is "Yes".)

- Yes: Room temperature appears on the Main display.
- No: Room temperature does not appear on the Main display.

Note: Even when "Yes" is set, the room temperature is not displayed on the Main display in the "Basic" mode.

[4] Auto (single set point) mode display setting

[Button operation]

Move the cursor to "Auto mode" from the display details setting screen, and select the desired mode with the F3 or F4 button. (The factory setting is "Yes".)

- Yes: "Auto Cool" or "Auto Heat" is displayed during operation in the Auto (single set point) mode.
- No: Only "Auto" is displayed during operation in the Auto (single set point) mode.

[5] Backlight

The backlight lighting-up time can be set.

[Button operation]

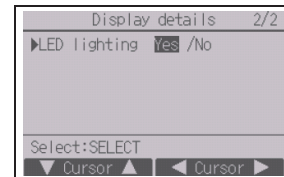
Move the cursor to “Backlight” from the display details setting screen, and select the desired time (5/10/20/30/60 seconds) with the F4 button. (The factory setting is “30” seconds.)

Note: This setting is effective on the Status display and the Main display.

[6] LED lighting

The LED lighting can be set to either “Yes” (On) or “No” (Off). (The factory setting is “Yes”.)

When “No” is selected, the LED will not light up even during the normal operation.



(4) Contrast•Brightness

[Button operation]

Select the desired brightness for the remote controller LCD with the F1 and F2 buttons.

Adjust the contrast with the F3 or F4 button. The current level is indicated with a triangle.

Note: Adjust the contrast and brightness to improve viewing in different lighting conditions or installation locations. This setting can not improve viewing from all directions.

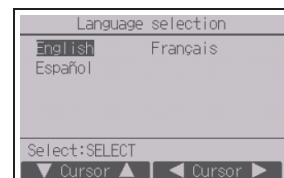


(5) Language selection

[Button operation]

Move the cursor to the language you desire with the F1 through F4 buttons.

Press the SELECT button to save the setting.



Operation setting menu

(1) Auto mode setting

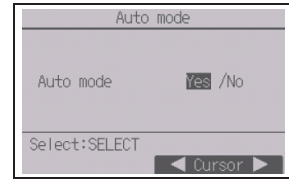
[Button operation]

Whether or not to use the Auto (single set point) or Auto (dual set points) mode can be selected by using the F3 or F4 button. This setting is valid only when indoor units with the Auto mode function are connected.

(The factory setting is “Yes”.)

Press the SELECT button to save the changes made.

- Yes: The Auto mode can be selected in the operation mode setting.
- No: The Auto mode cannot be selected in the operation mode setting.



(2) Setback mode setting

[Button operation]

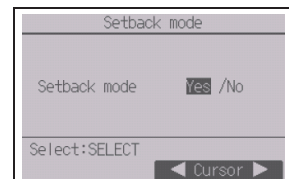
If setback mode setting can be made on multiple units, make the setting on one of the units only.

The Setback mode can be selected by using the F3 or F4 button.

(The factory setting is “Yes”.)

Press the SELECT button to save the changes made.

- Yes: The Setback mode can be selected in the operation mode setting.
- No: The Setback mode cannot be selected in the operation mode setting.



11. Service menu

Note: Maintenance password is required.

At the Main display, press the Setting button and select “Service” to make the maintenance settings.

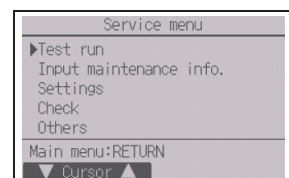
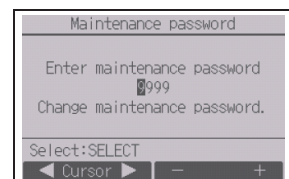
When the Service menu is selected, a window will appear asking for the password.

To enter the current maintenance password (4 numerical digits), move the cursor to the digit you want to change with the F1 or F2 button, and set each number (0 through 9) with the F3 or F4 button. Then, press the SELECT button.

Note: The initial maintenance password is “9999.” Change the default password as necessary to prevent unauthorized access. Have the password available for those who need it.

Note: If you forget your maintenance password, you can initialize the password to the default password “9999” by pressing and holding the F1 button for ten seconds on the maintenance password setting screen.

Note: Air conditioning units may need to be stopped to make certain settings. There may be some settings that cannot be made when the system is centrally controlled.



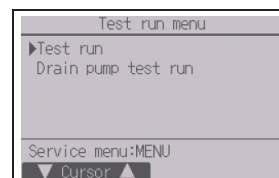
(1) Test run (CITY MULTI and M/P-series)

Select "Test run" from the Service menu to bring up the Test run menu.

- Test run: Select this option to perform a test run.
- Drain pump test run: Select this option to perform a test run on the drain pump on the indoor unit.

Applicable only to the type of indoor units that support the test run function.

Note: Refer to the indoor unit Installation Manual for the detailed information about test run.

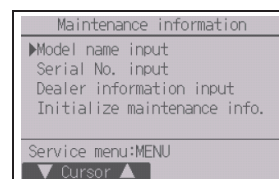


(2) Input maintenance information (CITY MULTI and M/P-series)

Select "Input maintenance info." from the Service menu to bring up the Maintenance information screen. Refer to the indoor unit Installation Manual for how to make the settings.

Note: The following settings can be made from the Maintenance information screen.

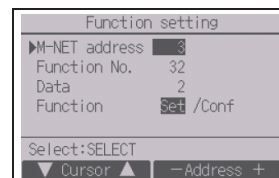
- Registering model names and serial numbers
Enter the model names and serial numbers of outdoor and indoor units. The information entered will appear on the Error information screen. Model names can have up to 18 characters, and the serial numbers can have up to 8 characters.
- Registering dealer information
Enter phone number of a dealer. The entered information will appear on the Error information screen. Phone number can have up to 13 characters.
- Initializing maintenance information
Select the desired item to initialize the model name, serial number, and dealer information settings.



(3) Function setting (CITY MULTI)

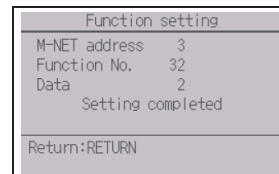
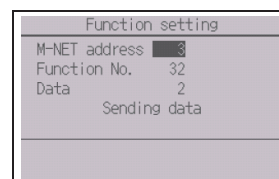
Make the settings for the indoor unit functions via the remote controller as necessary.

Select "Function setting" from the Settings menu to bring up the Function setting screen.



[Button operation]

- ① The Function setting screen will appear.
Press the F1 or F2 button to move the cursor to one of the following: M-NET address, function setting number, or setting value. Then, press the F3 or F4 button to change the settings to the desired settings.
- ② Once the settings have been completed, press the SELECT button.
A screen will appear that indicates that the settings information is being sent.
To check the current settings of a given unit, enter the setting for its M-NET address and function setting number, select Conf for the Function, and press the SELECT button.
A screen will appear that indicates that the settings are being searched for. When the search is done, the current settings will appear.
- ③ When the settings information has been sent, a screen will appear that indicates its completion.
To make additional settings, press the RETURN button to return to the screen shown in Step ② above. Set the function numbers for other indoor units by following the same steps.



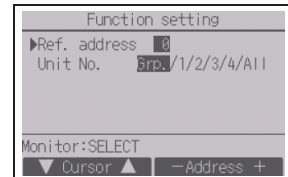
Note:

- Refer to the indoor unit Installation Manual for information about the factory settings of indoor units, function setting numbers, and setting values.
- Be sure to write down the settings for all functions if any of the initial settings has been changed after the completion of installation work.

(4) Function setting (M/P-series)

Make the settings for the indoor unit functions via the remote controller as necessary.

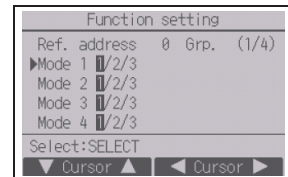
Select "Function setting" from the Settings menu to bring up the Function setting screen.



[Button operation]

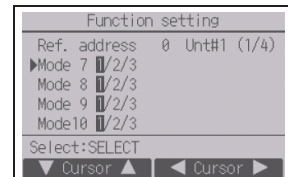
① Set the indoor unit refrigerant addresses and unit numbers with the F1 through F4 buttons, and then press the SELECT button to confirm the current setting.

② When data collection from the indoor units is completed, the current settings appears highlighted. Non-highlighted items indicate that no function settings are made. Screen appearance varies depending on the "Unit No." setting.



Common items

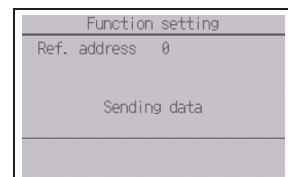
③ Use the F1 or F2 button to move the cursor to select the mode number, and change the setting number with the F3 or F4 button.



Individual items
(Unit No. 1 through 4)

④ When the settings are completed, press the SELECT button to send the setting data from the remote controller to the indoor units.

⑤ When the transmission is successfully completed, the screen will return to the Function setting screen.



Note:

- Make the function settings shown in Table 1 on M/P-series units as necessary.
- Refer to the Instructions Book when it is necessary to set the settings for CITY MULTI units.
- **Table 1 summarizes the setting options for each mode number. Refer to the indoor unit Installation Manual for the detailed information about initial settings, mode numbers, and setting numbers for the indoor units.**
- Be sure to write down the settings for all functions if any of the initial settings has been changed after the completion of installation work.

Table1. Function setting options

Mode No.	Mode	Settings	Setting No.	Unit numbers
01	Automatic recovery after power failure	Disable	1	Set "Grp." for the Unit number. These settings apply to all the connected indoor units.
		Enable (Four minutes of standby time is required after the restoration of power.)	2	
02	Thermistor selection (indoor temperature detection)	Average temperature reading of the indoor units in operation	1	
		Thermistor on the indoor unit to which the remote controller is connected (fixed)	2	
		Built-in sensor on the remote controller	3	
03	LOSSNAY connection	Not connected	1	
		Connected (without outdoor air intake by the indoor units)	2	
		Connected (with outdoor air intake by the indoor units)	3	
04	Power voltage	240 V	1	
		220 V, 230 V	2	
05	Auto mode	Enable (Automatically the unit achieves effective energy saving operation.)	1	
		Disable	2	
07	Filter sign	100 hours	1	Set "1, 2, 3, 4, or All" for the Unit number. These settings apply to each indoor unit. *If "1, 2, 3, or 4" is set for the Unit number, the settings apply only to the specified indoor unit regardless of the number of connected indoor units (one through four units). *If "All" is set for the Unit number, the settings apply to all the connected indoor units regardless of the number of connected indoor units (one through four units).
		2500 hours	2	
		Not displayed	3	
08	Fan speed	Silent mode (or standard)	1	
		Standard (or High ceiling 1)	2	
		High ceiling (or High ceiling 2)	3	
09	Outlet	4 directional	1	
		3 directional	2	
		2 directional	3	
10	Optional parts (High-efficiency filter)	No	1	
		Yes	2	
11	Vane	No vanes (or the vane setting No.3 is effective.)	1	
		Equipped with vanes (The vane setting No.1 is effective.)	2	
		Equipped with vanes (The vane setting No.2 is effective.)	3	

(5) LOSSNAY setting (CITY MULTI only)

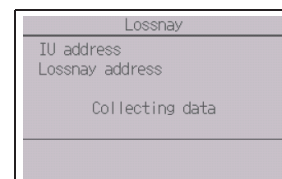
This setting is required only when the operation of CITY MULTI units is interlocked with LOSSNAY units. This setting is not available for the M/P-series units. Interlock settings can be made for the indoor unit to which the remote controller is connected. (They can also be confirmed or deleted.)

Note:

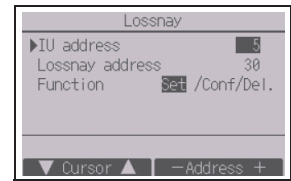
- Use the centralized controller to make the settings if it is connected.
- To interlock the operation of the indoor units with the LOSSNAY units, be sure to interlock the addresses of ALL indoor units in the group and that of the LOSSNAY unit.

[Button operation]

- ① When "Lossnay" on the Settings menu is selected, the remote controller will automatically begin searching for the registered LOSSNAY addresses of the currently connected indoor unit.

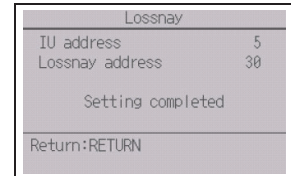


- ② When the search is completed, the smallest address of the indoor units that are connected to the remote controller and the address of the interlocked LOSSNAY unit will appear. "--" will appear if no LOSSNAY unit is interlocked with the indoor units.
If no settings need to be made, press the RETURN button to go back to the Settings menu.



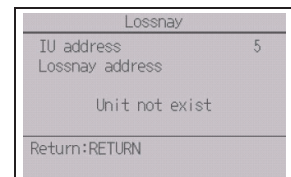
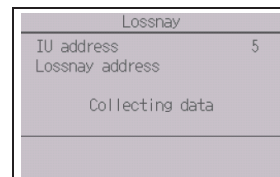
To make LOSSNAY interlock setting

- ③ Enter the addresses of the indoor unit and the LOSSNAY unit to be interlocked, with the F1 through F4 buttons, select "Set" in the "Function", and press the SELECT button to save the settings. "Sending data" will appear on the screen. If the setting is successfully completed, "Setting completed" will appear.



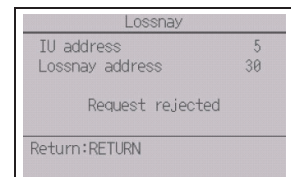
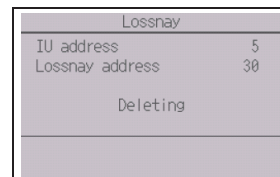
To search for the LOSSNAY address

- ④ Enter the address of the indoor unit to which the remote controller is connected, select "Conf" in the "Function", and press the SELECT button. "Collecting data" will appear on the screen. If the signal is received correctly, the indoor unit address and LOSSNAY address will appear. "--" will appear when no LOSSNAY unit is found. "Unit not exist" will appear if no indoor units that are correspond to the entered address are found.



To delete the interlock setting

- ⑤ To delete the interlocked setting between LOSSNAY unit and the indoor units to which the remote controller is connected, enter the indoor unit address and LOSSNAY address with the F1 through F4 buttons, select "Del." in the "Function", and press the SELECT button. "Deleting" will appear. The screen will return to the search result screen if the deletion is successfully completed. "Unit not exist" will appear if no indoor units that are correspond to the entered address are found. If deletion fails, "Request rejected" will appear on the screen.



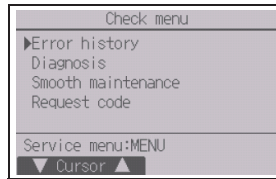
(6) Check

Select “Check” on the Service menu to bring up the Check menu screen.

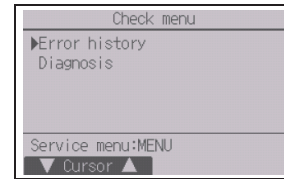
The type of menu that appears depends on the type of indoor units that are connected (CITY MULTI or M/P-series).

(When CITY MULTI is connected, only “Error history” will appear in the menu.)

<M/P-series>



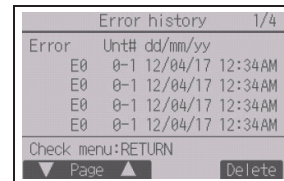
<CITY MULTI>



[Button operation]

① Error history

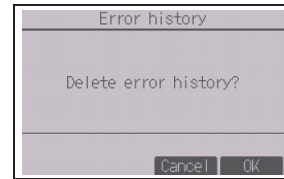
Select “Error history” from the Check menu, and press the SELECT button to view up to 16 error history records. Four records are shown per page, and the top record on the first page indicates the latest error record.



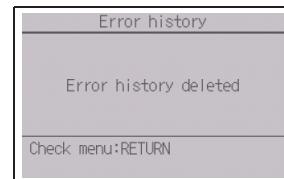
[Deleting the error history]

To delete the error history, press the F4 button (Delete) on the screen that shows error history. A confirmation screen will appear asking if you want to delete the error history.

Press the F4 button (OK) to delete the error history.



“Error history deleted” will appear on the screen. Press the RETURN button to go back to the Check menu screen.



② Other options in the Check menu (M/P-series only)

The following options are also available on the M/P-series units in the Check menu.

- Smooth maintenance
- Request code

These options are available only on the M/P-series units. Refer to the indoor unit Installation Manual for details.

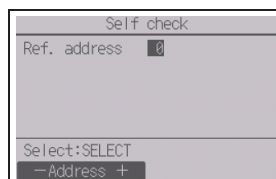
(7) Diagnostic function

Error history of each unit can be checked via the remote controller.

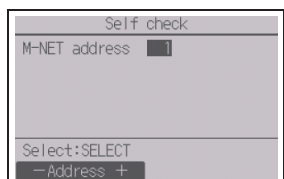
[Button operation]

① Select “Self check” from the Diagnosis menu, and press the SELECT button to view the Self check screen.

<M/P-series>



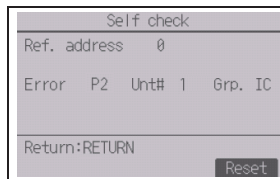
<CITY MULTI>



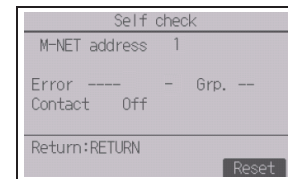
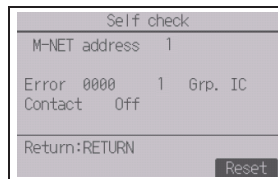
② With the F1 or F2 button, enter the refrigerant address (M/P-series) or the M-NET address (CITY MULTI), and press the SELECT button.

③ Error code, unit number, attribute, and indoor unit demand signal ON/OFF status at the contact (CITY MULTI only) will appear. “-” will appear if no error history is available.

<M/P-series>



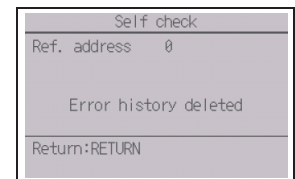
<CITY MULTI>



When there is no error history

[Resetting the error history]

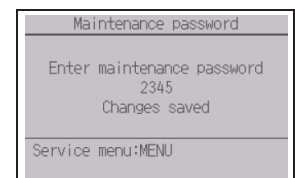
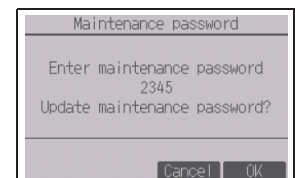
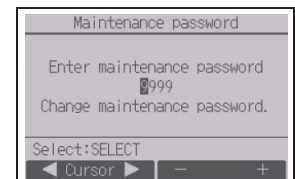
- ① Press the F4 button (Reset) on the screen that shows the error history. A confirmation screen will appear asking if you want to delete the error history.
- ② Press the F4 button (OK) to delete the error history. If deletion fails, "Request rejected" will appear, and "Unit not exist" will appear if no indoor units that are correspond to the entered address are found.



(8) Changing the maintenance password

[Button operation]

- ① Select "Maintenance password" on the Others menu, and press the SELECT button to bring up the screen to enter a new password.
- ② Move the cursor to the digit you want to change with the F1 or F2 button, and set each digit to the desired number (0 through 9) with the F3 or F4 button.
- ③ Press the SELECT button to save the new password.
- ④ A confirmation screen will appear asking if you want to change the maintenance password. Press the F4 button (OK) to save the change. Press the F3 button (Cancel) to cancel the change.
- ⑤ "Changes saved" will appear when the password is updated.
- ⑥ Press the MENU button to return to the Service menu or press the RETURN button to go back to the "Maintenance password" screen.



(9) Remote controller information

The following information of the remote controller in use can be checked.

- Model name
- Software version
- Serial number

Remote controller information	
Model name	PAR-40MAAU
S/W Ver	XX.XX
Serial No.	XXXXXXXXXXXXXX
Return:RETURN	

[Button operation]

- ① Select "Others" from the Service menu.
- ② Select "Remote controller information".

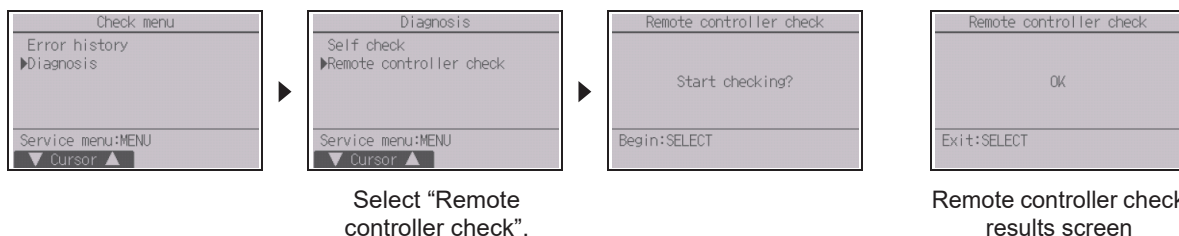
12. Remote controller check

When the remote controller does not work properly, use the remote controller checking function to troubleshoot the problem.

- (1) Check the remote controller display and see if anything is displayed (including lines). Nothing will appear on the remote controller display if the correct voltage (8.5-12 VDC) is not supplied to the remote controller. If this is the case, check the remote controller wiring and indoor units.

[Button operation]

- ① Select "Remote controller check" from the Diagnosis menu, and press the SELECT button to start the remote controller check and see the check results. To cancel the remote controller check and exit the Remote controller check menu screen, press the MENU or the RETURN button. The remote controller will not reboot itself.



OK: No problems are found with the remote controller. Check other parts for problems.

E3, 6832: There is noise on the transmission line, or the indoor unit or another remote controller is faulty. Check the transmission line and the other remote controllers.

NG (ALL0, ALL1): Send-receive circuit fault. Remote controller needs replacing.

ERC: The number of data errors is the discrepancy between the number of bits in the data transmitted from the remote controller and that of the data that was actually transmitted over the transmission line. If data errors are found, check the transmission line for external noise interference.

- ② If the SELECT button is pressed after the remote controller check results are displayed, remote controller check will end, and the remote controller will automatically reboot itself.

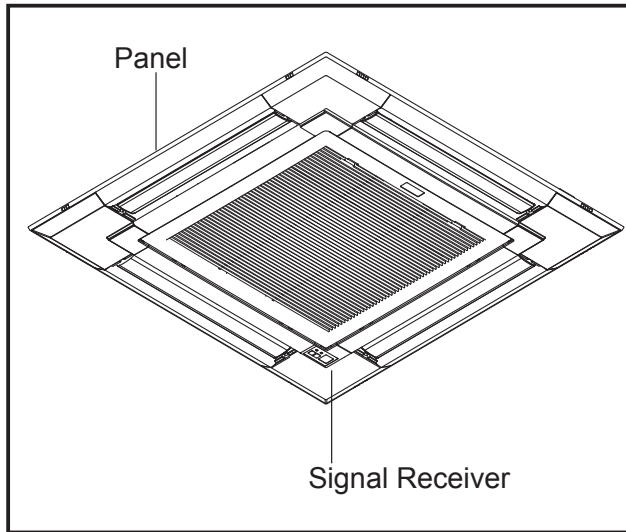
Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



Figure



Descriptions

- Integrate the Signal Receiver in the corner panel (the opposite side of refrigerant piping).
- Applicable only for PLA models.

Applicable Models

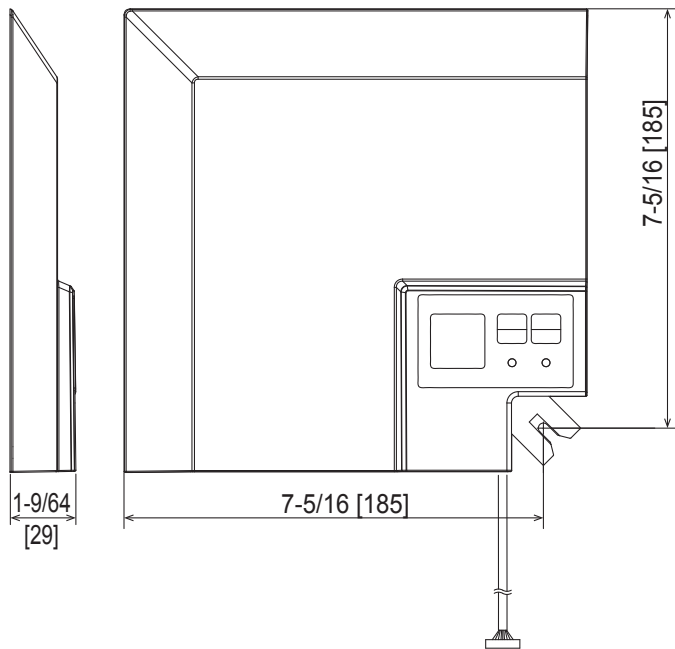
- PLA-AE12/18/24/30/36/42/48NL

Specifications

Model name	PAR-SR4LA-E
Operation indicator lamp	During operation: LED (green) lights, Abnormal condition: LED (green) blinks, Preparing for heating operation: LED (orange) lights
Emergency operation	Cooling/heating switch (operate/stop) equipped.
Number of controllable units	Maximum 16 refrigerant systems in one group (At least one wireless signal receiving kit must be installed to each refrigerant system.)
Adapter wiring	Connect the 9-core cord with connector (attached) to CN90 of the indoor controller board of the indoor unit.
Signal distance	Within 7m in 45 degrees range from the front of the Signal Receiver

Dimensions

Unit: inch [mm]



How to Use / How to Install

1 Preparation for installing SIGNAL RECEIVER

※Make sure to turn off the main power before work.

1. Open the intake grille and remove the corner panel. The corner panel is in opposite to where refrigerant pipes are (where local wires are drawn into).

Note:

- Discard only the removed corner panel.
- Reuse the screw of the removed corner panel to install the signal receiver.
- When installing the signal receiver during grille installation, complete the wiring work of grille before proceeding to the following procedure.

2. Loosen the 2 screws on the control box cover, and remove the control box cover by sliding; however, in this installation, the cover can hang temporarily.
3. Specify the target unit for wireless remote controller operation. Follow the procedure below to set the pair number on the indoor controller board and the wireless remote controller.

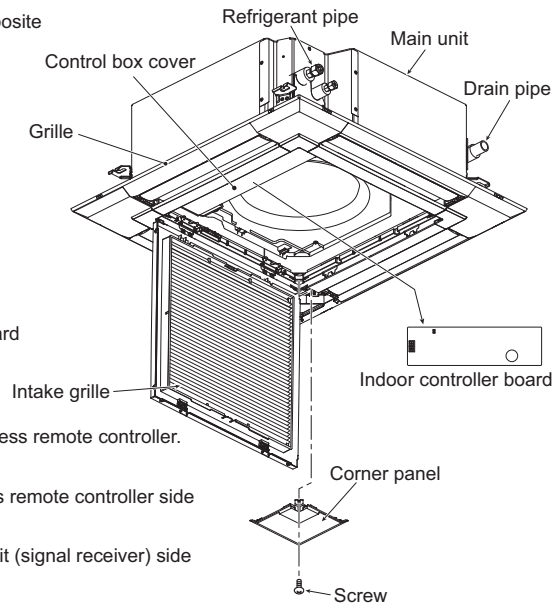
■ Setting pair number

- The pair number setting is to specify the unit which is to be operated by wireless remote controller.

When specifying the unit is not required, this setting is not necessary.

The pair number is set to "0" on indoor unit (signal receiver) side and wireless remote controller side at an initial setting.

- When specifying the unit is required, match the pair number on the indoor unit (signal receiver) side and on the wireless remote controller side as shown in the table below.

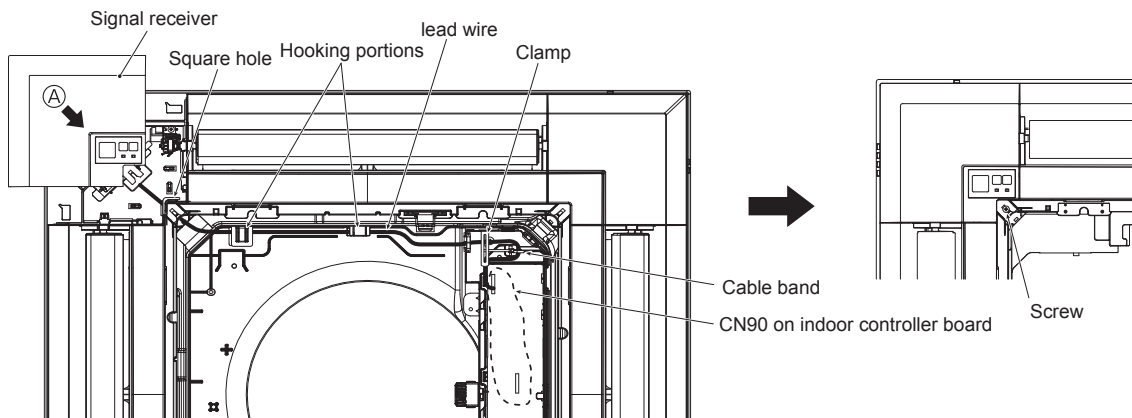


Pair number of wireless remote controller	Pair number of indoor unit		
	• When the unit is in combination with PLA-EA Cut jumper wire J41, J42, or both on the indoor controller board.	• When the unit is in combination with PLFY-EM Set SW22.	
		SW 22-3	SW 22-4
0	No need to cut.	ON	ON
1	Cut only J41.	OFF	ON
2	Cut only J42.	ON	OFF
3 to 9	Cut J41 and J42.	OFF	OFF

2 Installing SIGNAL RECEIVER

- Installation procedure for the standard location

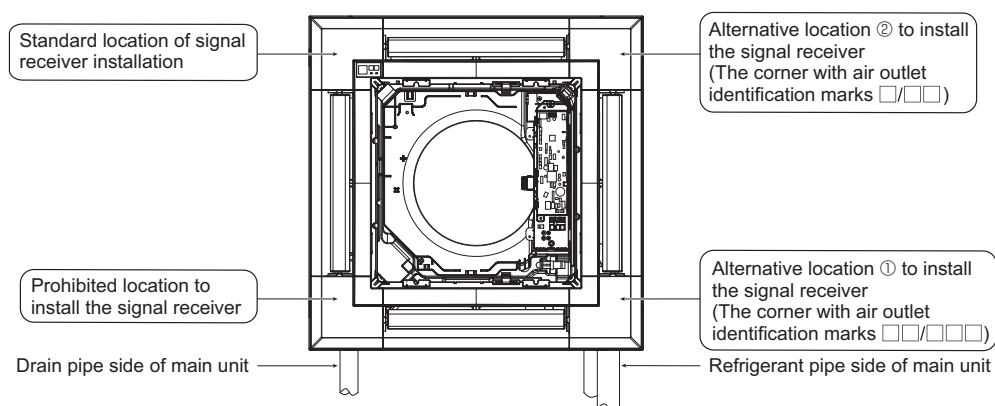
1. Pull out the lead wire of signal receiver from the square hole located in the corner of grille, where the removed corner panel was in the preparation procedure.
2. Pass the lead wire through the 2 hooking portions and inside the control box, and connect it to CN90 on the indoor controller board as shown below.
Adjust the lead wire length to allow the corner panel to be removed again, and fix it with the cable band.
3. Install the signal receiver by sliding it towards the arrow A, and fix in the corner with the screw.
(Reuse the screw which was used to fix the removed corner panel.)



4. After completing the installation, attach the control box cover to the unit as it was.

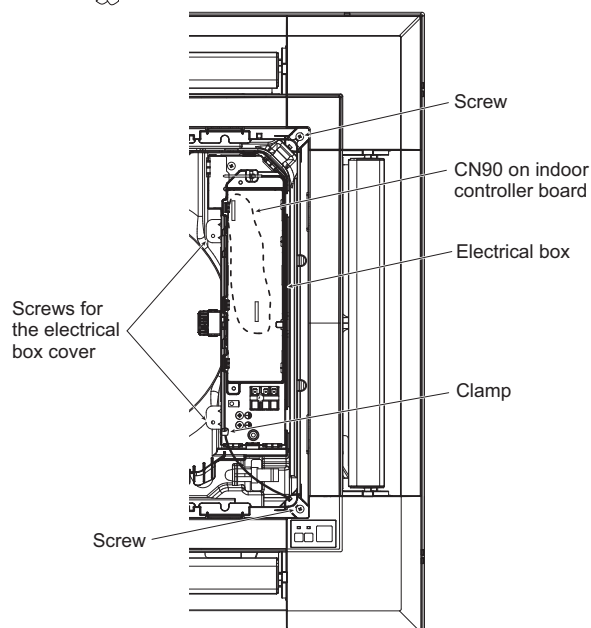
Signal Receiver PAR-SR4LA-E

- To install the signal receiver to the 2 locations other than the standard location, follow the procedure below.



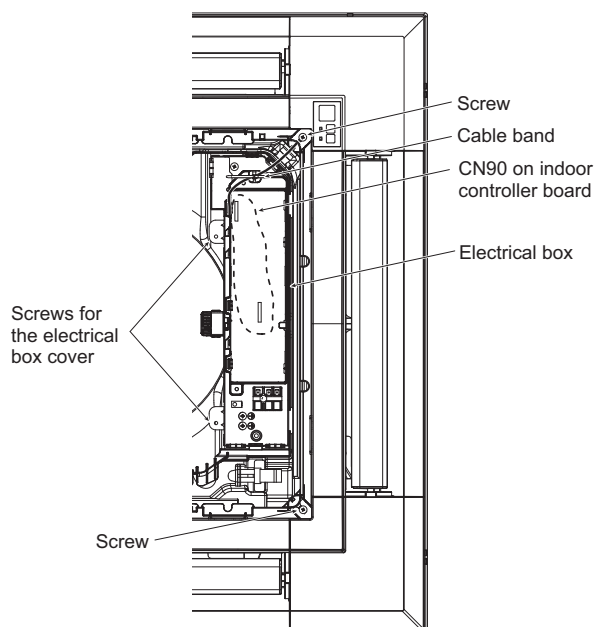
● Installation procedure for the alternative location ①

1. Pass the lead wire of signal receiver through the square hall located in the corner of grille.
2. Loosen the 2 screws fixing the electrical box cover on the unit, and slide the cover to open.
3. Route the lead wire of signal receiver (white, 9 poles) from the electrical box side on the unit, and certainly connect it to CN90 on the indoor controller board.
4. The lead wire of signal receiver must be held together without slack using the clamp into the electrical box.
5. Follow the reverse procedure of 2 to reinstall the electrical box cover on the unit.
6. Install the signal receiver to the grille and fix with the screws.

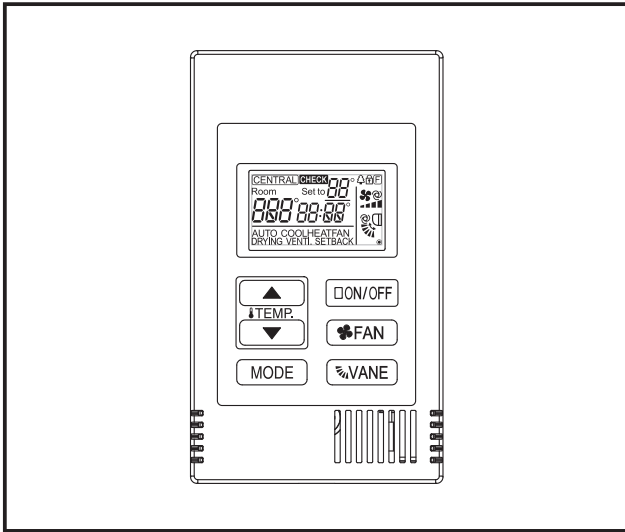


● Installation procedure for the alternative location ②

1. Pass the lead wire of signal receiver through the square hall located in the corner of grille.
2. Loosen the 2 screws fixing the electrical box cover on the unit, and slide the cover to open.
3. Route the lead wire of signal receiver (white, 9 poles) from the electrical box side on the unit, and certainly connect it to CN90 on the indoor controller board.
4. The lead wire of signal receiver must be held together without slack, and fixed with the cable band into the electrical box.
5. Follow the reverse procedure of 2 to reinstall the electrical box cover on the unit.
6. Install the signal receiver to the grille and fix with the screws.



Photo



Descriptions

New functions have been added to the CITY MULTI series that enable the setting of certain indoor unit functions (such as static pressure) from the remote controller. (For more detailed information, please contact your nearest sales office or distributor.)

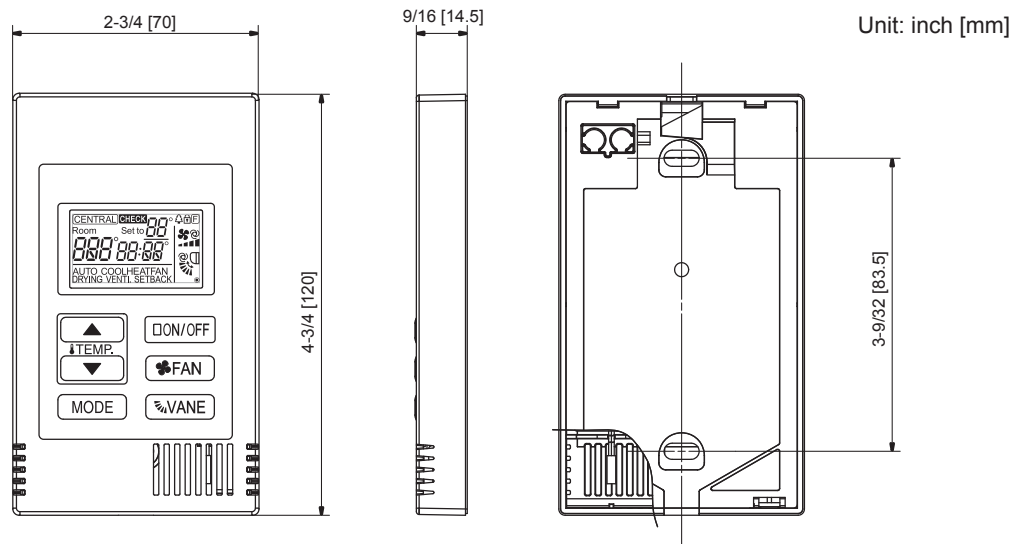
Applicable Models

- PKA-A12/18HA7
- PKA-A24/30/36KA7
- PCA-A24/30/36/42KA7
- PLA-A12/18/24/30/36/42EA7

Specifications

	Specifications
Product size	70 (W) × 120 (H) × 14.5 (D) mm (2-3/4 × 4-3/4 × 9/16 [in]) (not including the protruding part)
Net weight	0.1 kg (1/4 lb.)
Rated power supply voltage	12 VDC (supplied from indoor units)
Power consumption	0.3 W
Usage environment	Temperature 0 ~ 40°C (32 ~ 104°F) Humidity 30 ~ 90%RH (with no dew condensation)
Material	PC + ABS

Dimensions



How to Use / How to Install

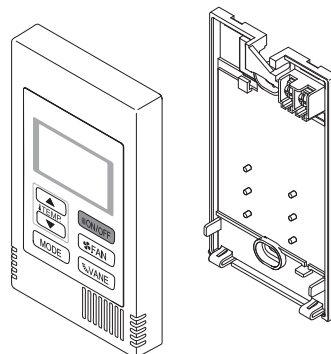
1 Component names and supplied parts

The following parts are included in the box.

Parts name	Qty.	Appearance
Remote controller (top case)	1	Right figure *1
Remote controller (bottom case)	1	Right figure *2
Roundhead cross slot screws M4×30	2	*3
Wood screw 4.1×16 (for direct wall installation)	2	*3
Installation Manual (this manual)	1	
Instruction Book	1	

Top case *1

Bottom case *2



*3 ISO metric screw thread

*4 Remote controller cable is not included.

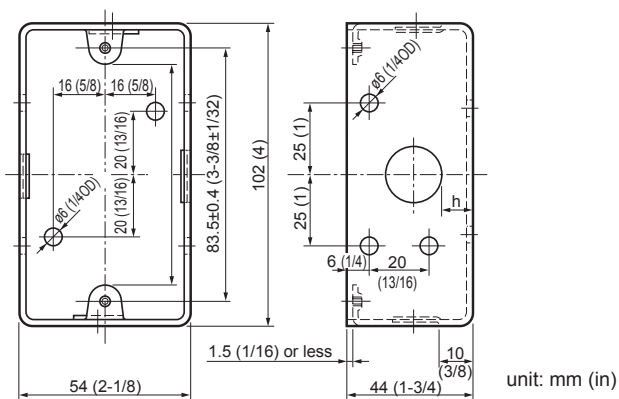
2 Field-supplied parts/Required tools

(1) Field-supplied parts

The following parts are field-supplied parts.

Parts name	Qty.	Notes
Single switch box	1	Not required for direct wall installation
Thin metal conduit	Necessary	
Lock nut and bushing	Necessary	
Cable cover	Necessary	Required for routing remote controller cable along a wall
Putty	Reasonable	
Molly anchor	Necessary	
Remote controller cable (Use a 0.3 mm ² (AWG22) 2-core sheathed cable.)	Necessary	If you need to use a cable extension longer than 10 m (32 ft), select an electric wire that meets the following specifications: Wire specification VCTF or CVV (2-core): 1.25 mm ² (stranded 16 AWG) or equivalent

Switch box



(2) Field-supplied tools

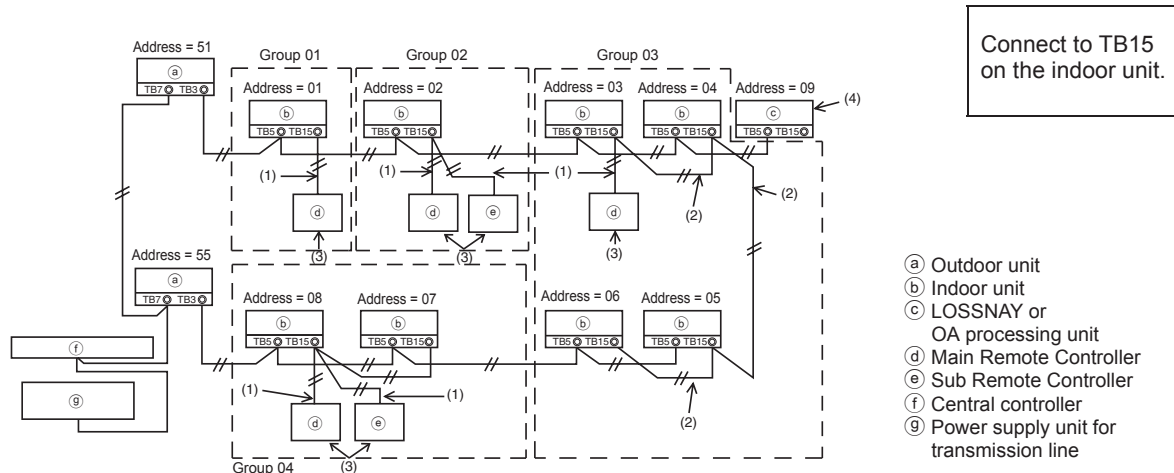
- Flat-tip screwdriver (Width: 3 - 5 mm (1/8 - 7/32 inch))
- Knife or Nipper
- Miscellaneous tools

3 How To Wire Transmission Line

The wiring is different when the remote controller is connected to a CITY MULTI control system (“-A” type and later) and when it is connected to a M-Series and P-Series air conditioner (A control type). The wiring also differs with the system configuration. Check the system used.

1. Connecting to CITY MULTI control system

The numbers (1) to (4) in the figure correspond to items (1) to (4) in the following description.



(1) Wiring from the remote controller

- Connect to the MA remote controller terminal block (TB15) on the indoor unit.
- The terminal block has no polarity. Connect to the terminal block at the rear bottom of the remote controller.

(2) Operating in a group (Groups 03, and 04 above)

- Interconnect the MA remote controller terminal block (TB15) of the indoor units you want to operate as a group, and connect the MA remote controller to that point.
- When the remote controller is used in combination with the system controller as shown in the figure above, group setting at the system controller (central controller in the figure above) is necessary.

(3) Number of connectable remote controllers (groups 02 and 04)

- A main remote controller and one sub remote controller, a total of two, can be connected to a group made up of indoor units.

NOTE: When using this Simple MA remote controller in combination with other MA remote controllers, be sure to follow the compatibility rules below.

Indoor unit function	Main remote controller	Sub remote controller	Compatibility
Models applicable for AUTO (dual set point) and SETBACK mode	This Simple MA remote controller	This Simple MA remote controller	Compatible, and AUTO (dual set point) and SETBACK mode can be used depending on the indoor units to be connected.
	Other MA remote controllers	This Simple MA remote controller	Compatible, but AUTO (dual set point) and SETBACK mode cannot be used.
	This Simple MA remote controller	Other MA remote controllers	Incompatible
Models not applicable for AUTO (dual set point) and SETBACK mode	Combination with all of the above		Compatible

- (4) To interlock to a LOSSNAY or OA processing unit, make the following settings using the remote controller. (For a description of how to set an interlock, see section (7) Ventilation Setting .)
- Set the LOSSNAY or OA processing unit address and the address of all the indoor units you want to interlock.
- (5) Total length of remote controller wiring
- The simple MA controller can be wired up to 200 m (656 ft). Procure 0.75 - 1.25 mm² (stranded 16 - 28 AWG), 2-core cable at the installation site.

⚠ CAUTION	Remote controllers cannot be wired together. Only one wire can be connected to the remote controller terminal block.	
-----------	--	--

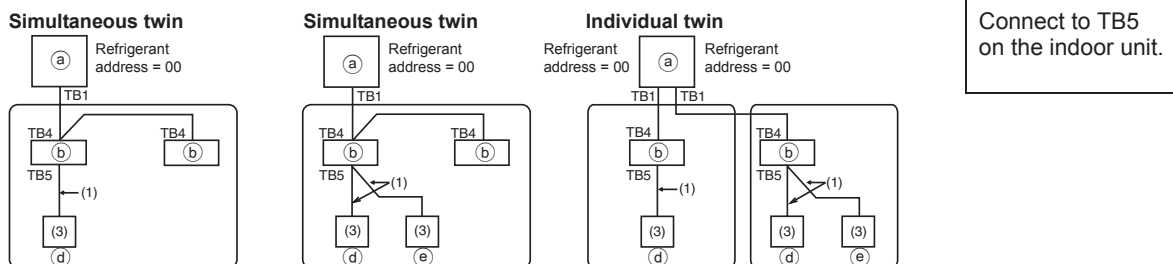
NOTE: When interlocking the MA remote controller with a LOSSNAY or OA processing unit, always set the address of all the indoor units in the group and the address of the LOSSNAY or OA processing unit.

2. Connecting to M-Series and P-Series air conditioner

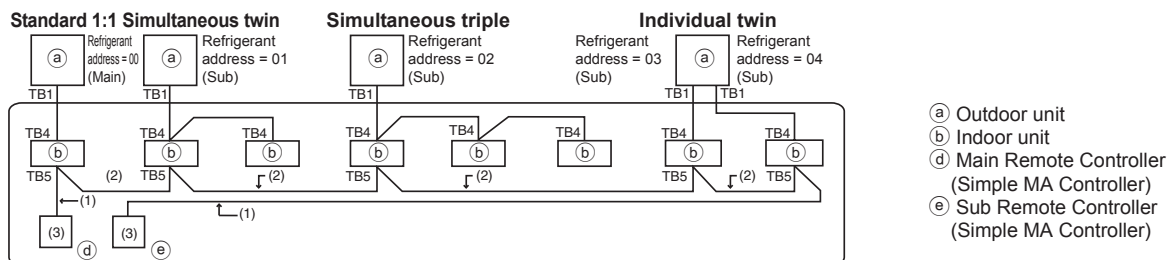
The remote controller wiring depends on the system configuration. Check the system configuration. Wire the remote controller as shown in the example below.

The numbers (1) to (3) in the figure correspond to items (1) to (3) in the following description.

- [1] Connecting the remote controller for each refrigerant system (Standard 1:1, simultaneous twin, simultaneous triple, simultaneous four, individual twin)



- [2] When grouping by different refrigerant systems



- * Set the refrigerant address using the outdoor unit dip switches. (For more information, refer to the outdoor unit installation manual.)
- * All the indoor units enclosed in are controlled as one group.
 - (1) Wiring from remote controller
 - Connect to indoor unit TB5 (remote controller terminal block). (The terminal block has no polarity.)
 - For simultaneous multi type, when mixing various types of indoor units, always connect the remote controller to the indoor unit with the most functions (wind velocity, vane, louver, etc.).
 - (2) When grouping with difference refrigerant systems
 - Group using the remote controller wiring. Connect the remote controller to an arbitrary indoor unit of each refrigerant system you want to group.
 - When mixing different types of indoor units in the same group, always make the outdoor unit connecting the indoor unit with the most functions (wind velocity, vane, louver, etc.) the Main unit (refrigerant address = 00). Also, when the Main unit is the simultaneous multi type, always satisfy the conditions of (1) above.
 - The Simple MA Remote Controller can control up to 16 refrigerant systems as one group.

(3) Up to two remote controllers can be connected to one group

- When two remote controllers are connected to one group, always set the Main remote controller and Sub remote controller.
- When only one remote controller is connected to one group, set it as the Main controller. When two remote controllers are connected to one group, set the Main remote controller and Sub remote controller. (For a description of how to set the Main/Sub switch, see step 5 in section

5 | How To Install | .)

NOTE: When using this Simple MA remote controller in combination with other MA remote controllers, be sure to follow the compatibility rules below.

Indoor unit function	Main remote controller	Sub remote controller	Compatibility
Models applicable for AUTO (dual set point) and SETBACK mode	This Simple MA remote controller	This Simple MA remote controller	Compatible, and AUTO (dual set point) and SETBACK mode can be used depending on the indoor units to be connected.
	Other MA remote controllers	This Simple MA remote controller	Compatible, but AUTO (dual set point) and SETBACK mode cannot be used.
	This Simple MA remote controller	Other MA remote controllers	Incompatible
Models not applicable for AUTO (dual set point) and SETBACK mode	Combination with all of the above		Compatible

(4) Total length of remote controller wiring

- The Simple MA Remote Controller can be wired up to 200 m (656-1/8 ft). Procure 0.75 ~ 1.25 mm² (16 ~ 28 AWG), 2-core cable at the installation site.

⚠ CAUTION - The wiring cannot be connected to TB5 of the indoor unit of the same refrigerant system. If so connected, the system will not operate normally.

- Remote controllers cannot be wired together. Only one wire can be connected to the remote controller terminal block.
- When connecting to TB5, connect up to two wires of the same size to one terminal block.

4 | How To Install

This remote controller is for the wall installation. It can be installed either in the switch box or directly on the wall. When performing direct wall installation, wires can be thread through either back or top of the remote controller.

(1) Selecting an installation site

Install the remote controller (switch box) on the site where the following conditions are met.

- A flat surface
- A place where the remote controller can measure the accurate indoor temperature
Sensors to monitor indoor temperature are on the indoor unit and on the remote controller. When the room temperature is monitored with the sensor on the remote controller, the built-in sensor on the Main remote controller monitors the room temperature. When using the sensor on the remote controller, follow the instructions below.

- To monitor the accurate indoor temperature, install the remote controller away from direct sunlight, heat sources, and the supply air outlet of the air conditioner.
- Install the remote controller in a location that allows the sensor to measure the representative room temperature.
- Install the remote controller where no wires are routed around the temperature sensor on the controller. (If wires are routed, the sensor cannot measure accurate indoor temperature.)

Important

Do not install the controller in a place where the difference between the remote controller surface temperature and the actual room temperature will be great. If the temperature difference is too high, room temperature may not be adequately controlled.

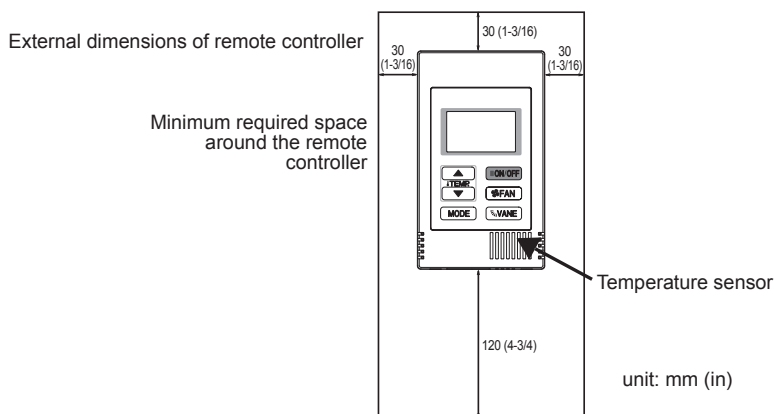
To avoid deformation and malfunction, do not install the remote controller in direct sunlight or where the ambient temperature may exceed 40°C (104°F) or drop below 0°C (32°F).

To reduce the risk of malfunctions, do not install the controller in a place where water or oil may come into contact with the controller, or in a condensing or corrosive environments.

Do not install the remote controller directly onto electrically conductive objects such as metal plate that has not been painted.

(2) Installation space

Leave a space around the remote controller as shown in the figure shown below, regardless of whether the controller is installed in the switch box or directly on the wall. Removing the remote controller will not be easy with insufficient space. Also, leave an operating space in front of the remote controller.



(3) Installation work

Controller can be installed either in the switch box or directly on the wall. Perform the installation properly according to the installation method.

① Drill a hole in the wall.

■ Installation using a switch box

- Drill a hole in the wall, and install the switch box on the wall.
- Connect the switch box to the conduit tube.

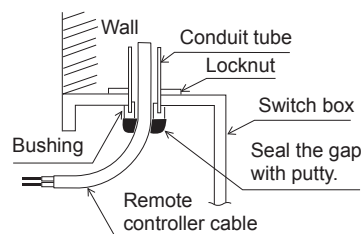
■ Direct wall installation

- Drill a hole in the wall, and thread the cable through it.

② Seal the cable access hole with putty

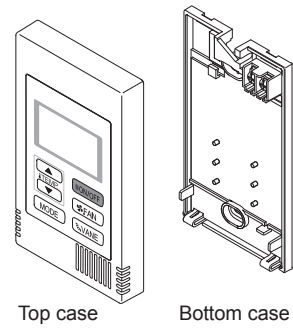
■ Installation using a switch box

- Seal the remote controller cable access hole at the connection of switch box and conduit tube with putty.



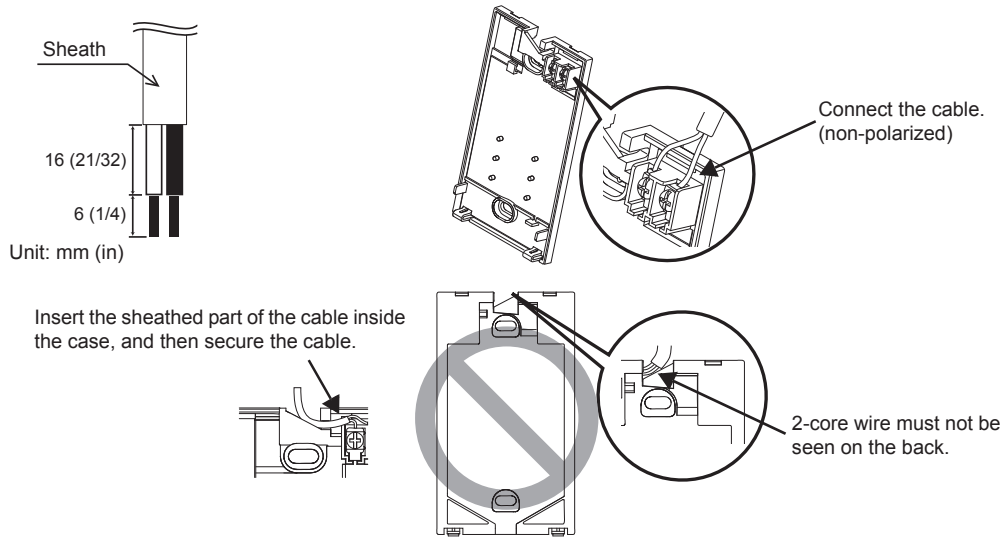
To reduce the risk of electric shock, malfunctions, or fire, seal the gap between the cables and cable access holes with putty.

③ Prepare the bottom case of the remote controller.



④ Connect the remote controller cable to the terminal block on the bottom case.

Peel off the remote controller cable sheath as shown below to connect to the terminal block properly. Secure the remote controller cable so that the peeled part of the cable will fit into the case.



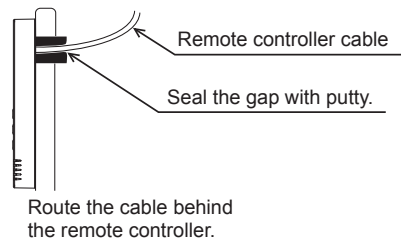
■ Direct wall installation

- Seal the hole through which the cable is threaded with putty.

To reduce the risk of electric shock, shorting, or malfunctions, keep wire pieces and sheath shavings out of the terminal block.

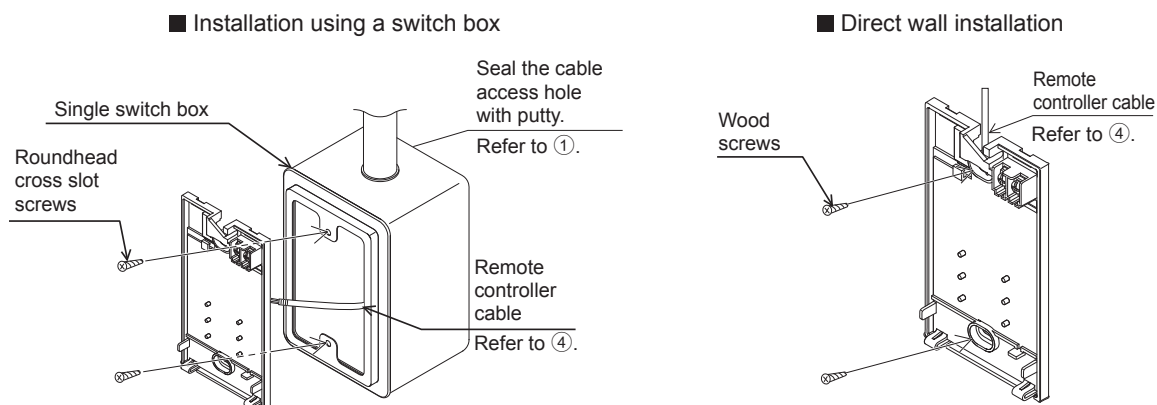
Important

Do not use solderless terminals to connect cables to the terminal block. Solderless terminals may come in contact with the circuit board and cause malfunctions or damage the controller cover.



⑤ Install the bottom case.

Be sure to secure two places of the bottom case.



Important

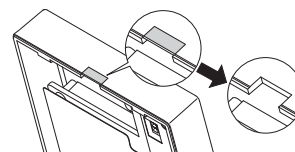
To avoid deformation and damage to the bottom case, do not overtighten the screws.

To avoid damage to the bottom case, do not make holes on it.

⑥ Cut out the cable access hole.

■ Direct wall installation (when running the cable along the wall)

- Cut out the thin-wall part on the cover (the shaded area in the right figure) with a knife or a nipper.
- Thread the cable from the groove behind the bottom case through this access hole.



⑦ Set the dip switches on the top case.

When using two remote controllers in one group, set the dip switches.

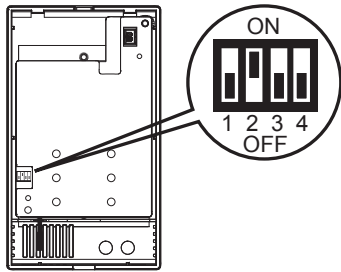
When using two remote controllers in one group, specify the main and sub remote controllers using dip switch No. 1 shown below.

- When connecting only one remote controller to one group, it is always the main remote controller. When connecting two remote controllers to one group, set one remote controller as the main remote controller and the other as the sub remote controller.
- The factory setting is “Main”.

Setting the dip switches

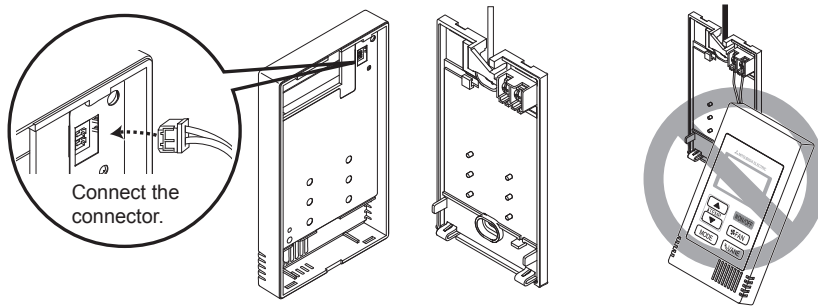
There are switches on the back of the top case. Remote controller Main/Sub and other function settings are performed using these switches. Ordinarily, only change the Main/Sub setting of SW1. (The factory settings are ON for SW1, 3, and 4 and OFF for SW2.)

SW No.	SW contents Main	ON	OFF	Comment
1	Remote controller Main/Sub setting	Main	Sub	Set one of the two remote controllers at one group to “ON”.
2	Temperature display units setting	Celsius	Fahrenheit	When the temperature is displayed in [Fahrenheit], set to “OFF”.
3	Cooling/heating display in AUTO mode	Yes	No	When you do not want to display “Cooling” and “Heating” in the AUTO mode, set to “OFF”.
4	Indoor temperature display	Yes	No	When you do not want to display the indoor temperature, set to “OFF”.



⑧ Connect the connector to the top case.

Connect the connector on the bottom case to the socket on the top case.



Important

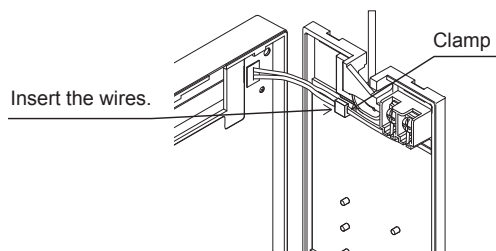
To prevent malfunctions, do not remove the protective sheet or the circuit board from the top case.

To prevent cable breakage and malfunctions, do not hang the top controller casing hang by the cable as shown in the figure above.

⑨ Insert the wires into the clamp.

Important

Hold the wires in place with the clamp to prevent undue force from being applied to the terminal block and causing cable breakage.

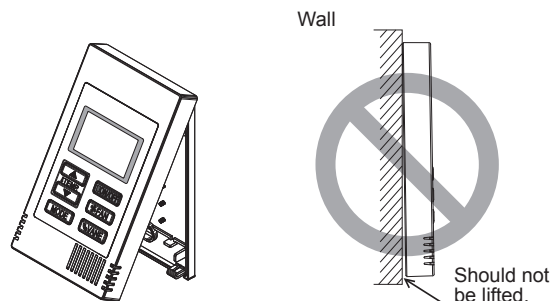


⑩ Install the top case on the bottom case.

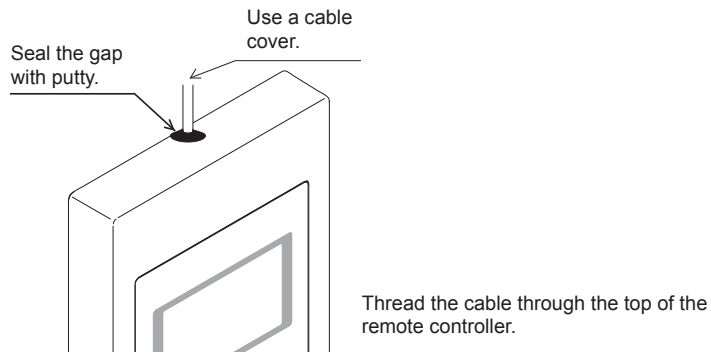
Two mounting tabs are at the top of the top case. Hook those two tabs onto the bottom case, and click the top case into place. Check that the case is securely installed and not lifted.

Important

When attaching the top casing to the bottom casing, push it until it they click into place. If they are not properly locked into place, they may fall, causing personal injury, controller damage, or malfunctions.



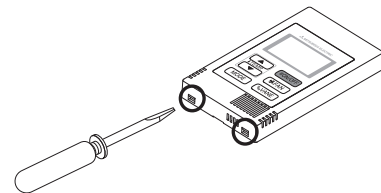
- Direct wall installation (when running the cable along the wall)
 - Thread the cable through the access hole at the top of the remote controller.
 - Seal the cut-out part of the cover with putty.
 - Use a cable cover.



- **Uninstalling the top case**

- ① Uninstalling the top case

Insert a flat-tip screwdriver with a blade width of 3-5 mm (1/8-7/32 inch) into the latches at the bottom of the remote controller and lift the latches. Then, pull up the top case.



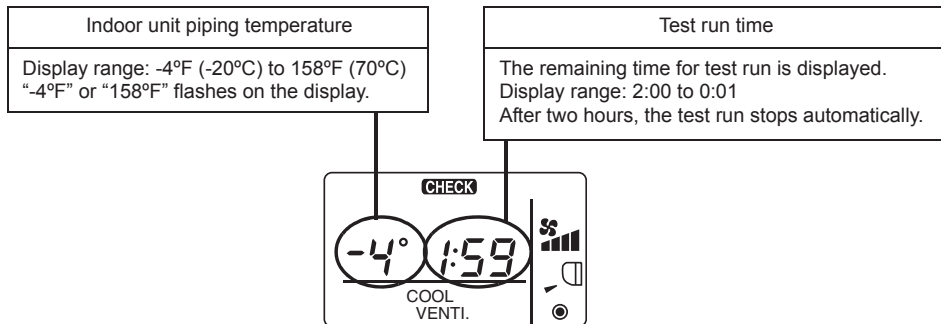
Important

To prevent damage to the controller casing, do not force the flat-tip screwdriver to turn with its tip inserted in the slot.

Do not insert the flat-tip screwdriver too far. Doing so will damage the circuit board.

5 Test Run

1. Before making a test run, refer to the "Test Run" section of the indoor unit installation manual.
2. When the [ON/OFF] button and [TEMP. ▲] button are pressed simultaneously for 2 seconds or longer, test run is performed.
3. Stop the test run by pressing the [ON/OFF] button.
4. If trouble occurred during the test run, refer to the "Test Run" section of the indoor unit installation manual.



6 Ventilation Setting

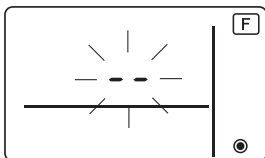
Make this setting only when interlocked operation with LOSSNAY or OA processing unit is necessary with CITY MULTI models.
 (This setting cannot be made with M-Series and P-Series air conditioners.)

Perform this operation when you want to register the LOSSNAY or OA processing unit, confirm the registered units, or delete the registered units controlled by the remote controller.

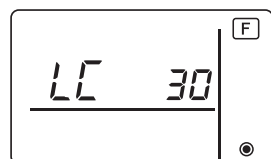
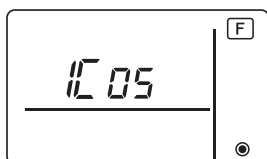
The following uses indoor unit address 05 and LOSSNAY or OA processing unit address 30 as an example to describe the setting procedure.

[Setting Procedure]

- ① Stop the air conditioner using the remote controller [ON/OFF] button.
- ② Press and hold down the [FAN] and [TEMP. ▼] buttons at the same time for two seconds. The display shown below appears. The remote controller confirms the registered LOSSNAY or OA processing unit addresses of the currently connected indoor units.



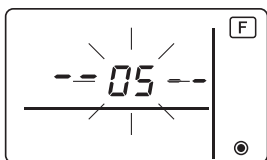
- ③ Registration confirmation result
 - The indoor unit address and registered LOSSNAY or OA processing unit address are displayed alternately.



<Indoor unit address and indoor unit display>

<LOSSNAY address display and LOSSNAY display>

- When LOSSNAY or OA processing unit are not registered



- ④ If registration is unnecessary, end registration by pressing and holding down the [FAN] and [TEMP. ▼] buttons at the same time for two seconds.

If a new LOSSNAY or OA processing unit must be registered, go to step **1. Registration procedure.**

If you want to confirm another LOSSNAY or OA processing unit, go to step **2. Confirmation procedure.** To delete a registered LOSSNAY or OA processing unit, go to step **3. Deletion procedure.**

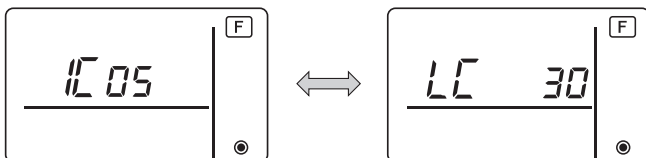
<1. Registration procedure>

- ⑤ Set the address of the indoor unit to be interlocked with the LOSSNAY unit using the [TEMP. ▲] and [TEMP. ▼] buttons. (01 to 50)
- ⑥ After setting, press the [FAN] button and set the Lossnay address you want to register by operating the [TEMP. ▲] and [TEMP. ▼] buttons. (01~50)



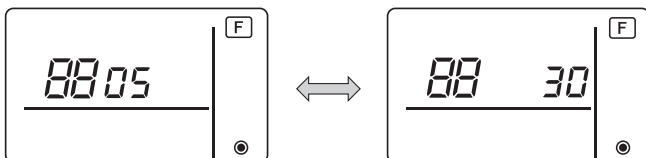
Indoor unit address LOSSNAY or OA processing unit address

- ⑦ Press the [ON/OFF] button, and register the set indoor unit address and LOSSNAY address.
- Registration end display
The indoor unit address and "IC" and LOSSNAY address and "LC" are alternately displayed.



- Registration error display

If the address is not registered correctly, the indoor unit address and [BB], and the registered LOSSNAY (or OA processing unit address) and [BB] are alternately displayed.

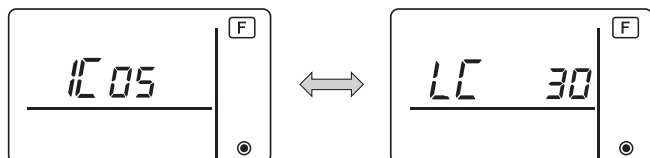


Cannot be registered because the registered indoor unit or LOSSNAY or OA processing unit does not exist.

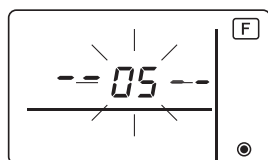
Cannot be registered because another LOSSNAY or OA processing unit was registered at the registered indoor unit.

<2. Confirmation procedure>

- ⑧ Set the address of the indoor unit connected by the remote controller whose LOSSNAY or OA processing unit you want to confirm using the [TEMP. ▲] and [TEMP. ▼] buttons. (01 to 50)
- ⑨ Press the [ON/OFF] button and [FAN] button simultaneously for 2 seconds, and check the LOSSNAY address registered at the set indoor unit address.
 - Confirmation end display (When LOSSNAY is connected.)
The indoor unit address and “IC” and registered LOSSNAY address and “LC” are alternately displayed.



- Confirmation end display (When LOSSNAY or OA processing unit is not connected.)



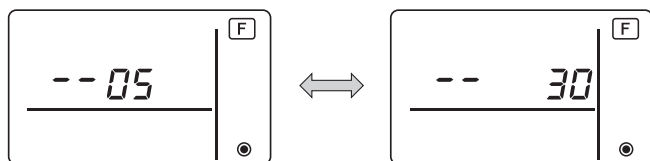
- Registered indoor unit address does not exist.



<3. Deletion procedure>

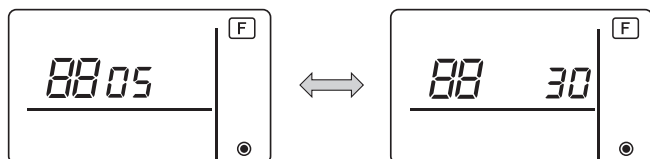
Use this procedure when you want to delete registration of indoor units connected by the remote controller and LOSSNAY or OA processing unit.

- ⑩ Confirm (see **2. Confirmation procedure**) the LOSSNAY or OA processing unit you want to delete and display the indoor units and LOSSNAY or OA processing unit confirmation results.
- ⑪ Press the [TEMP. ▲] and [TEMP. ▼] buttons simultaneously for 2 seconds, and delete registration of the LOSSNAY or OA processing unit address registered at the set indoor unit.
 - Deletion end display
Indoor unit address and “--” and registered LOSSNAY or OA processing unit address and “--” are alternately displayed.



- Deletion error display

When deletion was not performed properly.



7 Function Selection for M-Series and P-Series

Make the following settings for M-Series and P-Series if necessary.
(This setting cannot be made with CITY MULTI Control System. To make CITY MULTI indoor unit settings from the remote controller, refer to section [9](#) Function Selection for CITY MULTI .)

Set the functions of each indoor unit from the remote controller, as required. The functions of each indoor unit can be selected only from the remote controller.

Set the functions by selecting the necessary items from Table 1.

Table1. Function selection contents

(For a detailed description of the factory settings and mode of each indoor unit, refer to the indoor unit installation manual.)

Mode No.	Mode	Settings	Setting No.	Check	Unit numbers
01	Automatic recovery after power failure	Disable	1		Set "00" for the Unit number. These settings apply to all the connected indoor units.
		Enable (Four minutes of standby time is required after the restoration of power.)	2		
02	Thermistor selection (Indoor temperature detection)	Average temperature reading of the indoor units in operation	1		
		Thermistor on the indoor unit to which the remote controller is connected (fixed)	2		
		Built-in sensor on the remote controller	3		
03	LOSSNAY connection	Not connected	1		
		Connected (without outdoor air intake by the indoor units)	2		
		Connected (with outdoor air intake by the indoor units)	3		
04	Power voltage	240 V	1		
		220 V, 230 V	2		
05	AUTO mode	Enable (Automatically the unit achieves effective energy saving operation.)	1		
		Disable	2		
07	Filter sign	100 hours	1		Set "01" to "04" or "AL" for the Unit number. These settings apply to each indoor unit.
		2500 hours	2		
		Not displayed	3		
08	Fan speed	Silent mode (or standard)	1		<ul style="list-style-type: none"> If "01" ("02", "03", "04") is set for the Unit number, the settings apply only to the specified indoor unit regardless of the number of connected indoor units (one through four units). If "AL" is set for the Unit number, the settings apply to all the connected indoor units regardless of the number of connected indoor units (one through four units).
		Standard (or High ceiling 1)	2		
		High ceiling (or High ceiling 2)	3		
09	No. of air outlets	4 directional	1		
		3 directional	2		
		2 directional	3		
10	Installed options (High performance filter)	No	1		
		Yes	2		
11	Vane setting	No vanes (or the vane setting No.3 is effective.)	1		
		Equipped with vanes (The vane setting No.1 is effective.)	2		
		Equipped with vanes (The vane setting No.2 is effective.)	3		

* Static pressure setting can be made by using Mode 08 in combination with Mode 10 depending on the indoor unit model. Refer to the Indoor unit Installation Manual for details.

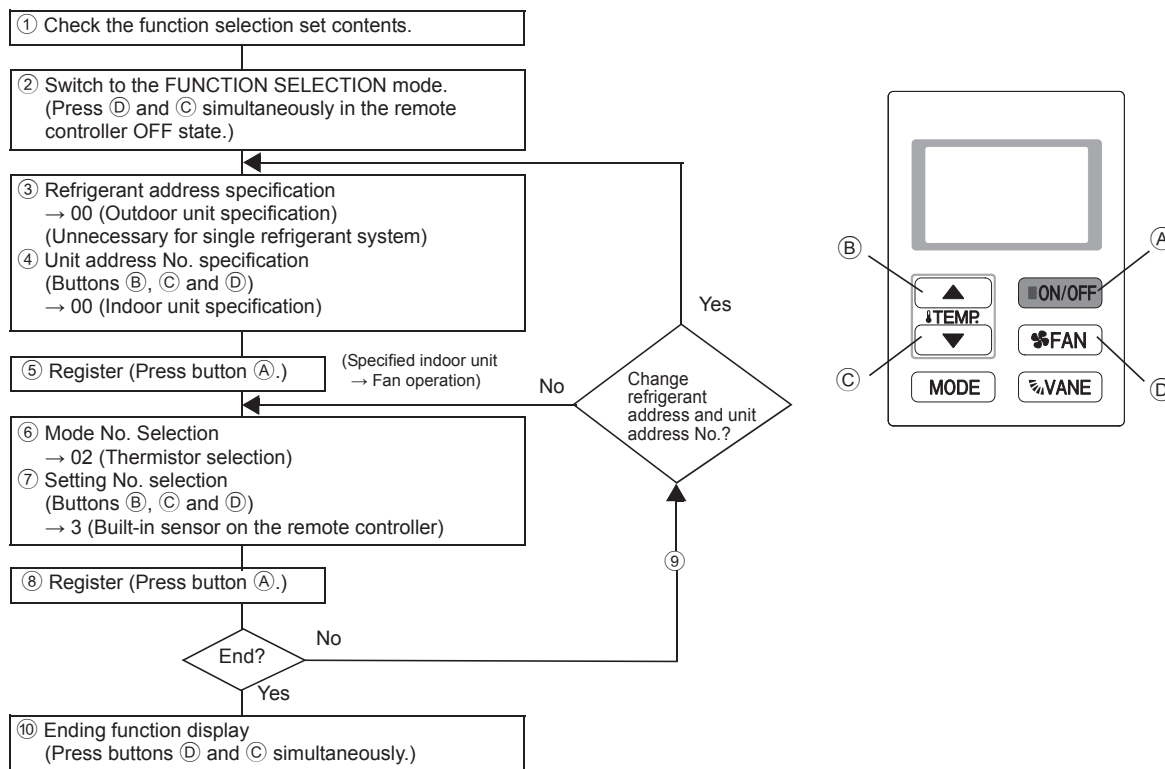
* For mode numbers other than listed above, refer to the indoor unit installation manual.

NOTE: When the indoor unit functions were changed using the function selection after installation is complete, always indicate the set contents by entering check marks or other marks in the appropriate check field of Table 1.

[Function selection flow]

First grasp the function selection flow. The following describes setting of “Thermistor selection” of Table 1 as an example.

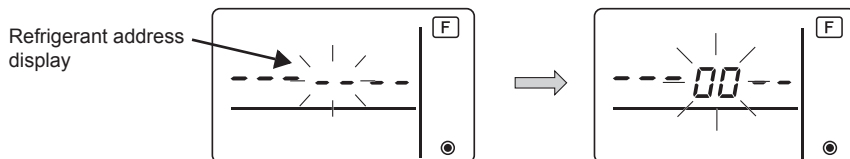
(For the actual setting procedure, see [Setting procedure] ① to ⑩.)



[Setting procedure] (Set only when change is necessary.)

① Check the set contents of each mode. When the set contents of a mode were changed by function selection, the functions of that mode also change. Check the set contents as described in steps ② to ⑦ and change the setting based on the entries in the Table 1 check field. For the factory settings, refer to the indoor unit installation manual.

② Set the remote controller to Off. Press and hold down the **D** [FAN] and the **C** [TEMP. ▼] buttons at the same time for two seconds or longer. “**F** (FUNCTION)” blinks for a while, then the remote controller display changes to the display shown below.

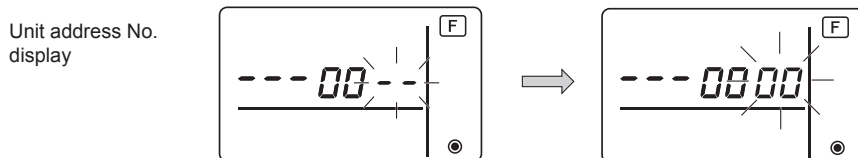


③ Set the outdoor unit refrigerant address No. When the **B** [TEMP. ▲] and **C** [TEMP. ▼] buttons are pressed, the refrigerant address No. decreases and increases between 00 and 15. Set it to the refrigerant address No. whose function system you want to select. (This step is unnecessary for single refrigerant system.)

* If the remote controller enters the OFF state after the “**F** (FUNCTION)” and room temperature displays “**BB**” have flashes for two seconds, communication is probably abnormal. Make sure there are no noise sources near the transmission line.

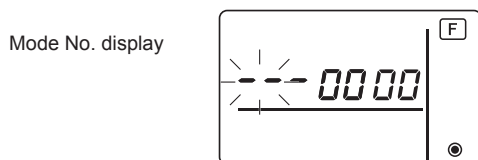
NOTE: If you make a mistake during operation, end function selection by step ⑩ and repeat selection from step ② .

- ④ Set the indoor unit address No.
 Press the **D** [**FAN**] button. The unit address No. display “--” flashes.
 When the **B** [TEMP. ▲] and **C** [TEMP. ▼] buttons are pressed, the unit address No. changes in the order of 00 ↔ 01 ↔ 02 ↔ 03 ↔ 04 ↔ AL. Set it to the unit address No. of the indoor unit whose functions you want to set.



- * When setting mode 1 ~ 6, set the unit address No. to “00”.
- * When setting modes 7 to 14:
 - When setting for each indoor unit, set the unit address No. to “01-04”.
 - When batch setting for all indoor units, set the unit address No. to “AL”.

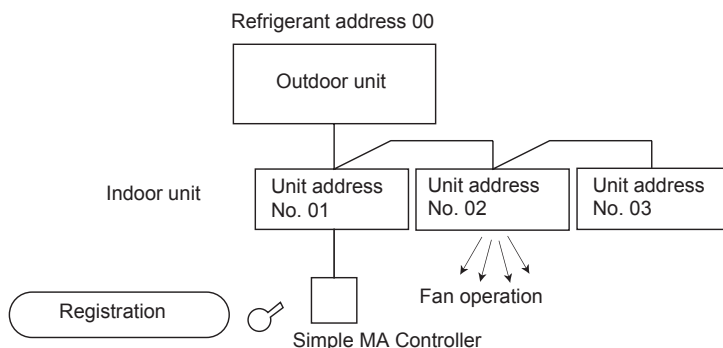
- ⑤ Refrigerant address and unit address No. registration
 Press the **A** [ON/OFF] button. The refrigerant address and unit address No. are registered.
 After a while, the mode No. display “--” flashes.



- * When “**BB**” flashes at the room temperature display, the selected refrigerant address is not in the system. When “**F**” is displayed at the unit address No. display, and when it flashes together with the refrigerant address display, the selected unit address No. does not exist. Correctly set the refrigerant address and unit address No. by repeating steps ③ and ④ .

- ☞ When registered using the **A** [ON/OFF], the registered indoor unit begins fan operation.
 When you want to know the location of the indoor units of the unit address No. whose functions were selected, check here.
 When the unit address No. is 00 or AL, all the indoor units of the selected refrigerant address perform the fan operation.

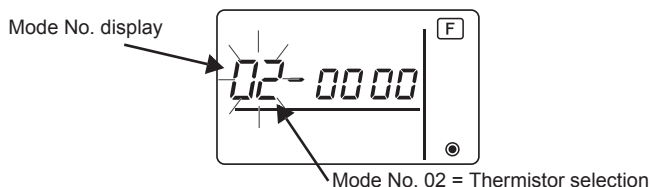
EX): When refrigerant address 00, unit address No. = 02 registered



- * When grouping by different refrigerant systems and an indoor unit other than the specified refrigerant address performs the fan operation, the refrigerant address set here is probably duplicated.
 Recheck the refrigerant address at the outdoor unit dip switches.

⑥ Mode No. selection

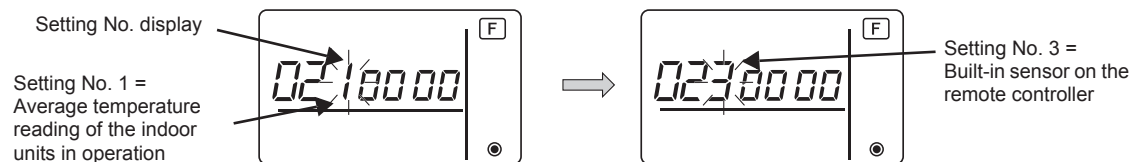
Select the mode No. you want to set with the **Ⓑ** [TEMP. ▲] and **Ⓒ** [TEMP. ▼] buttons. (Only the settable mode numbers can be selected.)



⑦ Select the setting contents of the selected mode.

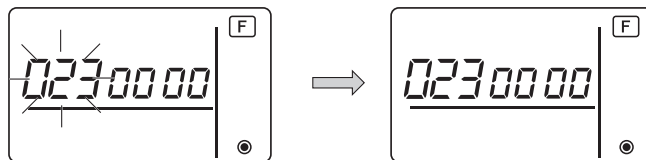
When the **Ⓓ** [FAN] button is pressed, the current setting No. flashes. Use this to check the currently set contents.

Select the setting No. using the **Ⓑ** [TEMP. ▲] and **Ⓒ** [TEMP. ▼] buttons.



⑧ The contents set at steps ③ to ⑦ are registered.

When the **Ⓐ** [ON/OFF] button is pressed, the mode No. and setting No. flash and registration begins. The flashing mode No. and setting No. change to a steady light and setting ends.



* When "88" flashes at the Mode No. display, communication is probably abnormal. Make sure there are no noise sources near the transmission line.

⑨ To select more functions, press the **Ⓓ** [FAN] and repeat steps ③ to ⑧.

⑩ End function selection.

Press and hold down the **Ⓒ** [TEMP. ▼] and **Ⓓ** [FAN] buttons at the same time for two seconds or longer.

After a while, the function selection display disappears and the remote controller returns to the air conditioner off display.

* Do not operate the air conditioner from the remote controller for 30 seconds after the end of function selection.

NOTE: When the functions of an indoor unit were changed by function selection after the end of installation, always indicate the set contents by entering check marks or other marks in the appropriate check field of Table 1.

8 Function Selection for CITY MULTI

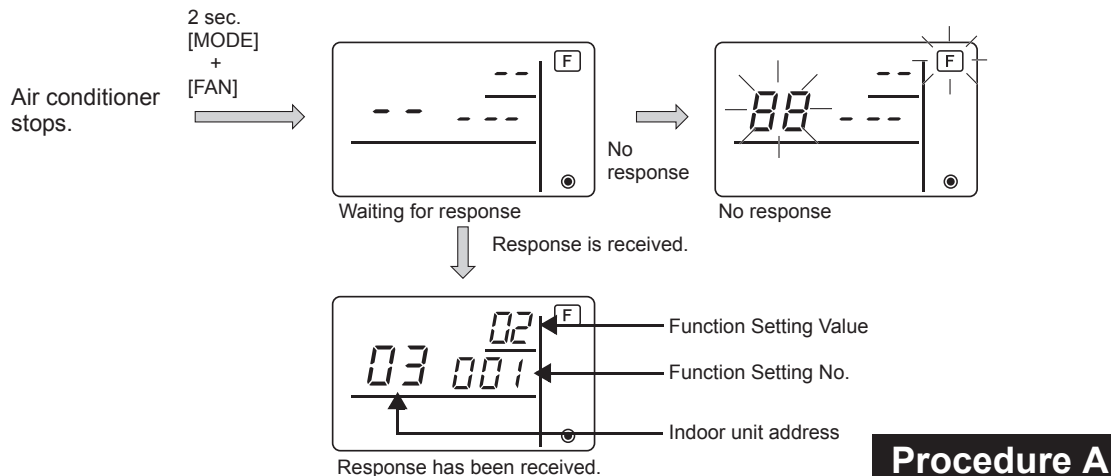
Make this setting only when the function settings need to be changed on CITY MULTI.
(This setting cannot be made with M-Series and P-Series Control System. To make settings for M-Series and P-Series, refer to section (8 Function Selection for M-Series and P-Series).)

Set the functions of each indoor unit from the remote controller, as required.
Refer to the Indoor unit Installation Manual for factory settings, mode No., and the setting No. of the indoor units.

NOTE: Be sure to write down any settings that you change performing the following steps.

■ Setting the indoor unit Setting Value

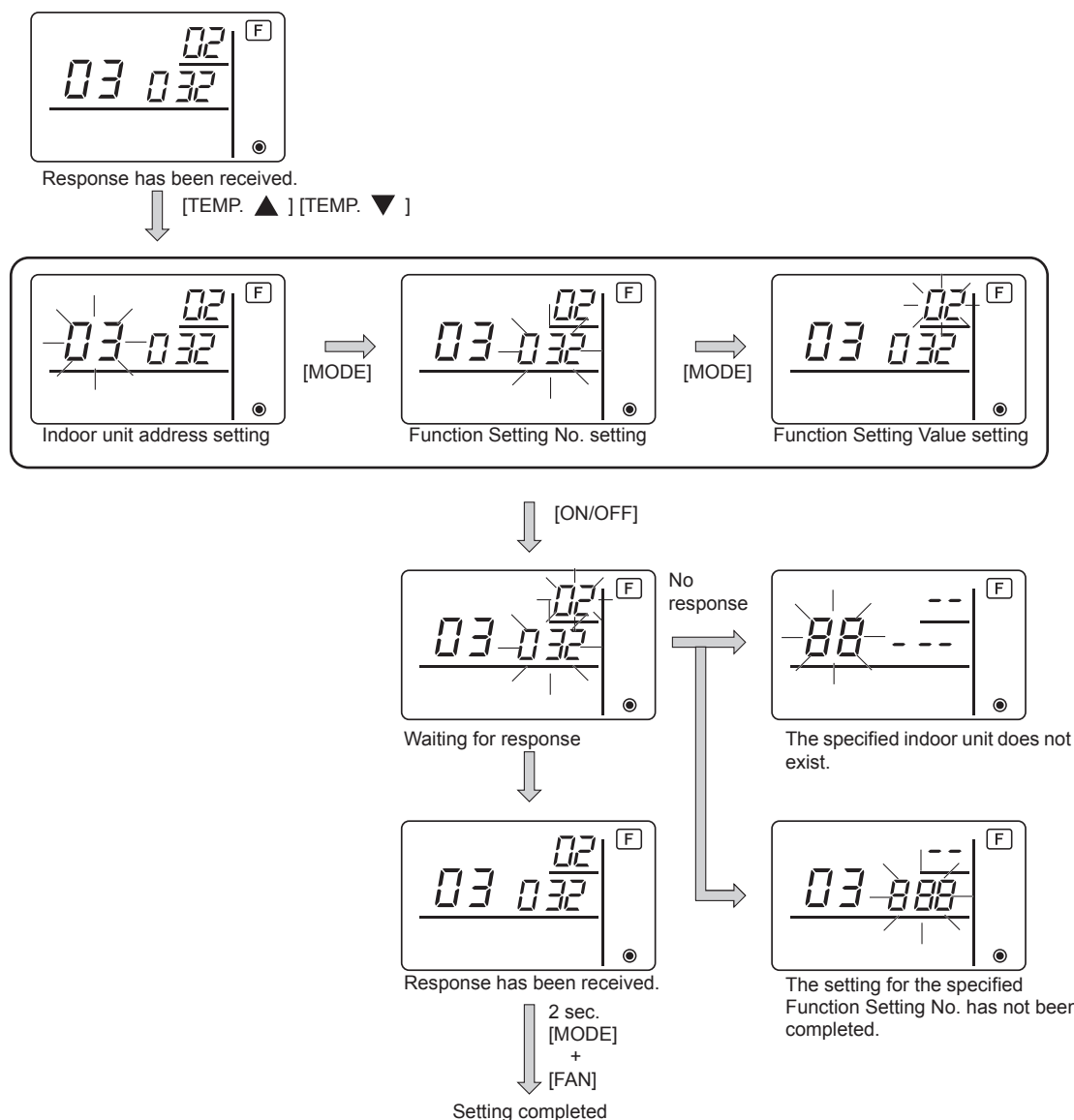
- ① Press the [ON/OFF] button to stop the operation of the air conditioner.
- ② Press and hold down the [MODE] and the [FAN] buttons at the same time for two seconds or longer to check the current settings.
- ③ When the response has been received from the indoor unit, the current settings appear. If there is no response, nothing appears.



Procedure A

- ④ Press the [TEMP. ▲] and the [TEMP. ▼] buttons to set the address of the indoor unit whose settings to be made. (0 to 50)
- ⑤ Press the [MODE] button, then press the [TEMP. ▲] and the [TEMP. ▼] buttons to set the Function Setting No. to be set. (000 to 255)
- ⑥ Press the [MODE] button, then press the [TEMP. ▲] and the [TEMP. ▼] buttons to set the Function Setting Value. to be set (00 to 15)
- ⑦ Press the [ON/OFF] button to set the settings.

- ⑧ If the set settings need to be changed, repeat steps ④ to ⑦.
 To complete the settings, press the [MODE] and the [FAN] buttons at the same time for two seconds or longer.

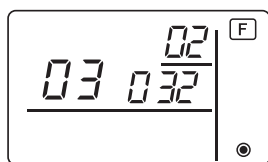


■ Checking the indoor unit Function Setting Value

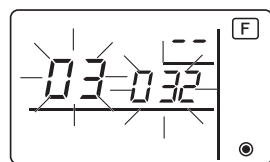
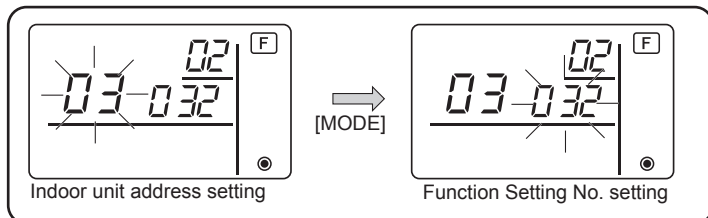
- ① Perform the Procedure A on the previous page.
- ② Press the [TEMP. ▲] and the [TEMP. ▼] buttons to set the address of the indoor unit whose settings to be checked. (0 to 50)
- ③ Press the [MODE] button, then press the [TEMP. ▲] and the [TEMP. ▼] buttons to set the Function Setting No. to be checked. (000 to 255)
- ④ Press the [FAN] button to display the current Function Setting Value.

⑤ To check the settings, repeat steps ② to ④.

To complete the checking process, press the [MODE] and the [FAN] buttons at the same time for two seconds or longer.

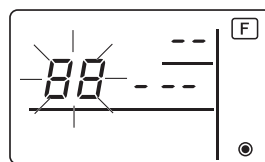


Response has been received.



Waiting for response

No response



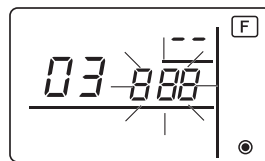
The specified indoor unit does not exist.



Current setting value



Response has been received.



The setting for the specified Function Setting No. has not been completed.

9 Self diagnosis

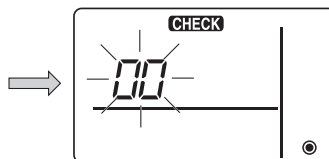
Retrieve the error history of each unit using the Simple MA controller.

① Switch to the self-diagnosis mode.

When the (A) [ON/OFF] button and the (C) [TEMP. ▼] button are pressed for 5 seconds or longer, the figure shown below is displayed.

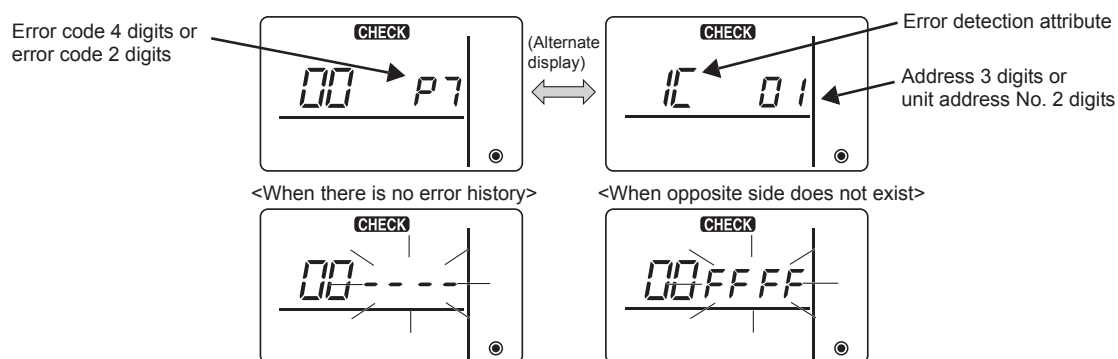
② Set the address or refrigerant address No. you want to self-diagnosis.

When the (B) [TEMP. ▲] and (C) [TEMP. ▼] are pressed, the address decreases and increases between 01 and 50 or 00 and 15. Set it to the address No. or refrigerant address No. you want to self-diagnosis.



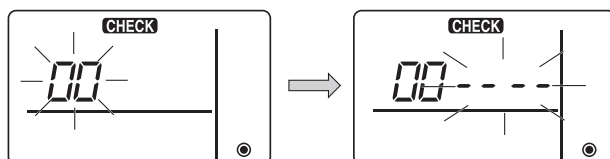
Approximately three seconds after the change operation, the self-diagnosis refrigerant address changes from flashing to a steady light and self-diagnosis begins.

- ③ Self-diagnosis result display <Error history> (For the contents of the error code, refer to the indoor unit installation manual or service handbook.)



- ④ Error history reset

The error history is displayed in ③ self-diagnosis results display. When the **(D) [FAN]** button is pressed two times successively within three seconds, the self-diagnosis object address and refrigerant address flash. When the error history was reset, the display shown below appears. When error history reset failed, the error contents are displayed again.



- ⑤ Self-diagnosis reset

There are the following two ways of resetting self-diagnosis.

Press the **(A) [ON/OFF]** button and the **(C) [TEMP. ▼]** button simultaneously for 5 seconds or longer. → Resets self-diagnosis and returns to the state before self-diagnosis.

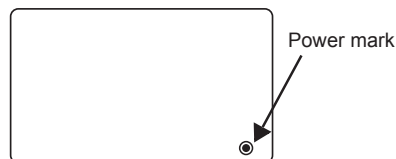
Press the **(A) [ON/OFF]** button. → Self-diagnosis resets and indoor units stop. (When operation is prohibited, this operation is ineffective.)

10 Remote Controller Check

When the air conditioner cannot be controlled from the Simple MA controller, use this function to check the remote controller.

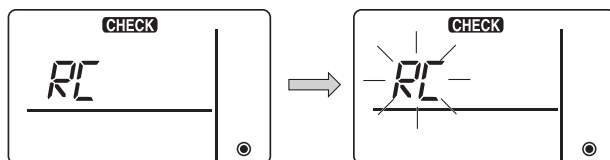
- ① First check the power mark.

When normal voltage (DC12V) is not applied to the remote controller, the power mark goes off. When the power mark is off, check the remote controller wiring and the indoor unit.

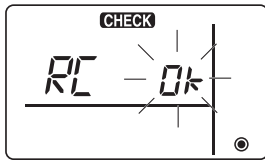


- ② Switch to the remote controller check mode.

When the **(B) [TEMP. ▲]** button and **(D) [FAN]** button are pressed simultaneously for 5 seconds or longer, the figure shown below is displayed. When the **(A) [ON/OFF]** button is pressed, remote controller check begins.

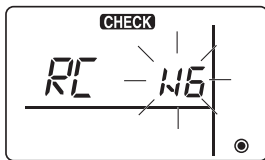


③ Remote controller check result
 <When remote controller is normal>



Since there is no problem at the remote controller, check for other causes.

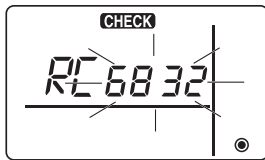
<When remote controller is faulty>



(Error display 1) "NG" flashes → Remote controller send/receive circuit abnormal

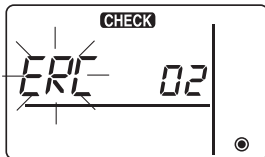
Remote controller switching is necessary.

When the problem is other than the checked remote controller



(Error display 2) "E3" "6833" "6832" flash → Cannot send

There is noise on the transmission line, or the indoor unit or another remote controller is faulty. Check the transmission line and the other remote controllers.



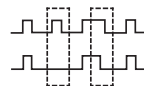
(Error display 3) "ERC" and data error count are displayed → Data error generation

"Data error count" is the difference between the number of bits of remote controller send data and the number of bits actually sent to the transmission line. In this case, the send data was disturbed by the noise, etc. Check the transmission line.



When data error count is 02

Remote controller send data
 Send data on transmission line



④ Remote controller check reset

When the **B** [TEMP. ▲] button and **D** [FAN] button are pressed simultaneously for 5 seconds or longer, remote controller diagnosis is reset and the [HO] and run lamp flash and 30 seconds later the remote controller returns to its state before diagnosis.

Photo



Descriptions

Wireless remote controller for P series and SEZ models.
(The receiver is necessary.)

Applicable Models

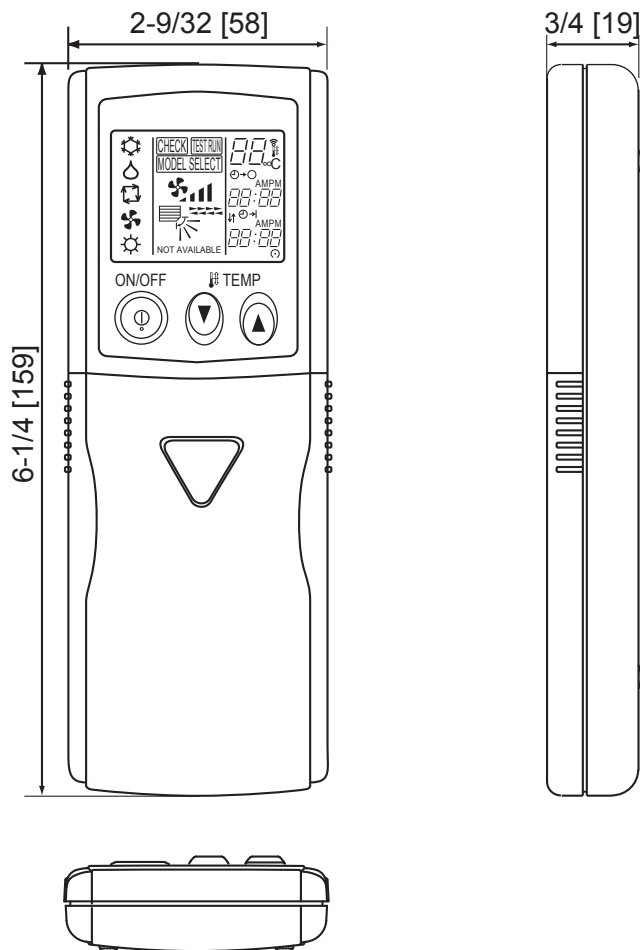
- SEZ-KD09/12/15/18NA4
- PLA-A12/18/24/30/36/42EA7
- PKA-A12/18HA7
- PEAD-A12/18/24/30/36/42AA7
- PKA-A24/30/36KA7
- PVA-A12/18/24/30/36/42AA7
- PCA-A24/30/36/42KA7

Specifications

Accessory	"AAA" LR03 alkaline batteries: 2pcs
	4.1×16 tapping screws: 2

Dimensions

Unit: inch [mm]





Photo



Descriptions

Wireless remote controller for P-series and S-series.

Applicable Models

- SLZ-M • FA2 series
- SEZ-M • DAL2 series
- SFZ-M • VA series
- PLA-ZM • EA2 series
- PLA-M • EA2 series
- PLA-SM • EA2 series
- PEAD-M • JA(L)2 * series
- PEAD-SM35/50/60JA(L)
- PEAD-SM71/100/125/140JA(L)2
- PEA-M • LA series
- PKA-M • LAL2 series
- PKA-M • KAL2 series
- PCA-M • KA2 * series
- PCA-M • HA2 * series
- PSA-M • KA * series

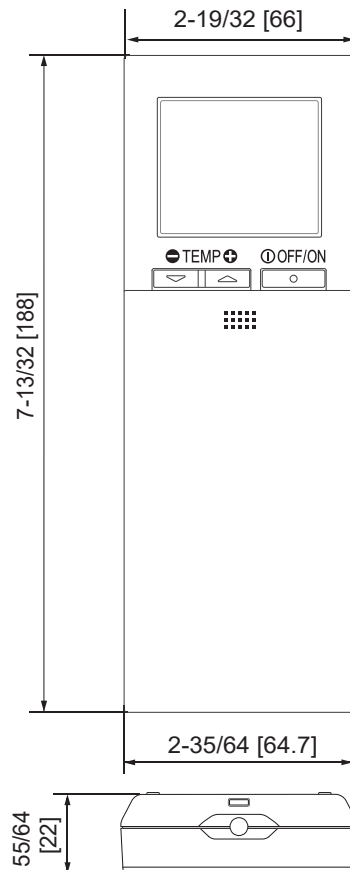
*Signal receiver "PAR-SA9CA-E" is required.

Specifications

Parts Name	Quantity
Wireless remote controller	1
Remote controller holder	1
AA(LR6) alkaline battery	2
Tapping screws 3.5 × 16	2

Dimensions

Unit: inch [mm]



How to Use / How to Install

1. Confirming the Supplied Parts

Check that the box includes the following parts in addition to this installation manual:

Parts Name	Quantity
Wireless remote controller	1
Remote controller holder	1
LR6 AA alkaline battery	2
Tapping screws 3.5 × 16	2

Only use LR6 AA batteries. Replace low batteries with new LR6 AA batteries. Observe the polarity of the batteries as indicated, and insert the negative end first.

2. Installation

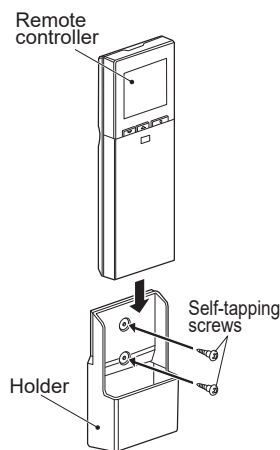
- Use the remote controller holder that is provided to avoid misplacing the remote controller.
- Install the remote controller in a location that meets the following conditions.
 - Out of the direct sun light
 - Away from any heat sources
 - Out of the airflow from the air conditioner (cool or warm)
 - Where the operation of the remote controller can easily be performed and the display is readily visible to the user
 - Out of the reach of small children

NOTES:

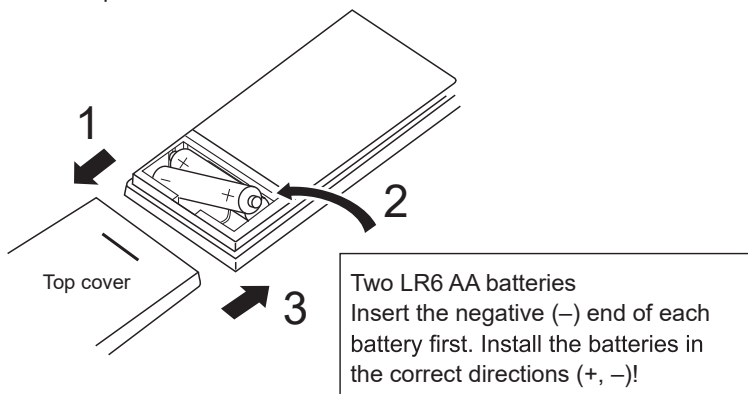
- * If there is a fluorescent light in the room in which the air conditioner is to be installed, turn it on and make sure that the signal from the remote controller can be received by the indoor unit from the intended installation location. When the signal receiving unit receives a signal from the remote controller, a short beeping sound will be heard.

If the air conditioner unit is installed in a room in which a fluorescent light on an electronic lighting control system (i.e., inverter light) is installed, signal interference may occur.

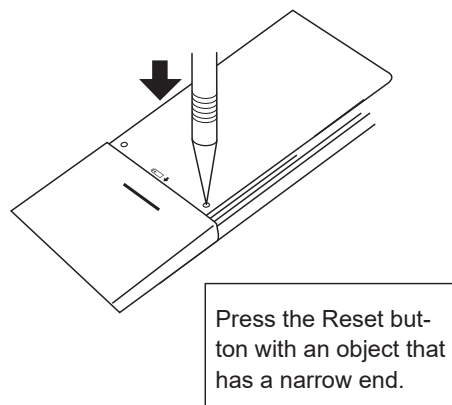
- * Maximum signal receiving distance is approximately 7 meters (Approx. 22 feet). Signal receiving angle is approximately 45 degrees to the right and the left from the center.
- * Install the unit at least 1 meter (Approx. 3 feet) away from the TV or radio. (If the unit is installed too close to these appliances, signal interference (picture distortion and noise) may occur.)
- Use the tapping screws that are provided to mount the remote controller holder on the wall, and then place the remote controller in the holder.



1. Remove the top cover, insert two LR6 AA batteries, and then install the top cover.



2. Press the Reset button.



3. Initial Setting

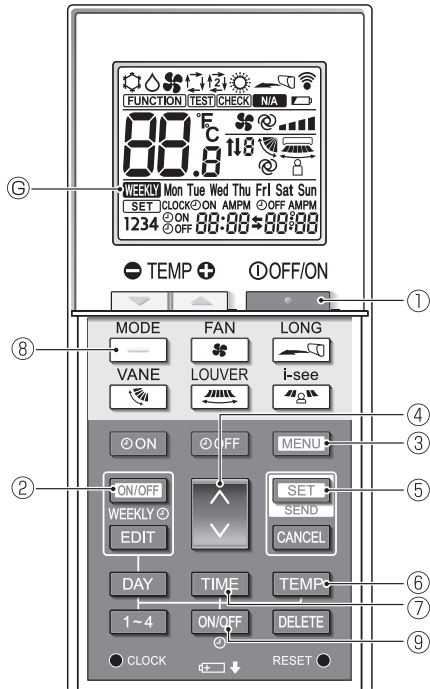


Fig. 3-1

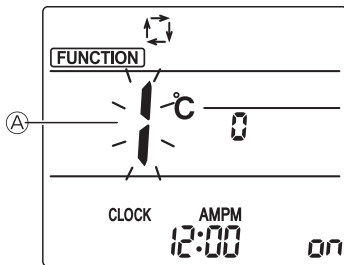


Fig. 3-2

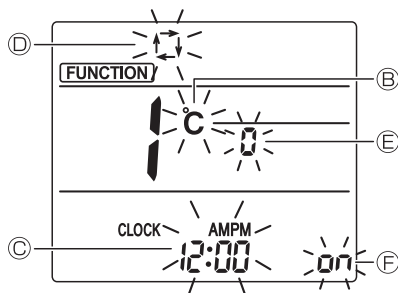


Fig. 3-3

The following settings can be made in the initial setting mode.

Item	Setting	Fig. 5-3
Temperature unit	°C/°F	(B)
Time display	12-hour format/24-hour format	(C)
AUTO mode	Single set point/Dual set point	(D)
Pair No.	0-3	(E)
Backlight	On/Off	(F)

1. Switching to the initial setting mode (Fig. 3-1, Fig. 3-2)

- Press the **STOP** button (1) to stop the air conditioner.
 - If the weekly timer is enabled, press the **ON/OFF WEEKLY** button (2) to disable the timer. (**WEEKLY** (C) disappears.)
- Press the **MENU** button (3).
 - The Function setting screen will be displayed and the function No. (A) will blink.
 - Press the **DOWN** button (4) to change the function No.
- Check that function No. "1" is displayed, and then press the **SET** button (5).
 - The Screen display setting screen will be displayed.





2. Changing the temperature unit (Fig. 3-1, Fig. 3-3 (B))

- Press the **TEMP** button (6).
- Pressing the **TEMP** button (6) changes the temperature unit (°C / °F). (The factory setting is "°C".)
 - °C : The temperature is displayed in degrees Celsius.
 - °F : The temperature is displayed in degrees Fahrenheit.

3. Changing the time display (Fig. 3-1, Fig.3-3 (C))

- Press the **TIME** button (7).
- Pressing the **TIME** button (7) changes the time display (^{AMPM} 12:00 / 24:00). (The factory setting is "12-hour format".)
 - ^{AMPM} 12:00 : The time is displayed in the 12-hour format.
 - 24:00 : The time is displayed in the 24-hour format.

4. Changing the AUTO mode (Fig. 3-1, Fig.3-3 (D))

- Press the **AUTO** button (8).
- Pressing the **AUTO** button (8) changes the Auto mode ( / ). (The factory setting is "Single set point".)
 -  : The AUTO mode operates as the usual automatic mode (Single set point).
 -  : The AUTO mode operates using dual set points.

5. Changing the pair No. (Fig. 3-1, Fig.3-3 (E))

Press the button ④.

- Set the pair number to "0"-"3". (The factory setting is "0".)

Pair No. of wireless remote controller	Indoor unit setting		
	Mr. Slim	CITY MULTI	
	Indoor PC board jumper wire (J41 and J42 settings)	Indoor PC board SW22 settings	
		SW22-3	SW22-4
0	Do not cut (initial setting)	ON	ON
1	Cut only J41	OFF	ON
2	Cut only J42	ON	OFF
3	Cut both J41 and J42	OFF	OFF

Setting example (when using Mr. Slim)

Independent system	<p>(1) Same settings</p> <ul style="list-style-type: none"> • All of the units can be operated by the same wireless remote controller. 	<ul style="list-style-type: none"> • All of the indoor PC boards and the wireless remote controller are set to the same pair number. • Install each unit within the receiving range of the wireless remote controller or have the operator move the wireless remote controller to operate each unit.
	<p>(2) Separate settings</p> <ul style="list-style-type: none"> • Each unit can be operated only by its own wireless remote controller. 	<ul style="list-style-type: none"> • The indoor PC boards and wireless remote controllers are set to different pair numbers for each unit.
Simultaneous twin/triple/quadruple system	<p>Example of triple system</p>	<ul style="list-style-type: none"> • The system operates regardless of which indoor unit receives the signals.

4. Function settings

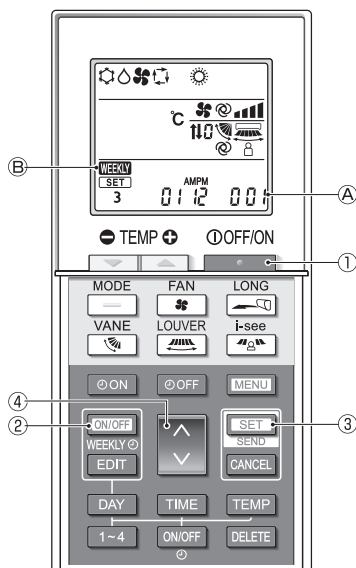


Fig. 4-1

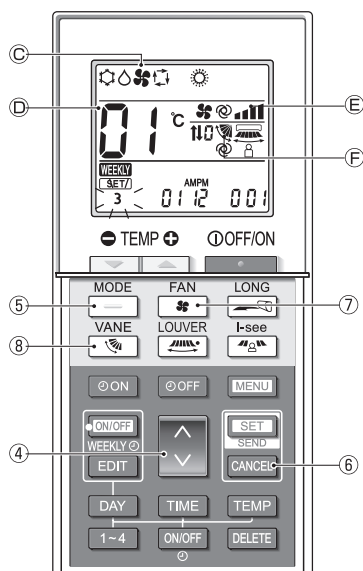


Fig. 4-2

To confirm the functions and settings for the indoor unit you want to set, refer to the operation manual and technical materials for the unit.

1. Switching to the function setting mode (Fig. 4-1)

- Press the **ON/OFF** button ① to stop the air conditioner.
 - If the weekly timer is enabled, press the **WEEKLY** button ② to disable the timer. (**WEEKLY** ② disappears.)
- Press the **SET** button ③ for 5 seconds.
 - The remote controller enters the function setting mode. (The group model setting number ④ blinks.)

2. Entering the group model setting number (Fig. 4-1)

- Press the **MODE** button ④.
- Enter the group model setting number for the indoor unit you want to operate. (The factory setting is "001".)
 - To confirm the group model setting number, refer to the indoor unit operation manual.
 - The fan speed, vertical airflow direction and operation mode can be set by operating the group model setting number.
- When you want to change any settings other than above, refer to the descriptions about the separate setting modes in the following pages.

3. Separate settings mode 1 (Fig. 4-2, Fig. 4-3)

You can also set the functions as necessary for the indoor unit that you want to operate.

1) Operation mode setting (The factory setting is "01".)

- Press the **MODE** button ⑤.
 - The operation mode ⑥ blinks.
- Press the **SET** button ④ to select the setting number ⑦.

Operation mode display ⑥	Setting No. ⑦	Operation mode display ⑥	Setting No. ⑦
	01		06
	02		07
	03		
	04		

* If the setting is incorrect, press the **CANCEL** button ⑥ and repeat the procedure from step 1.

2) Fan speed setting (The factory setting is "01".)

- Press the **FAN** button ⑦.
 - The fan speed ⑧ blinks.
- Press the **SET** button ④ to select the setting number ⑧.

Fan speed display ⑧	Setting No. ⑧
(4 speeds)	01
(3 speeds)	02
(2 speeds)	03
(1 speed, none)	04

* If the setting is incorrect, press the **CANCEL** button ⑥ and repeat the procedure from step 1.

3) Vertical airflow direction setting (The factory setting is "01".)

- Press the **VANE** button ⑧.
 - The airflow direction ⑨ blinks.
- Press the **SET** button ④ to select the setting number ⑨.

Airflow direction ⑨		Setting No. ⑨
With auto vane	Without auto vane	
(With vane, swing)	(With vane, swing)	01
(With vane, no swing)	(With vane, no swing)	02
No display (no vane)	No display (no vane)	03

* If the setting is incorrect, press the **CANCEL** button ⑥ and repeat the procedure from step 1.

5. Service

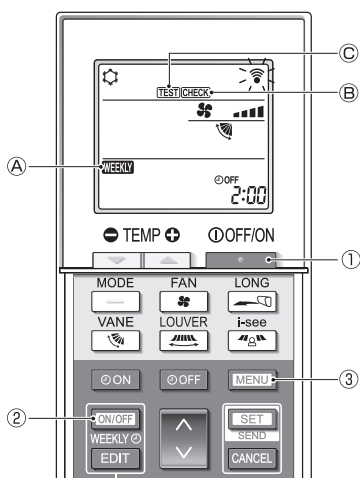


Fig. 5-1

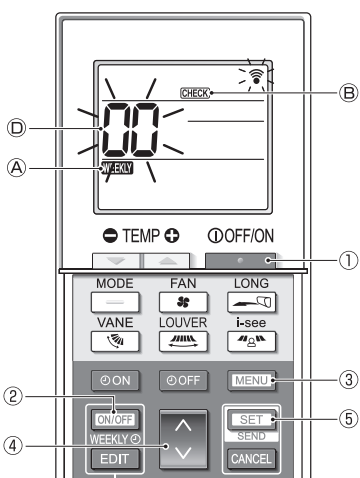


Fig. 5-2

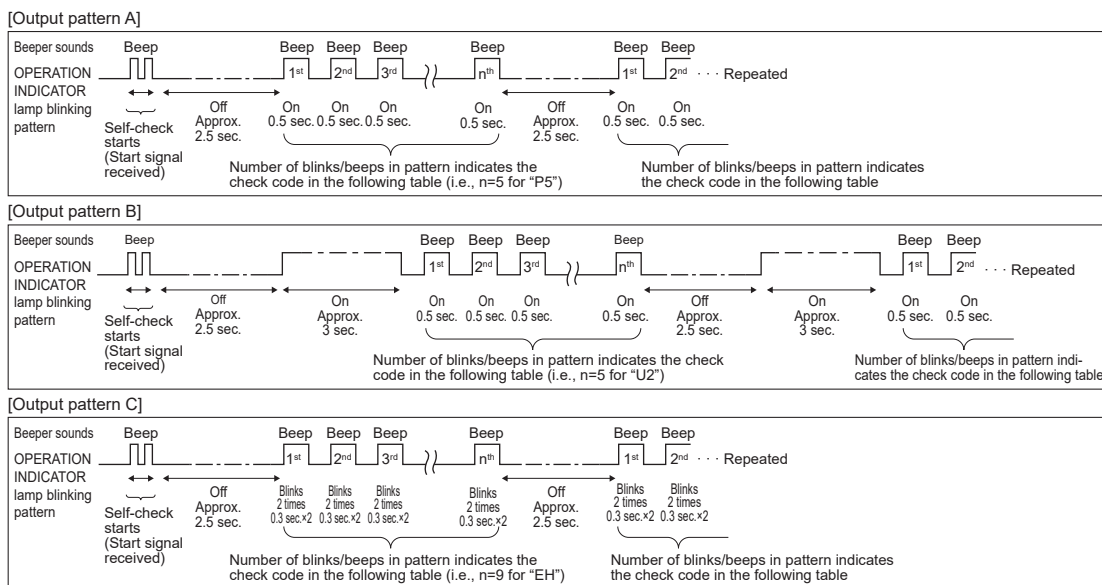
1. Testrun (Fig. 5-1)

- Press the **STOP** button ① to stop the air conditioner.
 - If the weekly timer is enabled (**WEEKLY** ④ is on), press the **ON/OFF WEEKLY** button ② to disable it (**WEEKLY** ④ is off).
- Press the **MENU** button ③ for 5 seconds.
 - CHECK** ⑤ comes on and the unit enters the service mode.
- Press the **MENU** button ③.
 - TEST** ⑥ comes on and the unit enters the test run mode.
- Press the following buttons to start the test run.
 - STOP**: Switch the operation mode between cooling and heating and start the test run.
 - FAN**: Switch the fan speed and start the test run.
 - VANE**: Switch the airflow direction and start the test run.
 - LOUVER**: Switch the louver and start the test run.
 - SET**: Start the test run.
- Stop the test run.
 - Press the **STOP** button ① to stop the test run.
 - After 2 hours, the stop signal is transmitted.

2. Self-check (Fig. 5-2)

- Press the **STOP** button 1 to stop the air conditioner.
 - If the weekly timer is enabled (**WEEKLY** ④ is on), press the **ON/OFF WEEKLY** button ② to disable it (**WEEKLY** ④ is off).
- Press the **MENU** button ③ for 5 seconds.
 - CHECK** ⑤ comes on and the unit enters the self-check mode.
- Press the **M-NET** button ④ to select the refrigerant address (M-NET address) ④ of the indoor unit for which you want to perform the self-check.
- Press the **SET** button ⑤.
 - If an error is detected, the check code is indicated by the number of beeps from the indoor unit and the number of blinks of the OPERATION INDICATOR lamp.
- Press the **STOP** button ①.
 - CHECK** ⑤ and the refrigerant address (M-NET address) ④ go off and the self-check is completed.

Refer to the following tables for details on the check codes.
 * A receiver adapter (MA type) cannot be used.



■ **Mr. Slim output contents**

[Output pattern A] Errors detected by indoor unit

Wireless remote controller	Wired remote controller	Symptom	Remark
Beeper sounds/OPERATION INDICATOR lamp blinks (Number of times)	Check code		
1	P1	Intake sensor error	
2	P2, P9	Pipe (liquid or 2-phase pipe) sensor error	
3	E6, E7	Indoor/outdoor unit communication error	
4	P4	Drain sensor error/Float switch connector open	
5	P5	Drain overflow protection operation	
	PA	Forced compressor error	
6	P6	Freezing (during cooling operation)/Overheating protection operation (during heating operation)	
7	EE	Assembly error (system error)	
8	P8	Pipe temperature error	
9	E4	Communication error between wired remote controller and indoor unit	
10	—	—	
11	Pb	Indoor unit fan motor error	
12	Fb	Indoor unit control system error (memory error, etc.)	
14	PL	Refrigerant circuit abnormal	

[Output pattern B] Errors detected by unit other than indoor unit (outdoor unit, etc.) * The supported check codes may vary depending on the connected outdoor unit.

Wireless remote controller	Wired remote controller	Symptom	Remark
Beeper sounds/OPERATION INDICATOR lamp blinks (Number of times)	Check code		
1	E9	Indoor/outdoor unit communication error	For details, check the LED display of the outdoor controller board.
2	UP	Compressor overcurrent interruption	
3	U3, U4	Open/short of outdoor unit thermistors	
4	UF	Compressor overcurrent interruption (When compressor locked)	
5	U2	Abnormal high discharging temperature/49C worked/insufficient refrigerant	
6	U1, Ud	Abnormal high pressure (63H worked)/Overheating protection operation	
7	U5	Abnormal temperature of heat sink	
8	U8	Outdoor unit fan protection stop	
9	U6	Compressor overcurrent interruption/Abnormal of power module	
10	U7	Abnormality of super heat due to low discharge temperature	
11	U9, UH	Abnormality such as overvoltage or voltage shortage and abnormal synchronous signal to main circuit/Current sensor error	
12	—	—	
13	—	—	
14	Others	Other errors (Refer to the technical manual for the outdoor unit.)	

[Output pattern C] Errors detected by unit other than indoor unit (outdoor unit, etc.)

Wireless remote controller	Wired remote controller	Symptom	Remark
Beeper sounds/OPERATION INDICATOR lamp blinks (Number of times)	Check code		
9	EH	Panel communication abnormal (auto ascending/descending panel)	

■ **CITY MULTI output contents**

[Output pattern A] The abnormal unit (attribute) is an indoor unit, LOSSNAY unit, or outdoor air processing unit.

[Output pattern B] The abnormal unit (attribute) is an outdoor unit or other unit (a unit other than an indoor unit, LOSSNAY unit, or outdoor air processing unit).

Beeper sounds/OPERATION INDICATOR lamp blinks (Number of times)	M-NET check code	Remarks
1	1000 – 1999	If the wired remote controller and system controller are not used together, the details of the check codes in the error history can be checked using the LED display of the outdoor PC board. To check the error history of the outdoor unit, refer to the outdoor unit service handbook.
2	2000 – 2999	
3	3000 – 3999	
4	4000 – 4999	
5	5000 – 5999	
6	6000 – 6999	
7	7000 – 7999	
8	0 – 999	

Notes:

1. If the beeper does not sound and the OPERATION INDICATOR lamp remains off after the signal was received when the self-check starts, there is no error history.
2. If the beeper sounds 3 times continuously “beep, beep, beep (0.4 + 0.4 + 0.4 seconds)” after the signal was received when the self-check starts, the specified refrigerant address (M-NET address) is incorrect.

3. Unit function selection

This setting method is for Mr. Slim. For CITY MULTI models, set the DIP switches on the indoor PC board and outdoor PC board.
To set the DIP switches, refer to the technical materials for the CITY MULTI models.

Set the functions as necessary using the remote controller. The functions for each unit can be set only from the remote controller.

Select the functions from table 1 that must be set.

Only the refrigerant systems that are connected to indoor units equipped with wireless remote controller receivers can be set from the wireless remote controller operation unit. The refrigerant address cannot be specified using the wireless remote controller operation unit.

Table 1 Function selection settings (For details about the factory settings and modes of each indoor unit, refer to the indoor unit installation manual.)

Note: The items in the following table are representative examples. Because the settings for each mode may vary depending on the model, refer to the indoor unit installation manual for details.

Mode	Settings	Mode no.	Setting no.	Initial setting	Setting
Power failure auto-matic recovery	Not available	01	1		Select unit number 00.
	Available		2		
Indoor temperature detecting	Indoor unit operating average	02	1		
	Set by indoor unit's remote controller		2		
	Remote controller's internal sensor		3		
LOSSNAY connectivity	Not Supported	03	1		
	Supported (indoor unit is not equipped with fresh air intake)		2		
	Supported (indoor unit is equipped with fresh air intake)		3		
Auto operation mode	Auto operation mode Single set point (Available 14°C (58°F) cooling setting) ^{*1,2}	06	1		
	Dual set point (Not available 14°C (58°F) cooling setting) ^{*1,2}		2		
Filter sign	100Hr	07	1		
	2500Hr		2		
	No filter sign indicator		3		
Fan speed	Silent	08	1		
	Standard		2		
	High ceiling		3		
Number of air outlets	4-directional	09	1		
	3-directional		2		
	2-directional		3		
Installed option (high-efficiency filter, etc.)	Without	10	1		
	With		2		
Up/down vane setting ^{*3}	Not setting/Equipped with vanes (vanes angle setup 3)	11	1		
	Equipped with vanes (vanes angle setup 1)		2		
	Equipped with vanes (vanes angle setup 2)		3		
Built-in humidifier	Not equipped	13	1		
	Equipped		2		

*1 It is available when the indoor unit is connected to any of the particular outdoor units.

*2 An optional insulation kit is required.

*3 The setting varies depending on the model.

Function selection procedure (Fig. 5-3, 5-4)

First, it is important to understand the procedure for the function selection. The following procedure explains how to set "LOSSNAY connectivity" in table 1 to "Supported (indoor unit is not equipped with outdoor-air intake)" as an example. For the actual operations, refer to the following procedure.

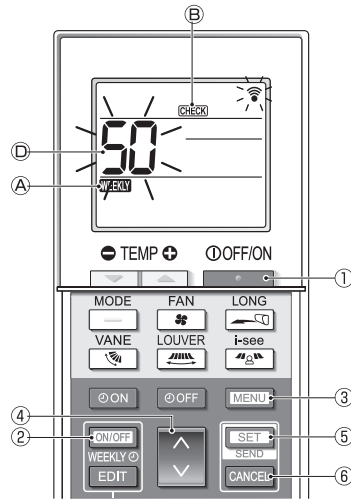


Fig. 5-3

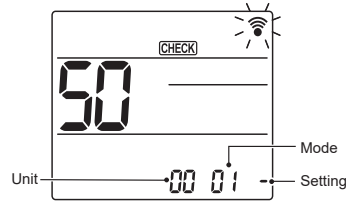


Fig. 5-4

1. Press the **OFF/ON** button ① to stop the air conditioner.

- * If the weekly timer is enabled (**WEEKLY** ① is on), press the **ON/OFF WEEKLY** button ② to disable it (**WEEKLY** ① is off).

2. Press the **MENU** button ③ for 5 seconds.

- **CHECK** ② comes on and the unit enters the self-check mode.

3. Press the **DOWN** button ④ to set the displayed number ③ to "50".

- While pointing the wireless remote controller toward the receiver, press the **SET** button ⑤. (The unit number blinks.)

4. Press the **DOWN** button ④ to set the unit number of the indoor unit.

- While pointing the wireless remote controller toward the receiver, press the **SET** button ⑤. (The mode number blinks.)

- * When the unit number is transmitted, the selected indoor unit starts operating in the fan mode. You can use this step to confirm which indoor unit corresponds to the unit number you selected to change the functions.

However, if you set the unit number to "00" or "AL", all of the indoor units in the same refrigerant system will start operating in the fan mode.

- * If you transmit a unit number that cannot be selected, the beeper sounds 3 times continuously "beep, beep, beep (0.4 + 0.4 + 0.4 sec.)".

If this occurs, press the **CANCEL** button ⑥, and then set the unit number again while the unit number display is blinking.

- * If the signal was not received correctly, the beeper will not sound or it will beep twice. If this occurs, press the **CANCEL** button ⑥, and then set the unit number again while the unit number display is blinking.

5. Press the **UP** button ④ to set the mode number.

- While pointing the wireless remote controller toward the receiver, press the **SET** button ⑤. (The setting number blinks.)

At this time, the beeper sound and OPERATION INDICATOR lamp blinking pattern indicate the current setting number for the selected mode number.

Current setting value = 1: Beep (1 sec.) × 1 time
 = 2: Beep (1 sec.) × 2 times
 = 3: Beep (1 sec.) × 3 times

- * If you enter a mode that cannot be set, the beeper sounds 3 times continuously "beep, beep, beep (0.4 + 0.4 + 0.4 sec.)".

If this occurs, press the **CANCEL** button ⑥, and then set the mode number again while the mode number display is blinking.

- * If the signal was not received correctly, the beeper will not sound or it will beep twice. If this occurs, press the **CANCEL** button ⑥, and then set the mode number again while the mode number display is blinking.

6. Press the **DOWN** button ④ to select the setting number.

- While pointing the wireless remote controller toward the receiver, press the **SET** button ⑤. (The mode number blinks.)

At this time, the beeper sound and OPERATION INDICATOR lamp blinking pattern indicate the setting number for the selected mode number.

Current setting value = 1: Beep (1 sec.) × 1 time
 = 2: Beep (1 sec.) × 2 times
 = 3: Beep (1 sec.) × 3 times

- * If you enter a number that cannot be set, the originally set number will be used.

- * If the signal was not received correctly, the beeper will not sound or it will beep twice. If this occurs, repeat the procedure from step 5.

7. To set another mode without changing the unit number of the indoor unit, repeat steps 5 and 6.

8. To change the unit number of the indoor unit and perform the function selection, repeat steps 4–6.

9. Press the **OFF/ON** button ① to complete the function selection.

Note:

- After the function selection is complete, do not operate the wireless remote controller for 30 seconds.
- Whenever the function selection is used to change the indoor unit functions after installation, be sure to record all of the settings with a "○" or other mark in the "Initial setting" column of the table.

Applicable Models

■ PCA-AK24/30/36/42NL

Making Sure of Components

Make sure that the following components, along with this manual, are packed in the box.

Component	PAC-SH91MK-E	PAR-SA92MW-E	PAR-SL93B-E
i-see sensor	1	—	—
Wireless remote controller receiver with i-see sensor	—	1	—
Wireless remote controller receiver	—	—	1
Wireless remote controller	—	1	1
Remote control holder	—	1	1
“AAA” LR03 alkaline batteries	—	2	2
4.1×16 wood screws	—	2	2
Cord retaining clips	—	2	2
Connection cord fixing seal (12×30 size)	—	1	1

How to Install

* Be sure to turn the power off before installing.

① Removing the intake grille and the right side panel

- Slide the catch holding the intake grille backwards to open the grille. Remove the screw holding the side panel, and then slide the side panel forward to remove it.



Catch retaining the intake grille

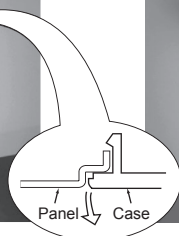
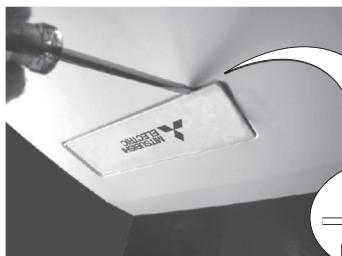


Side panel
Slide forward

Remove the screw holding the side panel

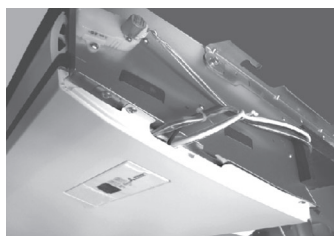
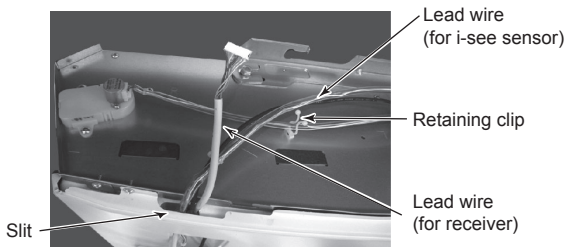
② Removing the existing brand label case

- Remove the brand label case (name plate with MITSUBISHI ELECTRIC) from the bottom right of the unit. If it is difficult to remove the case, use a flat-blade screwdriver, etc., taking care not to damage the panel.



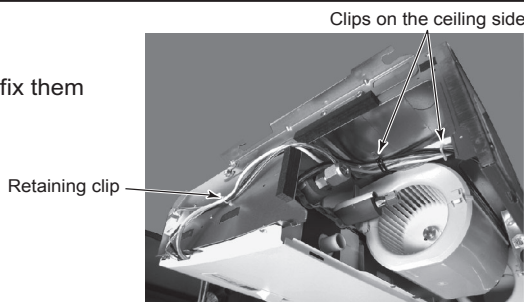
③ Installing to the indoor unit

- Pass the lead wire through the right side of the square hole to which the brand label case was attached, and then pull them through the slit in the right side of the bottom panel.
- Fit the receiver or i-see sensor into the square hole where the brand label case was attached.



④ Laying out the lead wire

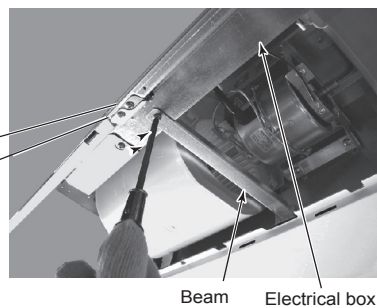
- Pass the lead wire through the retaining clips.
- Layout the lead wire along the vane motor lead wire, then fix them with the clips on the ceiling side of the unit.



⑤ Removing the beam and the electrical box cover

- Remove the beam.
- Loosen the two screws at the bottom of the electrical box cover, and then slide the cover to the left to remove it.
- Pull down the electrical box.

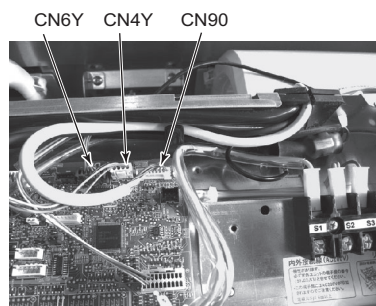
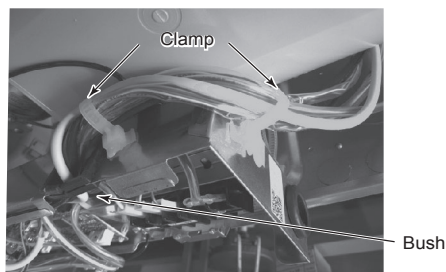
Also on the opposite side { Electrical box fixing screw
Electrical box cover fixing screw



⑥ Connecting the receiver board connector to the control circuit board

<*only when wireless remote controller kit with i-see sensor PAR-SA92MW-E or wireless remote controller receiver PAR-SL93B-E is used. >

- Pass the cord through the bush at the top right of the electrical box.
- Connect the connector to CN90 on the right of the control board.
- If the cord is loose, bundle it using the clamps under the above bush.



* The positions of the connectors may be different according to the model. Please refer to the wiring diagram to confirm the positions of the connectors.

⑦ Connecting the i-see sensor lead wire (radiation temp. sensor (black) and the stepping motor connector (transparent)) to the control circuit board

<*only when wireless remote controller receiver PAC-SH91MK-E or wireless remote controller kit with i-see sensor PAR-SA92MW-E is used. >

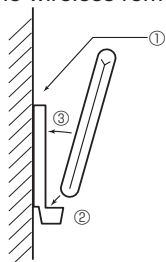
- Pass the cord through the bush at the top right of the electrical parts case.
- Connect the radiation temp. sensor (black) lead wire to CN4Y (white) on the control circuit board.
- Connect the stepping motor (transparent) lead wire to CN6Y (red) on the control circuit board.

⑧ Reinstalling the removed components

- Reinstall the removed components in reverse order. (The brand label case is not needed.)

⑨ Remote control holder

- To install the wireless remote controller on a wall, first attach the remote control holder to a wall.



Fitting remote control into holder

- ① Fix the remote control holder to the wall using the 2 wood screws provided.
- ② Insert the remote control into the holder.
- ③ Push the remote control against the wall.



Removing remote control

- Pull the top of remote control forward.

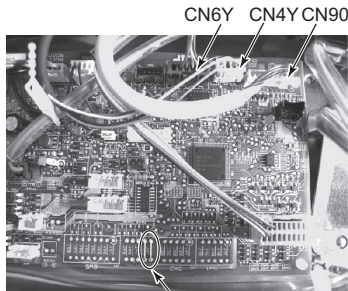
NOTE : The remote signal will reach the receiver over a distance of approx. 7m (23 ft.) in a straight line and approx. 45° left or right. If the infrared receiver is affected by fluorescent light (especially, inverter type), it may not be able to receive the signal. Take this into consideration when installing fluorescent lights or replacing them.

Pair Number Setting

- This is the setting to specify the unit to operate with the wireless remote controller.
- Make setting for J41, J42 (Jumper wire) of indoor controller board and the pair number of wireless remote controller.
- The pair number setting is available with the 4 patterns as shown in the following table. Make setting for the pair number (J41, J42) of indoor controller board and the pair number of wireless remote controller which is used as shown in the following table. *The initial setting is Pair No. "0".

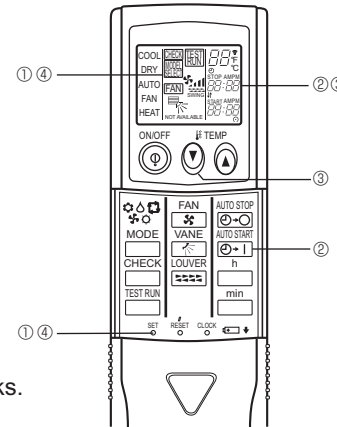
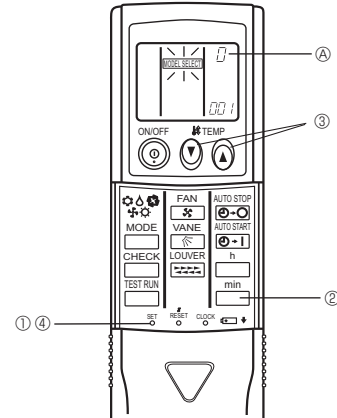
- ① Press the SET button with something sharp at the end.
Start this operation from the status of remote controller display turned off.
MODEL SELECT blinks and Model No. is lighted.
- ② Press the  button twice continuously. Pair No. "0" blinks.
- ③ Press the temp  button to set the pair number you want to set.
- ④ Press the SET button with something sharp at the end.
Set pair number is lighted for 3 seconds then turned off.

① Pair No. of wireless remote controller	Indoor PC board
0	Initial setting
1	Cut J41
2	Cut J42
3 ~ 9	Cut J41, J42





Jumper wire (J41, J42)

* The positions of the connectors may be different according to the model.
Please refer to the wiring diagram to confirm the positions of the connectors.

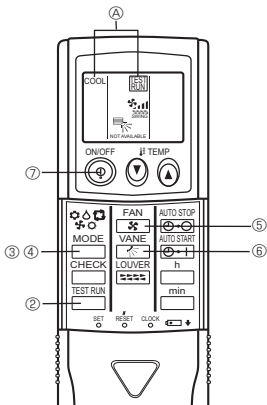







Function Selection of Wireless Remote Controller

- Temperature display °C/°F setting (Change of temp mode from °F to °C)
 - ① Press the set button with something sharp at the end. **MODEL SELECT** blinks.
 - ② Press the  button. "F." blinks.
 - ③ Press the  button. "C." blinks.
 - ④ Press the SET button with something sharp at the end.
MODEL SELECT is lighted for three seconds, then turned off.

Test Run

Measure an impedance between the power supply terminal block on the outdoor unit and the ground with a 500V Megger and check that it is equal to or greater than 1.0 MΩ.



- ① Turn on the main power to the unit.
- ② Press the  button twice continuously.
(Start this operation from the status of remote controller display turned off.)
① **TEST RUN** and current operation mode are displayed.
- ③ Press the  button to activate COOL mode, then check whether cool air is blown out from the unit.
- ④ Press the  button to activate HEAT mode, then check whether warm air is blown out from the unit.
- ⑤ Press the  button and check whether strong air is blown out from the unit.
- ⑥ Press the  button and check whether the auto vane operates properly.
- ⑦ Press the ON/OFF button to stop the test run.

NOTE : • Point the remote controller towards the indoor unit receiver while following steps ② to ⑦.
• It is not possible to run in FAN, DRY or AUTO mode.

Function Selection

This setting is available only for Mr. Slim model. CITY MULTI model can be set by dip switch of indoor/outdoor control circuit board. Refer to technical data of CITY MULTI model to set dip switch.

Each function can be set according to necessity using the remote controller.

The setting of function for each unit can only be done by the remote controller.

Select function available from the Table3. Function selection using wireless remote controller is available only for refrigerant system with wireless function. Refrigerant address cannot be specified by the wireless remote controller.





The article below describes how to set "LOSSNAY connectivity" into "supported (indoor unit is not equipped with outdoor-air intake)" in Table 3 as an example.

① Go to the function select mode







Press the  button  twice continuously.

(Start this operation from the status of remote controller display turned off.)







 is lighted and "00" blinks.

Press the temp  button  once to set "50". Direct the wireless remote controller toward the receiver of the indoor unit and press the  button .

② Setting the unit number

Press the temp   button  and  to set the unit number "00". Direct the wireless remote controller toward the receiver of the indoor unit and press the  button .

③ Selecting a mode

Enter 03 to change the LOSSNAY connectivity setting using the   and   buttons. Direct the wireless remote controller toward the receiver of the indoor unit and press the  button .

Current setting number:

1=1 beep (1 second)


2=2 beeps (1 second each)

3=3 beeps (1 second each)







* If a mode number that can not be recognized by the unit is entered, 3 beeps (3 beeps of 0.4 seconds duration) will be heard.

Reenter the mode number selecting.

* If the signal was not received by the sensor or an error occurred during transmission, you will not hear a beep or a "double beep" may be heard.

Press the  button again.

④ Selecting the setting number

Use the   and   buttons to change the LOSSNAY connectivity setting to 02. Direct the wireless remote controller toward the sensor of the indoor unit and press the  button .

→ At this time, current setting number for selected mode number will be output by the interrupted buzzer sounds and the blinks of operation indicator.

Output : setting number = 1 → beep beep (0.4 second + 0.4 second) × 1


2 → beep beep (0.4 second + 0.4 second) × 2

3 → beep beep (0.4 second + 0.4 second) × 3

* If a setting number that can not be recognized by the unit is entered, 3 beeps (3 beeps of 0.4 seconds duration) will be heard (unit will beep only).

Reenter the setting number selecting.

* If the signal was not received by the sensor or an error occurred during transmission, you will not hear a beep or a "double beep" may be heard.



Press the  button again.

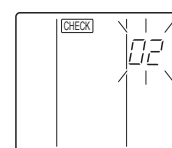
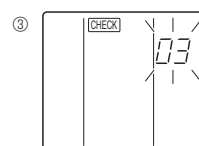
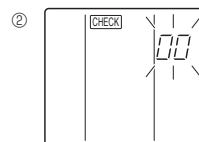
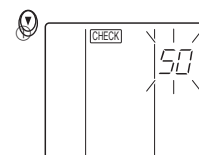
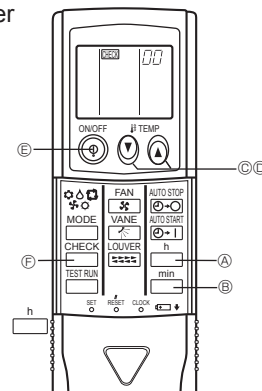
* If the number that can not be set is input, the former setting number will be set.

⑤ To select multiple functions continuously

Repeat steps ③ and ④ to change multiple function settings continuously.

⑥ Complete function selection

Direct the wireless remote controller toward the sensor of the indoor unit and press the  button .



NOTE : Whenever changes are made to the function settings after construction or maintenance, be sure to record the added functions with an "o", in the "Check" column provided on the chart.

PAC-SH91MK-E/PAR-SA92MW-E/PAR-SL93B-E

Other function selections

Now that you know how to change LOSSANY connectivity setting, there are several other settings that can be changed as well. The following table lists the various settings that can be changed through the remote controller and the default settings.

Table 3.

Function	Settings	PCA-AK
Power failure automatic recovery	Not available	*1
	Available	*1
Indoor temperature detecting	Indoor unit operating average	○
	Set by indoor unit's remote controller	
	Remote controller's internal sensor	
LOSSNAY connectivity	Not supported	○
	Supported (indoor unit is not equipped with outdoor-air intake)	
	Not supported (indoor unit is not equipped with outdoor-air intake)	
Auto mode (only for PUZ)	Energy saving cycle automatically enabled	○
	Energy saving cycle automatically disabled	
Filter sign	100Hr	
	2500Hr	○
	No filter sign indicator	
Fan speed	Quiet	
	Standard	○
	High ceiling	
Up/down vane setting	No vanes	
	Equipped with vanes (No.1 set)	○
	Equipped with vanes (No.2 set)	

*1 Power failure automatic recovery initial setting depends on the connecting outdoor unit.

Things to remember when entering function selections:

The basic procedure for entering function selections is the same as described for switching between LOSSNAY connectivity. However, there are some differences at step ② for selecting the unit number, step ③ for selecting the mode number and step ④ for selecting the setting number.

The following Tables 4 and 5 list the various function settings, mode numbers and setting numbers.

Table 4 details the function of the entire refrigerant system while Table 5 shows the function that can be set for the indoor unit.

Table 4. Itemized functions of the entire refrigerant system (select unit number 00)




Mode	Settings	Mode no.	Setting no.	Check	Remarks
Power failure automatic recovery	Not available	01	1		
	Available (Approximately 4-minutes wait-period after power is restored.)		2		Approximately 4-minutes wait-period after power is restored.
Indoor temperature detecting	Indoor unit operating average	02	1		
	Set by indoor unit's remote controller		2		
	Remote controller's internal sensor		3		
LOSSNAY connectivity	Not supported	03	1		
	Supported (indoor unit is not equipped with outdoor-air intake)		2		
	Not supported (indoor unit is not equipped with outdoor-air intake)		3		
Auto mode (only for PUZ)	Energy saving cycle automatically enabled	05	1		
	Energy saving cycle automatically disabled		2		

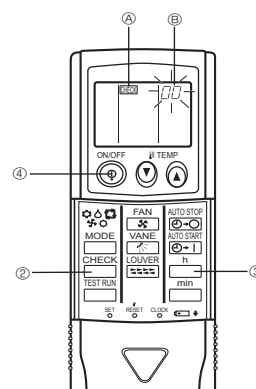
Table 5. Itemized functions of the indoor unit (select unit numbers 01 to 02 or 07)

Mode	Settings	Mode no.	Setting no.	Check	Remarks
Filter sign	100Hr	07	1		
	2500Hr		2		
	No filter sign indicator		3		
Fan speed	Quiet	08	1		
	standard		2		
	High ceiling		3		
Up/down vane setting	No vanes	11	1		
	Equipped with vanes (No.1 set)		2		
	Equipped with vanes (No.2 set)		3		

- ② Setting the unit numbers
Set "00" as the unit number when setting function from Table 4.
When setting function from Table 5.
- When setting function for an indoor unit in an independent system, set the unit number to 01.
- When setting function for a simultaneous-Twin indoor unit system, assign unit numbers from 01 to 02 to each indoor unit.
- When setting the same functions for an entire simultaneous Twin-indoor unit system, assign "07" as the unit number.
- ③ Selecting the mode number
Select from Table 4 and Table 5.
- ④ Selecting the setting number.

Self-Check

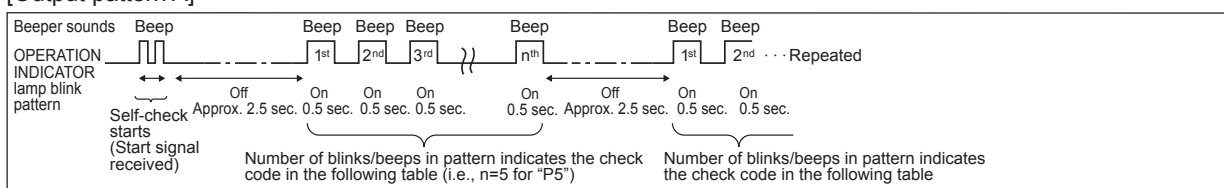
- ① Turn on the main power to the unit.
- ② Press the  button twice continuously.
(Start this operation from the status of remote controller display turned off.)
A  begins to light.
B «00» begins to blink.
- ③ While pointing the remote controller toward the unit's receiver, press the  button. The check code will be indicated by the number of times that the buzzer sounds from the receiver section and the number of blinks of the operation lamp.
- ④ Press the ON/OFF button to stop the self-check.



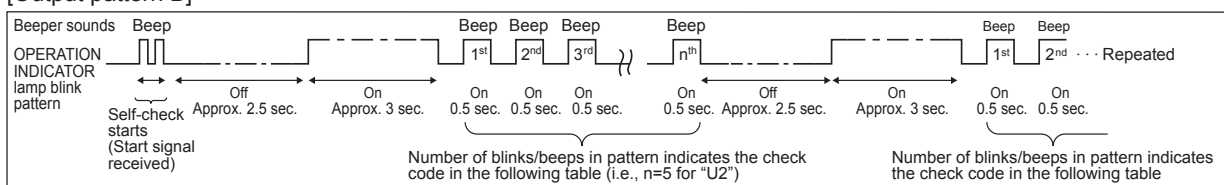
● Refer to the following tables for details on the check codes.

① Output pattern (Mr.Slim model / CITY MULTI model)

[Output pattern A]



[Output pattern B]



② Check code (Mr.Slim model)

[Output pattern A] Errors detected by indoor unit

Wireless remote controller	Wired remote controller	Symptom	Remark
Beeper sounds/OPERATION INDICATOR lamp blinks (Number of times)	Check code		
1	P1	Intake sensor error	
2	P2, P9	Pipe (Liquid or 2-phase pipe) sensor error	
3	E6, E7	Indoor/outdoor unit communication error	
4	P4	Drain sensor error/Float switch connector open	
5	P5	Drain pump error	
6	P6	Freezing/Overheating safeguard operation	
7	EE	Communication error between indoor and outdoor units	
8	P8	Pipe temperature error	
9	E4	Remote controller signal receiving error	
10	—	—	
11	—	—	
12	Fb	Indoor unit control system error (memory error, etc.)	
No sound	—	No corresponding	

[Output pattern B] Errors detected by unit other than indoor unit (outdoor unit, etc.)

Wireless remote controller Beeper sounds/OPERATION INDICATOR lamp blinks (Number of times)	Wired remote controller Check code	Symptom	Remark
1	E9	Indoor/outdoor unit communication error (Transmitting error) (Outdoor unit)	For details, check the LED display of the outdoor controller board.
2	UP	Compressor overcurrent interruption	
3	U3,U4	Open/short of outdoor unit thermistors	
4	UF	Compressor overcurrent interruption (When compressor locked)	
5	U2	Abnormal high discharging temperature/ insufficient refrigerant	
6	U1,Ud	Abnormal high pressure (63H worked)/Overheating protection operation	
7	U5	Abnormal temperature of heat sink	
8	U8	Outdoor unit fan protection stop	
9	U6	Compressor overcurrent interruption/Abnormal of power module	
10	U7	Abnormality of super heat due to low discharge temperature	
11	U9,UH	Abnormality such as overvoltage or voltage shortage and abnormal synchronous signal to main circuit/Current sensor error	
12	—	—	
13	—	—	
14	Others	Other errors (Refer to the technical manual for the outdoor unit.)	

*1 If the beeper does not sound again after the initial 2 beeps to confirm the self-check start signal was received and the OPERATION INDICATOR lamp does not come on, there are no error records.

*2 If the beeper sounds 3 times continuously "beep, beep, beep (0.4 + 0.4 + 0.4 sec.)" after the initial 2 beeps to confirm the self-check start signal was received, the specified refrigerant address is incorrect.

• On wireless remote controller

The continuous buzzer sounds from receiving section of indoor unit.

Blink of operation lamp

• On wired remote controller

Check code display in the LCD.

③ Check code (CITY MULTI model)

[Output pattern A] Errors detected by indoor unit or LOSSNAY unit

[Output pattern B] Errors detected by unit other than indoor unit (outdoor unit, etc.)

Wireless remote controller Beeper sounds/OPERATION INDICATOR lamp blinks (Number of times)	Wired remote controller Check code	Remark
1	1000 ~ 1999	
2	2000 ~ 2999	
3	3000 ~ 3999	
4	4000 ~ 4999	
5	5000 ~ 5999	
6	6000 ~ 6999	
7	7000 ~ 7999	
8	0000 ~ 0999	
9	8000 over	

*1 Refer to service handbook of outdoor unit for the detail.

*2 If the beeper does not sound again after the initial 2 beeps to confirm the self-check start signal was received and the OPERATION INDICATOR lamp does not come on, there are no error records.

*3 If the beeper sounds 3 times continuously "beep, beep, beep (0.4 + 0.4 + 0.4 sec.)" after the initial 2 beeps to confirm the self-check start signal was received, the specified address is incorrect.

• On wireless remote controller

The continuous buzzer sounds from receiving section of indoor unit.

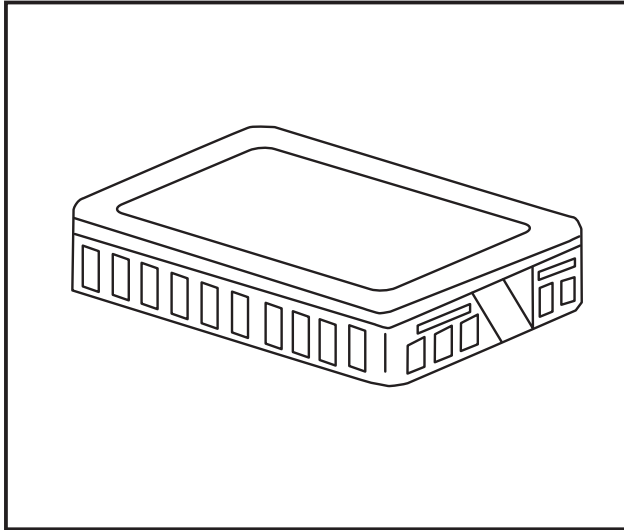
Blink of operation lamp

• On wired remote controller

Check code display in the LCD.



Figure



Descriptions

Enables to pick up the room temperature at the remote position.

Applicable Models

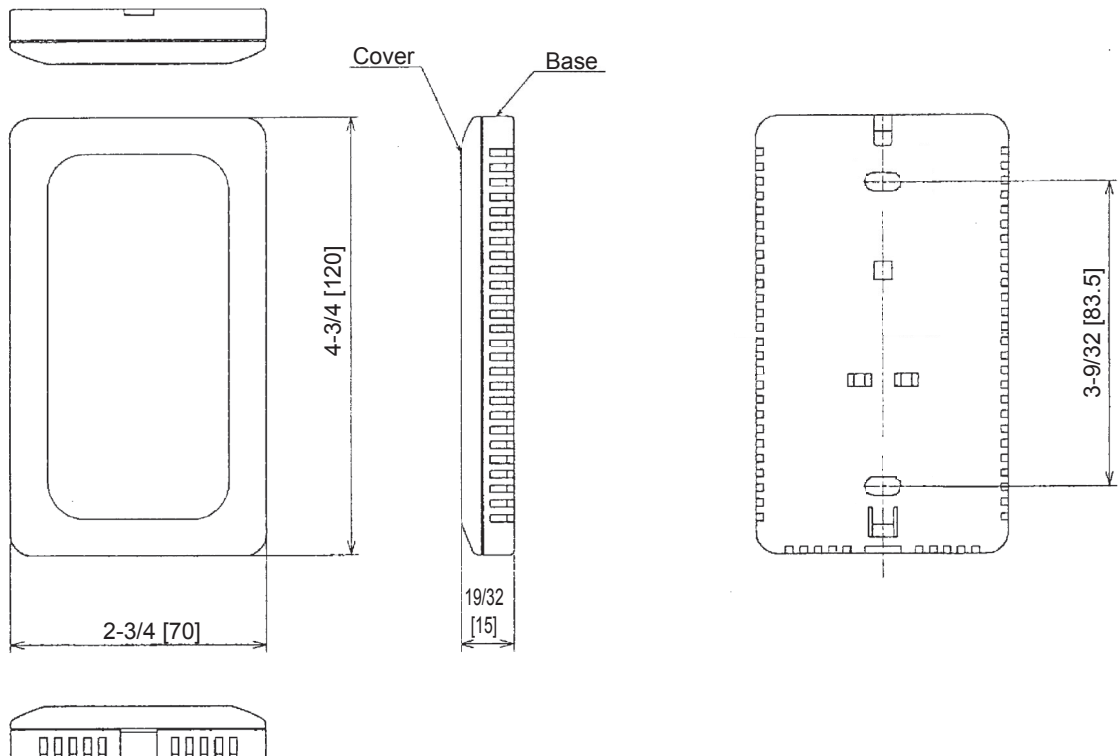
- SLZ-AF09/12/15/18NL
- SEZ-AE09/12/15/18NL
- PKA-AL12/18NL
- PKA-AK24/30/36NL
- PLA-AE12/18/24/30/36/42/48NL
- PEAD-AA12/18/24/30/36/42NL
- PVA-A12/18/24/30/36/42NL

Specifications

External dimensions (mm)	120 (H) x 70 (W) x 15 (D)
Exterior	White gray (Munsell 4.48Y 7.92/0.66) Material: ABS resin
Operating conditions	Temperature: -20 to 65°C Humidity: 30 to 90% RH (no condensation)
Installation method	Mounting on single-type switch box (JIS C8336) or directly mounting on wall
Accessory	2-wire cable (12m), Connector with post, Fixing screw (x2)
When combining with environmental measurement controller	
Temperature measuring range	-20 to 65°C
Measurement resolution	0.1°C (10 to 35°C), 0.5°C (other temperature ranges)

Dimensions

Unit: inch [mm]



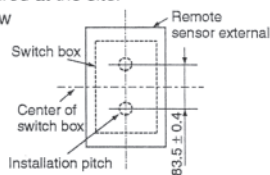
How to Use / How to Install

1 How to Install

(1) Determine the installation of the remote sensor (switch box).
The following items must be observed.

- ① Select a place where the remote sensor will detect an average temperature of the room, and where the sensor will not be subject to direct sunlight, heat sources, or the blow-off from the air conditioner, etc.
- ② Install the sensor within the length of the cable provided (12m).
(The cable cannot be extended. If extended, it may cause misoperation due to noise.)
- ③ The following parts must be procured at the site.

- Cross-recessed pan head screw
M4 Tow screws
- Single switch box
- Thin steel conduit
- Lock nut, bushing



(2) Connect the wires.

- Connect the 2-core cable to the terminal block in the lower case. Peel the sheath of the 2-core cable as shown in Fig.1, and correctly wire it as shown in Fig.2.

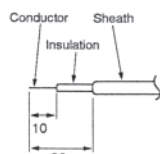


Fig.1

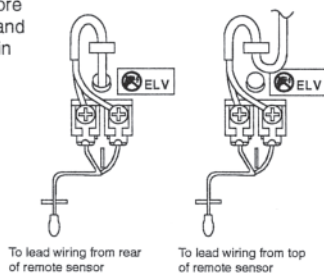


Fig.2

- The wiring connection of the indoor unit's electrical box and remote sensor is shown in Fig.3. There are three methods of connecting the 2-core cable to the electrical box.

Exchange 2-core cable (connector 20)

- ① When using the connector attached to the end of the 2-core cable as it is.
- ② When cutting the connector attached to the end of the 2-core cable and connecting the cable to the terminal block in the I.B. (Indoor Board).
- ③ When using the enclosed post for connection and convert cable.

The above three methods are used according to the indoor unit being used. If the 2-core cable is to be embedded in the wall, follow Fig.4.

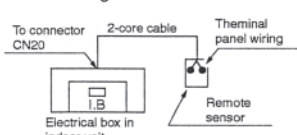


Fig.3

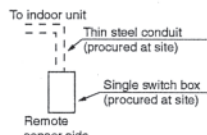
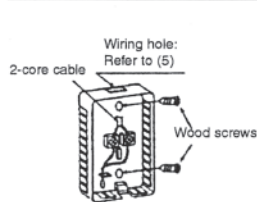


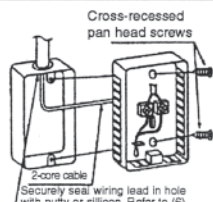
Fig.4

(3) Install the lower case on the wall or switch box.

NOTE The recommended tightening torque for installing the 2-core cable to the terminal block is 1.17N·m.



To install on wall



To install on switch box

- CAUTION**
- If the screws are tightened too hard, the case may break or deform.
 - Install the sensor on a flat wall. If installed on a bumpy wall, the case may break or trouble may occur.

(4) Fit the upper case.



Catch the two upper claws first, and fit the case as shown on the left.

- CAUTION**
- Securely fit the case until a catching sound is heard. It may drop off if it is not fitted securely.

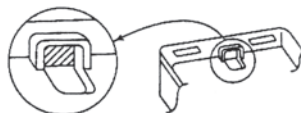
To remove the case, fit a flat-flap screwdriver into the claw section as shown below, and move the screwdriver in the direction of the arrow.



- CAUTION**
- Do not turn the screwdriver when it is fit into the claw section as the claws may be broken.

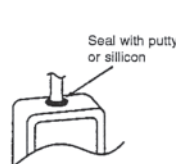
(5) Wiring hole for direction installation on wall, etc.

Cut the thin section (shaded section) of the lower case with a knife or pair of nippers, etc. The 2-core cable connected to the terminal block is led out from here.

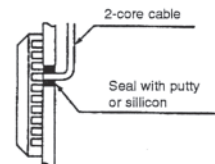


(6) Securely seal the wiring lead hole with putty or silicon to prevent dew, water drops, cockroaches and other insects from entering.

- When installing directly on the wall, seal the section cut on the lower case with putty or silicon.
If the wiring is to be passed through a hole in the wall (when leading the wiring from the rear of the remote sensor), seal the hole in the same manner.
- When installing on a switch box, seal the connection of the switch box and conduit with putty or silicon.

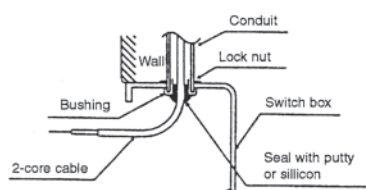


To lead wiring from top of remote sensor.



To lead wiring from rear of remote sensor.

To install directly on wall



To use switch box

2 Setting of indoor unit

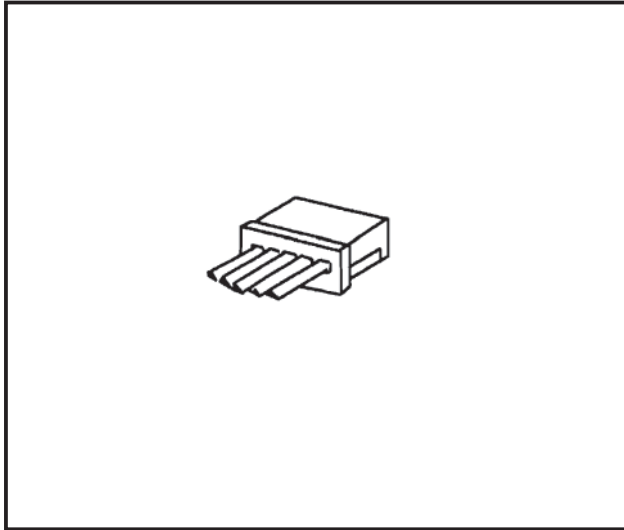
When the remote sensor is connected to the indoor unit and room temperature detection position is changed, reset the setting of "Set temp. 4-deg. up" in the heating mode as shown below.

- ① K control models : DIP switch Nos 1-6 on the control PCB of the indoor unit.
- ② M-NET control models : DIP switch Nos 3-8 on the control PCB of the indoor unit.
- ③ A control models : Refer to A-control air-conditioners SERVICE TECHNICAL GUIDE.



Connector Cable for Remote Display PAC-SA88HA-E/PAC-725AD-E

Figure



Descriptions

- This adapter enables control of several units with a multiple remote control display.

Applicable Models

- SLZ-AF09/12/15NL
- SEZ-AE09/12/15/18NL
- PEAD-AA09/12/18/24/30/36/42NL
- PVA-AA12/18/24/30/36/42NL

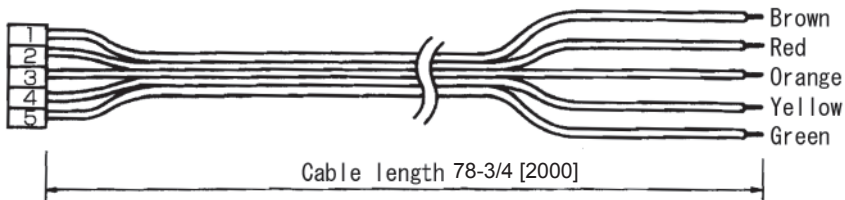
Specifications

Function	Connecting cable to output status signal of the air conditioner, and ON/OFF by external (pulse) signal.
Input signal	Pulse signal (no voltage instantaneous ON contact) Pulse duration 200ms or more.
Connector	5P (connector to CN51 or CN52 on indoor unit control board)
Cable type	5-wire vinyl cable, for extension: sheathed vinyl cord or cable (0.5 to 1.25mm ²)
Cable length	2m (max. 10m when extended locally)
Output capacity	DC12V 75mA (Max 0.9W)

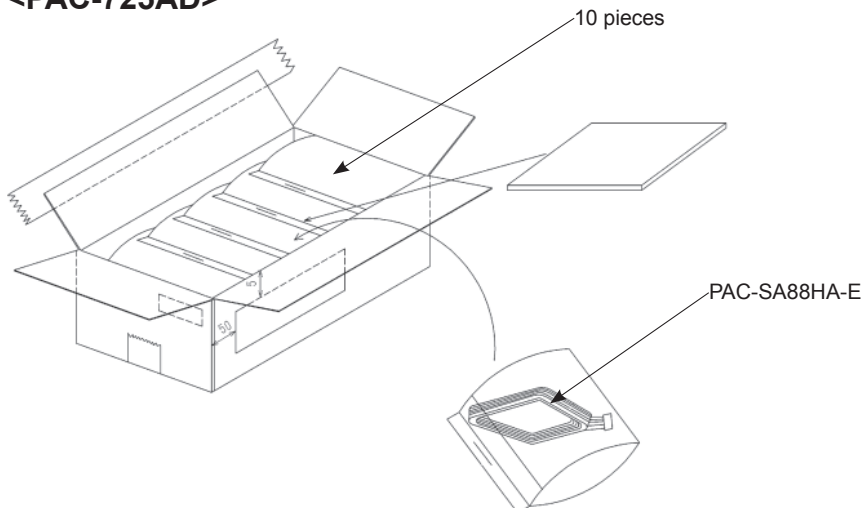
Dimensions

Unit: inch [mm]

<PAC-SA88HA-E>



<PAC-725AD>



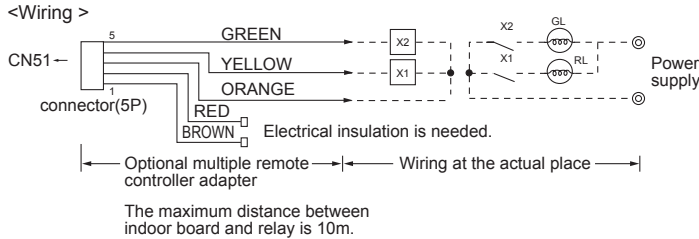
How to Use / How to Install

MULTIPLE REMOTE CONTROL DISPLAY

You can control several units with a multiple remote control display, by wiring an optional multiple remote controller adapter (PAC-SA88HA-E) with relays and lamps on the market.

How to wire

- (1) Connect the multiple remote controller adapter to the connector CN51 on the indoor controller board.
- (2) Wire three of the five wires from the multiple remote controller adapter as shown in the figure below.



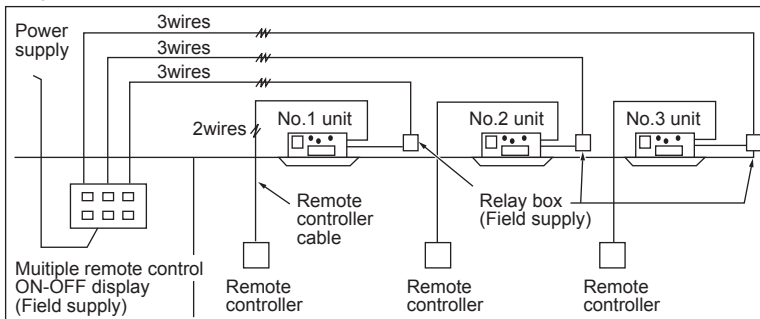
[Notes on Signs]

X1:Relay (for operation lamp)
 X2:Relay (for check lamp)
 RL:Operation Lamp
 GL:Check Lamp

[Field supplied parts]

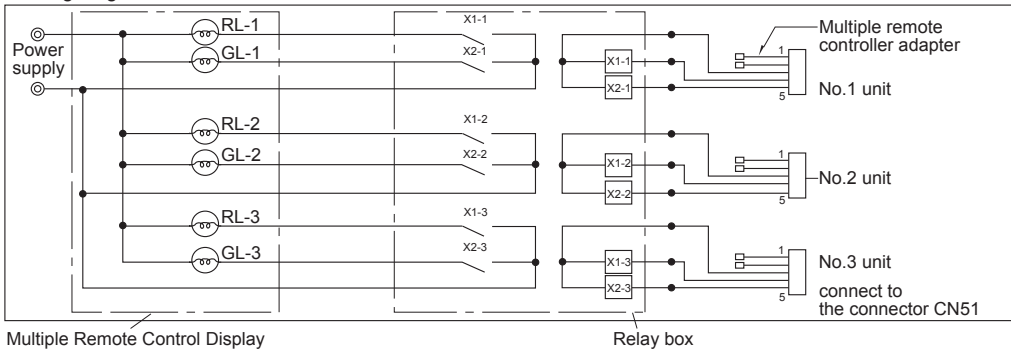
Relays:12V DC with rated coil power consumption below 0.9W.
 Lamps:Matching to power supply voltage.

<System>

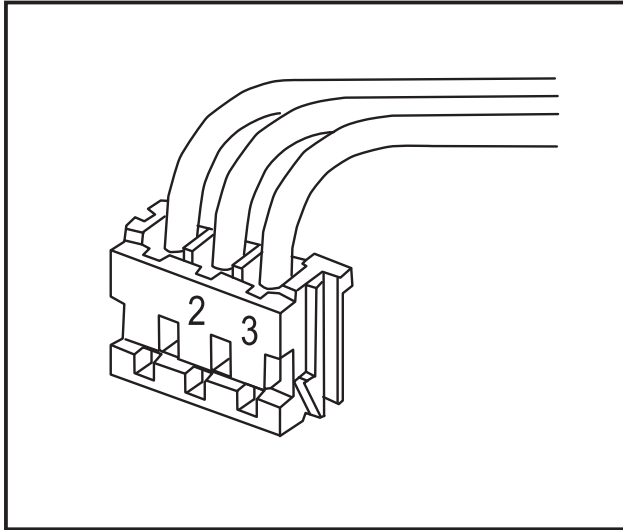


(Operation check)

<Wiring diagram>



Figure



Descriptions

- Operation other than ON/OFF (adjustment of temperature, fan speed, and air direction, for example) can be performed even when remote controller operation is prohibited.

Applicable Models

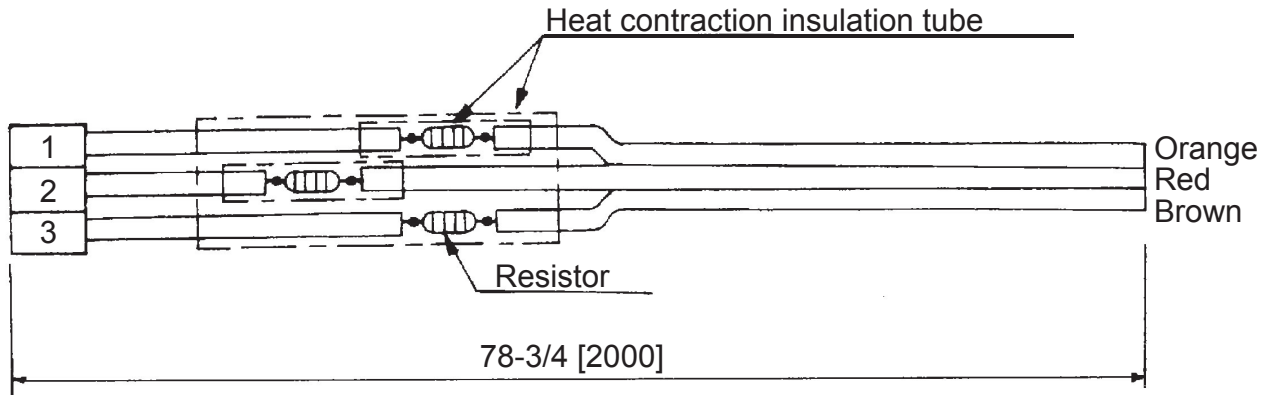
- SLZ-AF09/12/15/18NL
- SEZ-AD09/12/15/18NL
- PKA-AL12/18NL
- PKA-AK24/30/36NL
- PLA-AE12/18/24/30/36/42/48NL
- PEAD-AA09/12/15/18/24/30/36/42NL
- PVA-AA12/18/24/30/36/42NL

Specifications

Function	ON/OFF by external signal External signal ON (remote control disabled) / OFF (remote control enabled) switch able
Input signal	No-voltage contact (ON/OFF level signal)
Connector	3P (connected to CN32 on outdoor unit control board)
Cable type	3-wire cable, for extension: Sheathed vinyl cord or cable (0.5 to 1.25mm ²)
Cable length	2m (max. 10m when extended locally)

Dimensions

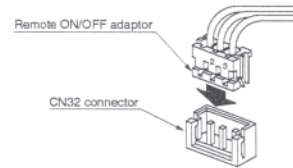
Unit: inch [mm]



How to Use / How to Install

1 Connecting to the Indoor Unit

1. Connect to the connector CN32 on the indoor controller board.
2. Press the connector for the remote ON/OFF adaptor into the CN32 connector.
The connector can only be connected in one direction only. Do not force the connection.



2 Locally Procured Wiring

With the remote ON/OFF adaptor, variations of connection method with the locally installed circuit will provide different types of operating configurations.

Example: External timer operation, remote control operation

1. Basic Connection Method

SW1 - Operating switch
Performs operation/stopping of indoor unit.

SW2 - Selecting switch
For selecting whether the operation/stopping is to be performed by external circuit or remote control.*

* Also includes system controller (central controller).

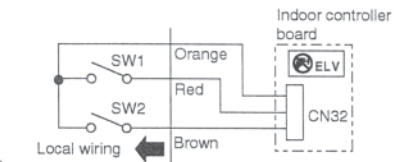
2. Switch Settings (Refer to table at right for details.)

SW2 - If on.

- Operation/stopping cannot be controlled from remote controller.
- Other operations (such as temperature settings and changing fan speed) can be performed.
- Operation/stopping can be performed by SW1.

SW2 - If off.

- Operations can be performed from remote controller.
- Operation/stopping cannot be performed by SW1.

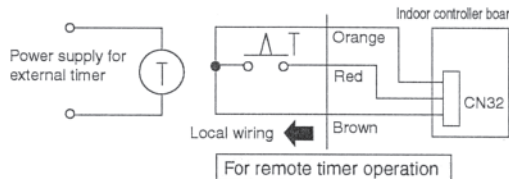
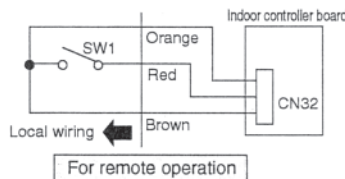


		SW2	
		ON	OFF
Remote controller	ON	Cannot perform operation/stopping	Can perform operation/stopping
	OFF	Operation	Cannot perform operation/stopping

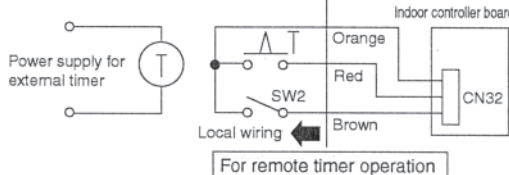
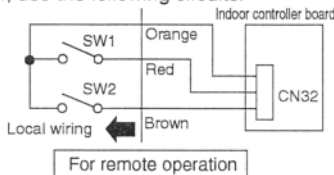
3 Examples of Usage

In either case, there is a 5 to 6 second delay from the time when the operating command is sent until the unit operates.

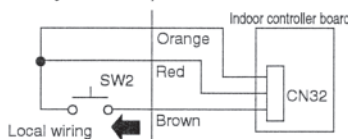
1. To perform operation/stopping by only remote operation or external timer and to prohibit operation/stopping by the remote controller, use the following circuits.



2. To perform operation/stopping by remote operation or external timer and allow operation/stopping by the remote controller, use the following circuits.

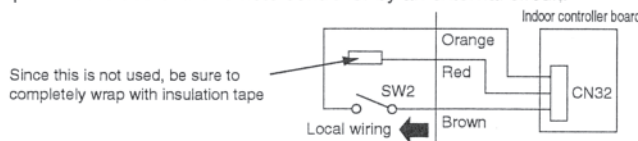


3. To start operation by remote operation and then freely use remote controller, use the following circuit.



Use a momentary switch (a switch that is turned on manually and turns off automatically) for SW2. Press SW2 (for 1 second or more) and the operation starts. After this, the remote controller can be used for operations.

4. To permit/prohibit the use of the remote controller by an external circuit.

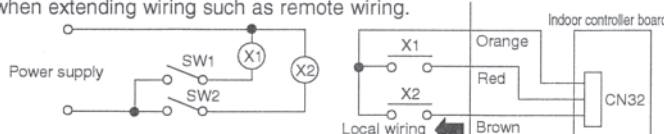


If SW2 is on, operation cannot be performed by the remote controller.
If SW2 is off, operation is permitted.

4 Wiring Restrictions

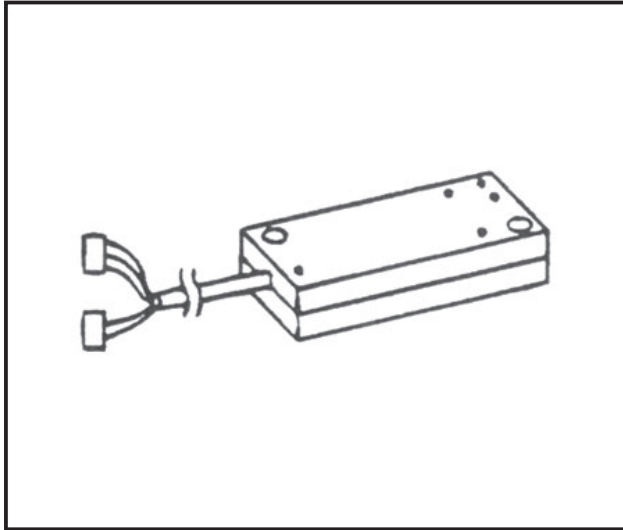
Keep the length of wire from the circuit board of the indoor unit within 10 meters. Excessive length could cause improper operation.

Use a transit relay when extending wiring such as remote wiring.





Figure



Descriptions

Extraction of non-voltage contact output.

*Use of optional [Remote Operation Adapter] and "remote display panel" Part to be provided at your site) provides non-voltage contact outputs of signals (operation, error) and operation/stop input function.

Unable to use with wireless remote controller. (except for PKA-RP-HAL/KAL)

Applicable Models

- SLZ-AF09/12/15/18NL
- SEZ-AD09/12/15/18NL
- PLA-AE12/18/24/30/36/42/48NL
- PEAD-AA09/12/18/24/30/36/42NL
- PVA-AA12/18/24/30/36/42NL

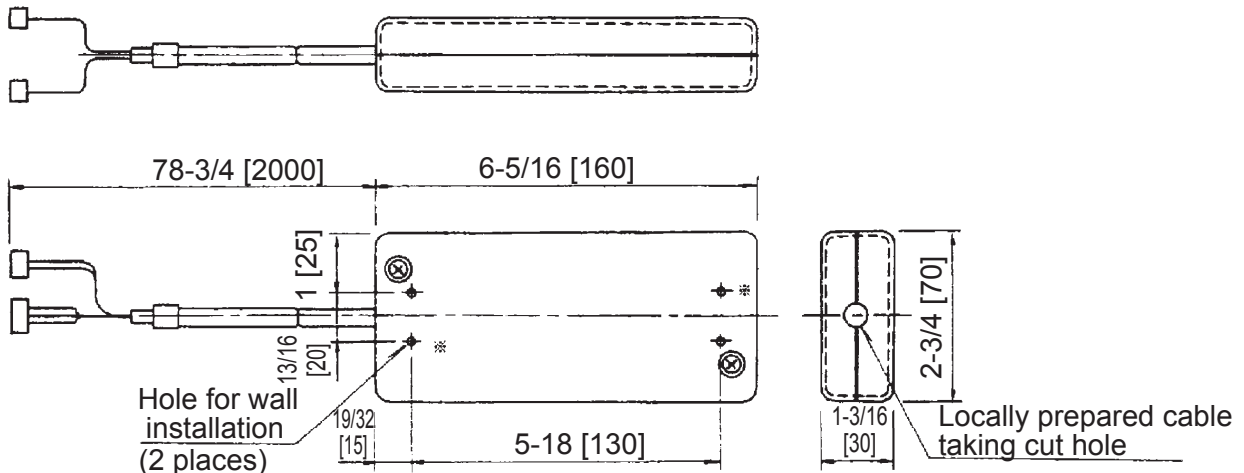
Specifications

Power	Supplied from indoor unit	
External dimensions (mm)	160 x 70 x 30	
Exterior	Material: ABS resin, Color: Gray (Munsell 3.07Y 6.16/0.33)	
Weight	200g	
Operating conditions	Indoor only Temperature: 0 to 40°C, Humidity: 35 to 85%RH (no condensation)	
Connecting cable (indoor unit)	5-wire (3 + 2) cable with connector (9-pin, 4-pin)	
Output signal	No-voltage "a" contact (relay contact method)	
	Number of Contacts	2 (Operation / Alarm)
	Contact capacity	200V AC (30V DC)/1A or less
	Minimum load	10mA
Input signal	Pulse signal (instantaneous non-voltage "a" contact), pulse width: 200ms or more	
	Number of Contacts	1 (start/stop)
Input/output signal cable (locally prepared)	Type	CV, CVS, or equivalent sheathed vinyl cord/cable
	Diameter	Twisted: 0.5 to 1.25mm ² , Single: Ø0.65 to Ø1.2mm
	Distance	Output signal cable: Max. 100m Input signal cable: Max. 10m (Extension relay must be used when exceeding 10m)

* This kit cannot be used with a wireless remote controller.
Water leakage alarm will not be displayed if the unit is built into the ceiling (PDH)

Dimensions

Unit: inch [mm]

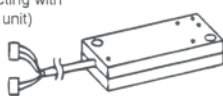



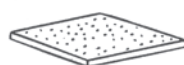






How to Use / How to Install

1 Confirming the Supplied Parts

(1) Parts Provided

Check that the box includes the following parts in addition to this installation manual.

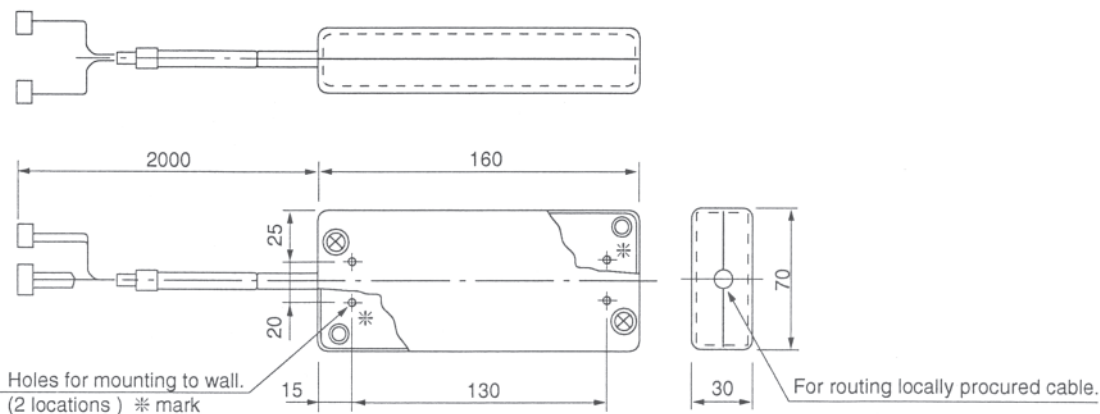
Parts	① Remote operation adaptor unit	② Cord clamp	③ Wall mount bracket
Shape	(with 2 meter wire for connecting with indoor unit) 	(Use this clamp if the local wiring is too thick to be held by the clamp inside the main unit.) 	
Quantity	1	1	1
Parts	④ Screws for mounting ③	⑤ Cushion material	⑥ Tie-wrap
Shape	 3.5 x 12 (Black)	(With adhesive on both sides.) 	(Use this for bundling lead wires.) 
Quantity	4	1	5
Parts	⑦ Cord clamp	⑧ Screws for mounting ⑦	⑨ Screws for mounting main unit
Shape		 3.5 x 12 (Black)	 3.5 x 12 (Black)
Quantity	5	5	2

(2) Locally Procured Parts

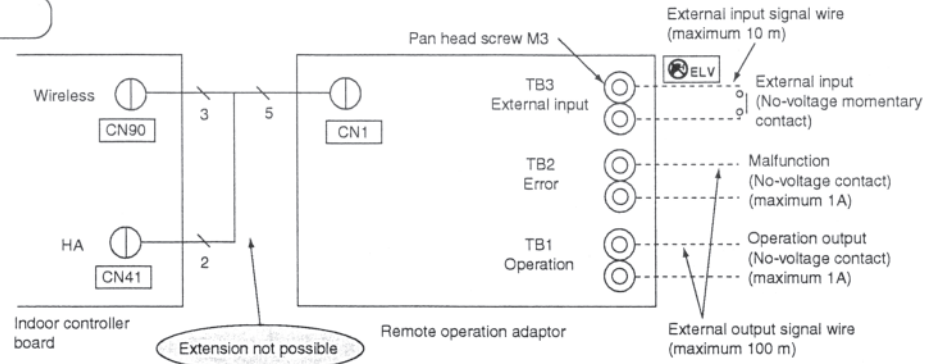
Note : Please keep LVD. LVD;Low Voltage Directive (EC Directive of Europe)
Apply some countermeasure for wiring and relay not to be touched from outside.
① Wiring should be covered by the insulation tube. ② Use relay with EU regulation.

Item	Part Name	Model & Specifications
External output function	External signal output wire	Use a vinyl cord with sheath or cable Electric wire type: CV, CVS or equivalent Electric wire size: 0.5 mm ² to 1.25 mm ² Single wire: ϕ 0.65 mm to ϕ 1.2 mm
	Display lamp, etc.	No-voltage contact AC 220 to 240 V (DC30V), 1A or less
External input function	External signal input wire	Use a vinyl cord with sheath or cable Electric wire type: CV, CVS or equivalent Electric wire size: 0.5 mm ² To 1.25 mm ² (Single wire: ϕ 0.65 mm to ϕ 1.2 mm)
	Switch	No-voltage momentary contact (Operation \leftrightarrow Stop is switched by input of a pulse of 200 ms or more)

2 External Dimension Drawing



3 Wiring



⚠ Caution

- 1) TB3 is a dedicated terminal for contact input. Do not apply voltage. Applying voltage will cause damage to the circuit board inside the for the indoor unit controller.
- 2) Always use the cable provided for connecting the unit to the indoor unit. Never make modifications to extend this cable. Extensions could cause the cable to be affected by external noise which could lead to mis-operation. If an extension is needed, refer to specification chart in "6. Product Specifications" a follow it when extending the external signal wire.

<Connecting to the indoor unit>

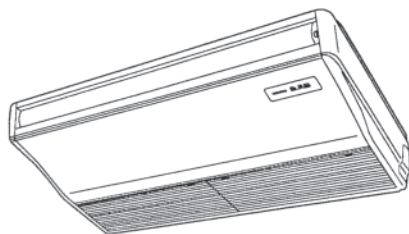
- ① If external output functions are used Insert the 9-electrode (3 core) side of the cable provided into CN90 on the controller circuit board for the indoor unit.
- ② If external input functions are used Insert the 4-electrode (2 core) side of the cable provided into CN41 on the controller circuit board for the indoor unit.

* The connector can only be inserted in one direction. Be sure to check that the connector is in the proper direction before inserting. Forcing the connector will cause damage.

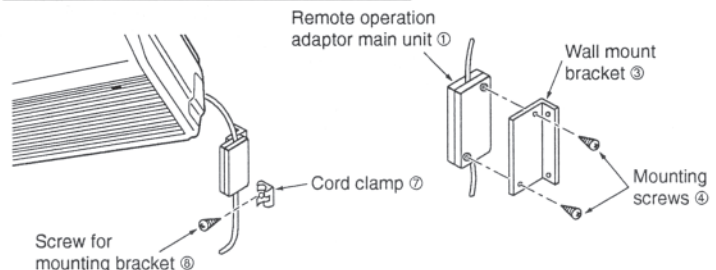
4 How to Install

There are three ways to mount the remote operation adaptor main unit: [A] Using mounting bracket, [B] Mounting directly, and [C] Using the cushion material.

(1) Installation Example (Suspended Type)



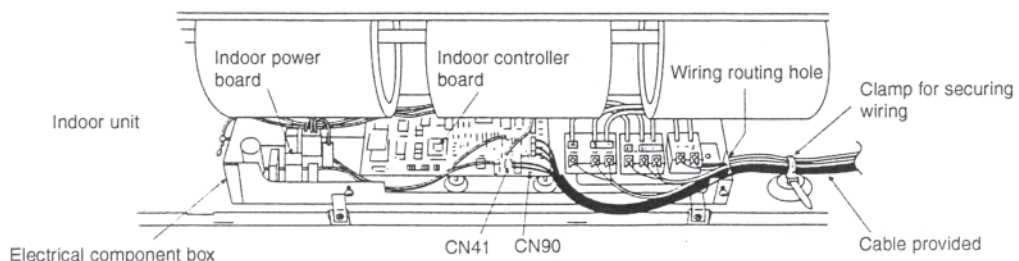
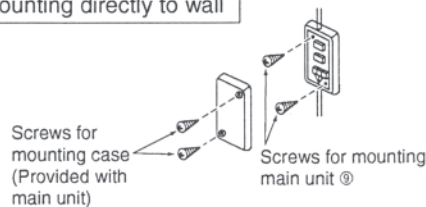
[A] Mounting to wall mounting bracket



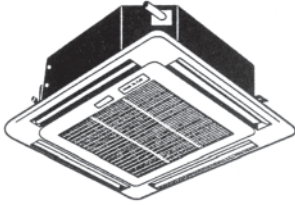
⚠ Caution

- 1) When mounting the remote operation adaptor main unit, be sure to use the mounting hardware to mount it to a wall or beam so that an inspection port is available for servicing.
- 2) If there is any loose remaining wire after installation, use a tie-wrap ⑥ to bundle it.

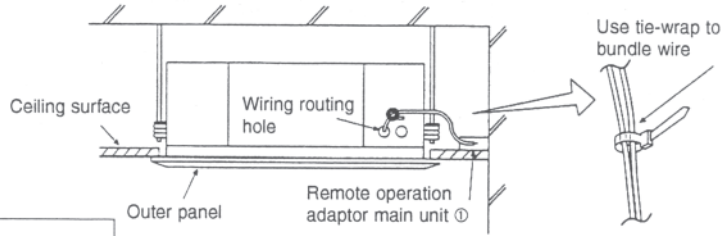
[B] Mounting directly to wall



(2) Installation Example 2 [Cassette Type]



[A] If recess-mounted into ceiling

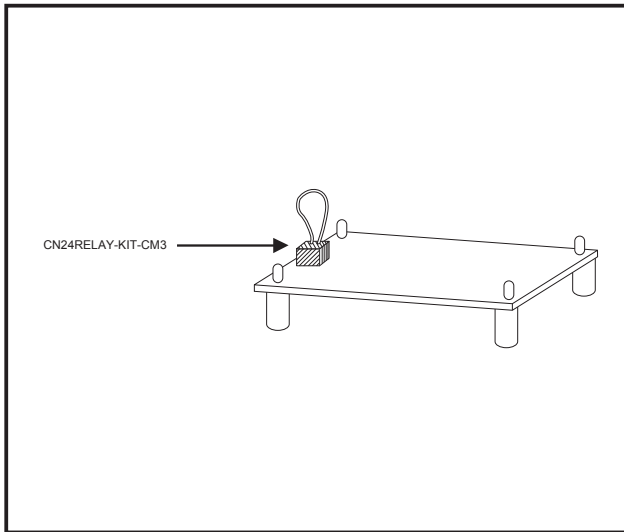


⚠Caution

- 1) When mounting the remote operation adaptor main unit, be sure to use the mounting hardware to mount it to a wall or beam so that an inspection port is available for servicing.
- 2) If there is any loose remaining wire after installation, use a tie-wrap ⑥ to bundle it.



Figure



Descriptions

This product is the special adapter necessary to operate an electric heater with the air conditioner.

Applicable Models

- SEZ-AD09/12/15/18NL
- SVZ-AP12/18/24/30/36/48/60NL
- PEAD-AA09/12/18/24/30/36/42NL
- PVA-AA12/18/24/30/36/42NL

Specifications

Item	Content
Coil Voltage	12VDC
Power Consumption	0.9W or less
Maximum Distance	32feet (10meters)
Wire Size	16 to 22AWG

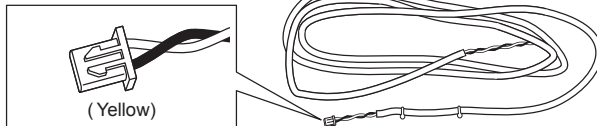
Parts list

This Installation Manual and the parts listed below are included with the CN24RELAY-KIT-CM3.

(1) External output cable 2 cables total

① CN24 without lock mechanism (Yellow) : 1

② CN24 with lock mechanism (Yellow/Orange) : 1

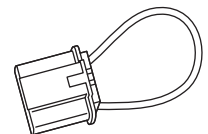
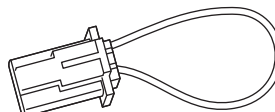
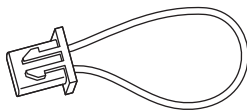


(2) Fan control connector 3 connectors total

① CN22 without lock mechanism (Green) : 1

② CN22 with lock mechanism (Green) : 1

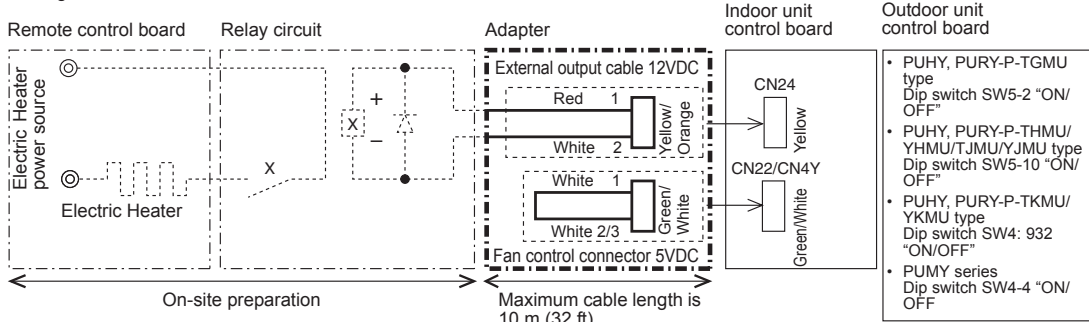
③ CN4Y (White) : 1



How to Use / How to Install

1 Field-supplied Wiring

(1) Basic wiring



Use X relay having the following specifications

- Rated voltage : 12VDC
- Power consumption : 0.9W or less

* Always insert a diode on both ends the relay coil.

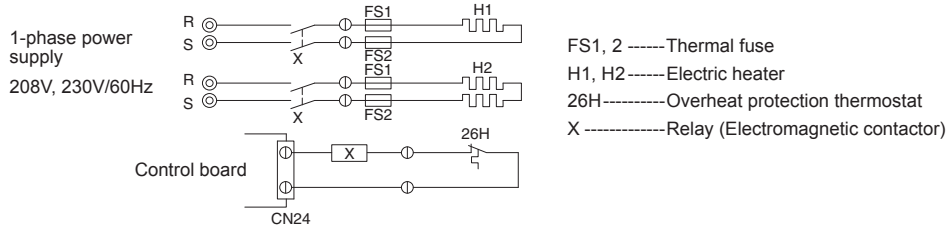
The length of the electrical wiring for the CN24RELAY-KIT-CM3 is 2 meters (6-1/2 ft).

For longer lengths, up to no more than 10 m (32ft), use sheathed 2-core cable.

Control cable type : CVV, CVS, CPEV or equivalent.

Cable size : 0.5 mm² ~ 1.25 mm² (16 to 22 AWG)

(2) Recommended circuit



2 Wiring Restrictions

The length of cable connecting the heater adapter to the circuit board of the indoor unit must be no more than 10 meters (32ft).

Any cable longer than 10 meters (32ft) could cause improper operation.

Use a transit relay when extending the wiring.

3 Control specifications and DIP Switch settings

* Table 1 shows how the field-installed heater is controlled. Select the desired operation in the table below, and set the DIP S/W on the outdoor and indoor units as shown in Table 1. Table 2 shows Heater Control patterns #A and B.

Table.1

Outdoor unit setting	Condition of outdoor unit	Ducted unit (PEFY-NMSU-E, PEFY-NMH(S)U-E, PVFY, PEFY-NMAU-E, PFFY-NEMU-E, PFFY-NRMU-E)		NON ducted unit (PL/PK/PC/PM)
DIP S/W OFF In the case of: • TGMU: S/W5-2 OFF • THMU/YHMU/TJMU/YJMU: S/W5-10 OFF • TKMU/YKMU: SW4: 932 OFF • PUMY: S/W4-4 OFF	Applies to ALL Condenser unit models. N/A	DIP S/W3-4 OFF (Indoor unit)	Heater control #A (defrost/error: Heater OFF)	Heater control #A (defrost/error: Heater ON)*1
		DIP S/W3-4 ON (Indoor unit)*2	Heater control #A (defrost/error: Heater ON)	
DIP S/W ON In the case of: • TGMU: S/W5-2 ON • THMU/YHMU/TJMU/YJMU: S/W5-10 ON • TKMU/YKMU: SW4: 932 ON • PUMY: S/W4-4 ON	Applies to ONLY Air Cooled Condenser unit models that have OA sensor. 	Normal drive	Heater OFF	
		Defrost drive H/P drive H/P stop	DIP S/W3-4 OFF (Indoor unit)	Heater control #A (defrost/error: Heater OFF)
DIP S/W3-4 ON (Indoor unit)*2	Heater control #B (defrost/error: Heater ON)			

*1 DIP S/W3-4 setting on NON ducted unit is used for Vane Control function. DIP S/W3-4 setting is not required.

*2 For ducted units when S/W3-4 is ON, heater is ON in defrost mode.

*3 Heater On signal can not be output in the following cases for safety reasons.

External Heater Adapter CN24RELAY-KIT-CM3

- Return air temperature sensor fault (Error code: 5101)
- Indoor unit fan operation error (Error code: 4109)
- Transmission error (Error code: 6***, 7***)
- When heating mode is prohibited
- When demand control or capacity save is set to 0%
- During refrigerant recovery mode on PUMY system
- For a few minutes when change from thermo OFF to ON or ON to OFF in R2/WR2 system

Table.2

Heater control #A	Heater control #B
Heater OFF Inlet air temp. \geq set temp. Heater ON Inlet air temp. $<$ set temp. -4°F (2°C)	Heater OFF Inlet air temp. \geq set temp. Heater ON Inlet air temp. $<$ set temp. -1.8°F (1°C)
Note: <For heater> The value "4°F (2°C)" is modifiable from 1.8°F (1°C) to 9°F (5°C) by maintenance tool.	

Note:

- (1) On the ducted model units (except the Fresh air intake type), turning on the heater with the fan setting set to OFF requires that the DIP S/W and connectors on the indoor units*1 are set on site.

*1: DIP SW3-4, CN24, and CN4Y (or CN22)

Table.3 Fan control in defrost

Pattern	Duct unit (PEFY-NMSU-E, PEFY-NMH(S)U-E, PEFY-NMAU-E, PFFY-NEMU-E, PFFY-NRMU-E, PVFY)		
	CN4Y or CN22 for FAN control (YU25)	DIP S/W3-4 (Indoor unit)	Fan speed in defrost (Heater)
1	Unplugged	OFF	Stop (Heater OFF)
2		ON	See Table.4 (Heater ON)
3	Plugged	OFF	Stop (Heater OFF)
4		ON	Stop (Heater ON)

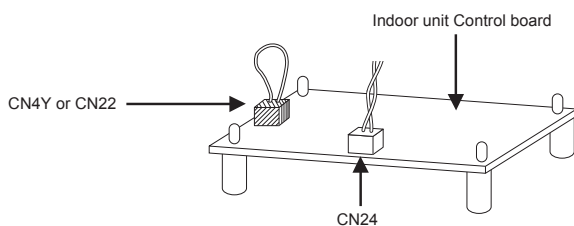
Table.4 Fan speed setting in defrost

SW3-1	SW1-7	SW1-8	Fan speed *1
OFF	OFF	OFF	Very low
OFF	ON	OFF	Low
OFF	OFF	ON	Remote controller setting
OFF	ON	ON	Stop (Remote controller setting *2)
ON	ON	ON	Stop (Remote controller setting *2)

*1: The fan operates at the same speed settings as shown in this table during the Heating Thermo-OFF mode.

*2: If Pattern 2 in the table above is selected for fan control, the fan will follow the remote controller setting.

<Image>



- (2) On the Fresh air intake type units, the heater cannot be turned on when the fan setting set to OFF.

- (3) Non-ducted models do not require the settings as described in Section (1) above.

- Reference (not applicable to the ducted models)

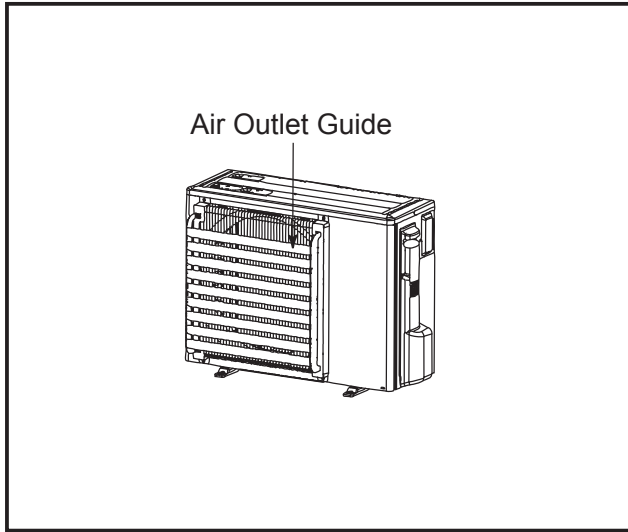
Pattern	NON ducted unit (PLFY/PKFY/PCFY/PMFY)		
	CN4Y or CN22 for FAN control (YU25)*1	DIP S/W (Indoor unit)	Fan in defrost
1	N/A	N/A	Stop (Heater ON)

*1: Refer to Section 5 "Dipswitch Setting" for further information.

- (4) Back-up heating will not operate when the heater turns on during demand control.

- (5) This is applicable only to the R410A series. Make the settings for the following dip switches on the outdoor unit control board before turning on the power.

Figure



Descriptions

A part to change air direction from outdoor unit. Can also be used to prevent short cycles.

Applicable Models

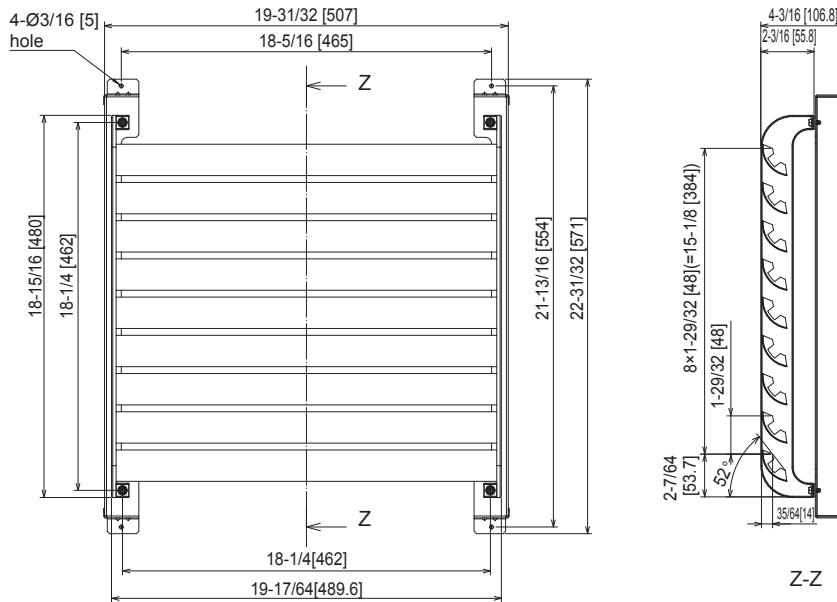
- PUY-AK12/18NL
 - PUZ-AK12/18NL
- only 1 piece required

Specifications

Exterior	Color (Munsell)	Ivory (3.0Y 7.8/1.1)
	Material/surface treatment	Alloy hot-dip zinc-coated carbon steel sheet/Acrylic resin coating
Weight	2.8kg	
Air outlet direction	Changeable between up, down or sideways	
Accessory name x Qty. <Material/Surface treatment>	Screw (M5x10) x 4 (Iron/Zinc nickel alloy plated) Screw (M4x12) x 4 (Iron/Zinc nickel alloy plated)	

Dimensions

Unit: inch [mm]



⚠ CAUTION

When the outdoor unit is installed in front of a store or in a passage, this air outlet guide is used to change the discharge direction of hot air (during cooling) or cold air (during heating) from the outdoor unit. Upward, downward and sideways directions are possible. This guide is also effective to protect the winds may blow against the discharge outlet.

Note the followings when installing this guide:

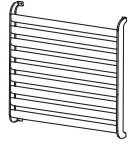




- 1) Be sure not to use "upward discharge" in a place where snowing is possible. Snow may accumulate in the guard, which could damage the fan, etc.
- 2) Attaching this unit will decrease the performance (by 2-3%) and increase noise from outdoor unit (by approx. 1-2 dB).
- 3) Do not use "upward discharge" when there are any obstacles at the back and on both sides of outdoor unit (air is taken in from top of unit): This could cause a short cycle.
- 4) To eliminate the influence of external wind, be sure to install the unit with its back facing to wall.
- 5) Do not install this unit in a place where wind directly blows to the back of the unit.

How to Use / How to Install

Note that two sets of this product are necessary for RP100, RP125, RP140.

1 Accessories

Make sure that this package has the following parts as well as the installation sheet:

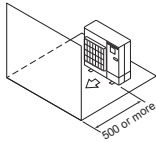
①Air outlet guide	1	②Support	2	③Attachment screw 5×10	4	④Attachment screw 4×12	4
							

2 Requirements of installation space [Unit:mm]

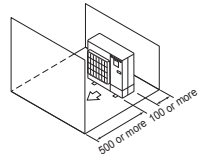
● Secure the necessary surrounding space shown below and select a place with less obstacles, to prevent a short cycle.

- 1) Surrounding space needed when installing one unit
 • Do not use "upward discharge" in cases of figures (3) and (5) below.

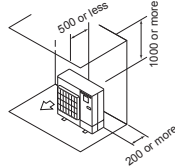
(1) Obstacle at front (open at back, sides and top)



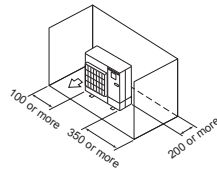
(2) Obstacles at back and front (open at sides and top)



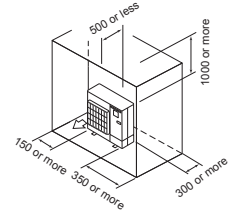
(3) Obstacles at back and top (open at front and sides)



(4) Obstacles at back, and sides (open at front and top)



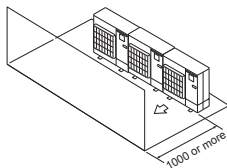
(5) Obstacles at back, sides and top (open at front)



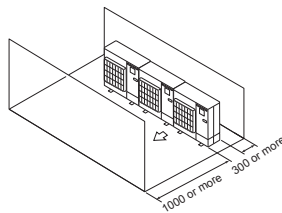
- 2) Surrounding space needed when installing multiple units

- When installing units horizontally in a series, leave at least 350 mm space between units.
- Do not use "upward discharge" in case of figure (3) below.

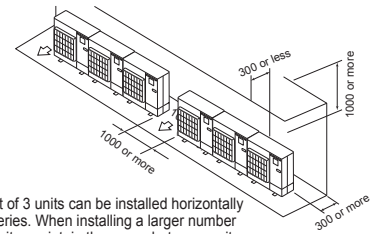
(1) Obstacle at front (open at back, sides and top)



(2) Obstacles at back and front (open at sides and top)

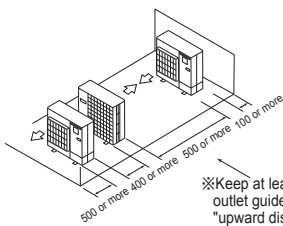


(3) Obstacles at back and top (open at front and sides)



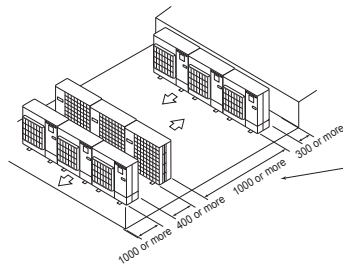
※Limit of 3 units can be installed horizontally in series. When installing a larger number of units, maintain the space between units shown above.

(4) Installing units, one in each row



※Keep at least 1000 when using outlet guide in directions other than "upward discharge".

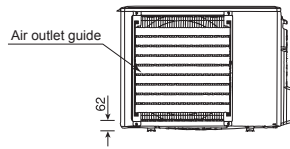
(5) Installing multiple units in multiple rows



※Keep at least 2000 when using outlet guide in directions other than "upward discharge".

3 Installation Complete Diagrams

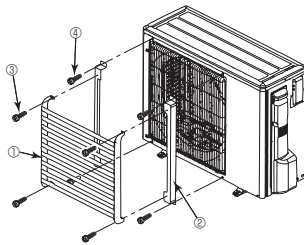
809W × 300D × 630H(mm)
Outdoor unit



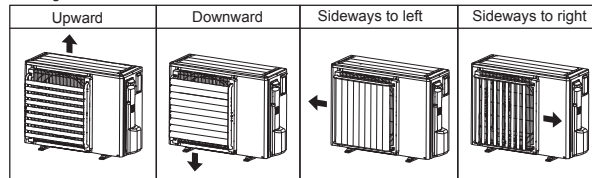
4 Installation Method

• Four blowout directions can be selected: Check the orientation of blowout vane, and attach the blowout guide in the direction that matches the situation at local site.

- (1) Make a frame by fixing 2 supports ② on the outdoor unit with 4 screws ③.
- (2) Fix the air outlet guide ① to the supports mounted on the outdoor unit with 4 screws ③.

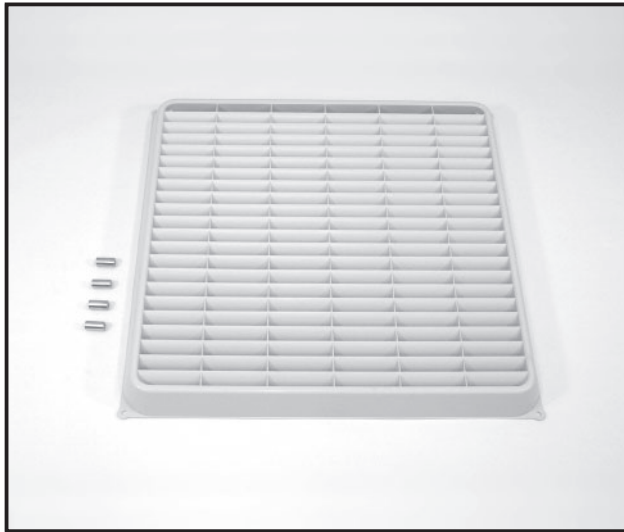


<Setting blow-off direction>





Photo



Descriptions

A part to change air direction from outdoor unit.
Can also be used to prevent short cycles.

Applicable Models

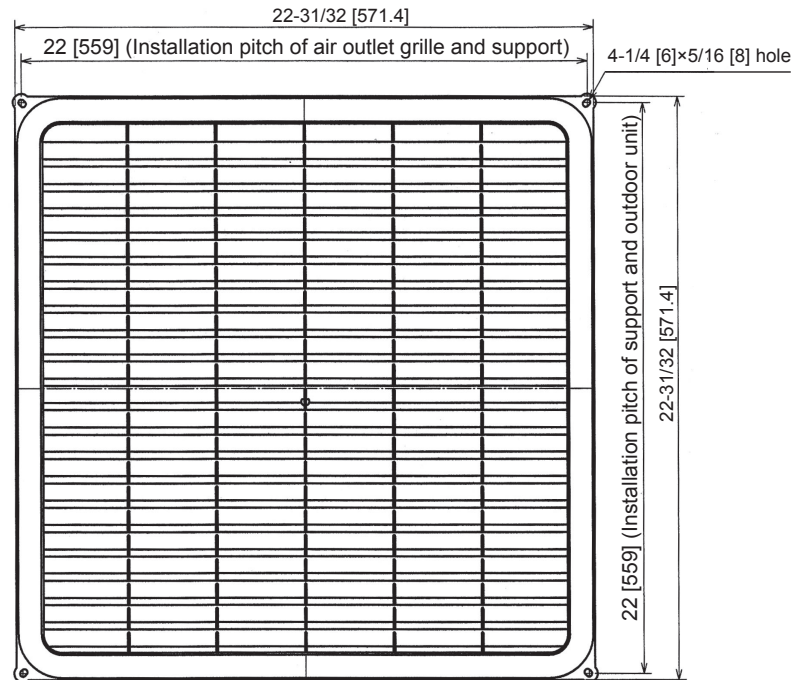
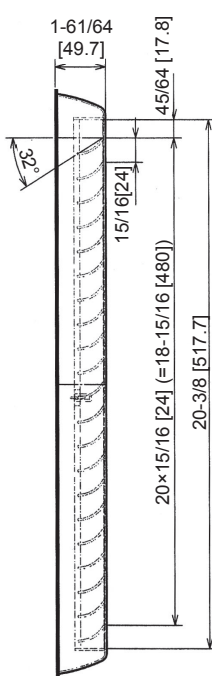
- PUY-AH24/30NL
- PUZ-AH24/30NL

Specifications

Exterior	Color (Munsell)	Ivory (3.0Y 7.8/1.1)
	Material	Air outlet grille: PP resin
Weight		1.2kg
Air outlet direction		Changeable between up, down or sideways
Accessory name x Qty. <Material/Surface treatment>		Washer faced screw (M5x35) x 4 (Iron wire (SWCH18A)/Zinc nickel plated)

Dimensions

Unit: inch [mm]



⚠ CAUTION

* Air Guide prevents reverse rotation of outdoor unit fan when it enters low speed rotation mode with fan controller being operated. It is also used for protection of fan when strong winds, such as a typhoon, wind blowing through tall buildings, etc., directly strike the air outlet. In addition, installation of this product is necessary when cooling operation is to be performed in outdoor temperature of -5°C or lower (down to -15°C).

Note the followings when installing this guide:





- 1) Be sure not to use "upward discharge" in a place where snowing is possible. Snow may accumulate in the guard, which could damage the fan, etc.
- 2) Attaching this unit will decrease the performance (by 2-3%) and increase noise from outdoor unit (by approx. 1-2 dB).
- 3) Do not use "upward discharge" when there are any obstacles at the back and on both sides of outdoor unit (air is taken in from top of unit): This could cause a short cycle.
- 4) To eliminate the influence of external wind, be sure to install the unit with its back facing to wall.
- 5) Do not install this unit in a place where wind directly blows to the back of the unit.

How to Use / How to Install

2-fan type outdoor unit

1 Checking provided parts

Make sure that this package has the following parts as well as the installation sheet:

① Air Discharge guide × 1	② Support × 2 (For the upper and lower sides) ※PAC-SG58SG-E (Screw hole × 6)	③ Support × 2 (For right and left) PAC-SG58SG-E (Screw hole × 2)	④ Attachment screw × 4 PAC-SG58SG-E (5 × 10) PAC-SG59SG-E (5 × 35)	⑥ Spacer × 4 ※PAC-SG59SG-E
			⑤ Attachment screw × 8 PAC-SG58SG-E (4 × 10)	

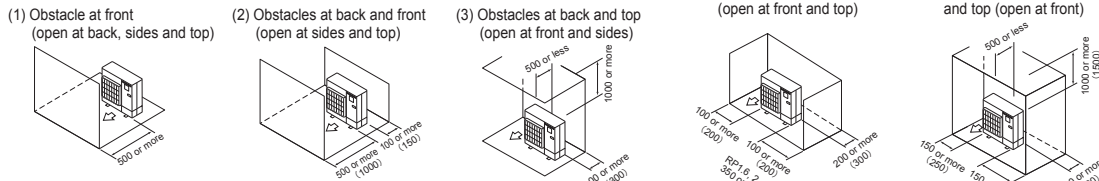
2 Checking Installation Space

(In the following diagrams, dimensions in parentheses are for 2 fan type models. Dimensions not in parentheses are common for all series models. Unit: mm)

● Secure the necessary surrounding space shown below and select a place with less obstacles, to prevent a short cycle.

1) Surrounding space needed when installing one unit

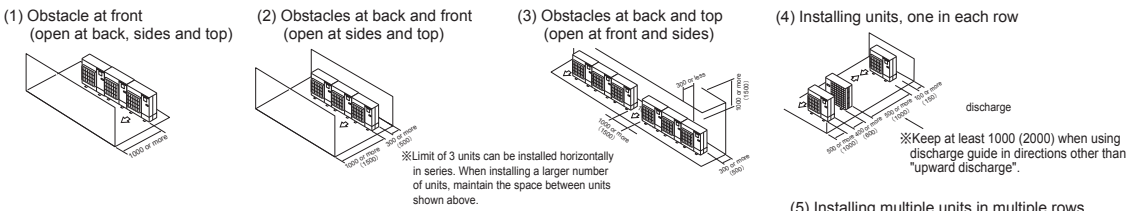
• Do not use "upward discharge" in cases of figures (3) and (5) below.



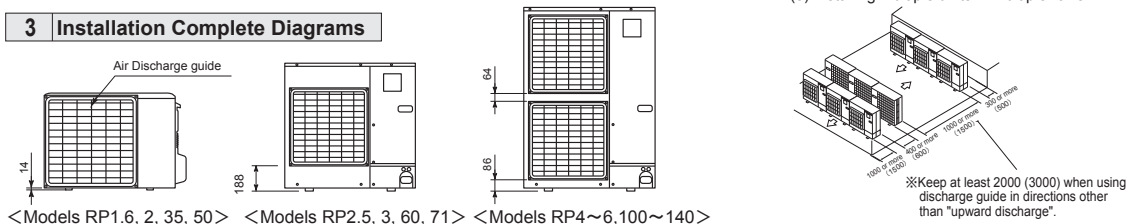
2) Surrounding space needed when installing multiple units

• When installing units horizontally in a series, leave at least 350 mm space between units for RP2.5, 60 type or lower models, and at least 10 mm for RP2.5, 60 type or higher models.

• Do not use "upward discharge" in case of figure (3) below.



3 Installation Complete Diagrams



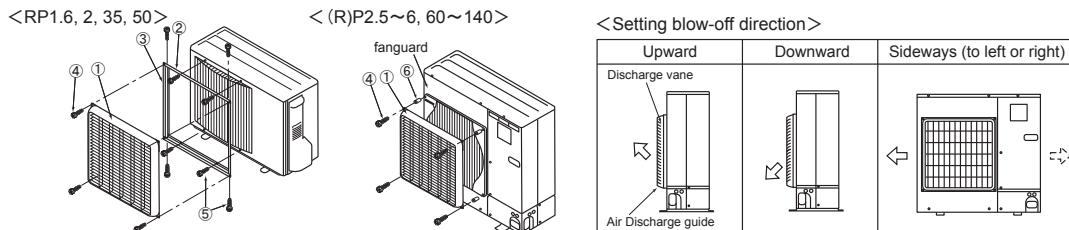
4 Installation Method

For RP1.6, 2, 35, 50 :

- 1) Fix the two supports (2) and two supports (3), using four screws (5) to make a frame.
- 2) Attach the assembled supports to the outdoor unit using four screws (5), and then attach blowout guide (1) to the support (2), using four screws (4).
 - Four blowout directions can be selected: Check the orientation of blowout vane, and attach the blowout guide in the direction that matches the situation at local site.

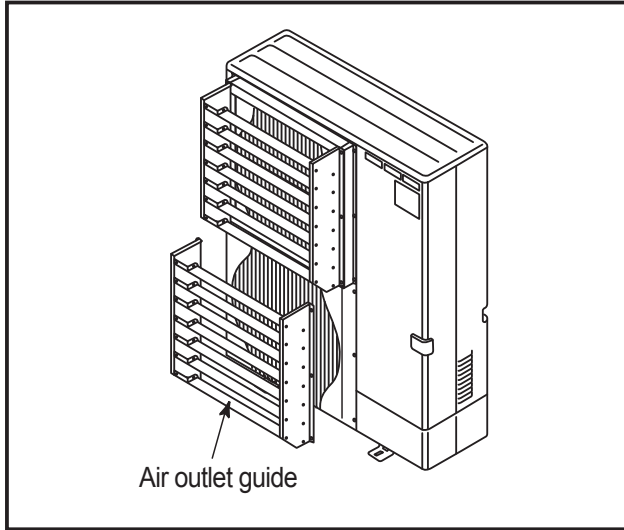
For (R)P2.5~6, 60~140: (Two sets of support and blowout guide are necessary for two-fan type models.)

- 1) Remove the 4 screws that hold the existing fan guard.
- 2) Fit the 4 spacers (6) into the hole in fan guard, and then use the 4 screws (4) to install the provided blowout guide (1) to the outdoor unit above the existing fan guard.
 - The four blowout directions can be selected: Check the orientation of blowout vane, and install the blowout guide in the direction that matches the circumstance at local site.





Figure



Descriptions

A part to change air direction from outdoor unit.
Can also be used to prevent short cycles.

Applicable Models

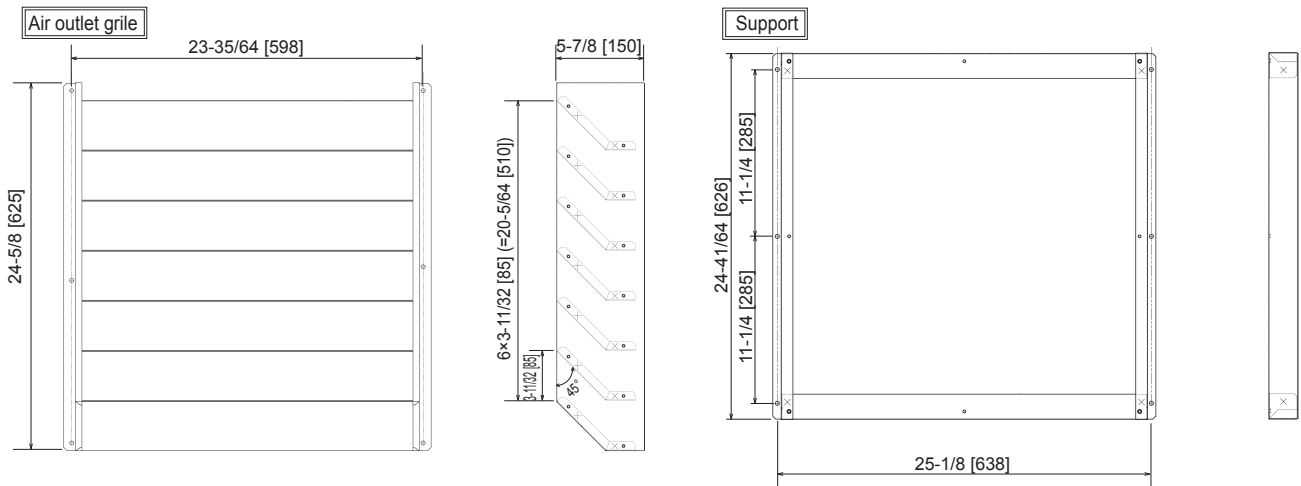
- PUY-AK36/42/48/60NL
- PUZ-AK36/42/48/60NL
- SUZ-AK48/60NL
- PUZ-AK24/30/36/42/48NLHZ
- SUZ-AK24/30/36/48NLHZ

Specifications

Exterior	Color (Munsell)	Ivory (3.0Y 7.8/1.1)
	Material	Air outlet grille: Alloy hot-dip zinc-coated carbon steel sheet
Weight		7kg
Air outlet direction		Changeable between up, down or sideways
Accessory name x Qty. <Material/Surface treatment>		Washer faced screw (M5x15) x 12 (Iron wire (SWCH18A)/Zinc nickel plated) Washer x 12, Spring washer x 12

Dimensions

Unit: inch [mm]



⚠ CAUTION

* Air Guide prevents reverse rotation of outdoor unit fan when it enters low speed rotation mode with fan controller being operated. It is also used for protection of fan when strong winds, such as a typhoon, wind blowing through tall buildings, etc., directly strike the air outlet. In addition, installation of this product is necessary when cooling operation is to be performed in outdoor temperature of -5°C or lower (down to -15°C).

Note the followings when installing this guide:

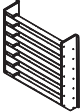
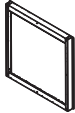



- 1) Be sure not to use "upward discharge" in a place where snowing is possible. Snow may accumulate in the guard, which could damage the fan, etc.
- 2) Attaching this unit will decrease the performance (by 2-3%) and increase noise from outdoor unit (by approx. 1-2 dB).
- 3) Do not use "upward discharge" when there are any obstacles at the back and on both sides of outdoor unit (air is taken in from top of unit): This could cause a short cycle.
- 4) To eliminate the influence of external wind, be sure to install the unit with its back facing to wall.
- 5) Do not install this unit in a place where wind directly blows to the back of the unit.

How to Use / How to Install

2-fan type outdoor unit

1 Checking provided parts

Make sure that this package has the following parts as well as the installation sheet:

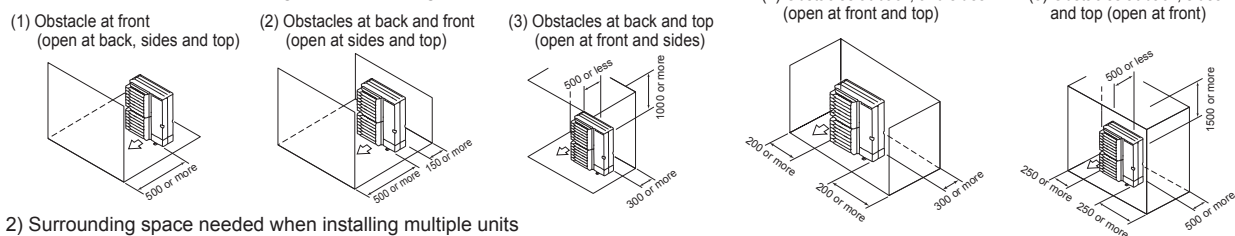
①Air Discharge guide	1	②Support	1	③Screw(5×15)	12	④Washer	12	⑤Spring washer	12
									

2 Checking Installation Space (Unit: mm)

● Secure the necessary surrounding space shown below and select a place with less obstacles, to prevent a short cycle.

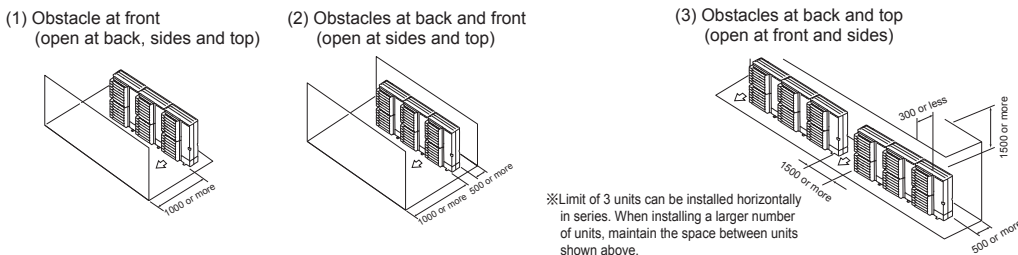
1) Surrounding space needed when installing one unit

• Do not use "upward discharge" in cases of figures (3) and (5) below.



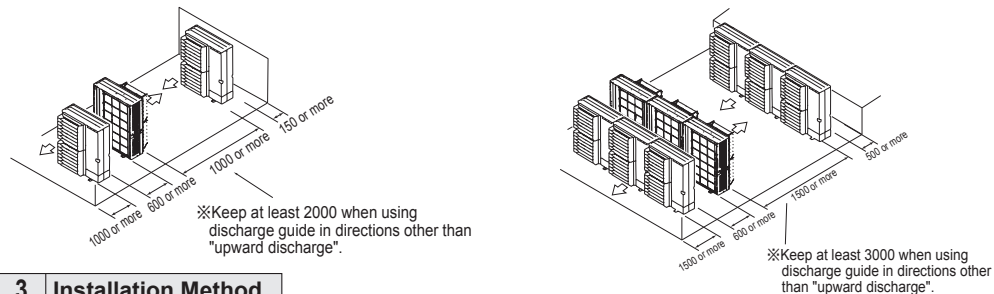
2) Surrounding space needed when installing multiple units

• When installing units horizontally in a series, leave at least 10 mm space between units.
 • Do not use "upward discharge" in case of figure (3) below.



(1) Installing units, one in each row

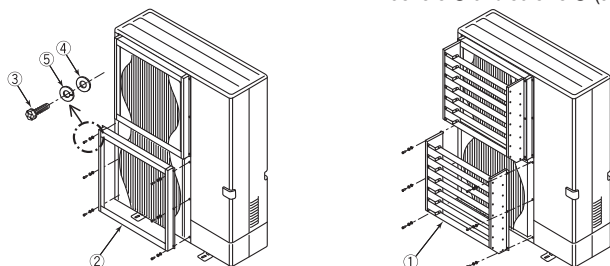
(2) Installing multiple units in multiple rows



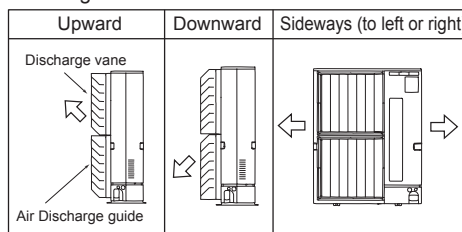
3 Installation Method

• 4 blowout directions can be selected: Check the orientation of blowout vane, and attach the blowout guide in the direction that matches the situation at local site.

- Attach the support ② to the outdoor unit using the washers ④, spring washers ⑤ and screws ③ (at the 6 points) on the existing fan guard
- Set the orientation of the blowout vane of the discharge guide ① to the desired direction and install the vane to the outdoor unit using the washers ④, spring washers ⑤ and screws ③ (at 6 points).

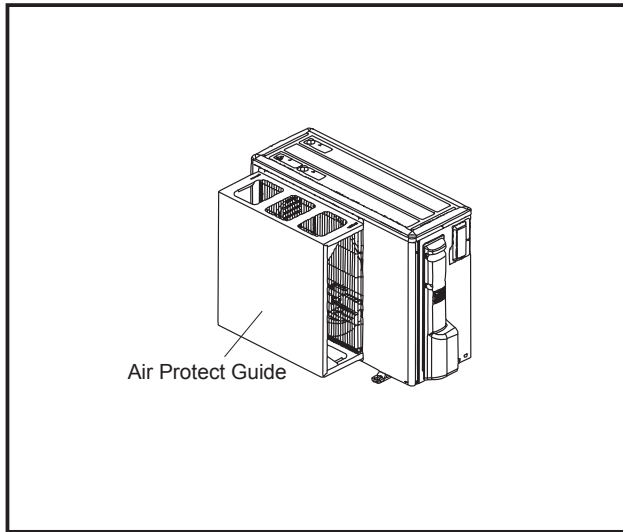


< Setting blow-off direction >





Figure



Air Protect Guide

Descriptions

Enables operation even when the outside temperature is low. Protect the unit from cold wind.

Applicable Models

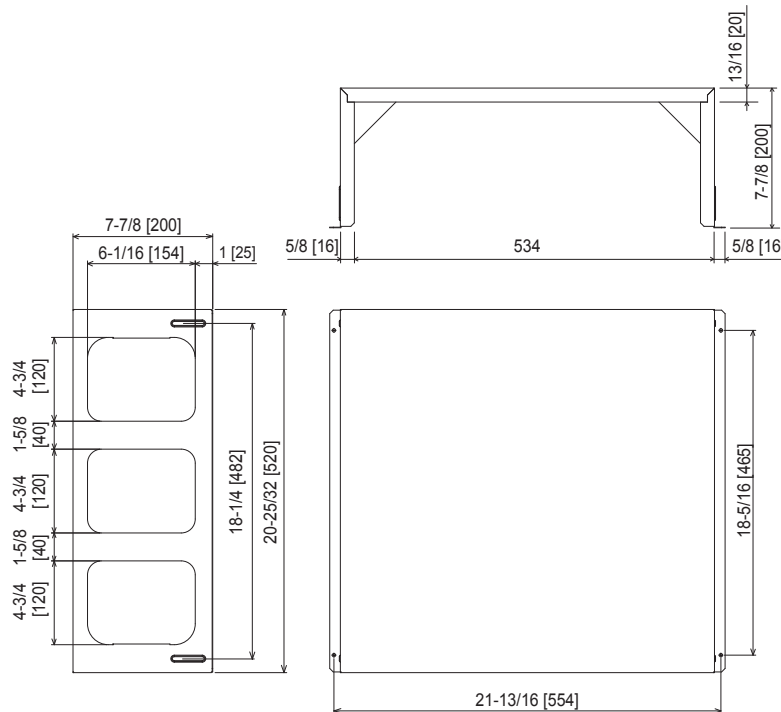
- PUY-AK12/18NL
 - PUZ-AK12/18NL
- only 1 piece required

Specifications

Exterior	Color (Munsell)	Ivory (3.0Y 7.8/1.1)
	Surface treatment	Acrylic resin coating
	Material	Alloy hot-dip zinc-coated carbon steel sheet
Weight		3.4kg
Accessory name x Qty.		Mounting screw (4x10) x 4 Spring washer x 4

Dimensions

Unit: inch [mm]



⚠ CAUTION

* This Air protect prevents reverse rotation of outdoor unit fan when it enters low speed rotation mode with fan controller being operated. It is also used for protection of fan when strong winds, such as a typhoon, wind blowing through tall buildings, etc., directly strike the air outlet. In addition, installation of this product is necessary when cooling operation is to be performed in outdoor temperature of -5°C or lower (down to -15°C).

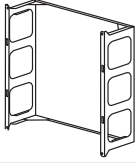
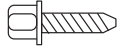


Pay attention to the following points when installing this product:

- 1) To eliminate the effects of external wind, be sure to install this unit with back surface facing wall side.
- 2) Do not install this unit in orientation or site where wind directly blows at the back of the unit.
- 3) Installing of this product will reduce the capacity of the unit (approx. 2 or 3%) and increase the noise of outdoor unit (approx. 1 or 2dB)
- 4) Do not use this product where there is any obstacle at either side or above the outdoor unit (discharge air will be blocked): This may cause a short cycle.

How to Use / How to Install

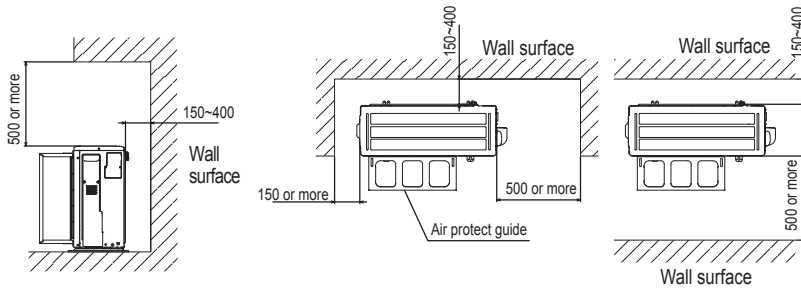
1 Accessories

Make sure that all the following parts, in addition to this manual, are in this box.

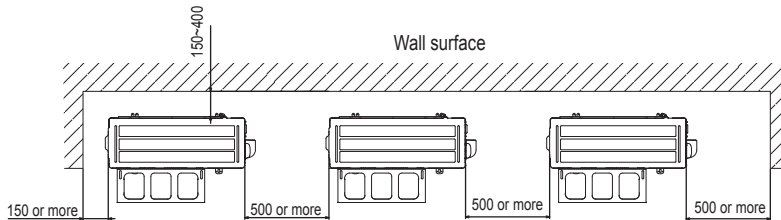
① Air protect guide	1	② Mounting screw 4×16	4	③ Washer	4	④ Spring washer	4
							

2 Requirements of installation space [Unit: mm]

(1) One unit installation:

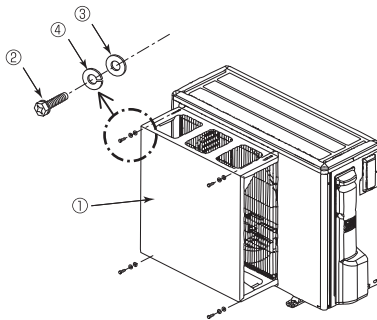


(2) Multiple unit installation: *Installation of multiple units in series must be no more than five units.



3 Installation procedure

(1) Install the air protect guide ① on the outdoor unit using washers ③, spring washers ④ and screws ②.





Photo



Descriptions

Enables operation even when the outside temperature is low. Protect the unit from cold wind.

Applicable Models

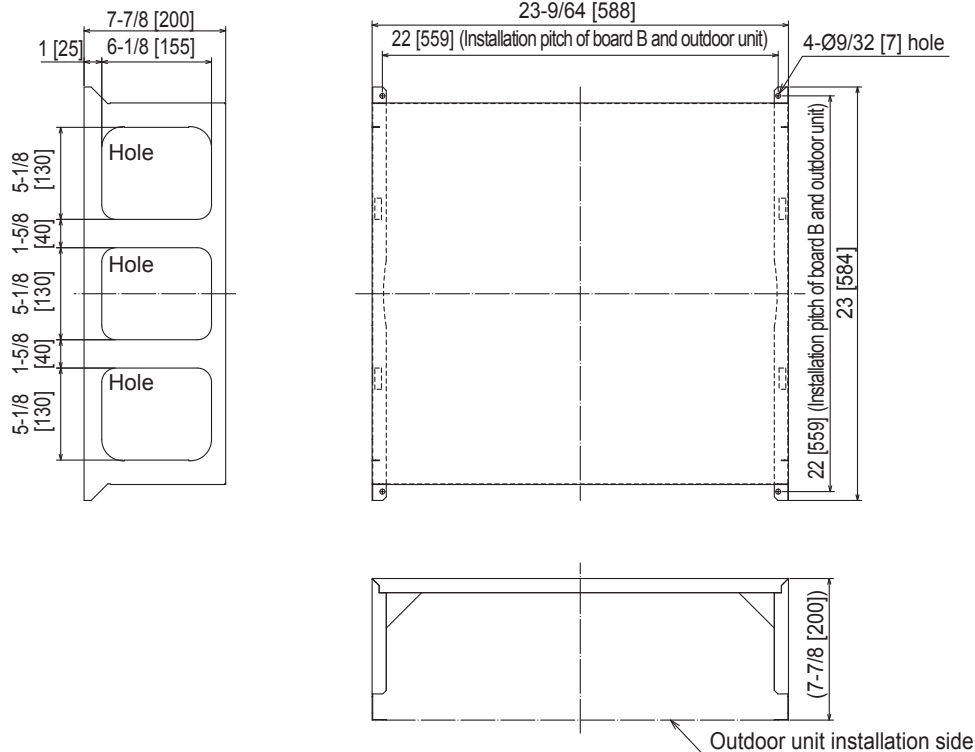
- PUY-AH24/30NL
- PUZ-AH24/30NL

Specifications

Exterior	Color (Munsell)	Ivory (3.0Y 7.8/1.1)
	Surface treatment	Acrylic resin coating
	Material	Alloy hot-dip zinc-coated carbon steel sheet
Weight		3.3kg
Accessory name x Qty. <Material/Surface treatment>		Washer faced screw (M5x15) x 4 <Iron wire (SWCH18A)/Zinc nickel plated>

Dimensions

Unit: inch [mm]



⚠ CAUTION

* Air Guide prevents reverse rotation of outdoor unit fan when it enters low speed rotation mode with fan controller being operated. It is also used for protection of fan when strong winds, such as a typhoon, wind blowing through tall buildings, etc., directly strike the air outlet. In addition, installation of this product is necessary when cooling operation is to be performed in outdoor temperature of -5°C or lower (down to -15°C).

Note the followings when installing this guide:

- 1) Be sure not to use "upward discharge" in a place where snowing is possible. Snow may accumulate in the guard, which could damage the fan, etc.
- 2) Attaching this unit will decrease the performance (by 2-3%) and increase noise from outdoor unit (by approx. 1-2 dB).
- 3) Do not use "upward discharge" when there are any obstacles at the back and on both sides of outdoor unit (air is taken in from top of unit): This could cause a short cycle.
- 4) To eliminate the influence of external wind, be sure to install the unit with its back facing to wall.
- 5) Do not install this unit in a place where wind directly blows to the back of the unit.

How to Use / How to Install

Package air-conditioner Optional parts Installation Manual for Air Guide

Always observe for safety

- Carefully read this section 「Always observe for safety」, and securely install the optional parts.
- Be sure to observe the cautions described here: They include critical contents for safety.
- The following indications show the classifications for danger, and possible consequences following incorrect handling.

⚠ WARNING	Incorrect handling could lead to death or serious injury.
⚠ CAUTION	Incorrect handling could lead to injury or damage to house and household articles.

- After installation, perform a test run and make sure that there is no abnormality, and ask your customer to keep this installation sheet with the instruction manual at all times. Also ask the customer to transfer these manuals to a new user if the user changes.

⚠ WARNING

Ask the dealer or specialist for installation.

- If installed incorrectly by user, water leak, electric shock, fire, etc. could result.

Carefully install the panel according to this installation sheet.

- Incorrect installation could cause water leak, electric shock, fire, etc.

Before performing installation (moving) and electrical work

⚠ CAUTION

Do not place polyethylene bags in reach of young children.

- Putting them over the head will block breathing passages, which could result in suffocation.

If electrical work is necessary, use only specified electric wires adapted with current capacity.

- Use of unsuitable wire could cause electric leak, overheating or fire.

Securely apply heat-insulation to refrigerant pipe so that no condensation occurs.

- If heat-insulation is inadequate, condensation could occur on the surface of pipes and dewdrops could accumulate on ceiling, floor or important goods.

Securely perform drain piping work according to the installation manual so that no condensation occurs.

- If piping work is incorrect, water leak may occur and ceiling, furniture, etc may get wet.

This Air Guide prevents reverse rotation of outdoor unit fan when it enters low speed rotation mode with fan controller being operated. It is also used for protection of fan when strong winds, such as in a typhoon, wind blowing through tall buildings, etc., directly strike the at air outlet.

In addition, installation of this product is necessary when cooling operation is to be performed in outside-air temperature of -5°C or lower (down to -15°C).

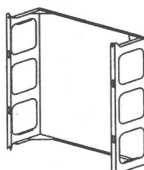
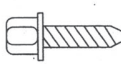


Pay attention to the following points when installing this product:

- 1) To eliminate the effects of external wind, be sure to install this unit with back surface facing wall side.
- 2) Do not install this unit in orientation or site where wind directly blows at the back of the unit.
- 3) Installing of this product will reduce the capacity of the unit (approx. 2 or 3%) and increase the noise of outdoor unit (approx. 1 or 2dB).
- 4) Do not use this product where there is any obstacle at either side or above the outdoor unit (discharged air will be blocked). This may cause a short cycle.

When 2-fan type outdoor unit is used, note that two sets of this product will be necessary.

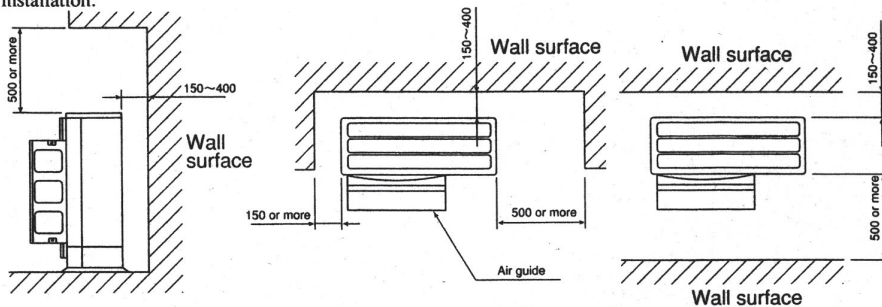
1 Checking parts

Make sure that all the following parts, in addition to this manual, are in this box:

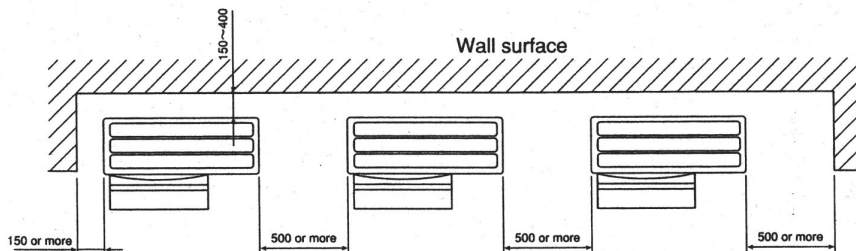
① Air Guide	1	② Mounting screw 5×15	4	③ Washer	4	④ Spring washer	4
							

2 Requirements of space for installation

(1) One unit installation:

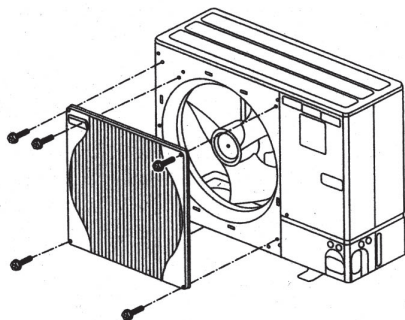


(2) Multiple unit installation: ※ Installation of multiple units in series must be no more than five units.

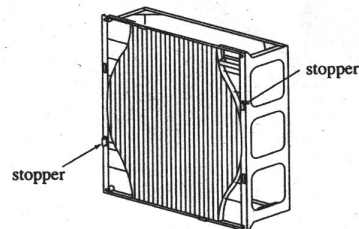


3 Installation procedure

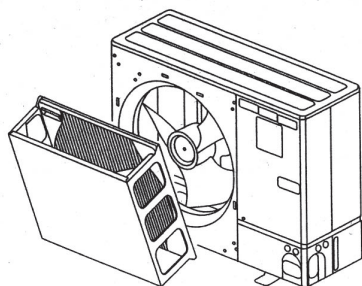
(1) Remove the fan guard fixing screws (five screws on circumference), and then remove the fan guard.



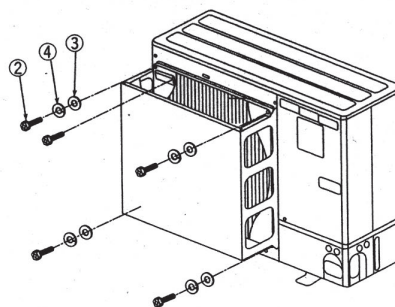
(2) Insert the fan guard stoppers into the square holes on the air guide.



(3) Insert the stoppers (four locations) of the fan guard into the installation holes on the outdoor unit.



(4) Install the air guide on the outdoor unit using washers (3), spring washers (4) and screws (2).
* Use existing screws for handle section.





Photo



Descriptions

Enables operation even when the outside temperature is low.
Protect the unit from cold wind.

Applicable Models

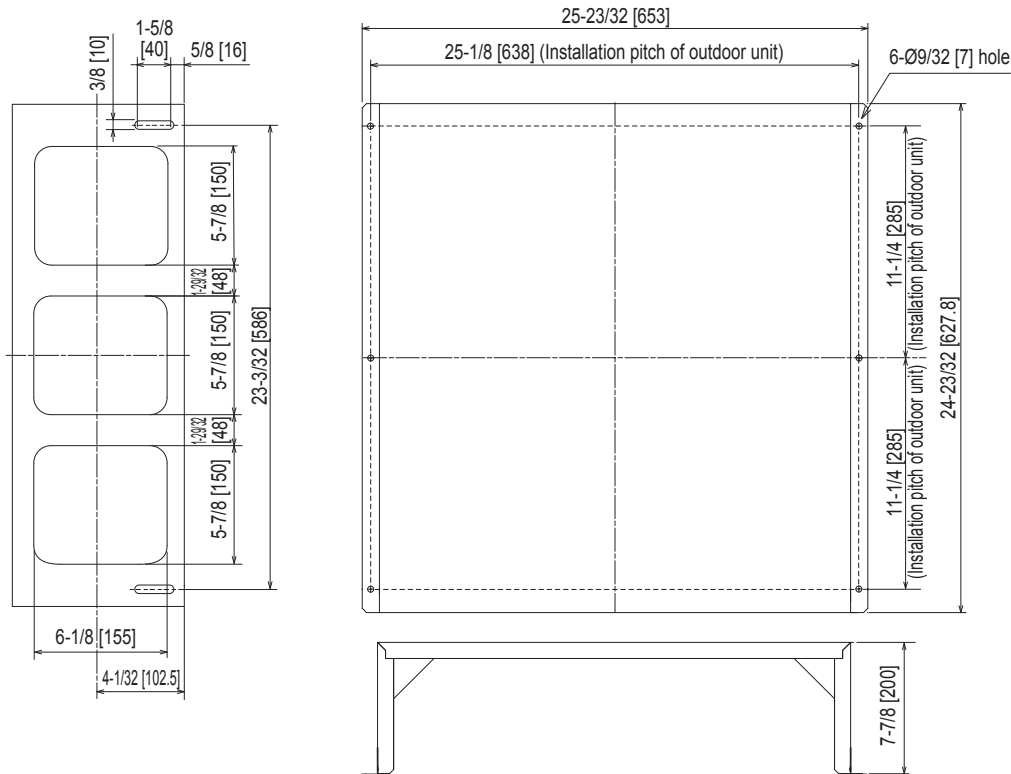
- PUY-AK36/42/48/60NL
- PUZ-AK36/42/48/60NL
- SUZ-AK48/60NL
- PUZ-AK24/30/36/42/48NLHZ
- SUZ-AK24/30/36/48NLHZ

Specifications

Exterior	Color (Munsell)	Ivory (3.0Y 7.8/1.1)
	Surface treatment	Acrylic resin coating
	Material	Alloy hot-dip zinc-coated carbon steel sheet
Weight	3.5kg	
Accessory name x Qty. <Material/Surface treatment>	Washer faced screw (M5x15) x 4 <Iron wire (SWCH18A)/Zinc nickel plated>	

Dimensions

Unit: inch [mm]



⚠ CAUTION

* Air Guide prevents reverse rotation of outdoor unit fan when it enters low speed rotation mode with fan controller being operated. It is also used for protection of fan when strong winds, such as a typhoon, wind blowing through tall buildings, etc., directly strike the air outlet. In addition, installation of this product is necessary when cooling operation is to be performed in outdoor temperature of -5°C or lower (down to -15°C).

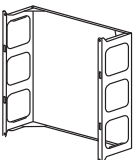



Note the followings when installing this guide:

- 1) Be sure not to use "upward discharge" in a place where snowing is possible. Snow may accumulate in the guard, which could damage the fan, etc.
- 2) Attaching this unit will decrease the performance (by 2-3%) and increase noise from outdoor unit (by approx. 1-2 dB).
- 3) Do not use "upward discharge" when there are any obstacles at the back and on both sides of outdoor unit (air is taken in from top of unit): This could cause a short cycle.
- 4) To eliminate the influence of external wind, be sure to install the unit with its back facing to wall.
- 5) Do not install this unit in a place where wind directly blows to the back of the unit.

How to Use / How to Install

1 Checking parts

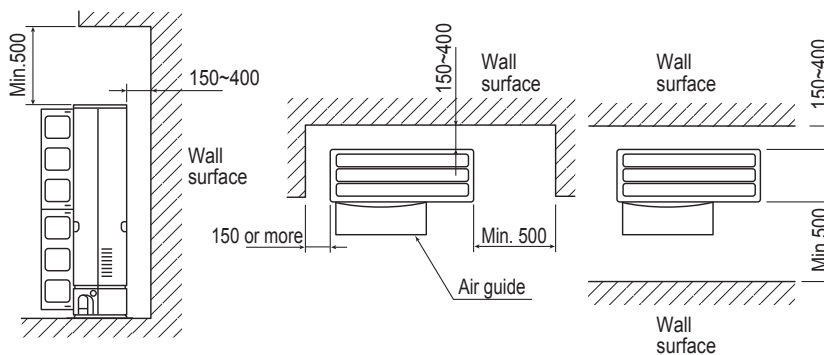
Make sure that all the following parts, in addition to this manual, are in this box:

①Air Guide	1	②Mounting screw (5×15)	6	③Washer	6	④Spring washer	6
							

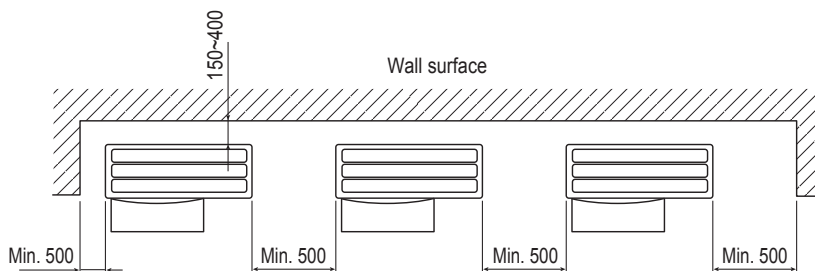
2 Requirements of space for installation

(Unit : mm)

(1)One unit installation

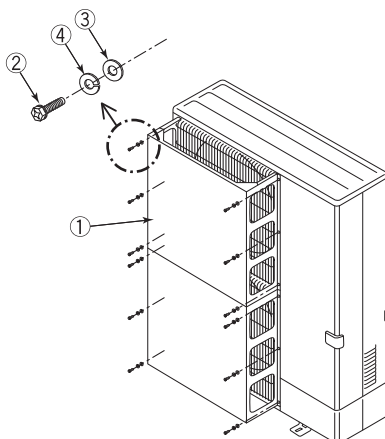


(2)Multiple unit installation : Installation of multiple units in series must be no more than 5 units.

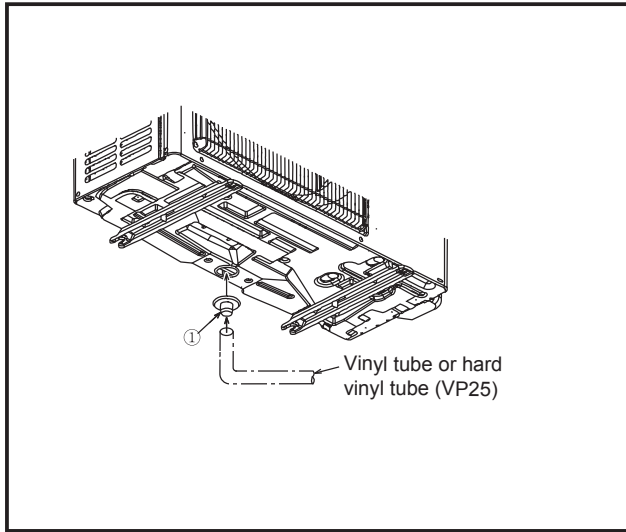


3 Installation procedure

(1)Install the air guide ① on the outdoor unit using washers ③, spring washers ④ and screws ②.



Figure



Descriptions

Cap the unnecessary holes on the outdoor unit (bottom) and centralize the drainage when using a drain pipe.

Applicable Models

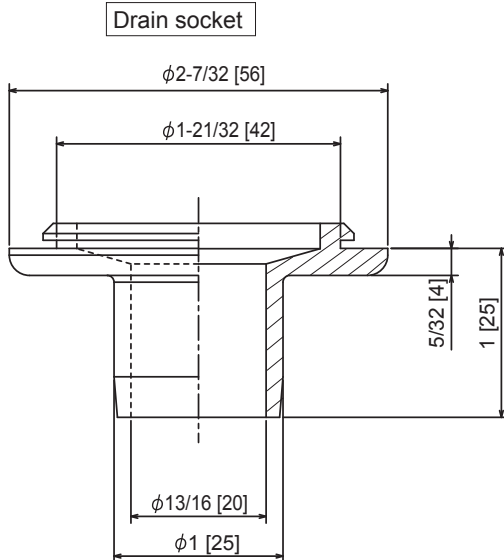
- PUY-AK12/18NL
- PUZ-AK12/18NL

Specifications

Drain pipe	PVC VP-25 or vinyl hose (ID: 25mm)
Operating conditions	No freezing allowed (Never to be used in cold climates)
Material	EPT rubber
Component	Drain socket x 1

Dimensions

Unit: inch [mm]



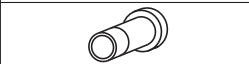
The outdoor unit is provided with several holes for drainage at the bottom to make it easier. The drain socket is used to close the unnecessary holes and centralize when using the drain tube at the installation place.

Do not use the drain socket in cold areas. The drain tube can be frozen.

* Condensation could drop through the part fitting holes in the bottom of the outdoor unit. Use the centralized drain pan to completely prevent condensation dropping.

1. Accessory

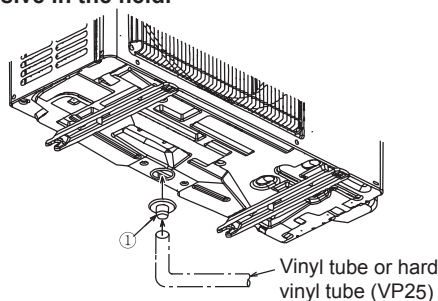
① Drain socket.....1 pc



Be aware that the part shown to the left is put in the package together with the installation manual.

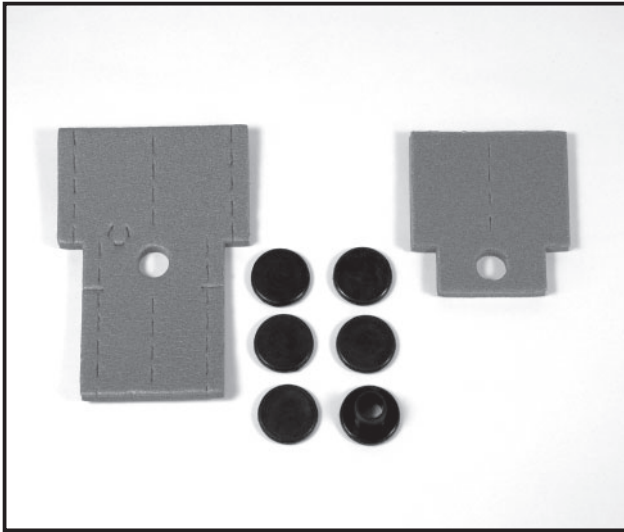
2. Installation procedure ☆ Prepare the adhesive in the field.

- (1) Glue the drain socket ① to the hole that is used to the drainage at the bottom of the unit with the glue (Prepare in the field).
- (2) Insert a vinyl tube of which inner diameter 25 mm available commercially or a hard vinyl tube VP25 to the drain socket ①.





Photo



Descriptions

Cap the unnecessary holes on the outdoor unit (bottom) and centralize the drainage when using a drain pipe.

Applicable Models

- PUY-AH24/30NL
- PUZ-AH24/30NL
- PUY-AK36/42/48/60NL
- PUZ-AK36/42/48/60NL
- SUZ-AK48/60NL
- PUZ-AK24/30/36/42/48NLHZ
- SUZ-AK24/30/36/48NLHZ

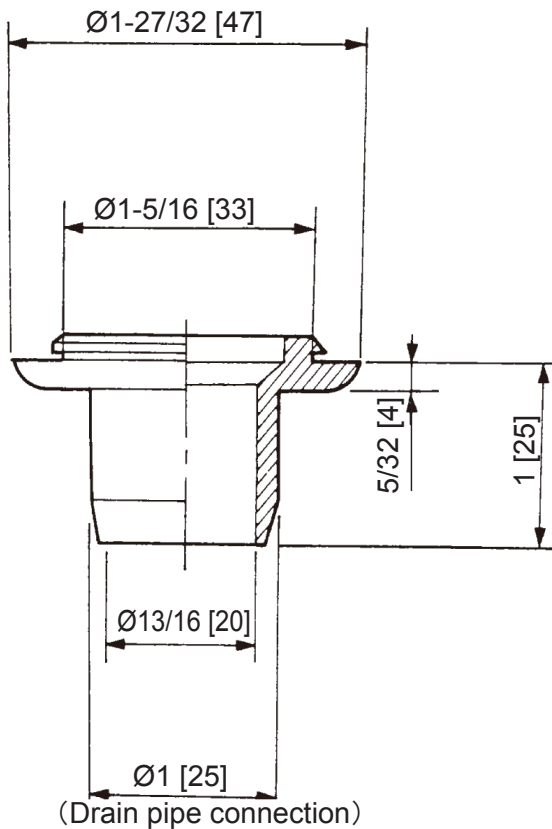
Specifications

Drain pipe	PVC VP-25 or vinyl hose (ID: 25mm)
Operating conditions	No freezing allowed (Never to be used in cold climates)
Material	EPT rubber
Component	Drain socket x 1, Drain cap x 5 Heat insulator x 2 (1 large and 1 small insulator), Band x 8

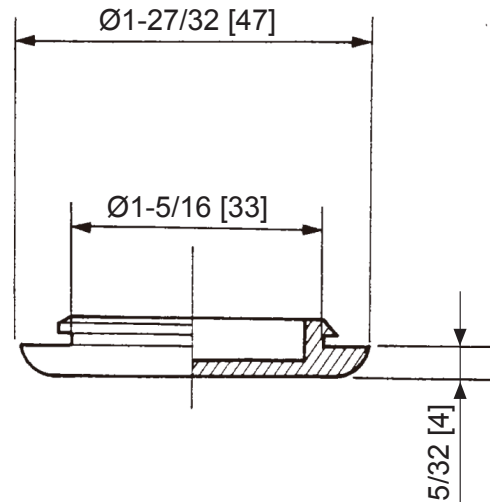
Dimensions

Unit: inch [mm]

Drain socket







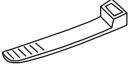
Drain cap



How to Use / How to Install

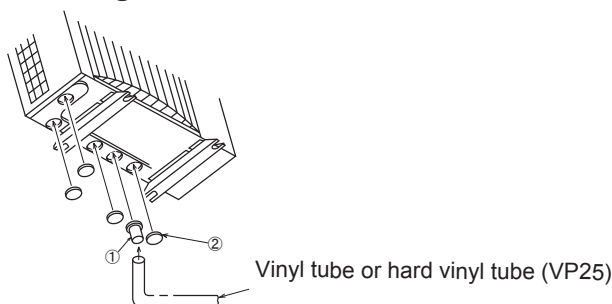
1 Accessory

Make sure that the following parts are put in the package.

① Drain socket 1 pcs	② Drain cap 5 pcs	
		
③ Insulation part (for liquid pipe) 1 pc	④ Insulation part (for gas pipe) 1 pc	⑤ Band 8 pcs
 Small size	 Large size	

2. Installation method for drain unit ☆ Prepare the adhesive in the field.

- (1) Glue the drain socket ① to the hole that is used to centralize the drainage among several holes at the bottom of the unit with the glue (Prepare in the field).
- (2) Glue the drain caps ② to close all the other unnecessary holes with the glue (Prepare in the field).
 <Note> Apply the glue securely, as the glue (Prepare in the field) will work as seal to prevent water from leaking.
 <Note> Use the adhesive for the rubber and metal.
 <Recommended product> Supper X series made by CEMEDINE CO., Ltd.
- (3) Insert a vinyl tube of which inner diameter 25 mm available commercially or a hard vinyl tube VP25 to the drain socket ①.

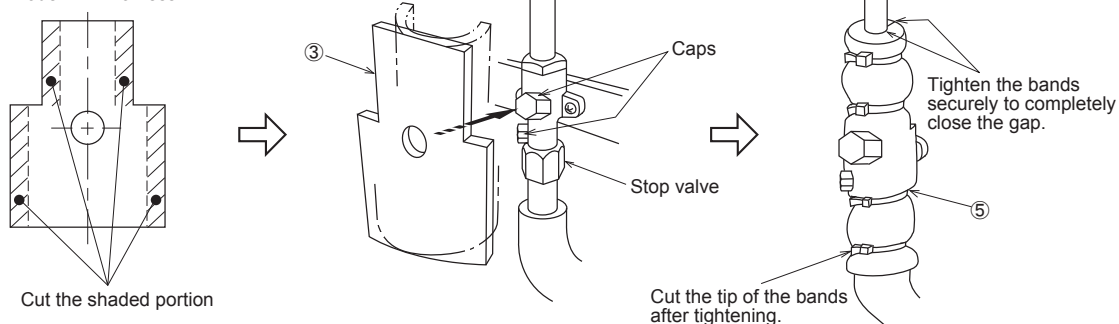


3. Installation method for insulation parts

Install the insulation parts to stop valve of the outdoor unit.
 ※The insulation parts should be installed after the tube has been connected to the unit.
 ※Some units are provided with a check valve near stop valve. In this case,

- cut the insulation parts ③ and ④ so that they will fit the stop valve properly.
- (1) Install the insulation part ③ with 2 holes to the liquid pipe side so that the holes fit the valve caps and cover the stop valve entirely.
 - (2) Fix the insulation part ③ securely with bands ⑤.
- Install the other insulation part ④ to the gas pipe side with the same procedure.

• Cut both ends of the insulation part ⑤ for gas tube side for the model RP71 or less.





Photo



Descriptions

A drain pan for the drain water generated from the outdoor unit.

Applicable Models

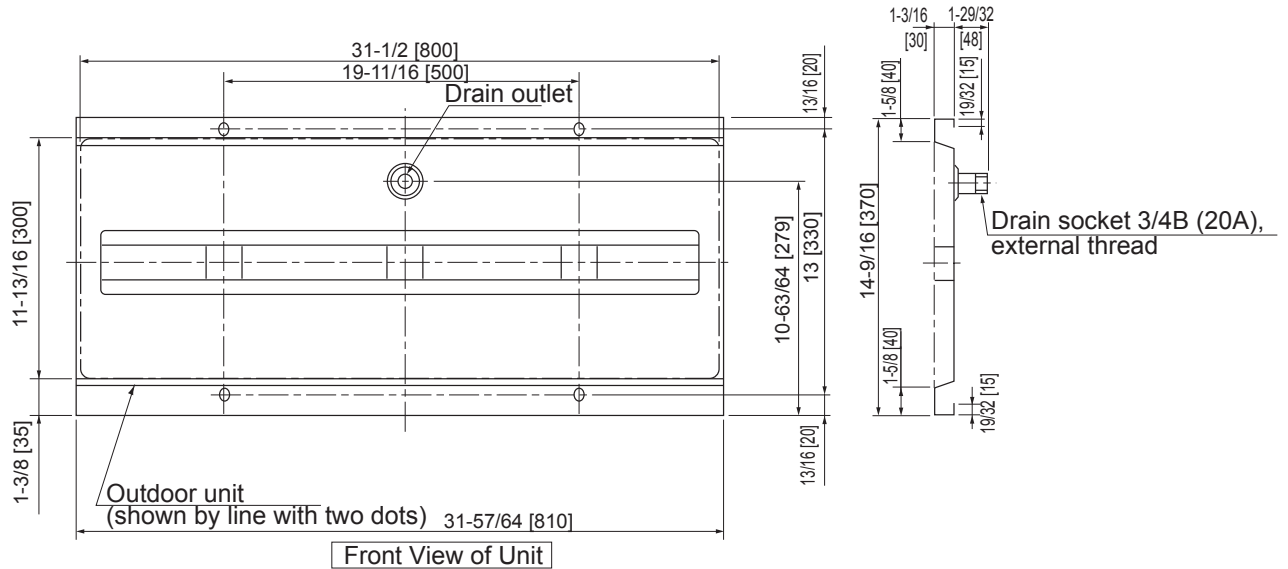
- PUY-AK12/18NL
- PUZ-AK12/18NL

Specifications

Drain outlet size		R3/4 screw (20A)
Exterior	Color (Munsell)	Ivory (3.0Y 7.8/1.1)
	Surface treatment	Acrylic resin coating
	Material	Alloy hot-dip zinc-coated carbon steel sheet (t1.6)
Weight		6.3kg
Mounting bolt (locally prepared)		M10 (or W3/8), length: 48 mm or less extrusion from drain pan's under surface

Dimensions

Unit: inch [mm]

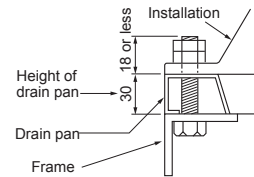
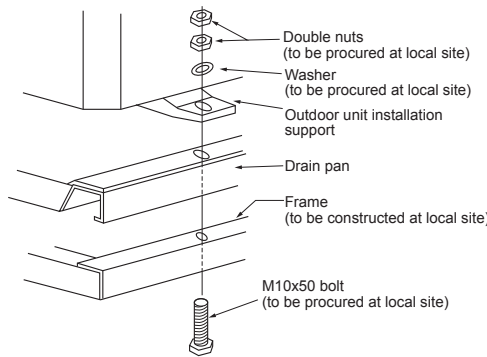
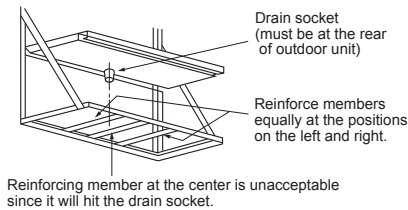
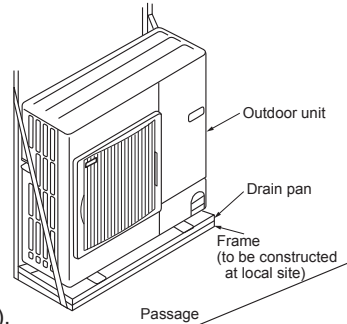


How to Use / How to Install

1 Installation Method

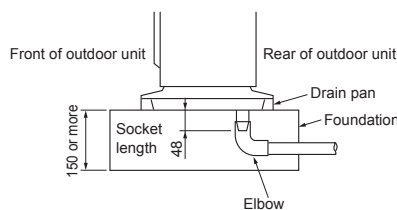
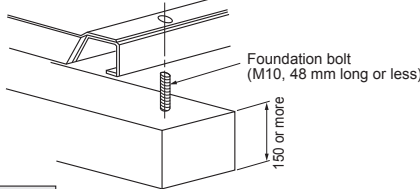
(1) When installing on installation frame

- 1) The installation frame must have structure and strength that can sufficiently support the outdoor unit and drain pan. Securely install the outdoor unit and drain pan so that they cannot fall or drop as a result of earthquake, strong wind, etc.
- 2) The drain socket of drain pan is at the center in the longitudinal direction. When constructing the installation frame, be careful that no part of the frame interferes with the socket.
- 3) The drain pan is tightened with the outdoor unit. Punch approx. $\phi 13$ holes in the installation frame at pitches to install the outdoor unit.
- 4) Fix the frame, drain pan and outdoor unit together to join them firmly (at the 4 points). The bolt length must be no more than 60 mm.



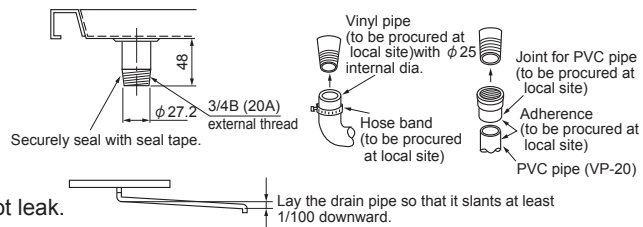
(2) When installing on foundation

- Since concentrated drain disposal is necessary, make the foundation at least 150 mm high measured from the ground as shown in the figure below. If it is less than 150 mm, drain piping will not be possible because the drain socket protrudes 48 mm.



2 Drain Piping

- (1) When connecting steel pipe:
Connect 3/4B internally threaded pipe.
- (2) When connecting vinyl pipe (soft):
Use a $\phi 25$ mm internal dia. pipe, and fix the connected section with a hose band, etc.
- (3) When connecting PVC pipe (hard):
Use VP-20 and connect with a joint for PVC pipe.
※ In all cases, seal the socket threaded section securely with a seal tape, etc., and make sure that water does not leak.



3 Refrigerant Piping ※For PAC-SG64DP-E only

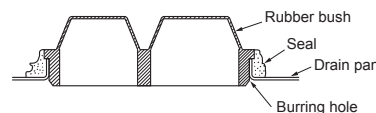
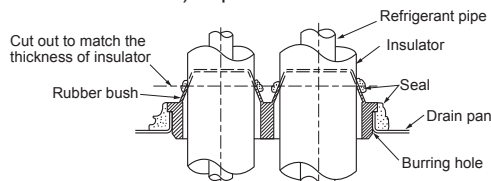
- The refrigerant pipe can be laid in from four directions: front, right, rear and bottom. When laying, be sure to perform the following:

(1) Piping from the bottom:

Cut out the rubber bush to match the thickness of refrigerant pipe insulator. Pass the refrigerant pipe through the rubber bush and fit it into the burring hole. Seal it with adhesive that is equivalent to Cemedyne 366 (to be procured at local site) to prevent water leak.

(2) Piping from other directions:

Block the burring hole of the bottom piping section in the drain pan with rubber bush. Seal it with adhesive that is equivalent to Cemedyne 366 (to be procured at local site) to prevent water leak.

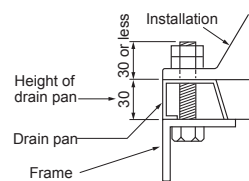
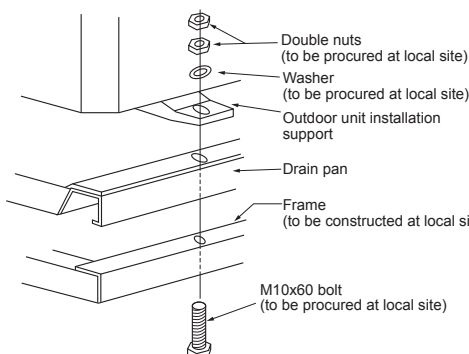
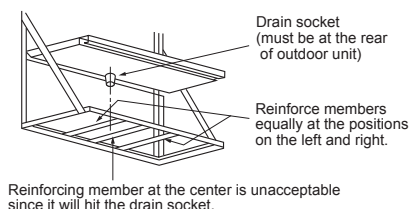
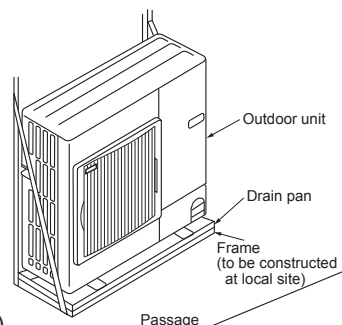


How to Use / How to Install

1 Installation Method

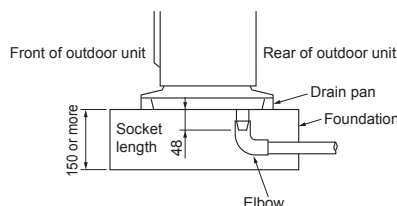
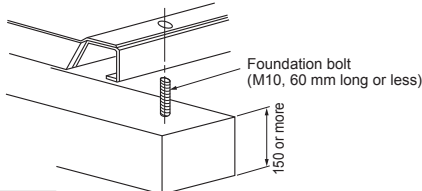
(1) When installing on installation frame

- 1) The installation frame must have structure and strength that can sufficiently support the outdoor unit and drain pan. Securely install the outdoor unit and drain pan so that they cannot fall or drop as a result of earthquake, strong wind, etc.
- 2) The drain socket of drain pan is at the center in the longitudinal direction. When constructing the installation frame, be careful that no part of the frame interferes with the socket.
- 3) The drain pan is tightened with the outdoor unit. Punch approx. $\phi 13$ holes in the installation frame at pitches to install the outdoor unit.
- 4) Fix the frame, drain pan and outdoor unit together to join them firmly (at the 4 points). The bolt length must be no more than 60 mm.



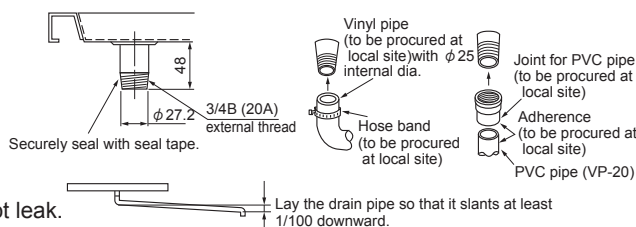
(2) When installing on foundation

- Since concentrated drain disposal is necessary, make the foundation at least 150 mm high measured from the ground as shown in the figure below. If it is less than 150 mm, drain piping will not be possible because the drain socket protrudes 48 mm.



2 Drain Piping

- (1) When connecting steel pipe: Connect 3/4B internally threaded pipe.
- (2) When connecting vinyl pipe (soft): Use a $\phi 25$ mm internal dia. pipe, and fix the connected section with a hose band, etc.
- (3) When connecting PVC pipe (hard): Use VP-20 and connect with a joint for PVC pipe.
 ※ In all cases, seal the socket threaded section securely with a seal tape, etc., and make sure that water does not leak.



3 Refrigerant Piping ※For PAC-SG64DP-E only

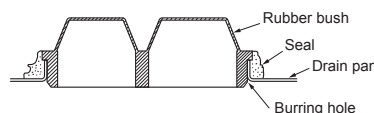
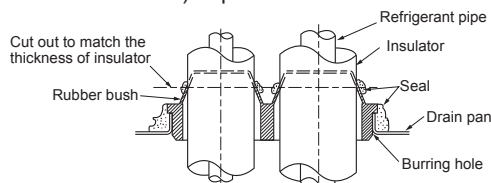
● The refrigerant pipe can be laid in from four directions: front, right, rear and bottom. When laying, be sure to perform the following:

(1) Piping from the bottom:

Cut out the rubber bush to match the thickness of refrigerant pipe insulator. Pass the refrigerant pipe through the rubber bush and fit it into the burring hole. Seal it with adhesive that is equivalent to Cemedyne 366 (to be procured at local site) to prevent water leak.

(2) Piping from other directions:

Block the burring hole of the bottom piping section in the drain pan with rubber bush. Seal it with adhesive that is equivalent to Cemedyne 366 (to be procured at local site) to prevent water leak.





Photo



Descriptions

A drain pan for the drain water generated from the outdoor unit.

Applicable Models

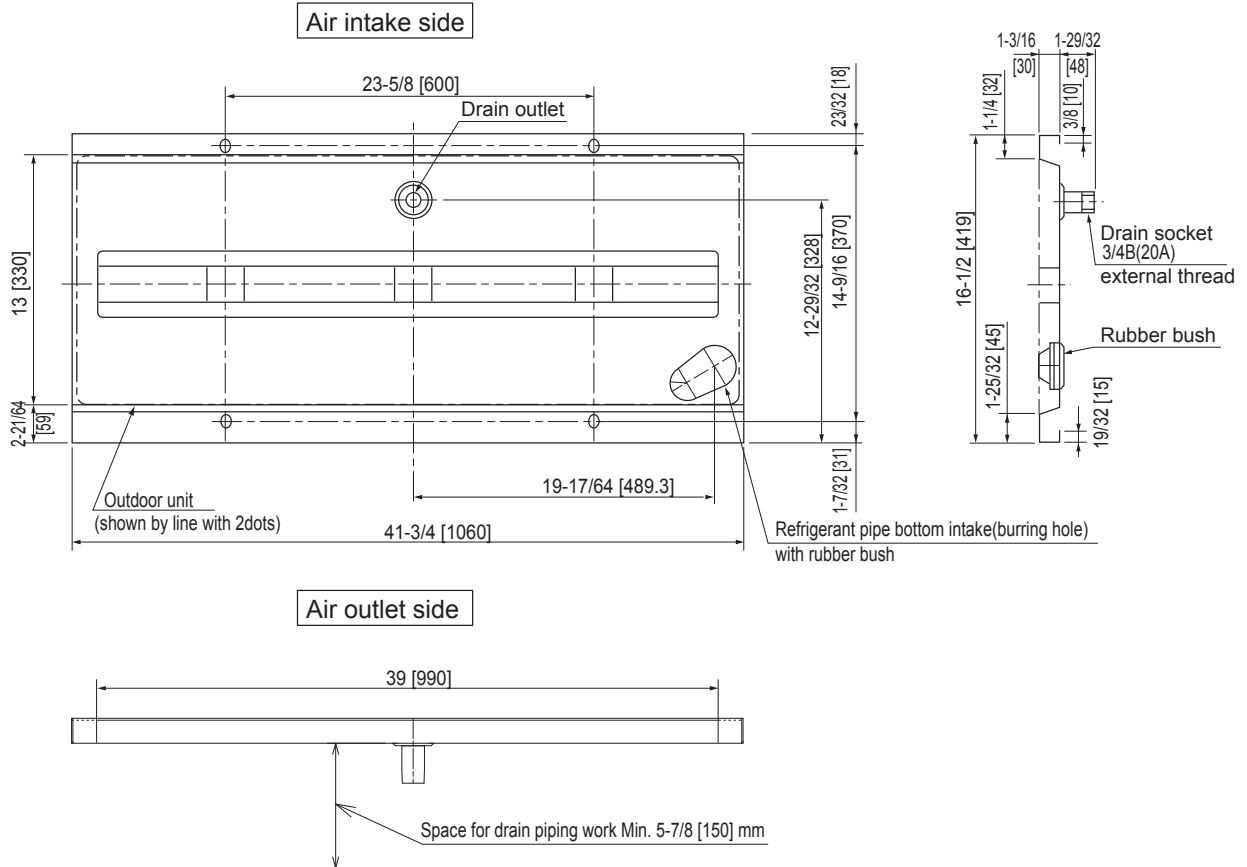
- PUY-AH24/30NL
- PUZ-AH24/30NL
- PUY-AK36/42/48/60NL
- PUZ-AK36/42/48/60NL
- SUZ-AK48/60NL
- PUZ-AK24/30/36/42/48NLHZ
- SUZ-AK24/30/36/48NLHZ

Specifications

Drain outlet size		R3/4 screw (20A)
Exterior	Color (Munsell)	Ivory (3.0Y 7.8/1.1)
	Surface treatment	Acrylic resin coating
	Material	Alloy hot-dip zinc-coated carbon steel sheet (t1.6)
Weight		8.8kg
Mounting bolt (locally prepared)		M10 (or W3/8), length: 60 mm or less extrusion from drain pan's under surface

Dimensions

Unit: inch [mm]

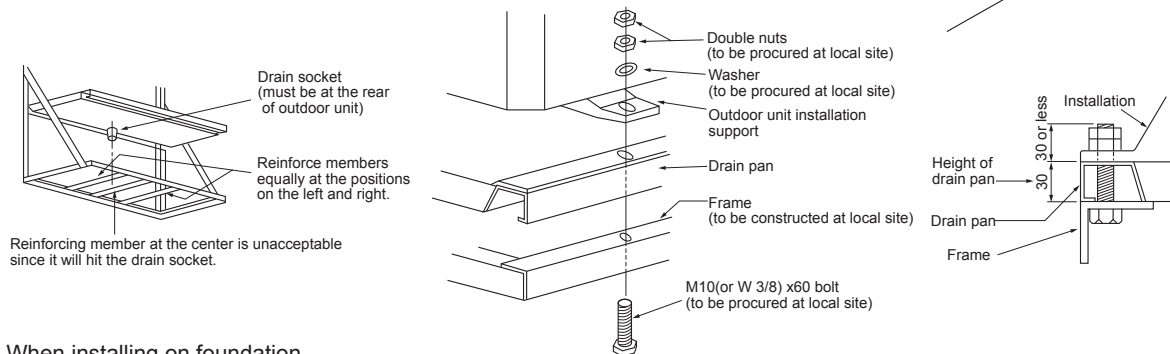
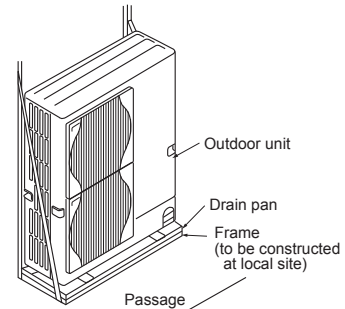


How to Use / How to Install

1 Installation Method

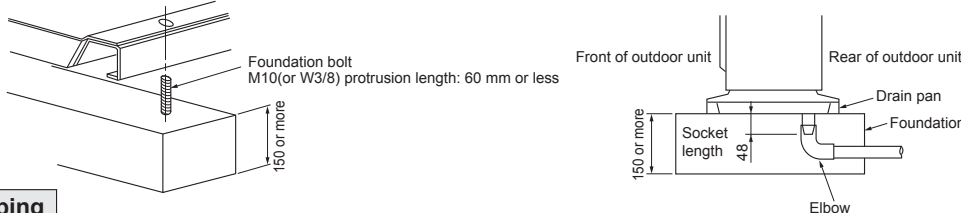
(1) When installing on installation frame

- 1) The installation frame must have structure and strength that can sufficiently support the outdoor unit and drain pan. Securely install the outdoor unit and drain pan so that they cannot fall or drop as a result of earthquake, strong wind, etc.
- 2) The drain socket of drain pan is at the center in the longitudinal direction. When constructing the installation frame, be careful that no part of the frame interferes with the socket.
- 3) The drain pan is tightened with the outdoor unit. Punch approx. $\phi 13$ holes in the installation frame at pitches to install the outdoor unit.
- 4) Fix the frame, drain pan and outdoor unit together to join them firmly (at the 4 points). The bolt length must be no more than 60 mm.



(2) When installing on foundation

- Since concentrated drain disposal is necessary, make the foundation at least 150 mm high measured from the ground as shown in the figure below. If it is less than 150 mm, drain piping will not be possible because the drain socket protrudes 48 mm.



2 Drain Piping

(1) When connecting steel pipe:

Connect 3/4B internally threaded pipe.

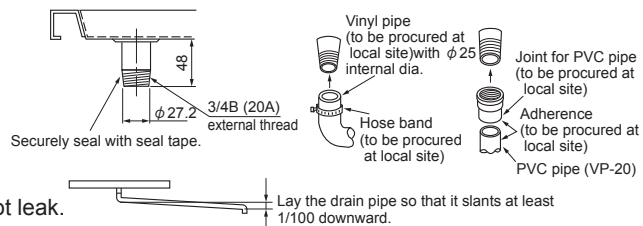
(2) When connecting vinyl pipe (soft):

Use a $\phi 25$ mm internal dia. pipe, and fix the connected section with a hose band, etc.

(3) When connecting PVC pipe (hard):

Use VP-20 and connect with a joint for PVC pipe.

※ In all cases, seal the socket threaded section securely with a seal tape, etc., and make sure that water does not leak.



3 Refrigerant Piping

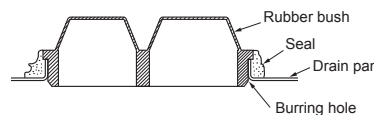
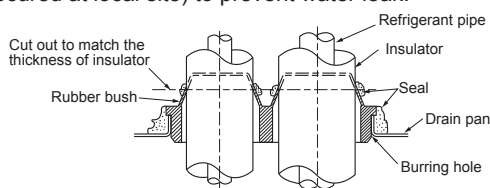
● The refrigerant pipe can be laid in from four directions: front, right, rear and bottom. When laying, be sure to perform the following:

(1) Piping from the bottom:

Cut out the rubber bush to match the thickness of refrigerant pipe insulator. Pass the refrigerant pipe through the rubber bush and fit it into the burring hole. Seal it with adhesive that is equivalent to Cemedyne 366 (to be procured at local site) to prevent water leak.

(2) Piping from other directions:

Block the burring hole of the bottom piping section in the drain pan with rubber bush. Seal it with adhesive that is equivalent to Cemedyne 366 (to be procured at local site) to prevent water leak.





Descriptions

A-control Mr. SLIM models can be connected to "M-NET" through optional M-NET converter so that they can be monitored / controlled effectively and meticulously.

Applicable Models

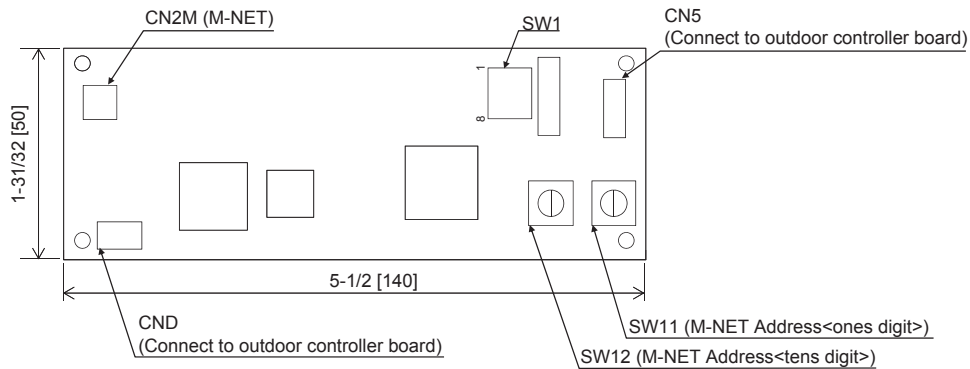
- PUY-AK12/18NL
- PUZ-AK12/18NL

Specifications

Power	Supplied from control board
Power consumption	0.6W (at 5V DC, 12V DC)
Operating conditions	Mounted inside the electrical utility box of outdoor unit. (Temperature: -20 to 60°C , humidity: 90% or less (no condensation))
Weight	0.3kg

Dimensions

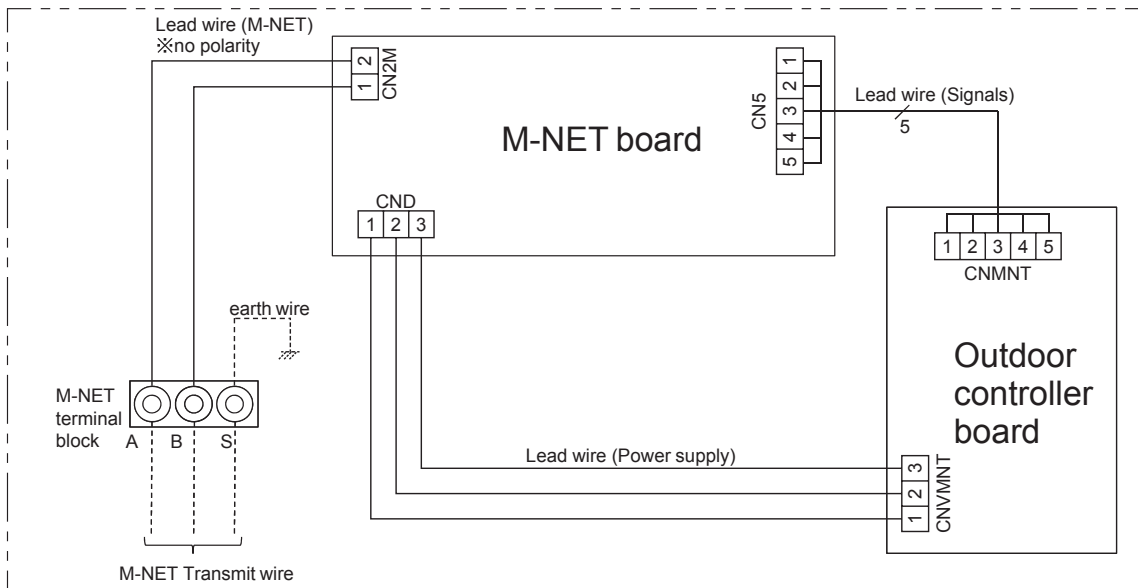
Unit: inch [mm]



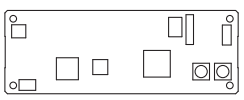

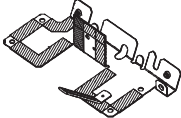
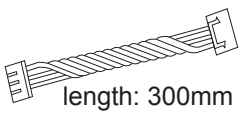


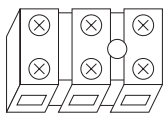


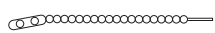
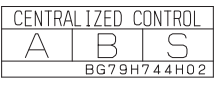
How to Use / How to Install

1. Wiring diagram

The electrical box of outdoor unit.



2. Parts list

No.	Description	Figure	Q'ty	No.	Description	Figure	Q'ty
①	M-NET board (with insulation sheets and supports)		1	⑦	Lead wire (5 wires) for signals		1
②	Mounting plate (M-NET board)		1	⑧	Lead wire (3 wires) for power supply		1
③	Screw (M4×8)		2	⑨	Lead wire (M-NET)		1
④	Terminal block (M-NET)		1	⑩	Earth wire and screw (M4×8)		1 each
⑤	Terminal screw (M3×20)		1	⑪	Cable tie		2
⑥	Label		1				

3. Switch setting

■ M-NET address setting

Make M-NET setting and refrigerant address setting on only outdoor unit.

There is no address settings for outdoor unit and remote controller like City Multi system.







The M-NET address setting for taking into centralized control system should be done only to the outdoor unit.

The address set number should be 1-50 same as for City Multi indoor unit and make set in order of number for the same group.

	A control slim	City Multi (M-NET)
Indoor unit	—	1~50
Outdoor unit	1~50	51~100
Remote controller	—	101~150
System controller	201~250	
Group remote controller	201~250	

The setting should be done by rotary switches SW11 (ones digit) and SW12 (tens digit) on M-NET board of the outdoor unit. (Factory settings are all zero.)

[Example]

M-NET address No.		1	2	50
Switch setting	SW11 (ones digit)			
	SW12 (tens digit)			



Descriptions

A-control Mr. SLIM models can be connected to "M-NET" through optional M-NET converter so that they can be monitored / controlled effectively and meticulously.

Applicable Models

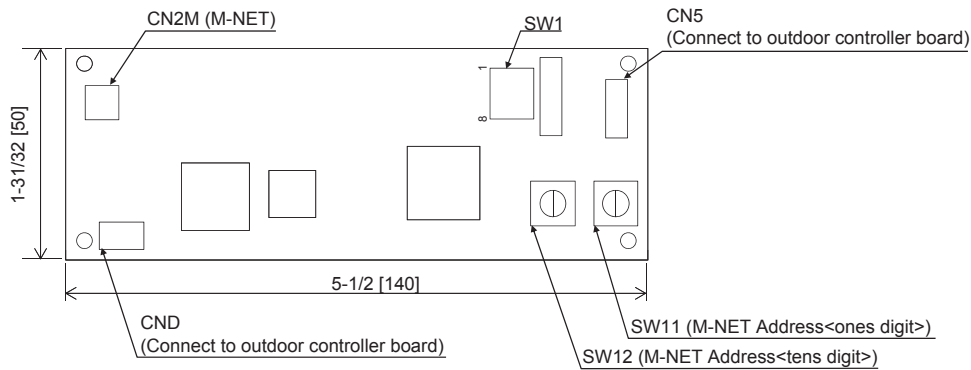
- PUY-AH24/30NL
- SUZ-AK48/60NL
- PUZ-AH24/30NL
- PUZ-AK24/30/36/42/48NLHZ
- PUY-AK36/42/48/60NL
- SUZ-AK24/30/36/48NLHZ
- PUZ-AK36/42/48/60NL

Specifications

Power	Supplied from control board
Power consumption	0.6W (at 5V DC, 12V DC)
Operating conditions	Mounted inside the electrical utility box of outdoor unit. (Temperature: -20 to 60°C, humidity: 90% or less (no condensation))
Weight	0.3kg

Dimensions

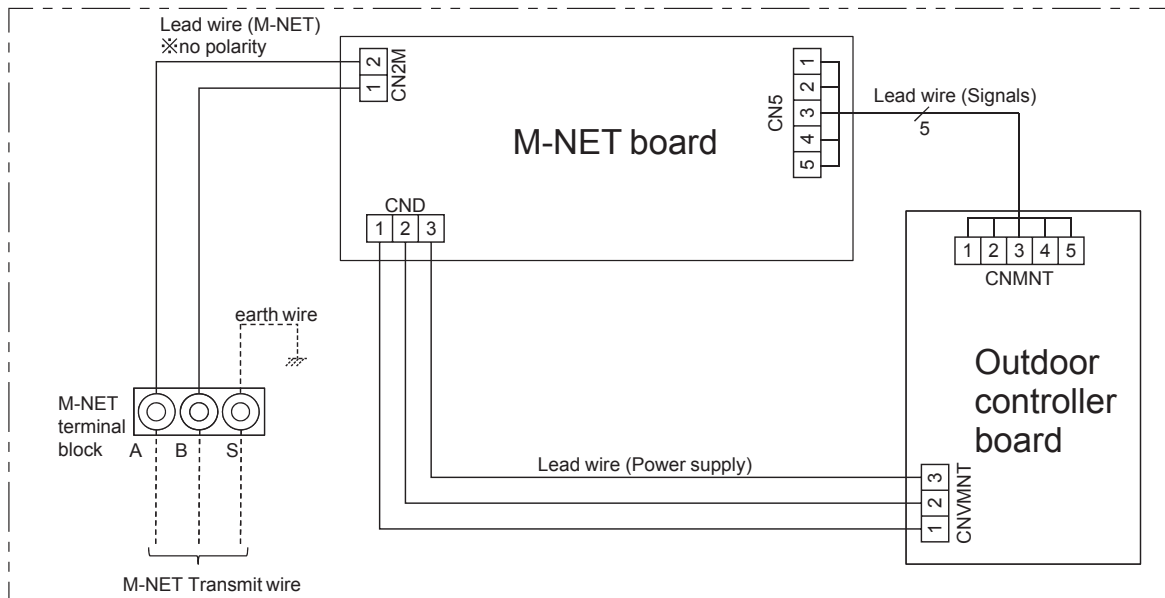
Unit: inch [mm]



How to Use / How to Install

1. Wiring diagram

The electrical box of outdoor unit.



2. Parts List

No	Description	Figure	Q'ty	No	Description	Figure	Q'ty	
①	M-NET board (with insulation sheets and supports)		1	⑨	Lead wire-B (5 wires)		1	
②	Plate (For mounting circuit board)		1	⑩	Lead wire-C (3 wires)		1	
③	Insulation sheets S, M, L		S	1	⑪	Lead wire-D (2 wires)		1
			M	1				
			L	1				
④	Screw (M4×8)		2	⑫	Ground wire and screw (M4×8)		1each	
⑤	Terminal block (M-NET)		1	⑬	Pull tight		2	
⑥	Terminal screw (M3×20)		1	⑭	Plate 2 (For mounting circuit board)		1	
⑦	Label		1	⑮	Plate 3 (For mounting circuit board)		1	
⑧	Lead wire-A (5 wires)		1					

3. Switch setting

■ M-NET address setting

Make M-NET setting and refrigerant address setting on only outdoor unit.

There is no address settings for outdoor unit and remote controller like City Multi system.

The M-NET address setting for taking into centralized control system should be done only to the outdoor unit.

The address set number should be 1-50 same as for City Multi indoor unit and make set in order of number for the same group.

	A control slim	City Multi (M-NET)
Indoor unit	—	1~50
Outdoor unit	1~50	51~100
Remote controller	—	101~150
System controller	201~250	
Group remote controller	201~250	

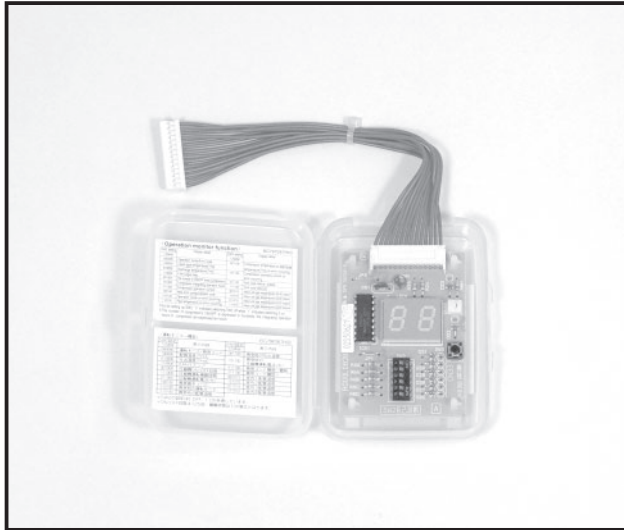
The setting should be done by rotary switches SW11 (ones digit) and SW12 (tens digit) on M-NET board of the outdoor unit. (Factory settings are all zero.)

[Example]

M-NET address No.		1	2	~	50
Switch setting	SW11 (ones digit)				
	SW12 (tens digit)				



Photo



Descriptions

This item is used to display operation and self-diagnosis state.

Applicable Models

- PUY-AK12/18NL
- PUZ-AK12/18NL
- PUY-AH24/30NL
- PUZ-AH24/30NL
- PUY-AK36/42/48/60NL
- PUZ-AK36/42/48/60NL
- SUZ-AK48/60NL
- PUZ-AK24/30/36/42/48NLHZ
- SUZ-AK24/30/36/48NLHZ

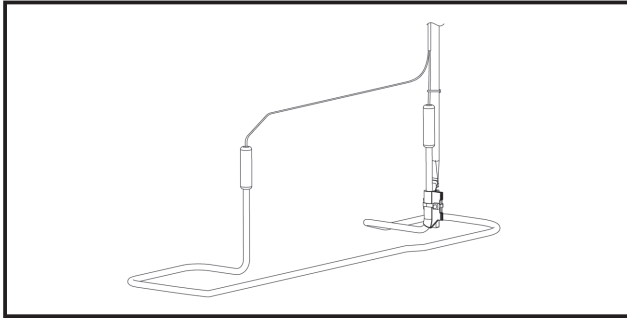
Specifications

Power	5V DC (supplied from outdoor unit control board)
Temperature	-20 to 60°C, Humidity: 90% RH or less (no condensation)
External dimensions	69 (W) x 91 (H) x 27 (D) (mm), excluding lead wires
Weight	0.05kg

How to Use / How to Install

- Notes on Use
 - Before installing / removing a control / service tool, make sure that the main power to this unit is turned OFF.
 - The connector for control / service tool has a lock. Connection / removal of the connector must be done with the locking lever pressed.
- How to Use
 1. Connect the control / service tool connector to the [CNM] connector on the outdoor unit control board.
 2. Operating the control / service tool's DIP switch "SW2" causes "LED1" to display the operation state and inspection code description using 2-digit value and symbols. "SW2" setting varies with the unit to be connected. For details of the display content, refer to the appropriate service handbook.
 3. After the control / service tool has been used, remove it from the outdoor unit control board.

Figure



Descriptions

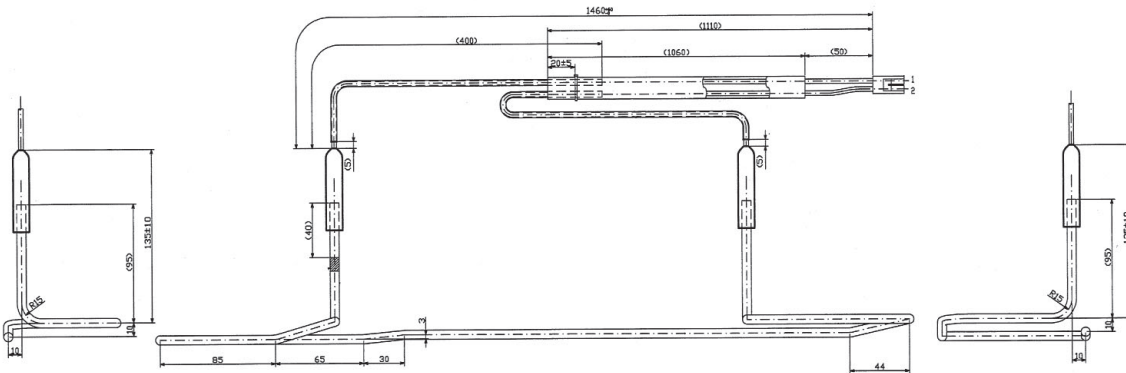
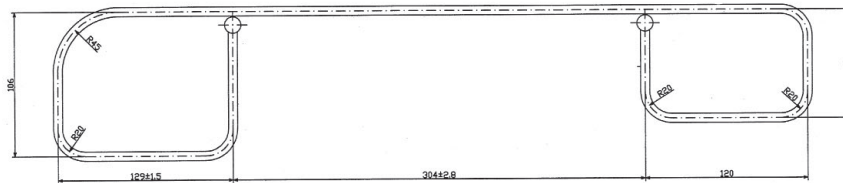
- This product is designed for prevention of ice on the bottom of the outdoor unit heat exchanger and the clogged drain hole caused by freezing in severe winter.
- To drain properly, a drain socket and a concentrated drain pan are not allowed to be used with this product.

Applicable Models

- PUZ-AH24/30NL







Dimensions

Unit: inch [mm]



Specifications

Components

① Base heater	1	② Base heater support	1	③ Screws 4×10	4	④ Cable ties	3	⑤ Fasteners	2	⑥ Spec label	1
						 required: 2 spare: 1		 required: 1 spare: 1			

How to Use / How to Install

1 Preparation

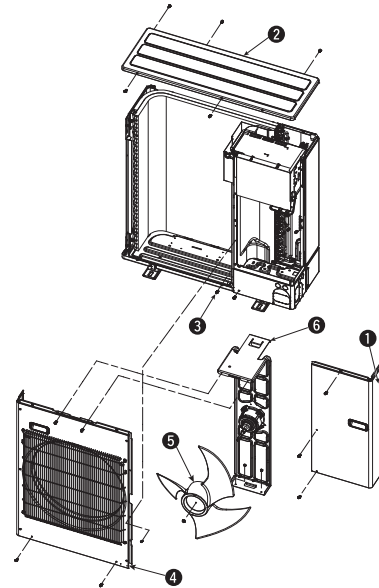
It is easier to mount the base heater before installing the outdoor unit.

- Make sure that the main power supply to the unit is OFF.
- Do not lose the removed screws. Many screws will be removed to install the base heater.
- Eliminate dust, dirt, etc.

2 Preparation for mounting the base heater

Before mounting the base heater, follow the procedures below to remove some parts from the outdoor unit.

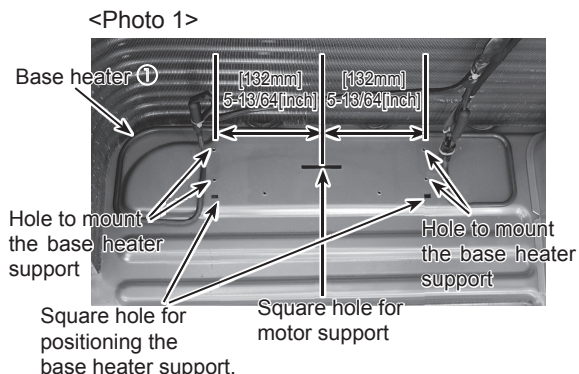
- 1 Removal of service panel
Remove 3 screws on the front. Slide the service panel downward to remove it.
- 2 Removal of top panel
Remove 2 screws on the front and 3 screws on the back. Lift the top panel up to remove it.
- 3 Removal of cover panel
Remove 2 screws for the cover panel.
- 4 Removal of front panel
Remove 5 screws on the front. Slide the front panel upward, and pull it toward you.
- 5 Removal of fan
Remove the mounting nut for the fan. Pull the fan toward you to remove it.
- 6 Removal of motor support
Disconnect the connector of the fan motor, and remove 2 screws for the motor support. Lift motor support up to remove it.



4 Mounting the base heater

- 1 Temporarily place the base heater ① on the base so that the square hole for the motor support on the base comes to the center of the base heater ①.

<Photo 1>

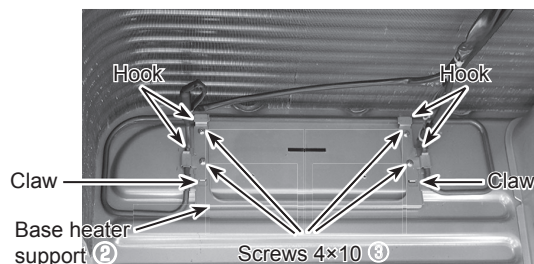


5 Mounting the base heater support

Place the base heater support ② as shown in the right photo.

- Insert the 2 claws on the base heater support into the square holes on the base. <Photo 2>
- Fix the base heater with the 4 hooks on the base heater support. <Photo 2>
- Fix them with the screws 4×10 ③. <Photo 2>

<Photo 2>

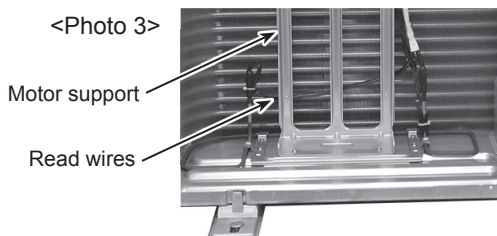


6 Mounting the motor support

Mount the motor support.

- Pass the lead wires through the back of the motor support. <Photo 3>
- Make sure that the lead wires are not caught between the bottom of the motor support and the base.
- Fix the motor support with 2 screws.

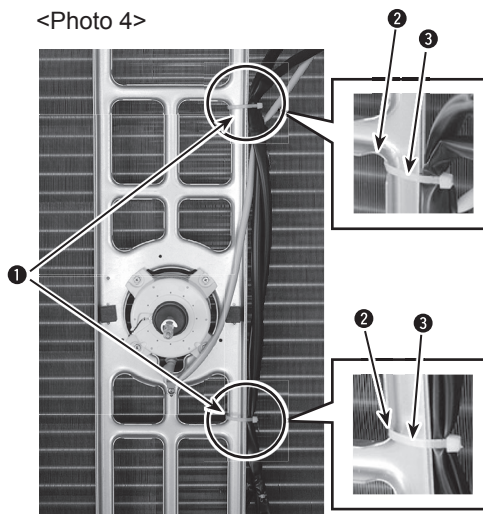
<Photo 3>



7 Securing the lead wires

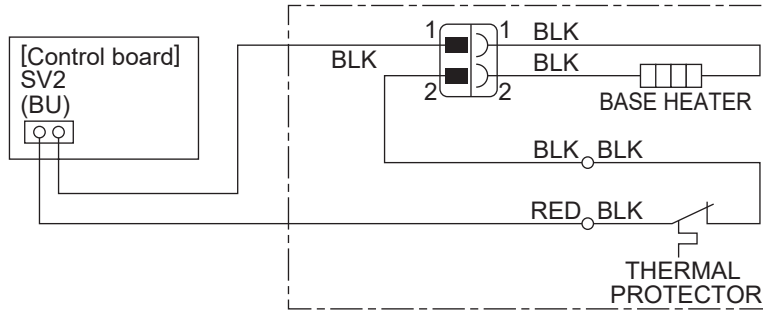
- 1 Fix the lead wires of the base heater to the motor support with the cable tie ④ at the position shown in the photo 4.
- 2 Cable ties should be tied at the corners of the motor support so that they do not shift after bundling.
- 3 Pass the lead wires through the cable clip on top of the separator and point it at the electrical box.
- Secure the lead wires so they will not interfere with the propeller fan.

<Photo 4>



8 Connecting the lead wires

Connect the lead wires according to the following wiring diagram.

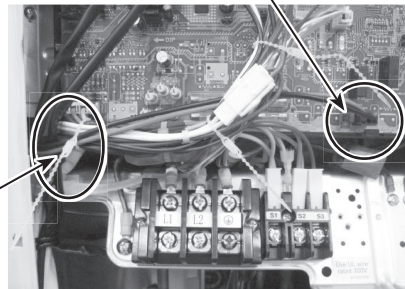


Connector of the base heater

9 Securing the lead wires

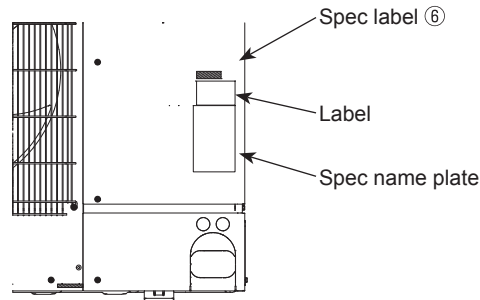
After connecting the lead wires, bundle the lead wires together and secure them with the fastener ⑤.

Bundle the lead wires together using the fastener ⑤.



10 Attaching the spec label

Attach the spec label ⑥ above the label on the service panel.



11 Reinstallation

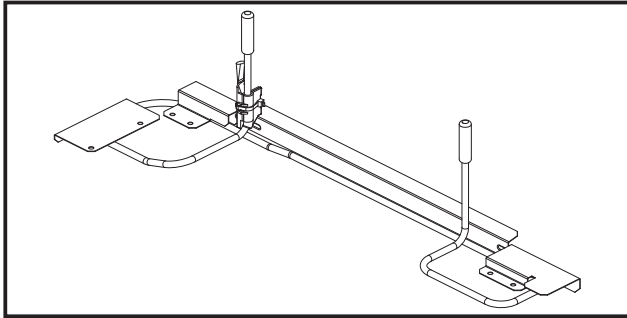
Make sure that the installation of the base heater and connections of the lead wires have been completed according to this installation sheet. Install the removed parts in the reverse order of removal.

- Tighten the propeller fan with a torque of $5.7 \pm 0.3 \text{ N} \cdot \text{m}$ [$4.2 \pm 0.2 \text{ ft} \cdot \text{lbs}$] ($57 \pm 3 \text{ kgf} \cdot \text{cm}$).
- Rotate the propeller fan and make sure that the base heater and the lead wires do not interfere with the movement of propeller fan.

⚠ WARNING

Mount the outer panels securely. Incomplete installation may result in electric shock and fire caused by dust, water, etc.

Figure



Descriptions

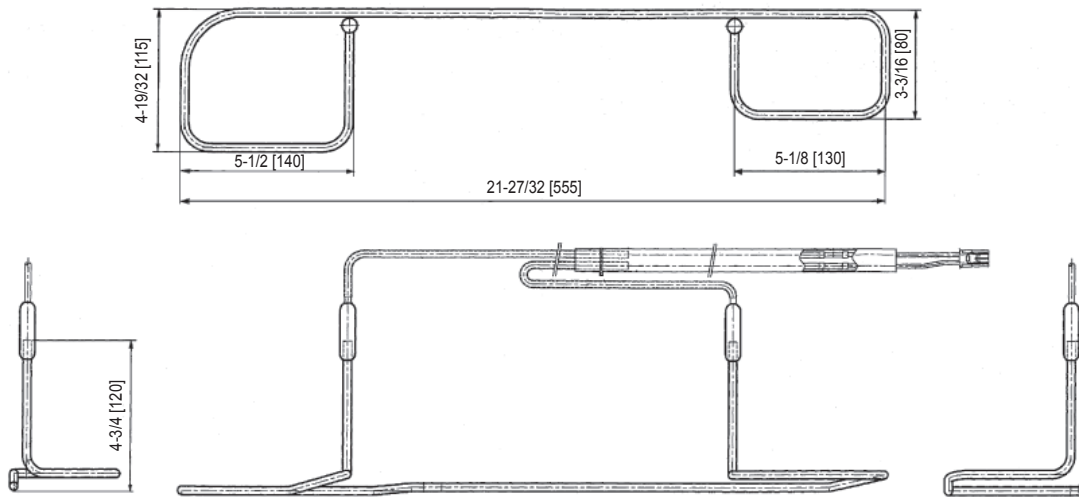
- This product is designed for prevention of ice on the bottom of the outdoor unit heat exchanger and the clogged drain hole caused by freezing in severe winter.
- To drain properly, a drain socket and a concentrated drain pan are not allowed to be used with this product.

Applicable Models

- PUZ-AK36/42/48/60NL
- SUZ-AK48/60NL

Dimensions

Unit: inch [mm]



Specifications

Components

This package includes the following parts besides this installation sheet.

① base heater	1	② heater supports	2	③ screws 4×10	8	④ cable tie	2	⑤ fasteners	2
⑥ spec label	1	⑦ base heater cover(1) *	1	⑧ base heater cover(2) *	1	* Used solely with the outdoor unit mounted with a two-row heat exchanger.			

How to Use / How to Install

1 Preparation

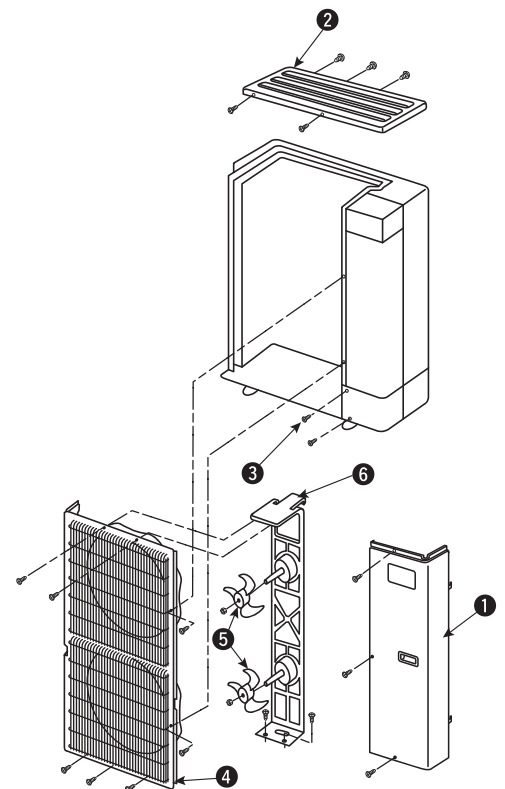
It is easier to mount the base heater before installing the outdoor unit.

- Make sure that the main power supply to the unit is OFF.
- Do not lose the removed screws. Many screws will be removed to install the base heater.
- Eliminate dust, dirt, etc.

2 Preparation for mounting the base heater

Before mounting the base heater, follow the procedures below to remove some parts from the outdoor unit.

- ➊ Removal of service panel
Remove 3 screws on the front. Slide the service panel downward to remove it.
- ➋ Removal of top panel
Remove 2 screws on the front and 3 screws on the back. Lift the top panel up to remove it.
- ➌ Removal of screws for cover panel
Remove 2 screws for the cover panel.
- ➍ Removal of front panel
Remove 7 screws on the front. Slide the front panel upward, and pull it toward you.
- ➎ Removal of fan
Remove the mounting screws for the fan. Pull the fan toward you to remove it.
- ➏ Removal of motor support
Disconnect the connector of the fan motor, and remove 2 mounting screws for the motor support. Slightly pull the motor support toward you and lift it up to remove it.

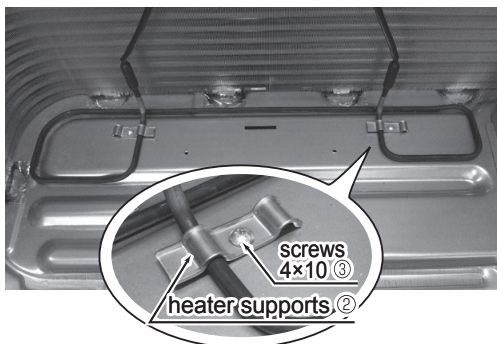
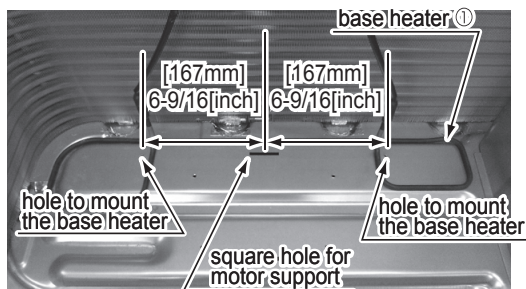


3 Mounting the base heater

- Temporarily place the base heater ① on the base so that the square hole for the motor support on the base comes to the center of the base heater ①.
(See photo below.)



- Fix the base heater ① with the heater supports ② and the screws 4×10 ③.

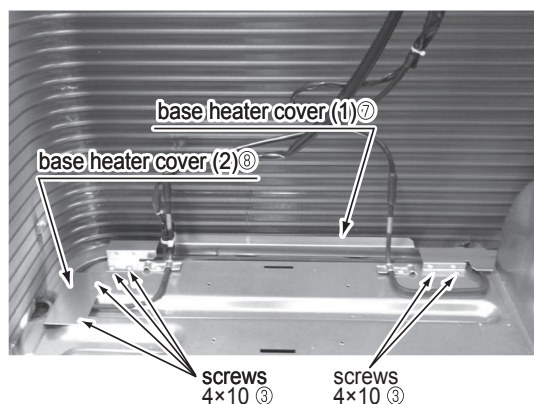


4 Mounting the base heater cover

Place the base heater covers ⑦, ⑧ as shown in the right photo.

Fix them with the screws 4×10 ③.

- Make sure to install the base heater covers ⑦, ⑧ in the outdoor unit mounted with a two-row heat exchanger. The base heater covers ⑦, ⑧ cannot be installed in the outdoor unit mounted with a three-row heat exchanger.



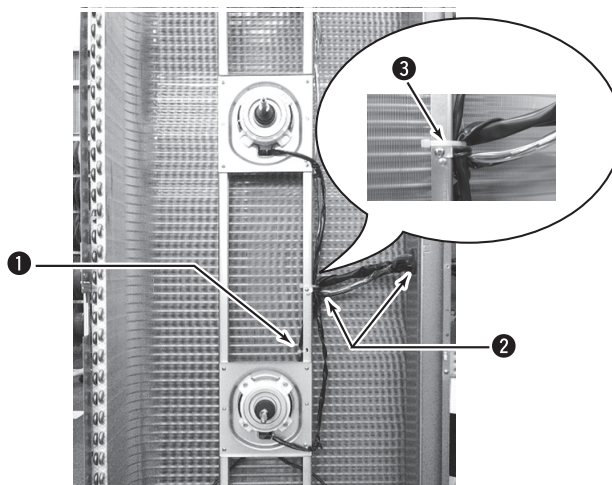
5 Mounting the base heater support

Mount the motor support.

- Make sure that the lead wire is not caught between the bottom of the motor support and the base.

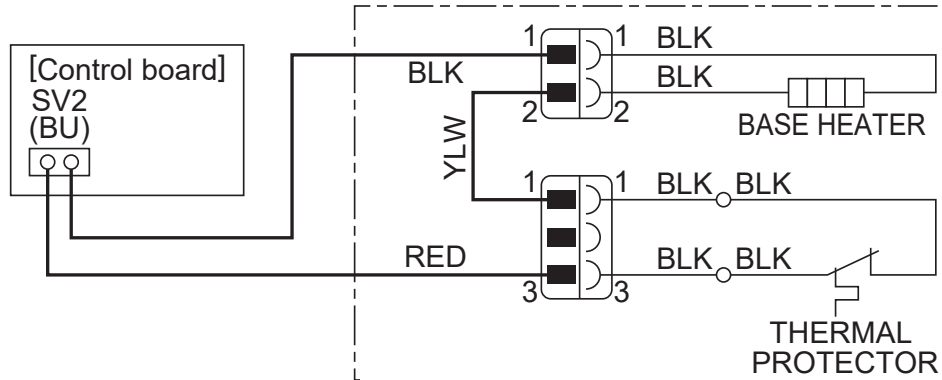
6 Securing the lead wires

- Fix the lead wires of the base heater to the motor support with a cable tie ④ at the position shown in the picture.
 - Bundle the lead wires of the base heater and the fan motor together with clamps.
 - Fix the lead wires with a cable tie ④.
 - Pass the lead wires through the circular hole on the separator toward the electrical box.
- Secure the lead wires so they will not interfere with the propeller fan.



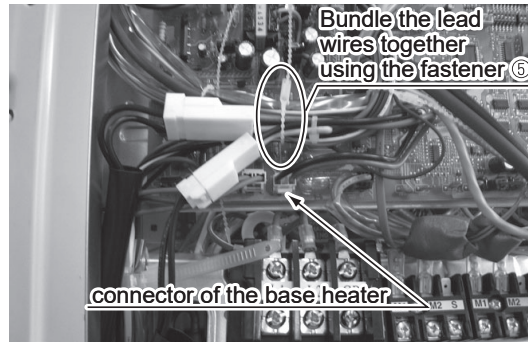
Wiring diagram

Connect the lead wires according to the following wiring diagram.



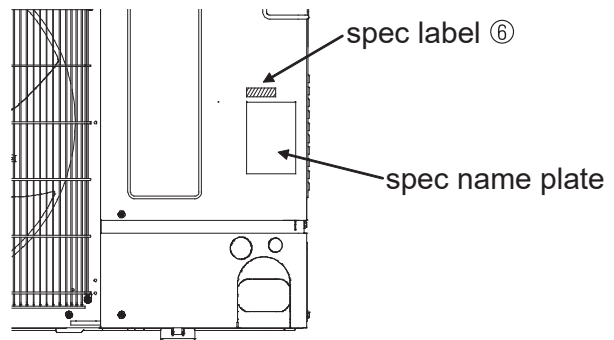
7 Securing the lead wires

After connecting the lead wires, bundle the extra lead wires together and secure them with the fastener ⑤.



8 Attaching the spec label

Attach the spec label ⑥ above the spec name plate on the service panel.



9 Reinstallation


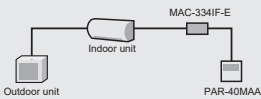
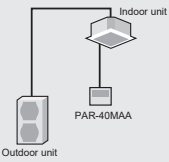

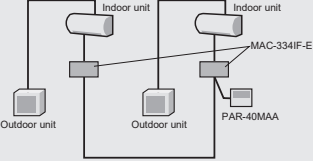
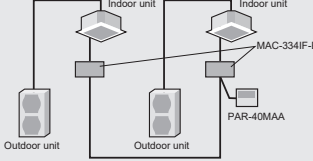
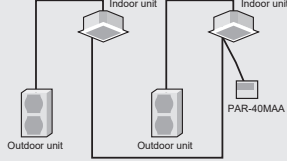

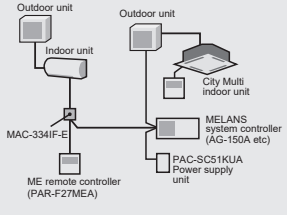
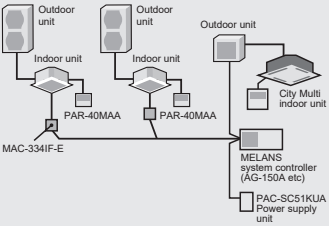
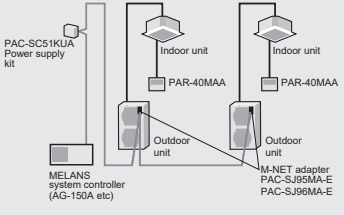
Make sure that the installation of the base heater and connections of the lead wires have been completed according to this installation sheet. Install the removed parts in the reverse order of removal.

- Tighten the propeller fan with a torque of $5.7 \pm 0.3 \text{ N} \cdot \text{m}$ [$4.2 \pm 0.2 \text{ ft} \cdot \text{lbs}$] ($57 \pm 3 \text{ kgf} \cdot \text{cm}$).
- Rotate the propeller fan and make sure that the base heater and the lead wires do not interfere with the movement of propeller fan.

⚠ WARNING

Mount the outer panels securely. Incomplete installation may result in electric shock and fire caused by dust, water, etc.

T8-1.MAJOR SYSTEM CONTROL

	System Examples		
Indoor Unit	M Series Indoor Unit	S Series	P Series Indoor Unit
Outdoor Unit	M Series and MXZ Series Outdoor	S Series and MXZ Series Outdoor	P Series Outdoor
 <p>PAR-40MAA Control PAR-42MAAUB Control</p>			
Details	<ul style="list-style-type: none"> Wired remote controller can be connected to indoor unit 	Standard equipment (for indoor units compatible with wired remote controllers)	
Major Optional Parts Required	<ul style="list-style-type: none"> MAC-334IF-E (Interface) PAR-40MAA (Wired remote controller) 	<ul style="list-style-type: none"> PAR-40MAA (Wired remote controller) 	
 <p>System Group Control</p>			
Details	<ul style="list-style-type: none"> One remote controller can control plural air conditioners with the same settings simultaneously. One remote controller can control up to 16 refrigerant systems. (When connected to a MXZ unit, MAC-334IF-E is counted as one system.) Up to two remote controller can be connected. 		
Major Optional Parts Required	<ul style="list-style-type: none"> MAC-334IF-E (Interface) PAR-40MAA (Wired remote controller) 	<ul style="list-style-type: none"> PAR-40MAA (Wired remote controller) 	
 <p>M-NET Connections</p>			
Details	<ul style="list-style-type: none"> Group of air conditioners can be controlled by MELANS system controller (M-NET). <p>Note: When connecting to M-NET, the reduction control for the power failure automatic recovery does not operate and it will take 3 minutes to restart.</p>		
Major Optional Parts Required	<ul style="list-style-type: none"> MAC-334IF-E (M-NET Interface) MELANS System controller PAC-SC51KUA (power supply unit) 	<ul style="list-style-type: none"> PAC-SJ19MA-E/PAC-SF83M/PAC-SJ95MA-E/ PAC-SJ96MA-E (M-NET converter) MELANS System controller PAC-SC51KUA (power supply unit) 	

T8-2.OTHERS

For M Series Indoor Units (New A-control Models Only)

	System Examples	Connection Details	Control Details	Major Optional Parts Required
<p>1 Remote On/Off Operation</p> <ul style="list-style-type: none"> Air conditioner can be started/stopped remotely. (1) and (2) can be used in combination) 		<p>Connect the interface to the air conditioner. Then connect the locally purchased remote controller to the terminal in the interface.</p>	<p>On/Off operation is possible from a remote location.</p>	<ul style="list-style-type: none"> MAC-334IF-E (Interface) Parts for circuit such as relay box, lead wire, etc. (to be purchased locally)
<p>2 Remote Display of Operation Status</p> <ul style="list-style-type: none"> The On/Off status of air conditioners can be confirmed remotely. (1) and (2) can be used in combination) 		<p>Connect the interface to the air conditioner. Then connect the locally purchased remote controller to the terminal in the interface.</p>	<p>The operation status (On/Off) or error signals can be monitored from a remote location.</p>	<ul style="list-style-type: none"> MAC-334IF-E (Interface) Parts for circuit to be purchased locally (DC power source needed) External power source (12V DC) is required when using MAC-334IF-E.

For P Series and S Series Indoor Units

	System Examples		Details	Major Optional Parts Required
	Wired remote controller	Wireless remote controller		
<p>A 2-remote Controller Control</p> <p>With two remote controllers, control can be performed locally and remotely from two locations.</p>	<p>* Set "Main" and "Sub" remote controllers. (Example of 1 : 1 system)</p>	<p>* When using wired and wireless remote controllers (Example of Simultaneous Twin)</p>	<ul style="list-style-type: none"> Up to two remote controllers can be connected to one group. Both wired and wireless remote controllers can be used in combination. 	<ul style="list-style-type: none"> Wired Remote Controller PAR-40MAA Wireless Remote Controller PAR-FL32MA Wireless Remote Controller Kit for PCA PAR-SL93B-E
<p>B Operation Control by Level Signal</p> <p>Air conditioner can be started/stopped remotely. In addition, On/Off operation by local remote controller can be prohibited/permitted.</p>	<p>(Example of 1 : 1 system x 2)</p>	<p>(Example of 1 : 1 system x 2)</p>	<ul style="list-style-type: none"> Operation other than On/Off (e.g., adjustment of temperature, fan speed, and airflow) can be performed even when remote controller operation is prohibited. Timer control is possible with an external timer. 	<ul style="list-style-type: none"> Adapter for remote On/Off PAC-SE55RA-E Relay box (to be purchased locally) Remote control panel (to be purchased locally)
<p>C Operation Control by Pulse Signal</p>	<p>(Example of 1 : 1 system x 2)</p>	<p>(Example of 1 : 1 system x 2)</p>	<ul style="list-style-type: none"> The pulse signal can be turned On/Off. Operation/emergency signal can be received at a remote location. 	<ul style="list-style-type: none"> Connector cable for remote display PAC-SA88HA-E / PAC-725AD-E (10 pcs. x PAC-SA88HA-E) Relay box (to be purchased locally) Remote control panel (to be purchased locally)
<p>D Remote Display of Operating Status</p> <p>Operating status can be displayed at a remote location.</p>	<p>(Example of 1 : 1 system)</p>	<p>(Example of Simultaneous Twin)</p>	<ul style="list-style-type: none"> Operation/emergency signal can be received at a remote location (when channeled through the PAC-SF40RM-E → no-voltage signal, when channeled through the PAC-SA88HA-E → DC 12V signal). 	<ul style="list-style-type: none"> Remote display panel (to be purchased locally) Connector cable for remote display PAC-SA88HA-E / PAC-725AD-E (10 pcs. x PAC-SA88HA-E) Relay box (to be purchased locally) Remote operation adapter PAC-SF40RM-E *Unable to use with wireless remote controller
<p>E Timer Operation</p> <p>Allows On/Off operation with timer</p> <p>*For control by an external timer, refer to [B] Operation Control by Level Signal.</p>	<p>(Example of 1 : 1 system)</p>		<ul style="list-style-type: none"> Weekly Timer: On/Off and up to 8 pattern temperatures can be set for each calendar day. (Initial setting) On/Off Timer: On/Off can be set once each within 72 hr in intervals of 5-minute units. Auto-off Timer: Operation will be switched off after a certain time elapse. Set time can be changed from 30 min. to 4 hr. at 10 min. intervals. <p>*Simple Timer and Auto-off Timer cannot be used at the same time.</p>	<p>Standard functions of PAR-40MAA</p>

mitsubishi electric corporation

HEAD OFFICE: TOKYO BUILDING, 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8,310, JAPAN
