Changes for the Better

MITSUBISHI ELECTRIC

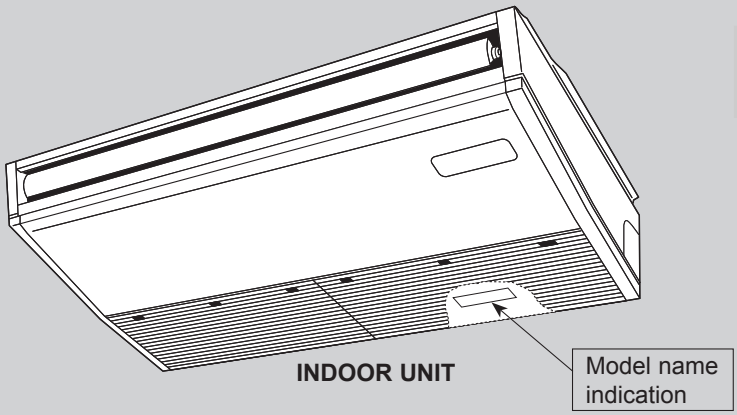
SPLIT-TYPE, AIR CONDITIONERS

November 2016

TECHNICAL & SERVICE MANUAL

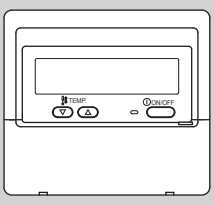
Series PC Ceiling Suspended R410A

Indoor unit [Model names]	[Service Ref.]
PC-P18KAKL	PC-P18KAKL.TH-T
PC-P24KAKL	PC-P24KAKL.TH-T
PC-P30KAKL	PC-P30KAKL.TH-T
PC-P36KAKL	PC-P36KAKL.TH-T
PC-P42KAKL	PC-P42KAKL.TH-T



INDOOR UNIT

WIRELESS REMOTE CONTROLLER



WIRED REMOTE CONTROLLER (Option)

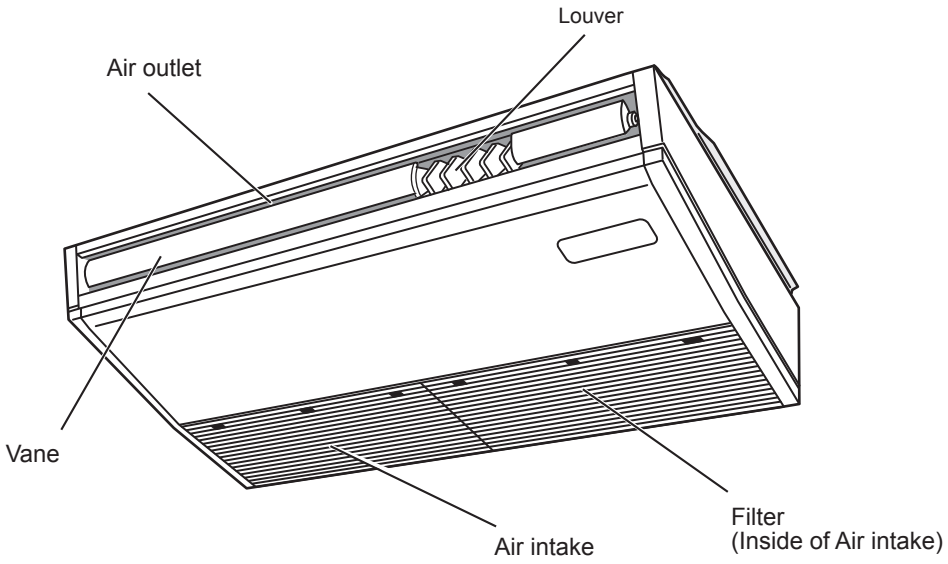
Mr.SLIM™

REFERENCE MANUAL

OUTDOOR UNIT SERVICE MANUAL

Service Ref.	
PU-P18/24/30/36VAKD.TH-T **PU-P36/42YAKD.TH-T**	

PART NAMES AND FUNCTIONS



SPECIFICATIONS

3-1. STANDARD SPECIFICATIONS

Item \ Service Ref.				PC-P18KAKL.TH-T	PC-P24KAKL.TH-T	PC-P30KAKL.TH-T	PC-P36KAKL.TH-T		PC-P42KAKL.TH-T
Cooling capacity *1 (50Hz)			W	5,100	6,600	8,300	10,400	10,400	12,400
			Btu/h	17,400	22,500	28,300	35,500	35,500	42,300
Total input (50Hz) *2			kW	1.66	2.15	2.80	3.57	3.40	5.46
INDOOR UNIT	Service Ref.			PC-P18KAKL.TH-T	PC-P24KAKL.TH-T	PC-P30KAKL.TH-T	PC-P36KAKL.TH-T		PC-P42KAKL.TH-T
	Fan motor output		kW	0.095		0.16			
	Airflow Low-High (50Hz)		m^3/min	16-22		24-30	25-32		27-34
			CFM	565-775	565-775	850-1,060	885-1,130		955-1,200
	External static pressure		Pa (mmAq)	0 (Direct blow)					
	Operation control & Thermostat			Remote control & Built - in					
	Noise level Low-High (50Hz)		dB	34-42		39-45	40-46		42-48
	Coud.drain connector	O.D.	mm (in.)	26 (1)					
	Dimensions	W	mm (in.)	1280 (50-3/8)		1600 (63)			
		D	mm (in.)	680 (26-3/4)					
		H	mm (in.)	230 (9-1/16)					
	Weight		kg (lbs.)	32 (71)		36 (79)	38 (84)		39 (86)
OUT DOOR UNIT	**Service Ref.**			PU-P18VAKD.TH-T	PU-P24VAKD.TH-T	PU-P30VAKD.TH-T	PU-P36YAKD.TH-T		PU-P42YAKD.TH-T
	Rerigerant (R410A) control			Capillary Tube					
	Crankcase heater *3 (50Hz)		W	-	-	-	38	-	-
	Compressor output (50Hz)		kW	1.3	1.8	2.2	2.7		4.6
	Protection devices			Direct cut			Direct cut (V) / *4 (Y)		*5
	Fan motor output		kW	0.031	0.075		0.065 + 0.065		0.10 + 0.10
	Airflow (50Hz)		m^3/min (CFM)	31 (1095)	53 (1871)	50 (1765)	95 (3350)		100 (3530)
	Noise level (50Hz)		dB	51	54	55	54		56
	Dimensions	W	mm (in.)	800 (31-1/2)	840 (33-1/16)		870 (34-1/4)		970 (38-3/16)
		D	mm (in.)	285 (11-1/4)	330 (13)		295+24 (11-5/8+1)		345+24 (13-9/16+1)
		H	mm (in.)	550 (21-5/8)	880 (34-5/8)		1258 (49-1/2)		1258 (49-1/2)
	Weight		kg (lbs.)	36	56	72	85		108

Notes :

*1. Rating condition (ISO T1<JIS B8616>)

Indoor : D.B.27°C (80°F), W.B.19°C (66°F)

Outdoor : D.B.35°C (95°F), W.B.24°C (75°F)

Refrigerant pipng length (one way) : PC-P18,24,30,36,42 : 7.5 m [24 ft]

*2. Total input based indicated voltage (In/Out)

Models	PC-P18,24,30,36 VAKD	PC-P36,42 YAKD
50 Hz	1 ph 220 V / 1 ph 220 V	1 ph 220 V / 1 ph 380 V

*3. The capacity of crankcase heater (W) shows the case of 240V.

*4. Direct cut, Thermal relay, Reversed-phase protector

*5. Thermal switch, Reversed-phase protector, HP switch, Thermal relay, LP switch

ELECTRICAL SPECIFICATIONS

Rating conditions — JIS B8616 Indoor : D.B. 27°C (80°F) , W.B. 19°C (66°F)
Outdoor : D.B. 35°C (95°F) , W.B. 24°C (75°F)

Series PC Indoor unit (Single phase)

Power supply (1 Phase)		220V, 50Hz			
Service Ref.		PC-P18/24KAKL.TH-T	PC-P30KAKL.TH-T	PC-P36KAKL.TH-T	PC-P42KAKL.TH-T
Current	A	0.72	0.97	1.12	1.35
Input	kW	0.08	0.11	0.13	0.16

OUTLET AIR SPEED AND COVERAGE RANGE

Service Ref.		PC-P18/24KAKL.TH-T	PC-P30KAKL.TH-T	PC-P36KAKL.TH-T	PC-P42KAKL.TH-T
Airflow	m^3/min	22	30	32	34
Air speed	m/sec	3.6	3.8	4.1	4.3
Coverage range	m	11.0	13.3	14.2	15.1
	ft	36.1	43.7	46.6	49.5

※ The air coverage range is the distance to which the 0.25 m/sec. air can reach when air is blown out horizontally from the unit at the High notch position.
The coverage range should be used only as a general guideline since it varies according to the size of the room and the furniture inside the room.

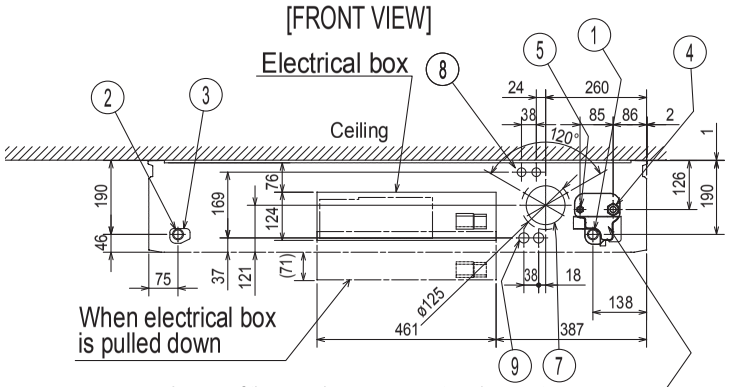
STANDARD OPERATION DATA

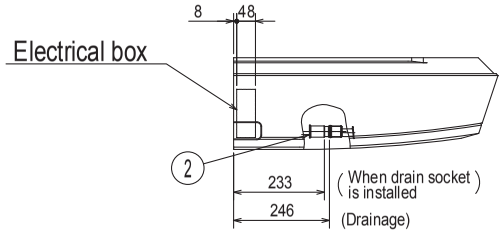
Service Ref.			PC-P18KAKL.TH-T	PC-P24KAKL.TH-T	PC-P30KAKL.TH-T	PC-P36KAKL.TH-T	PC-P42KAKL.TH-T
Mode			Cooling				
Total	Capacity	W	5,100	6,600	8,300	10,400	12,400
	Input	kW	1.66	2.15	2.80	3.57/3.40	5.46
Electrical circuit	Indoor unit Service Ref.		PC-P18KAKL.TH-T	PC-P24KAKL.TH-T	PC-P30KAKL.TH-T	PC-P36KAKL.TH-T	PC-P42KAKL.TH-T
	Phase, Hz		1, 50				
	Voltage	V	220				
	Current	A	0.72	0.72	0.97	1.12	1.35
	Outdoor unit Service Ref.		PU-P18VAKD.TH-T	PU-P24VAKD.TH-T	PU-P30VAKD.TH-T	PU-P36VAKD.TH-T/ PU-P36YAKD.TH-T	PU-P42YAKD.TH-T
	Phase, Hz		1, 50	1, 50	1, 50	1/3, 50	3, 50
	Voltage	V	220	220	220	220/380	380
	Current	A	7.8	10	13	16.7/6.8	9.7
Refrigerant circuit	Discharge pressure	MPa (kgf/cm^2)	2.96 (29.9)	2.91 (29.7)	2.83 (28.9)	2.93/2.92 (29.9)/(29.8)	3.06 (31.2)
	Suction pressure	MPa (kgf/cm^2)	0.93 (9.5)	0.96 (9.8)	0.91 (9.3)	0.90/0.91 (9.2)/(9.3)	0.75 (7.7)
	Discharge temperature	°C	83	77	77	78	77
	Condensing temperature	°C	52	46	47	45	45
	Suction temperature	°C	15	11	11	11	12
	Ref.pipe length	m	7.5	7.5	7.5	7.5	7.5
Inddor side	Intake air temperature	DB°C	27	27	27	27	27
		WB°C	19	19	19	19	19
	Discharge air temperature	DB°C	16	14	15	13	12
Outdoor side	Intake air temperature	DB°C	35	35	35	35	35
		WB°C	24	24	24	24	24

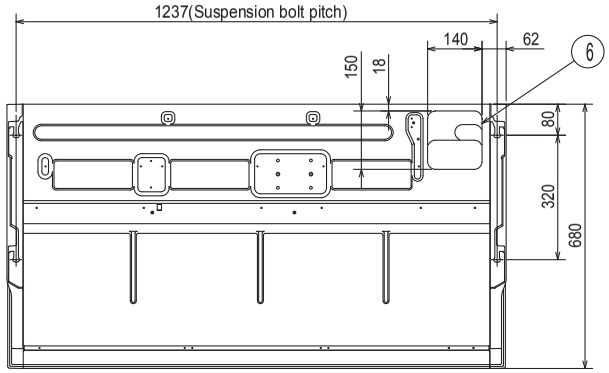
The unit of pressure has been changed to MPa based on SI (International System of unit) in accordance with I. S. O. (International Organization for Standardization).
The conversion factor is: 1 (Mpa) = 10.2 (kg / cm^2)

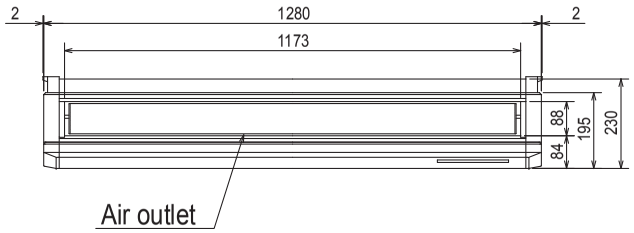
OUTLINES AND DIMENSIONS

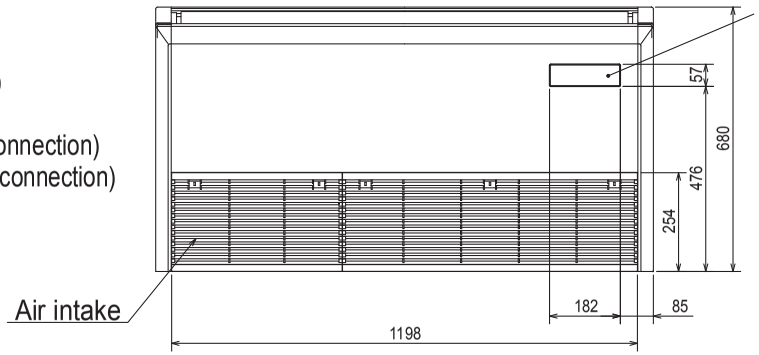
PC-P18KAKL.TH-T
PC-P24KAKL.TH-T

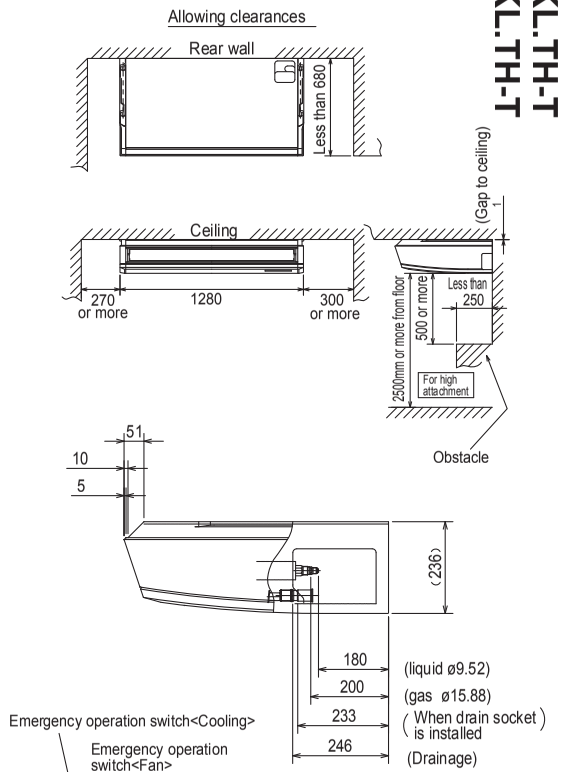


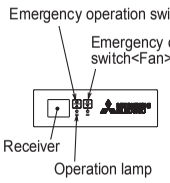










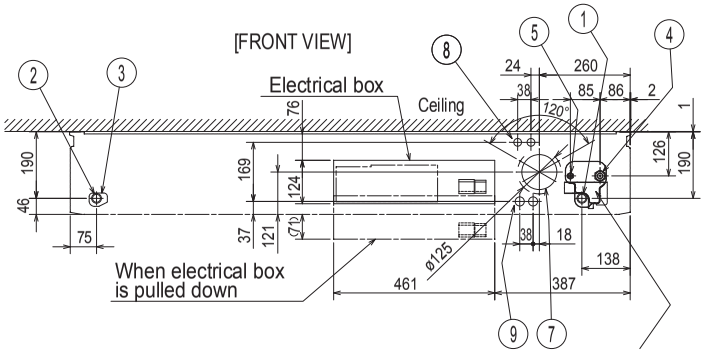


1. Drainage pipe connection(26mmI.D.)
2. Drainage pipe connection(for the left arrangement)
3. Knockout hole for left drain-piping arrangement
4. Refrigerant-pipe connection(gas pipe side/flared connection)
5. Refrigerant-pipe connection(liquid pipe side/flared connection)
6. Knockout hole for upper drain pipe arrangement
7. Knockout hole for fresh air intake ø100
8. Knockout hole for wiring arrangement 2-ø22
9. Knockout hole for wiring arrangement 2-ø26

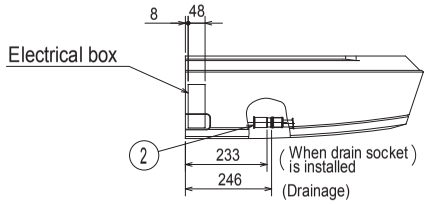
NOTES
1. Use M10 or W3/8 screw for anchor bolt.
2. Please be sure when installing the drain pump (option parts), refrigerant pipe will be only upper drain pipe arrangement.

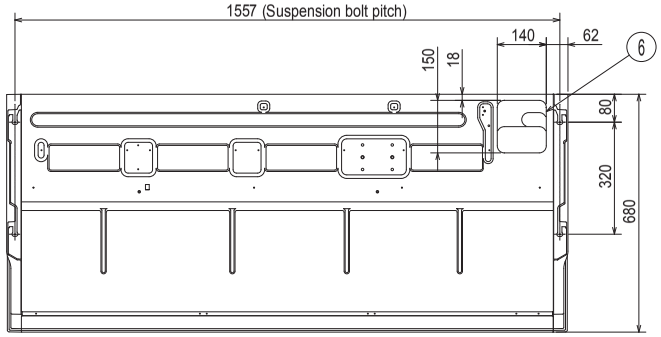
Unit : mm

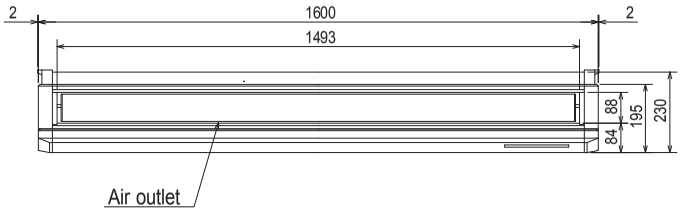
PC-P30KAKL.TH-T
PC-P36KAKL.TH-T
PC-P42KAKL.TH-T

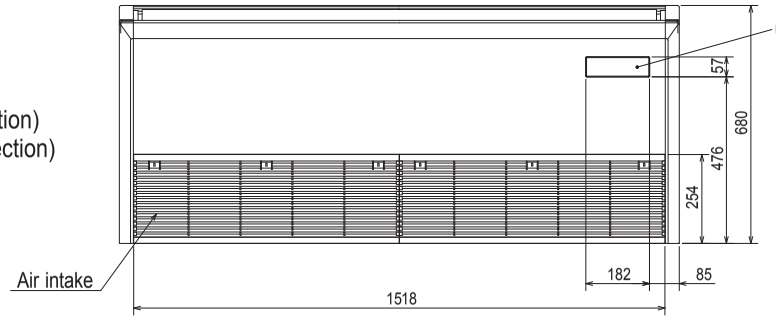


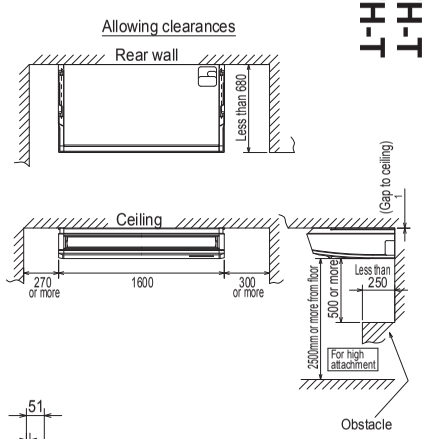
In case of the rear pipe arrangement, make sure to remove the shaded portions from the independent piece. Then put the independent piece back in initial position. (The heat exchanger might be clogged because of dust)

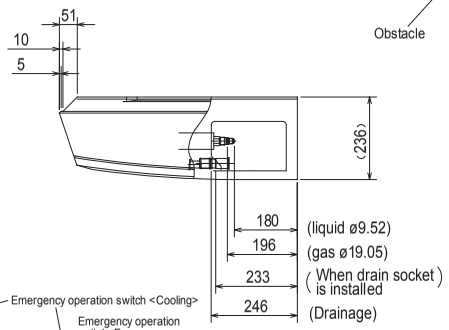


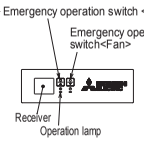












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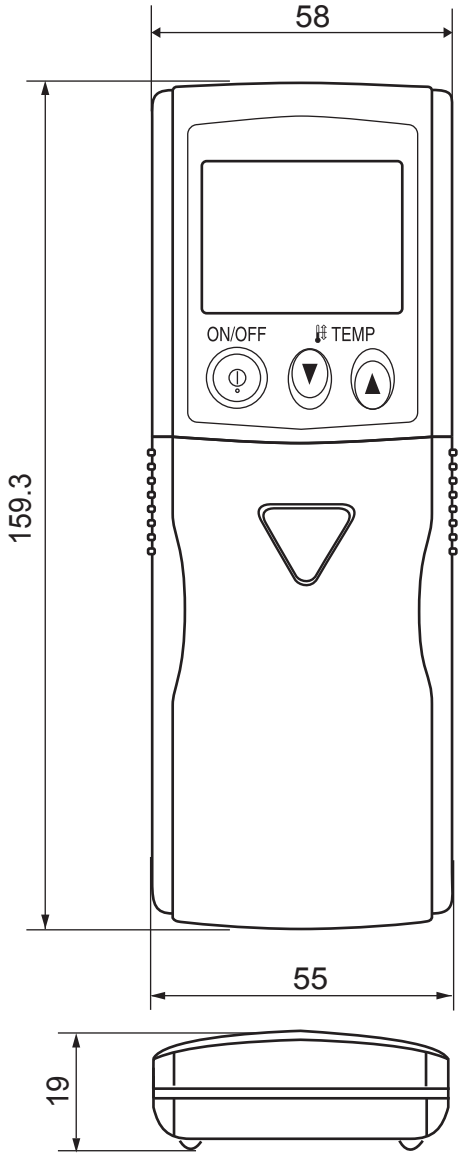
5. Refrigerant-pipe connection(liquid pipe side/flared connection)
6. Knockout hole for upper drain pipe arrangement
7. Knockout hole for fresh air intake ø100
8. Knockout hole for wiring arrangement 2-ø22
9. Knockout hole for wiring arrangement 2-ø26

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.

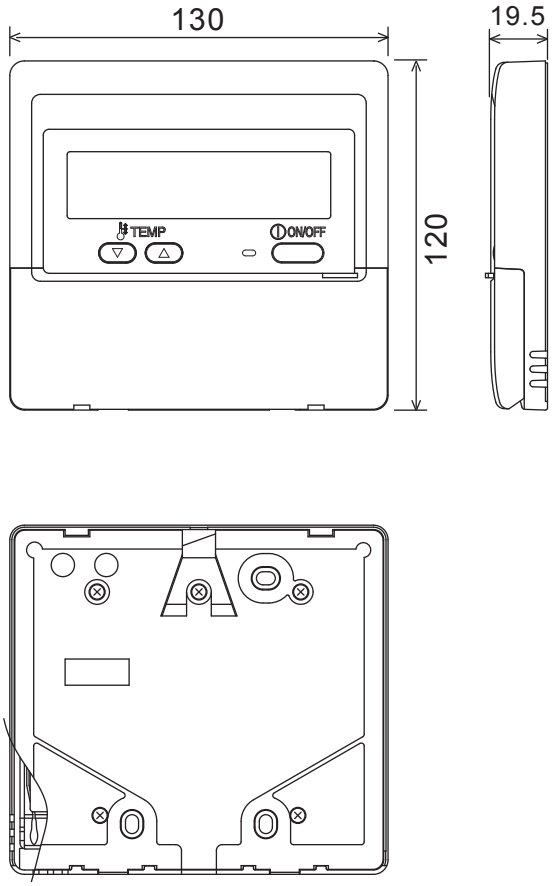
Unit : mm

Unit: mm

WIRELESS REMOTE CONTROLLER



WIRED REMOTE CONTROLLER (Option)



WIRING DIAGRAM

PC-P18KAKL.TH-T
PC-P24KAKL.TH-T
PC-P30KAKL.TH-T
PC-P36KAKL.TH-T
PC-P42KAKL.TH-T

【LEGEND】

SYMBOL	NAME	SYMBOL	NAME
I.B	INDOOR CONTROLLER BOARD	MF	FAN MOTOR
CN2L	CONNECTOR (LOSSNAY)	MV	VANE MOTOR
CN32	CONNECTOR (REMOTE SWITCH)	TB2	TERMINAL BLOCK (INDOOR UNIT POWER)
CN41	CONNECTOR (HA TERMINAL-A)	TB4	TERMINAL BLOCK (INDOOR/OUTDOOR CONNECTING LINE)
CN51	CONNECTOR (CENTRALLY CONTROL)	TB5,TB6	TERMINAL BLOCK (REMOTE CONTROLLER TRANSMISSION LINE)
FUSE	FUSE (T6.3AL250V)		
LED1	POWER SUPPLY (I.B)	TH1	ROOM TEMP. THERMISTOR (0℃ / 15kΩ, 25℃ / 5.4kΩ DETECT)
LED2	POWER SUPPLY (R.B)		
SW1	SWITCH (MODEL SELECTION) ※See Table 1	TH2	PIPE TEMP. THERMISTOR/LIQUID (0℃ / 15kΩ, 25℃ / 5.4kΩ DETECT)
SW2	SWITCH (CAPACITY CODE) ※See Table 2		
SW5	SWITCH (SYSTEM SELECTION) ※See Table 3	W.B	PCB FOR WIRELESS REMOTE CONTROLLER
SWE	CONNECTOR (EMERGENCY OPERATION)	BZ	BUZZER
X1	RELAY (DRAIN PUMP(OPTION))	LED1	LED (OPERATION INDICATION : GREEN)
ZNR01	VARISTOR	LED2	LED (ORANGE)
OPTION PART		RU	RECEIVING UNIT
DP	DRAIN PUMP	SW1	EMERGENCY OPERATION (FAN)
FS	DRAIN FLOAT SWITCH	SW2	EMERGENCY OPERATION (COOL)

The black square (■) indicates a switch position.

〈Table 1〉
SW1 (MODEL SELECTION)

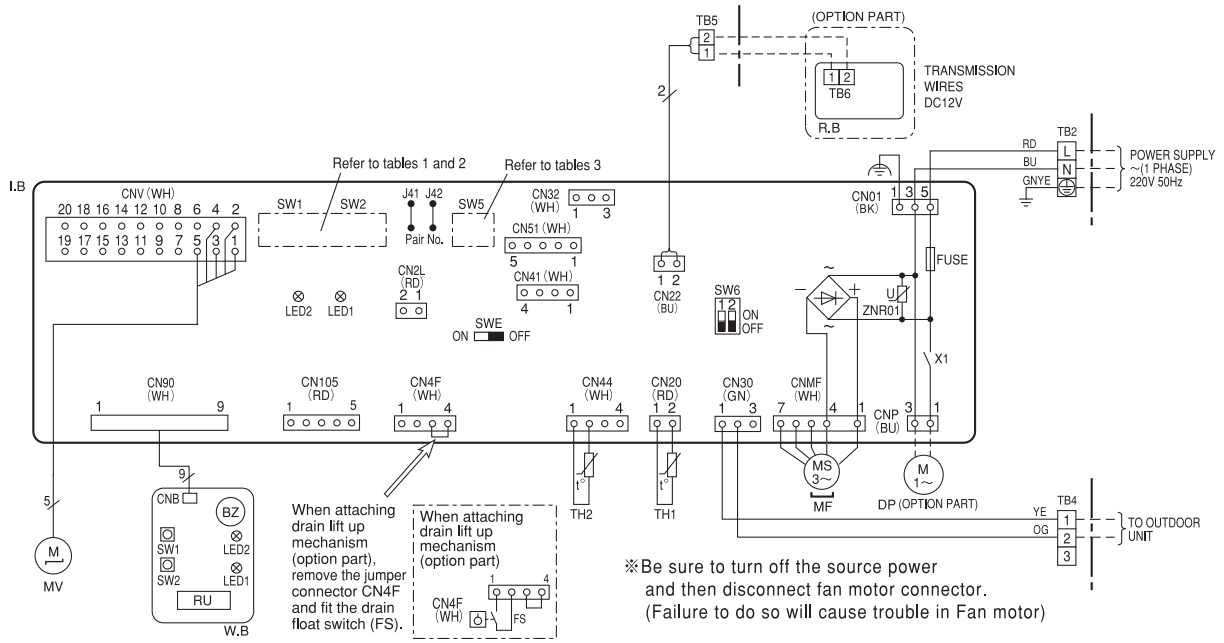
SW1
Manufacture/Service
1 2 3 4 5 ON OFF

〈Table 2〉
SW2 (CAPACITY CODE)

SW2			
MODELS	Manufacture/Service	MODELS	Manufacture/Service
PC-P18/24KAKL	1 2 3 4 5 ON OFF	PC-P36KAKL	1 2 3 4 5 ON OFF
PC-P30KAKL	1 2 3 4 5 ON OFF	PC-P42KAKL	1 2 3 4 5 ON OFF

〈Table 3〉
SW5 (SYSTEM SELECTION)

SW5
Manufacture/Service
1 2 3 4 5 6 7 8 ON OFF



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 (1, 2, 3).
3.Since the outdoor side electric wiring may change be sure to check the outdoor unit electric wiring for servicing.

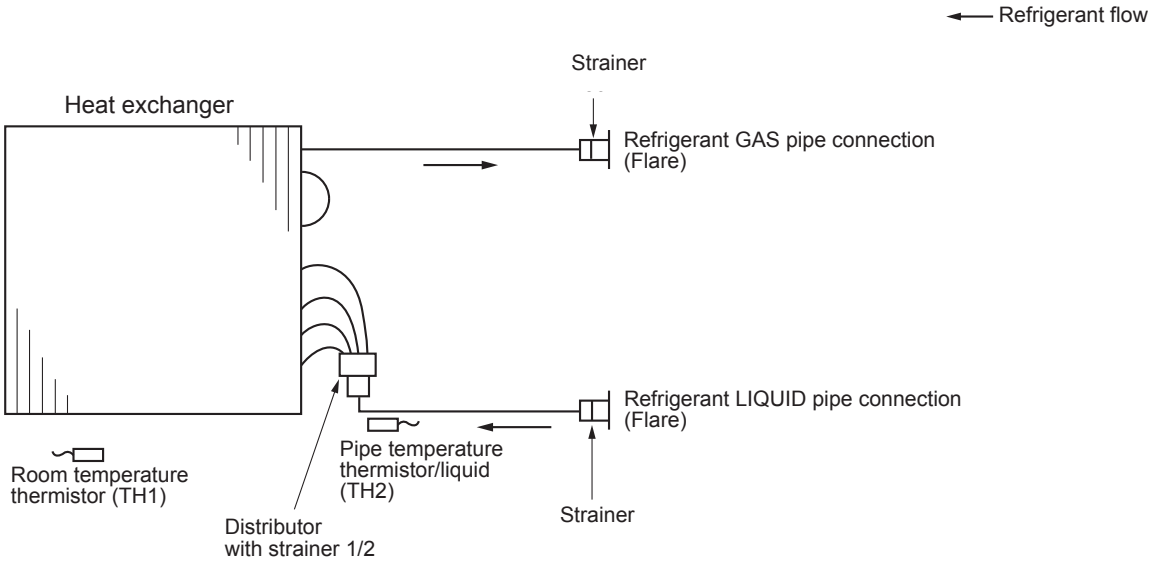
【Self-diagnosis】
1.For details on how to operate self-diagnosis with the wireless remote control,refer to the technical manuals etc.
2.For the wired remote control:When you quickly press twice the CHECK switch on the remote control, the unit begins self-diagnosis, and Check Codes generated in the past appear on the display. For Check Codes and Symptoms refer to the table below.

Check code	Symptom
P1	Abnormality of room temperature thermistor (TH1)
P2	Abnormality of pipe temperature thermistor / Liquid (TH2)
P4	Float switch connector open (FS)
P5	Malfunction of drain pump
P6	Freezing protection is working.
P8	Abnormality of pipe temperature / Outdoor unit error
PA	Forced compressor stop(due to water leakage abnormality)
E0~E5	Abnormality of the signal transmission between remote controller and indoor unit
Fb	Abnormality of indoor controller board(memory error, etc.)
— — — —	No trouble generated in the past.

【Emergency operation procedure】
1.When the indoor unit microprocessor has failed, but all other components work properly, if you set the switch(SWE) on the indoor control board, the indoor unit will begin Emergency Operation.
2.When you activate emergency operation of the cooling, you have to set the switch(SWE) and switch(SW6) on indoor controller.
SWE:ON ・Indoor fan is running high speed. ・Drain pump is working.
SW6-1:ON ・Emergency operation of cooling mode.
3.Before you activate emergency operation, check the following points:
(1) Emergency operation cannot be activated when:
・The outdoor unit malfunctions. ・The indoor fan malfunctions.
(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) Emergency cooling should be limited to 10 hours maximum. (The indoor unit heat exchanger may freeze.)
(4) After emergency operation has been deactivated, set the switches etc. to their original positions.
(5) Movement of the vanes does not work in emergency operation, therefore you have to slowly set them manually to the appropriate position.

REFRIGERANT SYSTEM DIAGRAM

PC-P18KAKL.TH-T
PC-P24KAKL.TH-T
PC-P30KAKL.TH-T
PC-P36KAKL.TH-T
PC-P42KAKL.TH-T



Service Ref.	Pipe size : mm (in.)	
	Gas	Liquid
PC-P18KAKL.TH-T	ø12.7 (1/2)	ø6.35 (1/4)
PC-P24KAKL.TH-T	ø15.88 (5/8)	
PC-P30KAKL.TH-T		ø9.52 (3/8)
PC-P36KAKL.TH-T		
PC-P42KAKL.TH-T		