

SERVICE MANUAL

Series PCY Ceiling Suspended R410A

Indoor unit

[Model Name]

[Service Ref.]

PCY-SP18KA

PCY-SP18KA.TH

PCY-SP24KA

PCY-SP24KA.TH

PCY-SP30KA

PCY-SP30KA.TH

PCY-SP36KA

PCY-SP36KA.TH

PCY-SP42KA

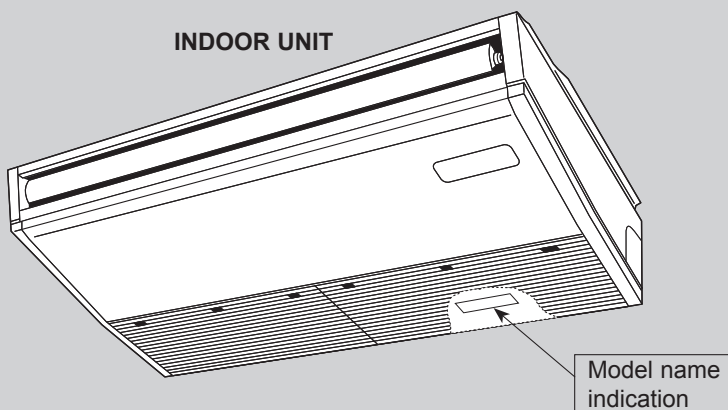
PCY-SP42KA.TH

PCY-SP48KA

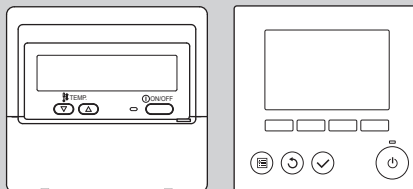
PCY-SP48KA.TH

Note:

- This manual describes service data of the indoor units only .
- RoHS compliant products have <G> mark on the spec name plate.


**WIRELESS REMOTE
CONTROLLER**


(Option)

**WIRED REMOTE
CONTROLLER**


(Option)



REFERENCE MANUAL

OUTDOOR UNIT'S SERVICE MANUAL

Service Ref
SUY-SA18/24/30/36VA.TH
PUY-SP42/48VKA.TH(-D/-N) PUY-SP36/42/48YKA.TH(-D/-N)

TECHNICAL DATA BOOK

Series (Outdoor unit)
SUY-SA•VA.TH
PUY-SP•VKA.TH
PUY-SP•YKA.TH

SAFETY PRECAUTION

ALWAYS OBSERVE FOR SAFETY

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

CAUTIONS RELATED TO NEW REFRIGERANT

Cautions for units utilising refrigerant R410A

Use new refrigerant pipes.

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

- 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 indoors, and keep 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 R410A.

If other refrigerant (R22, 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 R410A refrigerant.

The following tools are necessary to use R410A refrigerant.

Tools for R410A	
Gauge manifold	Flare 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.

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.

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

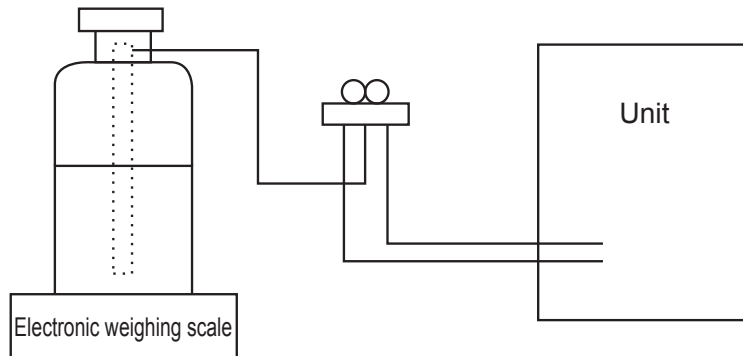
[1] Cautions for service

- (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 the service, ensure to remove them.

[2] Additional refrigerant charge

When charging directly from cylinder

- (1) Check that cylinder for R410A on the market is syphon type.
- (2) Charging should be performed with the cylinder of syphon stood vertically. (Refrigerant is charged from liquid phase.)



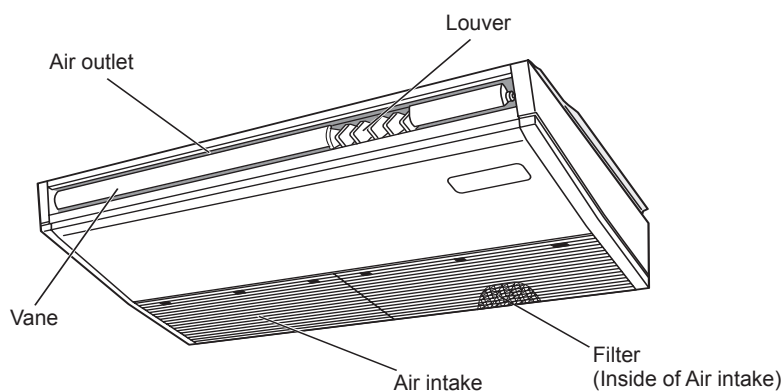
[3] Service tools

Use the below service tools as exclusive tools for R410A refrigerant.

No.	Tool name	Specifications
①	Gauge manifold	Only for R410A • Use the existing fitting specifications. (UNF1/2) • Use high-tension side pressure of 5.3MPa·G or over.
②	Charge hose	• Only for R410A • Use pressure performance of 5.09MPa·G or over.
③	Electronic scale	—
④	Gas leak detector	• Use the detector for R134a, R407C or R410A.
⑤	Adaptor for reverse flow check	• Attach on vacuum pump.
⑥	Refrigerant charge base	—
⑦	Refrigerant cylinder	• Only for R410A · Top of cylinder (Pink) • Cylinder with syphon
⑧	Refrigerant recovery equipment	—

PARTS NAMES AND FUNCTIONS

INDOOR UNIT



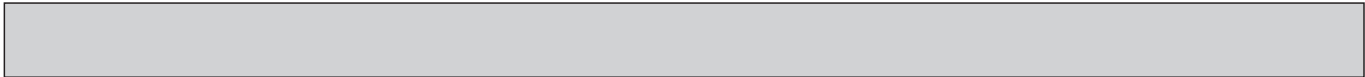
SPECIFICATIONS

SPECIFICATIONS

INDOOR UNIT	Service Ref.		PCY-SP18KA.TH	
	Mode		Cooling	
	Power supply(phase, cycle, voltage)		Single phase, 50Hz, 220-240 V/Single phase, 60Hz, 220 V	
	Input	kW	0.07	
	Running current	A	0.61	
	External finish		Munsell 6.4Y 8.9/0.4	
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive) × No.		Sirocco fan (direct) × 3
		Fan motor output	kW	0.095
		Airflow(Low-Medium2-Medium1-High)	m ³ /min	16-17-18-20
		External static pressure	Pa	0 (direct blow)
	Operation control & Thermostat		Remote controller & built-in	
	Noise level(Low-Medium2-Medium1-High)	dB (A)	34-36-38-40	
	Field drain pipe O.D.		26	
Dimensions	W	mm	1,280	
	D	mm	680	
	H	mm	230	
Weight		kg	32	

INDOOR UNIT	Service Ref.		PCY-SP24KA.TH	
	Mode		Cooling	
	Power supply(phase, cycle, voltage)		Single phase, 50Hz, 220-240 V/Single phase, 60Hz, 220 V	
	Input	kW	0.08	
	Running current	A	0.72	
	External finish		Munsell 6.4Y 8.9/0.4	
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive) × No.		Sirocco fan (direct) × 3
		Fan motor output	kW	0.095
		Airflow(Low-Medium2-Medium1-High)	m ³ /min	16-18-20-22
		External static pressure	Pa	0(direct blow)
	Operation control & Thermostat		Remote controller & built-in	
	Noise level(Low-Medium2-Medium1-High)	dB (A)	34-36-40-42	
	Field drain pipe O.D.		26	
Dimensions	W	mm	1,280	
	D	mm	680	
	H	mm	230	
Weight		kg	32	

INDOOR UNIT	Service Ref.		PCY-SP30KA.TH	
	Mode		Cooling	
	Power supply(phase, cycle, voltage)		Single phase, 50Hz, 220-240 V/Single phase, 60Hz, 220 V	
	Input	kW	0.11	
	Running current	A	0.97	
	External finish		Munsell 6.4Y 8.9/0.4	
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive) × No.		Sirocco fan (direct) × 4
		Fan motor output	kW	0.160
		Airflow(Low-Medium2-Medium1-High)	m ³ /min	24-26-28-30
		External static pressure	Pa	0(direct blow)
	Operation control & Thermostat		Remote controller & built-in	
	Noise level(Low-Medium2-Medium1-High)	dB (A)	39-41-43-45	
	Field drain pipe O.D.		26	
Dimensions	W	mm	1,600	
	D	mm	680	
	H	mm	230	
Weight		kg	37	

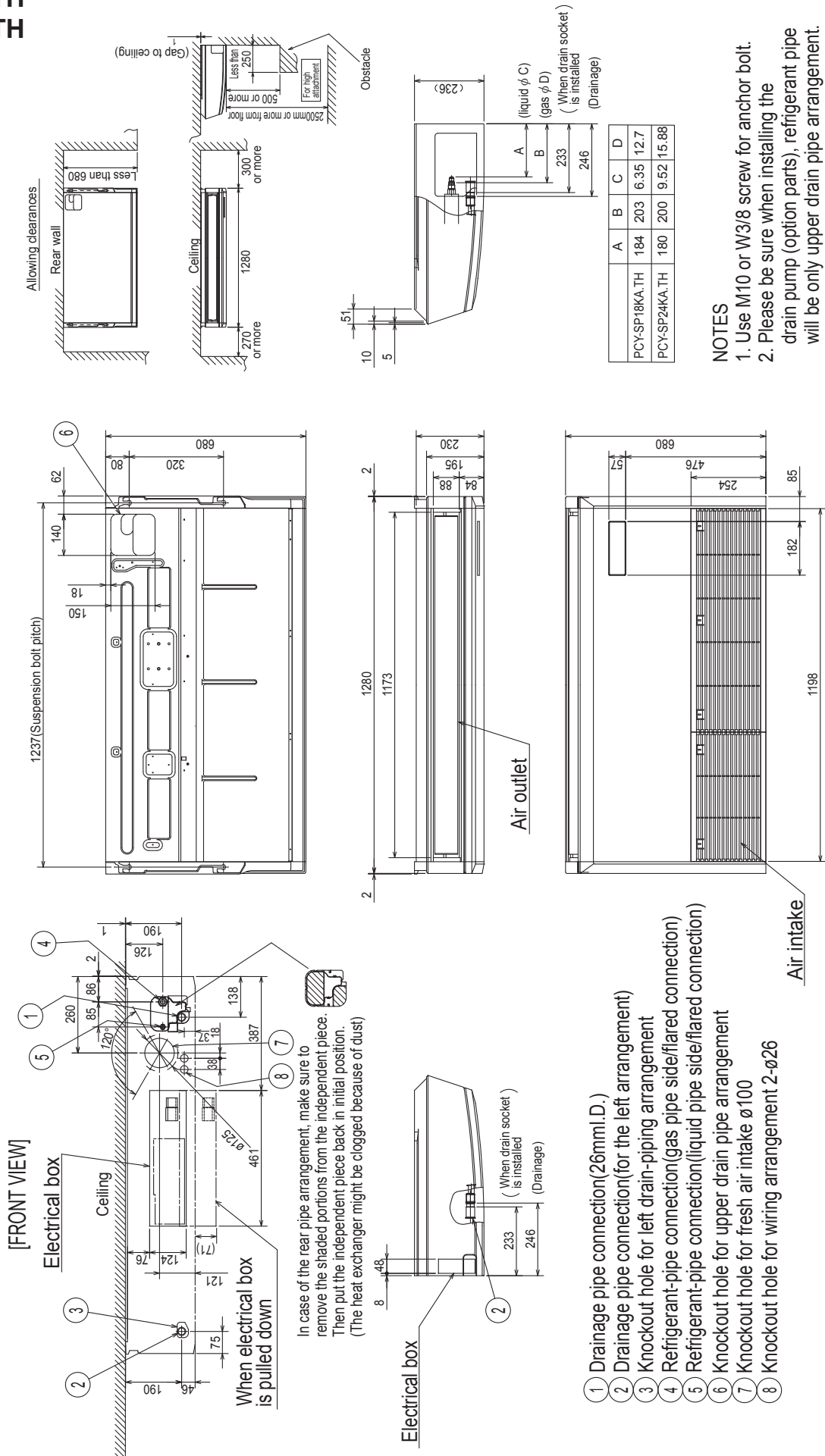


INDOOR UNIT	Service Ref.		PCY-SP36/42/48KA.TH	
	Mode		Cooling	
	Power supply(phase, cycle, voltage)		Single phase, 50Hz, 220-240 V/Single phase, 60Hz, 220 V	
	Input	kW	0.16	
	Running current	A	1.35	
	External finish		Munsell 6.4Y 8.9/0.4	
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive) × No.		Sirocco fan (direct) × 4
		Fan motor output	kW	0.160
		Airflow(Low-Medium2-Medium1-High)	m³/min	27-29-32-34
		External static pressure	Pa	0(direct blow)
	Operation control & Thermostat		Remote controller & built-in	
	Noise level(Low-Medium2-Medium1-High)		dB (A)	42-44-46-48
	Field drain pipe O.D.		mm	26
	Dimensions	W	mm	1,600
		D	mm	680
H		mm	230	
Weight		kg	40	

OUTLINES AND DIMENSIONS

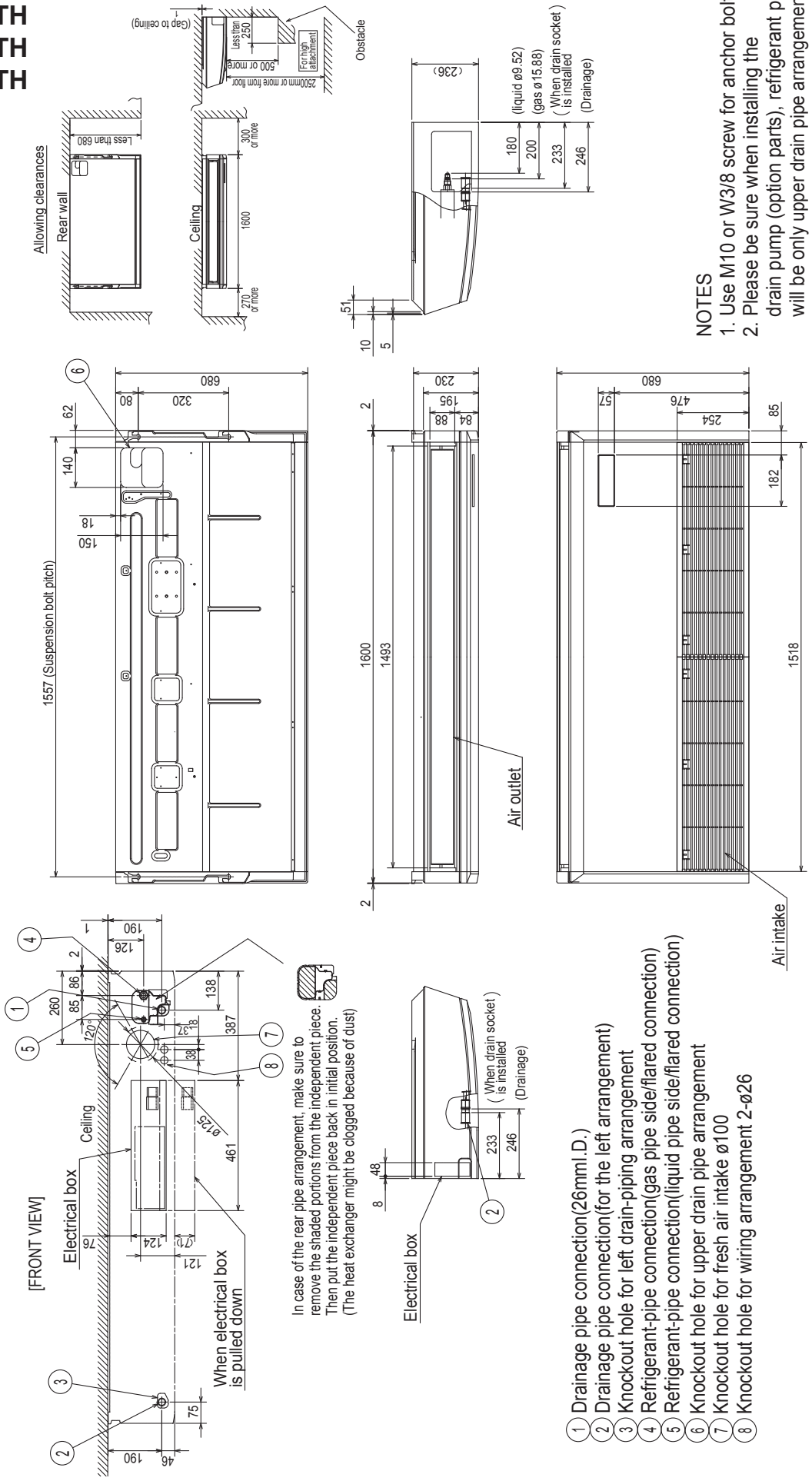
PCY-SP18KA.TH
PCY-SP24KA.TH

Unit: mm



PCY-SP30KA.TH
PCY-SP36KA.TH
PCY-SP42KA.TH
PCY-SP48KA.TH

Unit: mm



NOTES

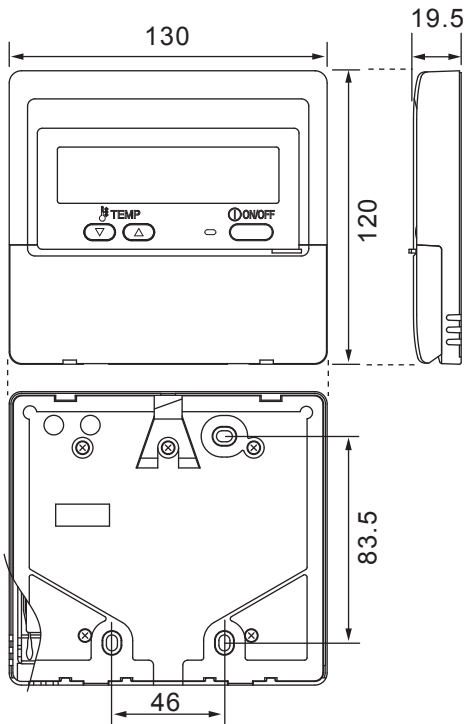
1. Use M10 or W3/8 screw for anchor bolt.
2. Please be sure when installing the drain pump (option parts), refrigerant pipe will be only upper drain pipe arrangement.

- ① Drainage pipe connection(26mm.I.D.)
- ② Drainage pipe connection(for the left arrangement)
- ③ Knockout hole for left drain-piping arrangement
- ④ Refrigerant-pipe connection(gas pipe side/flared connection)
- ⑤ Refrigerant-pipe connection(liquid pipe side/flared connection)
- ⑥ Knockout hole for upper drain pipe arrangement
- ⑦ Knockout hole for fresh air intake ø100
- ⑧ Knockout hole for wiring arrangement 2-ø26

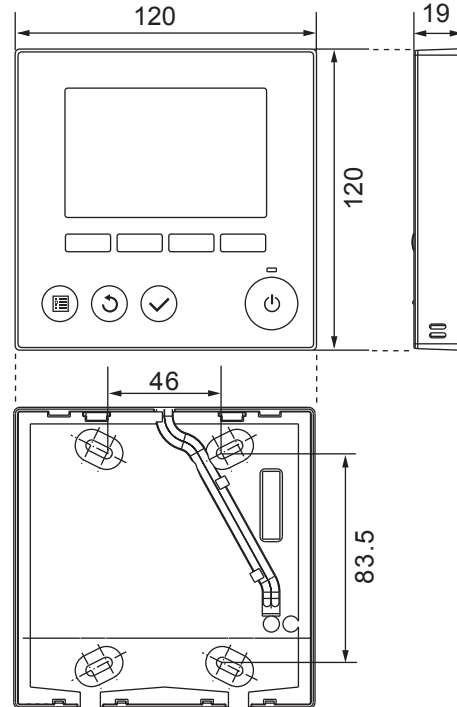
WIRED REMOTE CONTROLLER

Unit: mm

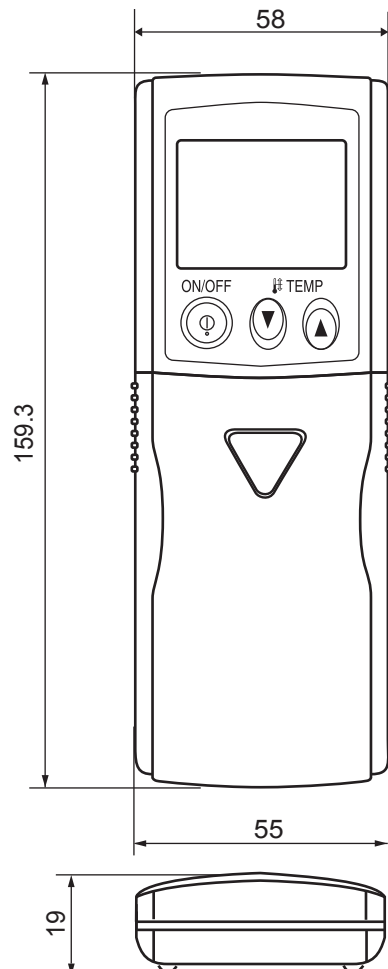
PAR-21MAA



PAR-32MAA (Option)



WIRELESS REMOTE CONTROLLER (Option)



WIRING DIAGRAM

PCY-SP18KA.TH
PCY-SP36KA.TH

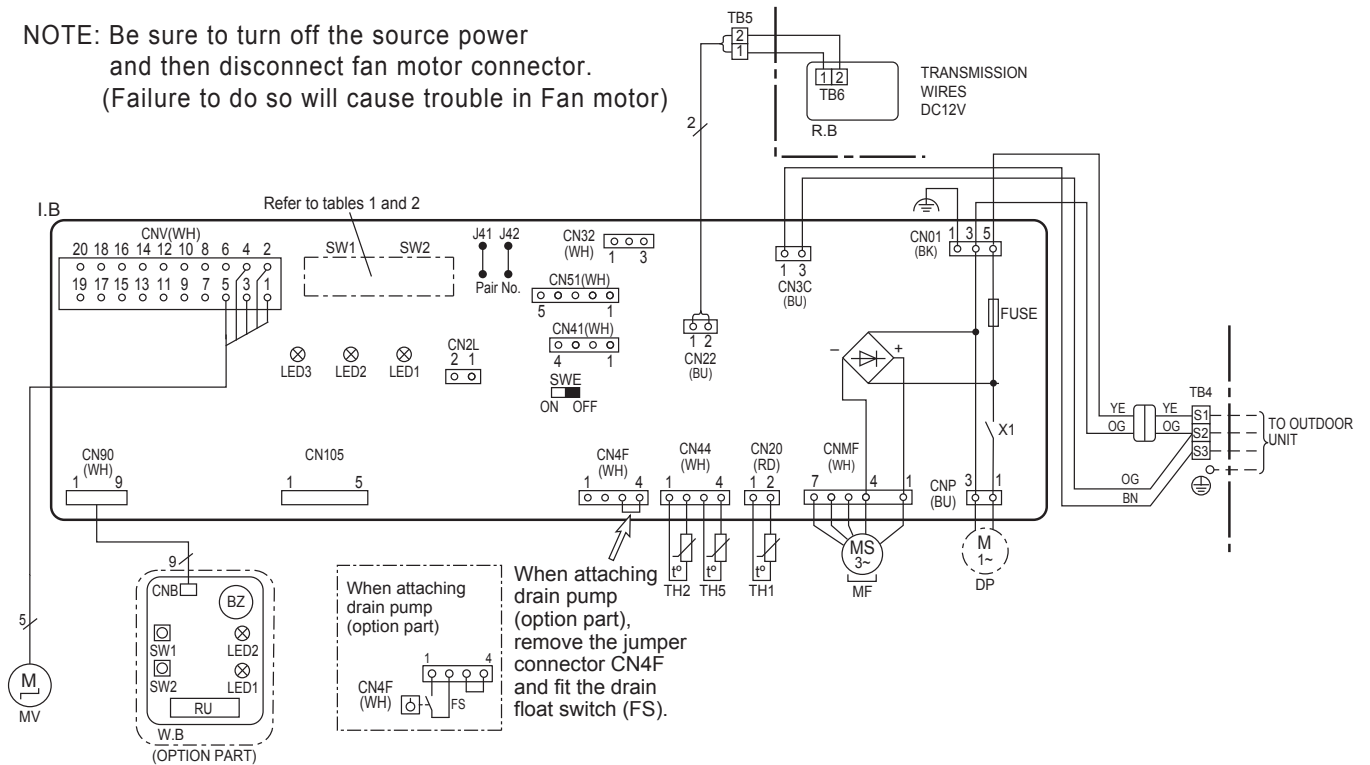
PCY-SP24KA.TH
PCY-SP42KA.TH

PCY-SP30KA.TH
PCY-SP48KA.TH

[LEGEND]

SYMBOL	NAME	SYMBOL	NAME
I.B	INDOOR CONTROLLER BOARD	TB4	TERMINAL BLOCK (INDOOR/OUTDOOR CONNECTING LINE)
CN2L	CONNECTOR (LOSSNAY)	TB5, TB6	TERMINAL BLOCK (REMOTE CONTROLLER TRANSMISSION LINE)
CN32	CONNECTOR (REMOTE SWITCH)	TH1	ROOM TEMP. THERMISTOR (0°C/15kΩ, 25°C/5.4kΩ DETECT)
CN41	CONNECTOR (HA TERMINAL-A)	TH2	PIPE TEMP. THERMISTOR/LIQUID (0°C/15kΩ, 25°C/5.4kΩ DETECT)
CN51	CONNECTOR (CENTRALLY CONTROL)	TH5	COND./EVA. TEMP. THERMISTOR (0°C/15kΩ, 25°C/5.4kΩ DETECT)
FUSE	FUSE (T6.3AL250V)	OPTION PARTS W.B PCB FOR WIRELESS REMOTE CONTROLLER BZ BUZZER LED1 LED (OPERATION INDICATION : GREEN) RU RECEIVING UNIT SW1 EMERGENCY OPERATION (FAN) SW2 EMERGENCY OPERATION (COOL) DP DRAIN PUMP FS DRAIN FLOAT SWITCH	
LED1	POWER SUPPLY (I.B)		
LED2	POWER SUPPLY (R.B)		
LED3	TRANSMISSION (INDOOR-OUTDOOR)		
SW1	SWITCH (MODEL SELECTION) *See table 1		
SW2	SWITCH (CAPACITY CODE) *See table 2		
SWE	CONNECTOR (EMERGENCY OPERATION)		
X1	RELAY (DRAIN PUMP)		
R.B	WIRED REMOTE CONTROLLER BOARD		
MF	FAN MOTOR		
MV	VANE MOTOR		

NOTE: Be sure to turn off the source power and then disconnect fan motor connector. (Failure to do so will cause trouble in Fan motor)



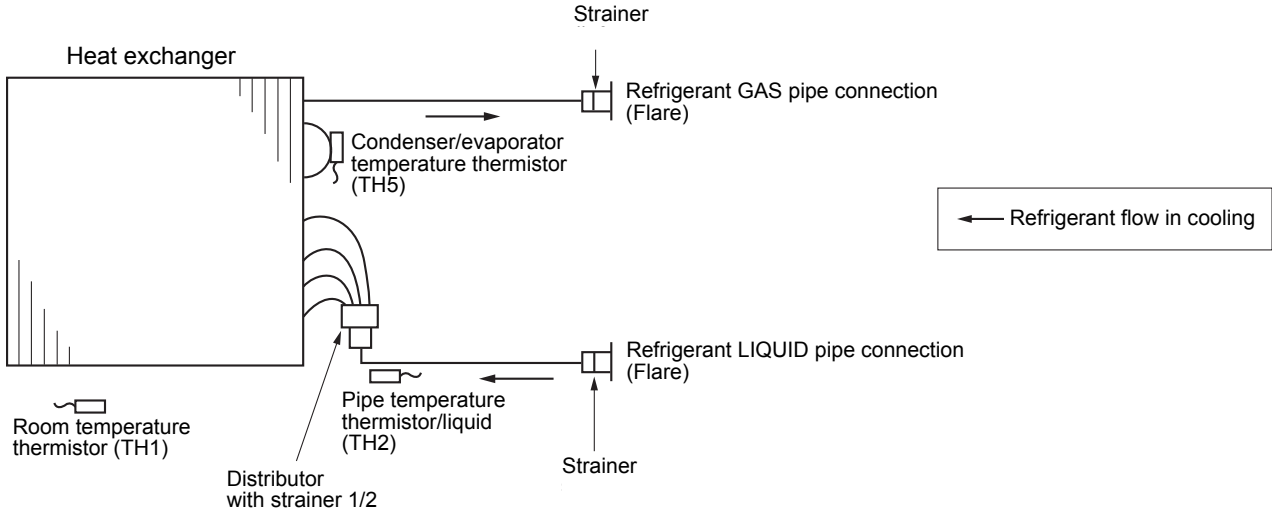
- Notes:
1. Symbols used in wiring diagram above are, ○ ○ ○ : Connector, □ □ □ : Terminal (block).
 2. Indoor and outdoor connecting wires are made with polarities, make wiring matching terminal numbers (S1, S2, S3).
 3. Since the outdoor side electric wiring may change, be sure to check the outdoor unit electric wiring for servicing.
 4. This diagram shows the wiring of indoor and outdoor connecting wires. (specification of 220 - 240 V), adopting superimposed system of power and signal.

REFRIGERANT SYSTEM DIAGRAM

PCY-SP18KA.TH
PCY-SP36KA.TH

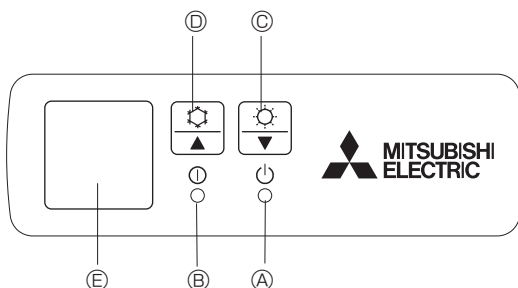
PCY-SP24KA.TH
PCY-SP42KA.TH

PCY-SP30KA.TH
PCY-SP48KA.TH



EMERGENCY OPERATION

When wireless remote controller fails or its battery is exhausted



When the remote controller cannot be used

When the batteries of the remote controller run out or the remote controller malfunctions, the emergency operation can be done using the emergency buttons on the grille.

- Ⓐ DEFROST/STAND BY lamp
- Ⓑ Operation lamp
- Ⓒ Emergency operation switch (fan mode)
- Ⓓ Emergency operation switch (cooling)
- Ⓔ Receiver

Starting operation

- To operate the cooling mode, press the Ⓓ button for more than 2 seconds.
- To operate the fan mode, press the Ⓒ button for more than 2 seconds.

* Lighting of the Operation lamp Ⓑ means the start of operation.

Note:

- Details of emergency mode are as shown below.

Operation mode	COOL
Set temperature	24 °C
Fan speed	High
Air flow direction	Horizontal

Stopping operation

- To stop operation, press the Ⓓ button or the Ⓒ button.

9-5-2. When wired remote controller or indoor unit microprocessor fails

1. When the wired remote control or the indoor unit microprocessor has failed, but all other components work properly, if you set the switch (SWE) on the indoor controller board ON, the indoor unit will begin emergency operation.

When emergency operation is activated, the indoor unit operates as follows:

- (1) Indoor fan is running at high speed.
- (2) Drain pump is operating.

Note on the wireless remote control: when the remote control does not function, it is possible to activate emergency operation by using the indoor unit emergency operation switch (SW1, SW2 of the wireless signal receiver board).

However, if the indoor unit microprocessor has failed, it is necessary to proceed with points (2) and (3) below as in the case of the wired remote controller.

2. Before you activate emergency operation, check the following points:

- (1) Emergency operation cannot be activated when:

- the indoor fan malfunctions.
- when it has detected the malfunction of drain pump during self-diagnosing.

- (2) Emergency operation becomes continuous only by switching the power source on/off.

ON/OFF on the remote control or temperature control, etc. does not function.

- (3) After emergency operation has been deactivated, set the switches, etc. to their original positions.

- (4) Movement of the vanes does not work in emergency operation, therefore you have to slowly set them manually to the appropriate position.