MITSUBISHI ELECTRIC

Changes for the Better

SPLIT-TYPE, HEAT PUM PAIR CONDITIONERS

No. OC211
REVISED EDITION-A

TECHNICAL & SERVICE MANUAL

Series PLH Ceiling Cassettes

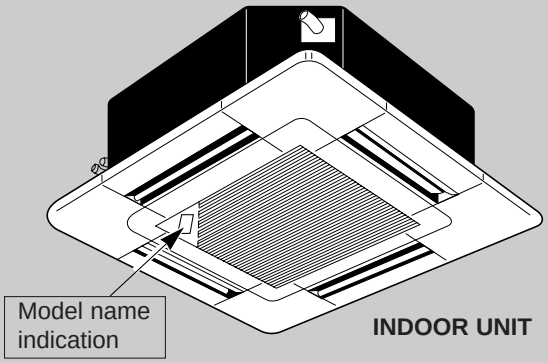
Indoor unit [Model names]	[Service Ref.]
PLH-3AK	PLH-3AK.UK PLH-3AK$_1$.UK
PLH-3AKH	PLH-3AKH.UK PLH-3AKH$_1$.UK
PLH-4AKS	PLH-4AKS.UK PLH-4AKS$_1$.UK
PLH-4AKHS	PLH-4AKHS.UK PLH-4AKHS$_1$.UK
PLH-5AKS	PLH-5AKS.UK PLH-5AKS$_1$.UK
PLH-5AKHS	PLH-5AKHS.UK PLH-5AKHS$_1$.UK
PLH-6AKS	PLH-6AKS.UK PLH-6AKS$_1$.UK
PLH-6AKHS	PLH-6AKHS.UK PLH-6AKHS$_1$.UK

Revision:
- PLH-3AK$_1$.UK, PLH-3AKH$_1$.UK, PLH-4AKS$_1$.UK, PLH-4AKHS$_1$.UK, PLH-5AKS$_1$.UK, PLH-5AKHS$_1$.UK, PLH-6AKS$_1$.UK and PLH-6AKHS$_1$.UK are added in REVISED EDITION-A.
- "**14. PARTS LIST**" has been modified.

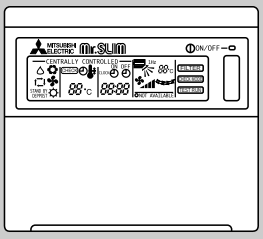
Note:
- This manual does not cover the following outdoor units. When servicing them, please refer to the following service manual and this manual in a set.

[Service Ref.]
(OC150 REVISED EDITION-A)
PUH-3VKA$_2$.UK PUH-3YKA$_2$.UK
PUH-4YKSA$_2$.UK
PUH-5YKSA$_2$.UK
PUH-6YKSA$_2$.UK
(OC184)
PUH-4VKSA.UK

- Please void OC211.

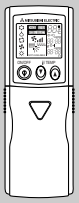


INDOOR UNIT



WIRED REMOTE CONTROLLER

PLH- •AK.UK
PLH- •AKH.UK
PLH- •AKS.UK
PLH- •AKHS.UK



PLH- •AK$_1$.UK
PLH- •AKH$_1$.UK
PLH- •AKS$_1$.UK
PLH- •AKHS$_1$.UK

WIRELESS REMOTE CONTROLLER

CONTENTS

Mr.SLIM™

Revision:
1. " **14. PARTS LIST** " has been modified on page 83 and 84.

Page	Revise point	Service Ref.	Incorrect	Correct
84	FUNCTIONAL PARTS No.16 ROOM TEMPERATURE THERMISTOR	PLH-5AKS.UK PLH-5AKHS.UK PLH-6AKS.UK PLH-6AKHS.UK	S70 17J 202	S70 E00 202

Spare CONTROLLER BOARD are unified.

Page	Revise point	Service Ref.	Old parts code	New part code
83	FUNCTIONAL PARTS No.4 CONTROLLER BOARD	PLH-3AK.UK	S70 E01 310	S70 E01 310*
		PLH-3AKH.UK	S70 E02 310	
		PLH-4AKS.UK	S70 E03 310	
		PLH-4AKHS.UK	S70 E04 310	
84	FUNCTIONAL PARTS No.4 CONTROLLER BOARD	PLH-5AKS.UK	S70 E05 310	
		PLH-5AKHS.UK	S70 E06 310	
		PLH-6AKS.UK	S70 E07 310	
		PLH-6AKHS.UK	S70 E08 310	

DRAIN PUMP has been changed.

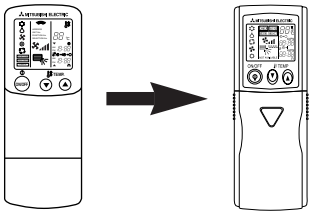
Page	Revise point	Service Ref.	Old part code	New part code
83	FUNCTIONAL PARTS No.7 DRAIN PUMP	PLH-3AK.UK PLH-3AKH.UK PLH-4AKS.UK PLH-4AKHS.UK	S70 E01 355	S70 E02 355
84	FUNCTIONAL PARTS No.7 DRAIN PUMP	PLH-5AKS.UK PLH-5AKHS.UK PLH-6AKS.UK PLH-6AKHS.UK		

2. The description "The part name of symbol "I.B" is "SPCB" " is added on both pages of wiring diagram and part list.

1 TECHNICAL CHANGES

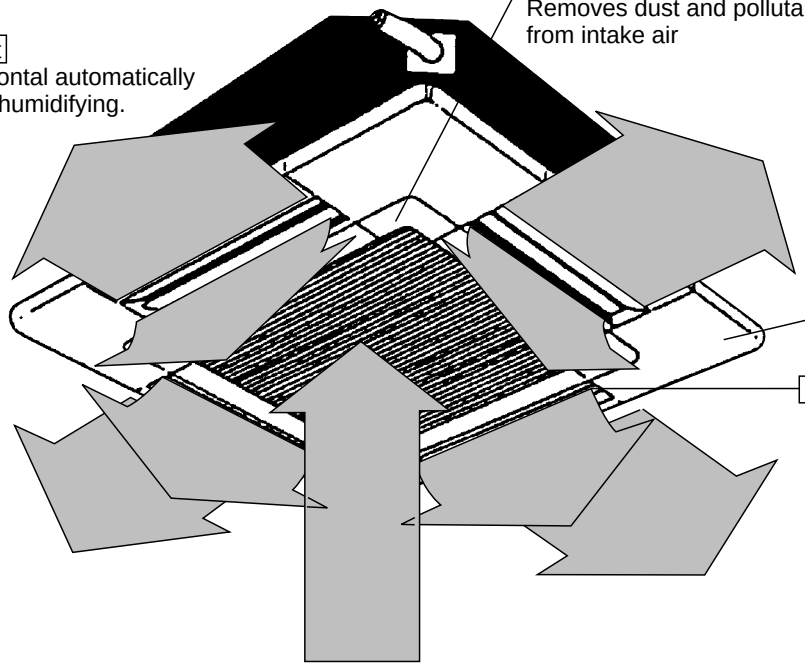
PLH-3AK.UK → PLH-3AK$_1$.UK
PLH-3AKH.UK → PLH-3AKH$_1$.UK
PLH-4AKS.UK → PLH-4AKS$_1$.UK
PLH-4AKHS.UK → PLH-4AKHS$_1$.UK
PLH-5AKS.UK → PLH-5AKS$_1$.UK
PLH-5AKHS.UK → PLH-5AKHS$_1$.UK
PLH-6AKS.UK → PLH-6AKS$_1$.UK
PLH-6AKHS.UK → PLH-6AKHS$_1$.UK

● **WIRELESS REMOTE CONTROLLER has been changed. (PAR-SL95K-E → PAR-SL97A-E)**



2 PART NAMES AND FUNCTIONS

● Indoor Unit



Filter
Removes dust and pollutants from intake air

Horizontal Air Outlet
Sets airflow of horizontal automatically during cooling or dehumidifying.

Grille

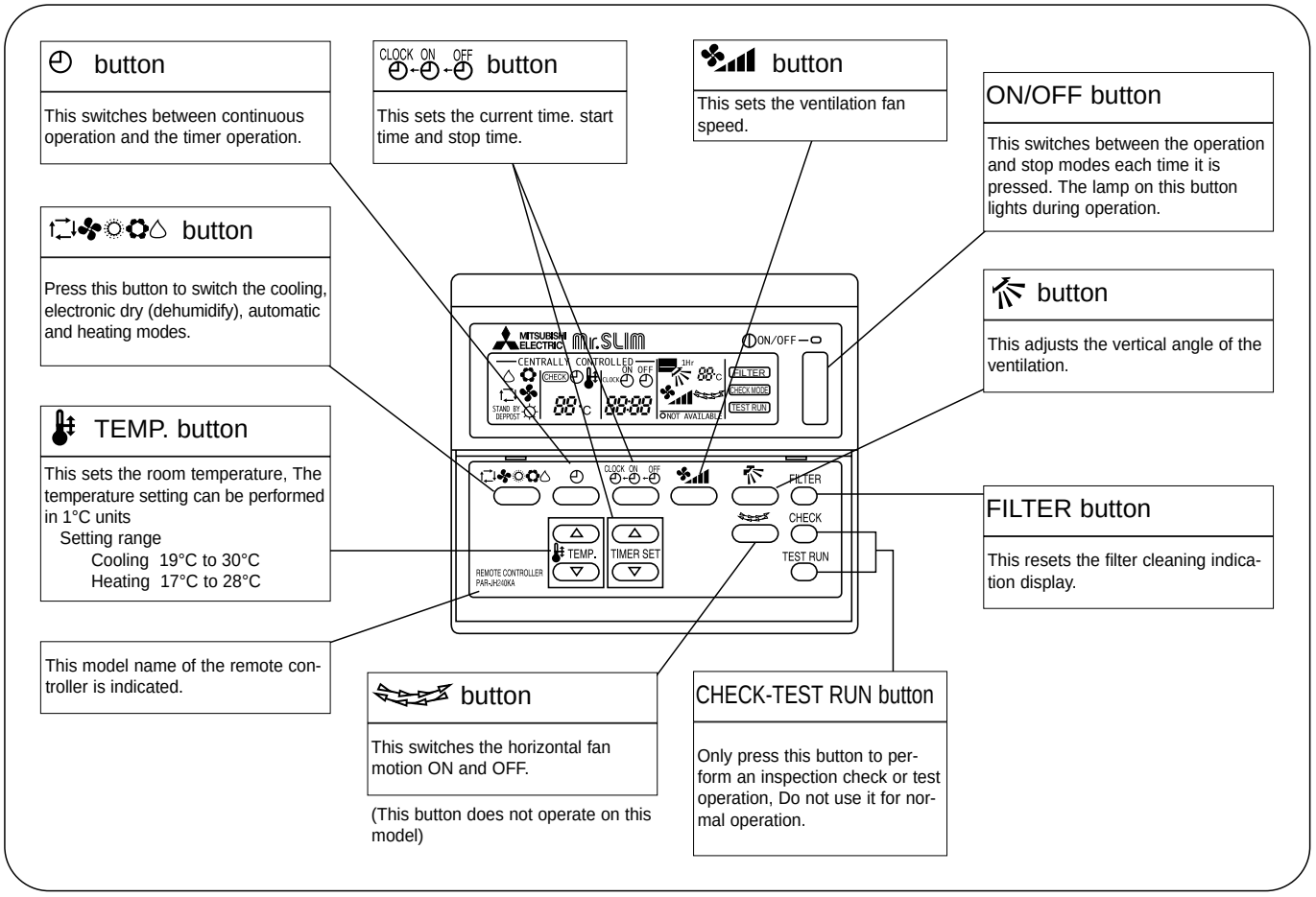
Auto Air Swing Vane
Disperses airflow up and down and adjusts the angle of airflow direction.

Air Intake
Intakes air from room.

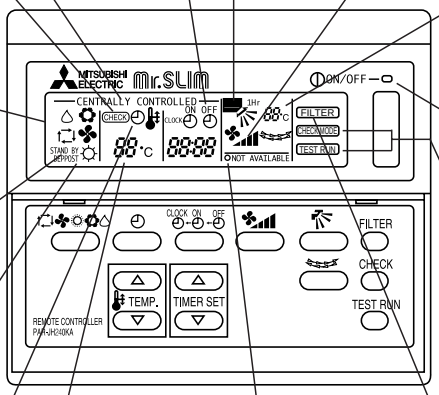
● Remote controller

On the controls are set, the same operation mode can be repeated by simply pressing the ON/OFF button.

● Operation buttons



● Display



CENTRALLY CONTROLLED display

This indicates when the unit is controlled by optional features such as central control type remote controller.

CHECK display

This indicates when a malfunction has occurred in the unit which should be checked.

OPERATION MODE display

This indicates the operation mode.

STANDBY display

The [STANDBY] symbol is only displayed from the time the heating operation starts until the heated air begins to blow.

DEFROST display

This indicates when the defrost operation is performed.

display

This indicates when the continuous operation and time operation modes are set.
It also display the time for the timer operation at the same time as when it is set.

CLOCK ON OFF display

The current time , start time and stop time can be displayed in ten second intervals by pressing the time setting button. The start time or stop time is always displayed during the timer operation.

display

This displays the air direction.

88°C display

This displays the selected setting temperature.

⊙display

This lamp lights when electricity is supplied to the unit.

In this display example on the bottom left, a condition where all display lamps light is shown for explanation purposes although this differs from actual operation.

display

The selected fan speed is displayed.

88°C display

The temperature of the suction air is displayed during operation. The display range is 10° to 35°C. The display flashes 10°C when the actual temperature is less than 10° and flashes 35°C when the actual temperature is greater than 35°C.

Operation lamp

This lamp lights during operation, goes off when the unit stops and flashes when a malfunction occurs.

CHECK MODE / TEST RUN display

This display lights in the check mode or when a test operation is performed.

FILTER display

This lamp lights when the filter need to be cleaned.

Caution

- Only the ⊙ display lights when the unit is stopped and power supplied to the unit.
- When power is turned ON for the first time the (CENTRAL CTRL) display appears to go off momentarily but this is not a malfunction.
- When the central control remote control unit, which is sold separately, is used the ON-OFF button, button and TEMP. button do not operate.
- “NOT AVAILABLE” is displayed when the button are pressed.This indicates that this room unit is not equipped with the fan direction adjustment function and the louver function.

PLH-3AK.UK PLH-4AKS.UK PLH-5AKS.UK PLH-6AKS.UK
PLH-3AKH.UK PLH-4AKHS.UK PLH-5AKHS.UK PLH-6AKHS.UK

● Wireless remote controller

● When cover is open.

display

Lights up while transmission to the indoor unit is mode using switches.

display

OPERATION MODE display
Operation mode display indicates which operation mode is in effect.

• FUNCTION display

Lights up when function are set.

• TEST RUN • CHECK display

CHECK&TEST RUN display indicates that the unit is being checked or test-run.

display

Displays when batteries are dead.

display

The vertical direction of airflow is indicated.

display

FAN SPEED display indicates which fan speed has been selected.

display

The unit is turned ON and OFF alternately each time the button is pressed.

ADDRESS display

Displays the refrigerant address.

UNIT NO. display

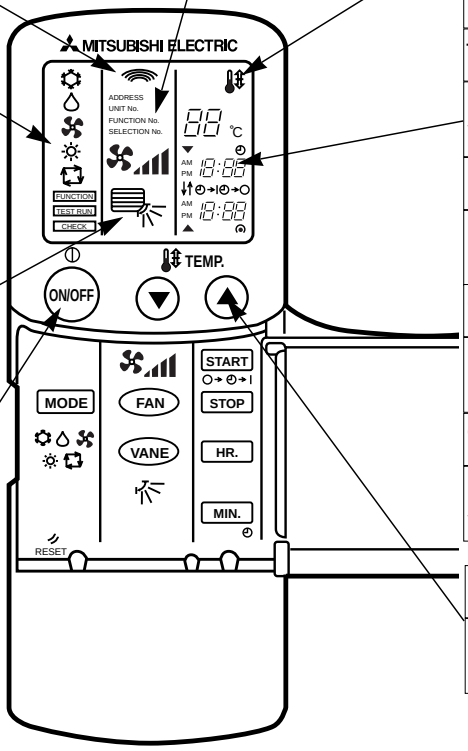
Displays the number of unit..

FUNCTION NO. display

Displays the mode.

SELECTION NO. display

Displays the selection number..



display

SET TEMP. display indicates desired temperature set.

CLOCK display

DIsplays the current time.

“ ◴ ”display

Flashes when the current time is displayed.

TIMER display

Displays when in timer operation or when setting timer.

“ ⬆ ” “ ⬇ ” display

Displays the order of timer operation.

“ ◴-| ” “ ◴-◯ ” display

Displays whether timer is on or off.

“ ▼ ” “ ▲ ” display

Displays when the current time and the timer time can be changed.

TEMP. button

SET TEMPERATURE button sets any desired room temperature.

● When cover is open.

MODE SELECT button

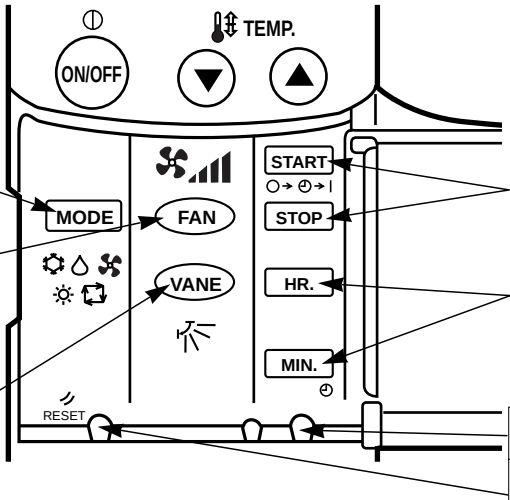
Used to switch the operation mode between cooling , drying , blowing , heating and auto mode.

FAN SPEED SELECT button

Used to change the fan speed.

VANE CONTROL button

Used to change the airflow direction.



TIMER CONTROL buttons

STOP (OFF timer): when this switch is set, the air conditioner will be automatically stopped at the preset time.
START (ON timer): when this switch is set, the air conditioner will be automatically started at the preset time.

HR. and MIN.buttons

Buttons used to set the “hour and minute” of the current time and timer settings.

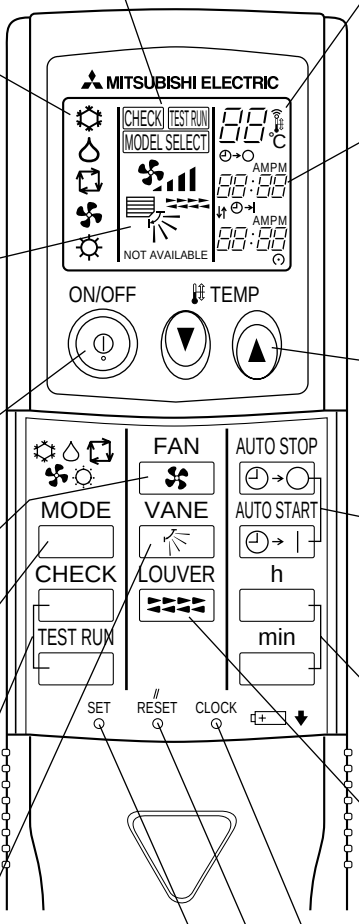
◴ button

RESET button

PLH-3AK$_1$.UK PLH-4AKS$_1$.UK PLH-5AKS$_1$.UK PLH-6AKS$_1$.UK
PLH-3AKH$_1$.UK PLH-4AKHS$_1$.UK PLH-5AKHS$_1$.UK PLH-6AKHS$_1$.UK

●Wireless remote controller

● When cover is open.



CHECK TEST RUN display

CHECK&TEST RUN display indicates that the unit is being checked or test-run.

MODEL SELECT display

Blinks when model is selected.

display

Lights up while transmission to the indoor unit is mode using switches.

display

SET TEMP. display indicates desired temperature set.

display

OPERATION MODE display
Operation mode display indicates which operation mode is in effect.

CLOCK display

Displays the current time.

TIMER display

Displays when in timer operation or when setting timer.

“ ↓ ” “ ↑ ” display

Displays the order of timer operation.

“ ” “ ” display

Displays whether timer is on or off.

display

The vertical direction of air flow is indicated.

display

FAN SPEED display indicates which fan speed has been selected.

button

SET TEMPERATURE button sets any desired room temperature.

ON/OFF button

The unit is turned ON and OFF alternately each time the button is pressed.

TIMER CONTROL buttons

AUTO STOP (OFF timer): when this switch is set, the air conditioner will be automatically stopped at the preset time.
AUTO START (ON timer): when this switch is set, the air conditioner will be automatically started at the preset time.

FAN SPEED SELECT button

Used to change the fan speed.

h and min buttons

Buttons used to set the “hour and minute” of the current time and timer settings.

MODE SELECT button

Used to switch the operation mode between cooling, drying, heating and auto mode.

LOUVER button

This switch the horizontal fan motion ON and OFF.

(Not available for this model.)

CHECK-TEST RUN button

Only press this button to perform an inspection check or test operation.
Do not use it for normal operation.

CLOCK button

RESET button

SET button

VANE CONTROL button

Used to change the air flow direction.

3 SPECIFICATIONS

Item / Service Ref.				PLH-3AK.UK PLH-3AKH.UK	PLH-3AK1.UK PLH-3AKH1.UK
Function				Cooling	Heating
Capacity			Btu/h	26,300	28,700[35,800]
			W	7,700	8,400[10,500]
Total input			kW	3.32	3.11[5.21]
INDOOR UNIT	**Service Ref.**			**PLH-3AK.UK PLH-3AKH.UK**	**PLH-3AK1.UK PLH-3AKH1.UK**
	Power supply(phase, cycle, voltage)			Single, 50Hz, 220-240V	
		Input	kW	0.17	0.17[2.27]
		Running current	A	0.81	0.81[9.47]
		Starting current	A	1.00	1.00[9.7]
	External finish			Grille : Munsell 0.70Y 8.59/0.97	
	Heat exchanger			Plate fin coil	
	Fan	Fan(drive) x No.		Turbo fan (direct) x 1	
		Fan motor output	kW	0.07	
		Airflow(Low-High)	m³/ min (CFM)	15-20(530-705)	
		External static pressure	Pa	0(direct blow)	
	Booster heater		kW	[2.1]	
	Operation control & Thermostat			Remote controller & built-in	
	Noise level(Low-High)		dB	28-34	
	Unit drain pipe O.D.		mm(in.)	32(1-1/4)	
	Dimensions	W	mm(in.)	UNIT : 840(33-1/6)	PANEL : 950(37-3/8)
		D	mm(in.)	UNIT : 840(33-1/6)	PANEL : 950(37-3/8)
		H	mm(in.)	UNIT : 258(10-1/8)	PANEL : 30(1-3/16)
	Weight		kg(lbs)	UNIT : 24(53) [26(57)]	PANEL : 5(11)
OUTDOOR UNIT	**Service Ref.**			**PUH-3VKA2.UK / PUH-3YKA2.UK**	
	Power supply (phase, cycle, voltage)			Single, 50Hz, 220-240V/3, 50Hz, 380-415V(4wires)	
		Input	kW	3.15	2.94
		Running current	A	13.82/5.16	12.89/4.81
		Starting current	A	58/37	58/37
	External finish			Munsell 5Y 7/1	
	Refrigerant control			Capillary tube	
	Compressor			Hermetic	
		Model		NH52VNDT / NH52YDAT	
		Motor output	kW	2.2/2.4	
		Starter type		Line start	
		Protection devices		※1	
	Heat exchanger			Plate fin coil	
	Fan	Fan(drive) x No.		Propeller (direct) x1	
		Fan motor output	kW	0.085	
		Airflow	m³/ min (CFM)	50(1764)	
	Defrost method			Reverse cycle	
	Noise level		dB	52	
	Dimensions	W	mm(in.)	870(34-1/4)	
		D	mm(in.)	295+24 (11-5/8 add 1)	
		H	mm(in.)	850(33-1/4)	
	Weight		kg(lbs)	75(165)	
REFRIGERANT PIPING	Refrigerant			R-22	
		Charge	kg(lbs)	3.2(7.1)	
		Oil<Model>	L	1.6<MS-32>	
	Pipe size O.D.	Liquid	mm(in.)	9.52 (3/8)	
		Gas	mm(in.)	15.88(5/8)	
	Connection method	Indoor side		Flared	
		Outdoor side		Flared	
	Between the indoor & outdoor units	Height difference		Max. 50m	
		Piping length		Max. 50m	

※1 V ···Internal Thermostat, HP switch
Y ···Anti-phase protector, thermal relay, thermal switch, HP switch

Notes: Rating condition (ISO T1<JIS B8616>)
Cooling: Indoor : D.B. 27°C, W.B. 19°C
Outdoor : D.B. 35°C, W.B. 24°C
Heating: Indoor : D.B. 20°C
Outdoor : D.B. 7°C, W.B. 6°C
Refrigerant piping length(one way):5m(16ft)

Guaranteed operating range

		Indoor	Outdoor
Cooling	Upper limit	D.B. 35˚C, W.B. 22.5˚C	D.B. 46˚C
	Lower limit	D.B. 21˚C, W.B. 15.5˚C	D.B. -5˚C
Heating	Upper limit	D.B. 27°C	D.B. 21˚C, W.B. 15.5˚C
	Lower limit	D.B. 20°C	D.B. -8.5˚C, W.B. -9.5˚C

Item \ Service Ref.				PLH-4AKS.UK PLH-4AKS1.UK PLH-4AKHS.UK PLH-4AKHS1.UK	
Function				Cooling	Heating
Capacity			Btu/h	33,100	35,500[44,400]
			W	9,700	10,400[13,000]
Total input			kW	3.46	3.45[6.05]
INDOOR UNIT	**Service Ref.**			**PLH-4AKS.UK PLH-4AKS1.UK PLH-4AKHS.UK PLH-4AKHS1.UK**	
	Power supply(phase, cycle,voltage)			Single, 50Hz, 220-240V	
		Input	kW	0.26	0.26[2.86]
		Running current	A	1.25	1.25[11.93]
		Starting current	A	2.0	2.0[12.7]
	External finish			Grille : Munsell 0.70Y 8.59/0.97	
	Heat exchanger			Plate fin coil	
	Fan	Fan(drive) x No.		Turbo fan (direct) x 1	
		Fan motor output	kW	0.120	
		Airflow(Low-High)	m³/ min (CFM)	20-28(705-990)	
		External static pressure	Pa	0(direct blow)	
	Booster heater		kW	[2.6]	
	Operation control & Thermostat			Remote controller & built-in	
	Noise level(Low-High)		dB	33-41	
	Unit drain pipe O.D.		mm(in.)	32(1-1/4)	
	Dimensions	W	mm(in.)	UNIT : 840(33-1/6)	PANEL : 950(37-3/8)
		D	mm(in.)	UNIT : 840(33-1/6)	PANEL : 950(37-3/8)
		H	mm(in.)	UNIT : 298(11-3/4)	PANEL : 30(1-3/16)
	Weight		kg(lbs)	UNIT : 30(66)[32(71)]	PANEL : 5(11)
OUTDOOR UNIT	**Service Ref.**			**PUH-4VKSA.UK / PUH-4YKSA2.UK**	
	Power supply (phase, cycle, voltage)			Single 50Hz 220V-240V / 3, 50Hz, 380V-415V(4wire)	
		Input	kW	3.52 / 3.20	3.52 / 3.19
		Running current	A	16.30 / 5.24	16.30 / 5.22
		Starting current	A	79 / 40	79 / 40
	External finish			Munsell 5Y 7/1	
	Refrigerant control			Capillary tube	
	Compressor			Hermetic	
		Model		NH56VNDT / NH56YDAT	
		Motor output	kW	2.7	
		Starter type		Line start	
		Protection devices		Internal thermostat, HP switch / Anti-phase protector, Thermal relay, Thermal switch, HP switch	
	Heat exchanger			Plate fin coil	
	Fan	Fan(drive) x No.		Propeller (direct) x2	
		Fan motor output	kW	0.065+0.065	
		Airflow	m³/ min (CFM)	95(3550)	
	Defrost method			Reverse cycle	
	Noise level		dB	54	
	Dimensions	W	mm(in.)	870(34-1/4)	
		D	mm(in.)	295+24(11-5/8 add 1)	
		H	mm(in.)	1258(49-1/2)	
	Weight		kg(lbs)	94(207)	
REFRIGERANT PIPING	Refrigerant			R-22	
		Charge	kg(lbs)	4.2(9.2)	
		Oil<Model>	L	1.6<MS-32>	
	Pipe size O.D.	Liquid	mm(in.)	9.52(3/8)	
		Gas	mm(in.)	19.05(3/4)	
	Connection method	Indoor side		Flared	
		Outdoor side		Flared	
	Between the indoor & outdoor units	Height difference		Max. 50m	
		Piping length		Max. 50m	

Notes: Rating condition (ISO T1<JIS B8616>)
Cooling: Indoor : D.B. 27°C, W.B. 19°C
Outdoor : D.B. 35°C, W.B. 24°C
Heating: Indoor : D.B. 20°C
Outdoor : D.B. 7°C, W.B. 6°C
Refrigerant piping length(one way):5m(16ft)

Guaranteed operating range

		Indoor	Outdoor
Cooling	Upper limit	D.B. 35˚C, W.B. 22.5˚C	D.B. 46˚C
	Lower limit	D.B. 21˚C, W.B. 15.5˚C	D.B. -5˚C
Heating	Upper limit	D.B. 27°C	D.B. 21˚C, W.B. 15.5˚C
	Lower limit	D.B. 20°C	D.B. -8.5˚C, W.B. -9.5˚C

Item / Service Ref.				PLH-5AKS.UK PLH-5AKS1.UK PLH-5AKHS.UK PLH-5AKHS1.UK	
Function				Cooling	Heating
Capacity			Btu/h	42,300	47,800[58,000]
			W	12,400	14,000[17,000]
Total input			kW	4.51	4.46[7.46]
INDOOR UNIT	**Service Ref.**			**PLH-5AKS.UK PLH-5AKS1.UK PLH-5AKHS.UK PLH-5AKHS1.UK**	
	Power supply(phase, cycle,voltage)			Single, 50Hz, 220-240V	
		Input	kW	0.30	0.30[3.30]
		Running current	A	1.43	1.43[13.77]
		Starting current	A	2.0	2.0[14.3]
	External finish			Grille : Munsell 0.70Y 8.59/0.97	
	Heat exchanger			Plate fin coil	
	Fan	Fan(drive) x No.		Turbo fan (direct) x 1	
		Fan motor output	kW	0.120	
		Airflow(Low-High)	m³/ min (CFM)	22-30(775-1,060)	
		External static pressure	Pa	0(direct blow)	
	Booster heater		kW	[3.0]	
	Operation control & Thermostat			Remote controller & built-in	
	Noise level(Low-High)		dB	35-43	
	Unit drain pipe O.D.		mm(in.)	32(1-1/4)	
	Dimensions	W	mm(in.)	UNIT : 840(33-1/16)	PANEL : 950(37-3/8)
		D	mm(in.)	UNIT : 840(33-1/16)	PANEL : 950(37-3/8)
		H	mm(in.)	UNIT : 298(11-3/4)	PANEL : 30(1-3/16)
	Weight		kg(lbs)	UNIT : 30(66) [32(71)]	PANEL : 5(11)
OUTDOOR UNIT	**Service Ref.**			**PUH-5YKSA2.UK**	
	Power supply (phase, cycle, voltage)			3, 50Hz, 380-415V(4wire)	
		Input	kW	4.21	4.16
		Running current	A	6.89	6.81
		Starting current	A	65	65
	External finish			Munsell 5Y 7/1	
	Refrigerant control			Capillary tube	
	Compressor			Hermetic	
		Model		ZR61KC-TFD	
		Motor output	kW	3.5	
		Starter type		Line start	
		Protection devices		Internal thermostat, Anti-phase protector, Thermal switch, HP switch	
	Heat exchanger			Plate fin coil	
	Fan	Fan(drive) x No.		Propeller (direct) x2	
		Fan motor output	kW	0.085+0.085	
		Airflow	m³/ min (CFM)	95(3550)	
	Defrost method			Reverse cycle	
	Noise level		dB	55	
	Dimensions	W	mm(in.)	970(38-3/16)	
		D	mm(in.)	345+24(13-9/16 add 1)	
		H	mm(in.)	1258(49-1/2)	
	Weight		kg(lbs)	114(251)	
REFRIGERANT PIPING	Refrigerant			R-22	
		Charge	kg(lbs)	5.4(11.9)	
		Oil<Model>	L	2.13<SONTEX-200LT>	
	Pipe size O.D.	Liquid	mm(in.)	9.52(3/8)	
		Gas	mm(in.)	19.05(3/4)	
	Connection method	Indoor side		Flared	
		Outdoor side		Flared	
	Between the indoor & outdoor units	Height difference		Max. 50m	
		Piping length		Max. 50m	

Notes: Rating condition (ISO T1<JIS B8616>)
Cooling: Indoor : D.B. 27°C, W.B. 19°C
Outdoor : D.B. 35°C, W.B. 24°C
Heating: Indoor : D.B. 20°C
Outdoor : D.B. 7°C, W.B. 6°C
Refrigerant piping length(one way):5m(16ft)

Guaranteed operating range

		Indoor	Outdoor
Cooling	Upper limit	D.B. 35˚C, W.B. 22.5˚C	D.B. 46˚C
	Lower limit	D.B. 21˚C, W.B. 15.5˚C	D.B. -5˚C
Heating	Upper limit	D.B. 27°C	D.B. 21˚C, W.B. 15.5˚C
	Lower limit	D.B. 20°C	D.B. -8.5˚C, W.B. -9.5˚C

Item / Service Ref.				PLH-6AKS.UK PLH-6AKS1.UK PLH-6AKHS.UK PLH-6AKHS1.UK	
Function				Cooling	Heating
Capacity			Btu/h	47,800	54,900[65,200]
			W	14,000	16,100[19,100]
Total input			kW	5.07	4.92[7.92]
INDOOR UNIT	**Service Ref.**			**PLH-6AKS.UK PLH-6AKS1.UK PLH-6AKHS.UK PLH-6AKHS1.UK**	
	Power supply(phase, cycle, voltage)			Single, 50Hz, 220-240V	
		Input	kW	0.34	0.34[3.34]
		Running current	A	1.64	1.64[13.94]
		Starting current	A	2.0	2.0[14.3]
	External finish			Grille : Munsell 0.70Y 8.59/0.97	
	Heat exchanger			Plate fin coil	
	Fan	Fan(drive) x No.		Turbo fan (direct) x 1	
		Fan motor output	kW	0.120	
		Airflow(Low-High)	m³/ min (CFM)	22-30(775-1,060)	
		External static pressure	Pa	0(direct blow)	
	Booster heater		kW	[3.0]	
	Operation control & Thermostat			Remote controller & built-in	
	Noise level(Low-High)		dB	37-45	
	Unit drain pipe O.D.		mm(in.)	32(1-1/4)	
	Dimensions	W	mm(in.)	UNIT : 840(33-1/16)	PANEL : 950(37-3/8)
		D	mm(in.)	UNIT : 840(33-1/16)	PANEL : 950(37-3/8)
		H	mm(in.)	UNIT : 298(11-3/4)	PANEL : 30(1-3/16)
	Weight		kg(lbs)	UNIT : 32(71)[34(75)]	PANEL : 5(11)
OUTDOOR UNIT	**Service Ref.**			**PUH-6YKSA2.UK**	
	Power supply (phase, cycle, voltage)			3, 50Hz, 380-415V(4wire)	
		Input	kW	4.73	4.58
		Running current	A	7.74	7.50
		Starting current	A	74	74
	External finish			Munsell 5Y 7/1	
	Refrigerant control			Capillary tube	
	Compressor			Hermetic	
		Model		ZR68KC-TFD	
		Motor output	kW	4.0	
		Starter type		Line start	
		Protection devices		Internal thermostat, Anti-phase protector, Thermal switch, HP switch	
	Heat exchanger			Plate fin coil	
	Fan	Fan(drive) x No.		Propeller (direct) x2	
		Fan motor output	kW	0.10+0.10	
		Airflow	m³/ min (CFM)	100(3530)	
	Defrost method			Reverse cycle	
	Noise level		dB	56	
	Dimensions	W	mm(in.)	970(38-3/16)	
		D	mm(in.)	345+24(13-9/16 add 1)	
		H	mm(in.)	1258(49-1/2)	
	Weight		kg(lbs)	117(258)	
REFRIGERANT PIPING	Refrigerant			R-22	
		Charge	kg(lbs)	5.0(11.0)	
		Oil<Model>	L	1.774<SONTEX-200LT>	
	Pipe size O.D.	Liquid	mm(in.)	9.52(3/8)	
		Gas	mm(in.)	19.05(3/4)	
	Connection method	Indoor side		Flared	
		Outdoor side		Flared	
	Between the indoor & outdoor units	Height difference		Max. 50m	
		Piping length		Max. 50m	

Notes: Rating condition (ISO T1<JIS B8616>)
Cooling: Indoor : D.B. 27°C, W.B. 19°C
Outdoor : D.B. 35°C, W.B. 24°C
Heating: Indoor : D.B. 20°C
Outdoor : D.B. 7°C, W.B. 6°C
Refrigerant piping length(one way):5m(16ft)

Guaranteed operating range

		Indoor	Outdoor
Cooling	Upper limit	D.B. 35˚C, W.B. 22.5˚C	D.B. 46˚C
	Lower limit	D.B. 21˚C, W.B. 15.5˚C	D.B. -5˚C
Heating	Upper limit	D.B. 27°C	D.B. 21˚C, W.B. 15.5˚C
	Lower limit	D.B. 20°C	D.B. -8.5˚C, W.B. -9.5˚C

4 DATA

1. PERFORMANCE DATA [50Hz]

1) COOLING CAPACITY(1)

PLH-3AK.UK PLH-3AK$_1$.UK
PLH-3AKH.UK PLH-3AKH$_1$.UK

Indoor Intake air D.B.(°C)	Indoor Intake air W.B.(°C)	Outdoor intake air D.B.(°C)											
		20				25				30			
		CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.
20	16	7768	4972	0.64	2.66	7555	4835	0.64	2.77	7278	4658	0.64	2.99
20	18	8271	4301	0.52	2.71	8053	4188	0.52	2.83	7760	4035	0.52	3.06
22	16	7768	5593	0.72	2.66	7555	5440	0.72	2.77	7278	5240	0.72	2.99
22	18	8271	4963	0.60	2.71	8053	4832	0.60	2.83	7760	4656	0.60	3.06
22	20	8779	4214	0.48	2.77	8573	4115	0.48	2.89	8267	3968	0.48	3.12
24	16	7768	6214	0.80	2.66	7555	6044	0.80	2.77	7278	5822	0.80	2.99
24	18	8271	5624	0.68	2.71	8053	5476	0.68	2.83	7760	5277	0.68	3.06
24	20	8779	4916	0.56	2.77	8573	4801	0.56	2.89	8267	4630	0.56	3.12
24	22	9293	4089	0.44	2.82	9115	4011	0.44	2.94	8799	3872	0.44	3.19
26	16	7768	6836	0.88	2.66	7555	6649	0.88	2.77	7278	6404	0.88	2.99
26	18	8271	6286	0.76	2.71	8053	6120	0.76	2.83	7760	5898	0.76	3.06
26	20	8779	5619	0.64	2.77	8573	5487	0.64	2.89	8267	5291	0.64	3.12
26	22	9293	4832	0.52	2.82	9115	4740	0.52	2.94	8799	4576	0.52	3.19
27	16	7768	7147	0.92	2.66	7555	6951	0.92	2.77	7278	6696	0.92	2.99
27	18	8271	6617	0.80	2.71	8053	6443	0.80	2.83	7760	6208	0.80	3.06
27	20	8779	5970	0.68	2.77	8573	5830	0.68	2.89	8267	5622	0.64	3.12
27	22	9293	5204	0.56	2.82	9115	5104	0.56	2.94	8799	4928	0.52	3.19
28	16	7768	7457	0.96	2.66	7555	7253	0.96	2.77	7278	6987	0.96	2.99
28	18	8271	6948	0.84	2.71	8053	6765	0.84	2.83	7760	6518	0.84	3.06
28	20	8779	6321	0.72	2.77	8573	6173	0.72	2.89	8267	5952	0.72	3.12
28	22	9293	5576	0.60	2.82	9115	5469	0.60	2.94	8799	5279	0.60	3.19
30	16	7768	7768	1.00	2.66	7555	7555	1.00	2.77	7278	7278	1.00	2.99
30	18	8271	7609	0.92	2.71	8053	7409	0.92	2.83	7760	7139	0.92	3.06
30	20	8779	7023	0.80	2.77	8573	6858	0.80	2.89	8267	6614	0.80	3.12
30	22	9293	6319	0.68	2.82	9115	6198	0.68	2.94	8799	5983	0.68	3.19
32	16	7768	7768	1.00	2.66	7555	7555	1.00	2.77	7278	7278	1.00	2.99
32	18	8271	8271	1.00	2.71	8053	8053	1.00	2.83	7760	7760	1.00	3.06
32	20	8779	7726	0.88	2.77	8573	7544	0.88	2.89	8267	7275	0.88	3.12
32	22	9293	7063	0.76	2.82	9115	6927	0.76	2.94	8799	6687	0.76	3.19

CA : Capacity (W) SHC : Sensible heat capacity (W)
P.C. : Power consumption (kW) SHF : Sensible heat factor

COOLING CAPACITY(2)
PLH-3AK.UK PLH-3AK$_1$.UK
PLH-3AKH.UK PLH-3AKH$_1$.UK

Indoor Intake air D.B.(°C)	Indoor Intake air W.B.(°C)	Outdoor intake air D.B.(°C)											
		35				40				45			
		CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.
20	16	6983	4469	0.64	3.20	6671	4269	0.64	3.42	6342	4059	0.64	3.64
20	18	7452	3875	0.52	3.28	7130	3708	0.52	3.51	6793	3532	0.52	3.73
22	16	6983	5028	0.72	3.20	6671	4803	0.72	3.42	6342	4566	0.72	3.64
22	18	7452	4471	0.60	3.28	7130	4278	0.60	3.51	6793	4076	0.60	3.73
22	20	7948	3815	0.48	3.36	7616	3656	0.48	3.60	7270	3490	0.48	3.84
24	16	6983	5586	0.80	3.20	6671	5337	0.80	3.42	6342	5073	0.80	3.64
24	18	7452	5067	0.68	3.28	7130	4848	0.68	3.51	6793	4619	0.68	3.73
24	20	7948	4451	0.56	3.36	7616	4265	0.56	3.60	7270	4071	0.56	3.84
24	22	8470	3727	0.44	3.44	8128	3576	0.44	3.70	7773	3420	0.44	3.97
26	16	6983	6145	0.88	3.20	6671	5870	0.88	3.42	6342	5581	0.88	3.64
26	18	7452	5664	0.76	3.28	7130	5419	0.76	3.51	6793	5163	0.76	3.73
26	20	7948	5087	0.64	3.36	7616	4874	0.64	3.60	7270	4653	0.64	3.84
26	22	8470	4405	0.52	3.44	8128	4227	0.52	3.70	7773	4042	0.52	3.97
27	16	6983	6424	0.92	3.20	6671	6137	0.92	3.42	6342	5834	0.92	3.64
27	18	7452	5962	0.80	3.28	7130	5704	0.80	3.51	6793	5434	0.80	3.73
27	20	7948	5405	0.68	3.36	7616	5179	0.68	3.60	7270	4944	0.64	3.84
27	22	8470	4743	0.56	3.44	8128	4552	0.56	3.70	7773	4353	0.52	3.97
28	16	6983	6704	0.96	3.20	6671	6404	0.96	3.42	6342	6088	0.96	3.64
28	18	7452	6260	0.84	3.28	7130	5989	0.84	3.51	6793	5706	0.84	3.73
28	20	7948	5722	0.72	3.36	7616	5483	0.72	3.60	7270	5235	0.72	3.84
28	22	8470	5082	0.60	3.44	8128	4877	0.60	3.70	7773	4664	0.60	3.97
30	16	6983	6983	1.00	3.20	6671	6671	1.00	3.42	6342	6342	1.00	3.64
30	18	7452	6856	0.92	3.28	7130	6559	0.92	3.51	6793	6250	0.92	3.73
30	20	7948	6358	0.80	3.36	7616	6093	0.80	3.60	7270	5816	0.80	3.84
30	22	8470	5760	0.68	3.44	8128	5527	0.68	3.70	7773	5286	0.68	3.97
32	16	6983	6983	1.00	3.20	6671	6671	1.00	3.42	6342	6342	1.00	3.64
32	18	7452	7452	1.00	3.28	7130	7130	1.00	3.51	6793	6793	1.00	3.73
32	20	7948	6994	0.88	3.36	7616	6702	0.88	3.60	7270	6398	0.88	3.84
32	22	8470	6437	0.76	3.44	8128	6178	0.76	3.70	7773	5908	0.76	3.97

CA : Capacity (W) SHC : Sensible heat capacity (W)
P.C. : Power consumption (kW) SHF : Sensible heat factor

COOLING CAPACITY(3)
PLH-4AKS.UK PLH-4AKS$_1$.UK
PLH-4AKHS.UK PLH-4AKHS$_1$.UK

Indoor Intake air D.B.(°C)	Indoor Intake air W.B.(°C)	Outdoor intake air D.B.(°C)											
		20				25				30			
		CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.
20	16	9786	6752	0.69	2.77	9518	6567	0.69	2.89	9168	6326	0.69	3.11
20	18	10419	5939	0.57	2.83	10145	5783	0.57	2.95	9775	5572	0.57	3.18
22	16	9786	7535	0.77	2.77	9518	7329	0.77	2.89	9168	7059	0.77	3.11
22	18	10419	6773	0.65	2.83	10145	6594	0.65	2.95	9775	6354	0.65	3.18
22	20	11060	5862	0.53	2.88	10800	5724	0.53	3.01	10414	5520	0.53	3.25
24	16	9786	8318	0.85	2.77	9518	8090	0.85	2.89	9168	7793	0.85	3.11
24	18	10419	7606	0.73	2.83	10145	7406	0.73	2.95	9775	7136	0.73	3.18
24	20	11060	6746	0.61	2.88	10800	6588	0.61	3.01	10414	6353	0.61	3.25
24	22	11707	5736	0.49	2.94	11482	5626	0.49	3.07	11085	5431	0.49	3.32
26	16	9786	9101	0.93	2.77	9518	8852	0.93	2.89	9168	8526	0.93	3.11
26	18	10419	8440	0.81	2.83	10145	8217	0.81	2.95	9775	7918	0.81	3.18
26	20	11060	7631	0.69	2.88	10800	7452	0.69	3.01	10414	7186	0.69	3.25
26	22	11707	6673	0.57	2.94	11482	6545	0.57	3.07	11085	6318	0.57	3.32
27	16	9786	9492	0.97	2.77	9518	9232	0.97	2.89	9168	8893	0.97	3.11
27	18	10419	8856	0.85	2.83	10145	8623	0.85	2.95	9775	8309	0.85	3.18
27	20	11060	8073	0.73	2.88	10800	7884	0.73	3.01	10414	7602	0.73	3.25
27	22	11707	7141	0.61	2.94	11482	7004	0.61	3.07	11085	6762	0.61	3.32
28	16	9786	9786	1.00	2.77	9518	9518	1.00	2.89	9168	9168	1.00	3.11
28	18	10419	9273	0.89	2.83	10145	9029	0.89	2.95	9775	8700	0.89	3.18
28	20	11060	8516	0.77	2.88	10800	8316	0.77	3.01	10414	8019	0.77	3.25
28	22	11707	7609	0.65	2.94	11482	7464	0.65	3.07	11085	7205	0.65	3.32
30	16	9786	9786	1.00	2.77	9518	9518	1.00	2.89	9168	.9168	1.00	3.11
30	18	10419	10107	0.97	2.83	10145	9841	0.97	2.95	9775	9482	0.97	3.18
30	20	11060	9401	0.85	2.88	10800	9180	0.85	3.01	10414	8852	0.85	3.25
30	22	11707	8546	0.73	2.94	11482	8382	0.73	3.07	11085	8092	0.73	3.32
32	16	9786	9786	1.00	2.77	9518	9518	1.00	2.89	9168	9168	1.00	3.11
32	18	10419	10419	1.00	2.83	10145	10145	1.00	2.95	9775	9775	1.00	3.18
32	20	11060	10285	0.93	2.88	10800	10044	0.93	3.01	10414	9685	0.93	3.25
32	22	11707	9483	0.81	2.94	11482	9301	0.81	3.07	11085	8979	0.81	3.32

CA : Capacity (W) SHC : Sensible heat capacity (W)
P.C. : Power consumption (kW) SHF : Sensible heat factor

COOLING CAPACITY(4)
PLH-4AKS.UK PLH-4AKS$_1$.UK
PLH-4AKHS.UK PLH-4AKHS$_1$.UK

Indoor Intake air D.B.(°C)	Indoor Intake air W.B.(°C)	Outdoor intake air D.B.(°C)											
		35				40				45			
		CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.
20	16	8797	6070	0.69	3.34	8404	5798	0.69	3.56	7989	5512	0.69	3.79
20	18	9388	5351	0.57	3.42	8982	5120	0.57	3.65	8558	4878	0.57	3.89
22	16	8797	6773	0.77	3.34	8404	6471	0.77	3.56	7989	6151	0.77	3.79
22	18	9388	6102	0.65	3.42	8982	5838	0.65	3.65	8558	5562	0.65	3.89
22	20	10012	5307	0.53	3.50	9594	5085	0.53	3.75	9159	4854	0.53	4.00
24	16	8797	7477	0.85	3.34	8404	7143	0.85	3.56	7989	6790	0.85	3.79
24	18	9388	6853	0.73	3.42	8982	6557	0.73	3.65	8558	6247	0.73	3.89
24	20	10012	6107	0.61	3.50	9594	5852	0.61	3.75	9159	5587	0.61	4.00
24	22	10670	5228	0.49	3.59	10240	5017	0.49	3.86	9792	4798	0.49	4.14
26	16	8797	8181	0.93	3.34	8404	7815	0.93	3.56	7989	7430	0.93	3.79
26	18	9388	7604	0.81	3.42	8982	7275	0.81	3.65	8558	6932	0.81	3.89
26	20	10012	6908	0.69	3.50	9594	6620	0.69	3.75	9159	6320	0.69	4.00
26	22	10670	6082	0.57	3.59	10240	5837	0.57	3.86	9792	5582	0.57	4.14
27	16	8797	8533	0.97	3.34	8404	8151	0.97	3.56	7989	7749	0.97	3.79
27	18	9388	7980	0.85	3.42	8982	7634	0.85	3.65	8558	7274	0.85	3.89
27	20	10012	7309	0.73	3.50	9594	7003	0.73	3.75	9159	6686	0.73	4.00
27	22	10670	6509	0.61	3.59	10240	6246	0.61	3.86	9792	5973	0.61	4.14
28	16	8797	8797	1.00	3.34	8404	8404	1.00	3.56	7989	7989	1.00	3.79
28	18	9388	8355	0.89	3.42	8982	7994	0.89	3.65	8558	7616	0.89	3.89
28	20	10012	7709	0.77	3.50	9594	7387	0.77	3.75	9159	7052	0.77	4.00
28	22	10670	6936	0.65	3.59	10240	6656	0.65	3.86	9792	6365	0.65	4.14
30	16	8797	8797	1.00	3.34	8404	8404	1.00	3.56	7989	7989	1.00	3.79
30	18	9388	9106	0.97	3.42	8982	8712	0.97	3.65	8558	8301	0.97	3.89
30	20	10012	8510	0.85	3.50	9594	8155	0.85	3.75	9159	7785	0.85	4.00
30	22	10670	7789	0.73	3.59	10240	7475	0.73	3.86	9792	7148	0.73	4.14
32	16	8797	8797	1.00	3.34	8404	8404	1.00	3.56	7989	7989	1.00	3.79
32	18	9388	9388	1.00	3.42	8982	8982	1.00	3.65	8558	8558	1.00	3.89
32	20	10012	9311	0.93	3.50	9594	8922	0.93	3.75	9159	8518	0.93	4.00
32	22	10670	8643	0.81	3.59	10240	8294	0.81	3.86	9792	7932	0.81	4.14

CA : Capacity (W) SHC : Sensible heat capacity (W)
P.C. : Power consumption (kW) SHF : Sensible heat factor

COOLING CAPACITY(5)
PLH-5AKS.UK PLH-5AKS$_1$.UK
PLH-5AKHS.UK PLH-5AKHS$_1$.UK

Indoor Intake air D.B.(°C)	Indoor Intake air W.B.(°C)	Outdoor intake air D.B.(°C)											
		20				25				30			
		CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.
20	16	12510	7881	0.63	3.61	12167	7665	0.63	3.77	11720	7384	0.63	4.06
20	18	13319	6793	0.51	3.69	12969	6614	0.51	3.85	12496	6373	0.51	4.15
22	16	12510	8882	0.71	3.61	12167	8639	0.71	3.77	11720	8321	0.71	4.06
22	18	13319	7858	0.59	3.69	12969	7652	0.59	3.85	12496	7373	0.59	4.15
22	20	14138	6645	0.47	3.76	13806	6489	0.47	3.92	13313	6257	0.47	4.24
24	16	12510	9883	0.79	3.61	12167	9612	0.79	3.77	11720	9259	0.79	4.06
24	18	13319	8924	0.67	3.69	12969	8689	0.67	3.85	12496	8373	0.67	4.15
24	20	14138	7776	0.55	3.76	13806	7593	0.55	3.92	13313	7322	0.55	4.24
24	22	14965	6435	0.43	3.83	14679	6312	0.43	4.00	14170	6093	0.43	4.33
26	16	12510	10883	0.87	3.61	12167	10585	0.87	3.77	11720	10196	0.87	4.06
26	18	13319	9990	0.75	3.69	12969	9727	0.75	3.85	12496	9372	0.75	4.15
26	20	14138	8907	0.63	3.76	13806	8698	0.63	3.92	13313	8387	0.63	4.24
26	22	14965	7632	0.51	3.83	14679	7486	0.51	4.00	14170	7227	0.51	4.33
27	16	12510	11384	0.91	3.61	12167	11072	0.91	3.77	11720	10665	0.91	4.06
27	18	13319	10522	0.79	3.69	12969	10245	0.79	3.85	12496	9872	0.79	4.15
27	20	14138	9472	0.67	3.76	13806	9250	0.67	3.92	13313	8920	0.67	4.24
27	22	14965	8231	0.55	3.83	14679	8073	0.55	4.00	14170	7794	0.55	4.33
28	16	12510	11884	0.95	3.61	12167	11559	0.95	3.77	11720	11134	0.95	4.06
28	18	13319	11055	0.83	3.69	12969	10764	0.83	3.85	12496	10372	0.83	4.15
28	20	14138	10038	0.71	3.76	13806	9802	0.71	3.92	13313	9452	0.71	4.24
28	22	14965	8830	0.59	3.83	14679	8660	0.59	4.00	14170	8360	0.59	4.33
30	16	12510	12510	1.00	3.61	12167	12167	1.00	3.77	11720	11720	1.00	4.06
30	18	13319	12121	0.91	3.69	12969	11802	0.91	3.85	12496	11372	0.91	4.15
30	20	14138	11169	0.79	3.76	13806	10907	0.79	3.92	13313	10517	0.79	4.24
30	22	14965	10027	0.67	3.83	14679	9835	0.67	4.00	14170	9494	0.67	4.33
32	16	12510	12510	1.00	3.61	12167	12167	1.00	3.77	11720	11720	1.00	4.06
32	18	13319	13186	0.99	3.69	12969	12839	0.99	3.85	12496	12371	0.99	4.15
32	20	14138	12300	0.87	3.76	13806	12011	0.87	3.92	13313	11582	0.87	4.24
32	22	14965	11224	0.75	3.83	14679	11009	0.75	4.00	14170	10628	0.75	4.33

CA : Capacity (W) SHC : Sensible heat capacity (W)
P.C. : Power consumption (kW) SHF : Sensible heat factor

COOLING CAPACITY(6)
PLH-5AKS.UK PLH-5AKS$_1$.UK
PLH-5AKHS.UK PLH-5AKHS$_1$.UK

Indoor Intake air D.B.(°C)	Indoor Intake air W.B.(°C)	Outdoor intake air D.B.(°C)											
		35				40				45			
		CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.
20	16	11245	7085	0.63	4.35	10743	6768	0.63	4.64	10212	6434	0.63	4.94
20	18	12001	6120	0.51	4.46	11482	5856	0.51	4.76	10939	5579	0.51	5.07
22	16	11245	7984	0.71	4.35	10743	7627	0.71	4.64	10212	7251	0.71	4.94
22	18	12001	7080	0.59	4.46	11482	6774	0.59	4.76	10939	6454	0.59	5.07
22	20	12799	6016	0.47	4.56	12264	5764	0.47	4.89	11708	5503	0.47	5.22
24	16	11245	8884	0.79	4.35	10743	8487	0.79	4.64	10212	8068	0.79	4.94
24	18	12001	8041	0.67	4.46	11482	7693	0.67	4.76	10939	7329	0.67	5.07
24	20	12799	7040	0.55	4.56	12264	6745	0.55	4.89	11708	6439	0.55	5.22
24	22	13640	5865	0.43	4.67	13090	5629	0.43	5.03	12518	5383	0.43	5.39
26	16	11245	9783	0.87	4.35	10743	9346	0.87	4.64	10212	8885	0.87	4.94
26	18	12001	9001	0.75	4.46	11482	8611	0.75	4.76	10939	8205	0.75	5.07
26	20	12799	8064	0.63	4.56	12264	7726	0.63	4.89	11708	7376	0.63	5.22
26	22	13640	6957	0.51	4.67	13090	6676	0.51	5.03	12518	6384	0.51	5.39
27	16	11245	10233	0.91	4.35	10743	9776	0.91	4.64	10212	9293	0.91	4.94
27	18	12001	9481	0.79	4.46	11482	9071	0.79	4.76	10939	8642	0.79	5.07
27	20	12799	8575	0.67	4.56	12264	8217	0.67	4.89	11708	7844	0.67	5.22
27	22	13640	7502	0.55	4.67	13090	7199	0.55	5.03	12518	6885	0.55	5.39
28	16	11245	10683	0.95	4.35	10743	10206	0.95	4.64	10212	9702	0.95	4.94
28	18	12001	9961	0.83	4.46	11482	9530	0.83	4.76	10939	9080	0.83	5.07
28	20	12799	9087	0.71	4.56	12264	8708	0.71	4.89	11708	8313	0.71	5.22
28	22	13640	8048	0.59	4.67	13090	7723	0.59	5.03	12518	7386	0.59	5.39
30	16	11245	11245	1.00	4.35	10743	10743	1.00	4.64	10212	10212	1.00	4.94
30	18	12001	10921	0.91	4.46	11482	10448	0.91	4.76	10939	9955	0.91	5.07
30	20	12799	10111	0.79	4.56	12264	9689	0.79	4.89	11708	9249	0.79	5.22
30	22	13640	9139	0.67	4.67	13090	8770	0.67	5.03	12518	8387	0.67	5.39
32	16	11245	11245	1.00	4.35	10743	10743	1.00	4.64	10212	10212	1.00	4.94
32	18	12001	11881	0.99	4.46	11482	11367	0.99	4.76	10939	10830	0.99	5.07
32	20	12799	11135	0.87	4.56	12264	10670	0.87	4.89	11708	10186	0.87	5.22
32	22	13640	10230	0.75	4.67	13090	9817	0.75	5.03	12518	9389	0.75	5.39

CA : Capacity (W) SHC : Sensible heat capacity (W)
P.C. : Power consumption (kW) SHF : Sensible heat factor

COOLING CAPACITY(7)
PLH-6AKS.UK PLH-6AKS$_1$.UK
PLH-6AKHS.UK PLH-6AKHS$_1$.UK

Indoor Intake air D.B.(°C)	Indoor Intake air W.B.(°C)	Outdoor intake air D.B.(°C)											
		20				25				30			
		CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.
20	16	14124	8616	0.61	4.06	13737	8380	0.61	4.24	13232	8072	0.61	4.56
20	18	15038	7369	0.49	4.15	14642	7175	0.49	4.32	14109	6913	0.49	4.67
22	16	14124	9745	0.69	4.06	13737	9479	0.69	4.24	13232	9130	0.69	4.56
22	18	15038	8572	0.57	4.15	14642	8346	0.57	4.32	14109	8042	0.57	4.67
22	20	15962	7183	0.45	4.22	15587	7014	0.45	4.41	15031	6764	0.45	4.77
24	16	14124	10875	0.77	4.06	13737	10578	0.77	4.24	13232	10189	0.77	4.56
24	18	15038	9775	0.65	4.15	14642	9517	0.65	4.32	14109	9171	0.65	4.67
24	20	15962	8460	0.53	4.22	15587	8261	0.53	4.41	15031	7966	0.53	4.77
24	22	16896	6928	0.41	4.30	16573	6795	0.41	4.50	15998	6559	0.41	4.87
26	16	14124	12005	0.85	4.06	13737	11677	0.85	4.24	13232	11247	0.85	4.56
26	18	15038	10978	0.73	4.15	14642	10689	0.73	4.32	14109	10299	0.73	4.67
26	20	15962	9737	0.61	4.22	15587	9508	0.61	4.41	15031	9169	0.61	4.77
26	22	16896	8279	0.49	4.30	16573	8121	0.49	4.50	15998	7839	0.49	4.87
27	16	14124	12570	0.89	4.06	13737	12226	0.89	4.24	13232	11777	0.89	4.56
27	18	15038	11579	0.77	4.15	14642	11274	0.77	4.32	14109	10864	0.77	4.67
27	20	15962	10375	0.65	4.22	15587	10132	0.65	4.41	15031	9770	0.65	4.77
27	22	16896	8955	0.53	4.30	16573	8783	0.53	4.50	15998	8479	0.53	4.87
28	16	14124	13135	0.93	4.06	13737	12776	0.93	4.24	13232	12306	0.93	4.56
28	18	15038	12181	0.81	4.15	14642	11860	0.81	4.32	14109	11428	0.81	4.67
28	20	15962	11014	0.69	4.22	15587	10755	0.69	4.41	15031	10371	0.69	4.77
28	22	16896	9631	0.57	4.30	16573	9446	0.57	4.50	15998	9119	0.57	4.87
30	16	14124	14124	1.00	4.06	13737	13737	1.00	4.24	13232	13232	1.00	4.56
30	18	15038	13384	0.89	4.15	14642	13031	0.89	4.32	14109	12557	0.89	4.67
30	20	15962	12291	0.77	4.22	15587	12002	0.77	4.41	15031	11574	0.77	4.77
30	22	16896	10983	0.65	4.30	16573	10772	0.65	4.50	15998	10399	0.65	4.87
32	16	14124	14124	1.00	4.06	13737	13737	1.00	4.24	13232	13232	1.00	4.56
32	18	15038	14587	0.97	4.15	14642	14203	0.97	4.32	14109	13686	0.97	4.67
32	20	15962	13568	0.85	4.22	15587	13249	0.85	4.41	15031	12776	0.85	4.77
32	22	16896	12334	0.73	4.30	16573	12098	0.73	4.50	15998	11679	0.73	4.87

CA : Capacity (W) SHC : Sensible heat capacity (W)
P.C. : Power consumption (kW) SHF : Sensible heat factor

COOLING CAPACITY(8)
PLH-6AKS.UK PLH-6AKS$_1$.UK
PLH-6AKHS.UK PLH-6AKHS$_1$.UK

Indoor Intake air D.B.(°C)	Indoor Intake air W.B.(°C)	Outdoor intake air D.B.(°C)											
		35				40				45			
		CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.	CA	SHC	SHF	P.C.
20	16	12696	7745	0.61	4.89	12129	7399	0.61	5.22	11530	7033	0.61	5.55
20	18	13549	6639	0.49	5.01	12963	6352	0.49	5.35	12351	6052	0.49	5.70
22	16	12696	8760	0.69	4.89	12129	8369	0.69	5.22	11530	7956	0.69	5.55
22	18	13549	7723	0.57	5.01	12963	7389	0.57	5.35	12351	7040	0.57	5.70
22	20	14451	6503	0.45	5.13	13847	6231	0.45	5.50	13219	5948	0.45	5.87
24	16	12696	9776	0.77	4.89	12129	9339	0.77	5.22	11530	8878	0.77	5.55
24	18	13549	8807	0.65	5.01	12963	8426	0.65	5.35	12351	8028	0.65	5.70
24	20	14451	7659	0.53	5.13	13847	7339	0.53	5.50	13219	7006	0.53	5.87
24	22	15401	6314	0.41	5.25	14779	6059	0.41	5.65	14133	5795	0.41	6.06
26	16	12696	10792	0.85	4.89	12129	10310	0.85	5.22	11530	9801	0.85	5.55
26	18	13549	9891	0.73	5.01	12963	9463	0.73	5.35	12351	9016	0.73	5.70
26	20	14451	8815	0.61	5.13	13847	8446	0.61	5.50	13219	8063	0.61	5.87
26	22	15401	7546	0.49	5.25	14779	7242	0.49	5.65	14133	6925	0.49	6.06
27	16	12696	11300	0.89	4.89	12129	10795	0.89	5.22	11530	10262	0.89	5.55
27	18	13549	10433	0.77	5.01	12963	9982	0.77	5.35	12351	9510	0.77	5.70
27	20	14451	9393	0.65	5.13	13847	9000	0.65	5.50	13219	8592	0.65	5.87
27	22	15401	8162	0.53	5.25	14779	7833	0.53	5.65	14133	7491	0.53	6.06
28	16	12696	11808	0.93	4.89	12129	11280	0.93	5.22	11530	10723	0.93	5.55
28	18	13549	10975	0.81	5.01	12963	10500	0.81	5.35	12351	10004	0.81	5.70
28	20	14451	9971	0.69	5.13	13847	9554	0.69	5.50	13219	9121	0.69	5.87
28	22	15401	8778	0.57	5.25	14779	8424	0.57	5.65	14133	8056	0.57	6.06
30	16	12696	12696	1.00	4.89	12129	12129	1.00	5.22	11530	11530	1.00	5.55
30	18	13549	12059	0.89	5.01	12963	11537	0.89	5.35	12351	10992	0.89	5.70
30	20	14451	11127	0.77	5.13	13847	10662	0.77	5.50	13219	10178	0.77	5.87
30	22	15401	10010	0.65	5.25	14779	9606	0.65	5.65	14133	9187	0.65	6.06
32	16	12696	12696	1.00	4.89	12129	12129	1.00	5.22	11530	11530	1.00	5.55
32	18	13549	13143	0.97	5.01	12963	12574	0.97	5.35	12351	11981	0.97	5.70
32	20	14451	12283	0.85	5.13	13847	11770	0.85	5.50	13219	11236	0.85	5.87
32	22	15401	11242	0.73	5.25	14779	10789	0.73	5.65	14133	10317	0.73	6.06

CA : Capacity (W) SHC : Sensible heat capacity (W)
P.C. : Power consumption (kW) SHF : Sensible heat factor

2) HEATING CAPACITY

Service Ref.	Indoor intake air D.B.(°C)	Outdoor intake air W.B.(°C)											
		-10		-5		0		5		10		15	
		CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.
PLH-3AK.UK PLH-3AK1.UK PLH-3AKH.UK PLH-3AKH1.UK	15	5752	2.12	6593	2.34	7514	2.58	8516	2.83	9595	3.10	10752	3.38
	20	5508	2.29	6334	2.53	7231	2.78	8198	3.05	9235	3.34	10340	3.64
	25	5293	2.43	6077	2.69	6944	2.97	7895	3.27	8928	3.58	10044	3.90
PLH-4AKS.UK PLH-4AKS1.UK PLH-4AKHS.UK PLH-4AKHS1.UK	15	7122	2.35	8163	2.60	9303	2.86	10543	3.14	11880	3.44	13312	3.75
	20	6820	2.54	7842	2.80	8953	3.09	10150	3.39	11434	3.70	12802	4.04
	25	6554	2.69	7524	2.99	8597	3.30	9774	3.63	11054	3.97	12435	4.33
PLH-5AKS.UK PLH-5AKS1.UK PLH-5AKHS.UK PLH-5AKHS1.UK	15	9587	2.35	10988	2.60	9303	2.86	10543	3.14	11880	3.44	13312	3.75
	20	9180	2.54	10557	2.80	8953	3.09	10150	3.39	11434	3.70	12802	4.04
	25	8822	2.69	10128	2.99	8597	3.30	9774	3.63	11054	3.97	12435	4.33
PLH-6AKS.UK PLH-6AKS1.UK PLH-6AKHS.UK PLH-6AKHS1.UK	15	11026	3.36	12636	3.71	14402	4.09	16322	4.48	18391	4.90	20608	5.35
	20	10557	3.62	12140	4.00	13859	4.40	15713	4.83	17700	5.28	19818	5.76
	25	10146	3.84	11647	4.26	13309	4.71	15131	5.17	17112	5.66	19250	6.18

Note C A :Capacity (W)
P.C.:Power consumption (kW)

Cooling capacity correction factors

Service Ref.	Refrigerant piping length(one way)									
	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m
PLH-3AK.UK PLH-3AK1.UK PLH-3AKH.UK PLH-3AKH1.UK	1.00	0.981	0.968	0.952	0.940	0.925	0.913	0.900	0.886	0.874
PLH-4AKS.UK PLH-4AKS1.UK PLH-4AKHS.UK PLH-4AKHS1.UK	1.00	0.989	0.980	0.970	0.960	0.950	0.940	0.930	0.920	0.910
PLH-5AKS.UK PLH-5AKS1.UK PLH-5AKHS.UK PLH-5AKHS1.UK	1.00	0.981	0.968	0.952	0.940	0.925	0.913	0.900	0.886	0.874
PLH-6AKS.UK PLH-6AKS1.UK PLH-6AKHS.UK PLH-6AKHS1.UK	1.00	0.975	0.955	0.935	0.918	0.900	0.884	0.869	0.855	0.840

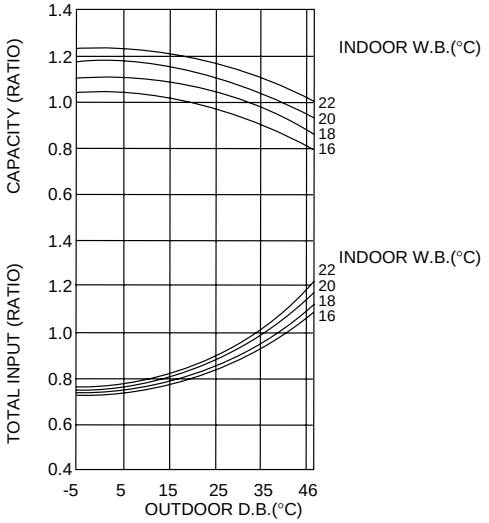
Heating capacity correction factors

Service Ref.	Refrigerant piping length(one way)									
	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m
PLH-3AK.UK PLH-3AK1.UK PLH-3AKH.UK PLH-3AKH1.UK	1.00	1.00	1.00	1.00	1.00	1.00	0.998	0.995	0.993	0.990
PLH-4AKS.UK PLH-4AKS1.UK PLH-4AKHS.UK PLH-4AKHS1.UK	1.00	1.00	1.00	1.00	1.00	1.00	0.998	0.995	0.993	0.990
PLH-5AKS.UK PLH-5AKS1.UK PLH-5AKHS.UK PLH-5AKHS1.UK	1.00	1.00	1.00	1.00	1.00	1.00	0.998	0.995	0.993	0.990
PLH-6AKS.UK PLH-6AKS1.UK PLH-6AKHS.UK PLH-6AKHS1.UK	1.00	1.00	1.00	1.00	1.00	1.00	0.998	0.995	0.993	0.990

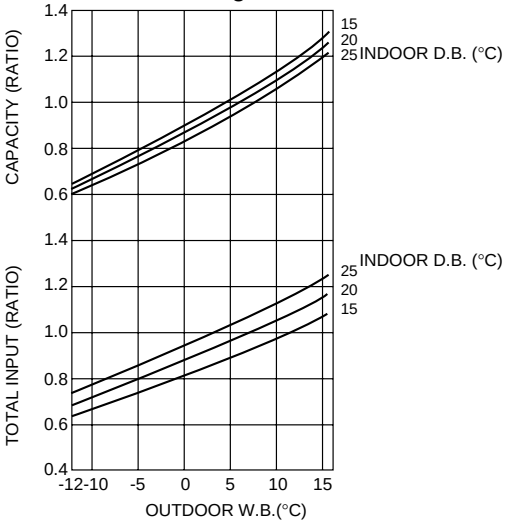
2. PERFORMANCE CURVE

PLH-3AK.UK PLH-4AKS.UK PLH-5AKS.UK PLH-6AKS.UK
PLH-3AK1.UK PLH-4AKS1.UK PLH-5AKS1.UK PLH-6AKS1.UK
PLH-3AKH.UK PLH-4AKHS.UK PLH-5AKHS.UK PLH-6AKHS.UK
PLH-3AKH1.UK PLH-4AKHS1.UK PLH-5AKHS1.UK PLH-6AKHS1.UK

Cooling



Heating



3. ELECTRICAL DATA

Indoor unit ⋯ 220V 50Hz 1phase
Outdoor unit⋯220V 50Hz 1phase / 380V 50Hz 3phase

Service Ref.		PLH-3AK.UK PLH-3AK1.UK PLH-3AKH.UK PLH-3AKH1.UK		PLH-4AKS.UK PLH-4AKS1.UK PLH-4AKHS.UK PLH-4AKHS1.UK		PLH-5AKS.UK PLH-5AKS1.UK PLH-5AKHS.UK PLH-5AKHS1.UK		PLH-6AKS.UK PLH-6AKS1.UK PLH-6AKHS.UK PLH-6AKHS1.UK	
Mode		Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat
Capacity (W)		7,500	8,200 [9,950]	9,500	10,200 [12,400]	12,200	13,600 [16,120]	13,800	15,700 [18,220]
Total Input (kW)		3.28	3.07 [4.83]	3.41	3.40 [5.58]	4.47	4.41 [6.93]	4.96	4.88 [7.40]
Indoor	Input (kW)	0.15	0.15 [1.91]	0.24	0.24 [2.42]	0.28	0.28 [2.80]	0.32	0.32 [2.84]
Indoor	Current (A)	0.78	0.78 [8.69]	1.25	1.25 [11.02]	1.43	1.43 [12.74]	1.64	1.64 [12.93]
Indoor	Starting current (A)	1.0	1.0 [8.9]	2.0	2.0 [11.8]	2.0	2.0 [13.3]	2.0	2.0 [13.3]
Outdoor	Input (kW)	3.13	2.92	3.35 / 3.17	3.35 / 3.16	4.19	4.13	4.64	4.56
Outdoor	Current (A)	14.67 / 5.23	13.68 / 4.88	16.90 / 5.29	16.90 / 5.28	7.32	7.21	8.10	7.96
Outdoor	Starting current (A)	54/34	54/34	79 / 37	79 / 37	60	60	68	68

Indoor unit ⋯ 230V 50Hz 1phase
Outdoor unit⋯230V 50Hz 1phase / 400V 50Hz 3phase

Service Ref.		PLH-3AK.UK PLH-3AK1.UK PLH-3AKH.UK PLH-3AKH1.UK		PLH-4AKS.UK PLH-4AKS1.UK PLH-4AKHS.UK PLH-4AKHS1.UK		PLH-5AKS.UK PLH-5AKS1.UK PLH-5AKHS.UK PLH-5AKHS1.UK		PLH-6AKS.UK PLH-6AKS1.UK PLH-6AKHS.UK PLH-6AKHS1.UK	
Mode		Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat
Capacity (W)		7,600	8,300 [10,200]	9,600	10,300 [12,700]	12,300	13,800 [16,560]	13,900	15,900 [18,660]
Total Input (kW)		3.30	3.09 [5.02]	3.44	3.43 [5.82]	4.49	4.44 [7.20]	5.02	4.90 [7.66]
Indoor	Input (kW)	0.16	0.16 [2.09]	0.25	0.25 [2.64]	0.29	0.29 [3.05]	0.33	0.33 [3.09]
Indoor	Current (A)	0.79	0.79 [9.09]	1.25	1.25 [11.49]	1.43	1.43 [13.28]	1.64	1.64 [13.46]
Indoor	Starting current (A)	1.0	1.0 [9.3]	2.0	2.0 [12.2]	2.0	2.0 [13.9]	2.0	2.0 [13.8]
Outdoor	Input (kW)	3.14	2.93	3.44 / 3.19	3.44 / 3.18	4.20	4.15	4.69	4.57
Outdoor	Current (A)	14.22 / 5.21	13.27 / 4.86	16.60 / 5.23	16.60 / 5.22	7.05	6.97	7.87	7.67
Outdoor	Starting current (A)	56 / 36	56 /36	79 / 39	79 / 39	63	63	71	71

Indoor unit ⋯240V 50Hz 1phase
Outdoor unit⋯240V 50Hz 1phase / 415V 50Hz 3phase

Service Ref.		PLH-3AK.UK PLH-3AK1.UK PLH-3AKH.UK PLH-3AKH1.UK		PLH-4AKS.UK PLH-4AKS1.UK PLH-4AKHS.UK PLH-4AKHS1.UK		PLH-5AKS.UK PLH-5AKS1.UK PLH-5AKHS.UK PLH-5AKHS1.UK		PLH-6AKS.UK PLH-6AKS1.UK PLH-6AKHS.UK PLH-6AKHS1.UK	
Mode		Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat
Capacity (W)		7,700	8,400 [10,500]	9,700	10,400 [13,000]	12,400	14,000 [17,000]	14,000	16,100 [19,100]
Total Input (kW)		3.32	3.11 [5.21]	3.46	3.45 [6.05]	4.51	4.46 [7.46]	5.07	4.92 [7.92]
Indoor	Input (kW)	0.17	0.17 [2.27]	0.26	0.26 [2.86]	0.30	0.30 [3.30]	0.34	0.34 [3.34]
Indoor	Current (A)	0.81	0.81 [9.47]	1.25	1.25 [11.93]	1.43	1.43 [13.77]	1.64	1.64 [13.94]
Indoor	Starting current (A)	1.0	1.0 [9.7]	2.0	2.0 [12.7]	2.0	2.0 [14.3]	2.0	2.0 [14.3]
Outdoor	Input (kW)	3.15	2.94	3.52 / 3.20	3.52 / 3.19	4.21	4.16	4.73	4.58
Outdoor	Current (A)	13.82 / 5.16	12.89 / 4.81	16.30 / 5.24	16.30 / 5.22	6.89	6.81	7.74	7.50
Outdoor	Starting current (A)	58 / 37	58 / 37	79 / 40	79 / 40	65	65	74	74

4. STANDARD OPERATION DATA

Service Ref.				PLH-3AK.UK PLH-3AK1.UK PLH-3AKH.UK PLH-3AKH1.UK		PLH-4AKS.UK PLH-4AKS1.UK PLH-4AKHS.UK PLH-4AKHS1.UK		PLH-5AKS.UK PLH-5AKS1.UK PLH-5AKHS.UK PLH-5AKHS1.UK		PLH-6AKS.UK PLH-6AKS1.UK PLH-6AKHS.UK PLH-6AKHS1.UK	
Mode				Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
Total	Capacity		W	7,700	8,400	9,700	10,400	12,400	14,000	14,000	16,100
	Input		kW	3.32	3.11	3.46	3.45	4.51	4.46	5.07	4.92
	Indoor unit Service Ref.			PLH-3AK.UK PLH-3AK1.UK PLH-3AKH.UK PLH-3AKH1.UK		PLH-4AKS.UK PLH-4AKS1.UK PLH-4AKHS.UK PLH-4AKHS1.UK		PLH-5AKS.UK PLH-5AKS1.UK PLH-5AKHS.UK PLH-5AKHS1.UK		PLH-6AKS.UK PLH-6AKS1.UK PLH-6AKHS.UK PLH-6AKHS1.UK	
Electrical circuit	Phase, Hz			1, 50		1, 50		1,50		1,50	
	Volts		V	240		240		240		240	
	Amperes		A	0.81	0.81	1.25	1.25	1.43	1.43	1.64	1.64
	Outdoor unit Service Ref.			PUH-3VKA2.UK PUH-3YKA2.UK		PUH-4VKSA.UK PUH-4YKSA2.UK		PUH-5YKSA2.UK		PUH-6YKSA2.UK	
	Phase,Hz			1/3,50		3,50		3,50		3,50	
	Volts		V	240/415		415		415		415	
	Amperes		A	13.82/5.16	12.89/4.81	16.30/5.24	16.30/5.22	6.89	6.81	7.74	7.50
Refrigerant circuit	Discharge pressure		MPa (kgf/cm²)	2.01 (20.5)	1.89 (19.3)	1.81 (18.5)	1.73 (17.6)	1.85 (18.9)	1.94 (19.8)	1.90 (19.4)	2.01 (20.5)
	Suction pressure		MPa (kgf/cm²)	0.51 (5.2)	0.42 (4.3)	0.49 (5.0)	0.36 (3.7)	0.44 (4.5)	0.36 (3.7)	0.42 (4.3)	0.37 (3.8)
	Discharge temperature		°C	84	77	80	75	76	81	74	76
	Condensing temperature		°C	41	—	41	—	46	—	39	—
	Suction temperature		°C	3.9	-2.0	10.5	1.0	4.0	1.1	4.6	0.3
	Ref. pipe length		m	5	5	5	5	5	5	5	5
Indoor side	Intake air temperature	D.B.	°C	27	20	27	20	27	20	27	20
		W.B.	°C	19	15	19	15	19	15	19	15
	Discharge air temperature	D.B.	°C	13.2	42.8	13.7	39.9	12.5	45.5	11.2	49.8
Outdoor side	Intake air temperature	D.B.	°C	35	7	35	7	35	7	35	7
		W.B.	°C	24	6	24	6	24	6	24	6
SHF				0.74	—	0.79	—	0.73	—	0.71	—
BF				0.12	—	0.08	—	0.10	—	0.06	—

The unit of pressure has been changed to Mpa based on the international SI system.
The conversion factor is : 1(Mpa)=10.2(kgf/cm²)

5. OUTLET AIR SPEED AND COVERAGE RANGE

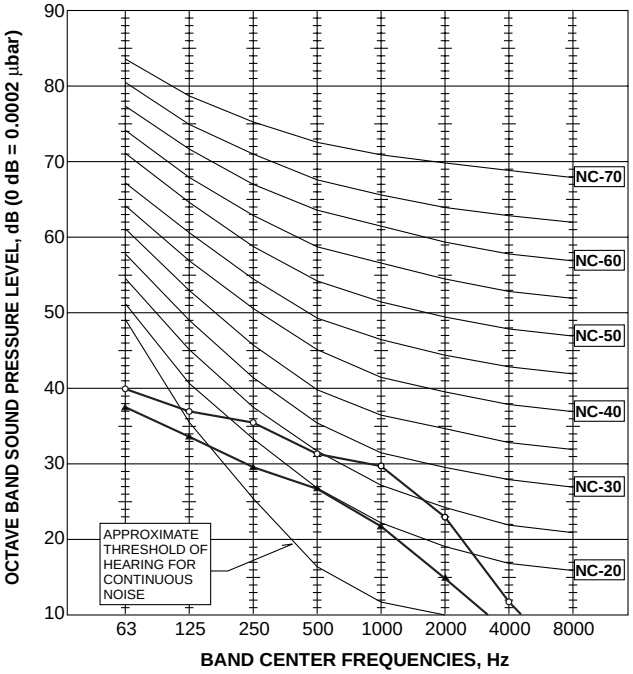
			PLH-3AK.UK PLH-3AK1.UK PLH-3AKH.UK PLH-3AKH1.UK	PLH-4AKS.UK PLH-4AKS1.UK PLH-4AKHS.UK PLH-4AKHS1.UK	PLH-5AKS.UK PLH-5AKS1.UK PLH-5AKHS.UK PLH-5AKHS1.UK	PLH-6AKS.UK PLH-6AKS1.UK PLH-6AKHS.UK PLH-6AKHS1.UK
Standard	Air flow	m³/min(CFM)	20(705)	28(990)	30(1,060)	30(1,060)
	Air speed	m/sec	4.0	4.9	5.2	6.6
	Coverage range	m	5.7	7.4	7.9	8.9

※The air coverage range is the value up to the position where the air speed is 0.25m/sec.
When air is blown out horizontally from the unit at the Hi 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.

6. NOISE CRITERION CURVES

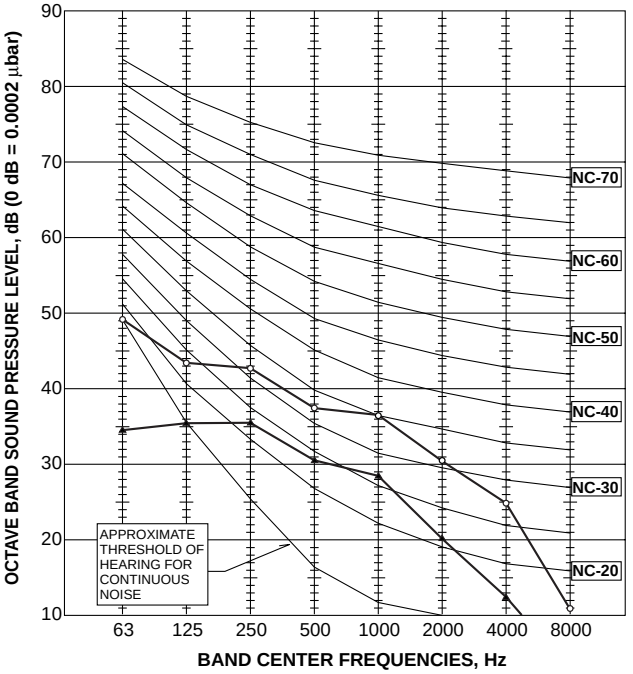
PLH-3AK.UK
PLH-3AK$_1$.UK
PLH-3AKH.UK
PLH-3AKH$_1$.UK

NOTCH	SPL(dB)	LINE
Hi	34	○——○
Lo	28	▲——▲



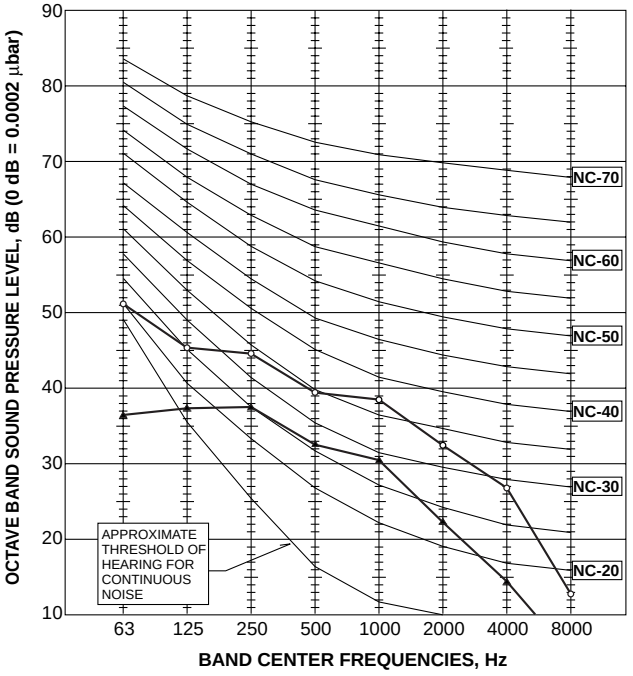
PLH-4AKS.UK
PLH-4AKS$_1$.UK
PLH-4AKHS.UK
PLH-4AKHS$_1$.UK

NOTCH	SPL(dB)	LINE
Hi	41	○——○
Lo	33	▲——▲



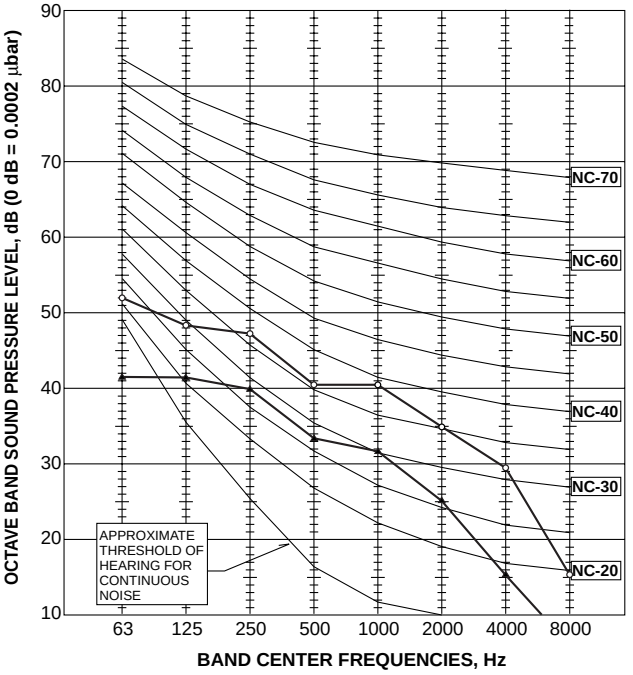
PLH-5AKS.UK
PLH-5AKS$_1$.UK
PLH-5AKHS.UK
PLH-5AKHS$_1$.UK

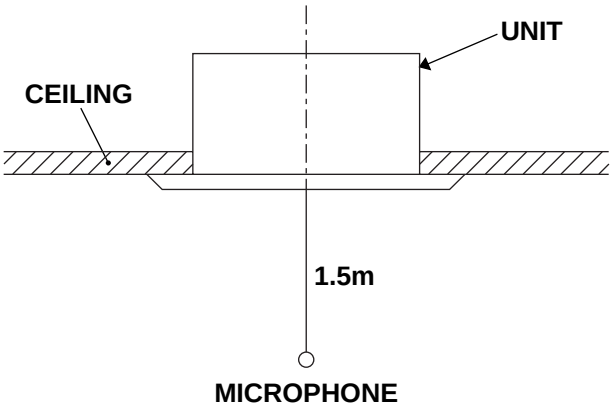
NOTCH	SPL(dB)	LINE
Hi	43	○——○
Lo	35	▲——▲



PLH-6AKS.UK
PLH-6AKS$_1$.UK
PLH-6AKHS.UK
PLH-6AKHS$_1$.UK

NOTCH	SPL(dB)	LINE
Hi	45	○——○
Lo	37	▲——▲





Ambient temperature 27℃

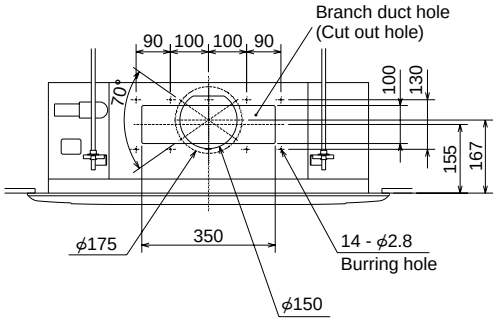
Test conditions are based on JIS Z8731

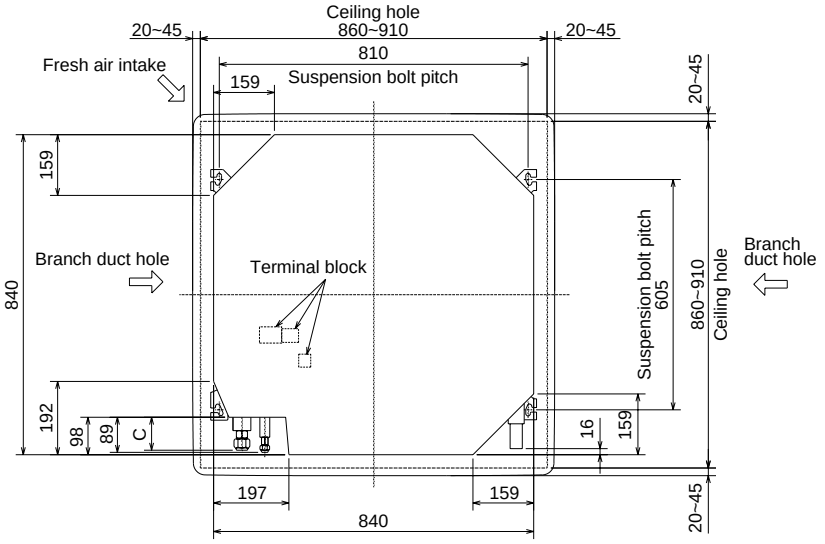
5 OUTLINES AND DIMENSIONS

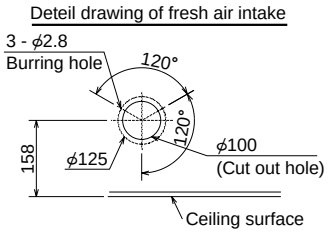
1. INDOOR UNIT

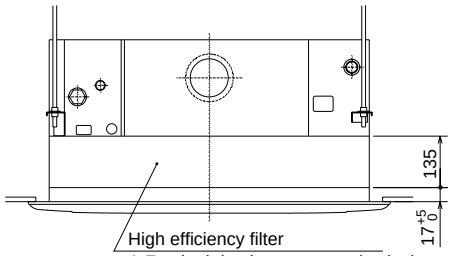
Unit : mm

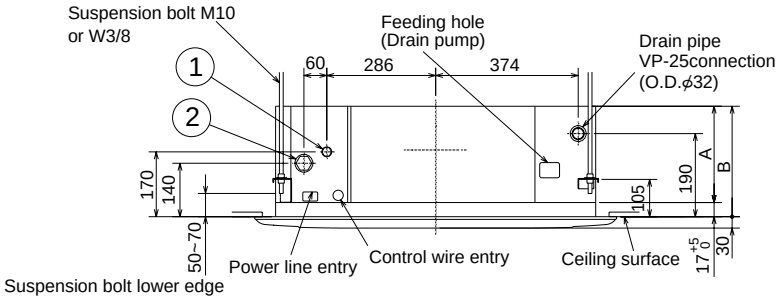
PLH-3AK.UK PLH-4AKS.UK PLH-5AKS.UK PLH-6AKS.UK
PLH-3AK$_1$.UK PLH-4AKS$_1$.UK PLH-5AKS$_1$.UK PLH-6AKS$_1$.UK
PLH-3AKH.UK PLH-4AKHS.UK PLH-5AKHS.UK PLH-6AKHS.UK
PLH-3AKH$_1$.UK PLH-4AKHS$_1$.UK PLH-5AKHS$_1$.UK PLH-6AKHS$_1$.UK

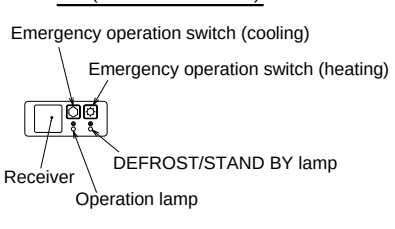


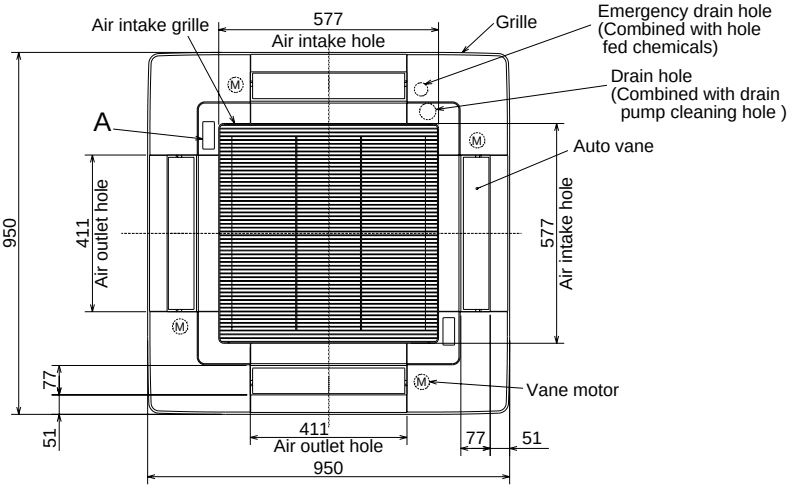








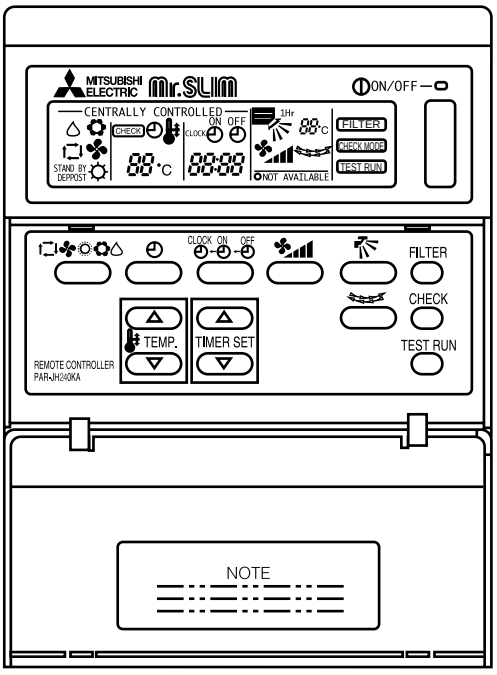


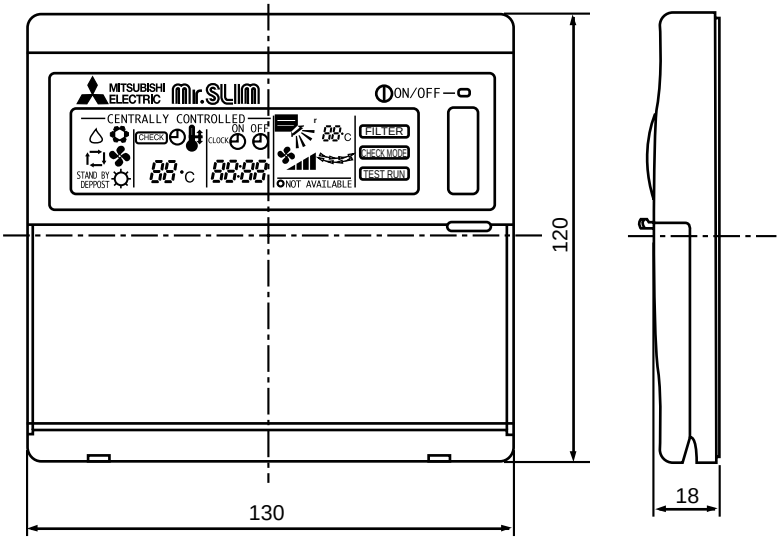


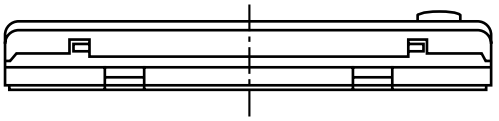
Models	①	②	A	B	C
PLH-3AK PLH-3AKH	Refrigerant pipe (9.52mm dia.) flared connection 3/8F	Refrigerant pipe (15.88mm dia.) flared connection 5/8F	241	258	80
PLH-4, 5, 6AKS PLH-4, 5, 6AKHS	Refrigerant pipe (9.52mm dia.) flared connection 3/8F	Refrigerant pipe (19.05mm dia.) flared connection 3/4F	281	298	84

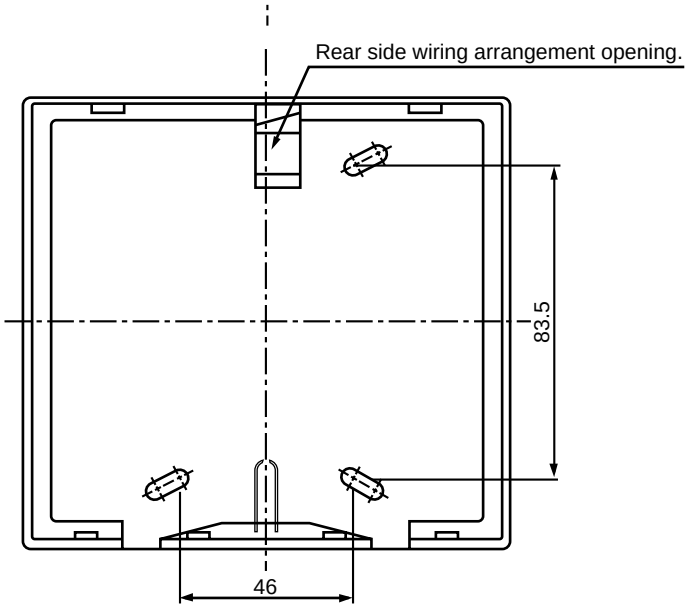
2. REMOTE CONTROLLER

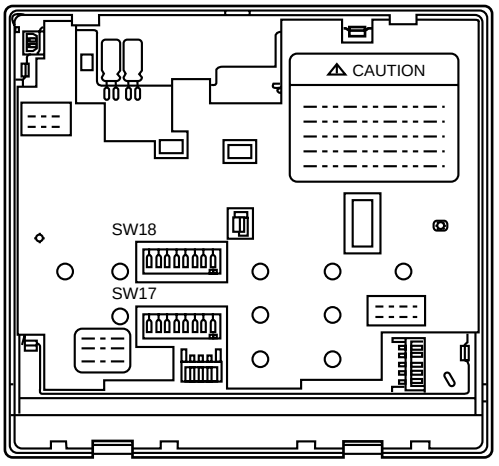
Unit : mm









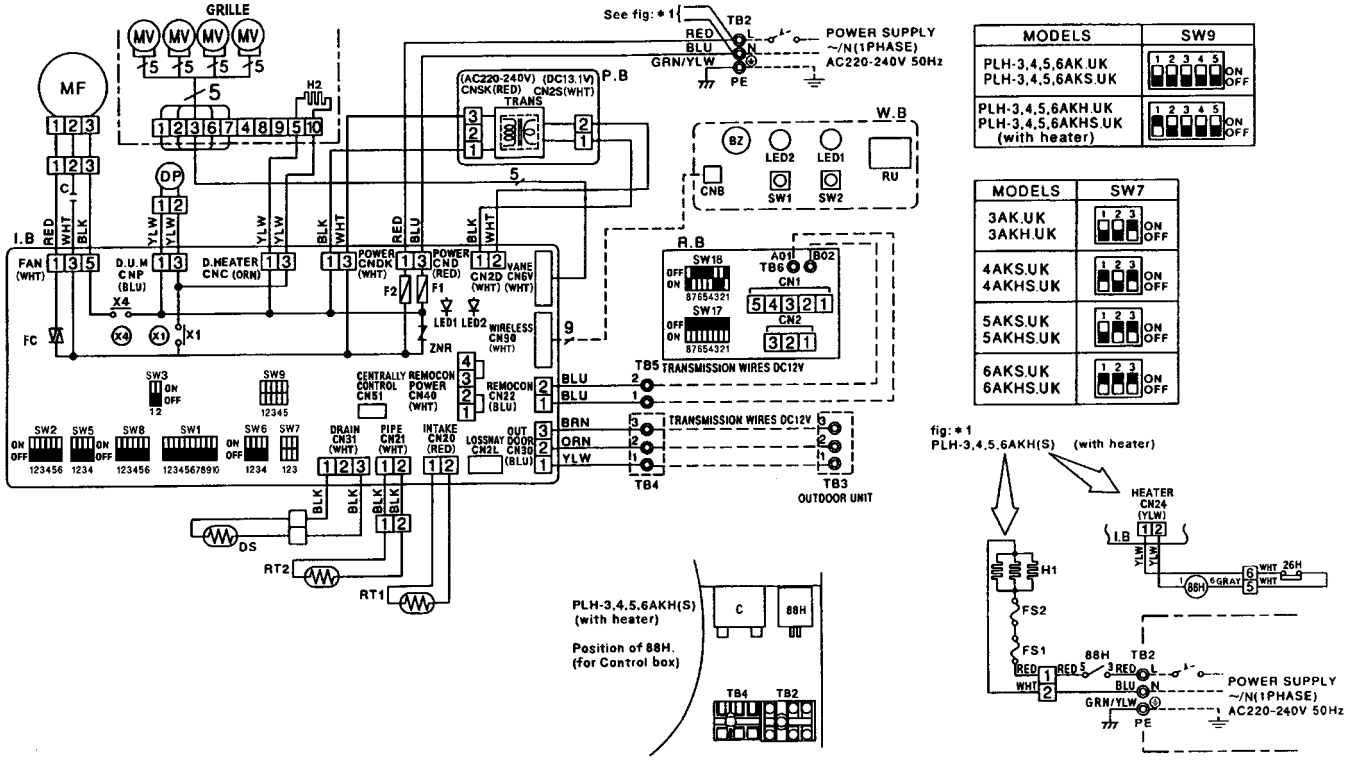


6 WIRING DIAGRAM

PLH-3AK.UK PLH-4AKS.UK PLH-5AKS.UK PLH-6AKS.UK
PLH-3AK$_1$.UK PLH-4AKS$_1$.UK PLH-5AKS$_1$.UK PLH-6AKS$_1$.UK
PLH-3AKH.UK PLH-4AKHS.UK PLH-5AKHS.UK PLH-6AKHS.UK
PLH-3AKH$_1$.UK PLH-4AKHS$_1$.UK PLH-5AKHS$_1$.UK PLH-6AKHS$_1$.UK

※ The part name of symbol “I.B” is “SPCB”.

	SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
	P.B	INDOOR POWER BOARD	C	CAPACITOR (FAN MOTOR)	W.B	WIRELESS REMOTE CONTROLLER BOARD
※	I.B	INDOOR CONTROLLER BOARD	MF	FAN MOTOR	RU	RECEIVING UNIT
	CN2L	CONNECTOR (LOSSNAY)	MV	VANE MOTOR	BZ	BUZZER
	CN51	CONNECTOR (CENTRALLY CONTROL)	DP	DRAIN-UP MACHINE	LED1	LED (RUN INDICATOR)
	FC	FAN PHASE CONTROL	DS	DRAIN SENSOR	LED2	LED (HOT ADJUST)
	SW1	SWITCH (FUNCTION SELECTOR)	H2	DEW PREVENTION HEATER	SW1	SWITCH (HEATING ON / OFF)
	SW2	SWITCH (ADDRESS SELECTOR)	TB2~TB6	TERMINAL BLOCK	SW2	SWITCH (COOLING ON / OFF)
	SW3	SWITCH (EMERGENCY OPERATION)	RT1	ROOM TEMPERATURE THERMISTOR	HEATER	
	SW5	SWITCH (MODEL SELECTOR)		(0℃ / 15kΩ , 25℃ / 5.4kΩ / DETECT)	FS1	THERMAL FUSE (72°C 16A)
	SW6	SWITCH (TWIN / TRIPLE SELECTOR)	RT2	PIPE TEMPERATURE THERMISTOR / LIQUID	FS2	THERMAL FUSE (104°C 16A)
	SW7	SWITCH (MODEL SELECTOR)		(0℃ / 15kΩ , 25℃ / 5.4kΩ / DETECT)	H1	HEATER
	SW8	SWITCH (OPTION)	R.B	REMOTE CONTROLLER BOARD	26H	HEATER THERMAL SWITCH
	SW9	SWITCH (MODEL SELECTOR)	CN1	CONNECTOR (PROGRAM TIMER)	88H	HEATER CONTACTOR
	X1	RELAY (DRAIN PUMP)	CN2	CONNECTOR (REMOTE SWITCH)		
	X4	RELAY (FAN MOTOR)	SW17	SWITCH (ADDRESS SELECTOR)		
	F1, F2	FUSE (6.3V / 250V)	SW18	SWITCH (FUNCTION SELECTOR)		
	ZNR	VARISTOR				
	LED1	LED (DC 12V POWER)				
	LED2	LED (DC 5V POWER)				

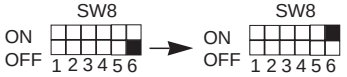


NOTES :

1. Since the indoor fan motor (MF) is connected with 230, 240V power. If 220V power is used, change the dip switch (SW8) on the indoor controller board as shown in fig : ※2.

   fig ※2

   Indoor fan motor (MF)for 220V.

2. Since the outdoor side electric wiring may change be sure to check the outdoor unit electric wiring for servicing.
3. Indoor and outdoor connecting wires are mode with polarities, make wiring matching terminal numbers.
4. Symbols used in wiring diagram above are,
   □□ : Connector, ◎ : Terminal block.
5. Emergency operation
   If remote controller or microcomputer fails but there is no other trouble , emergency operation is possible by setting dip switch (SW3<I.B>) on the indoor controller board.

[Check items]

(1)Make sure that no other trouble exist the outdoor unit. Trouble with the outdoor unit prevents emergency operation.
(If any trouble exists the outdoor unit error code “P8”will be displayed on the remote controller and the trouble position will be shown on the outdoor controller board LED. See electric wiring diagram of the outdoor unit for details.)
(2)Make sure that there is no trouble with the indoor fan.
Emergency operation will be continuous run with the power ON/OFF (ON/OFF with the remote controller is not possible).

[Emergency operation procedure]

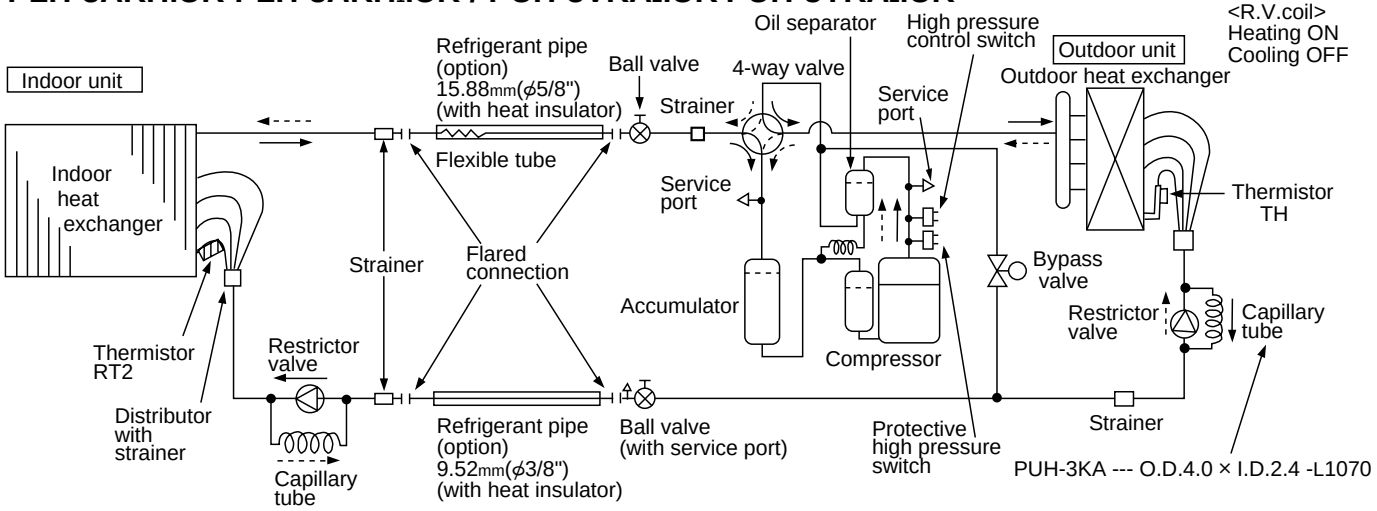
(1)Set the dip switch (SW3<I.B>) on the indoor controller board to 1 on and 2 off for cooling and 1 - 2 on for heating.
(2)Turn on are outdoor unit side circuit breaker, then indoor unit side circuit breaker.
(3)During emergency operation indoor fan runs at High speed but auto-vane does not work.
(4)Thermostat will not function. Cold air blows out for defrosting during heating thus do not operate defrosting for a long time.
(5)Emergency cooling should be limited to 10 hours maximum.
(The indoor unit heat exchanger may freeze).
(6)After every emergency operation, set all dip switches (SW3<I.B>) to OFF.
(7)Movement of the vanes does not work in emergency operation, therefore you have to slowly set them manually to the appropriate position.

NOTE: If the drain water lift up mechanism is identified to be defective with the microcomputer doctor during cooling, do not use emergency operation (it causes drain overflow)

7 REFRIGERANT SYSTEM DIAGRAM

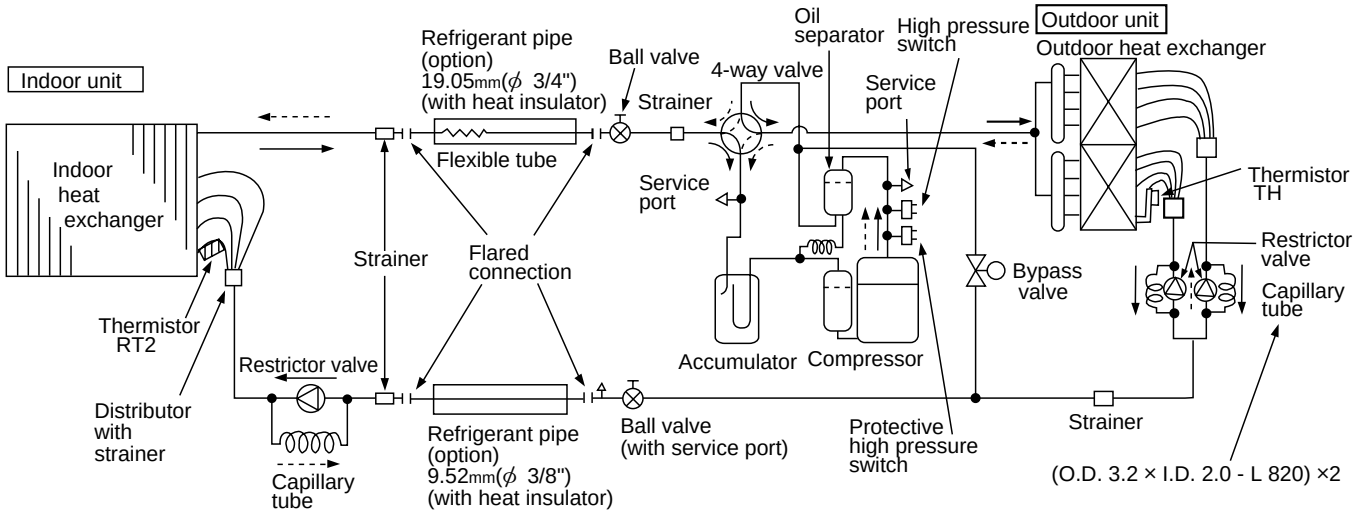
PLH-3AK.UK PLH-3AK$_1$.UK / PUH-3VKA$_2$.UK PUH-3YKA$_2$.UK
PLH-3AKH.UK PLH-3AKH$_1$.UK / PUH-3VKA$_2$.UK PUH-3YKA$_2$.UK

Unit : mm
→ Refrigerant flow in cooling
--► Refrigerant flow in heating
<R.V.coil>
Heating ON
Cooling OFF



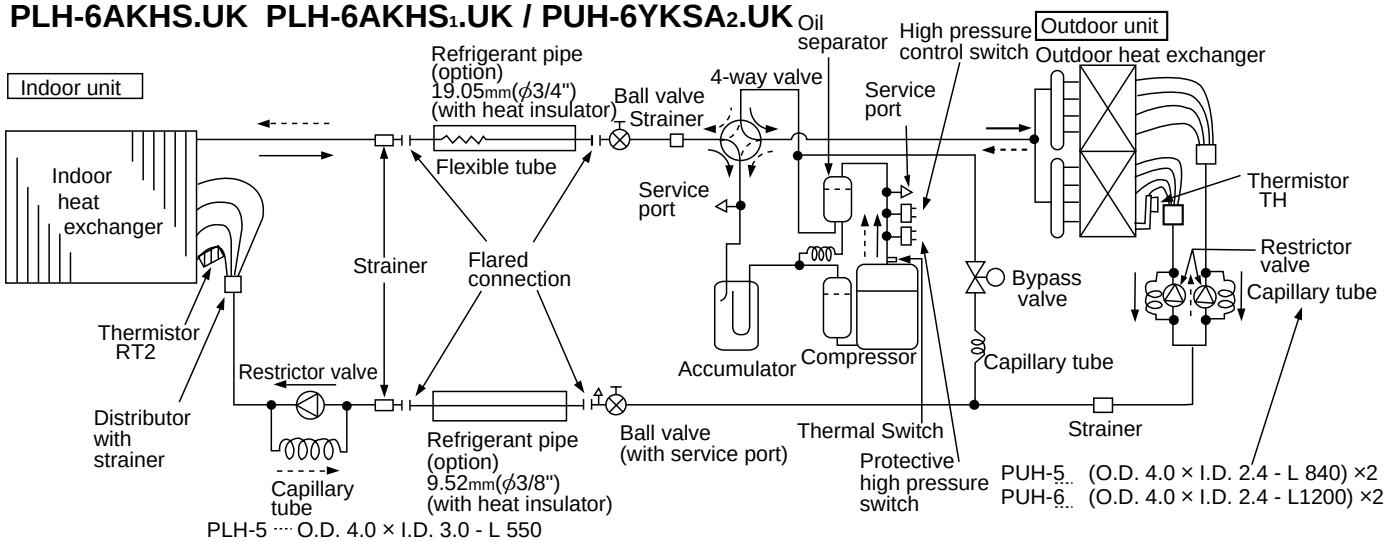
O.D.4.0 × I.D.2.0 - L200

PLH-4AKS.UK PLH-4AKS$_1$.UK / PUH-4VKSA.UK PUH-4YKSA$_2$.UK
PLH-4AKHS.UK PLH-4AKHS$_1$.UK / PUH-4VKSA.UK PUH-4YKSA$_2$.UK



O.D. 4.0 × I.D. 2.0 - L 250

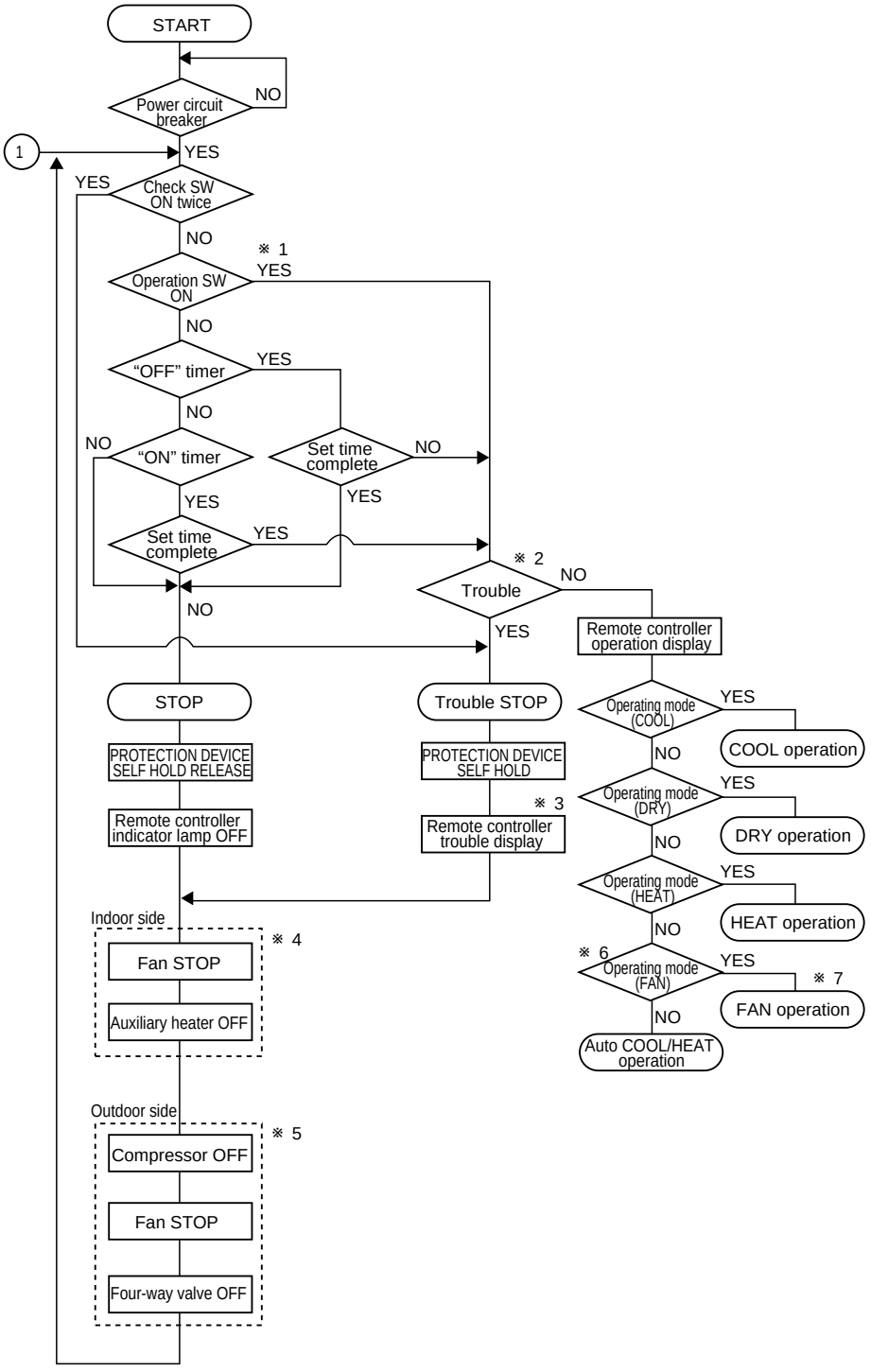
PLH-5AKS.UK PLH-5AKS$_1$.UK / PUH-5YKSA$_2$.UK
PLH-6AKS.UK PLH-6AKS$_1$.UK / PUH-6YKSA$_2$.UK
PLH-5AKHS.UK PLH-5AKHS$_1$.UK / PUH-5YKSA$_2$.UK
PLH-6AKHS.UK PLH-6AKHS$_1$.UK / PUH-6YKSA$_2$.UK



PLH-5 ···· O.D. 4.0 × I.D. 3.0 - L 550
PLH-6 ···· O.D. 4.0 × I.D. 3.0 - L 380

8 OPERATION FLOW-CHART

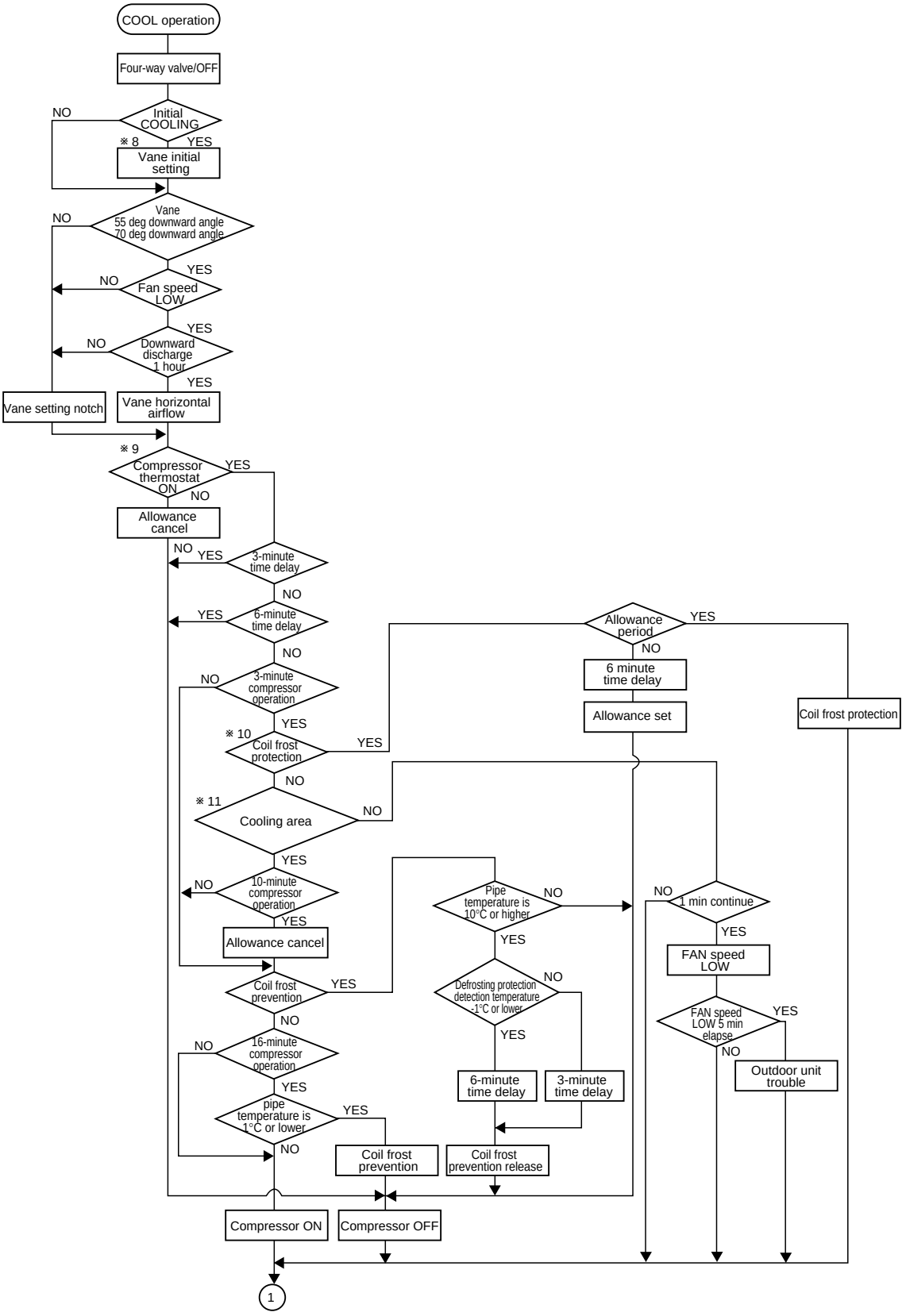
MAIN OPERATION



※1 In addition, the centralized control and remote control can be operated.
※2 The modes which indicate the sources of trouble are listed below.
- ● EO-Signal transmitting/receiving error
- ● P1-Room temperature thermistor malfunction
- ● P2-Pipe temperature thermistor malfunction
- ● P4-Drain sensor malfunction
- ● P5-Drain overflow
- ● P6-Coil frost/overheat protection
- ● P7-System error
- ● P8-Outdoor unit trouble

※3 The CHECK switch will show if an error has occurred in the past.
※4 Fan runs on low speed for 1 minute in order to remove overheat air.
※5 The 3-minute time-delay functions after compressor stops.
※6 FAN or AUTO mode is selected by the indoor dip switch setting.
※7 In FAN mode, fan speed and vane operation depend on the remote controller setting. (Compressor is OFF.)

COOLING OPERATION



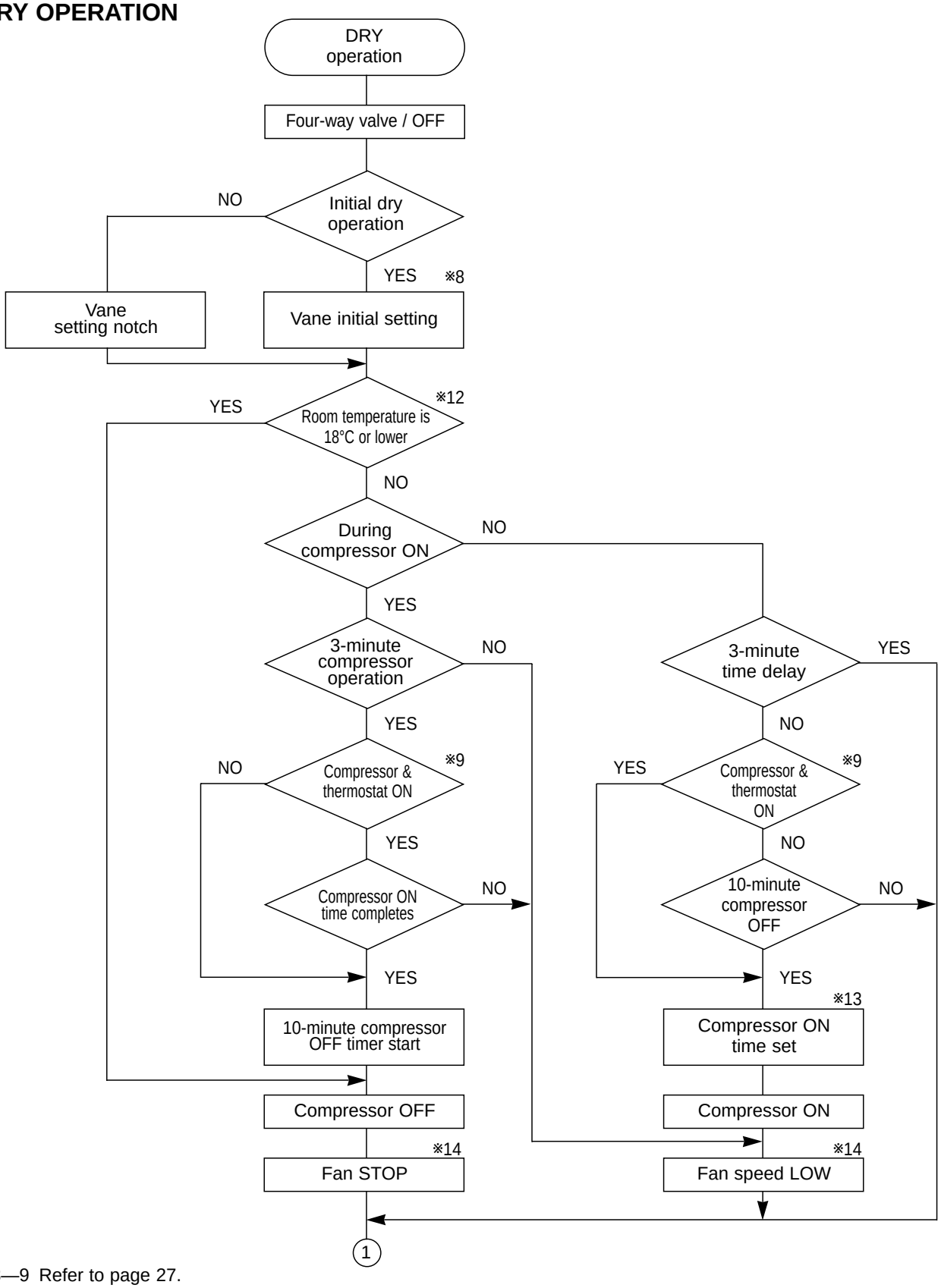
※8 When operation stops or changes to cooling or dry mode, the auto vane turns to a horizontal angle. If operation changes during auto vane SWING, the auto vane will continue to swing.

※9 When operating TEST RUN, the thermostat will be continuously ON.

※10 After 3 minute compressor operation, if the pipe temperature thermistor reads -15°C or below for 3 minutes, the compressor will stop for 6 minutes.

※11 Heating area : Pipe temperature is more than 5 degrees above the room temperature.
Cooling area : Pipe temperature is more than 5 degrees below the room temperature.
FAN area : Pipe temperature is within 5 degrees either way of the room temperature.

DRY OPERATION



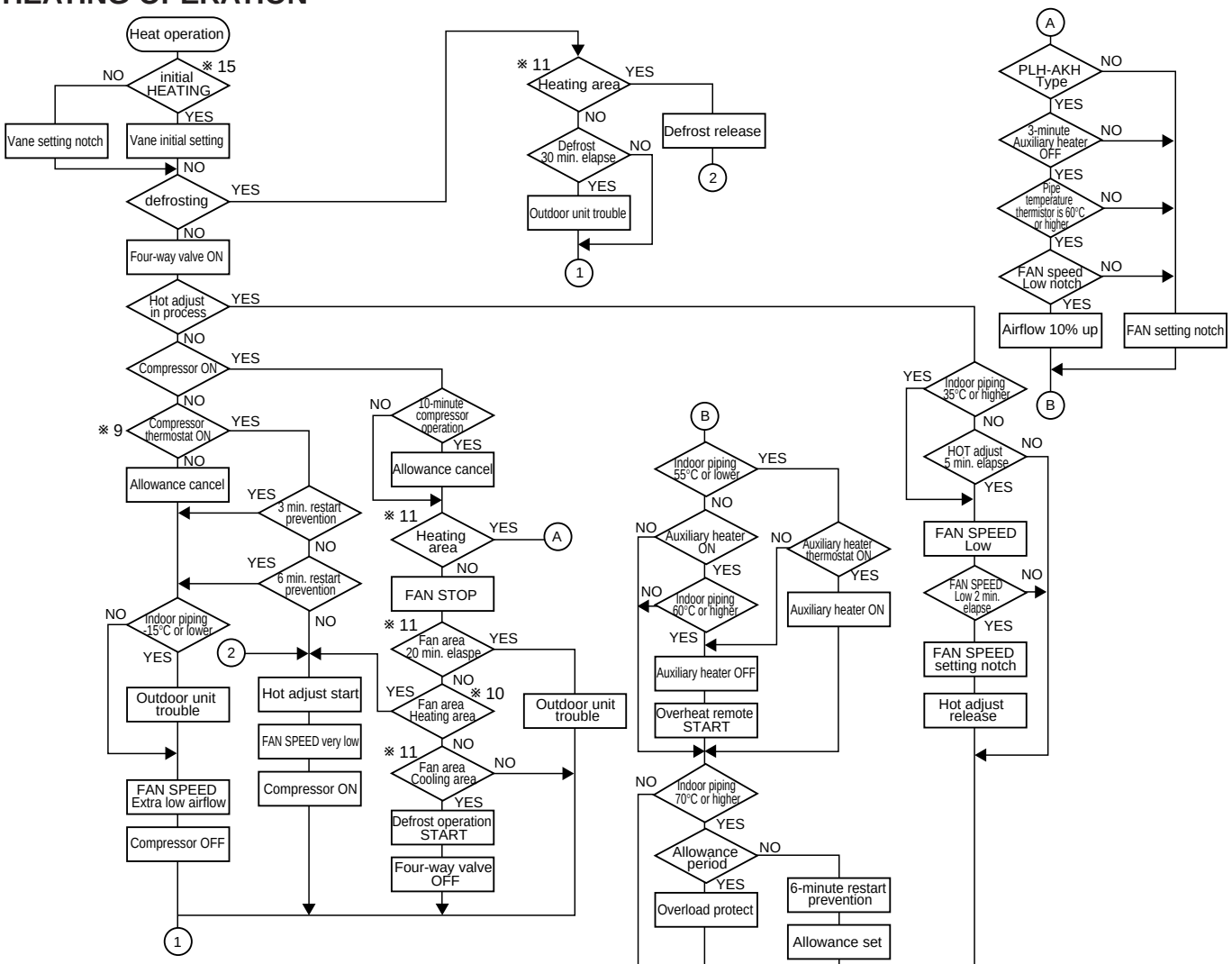
※8—9 Refer to page 27.

※12 When room temperature is 18°C or below, the compressor cannot operate.
When room temperature rises over 18°C, the compressor starts after a 3-minute time delay.

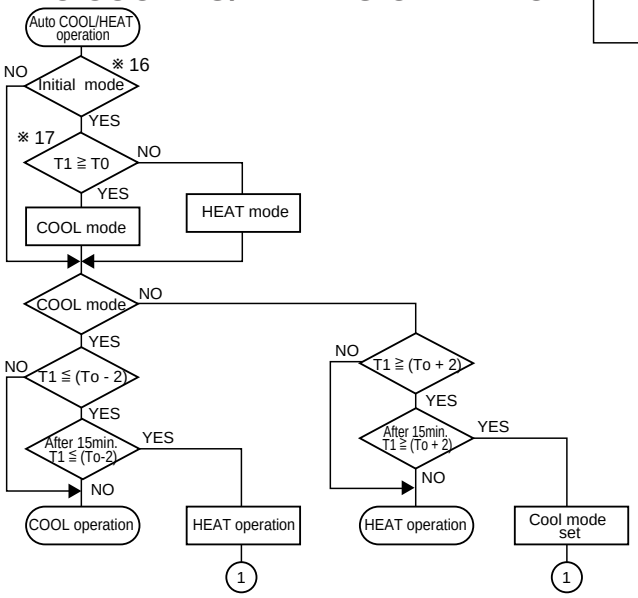
※13 Compressor ON time is decided by room temperature. Refer to page 36 to 37.

※14 In dry operation, compressor ON makes the fan speed LOW. Also, when the compressor OFF and the pipe temperature is 26°C or less, the fan stops, or when the compressor OFF and the pipe temperature is below 6°C, the fan speed changes to LOW mode.
It is not possible to set the fan speed with the remote controller

HEATING OPERATION



AUTOMATIC COOLING/HEATING OPERATION



※15 (i)Until Low airflow is set while in hot adjustment
(ii)While defrosting (FAN STOP)
(iii)When thermostat is OFF
In the case of(i), (ii) and (iii) above, airflow is horizontal regardless the VANE setting.
※16 When AUTO operation is started, COOL or HEAT mode is selected automatically.
※17 T1 : Room temperature.
To : Set temperature

9 MICROPROCESSOR CONTROL

1. OUTLINE OF MICROPROCESSOR CONTROL

INPUT to remote controller

- OFF-ON switching.
- COOL/DRY-AUTO-HEAT selector switching.
- Thermostat setting.
- TIMER mode selector-switching and Timer setting.
- HIGH-LOW fan speed switching.
- AUTO Vane selector (AIR DISCHARGE) switching.
- TEST RUN switching.
- CHECK mode switching. (Self diagnostic trouble shooting)

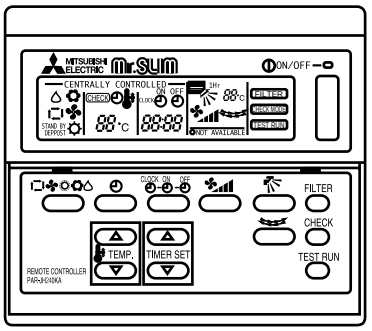
Remote controller board

- Processes and transmits orders.

OUTPUT to remote controller

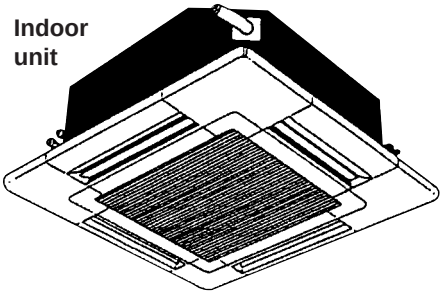
Remote controller

- LCD indicator



WIRED REMOTE CONTROLLER

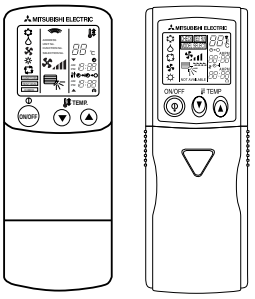
Indoor unit



Non-polar, two-wire cable maximum length 500 meters (WIRED only)

12VDC

Signal



WIRELESS REMOTE CONTROLLER

INPUT from indoor unit

- Room temperature thermistor (RT1)
- Pipe temperature thermistor (RT2)
- Drain sensor

Indoor controller board

- Receives orders from remote controller and temperature data from indoor unit.
- Processes orders and data.
- Controls indoor and outdoor operation.
- Self diagnostic function.

※ System control operation.
※ Emergency operation.
※ Set by dip switch on indoor controller board.

- Transmits the power to remote controller.

1 2 3

OUTPUT to indoor unit

- Auto vane's angle setting.
- Booster heater ON-OFF Control.
- Drain pump : ON-OFF.
- Emergency stop.

Polar three-wire cable

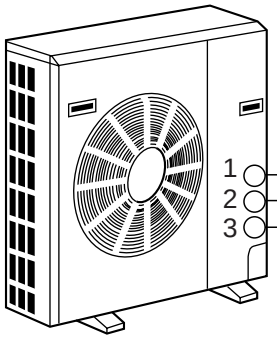
OUTPUT to outdoor unit

- Compressor and outdoor fan : ON-OFF.
- Operation mode change :COOL-HEAT.

Independent Control of Outdoor Unit

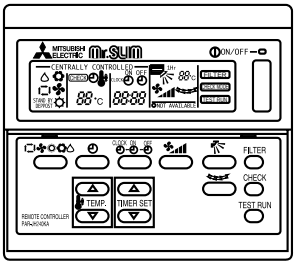
- Compressor protection device working
- Defrosting START-STOP
- Fan speed control.
- Crankcase heater control ON-OFF.
- Self diagnostic function

Outdoor unit

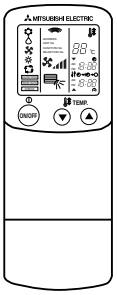


2. INDOOR UNIT CONTROL

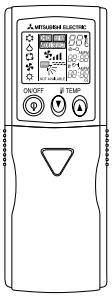
2-1 COOL operation



WIRED REMOTE CONTROLLER



PLH-3AK.UK
PLH-3AKH.UK
PLH-4, 5, 6AKS.UK
PLH-4, 5, 6AKHS.UK



PLH-3AK$_1$.UK
PLH-3AKH$_1$.UK
PLH-4, 5, 6AKS$_1$.UK
PLH-4, 5, 6AKHS$_1$.UK

WIRELESS REMOTE CONTROLLER

<How to operate>

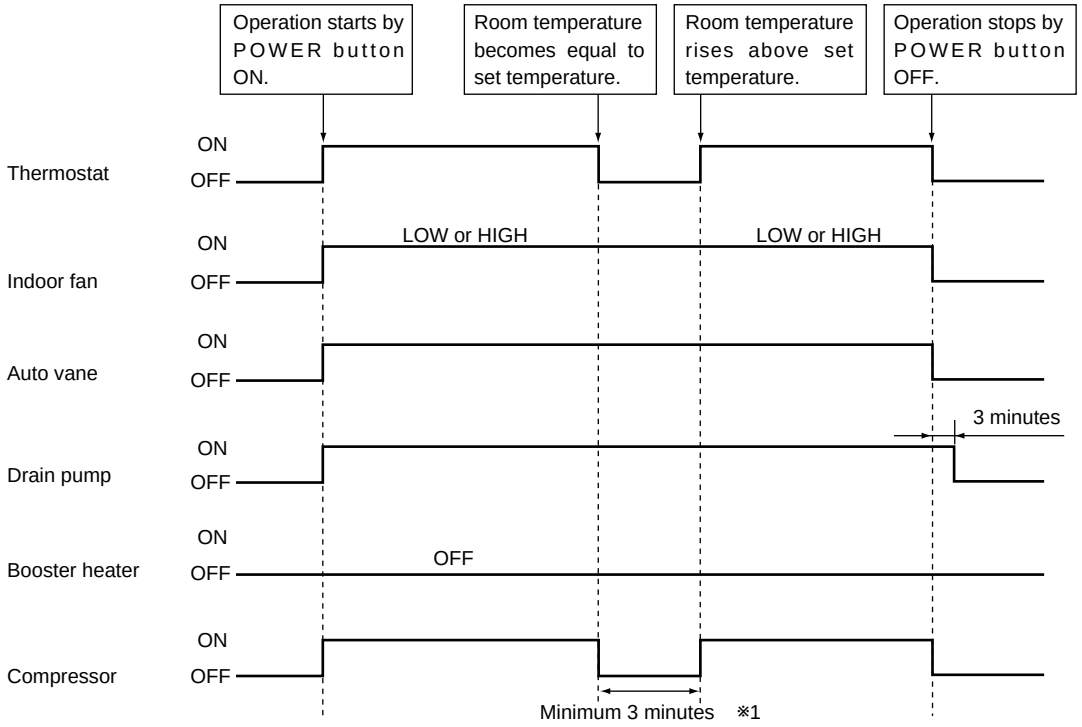
① Press POWER ON/OFF button.

② Press the button to display

③ Press the TEMP. button to set the desired temperature.

NOTE: Set temperature changes 1°C when the △ or ▽ button is pressed one time.
Cooling 19 to 30°C

<COOL operation time chart>



※1 Even if the room temperature rise above the set temperature during this period, the compressor will not start until this period has ended.

(1) Compressor control

① 3-minute time delay
To prevent overload, the compressor will not start within 3 minutes after stop.

② The compressor runs when room temperature is higher than set temperature.
The compressor stops when room temperature is equal to or lower than the set temperature.
The compressor maintains the previous state when the discharge temperature minus the set temperature is 0°C or more, or lower than 1°C.

③ The compressor stops in check mode or during protective functions.

④ Coil frost prevention
To prevent indoor coil frost, the compressor will stop when the pipe thermistor (RT2) reads 1°C or below after the compressor has been continuously operated for at least 16 minutes or more. When the pipe temperature rises to 10°C or above, the compressor will start in a 3-minute(※2) time delay.
※2 When the pipe temperature is -1°C or less, the compressor starts in 6 minutes.

NOTE : By turning OFF the dip switch SW1-3 on indoor controller board, the start temperature of coil frost prevention changes from 1°C to -3°C.

⑤ Coil frost protection

When the pipe temperature becomes -15°C or below,coil frost protection will proceed as follows.

<Start condition>

After the compressor has been continuously operated for 3 minutes or more,and the pipe temperature has been -15°C or below for 3 minutes,the coil frost protection will start.

<Coil frost protection>

Compressor stops for 6 minutes, and then restarts.

If the start condition is satisfied again during the first 10 minutes of compressor operation, both the indoor and outdoor units stop, displaying a check code of “P6” on the remote controller.

<Termination conditions>

Coil frost protection is released when the start condition is not satisfied again during the allowance, or when the COOL mode stops or changes to another mode.

(2) Indoor fan control

Indoor fan speed LOW/HIGH depends on the remote controller setting.

However, if an outdoor unit abnormality is detected, the indoor fan speed will be LOW, regardless of the remote controller setting.

(i) Fan speed LOW/HIGH depends on the remote controller setting regardless of the thermostat ON/OFF.

(ii) Fan speed will remain on LOW if an abnormality in outdoor unit is detected. (5 minutes)

NOTE : Fan stops immediately if the unit stops or the check mode is started.

(3) Auto vane control

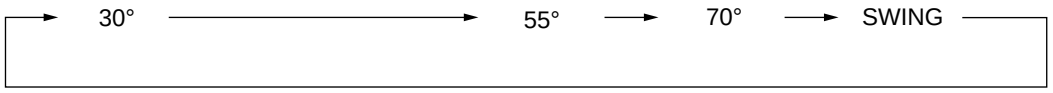
Auto vane position is set to 30 degrees airflow at the start-up of COOL operation.

(a) Vane position set mode & swing mode.

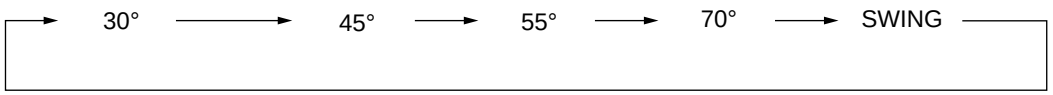
(i) Every time 🌬 button is pressed, setting will be changed .

(ii) Airflow direction can be changed with 🌬 button.

① Fan speed : LOW

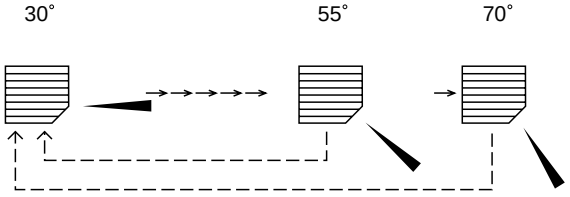


② Fan speed : HIGH

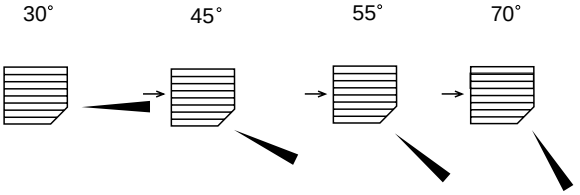


<VANE POSITION>

① Fan speed : LOW



② Fan speed : HIGH



AUTO RETURN

When 55 degrees or 70 degrees airflow is selected with the LOW fan speed in COOL operation, “1Hr” will appear right side of the air direction display. One hour later, the airflow direction returns to 30 degrees automatically and “1Hr” will disappear. If the airflow direction is set to 30 degrees during “1Hr” indication, the time counting for AUTO RETURN is cancelled.

(4) Detecting abnormalities in the outdoor unit

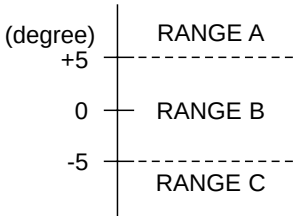
After the compressor has been continuously operated for 3 minutes, if the difference between the pipe temperature and room temperature is out of RANGE C for 1 minute, the indoor fan speed will turn to LOW. Five minutes later, if the difference is still out of RANGE C,the outdoor unit is functioning abnormally. Thus, the compressor stops and check code “P8” appears on remote controller.

RANGE A : Pipe temperature is more than 5 degrees above the room temperature.

RANGE B : Pipe temperature is within 5 degrees either way of the room temperature.

RANGE C : Pipe temperature is more than 5 degrees below the room temperature.

Pipe temperature
minus room temperature



(5) Drain pump control

The drain pump works in COOL or DRY operation. When operation stops or changes to HEAT mode, the drain pump continues to operate for 3 more minutes. The drain pump does not work in check mode.

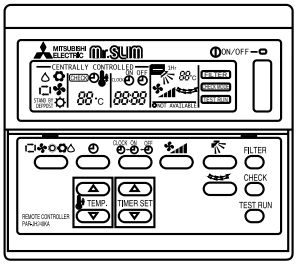
<Drain sensor>

When both the drain pump and unit are operating, the drain sensor detects the temperature. This temperature tells whether the drain water level is above or under the drain sensor. If the drain water level rises above the drain sensor due to a drain pump malfunction, the unit will stop operating in order to prevent drain from overflowing. The check code “P5” on the remote controller will display this occurrence.

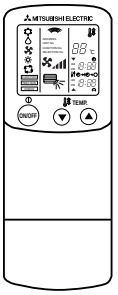
(6) Dew prevention heater

To prevent dew from accumulating on the grille, the dew prevention heater is continuously ON during COOL operation. It is independent of the thermostat ON/OFF.

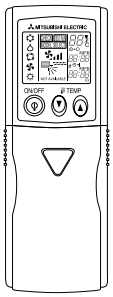
2-2 DRY operation



WIRED REMOTE CONTROLLER



PLH-3AK.UK
PLH-3AKH.UK
PLH-4, 5, 6AKS.UK
PLH-4, 5, 6AKHS.UK



PLH-3AK$_1$.UK
PLH-3AKH$_1$.UK
PLH-4, 5, 6AKS$_1$.UK
PLH-4, 5, 6AKHS$_1$.UK

WIRELESS REMOTE CONTROLLER

<How to operate>

① Press POWER ON/OFF button.

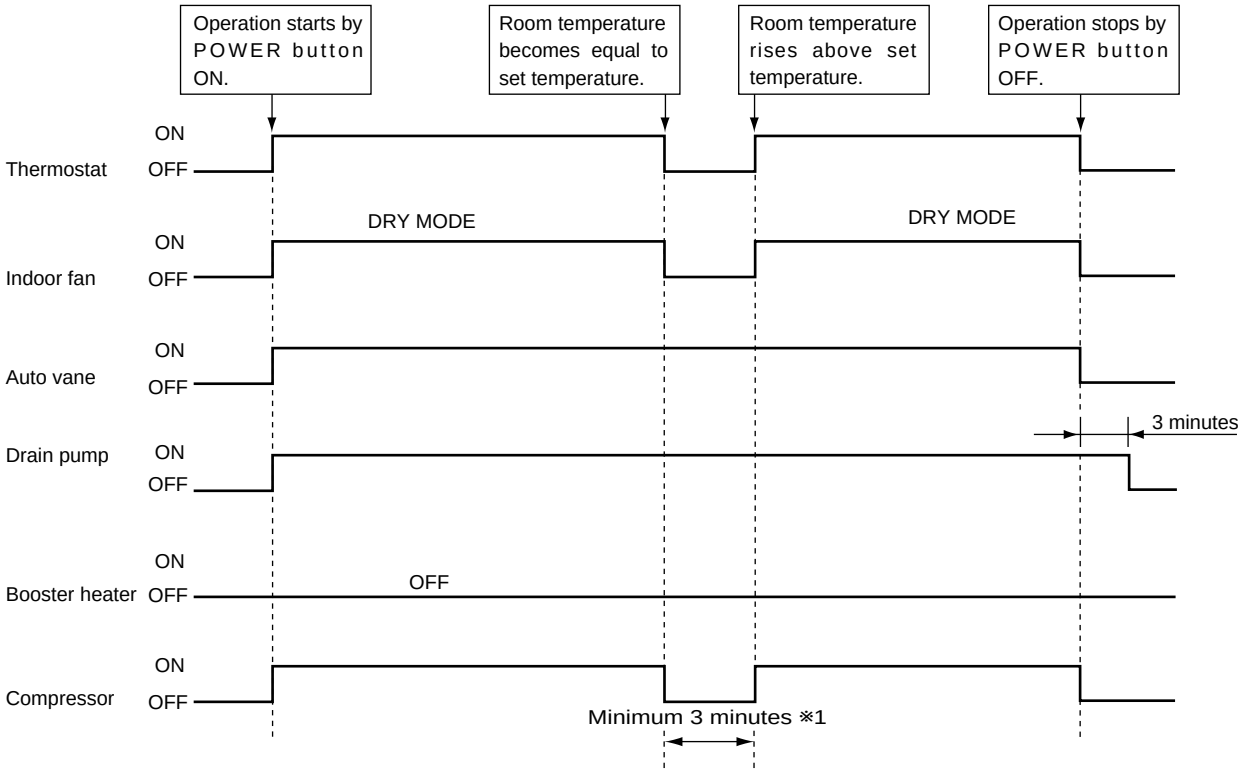
② Press the button to display "△"

③ Press the TEMP. button to set the desired temperature.

NOTE: The set temperature changes 1°C when the △ or ▽ button is pressed one time.

Dry 19 to 30°C

<DRY operation time chart>



※1 Even if the room temperature rises above the set temperature during this period, the compressor will not start until this period has ended.

(1) Compressor control

①3-minute time delay

To prevent overload, the compressor will not start within 3 minutes after stop.

②The compressor stops in check mode or during protective functions.

③The compressor will not start when the room temperature is below 18°C.
The compressor starts intermittent operation when the power is turned ON with room temperature above 18°C. The compressor ON/OFF time depends on the thermostat ON/OFF and the following room temperatures.After 3-minute compressor operation,

- If the room temperature thermistor reads above 28°C with thermostat ON, the compressor will operate for 6 more minutes and then stop for 3 minutes.
- If the room temperature thermistor reads 26°C~28°C with thermostat ON, the compressor will operate for 4 more minutes and then stop for 3 minutes.
- If the room temperature thermistor reads 24°C~26°C with thermostat ON, the compressor will operate for 2 more minutes and then stop for 3 minutes.
- If the room temperature thermistor reads below 24°C with thermostat ON, the compressor will stop for 3 minutes.
- If the thermostat is OFF regardless of room temperature, the compressor will stop for 10 minutes.

④Coil frost protection
Coil frost protection in DRY operation is the same as in COOL operation.
⑤Coil frost prevention
Coil frost prevention does not operate in DRY operation.

(2) Indoor fan control

The indoor fan runs on LOW speed during compressor operation. The fan speed cannot be changed with the remote controller. Also, the fan runs on LOW speed when the pipe temperature is 6°C or more, or the compressor is OFF and the pipe temperature is below 6°C.

(a)During compressor OFF

- When the pipe temperature is 6°C or above, the indoor fan will stop.
- When the pipe temperature is below 6°C, the indoor fan will run on LOW speed.

(b)During compressor ON

- The indoor fan runs on LOW speed.

<Dry mode>

The fan notch is controlled by the pipe temperature every 30 seconds.

Fan control in DRY operation.

	Pipe temp.	Fan
Compressor OFF	6°C or more	STOP
	Below 6°C	LOW
Compressor ON	All	LOW

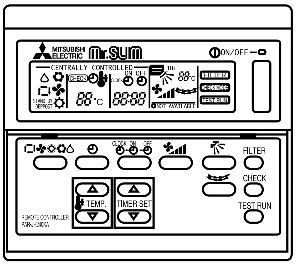
(3) Auto vane & drain pump controls

Same as in COOL operation

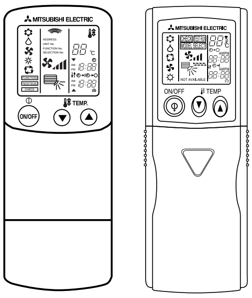
(4) Detecting abnormalities in the outdoor unit

An abnormality in the outdoor unit can not be detected in DRY operation.

2-3 HEAT operation



WIRED REMOTE CONTROLLER



PLH-3AK.UK	PLH-3AK1.UK
PLH-3AKH.UK	PLH-3AKH1.UK
PLH-4, 5, 6AKS.UK	PLH-4, 5, 6AKS1.UK
PLH-4, 5, 6AKHS.UK	PLH-4, 5, 6AKHS1.UK

WIRELESS REMOTE CONTROLLER

<How to operate>

① Press POWER ON/OFF button.

② Press the ⟲✤☼✿△ button to display "☼"

③ Press the 🌡 TEMP. button to set the desired temperature.

NOTE: The set temperature changes 1°C when the (▵) or (▿) button is pressed one time.
Heating 17 to 28°C

<Display in HEAT operation>

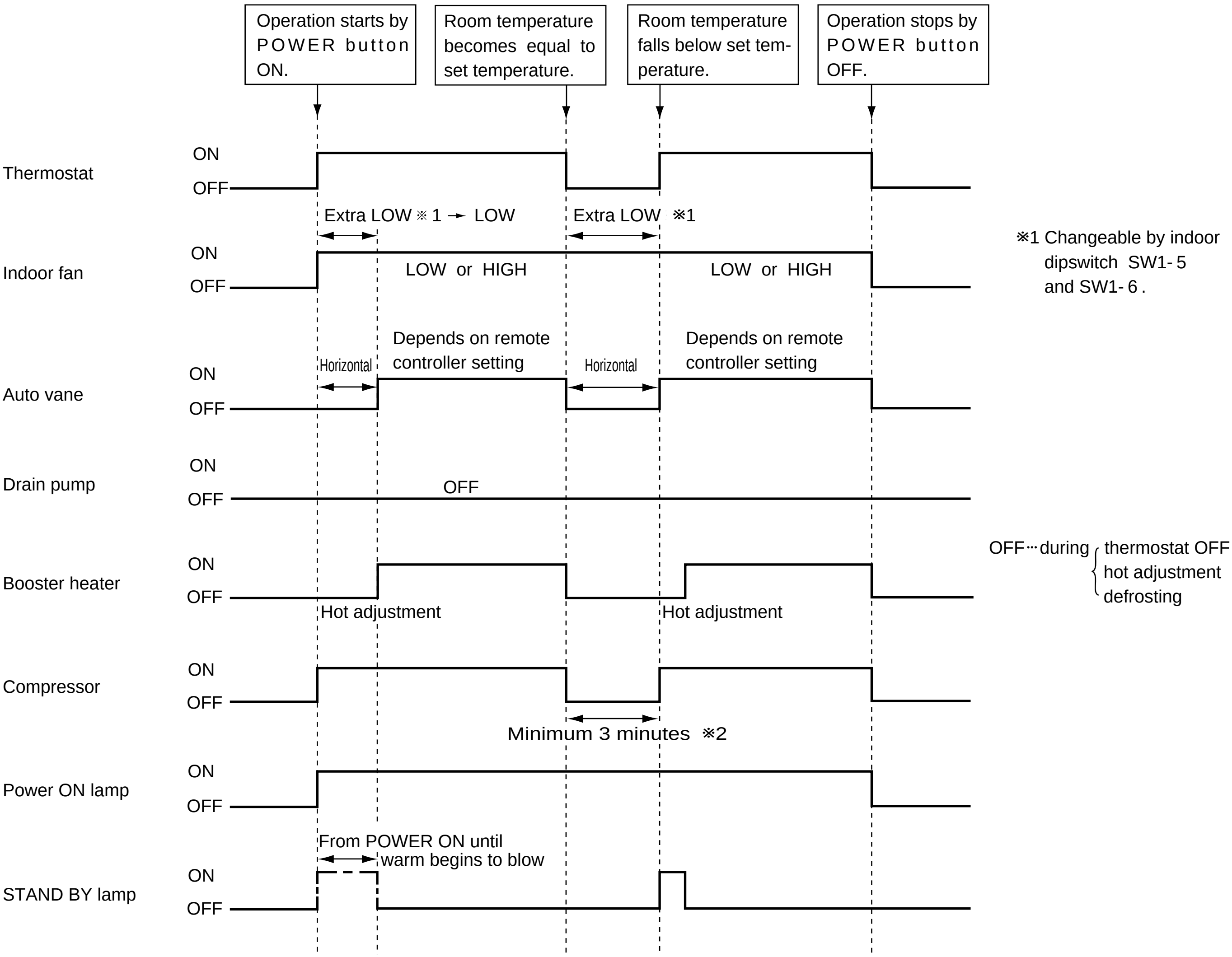
[DEFROST]

The [DEFROST] symbol is only displayed during the defrost operation.

[STANDBY]

The [STANDBY] symbol is only displayed from the time the heating operation starts until the heated air begins to blow.

<HEAT operation time chart>



※2 Even if the room temperature falls below the set temperature during this period, the compressor will not start until this period has ended.

(1) Compressor control

①3-minute time delay

To prevent overload, the compressor will not start within 3 minutes after stop.

②The compressor runs when the room temperature is lower than the set temperature.

The compressor stops when the room temperature is equal to or higher than the set temperature.

③The compressor stops in check mode or during protective functions.

④Overheat protection

<Start condition>

When the pipe temperature thermistor reads 70°C or above, the overheat protection will start.

<Overheat protection>

The compressor stops for 6 minutes, and then restarts.

If the start condition is satisfied again within 10 minutes of compressor operation, both the indoor and outdoor units stop, displaying a check code of “P6” on the remote controller.

<Termination conditions>

Overheat protection is terminated when the start condition is not satisfied again during the allowance (10-minute compressor operation), when operation mode changes to other mode, or when thermostat turns OFF.

(2) Indoor fan control

(a) Normal control

(i)The indoor fan runs on EXTRA-LOW speed during the thermostat OFF.

EXTRA-LOW speed can be changed to LOW or HIGH speed by setting the dip switch SW1-5 and SW1-6.

If the pipe temperature becomes more than 5 degrees below the room temperature during the thermostat OFF, the indoor fan will stop. After, when the pipe temperature becomes within 5 degrees of room temperature, the indoor fan will run on EXTRA-LOW speed.

(ii)Hot adjustment

Hot adjustment is a warm-up for HEAT operation

<Start conditions>

The hot adjustment works under any of the following conditions.

- HEAT operation starts.
- Defrosting ends.
- Thermostat turns ON.

[Hot adjustment]

Initially, the indoor fan runs on EXTRA-LOW speed. When 5 minutes have passed or the pipe temperature exceeds 35°C, the fan speed changes to LOW. 2 minutes later, the hot adjustment ends. Then, the fan speed depends on the remote controller setting.

(iii)The indoor fan stops when the pipe temperature is within 5 degrees either way of room temperature.

(iv)To eliminate the remaining heat, the indoor fan runs for the first 1 minute after the booster heater is turned OFF.

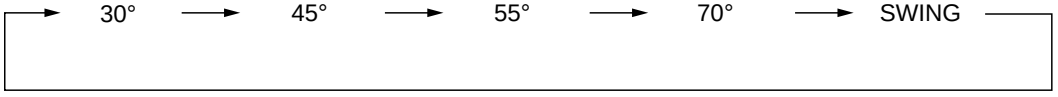
(3) Auto vane control

Auto vane position is set to 70 degrees airflow at the start-up of HEAT operation.

(a) Vane position set mode & swing mode.

(i) Every time 🎛 button is pressed, setting will be changed .

(ii) Airflow direction can be changed with 🎛 button.



NOTE : In the following cases, the discharge direction is 30° regardless of the remote controller setting.

① During the hot adjustment with fan speed at EXTRA-LOW

② During defrosting with indoor fan OFF

③ During thermostat OFF

(4) Booster heater control (PLH-3AKH.UK, PLH-4AKHS.UK, PLH-5AKHS.UK, PLH-6AKHS.UK)

When the room temperature is 3 degrees below the set temperature, the booster heater will turn ON.

When the room temperature is equal to the set temperature, booster heater will turn OFF.

During the hot adjustment, the booster heater will not work.

<Overheat prevention>

When the pipe temperature thermistor rises to 60°C or above, the booster heater cannot work.

When the pipe temperature thermistor falls to 55°C or below, the booster heater can work.

(5) Detecting abnormalities in the outdoor unit

When the outdoor unit is determined to be abnormal by the following causes, the compressor will stop and the check code " P8 " will appear on the remote controller display. ※1

(i) During compressor ON while hot adjustment is set.

① If the difference between the pipe temperature and room temperature is in the RANGE B, the indoor fan will stop.

② Within 20 minutes after entering RANGE B (except for the first 10 seconds),

a) If the temperature difference enters RANGE A, the hot adjustment starts,

b) If the temperature difference is still in RANGE B, the outdoor unit is deemed abnormal.

c) If the temperature difference enters RANGE C, defrosting starts.

③ Within 20 minutes after entering RANGE C, if the temperature difference does not return to RANGE B, the outdoor unit is deemed abnormal.

④ If the temperature difference returns to RANGE B, the next 20 minutes is an allowance period. If the difference enter RANGE A during the allowance, defrosting ends and the hot adjustment starts. If the difference does not enter RANGE A during the allowance, the outdoor unit is deemed abnormal.

(ii) During compressor ON in defrosting

After 30 minutes of defrosting in hot adjustment, if the temperature difference is still in RANGE C, the outdoor unit is determined to be abnormal.

When RANGE B does not change to RANGE A after 20 minutes have passed since RANGE C had outdoor unit is determined to be abnormal.

(iii) During compressor OFF

Not detecting abnormalities.

(6) Pipe temperature abnormality detection

An abnormality can be detected during compressor ON, except for the following.

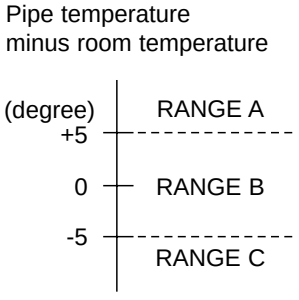
●For the first 30 minutes after the temperature difference between the pipe temperature and room temperature enters the RANGE C.

●When the temperature difference enters the RANGE C until it moves to the RANGE B.

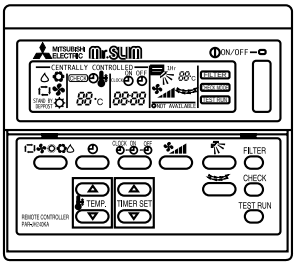
(7) Defrosting operation

After the outdoor unit starts the defrosting operation, when the temperature difference between the pipe temperature and room temperature gets out of RANGE A and into RANGE B, the indoor unit starts the defrosting mode. After the outdoor unit stops the defrosting operation, when the temperature difference returns to the RANGE A, the indoor unit stops the defrosting mode. While the indoor unit is in the defrosting mode, the indoor fan and the booster heater stop.

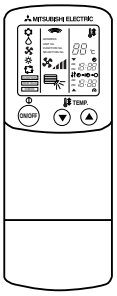
※1 RANGE A : Pipe temperature is more than 5 degrees above the room temperature.
RANGE B : Pipe temperature is within 5 degrees either way of the room temperature.
RANGE C : Pipe temperature is more than 5 degrees below the room temperature

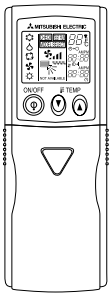


2-4 AUTO operation (Automatic COOL/HEAT change over operation)



WIRED REMOTE CONTROLLER





PLH-3AK.UK
PLH-3AKH.UK
PLH-4, 5, 6AKS.UK
PLH-4, 5, 6AKHS.UK

PLH-3AK1.UK
PLH-3AKH1.UK
PLH-4, 5, 6AKS1.UK
PLH-4, 5, 6AKHS1.UK

WIRELESS REMOTE CONTROLLER

<How to operate>

① Press POWER ON/OFF button.

② Press the button to display " "

③ Press the TEMP. button to set the desired temperature.

NOTE: The set temperature changes 1°C when the ▵ or ▿ button is pressed one time.
Automatic 19 to 28°C

●"AUTOMATIC" works to change by itself the operation mode either to cooling or heating according to the room temperature.

(1) Initial mode

① When AUTO operation starts after unit OFF.

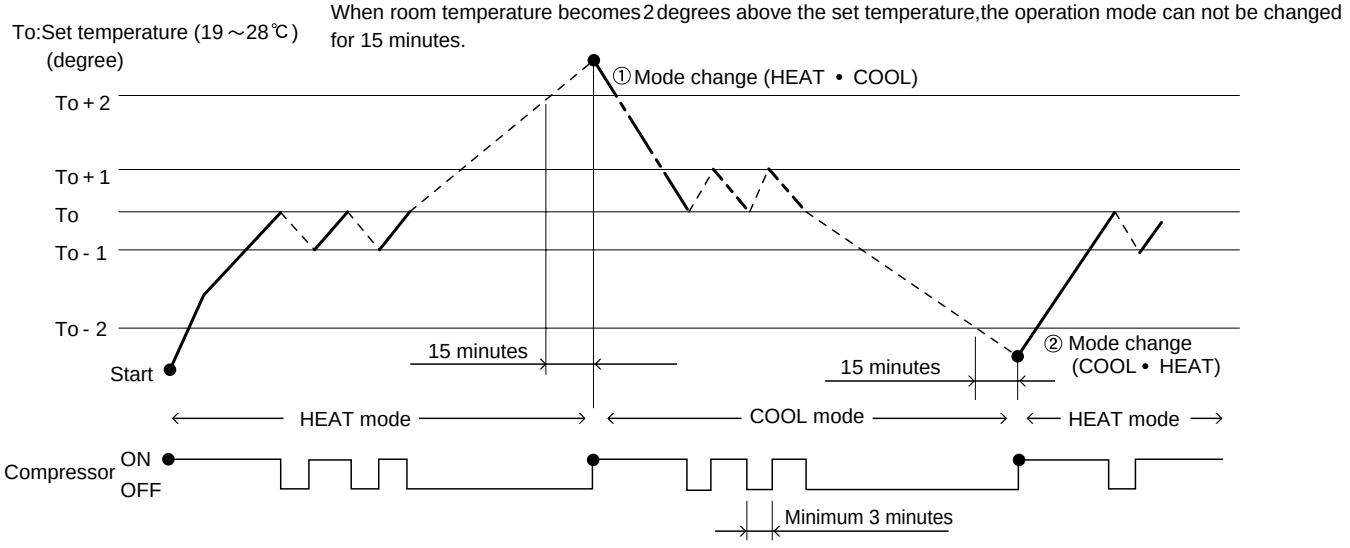
- If the room temperature is higher than the set temperature, operation starts in COOL mode.
- If the room temperature is equal to or lower than the set temperature, operation starts HEAT mode.

② When AUTO operation starts after COOL or HEAT operation, the previous mode continues.

(2) Mode change

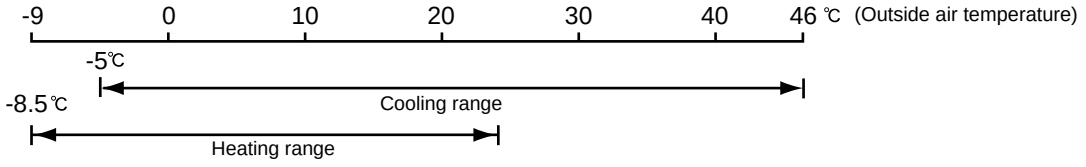
① HEAT mode changes to COOL mode when 15 minutes have passed since the room temperature became 2 degrees above the set temperature.

② COOL mode changes to HEAT mode when 15 minutes have passed since the room temperature became 2 degrees below the set temperature.

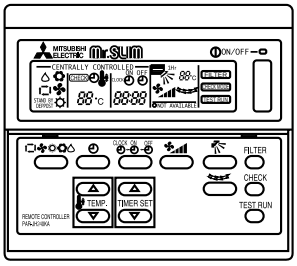


(3) Temperature range

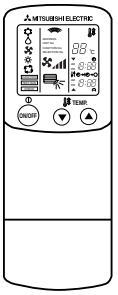
AUTO operation is available under the outside air temperatures as follows.



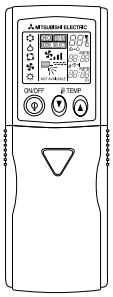
2-5 Auto vane control



WIRED REMOTE CONTROLLER



PLH-3AK.UK
PLH-3AKH.UK
PLH-4, 5, 6AKS.UK
PLH-4, 5, 6AKHS.UK



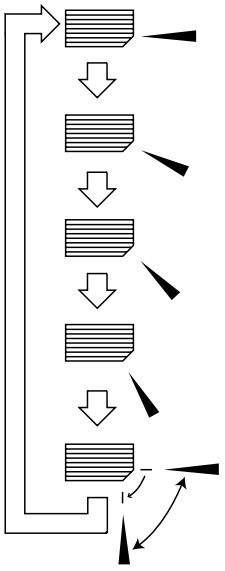
PLH-3AK1.UK
PLH-3AKH1.UK
PLH-4, 5, 6AKS1.UK
PLH-4, 5, 6AKHS1.UK

WIRELESS REMOTE CONTROLLER

<How to operate>

To change the air flow direction, press ⾮ button.

①	②	③	④
30°	45°	55°	70°



①30°

②45° downward

③55° downward

④70° downward

⑤swing

Changes by pressing the ⾮ button.

Available in COOL operation with fan speed on HIGH or in HEAT operation.
Unavailable in DRY operation.
If fan speed changes from HIGH to LOW during 45° downward airflow in COOL mode, the direction automatically changes to 30°.

(1) COOL/DRY operation

At the start-up of COOL or DRY operation, the airflow direction in automatically set to 30°. After, it can be changed to another direction with ⾮ button on the remote controller.

<Auto return>

When 55° or 70° airflow is set with fan speed in LOW, “1Hr” appears right side of the air direction. One hour later the direction changes to 30 degrees, automatically and “1Hr” disappears.

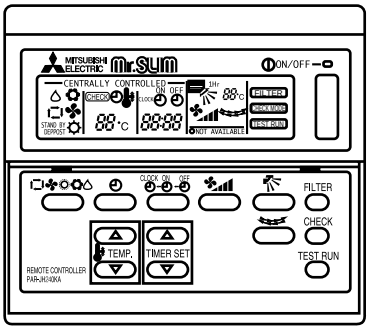
(2) HEAT operation

At the start-up of HEAT operation, airflow direction depends on the setting of the last operation.
After, it can be changed to another direction with ⾮ button. The airflow direction shifts to 30° regardless of the remote controller settings under any of the following conditions.

- Thermostat OFF
- Defrosting
- Indoor fan speed EXTRA-LOW in hot adjustment

2-6 TIMER operation

(1) WIRED REMOTE CONTROLLER



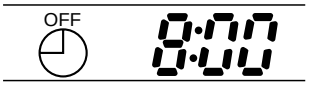
<Timer function>

AUTO STOP ·····The air conditioner stops after the set time lapses.
AUTO START ·····The air conditioner starts after the set time lapses.
AUTO OFF ·····Timer is not active.

<How to operate>

1. Press " ⏻ " ON/OFF button.
2. Press " ◴ " button to select AUTO STOP or AUTO START.
3. Press " ◴-ON-◴-OFF " button to set desired time.
   Time setting is in 1 hour units for up to 24 hours.
   Each time " △ TIMER SET " button is pressed, set time increases by 1 hour.
   When " △ TIMER SET " button is pressed and held, the set time increases by 1 hour every 0.5 seconds.
4. To cancel the timer operation, press " ⏻ " ON/OFF button.

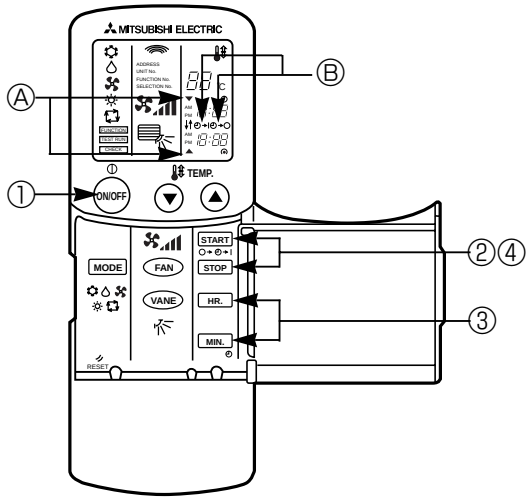
<Timer setting example>



This setting will stop the air conditioner in 8 hours.
With the lapse of time, time display changes in 1 hour units, showing remaining time.

(2) WIRELESS REMOTE CONTROLLER

PLH-3AK.UK PLH-4, 5, 6AKS.UK
PLH-3AKH.UK PLH-4, 5, 6AKHS.UK



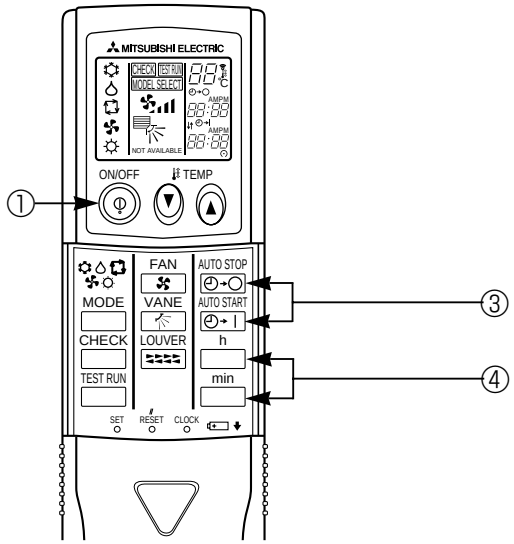
<How to operate>

① Press the ON/OFF button to turn it ON.
② Press the [STOP] or [START] button (TIMER SET).
- Time can be set while the following symbol is displayed.
  OFF timer : Ⓐ " ▼ " , Ⓑ " ◴-◯ " is displayed.
  ON timer : Ⓐ " ▲ " , Ⓑ " ◴-| " is displayed.

③ Use the [HR.] and [MIN.] buttons to set the desired time.
④ Cancelling the timer.
  To cancel the OFF timer, press the [STOP] button.
  To cancel the ON timer, press the [START] button.

- It is possible to combine both OFF and ON timers.
- Pressing the " ⏻ " ON/OFF button of the remote controller during timer mode to stop the unit will cancel the timers.

PLH-3AK$_1$.UK PLH-4, 5, 6AKS$_1$.UK
PLH-3AKH$_1$.UK PLH-4, 5, 6AKHS$_1$.UK



<How to operate>

① Push POWER ON/OFF button.
② Check if or not the current time is correct.
③ Push the AUTO STOP ◴→◯ or AUTO START ◴→| button and select the desired time.
④ Set the timer time using h [ ] and min [ ] buttons.

2-7 Test run

(1) WIRED REMOTE CONTROLLER

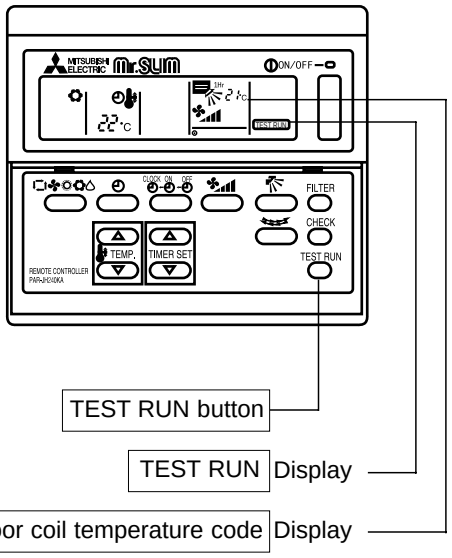
<Before test run>

- After installing, wiring, and piping the indoor and outdoor units, check for refrigerant leakage, looseness in power supply or control wiring, and mistaken polarity.
- Use a 500-volt megohmmeter to check the resistance between the power supply terminal block and ground to make sure that it is at least 1.0MΩ.

Attention:

Do not use the air conditioner if resistance is less than 1.0MΩ.

Remote controller



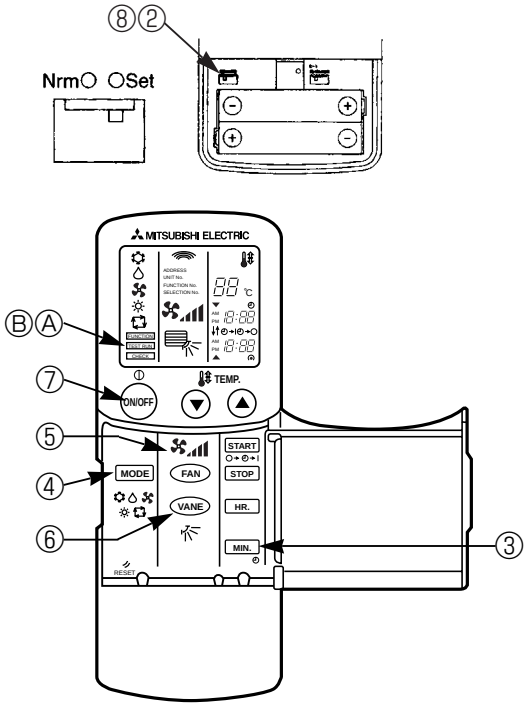
*The above figure shows the state of TEST RUN at cooling operation.

1	Turn on main switch.12 hours before proceeding to step 2 to allow for crankcase heater operation.
2	Push the TEST RUN button twice and indication of TEST RUN will be shown on the liquid crystal display.
3	Press the button to display , COOL/DRY(or HEAT)to confirm that cool (or warm) air is blown out. (At heating operation, there may be a short delay before warm air begins to blow out.)
4	Push button LOW/HIGH to check that the fan speed changes properly.
5	Check the operation of outdoor unit fans.This unit controls the rotation speed and performance capacity of fans. In some cases, it may rotate at low speed as the condition of outside air requires and the speed will be kept unless the performance has become deficient. Therefore, when the condition of outside air demands, there may be such cases as the fan stops or rotates reversely. Please note that these symptoms are not malfunction.
6	After the check is finished leave the test run mode, push the power ON/OFF button. It can also be stopped by pushing the timer MODE button.

●When a TEST RUN is started,the timer shall be set to 2 hours. The unit will automatically turn off after 2 hours.

(2) WIRELESS REMOTE CONTROLLER

PLH-3AK.UK PLH-4, 5, 6AKS.UK
PLH-3AKH.UK PLH-4, 5, 6AKHS.UK



<Before test run>

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

① Turn on the main power to the unit..

② Set the Nrm/Set selector switch (on the back of the controller)to <Set>.
Ⓐ The FUNCTION, TEST RUN and CHECK begin to blink.

③ Press the MIN. button.
Ⓑ TEST RUN and current operation mode are displayed.

④ Press the MODE button to activate COOL mode, then check whether cool air in blown out from the unit.

⑤ Press the FAN button and check whether strong air is blown out from the unit.

⑥ Press the VANE button and check whether the auto vane operates properly.

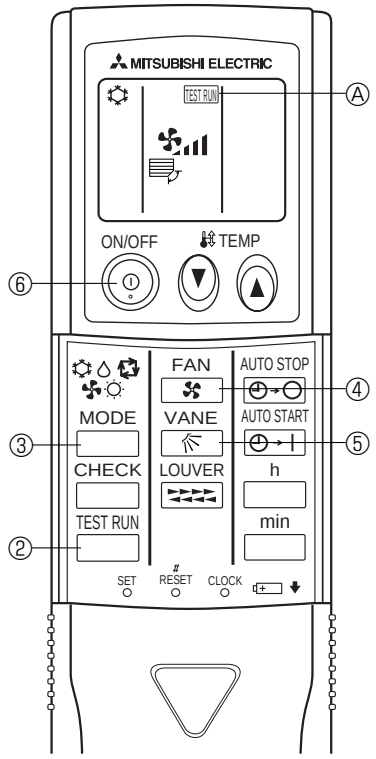
⑦ Press the ON/OFF button to stop the test run.

⑧ After trial run is complete, set the Nrm/Set selector switch to <Nrm.>

Note :

- **Point the remote controller toward the inside unit's receiver while steps ③ through ⑦ .**
- **It is not possible to run the unit in FAN or DRY mode.**

PLH-3AK$_1$.UK PLH-4, 5, 6AKS$_1$.UK
PLH-3AKH$_1$.UK PLH-4, 5, 6AKHS$_1$.UK



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

① Turn on the main power to the unit.
② Press the TEST RUN button twice continuously.
(Start this operation from the status of remote controller display turned off.)
Ⓐ TEST RUN and current operation mode are displayed.
③ Press the MODE (☼♢✤☼⮔) button to activate COOL☼ mode, then check whether cool air is blown out from the unit.
④ Press the FAN button and check whether strong air is blown out from the unit.
⑤ Press the VANE button and check whether the auto vane operates properly.
⑥ 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 ⑥.**
- **It is not possible to run the in DRY, AUTO mode.**

(1) Pipe temperature code

During the test run, the pipe temperature code from 1 to 15 is displayed on the remote controller instead of room temperature. The code should fall with the lapse of time in normal COOL operation, and should rise in normal HEAT operation.

Code	1	2	3	4	5	6	7	8
Pipe temperature	-40~2(1)°C	3(2)~10°C	~15°C	~20°C	~25°C	~30°C	~35°C	~40°C
Code	9	10	11	12	13	14	15	
Pipe temperature	~45°C	~50°C	~55°C	~60°C	~70°C	~90°C	Thermistor abnormality	

(2) Trouble during test run

- If the unit malfunctions during the test run, refer to section 10 in this manual entitled “TROUBLESHOOTING.”
- When the optional program timer is connected to the conditioner, refer to its operating instructions.

2-8 Emergency operation

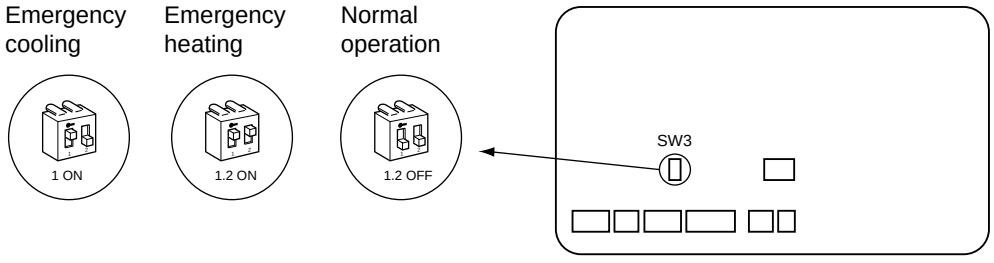
When the remote controller or microprocessor malfunctions but all other parts are normal, emergency operation is started by setting the dip switch SW3 on the indoor controller board.

<Before emergency operation>

1. Make sure the compressor and the indoor fan are operating normally.
2. Locate the defect with the self-diagnostic function. When the self-diagnostic function indicates “protective function is working”, release the protective function before starting the emergency operation.
   CAUTION: When the self-diagnostic function indicates a check code of “P5” (drain pump malfunction), DO NOT start the emergency operation because the drain may overflow.

<How to operate>

1. For emergency cooling, set the dip switch SW3-1 to ON and SW3-2 to OFF.
   For emergency heating, set the dip switch SW3-1, 2 to ON.



Microcessor board

2. Turn ON the outdoor unit breaker and then ON the indoor unit breaker.
   Emergency operation will now start.
3. During emergency operation, the indoor fan operates on high speed, the auto vanes do not operate.
4. To stop emergency operation, turn OFF the indoor unit breaker.
5. Movements of the vanes do not work in emergency operation, therefore you have to slowly set them manually to the appropriate position.

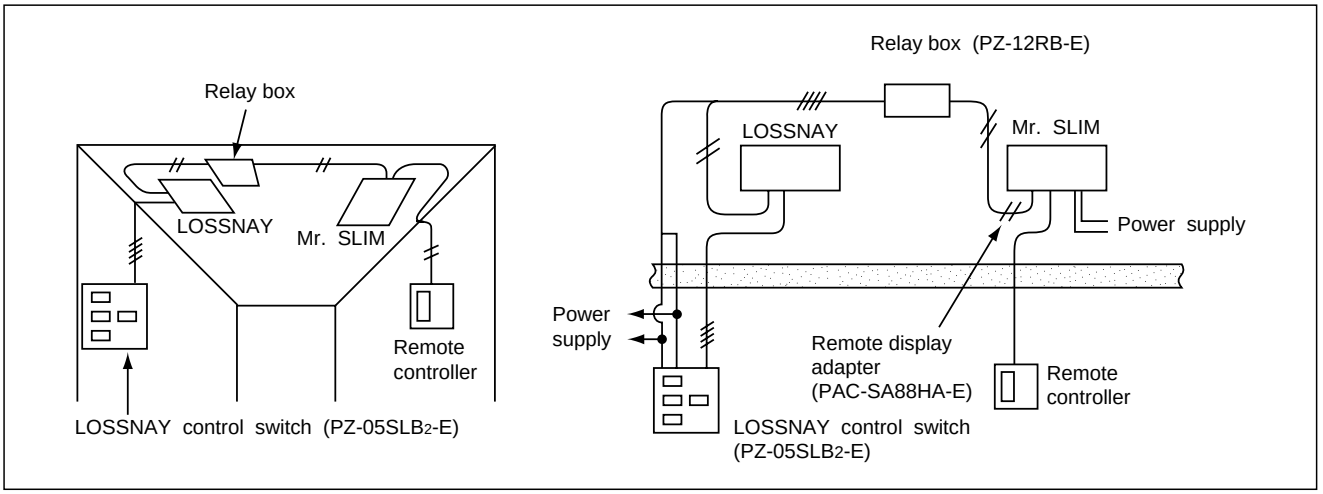
NOTE: The remote controller POWER ON/OFF button can not start/stop emergency operations.

CAUTION: Do not use emergency cooling for more than 10 hours, as the indoor coil may freeze.

2-9 Interlock with ventilation system (LOSSNAY)

Mr. SLIM/LOSSNAY interlock operation is available by using the optional parts listed below.

(1) System organization



(2) LOSSNAY models connectable to Mr. SLIM are: LGH-15RS-E, LGH-50RS-E
LGH-25RS-E, LGH-80RS-E
LGH-35RS-E, LGH-100RS-E

(3) Required parts are:

- Relay box (PZ-12RB-E)···Contact capacity 10A
- Remote display adapter (PAC-SA88HA-E)···An optional part for Mr. SLIM
- LOSSNAY control switch (PZ-05SLB2-E)···For LOSSNAY individual operation

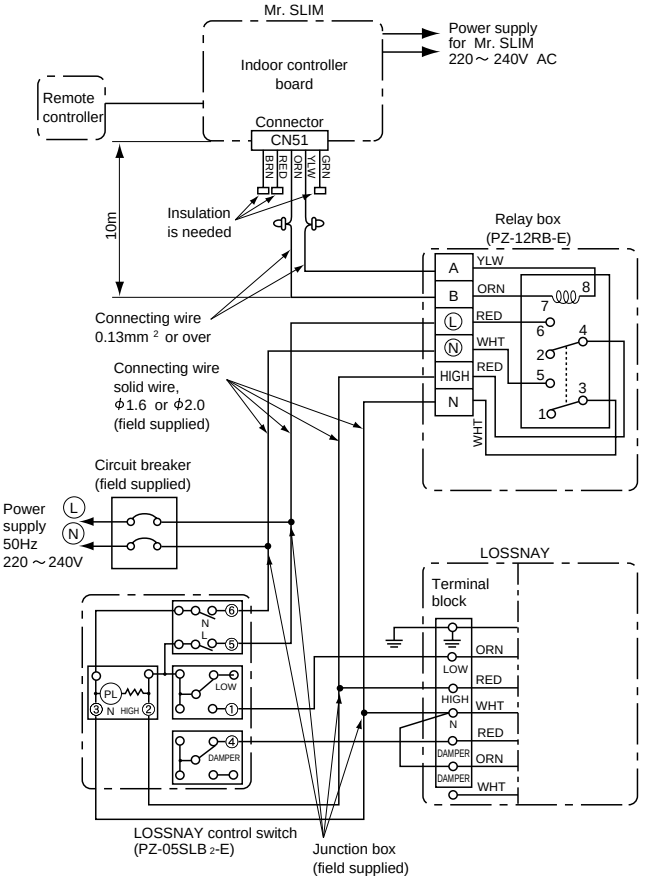
(4) Operation

①LOSSNAY turns ON/OFF according to Mr. SLIM ON/OFF

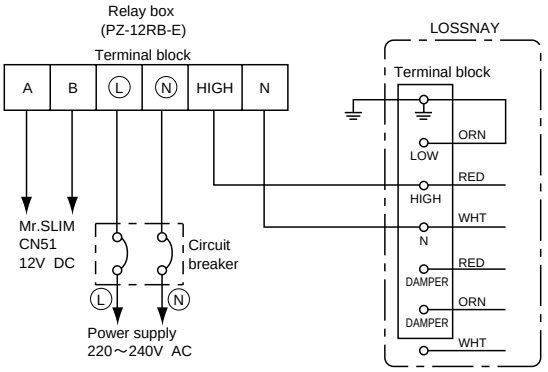
②While Mr. SLIM is OFF, LOSSNAY individual operation is available by using the LOSSNAY control switch. When Mr. SLIM turns OFF with the LOSSNAY control switch at ON, LOSSNAY will continue to operate.

(5) Wiring.

①When the LOSSNAY control switch is used



②When the LOSSNAY control switch is not used:



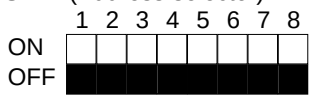
NOTE: For further information, refer to the LOSSNAY technical & service manual.

2-10 Dip switch functions

Each figure shows the initial factory setting.

1. On remote controller board

(1) SW17(Address selector)

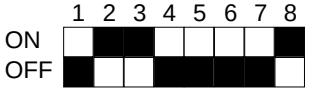


SW17-1~6) For address setting

SW17-7) When two remote controllers are used,this switch sets the controller function.
OFF:The remote controller is set as a main controller.
ON :The remote controller is set as a sub controller.

SW17-8) Switch for system back-up.
OFF:Without back-up
ON :With back-up

(2) SW18(Function selector)



SW18-1) Switch for timer
OFF:Single day ON:timer every day

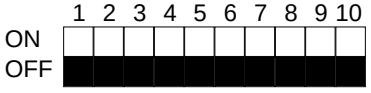
SW18-2) Switch for filter sign
OFF:filter sign absent
ON :filter sign present

SW18-3) Switch for filter sign time setting.
OFF:100Hr ON:2500Hr

SW18-4~8) Not yet used.

2. On indoor controller board

(1) SW1 (Mode selector)



SW1-1) Switch that changes between FAN mode and AUTO mode
OFF:AUTO mode for models with heat pump
ON :Fan mode for models without heat pump

SW1-2) Switch for drain pump
OFF:The drain pump works in COOL and DRY operation.
ON :The drain pump works in both COOL and DRY and HEAT operation.

SW1-3) Switch to change the temperature to start coil frost prevention
OFF:1°C
ON :-3°C

SW1-4) Switch for set temperature adjustment in HEAT mode
During HEAT operation,warm air collects near the ceiling. When the indoor unit is installed near the ceiling,the temperature read by room temperature thermistor differs from the actual living-space temperature by about 4 degrees. Therefore,the room temperature read by room temperature thermistor must be lowered by 4 degrees.
OFF:4-degree adjustment
ON :NO adjustment

SW1-5) Switch for fan speed during thermostat OFF in HEAT operation
OFF:EXTRA LOW
ON :LOW

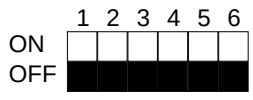
SW1-6) Switch for fan speed during thermostat OFF in HEAT operation
OFF:EXTRA LOW or LOW(set with SW1-5)
ON :LOW or HIGH(set with remote controller)

SW1-7) Switch for detecting abnormalities in the outdoor unit abnormality detection
OFF:When an abnormality occurs,it is detected.
ON :Even if an abnormality occurs,it can not be detected.

SW1-8) Switch for auto restart function
OFF:This function does not work
ON :This function works.

SW1-9, 10) Not yet used.

(2) SW2 (Address selector)



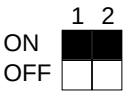
Used in setting the unit-address for group control.
For further information, refer to page 73.

(3) SW3 (Emergency operation switch)

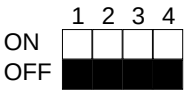
Normal operation

For emergency cooling

For emergency heating

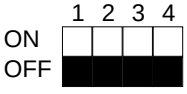


(4) SW5 (Model selector)



SW5-1) Not yet used
SW5-2) OFF:For models with heat pump
ON :For models with cooling only
SW5-3) OFF:Auto vane angle 30˚→45˚→55˚→70˚
ON :Auto vane angle 25˚→40˚→55˚→70˚
SW5-4) Fresh air intake OFF:Fresh air in not taken in
ON: Fresh air is taken in

(5) SW6 (Address selector)



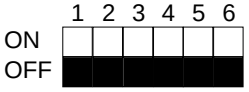
	Single control	Twin control	Triple control
SW6-1	OFF	ON(Twin NO.1)	ON(Triple NO.1)
SW6-2	OFF	ON(Twin NO.2)	ON(Triple NO.2)
SW6-3	OFF	OFF	ON(Triple NO.3)
SW6-4	OFF	OFF	ON

(6) SW7 (Model selector)

Switch to set the output of phase-controlled indoor fan motor.
Address setting is available at any time.
The initial factory setting by is based on each capacity.

Model names	PLH-3AK PLH-3AKH	PLH-4AKS PLH-4AKHS	PLH-5AKS PLH-5AKHS	PLH-6AKS PLH-6AKHS
SW7	ON OFF 1 2 3	ON OFF 1 2 3	ON OFF 1 2 3	ON OFF 1 2 3

(7) SW8



SW8-1~2) High ceiling type switch
SW8-3~4) Discharge outlet number selector
SW8-5) Option selector
OFF:Standard
ON :When mounting the optional high efficiency filter.
SW8-6) OFF:For 240, 230V power supply
ON :For 220V power supply

Ceiling height & discharge direction

PLH-3AK
PLH-3AKH

SW8-3, 4 \ SW8-1, 2		Standard SW8-1 OFF SW8-2 OFF	High ceiling ① SW8-1 ON SW8-2 OFF	High ceiling ② SW8-1 ON SW8-2 ON
4 direction	SW8-3 OFF SW8-4 OFF	2.7m	3.0m	3.5m
3 direction	SW8-3 ON SW8-4 OFF	3.0m	3.3m	3.5m
2 direction	SW8-3 ON SW8-4 ON	3.3m	3.5m	—

PLH-4, 5, 6AKS
PLH-4, 5, 6AKHS

SW8-3, 4 \ SW8-1, 2		Standard SW8-1 OFF SW8-2 OFF	High ceiling ① SW8-1 ON SW8-2 OFF	High ceiling ② SW8-1 ON SW8-2 ON
4 direction	SW8-3 OFF SW8-4 OFF	3.2m	3.6m	4.2m
3 direction	SW8-3 ON SW8-4 OFF	3.6m	4.0m	4.2m
2 direction	SW8-3 ON SW8-4 ON	4.0m	4.2m	—

2-11 INDOOR FAN CONTROL

(1) Fan motor max. rotational frequency for PLH-AK(H)(S)

Model names	Voltage [V]	100% rotational frequency(rpm) 50Hz / 60Hz
PLH-3AK PLH-3AKH	220	610 / 640
	230	630
	240	650
PLH-4AKS PLH-4AKHS	220	750 / 810
PLH-5AKS PLH-5AKHS	230	770
PLH-6AKS PLH-6AKHS	240	790

3. OUTDOOR UNIT CONTROL

3-1 Outdoor fan control

The rotational frequency of outdoor fan is phase-controlled according to the outdoor coil temperature. This control allows the cooling operation even with the low outside-air temperature and the heating operation even with the high outside-air temperature.

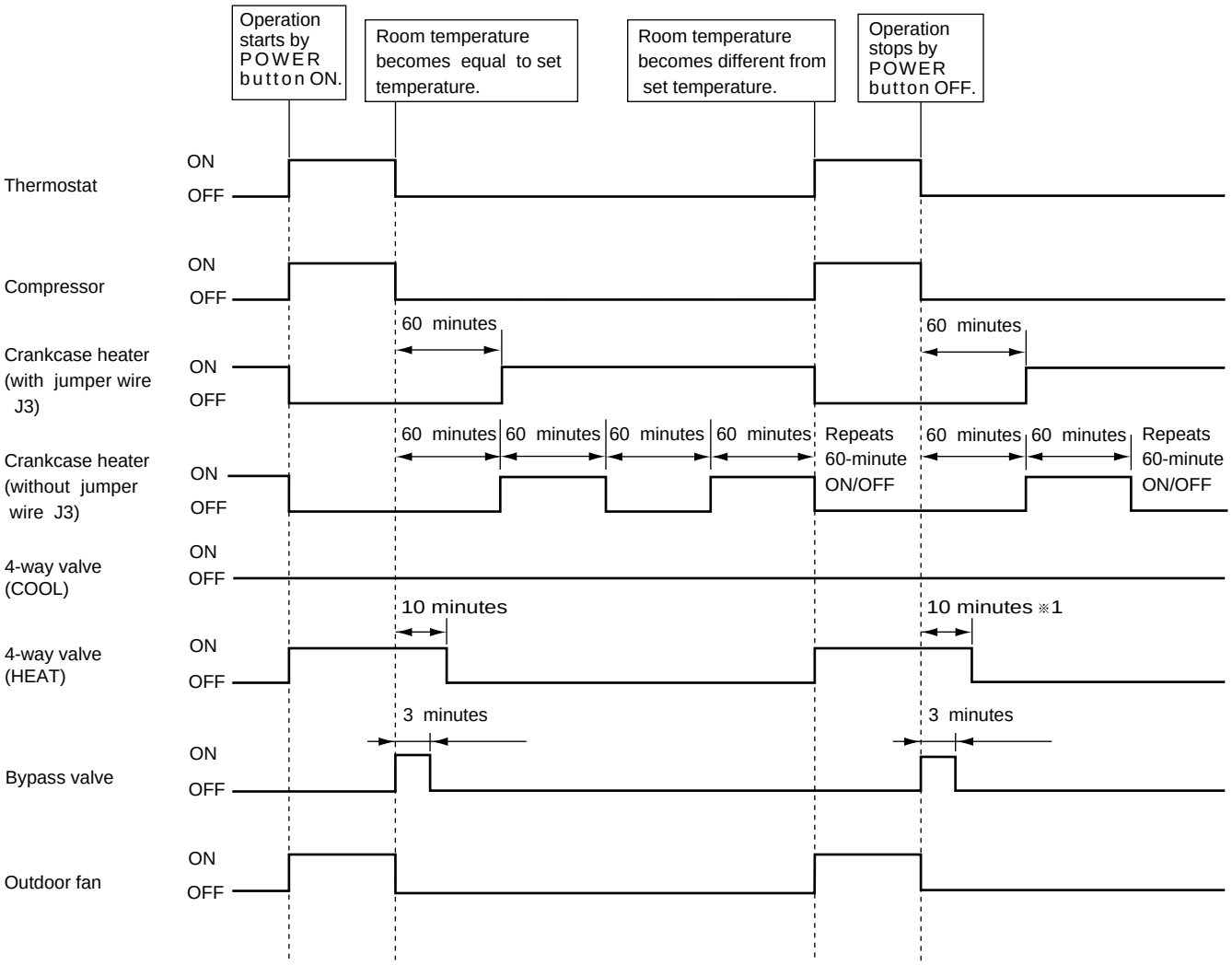
3-2 Outdoor unit control

The outdoor unit turns ON/OFF the cooling/heating operation according to orders given from the indoor unit.

3-3 Protective functions

① If an reversed-phase, an open phase, or an indoor controller abnormality is detected, the outdoor unit will stop operation and the check mode will start. (For the check mode details, see page 61.)
② If a protective function works, the compressor will stop running. Three minutes later, the compressor will restart. If the protective function works again, the compressor will stop running and the check mode will start.
③ The protective function is memorized.
④ The memory is cleared when the POWER ON/OFF button on the remote controller is turned OFF. However, the check mode display continues until the outdoor unit receives the “operation ON” command from the indoor unit.

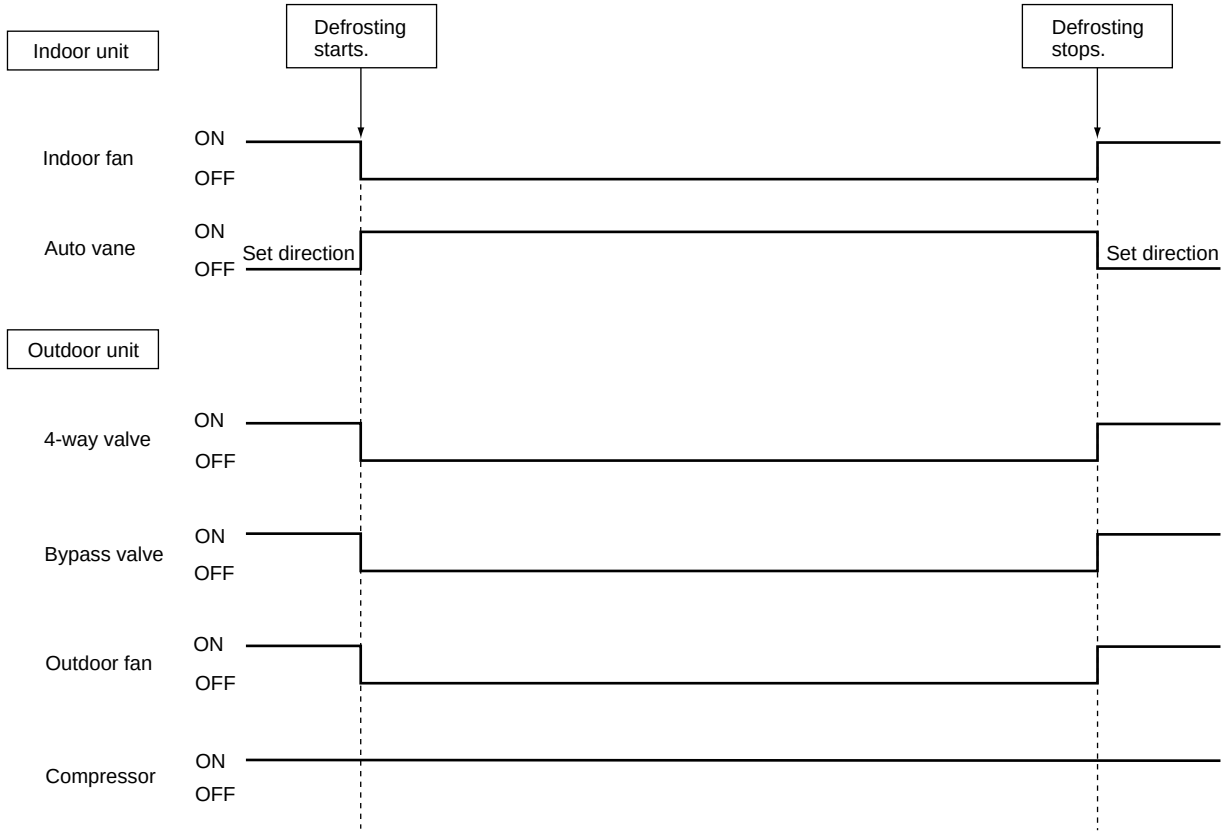
3-4 COOL/HEAT operation time chart



※1 If compressor restarts within 10 minutes, 4-way valve remains ON.

3-5 Defrosting in HEAT mode

<Defrosting time chart>



(1) Start conditions

A. When all of the following conditions are satisfied, defrosting will start. However, when the bypass valve turns OFF, defrosting starts 10 minutes later.
   (a) More than seven minutes have passed since the compressor start-up.
   (b) The outdoor coil thermistor reads -5°C or below.
   (c) The outdoor fan motor output step is 100%
   (d) Total time of compressor operation exceeds 30 minutes, and the outdoor coil temperature has fallen by 8 degrees or more in comparison with that of 10 minutes after the compressor start-up.
   NOTE: The outdoor coil temperature of 10 minutes after the compressor start-up is memorized until the defrosting operation has ended.

B. When all of the following conditions are satisfied, defrosting will start.
   (a) ~ (c) The same as above (a) ~ (c) in item A
   (d) Total time of compressor operation exceeds “defrost interval”.
   Further information on the defrost interval is described in (3).

C. After the total time of compressor operation exceeds the defrost interval, the thermostat repeats ON/OFF three times. Two minutes after the fourth “ON” of the thermostat, if the outdoor coil thermistor reads -5°C or below and the fan output output is 100%, defrosting will start.
   NOTE: The count of the thermostat ON/OFF is cleared by the compressor-OFF command or defrosting start-up.

(2) During defrosting

- Even if the thermostat turns OFF, defrosting continues.
- The 4-way valve, bypass valve, outdoor fan, and indoor fan are OFF.

(3) Defrost interval

The defrost interval time is determined as follows.

- Initial defrost interval is 50 minutes.
- The defrost interval after defrosting depends on the preceding defrosting time as shown below.

Defrosting operation time	Next defrost interval
3 minutes or below	120 minutes
3 to 7 minutes	80 minutes
7 to 10 minutes	60 minutes
10 to 15 minutes	40 minutes
15 minutes (Maximum)	30 minutes

NOTE1:If the unit stops during defrosting , the next defrost interval will be 50 minutes.

NOTE2:If a protection function works for the first time during defrosting, the compressor will stop.
After a 3-minute time delay, defrosting will restart. In this case, a 3-minute time delay is included with the defrosting time.
If the protection function works for the second time, the unit stops operation and displays the check code.
The next defrost interval will be 30 minutes.

NOTE3:When the defrosting has ended, the total time of the compressor operation is cleared.

(4) Termination conditions

Defrosting finishes when any of the following conditions are satisfied.

①Defrosting has continued for 15 minutes.
②Outdoor coil thermistor reads 22 ℃ or above for the first 75 seconds after defrosting start-up.
③Outdoor coil thermistor reads 8 ℃ or above after the 75-second defrosting.
④Power ON/OFF button is turned OFF during defrosting.

3-6 Actuators

(1) Bypass valve control

<Cooling mode>

①When the compressor stops(After operating the compressor of 16min. ±30sec.) to prevent from frosting the coil, the bypass valve turns ON. When one hour has passed since the compressor stopped, the bypass valve returns to OFF.
②When the compressor operates with the bypass valve at ON for more than 30 minutes, the bypass valve turns OFF.
③When the compressor stops with the bypass valve at OFF, the bypass valve turns ON and remains ON for three minutes.(In the case of PUH-3VKA$_2$.UK and PUH-3YKA$_2$.UK.)
※ PUH-6YKSA$_2$.UK bypass valve cannot open or close during cooling mode, therefore, the paragraph ① ~ ③ cannot be applied to the PUH-6YKSA$_2$.UK.

<Heating mode>

①When the unit starts for the first time after the circuit breaker has been turned ON, or when it starts after the compressor OFF of 30 minutes or more, if the outdoor coil thermistor reads 12°C or more, the bypass valve turns ON.
②When the high pressure switch (63H1) works, the bypass valve turns ON.
③When the bypass has been ON for 30 minutes:
- If the high pressure switch has already returned, the bypass valve turns to OFF.
- If not, the fan output step keeps 70 for three minutes. Meanwhile, if the high pressure switch returns, the bypass valve turns OFF. Otherwise the normal fan control starts.

④When the operation mode changes or stops, the bypass valve turns ON and remains ON for three minutes.

<Defrosting operation>

①The bypass valve is OFF.

(2) Crankcase heater control

①With jumper wire J3
The crankcase heater is ON from when the power is turned ON until the compressor starts, and then turns ON one hour after the compressor stops.
②Without jumper wire J3
The crankcase heater is ON from when the power is turned ON until the compressor starts, and repeats 1-hour ON and 1-hour OFF, after the compressor stops.

3-7 Service functions

(1) Compulsory defrosting

①When all of the following conditions are satisfied, pressing SW2 starts the compulsory defrosting.

- During HEAT mode
- The compressor is ON.
- The outdoor coil temperature is being displayed by LED. (Outdoor controller board dip switch SW3-1 : OFF, SW3-2 : ON)
- The outdoor coil thermistor reads 8°C or below.

②The operation state and the termination conditions of the compulsory defrosting are the same as those of the normal defrosting. As an exception, the defrost interval after the defrosting completion is 50 minutes.

(2) Fixed fan-output

While the compressor is operating (except during defrosting) and the fan output step is indicated by LED, pressing SW2 fixes the fan output. The fixed fan-output can be released when any of the following conditions are satisfied.

①SW2 is pressed again.
②SW3 setting is changed.
③The compressor stops.
④Defrosting operation starts.

(3) Function of switches on the outdoor controller board

SW1: Clears the check code memory (push-button switch)
SW2: Switches the output state indication and the check code display (push-button switch)
SW3-1, 2: Switches the output state indication items (dip switch)
For further information, refer to page 55.

(4) 100% fan output

Fan output is fixed to 100% by shorting the connector CN22. However, the fan stops during compressor OFF or defrosting. Open-circuit of CN22 restarts the normal fan control.

(5) Time shortening

Short circuit of the connector CN21 shortens the time as follows

①Fan control period: 30 seconds → 3 seconds
②Three-minutes time delay function : 3 minutes → 3 seconds
③Max. time of defrosting : 15 minutes → 15 seconds
④Defrost interval : 30 ~ 120 minutes → 3 ~ 12 seconds
⑤Compressor ON/OFF time for bypass valve ON/OFF : 30 minutes → 3 seconds
⑥Compressor ON time to start other functions : x minutes → x seconds
⑦Crankcase heater operation : 1 hour → 6 seconds

10 TROUBLESHOOTING

1. TROUBLES IN TEST RUN

<table>
<tr><th>Symptom</th><th>Cause</th><th>Check points</th></tr>
<tr><td>The display “CENTRALLY CONTROLLED” on remote controller dose not disappear.</td><td>1) Wrong address setting of remote controller/indoor controller board.
2) Timer adapter is connected to the remote controller.
3) Signal transmission error between indoor unit and remote controller.</td><td>1) Check the address setting of remote controller and indoor controller.
2) Make sure the timer adapter is used correctly.
3) ① Turn another remote controller’s DIP SW17-7 ON to make it sub controller.
② Connect the sub controller to the unit, and turn circuit breaker ON.
● If the display “centrally controlled” disappears, replace the original remote controller.
● If the display remains the same, replace the indoor controller board.</td></tr>
<tr><td>When remote controller POWER button is turned ON, the check code “EO”appears.</td><td>1) Signal transmission error between indoor unit and remote controller</td><td>1) ① Connect a sub remote controller.
② Turn circuit breaker ON.
If the display “centrally controlled” remains, replace the indoor controller board.
③ If the display disappears, turn the remote controller POWER button ON and check as follows.
<table>
<tr><th></th><th>Remote controller</th><th>Sub remote controller</th><th>Malfunction</th></tr>
<tr><td>1</td><td>Operating Display</td><td>EO Display</td><td>Malfunction of indoor Unit</td></tr>
<tr><td>2</td><td>Operating Display</td><td>Operating Display</td><td>Malfunction of Remote controller</td></tr>
<tr><td>3</td><td>No Display</td><td>EO Display</td><td>Malfunction of indoor Unit and Remote Controller</td></tr>
<tr><td>4</td><td>No Display</td><td>Operating Display</td><td>Malfunction of Remote controller</td></tr>
</table></td></tr>
<tr><td>When remote controller POWER button is turned ON, operating display appears, but disappears soon.</td><td>1) Short circuit of indoor/outdoor connecting wire
2) Short circuit of transmission wire.
3) Wrong operation of remote controller due to noise wave emitted by other appliances.</td><td>1), 2) Check the wire
3) Turn the circuit breaker OFF, and then turn ON.
If the remote controller remains abnormal, despite the above measures, replace the indoor controller board.</td></tr>
<tr><td>Despite turning POWER button ON, the remote controller display does not appear.</td><td>1) Damaged remote controller.
2) Short circuit of transmission wire.
3) Bad contact of indoor CN40.
4) CN40 is attached to a sub unit.
5) Damaged power board.
6) Bad contact of CN2D.
7) Blown fuse.
8) Circuit breaker OFF.</td><td>1) Measure the voltage between terminals of remote controller. If no voltage, remove the terminals and measure the voltage between wires. If the voltage is between 6VDC and 12V, replace the remote controller.
2) ~ 8) Check each point.
If it is not defective, replace the indoor controller board.</td></tr>
</table>

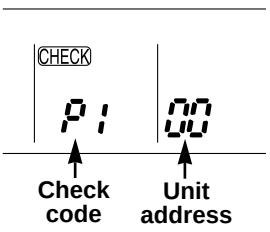
2. SELF DIAGNOSTIC FUNCTION WITH REMOTE CONTROLLER (WIRED REMOTE CONTROLLER)

2-1 When malfunction occurs during operation

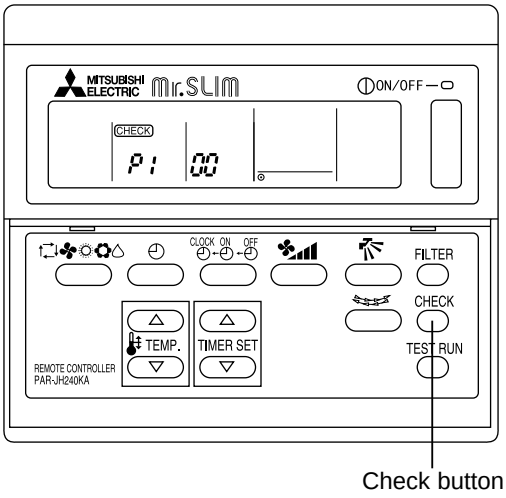
When a malfunction occurs, the indoor and outdoor units stop and the malfunction is displayed on the LCD of the remote controller.

(1) ON the set temperature display part, “CHECK” appears, and the unit address and the check code are displayed alternately at one-second intervals. (Check mode)

Example



CHECK mode



(2) When one remote controller controls several units in the group control, the LCD shows the unit address and check code of the first malfunctioning unit.

(3) To cancel the check mode, press the ⏻ON/OFF button. In remote ON/OFF control, press the remote ⏻ON/OFF switch. In centralized control, turn OFF the ⏻ON/OFF button of centralized controller.

NOTE: The latest check code is memorized, even if the check mode is cancelled by the way mentioned above. It takes 60 seconds maximum to display the memorized check code.

2-2 How to use the self diagnostic function for service

A. For normal control with one unit and one remote controller

(1) Pressing the ▭ CHECK button on the remote controller twice starts the self diagnostic function.

(2) During the self diagnostic function, “CHECK MODE” appears at two positions on the remote controller display. Then, at least 10 seconds later, the unit address and the check code is alternately displayed at one-second intervals.

(3) Check and repair the unit according to the check code. (Refer to page 54.)

B. For group control using one remote controller

(1) Pressing the ▭ CHECK button on the remote controller twice starts the self diagnostic function.

(2) Press the ▲ TEMP. button or ▼ TEMP. button on the remote controller to advance or go back to the unit address. Each time ▲ TEMP. button is pressed, the unit address advances by one. Each time ▼ TEMP. button is pressed, the unit address goes back by one.
The check code and the unit address, appear alternately.

(3) The check code “U8” means no malfunction has occurred since installation.
The check code “EO” means the following conditions:
- The unit address displayed on the remote controller does not apply to any unit.
- power is not supplied to the unit.
- Signal transmitting/receiving circuit is abnormal.

(4) Check and repair the unit according to the check code. (Refer to page 54.)

(WIRELESS REMOTE CONTROLLER)

PLH-3AK.UK PLH-4, 5, 6AKS.UK
PLH-3AKH.UK PLH-4, 5, 6AKHS.UK

(1) Turn on the main power of the unit.
(2) Set the adjusting switch on the back of the wireless remote controller to “Set”, then FUNCTION , TEST RUN and CHECK will start lighting.

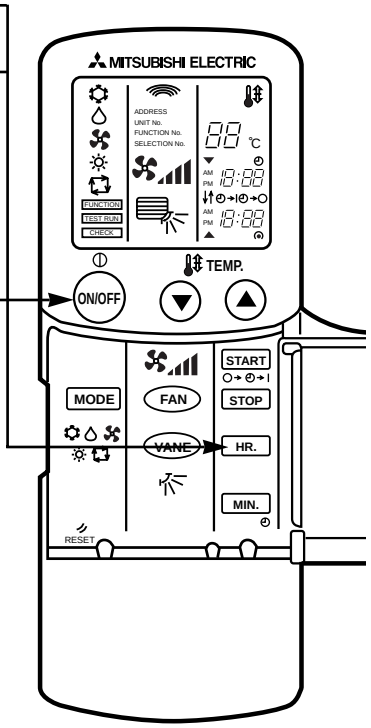
★(3) Press the HR. button, then CHECK will start blinking.
★(4) Send the signal from the remote controller to the unit with pressing HR. button.
If the buzzer sound is heard and the ON/OFF lamp (Unit display) blinks, refer to the following table.

Buzzer sound	The number of ON/OFF lamp(Unit display) blinking
1 second (0.5 second interval) Beep	This corresponds to the number of buzzer sound

The number of ON/OFF lamp(Unit display)blinking and buzzer sound	Irregular point
1(P1)	Irregular intake sensor
2(P2)	Irregular piping sensor
3(P3)	Signal transmission error
4(P4)	Irregular drain sensor
5(P5)	Irregular drain pump
6(P6)	Freezing protection/ overheating protection is working
7(P7)	System error
8(P8)	Irregular outdoor unit

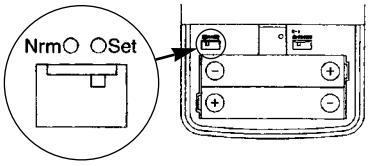
(Refer to the next page in detail)
When there is any error, receiving sound beeps.

★(5) Push the POWER ON/OFF button and cancel the test run.
(6) After completing a test run, be sure to turn the adjusting switch back to “Nrm”.

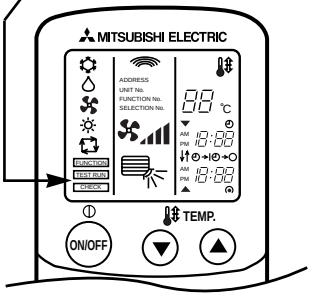


Remove the battery cover on the back side of the wireless remote controller, display will start flashing when the “Set” switch is tuned on.
For operations marked “★” , point the transmitter to the wireless receiver, and make sure that you will hear a short beep from the receiver.

Turn the adjusting switch to “Set”



Display will start flashing



For operations marked “★”, point the transmitter to the wireless receiver, and make sure that you will hear a short beep from the receiver.
When the other than main unit is operated by the wireless remote controller, the receiver beeps an ineffectual beep 3-times.

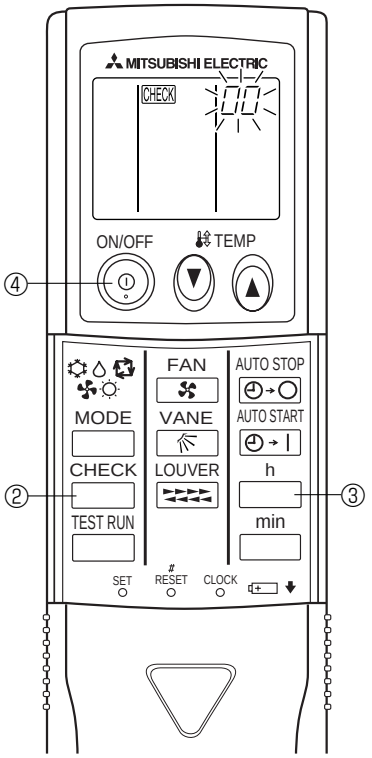
(WIRELESS REMOTE CONTROLLER)

PLH-3AK$_1$.UK PLH-4, 5, 6AKS$_1$.UK
PLH-3AKH$_1$.UK PLH-4, 5, 6AKHS$_1$.UK

① Turn on the main power to the unit.
② Press the CHECK button twice continuously.
- CHECK begins to light and refrigerant address display “00” begins to bink.
- Start this operation from the status of remote controller display turned off

③ While pointing the remot controller toward the unit’s receiver, press the h button
- If the buzzer sounfd is heard and the ON/OFF lamp (unit display) blinks, refer to following table.

④ While pointing the remote controller toward the unit’s receiver, press the ON/OFF button.
- Self-check mode is canceled.



Check Code	Alarm	Buzzer sound
1	Suction sensor alarm	Single beep × 1
2	Plpe sensor alarm	Single beep × 2
3	Transmission alarm	Single beep × 3
4	Drain sensor alarm	Single beep × 4
5	Drain pump alarm	Single beep × 5
6	Anti-freezing on	Single beep × 6
	Anti-overheat on	Single beep × 6
7	System error	Single beep × 7
8	Outdoor unit alarm	Single beep × 8
9	No alarm (no error)	Receiving signal only (no error alarm)

Check code	Diagnosis of malfunction	Cause	Check points
EO	Signal transmitting/receiving error (Indoor controller does not respond to remote controller signal.)	During individual unit control 1) Bad contact of transmission wire 2) Signal transmitting/receiving circuit is abnormal.	1) Check the transmission wire. 2) Check with another remote controller. If “EO” is still indicated, replace the indoor controller board. If other check code appears. replace the original remote controller.
P1	Abnormality of room temperature thermistor (RT1)	1) Bad contact of thermistor 2) Damaged thermistor	1) Check the thermistor. 2) Measure the resistance of the thermistor. Normal resistance should be as follows. 0℃ ···15kΩ 30℃ ·····4.3kΩ 10℃ ·····9.6kΩ 40℃ ·····3.0kΩ 20℃ ·····6.3kΩ If the resistance is normal, replace the indoor controller board.
P2	Abnormality of pipe temperature thermistor (RT2)		
P3	Signal transmission error (Remote controller does not respond to indoor controller signal.)	1) Bad contact of transmission wire 2) Signal transmitting/receiving circuit is abnormal. 3) Wrong operation due to noise wave emitted by other appliances	1) Check the transmission wire. 2) Check with another remote controller. If “P3” is still indicated, replace the indoor board. If other check code appears, replace the original remote controller. 3) Short-circuit between 1 and 2 of CN40 and attach CN40 to the following units. ● Second unit in twin control ● Second and third units in triple control ● Sub units in group control
P4	Abnormality of drain sensor	1) Bad contact of transmission wire 2) Damaged thermistor	1) Check the connector. 2) Measure the resistance of the thermistor 1 - 3. 0℃ ···6kΩ 15℃ ···3.2kΩ 30℃ ···1.8kΩ 5℃ ···4.8kΩ 20℃ ···2.6kΩ 35℃ ···1.5kΩ 10℃ ···3.9kΩ 25℃ ···2.2kΩ 40℃ 1.3kΩ If the resistance is normal, replace the indoor controller board.
P5	Malfunction of drain pump	1) Malfunction of drain pump 2) Damaged drain sensor	1) Check the drain pump. 2) ● Check the drain sensor. (Check the drop of water is on.) If the resistance is normal, replace the indoor controller board.
P6	Freezing protection/ overheating protection is working.	1) Short cycle of air cycle 2) Dirty air filter 3) Damaged fan 4) Abnormal refrigerant	1) Clear obstructions from the air cycle. 2) Clean the air filter 3) Check the fan. 4) Check the refrigerant temperature.
P7	System error	1) Wrong address-setting 2) Signal transmitting/receiving circuit of remote controller is abnormal. 3) Wrong SW6-setting	1) Check the address-setting. 2) Check with another remote controller. If check code other than “P7” appears, replace the original remote controller. 3) Check SW6 setting.
P8	Abnormality in outdoor unit	1) Wrong wiring of indoor/outdoor connecting wire 2) Reversed phase 3) Protection device is working 4) Damaged outdoor coil thermistor	1) Check the indoor/outdoor connecting wire. 2) Change the connection of electric wiring. 3) Check the protection device. 4) Measure the resistance of the outdoor coil thermistor. If the resistance is normal, replace the outdoor controller board.

3. SERVICE DATA INDICATION BY SWITCHES ON OUTDOOR CONTROLLER BOARD

Setting dip switches SW2 and SW3 on the outdoor controller board enables LED to show the output state and check code. Output state is shown by LED lighting, and check code by blinking.

SW1 : Turning SW1 ON clears the check code. If SW1 is turned ON while the check code is blinking , the indication changes to output state indication.

NOTE : SW1 is usually available independent of SW3 setting. As an exception, when the check code shows a reversed phase or an open phase during the power-on-reset state, SW1 is not available.

SW2 : SW2 is turned ON by pressing, and OFF by releasing.
When SW3-1 and SW3-2 are OFF, pressing SW2 changes indication between output state and check code alternately.
When SW2 is turned On with SW3-1 OFF and SW3-2 ON, the compulsory defrosting starts.

SW3 : Output state indication items depend on the combination of SW3-1 ON/OFF and SW3-2 ON/OFF.

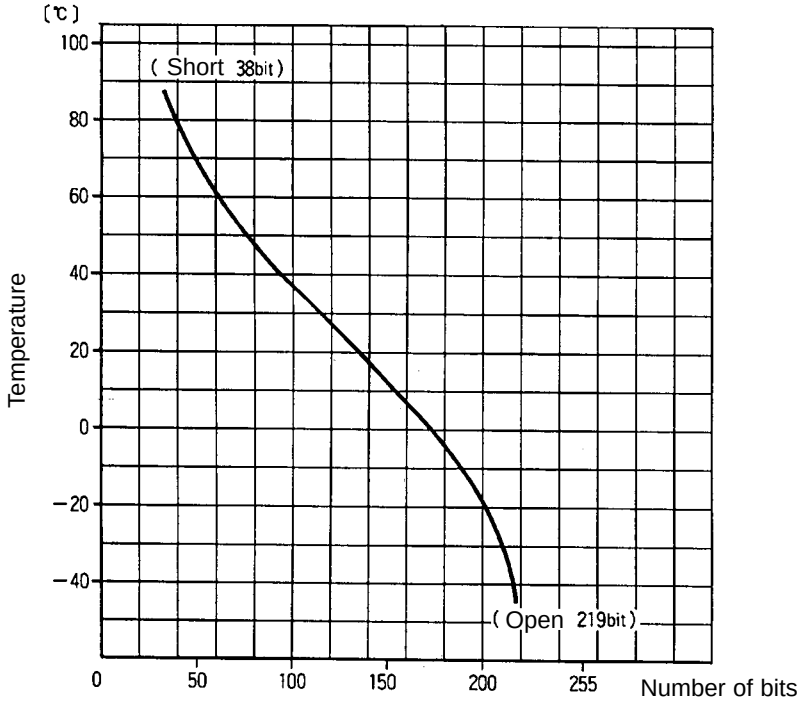
Changed alternately by pressing SW2.

	Check code	Output state	Outdoor coil temperature (bit)	Fan Output step (bit)	Total time of compressor operation(Hr)
SW3-1	OFF	OFF	OFF	ON	ON
SW3-2	OFF	OFF	ON	OFF	ON
LED	Blinking	Lighting			
LD1	Reversed phase	Compressor ON command from indoor controller	1	1	256
LD2	Open phase	Heating operation command from indoor controller	2	2	512
LD3	Outdoor coil thermistor is abnormal	During 63H1 function	4	4	1024
LD4	63H2 function	Compressor ON	8	8	2048
LD5	51C function	Outdoor fan ON	16	16	4096
LD6	26C function	4-way valve ON	32	32	8192
LD7	Overheat protection	Bypass valve ON ※	64	64	16384
LD8	Input circuit on controller board is abnormal	Crankcase heater ON	128	128	32768

※Regarding PUH-6YKSA$_2$.UK, even though the LD7 is blinking during the cooler operation, the bypass valve cannot open.

3-1 Outdoor coil temperature

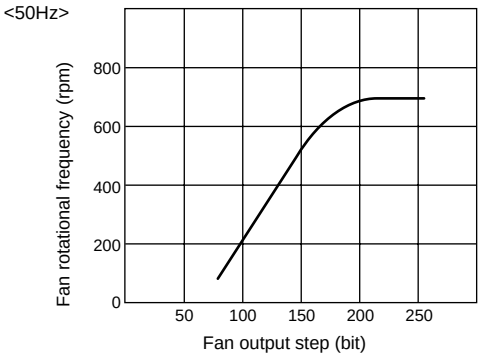
To obtain data on the outdoor coil temperature, add the number of bits of lighting LEDs, and see the graph below to find the temperature.



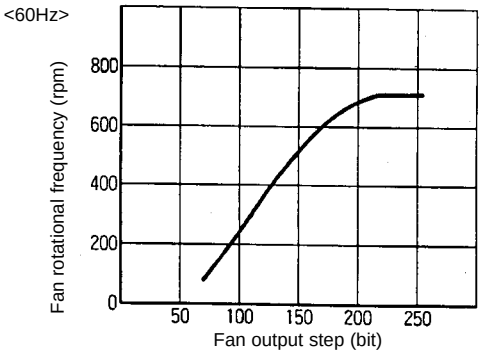
3-2 Fan output step

To obtain data on the fan output step, add the number of bits of lighting LEDs, and see the graph below to find the fan rotational frequency.

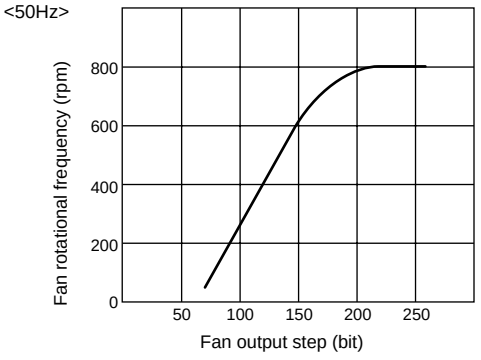
①PUH-4K type



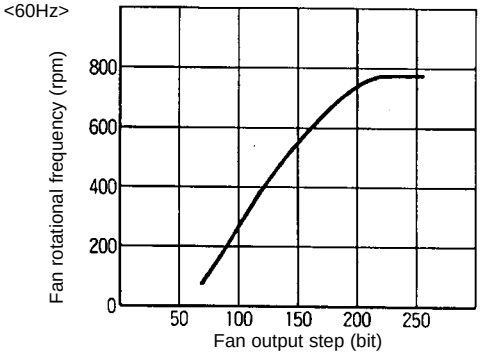
PUH-4K type



②PUH-3.5.6K type



PUH-3.5.6K type



3-3 Total time of compressor operation

Compressor operation time is indicated in every accumulated-256-hour. To obtain the compressor operation time, add the hours of lighting LEDs. During the compressor operation time indication, SW2 is not available.

3-4 Check code indication

- When a protection function works for the first time during operation, the operation stops and restarts after the 3-minutes time delay mode. When the protection function works again, the operation stops. (Check mode) When both SW3-1 and SW3-2 are OFF, the check code is indicated.
- If the outdoor controller board receives the compressor ON command from the indoor controller board during check mode the indication changes to output state indication.
- By pressing SW2 during normal operation, operation will continue.
- The latest check code is indicated.

4. TROUBLESHOOTING ACCORDING TO CHECK CODE

Blinking LED	Diagnosis of malfunction	Cause	Check point
LD1	Reversed phase	Phases L_1, L_2, and L_3 are connected improperly.	Check the power supply connection.
LD2	Open phase	● Phase L_2 is open. ● Contact of protector, such as thermal switch, opened when power was turned on.	● Check the power supply. ● Check each protector.
LD3	Outdoor coil thermistor is abnormal. (Open circuit or short circuit)	● Outdoor coil thermistor is broken. ● Thermistor was connected incorrectly.	● Measure the resistance of the thermistor. ● Check the thermistor. If normal, replace the outdoor controller board.
LD4	High pressure switch (63H2) function	● 62H2 was badly connected. ● 63H2 was working.	● Check 63H2 and the outdoor fan motor. ● Check if refrigerant supply is low. ● Check if air cycle is short-cycled.
LD5	Thermal relay (51C) function	● 51C was connected incorrectly. ● 51C was working.	● Check 51C, the compressor, and power supply.
LD6	Thermal switch (26C) function.	● 26C was connected incorrectly. ● 26C is working.	● Check 26C. ● Check if refrigerant supply is low. ● Check if the capillary tube is clogged.
LD7	Over heat protection	● The thermistor is broken. ● Coil temperature is over 67°C.	● Measure the resistance of the thermistor. ● Check the outdoor fan motor. ● Check if air cycle is short-cycled.
LD8	Input circuit of outdoor controller board is abnormal.	● Pulse input is abnormal.	● Replace the outdoor controller board.

5. WHEN OUTDOOR UNIT DOES NOT WORK

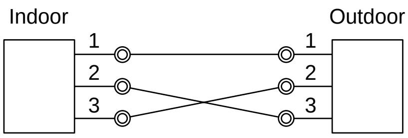
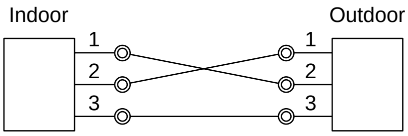
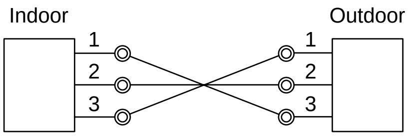
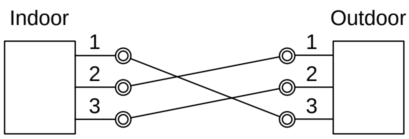
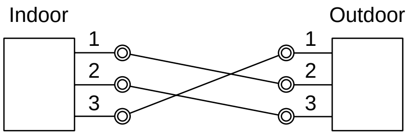
Cause	Check points
1) Indoor/outdoor connecting wires are poorly connected. (Refer to next page.)	1) Check the connecting wires.
2) Power supply is poorly connected.	2) Check the power supply.
3) Connector or transformer is broken.	3) Check connectors and transformers.
4) Fuse (6A) in the outdoor controller board is blown.	4) Check the fuse.

6. WRONG WIRING ON SITE

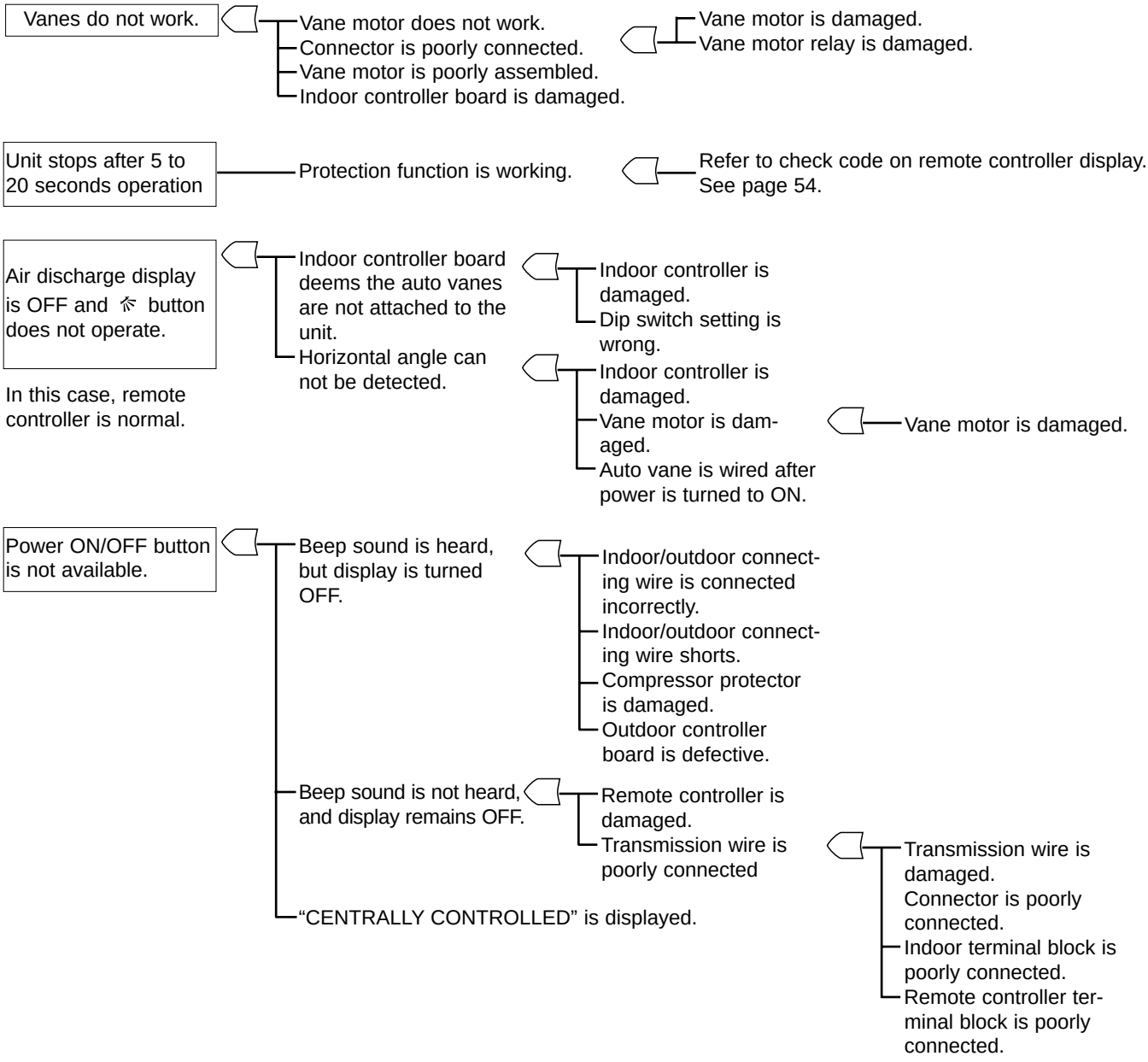
6-1 Between remote controller and indoor unit

If the wire is disconnected between the remote controller and the indoor unit, nothing is displayed on the remote controller when the POWER button is pressed. The beep sound will also not be heard.

6-2 Phenomenon due to wrong wiring between indoor and outdoor units

Wrong Wiring	Mode	Thermostat	Phenomenon
	COOL	OFF	Operation stops.
		ON	4-Way valve turns ON. 9 minutes later, check code “P8” appears on remote controller display.
	HEAT	OFF	Cooling operation. Several minutes later, check code “P8” appears on remote controller display.
		ON	Normal operation.
	COOL	OFF	Outdoor unit stops.
		ON	Operation stops. 9 minutes later, check code “P8” appears on remote controller display.
	HEAT	OFF	Operation stops.
		ON	Operation stops. 27 minutes later, check code “P8” appears on remote controller display.
	COOL	OFF	Outdoor unit stops.
		ON	Operation stops. 9 minutes later, check code “P8” appears on remote controller display.
	HEAT	OFF	Operation stops.
		ON	Operation stops. 27 minutes later, check code “P8” appears on remote controller display.
	COOL	OFF	Outdoor unit stops.
		ON	Operation stops. 9 minutes later, check code “P8” appears on remote controller display.
	HEAT	OFF	Operation stops.
		ON	Operation stops. 27 minutes later, check code “P8” appears on remote controller display.
	COOL	OFF	Outdoor unit stops.
		ON	Operation stops. 9 minutes later, check code “P8” appears on remote controller display.
	HEAT	OFF	Operation stops.
		ON	Operation stops. 27 minutes later, check “P8” appears on remote controller display.
Disconnection between 1 and 1 or 2 and 2.	COOL	OFF	Operation stops.
		ON	Operation stops. 9 minutes later, check code “P8” appears on remote controller display.
	HEAT	OFF	Operation stops. 4-way valve turns OFF.
		ON	27 minutes later, check code “P8” appears on remote controller display.
Disconnection between 3 and 3.	COOL	–	Normal operation.
	HEAT	OFF	Operation stops. 4-way valve turns ON.
		ON	Operation stops. 27 minutes later check code “P8” appears on remote controller display.

7. OTHER TROUBLES AND CAUSES



8. MR. SLIM/LOSSNAY INTERLOCK OPERATION

<Symptoms that are not malfunctions>

If any of the following symptoms occur, they are not malfunctions.

Symptom	Cause
LOSSNAY control switch does not work.	LOSSNAY control switch can not work during interlock operation. LOSSNAY control switch is effective only while Mr. SLIM is not operating.
LOSSNAY air speed can not be controlled in interlock operation.	LOSSNAY fan speed is fixed to HIGH during interlock operation. LOSSNAY fan speed LOW/HIGH can be switched only during LOSSNAY individual operation with the LOSSNAY control switch.

For LOSSNAY, troubleshooting refer to the LOSSNAY technical & service manual.

9. HOW TO CHECK THE PARTS

PLH-3AK.UK PLH-4AKS.UK PLH-5AKS.UK PLH-6AKS.UK
PLH-3AK$_1$.UK PLH-4AKS$_1$.UK PLH-5AKS$_1$.UK PLH-6AKS$_1$.UK
PLH-3AKH.UK PLH-4AKHS.UK PLH-5AKHS.UK PLH-6AKHS.UK
PLH-3AKH$_1$.UK PLH-4AKHS$_1$.UK PLH-5AKHS$_1$.UK PLH-6AKHS$_1$.UK

Parts name / Check points

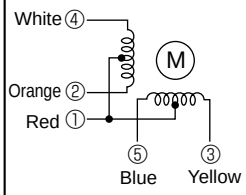
Room temperature thermistor (RT1)
Pipe temperature thermistor (RT2)

Disconnect the connector then measure the resistance using a tester.
(Surrounding temperature 10℃~30℃)

Normal	Abnormal
4.3kΩ~9.6kΩ	Open or short

(Refer to the thermistor)

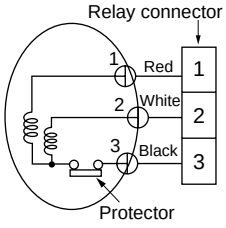
Vane motor



Measure the resistance between the terminals using a tester.
(Surrounding temperature 20℃)

Connector	Normal	Abnormal
Red — Yellow	300Ω	Open or short
Red — Blue		
Red — Orange		
Red — White		

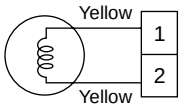
Fan motor



Measure the resistance between the terminals using a tester.
(Surrounding temperature 20℃)

Motor terminal or Relay connector	Normal		Abnormal
	PLH-		
	3AK(H).UK	4,5,6AK(H)S.UK	
Red-Black	87.2Ω	28.7Ω	Open or short
White-Black	104.1Ω	41.6Ω	

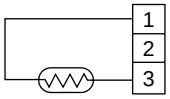
Drain pump



Measure the resistance between the terminals using a tester.
(Surrounding temperature 20℃)

Normal	Abnormal
290Ω	Open or short

Drain sensor



Measure the resistance between the terminals using a tester.
Measure the resistance after 3 minutes have passed since the power supply was intercepted.
(Surrounding temperature 0℃~60℃)

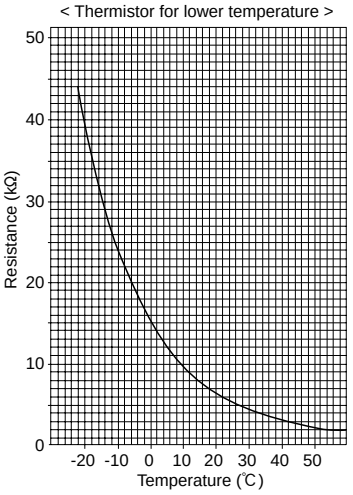
Normal	Abnormal
0.6kΩ~6.0kΩ	Open or short

(Refer to the thermistor)

<Thermistor Characteristic graph>

Thermistor for lower temperature

Room temperature thermistor(RT1)
Pipe temperature thermistor(RT2)

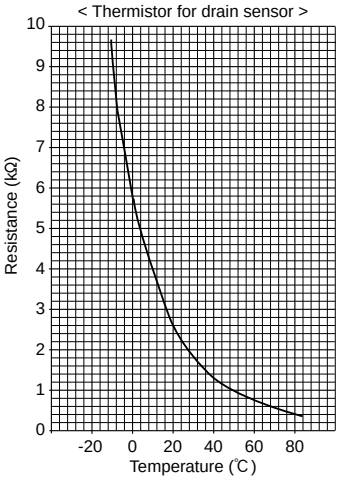


Thermistor R_0=15kΩ ± 3%
Fixed number of B=3480K ± 2%

$$Rt=15\exp\{3480(\frac{1}{273+t}-\frac{1}{273})\}$$

0℃	15kΩ
10℃	9.6kΩ
20℃	6.3kΩ
25℃	5.2kΩ
30℃	4.3kΩ
40℃	3.0kΩ

Thermistor for drain sensor



Thermistor R_0=6.0kΩ ±5%
Fixed number of B=3390K ±2%

$$Rt=15\exp\{3390(\frac{1}{273+t}-\frac{1}{273})\}$$

0℃	6.0kΩ
10℃	3.9kΩ
20℃	2.6kΩ
25℃	2.2kΩ
30℃	1.8kΩ
40℃	1.3kΩ
60℃	0.6kΩ

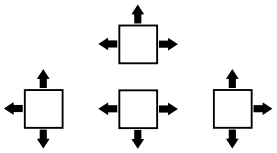
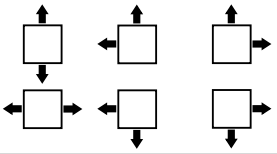
11 4-WAY AIR FLOW SYSTEM

1. Placement of the air outlets

For this grille, the blowout direction comes in 11 patterns.
Also, by setting the dip switches (SW8-3, SW8-4) on the indoor board to the appropriate settings, you can adjust the air flow and speed. Select the settings from Table according to the location in which you want to install the unit.

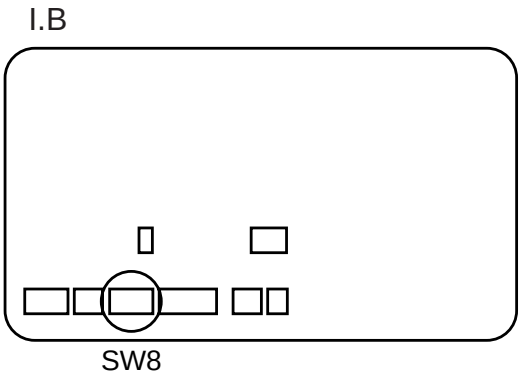
1) Decide on the pattern of the airflow direction.

<Table 1>

Blowout direction pattern	4-direction	3-direction	2-direction
	Pattern 1 Factory setting	Pattern 4 One air outlet fully closed	Pattern 6 Two air outlet fully closed
			

Note1.
For 3 and 2-directional, please use the air outlet shutter plate (option).

2) According to the number of air outlets and height of the ceiling to install the unit, be sure to set the switches (SW8-3, SW8-4) on the indoor board to the appropriate setting.
Correspondence of ceiling heights to numbers of air outlets.



Ceiling height & discharge direction

(Unit : m)

PLH-3AK PLH-3AKH		Standard	High ceiling ①	High ceiling ②
SW8-3, 4 \ SW8-1, 2		SW8-1 OFF SW8-2 OFF	SW8-1 ON SW8-2 OFF	SW8-1 ON SW8-2 ON
4 direction	SW8-3 OFF SW8-4 OFF	2.7m	3.0m	3.5m
3 direction	SW8-3 ON SW8-4 OFF	3.0m	3.3m	3.5m
2 direction	SW8-3 ON SW8-4 ON	3.3m	3.5m	—

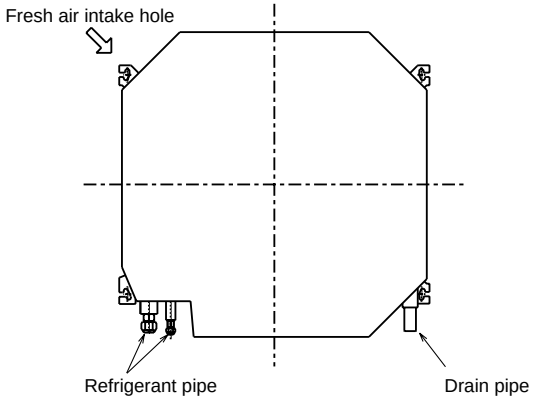
PLH-4, 5, 6AKS PLH-4, 5, 6AKHS		Standard	High ceiling ①	High ceiling ②
SW8-3, 4 \ SW8-1, 2		SW8-1 OFF SW8-2 OFF	SW8-1 ON SW8-2 OFF	SW8-1 ON SW8-2 ON
4 direction	SW8-3 OFF SW8-4 OFF	3.2m	3.6m	4.2m
3 direction	SW8-3 ON SW8-4 OFF	3.6m	4.0m	4.2m
2 direction	SW8-3 ON SW8-4 ON	4.0m	4.2m	—

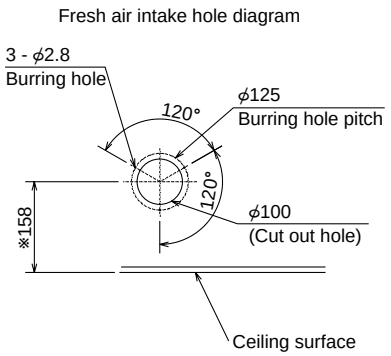
2. Fresh air intake (Location for installation)

At the time of installation, use the duct holes (cut out) located at the positions shown in following diagram, as and when required.

Note :

Be sure to add135mm to the dimensions in the diagram that are marked with a "※" if installing a multi function casement (Option)



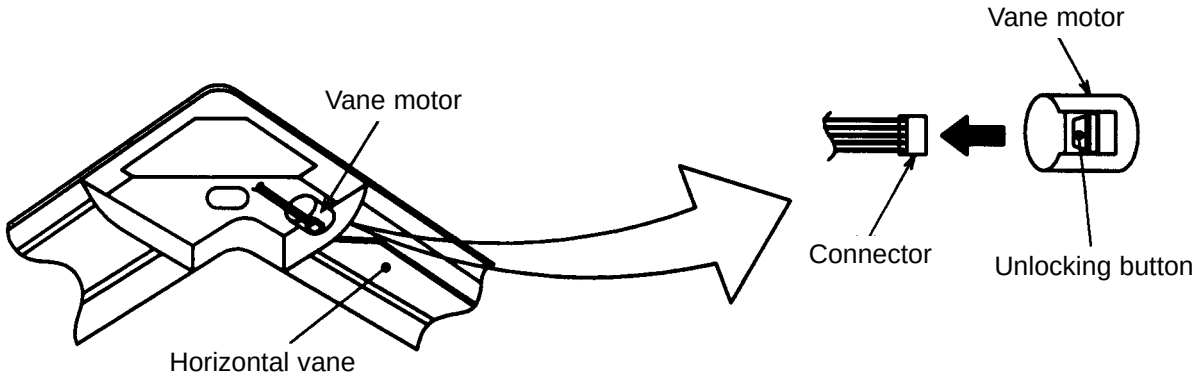


3. Fixing of horizontal vane

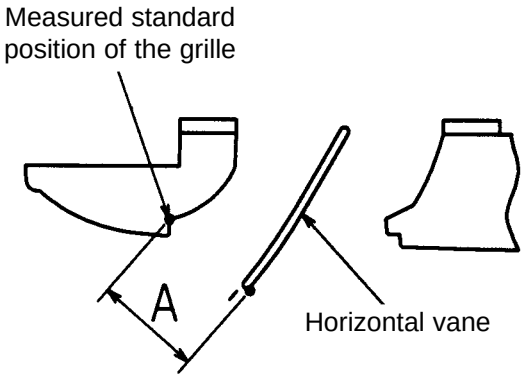
Horizontal vane of each air outlet can be fixed according to the environment, in which it is installed.

Setting procedure

1) Turn off the main power supply (Turn off the breaker).
2) Disconnect the vane motor connector of the direction of the arrow by pressing the unlocking button as shown in the figure below.)
   Electrically insulate the disconnected connector with vinyl tape.



3) The vane angle can be fixed by turning the vame by hand.
   The vane should remain within the angles shown in the table below.



<Set range>

Standard of horizontal position	Level 30° (Min.)	Downward 45°	Downward 55°	Downward 70° (Max.)
Dimension A (mm)	26	29	33	37

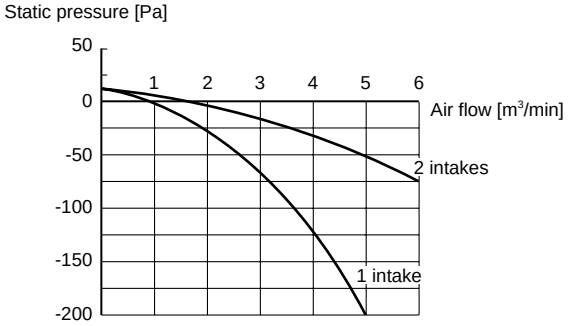
※ Dimension between 26mm and 37mm can be arbitrarily set.

Caution	Do not set the dimension out of the range.
	It could cause dew drips and stains on the ceiling, etc. and the unit may be damaged.

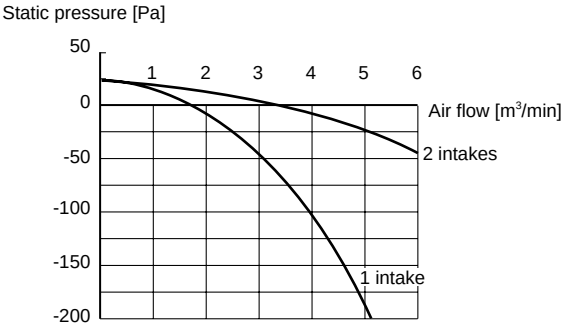
4. Fresh air intake amount & static pressure characteristics

(1) PLH-3AK.UK PLH-3AKH.UK
PLH-3AK$_1$.UK PLH-3AKH$_1$.UK

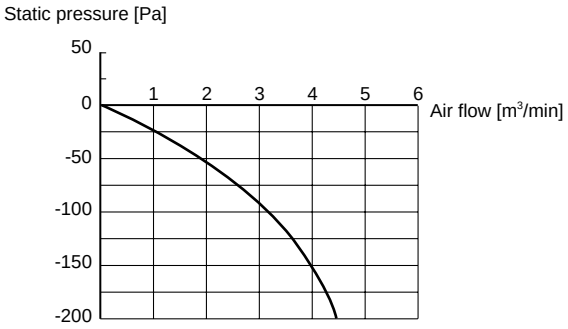
Multifunction casement + Standard filter



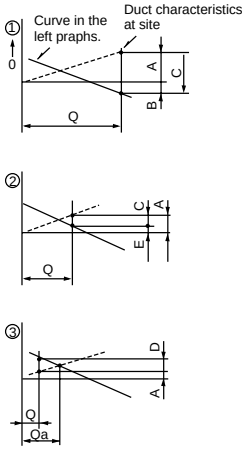
Multifunction casement + High efficiency filter



Taking air into the unit



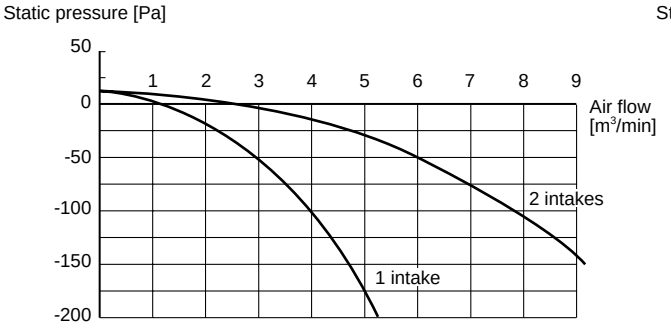
How to read curves



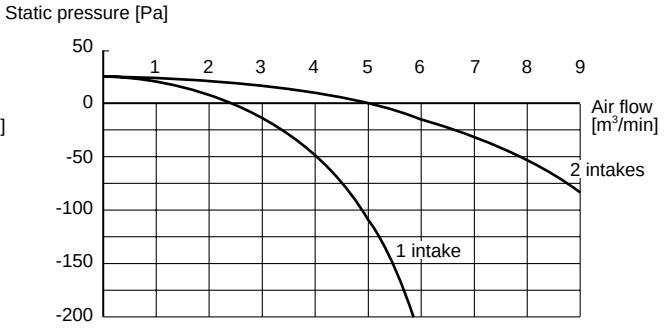
Q…Planned amount of fresh air intake <m³/min>
A…Static pressure loss of fresh air intake duct system with air flow amount Q <Pa>
B…Forced static pressure at air conditioner inlet with air flow amount Q <Pa>
C…Static pressure of booster fan with air flow amount Q <Pa>
D…Static pressure loss increase amount of fresh air intake dust system for air flow amount Q <Pa>
E…Static pressure of indoor unit with air flow amount Q <Pa>
Qa…Estimated amount of fresh air intake with out D <m³/min>

(1) PLH-4, 5, 6AKS.UK PLH-4, 5, 6AKHS.UK
PLH-4, 5, 6AKS$_1$.UK PLH-4, 5, 6AKHS$_1$.UK

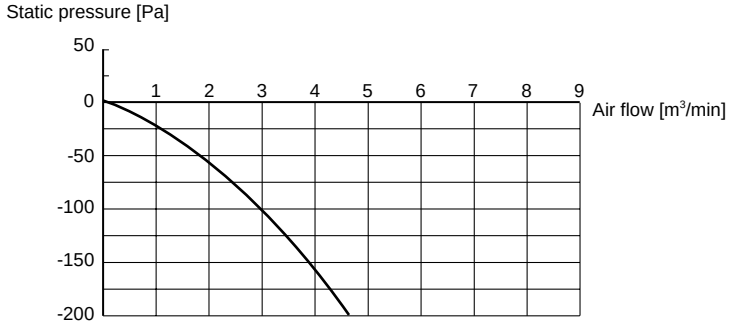
Multifunction casement + Standard filter



Multifunction casement + High efficiency filter



Taking air into the unit



5. Interlocking operation method with duct fan (Booster fan)

● Whenever the indoor unit is operating, the duct fun operates.

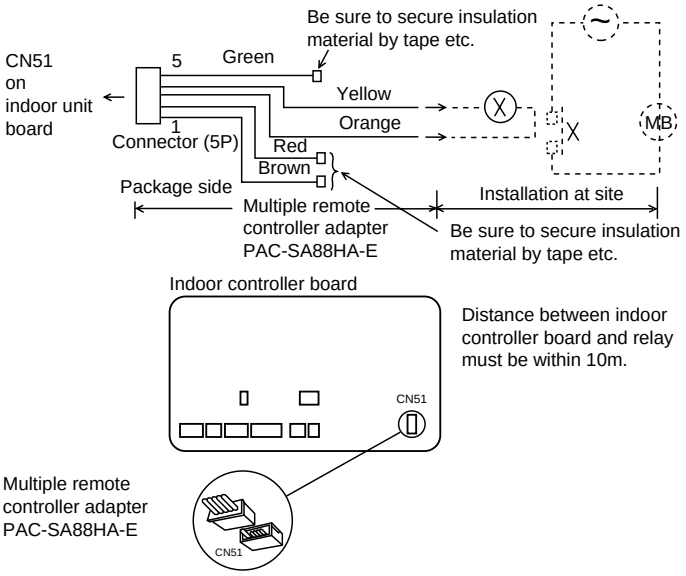
(1)Connect the optional multiple remote controller adapter(PAC-SA88HA-E)to the connector CN51 on the indoor controller board.

(2)Drive the relay after connecting the 12V DC relay between the Yellow and Orange connector lines.

MB: Electromagnetic switch power relay for duct fan.

X: Auxiliary relay

(For DC 12V, coil rating : 1.0W or below)



6. BRANCH DUCT(Installation at site)

Discharge by branch duct becomes possible by installing a branch duce at site. Knockout holes on the wall panel of the indoor unit must be removed.

6-1 Branch Duct Installation Procedure

At the time of installation, use the duct holes (cut out) located at the positions shown in following diagram, as and when required.

Note :

The figure marked with ※ in the drawing represent the dimensions of the main unit excluding those of the optional multi function casement.

When installing the optional multi function casement, add 135 mm to the dimensions marked on the figure.

When installing the branch ducts, be sure to insulate adequately. Otherwise condensation and dripping may occur.

Fig 1. Branch duct mounting position

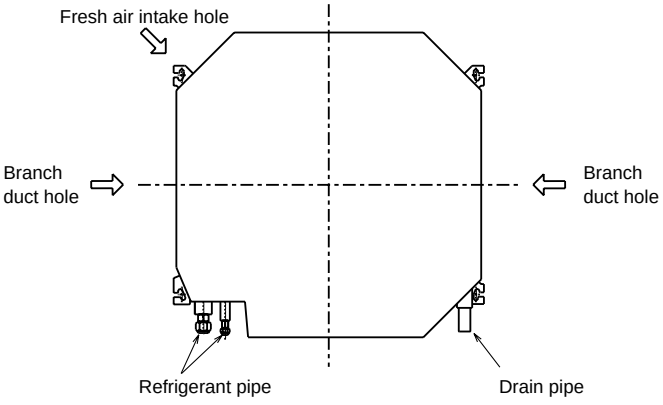
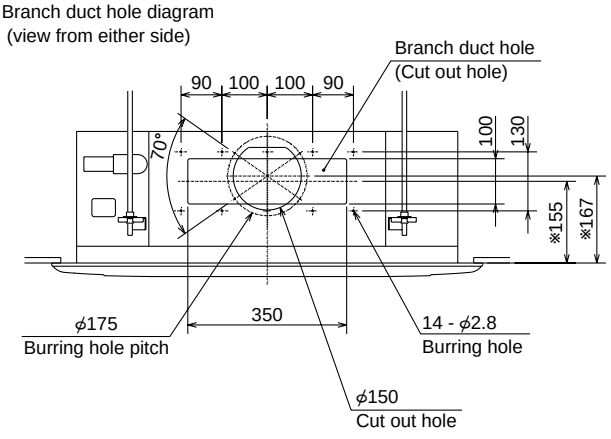


Fig 2. Branch duct connection details

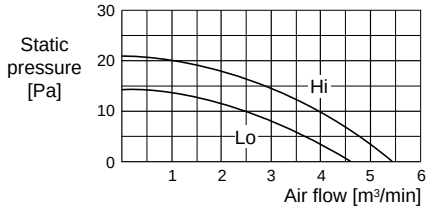


7. Air flow & Static pressure characteristics of Branch Duct (with SWA at “Standard”)

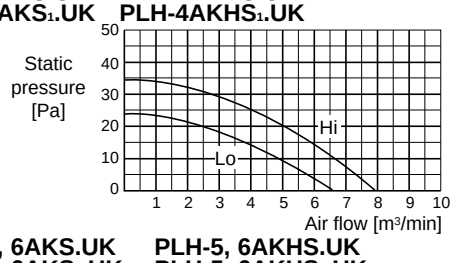
4 direction airflow (Horizontal vane)

Rectangular duct

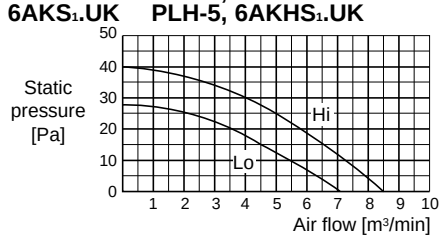
PLH-3AK.UK PLH-3AKH.UK
PLH-3AK1.UK PLH-3AKH1.UK



PLH-4AKS.UK PLH-4AKHS.UK
PLH-4AKS1.UK PLH-4AKHS1.UK

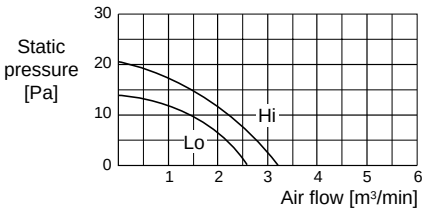


PLH-5, 6AKS.UK PLH-5, 6AKHS.UK
PLH-5, 6AKS1.UK PLH-5, 6AKHS1.UK

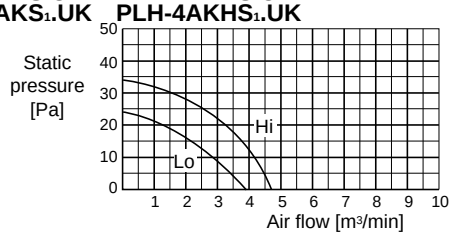


Round duct

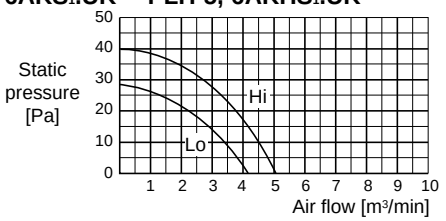
PLH-3AK.UK PLH-3AKH.UK
PLH-3AK1.UK PLH-3AKH1.UK



PLH-4AKS.UK PLH-4AKHS.UK
PLH-4AKS1.UK PLH-4AKHS1.UK



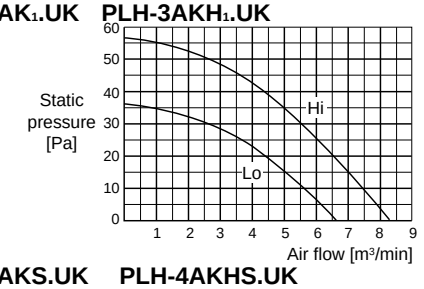
PLH-5, 6AKS.UK PLH-5, 6AKHS.UK
PLH-5, 6AKS1.UK PLH-5, 6AKHS1.UK



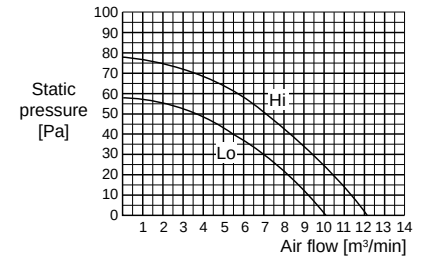
3 direction airflow (Horizontal vane)

Rectangular duct

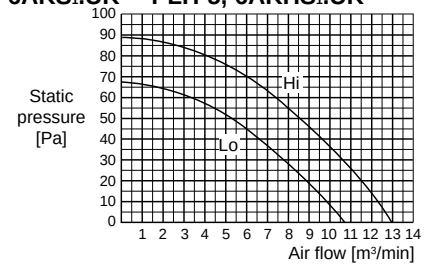
PLH-3AK.UK PLH-3AKH.UK
PLH-3AK1.UK PLH-3AKH1.UK



PLH-4AKS.UK PLH-4AKHS.UK
PLH-4AKS1.UK PLH-4AKHS1.UK

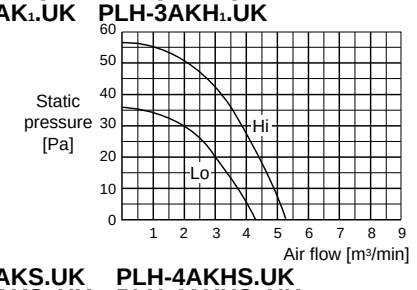


PLH-5, 6AKS.UK PLH-5, 6AKHS.UK
PLH-5, 6AKS1.UK PLH-5, 6AKHS1.UK

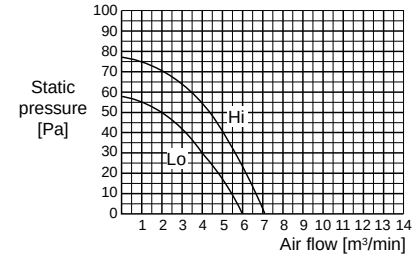


Round duct

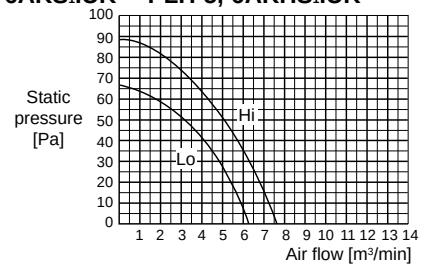
PLH-3AK.UK PLH-3AKH.UK
PLH-3AK1.UK PLH-3AKH1.UK



PLH-4AKS.UK PLH-4AKHS.UK
PLH-4AKS1.UK PLH-4AKHS1.UK



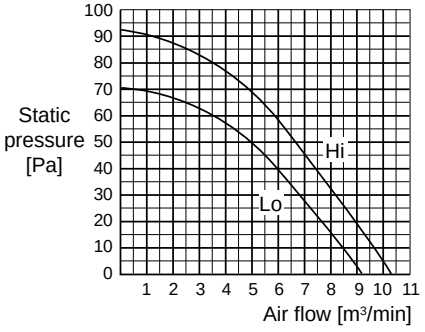
PLH-5, 6AKS.UK PLH-5, 6AKHS.UK
PLH-5, 6AKS1.UK PLH-5, 6AKHS1.UK



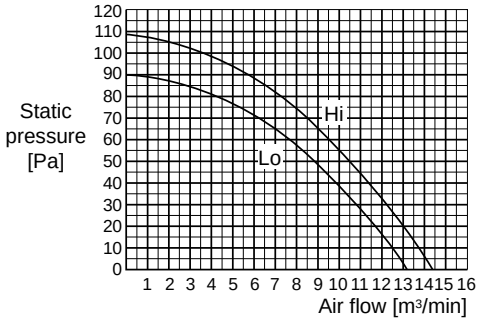
2 direction airflow (Horizontal vane)

Rectangular duct

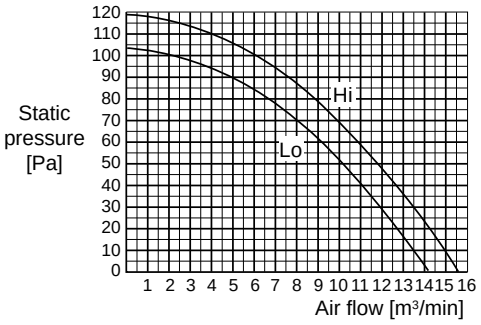
PLH-3AK.UK PLH-3AKH.UK
PLH-3AK$_1$.UK PLH-3AKH$_1$.UK



PLH-4AKS.UK PLH-4AKHS.UK
PLH-4AKS$_1$.UK PLH-4AKHS$_1$.UK

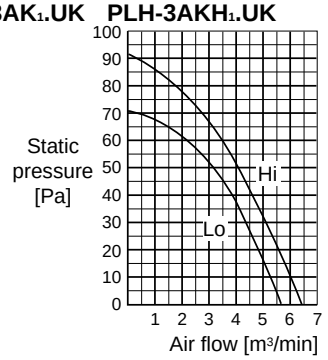


PLH-5, 6AKS.UK PLH-5, 6AKHS.UK
PLH-5, 6AKS$_1$.UK PLH-5, 6AKHS$_1$.UK

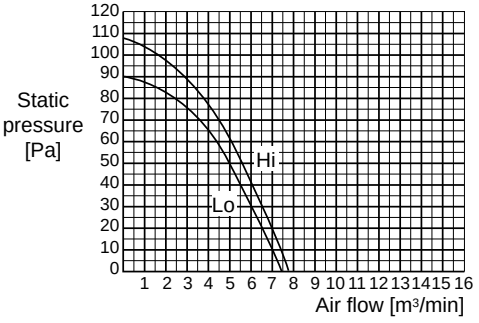


Round duct

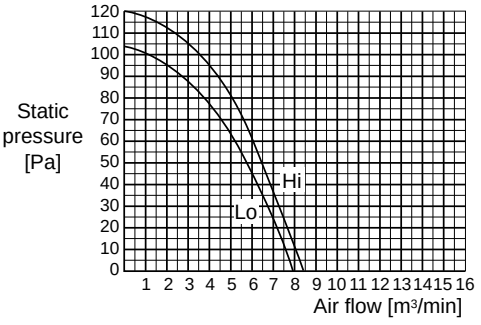
PLH-3AK.UK PLH-3AKH.UK
PLH-3AK$_1$.UK PLH-3AKH$_1$.UK



PLH-4AKS.UK PLH-4AKHS.UK
PLH-4AKS$_1$.UK PLH-4AKHS$_1$.UK

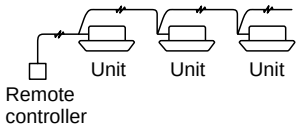
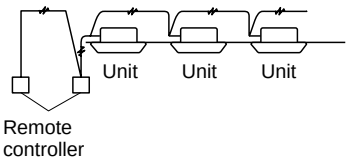
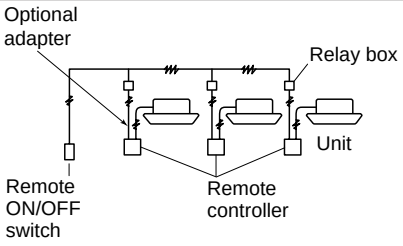
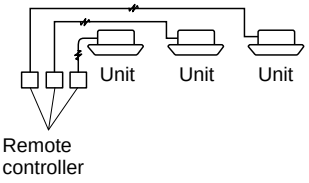
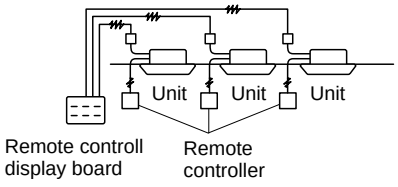
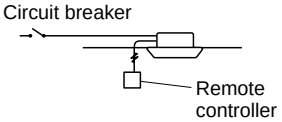


PLH-5, 6AKS.UK PLH-5, 6AKHS.UK
PLH-5, 6AKS$_1$.UK PLH-5, 6AKHS$_1$.UK



12 SYSTEM CONTROL

1. VARIETY OF SYSTEM CONTROL FUNCTIONS

1 Group control with a single remote controller (See page 73.)		Many units, installed at different locations, can be started and controlled with a single remote controller. The remote controller can be mounted in a different location using a non-polar two-wire cable, which can be extended up to 500m. A maximum of 50 units can be controlled with a single remote controller. All units operate in the same mode.
2 Control using two remote controllers (See page 74.)		Two remote controllers can be used to control either one unit or a group of units. Units can then be controlled from a distance or at close range. Units operate according to the latest command from either remote controller.
3 Both remote ON/OFF and individual controls (See page 74.) ※ Timer adapter (PAC-SA89TA-E) is needed.		All units can be turned on or off simultaneously using a remote ON-OFF switch. Also, each unit can be controlled individually by each remote controller. Dunning remote ON-OFF control, a message of “CENTRALLY CONTROLLED” is displayed on the LCD of the remote controller. This is available for both one unit control and several units control.
4 Individual control by grouping remote controllers (See page 75.)		By grouping the remote controllers in one place, several units installed at different locations can be controlled individually, and operation conditions of all units are visible without a special control board. The control method is the same as that of the single unit with a single remote controller.
5 Multiple remote control display (See page 76.) ※ Multiple display adapter (PAC-SA88HA-E) is needed.		Several units can be controlled with a remote control display board. Operation conditions of all the units are visible with the remote control display board. Individual control by each remote controller is also possible.
6 Auto restart function (See page 76.)		A unit can be started or stopped with the circuit breaker on or off. Remote controller is also available. With this function, when the power is restored after power failure, the unit will restart automatically. (However, when the remote controller POWER ON/OFF button is OFF, the unit will not start.)

2. GROUP CONTROL WITH A SINGLE REMOTE CONTROLLER

A maximum of 50 units can be started in order according to the dip switch settings

2-1 How to wire

(1) Connect the remote controller to the double terminal block on the indoor controller board of the master unit (No.0 unit). (See Figure 1.)
(2) Connect the double terminal block of the master unit to the double terminal block of No.1 unit.
(3) Connect the double terminal block of No.1 unit to the double terminal block of No.2 unit.
(4) Continue the process until all the units are connected with two-wire cables. (See Figure 2.)
(5) Remove the connector CN40 from the indoor controller board of each unit except the master unit. (See Figure 3.)
(6) Set the unit-address of each unit with SW2 on the indoor controller board following the instructions below.

2-2 How to set unit-address

The unit-address also serves as a successive-start timer which starts each unit at intervals of 1 second. If two or more units have the same unit-address in a group control, operation stops due to system error. Be sure to set SW2 correctly following the instructions below.

(1) Each lever of SW2 shows the number as follows.
SW2-1 : 1 SW2-4 : 8
SW2-2 : 2 SW2-5 : 16
SW2-3 : 4 SW2-6 : 32
(2) Total number of levers turned to ON shows the address of the unit.
For example, to set No.3 unit, turn ON SW2-1 and SW2-2.
(3) In this way, set from the master unit to the last unit.
Do not forget to set the master (No. 0) unit.

Figure 1

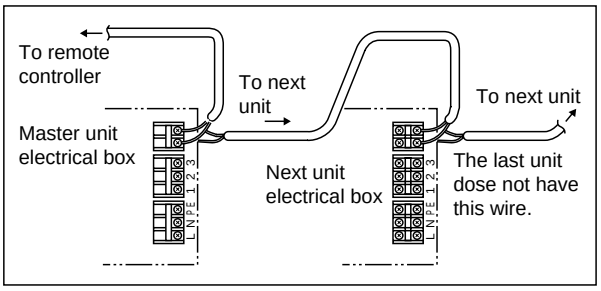


Figure 2

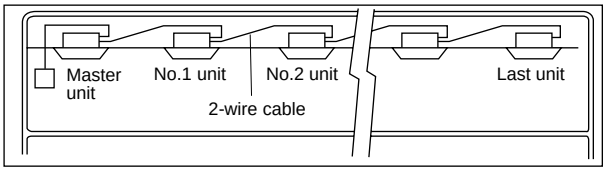
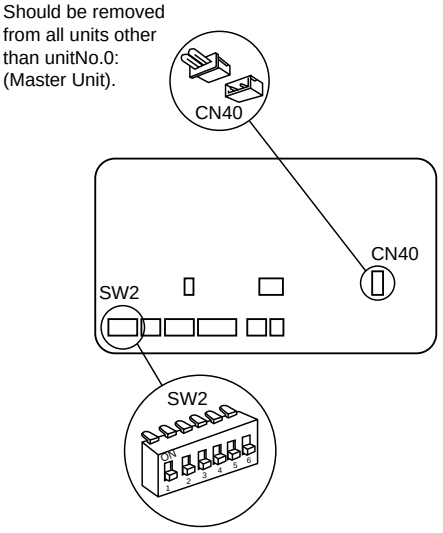
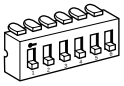
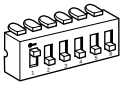
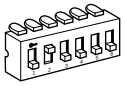
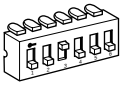
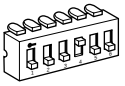
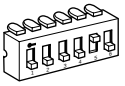
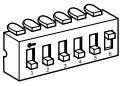


Figure 3

Indoor controller board ▼



Setting examples

	Master (No. 0) unit	No. 1 unit	No. 2 unit	No. 4 unit	No. 8 unit	No. 16 unit	No. 32 unit
SW2	ALL OFF 	1 ON 	2 ON 	3 ON 	4 ON 	5 ON 	6 ON 
Unit address & start delay in seconds.	0	1	2	4	8	16	32

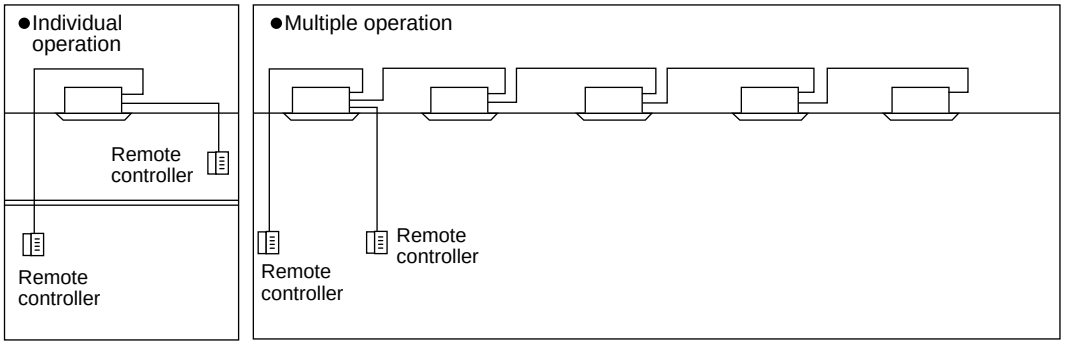
2-3 Unit control

The remote controller can control all units ON/OFF, temperature, air flow, and swing louver. However, the thermostat in each unit turns ON or OFF individually to adjust to the room temperature.

3. CONTROL USING TWO REMOTE CONTROLLERS : OPTIONAL REMOTE CONTROLLER (PAR-JA240KA)

Two remote controllers can be used to control either one unit or a group of units. Units operate according to the latest command from either of the two remote controllers.
Before operation, be sure to set one remote controller as the “main controller” and the other as the “sub controller”, using dip switch SW17-7 of the remote controller.

Figure 4



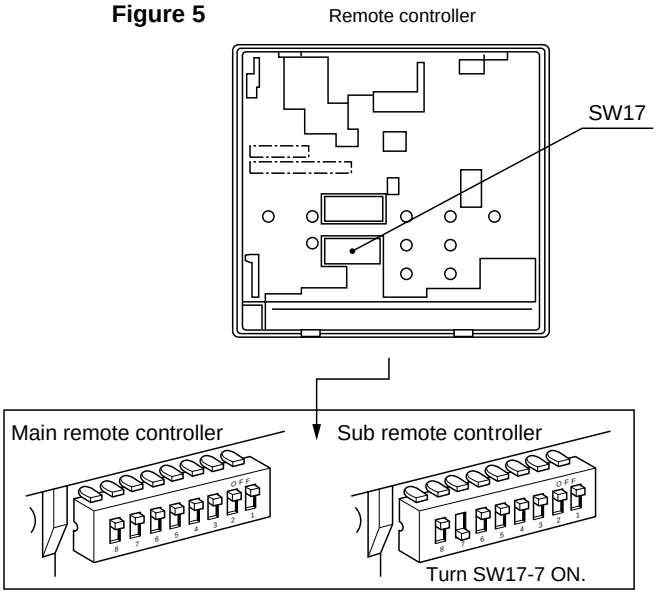
3-1 How to set SW17-7 (See Figure 5.)

(1) For the main remote controller, turn SW17-7 OFF.
(2) For the sub remote controller, turn SW17-7 ON.

3-2 Remote controller LCD indication

(1) The same indications always appear on both the main and sub remote controllers, except during the timer operations.
(2) Timer operations can be set with either of the two remote controllers. However, LCD indication appears only on the remote controller used for timer-settings.
(3)If both remote controllers are set for timer operation with different time-settings, the timer operation with the shorter remaining-time is effective.
(4) Self-diagnostic function is available with either of the two remote controllers. If one of the remote controllers is used for the self-diagnostic function, the other remote controller displays the check mode. If the self-diagnostic function is reset by either of the two remote controllers, both remote controllers are reset.

Figure 5



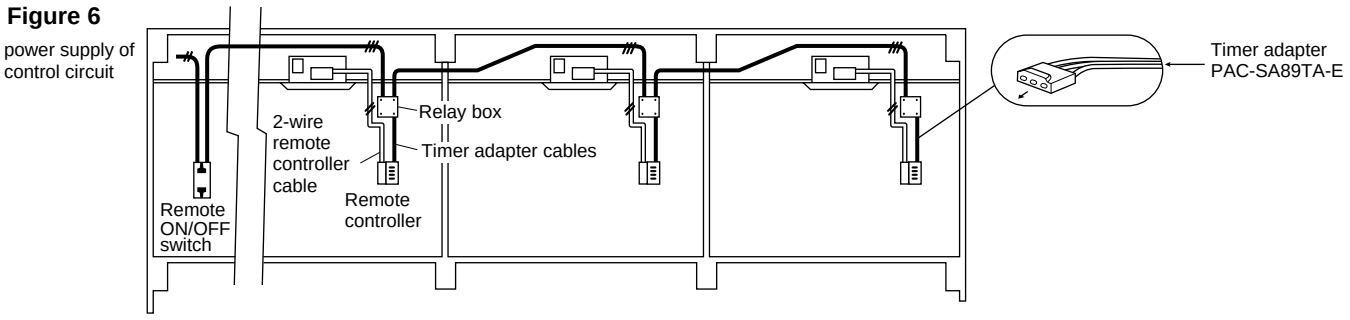
4. REMOTE ON-OFF AND INDIVIDUAL REMOTE CONTROLS

This method is available to control one unit or any number of units.
The following operations are available by connecting a relay, a timer adapter (PAC-SA89TA-E), and a remote ON/OFF switch to the system. Timer adapter is an optional part. Other parts are available on the market.
(A) To start all units in order by remote ON-OFF switch
(B) To stop all units simultaneously by remote ON-OFF switch
(C) To switch between the remote ON-OFF control and the individual remote control

4-1 System

Figure 6 shows the case of three units. The same is the case with any number of units.

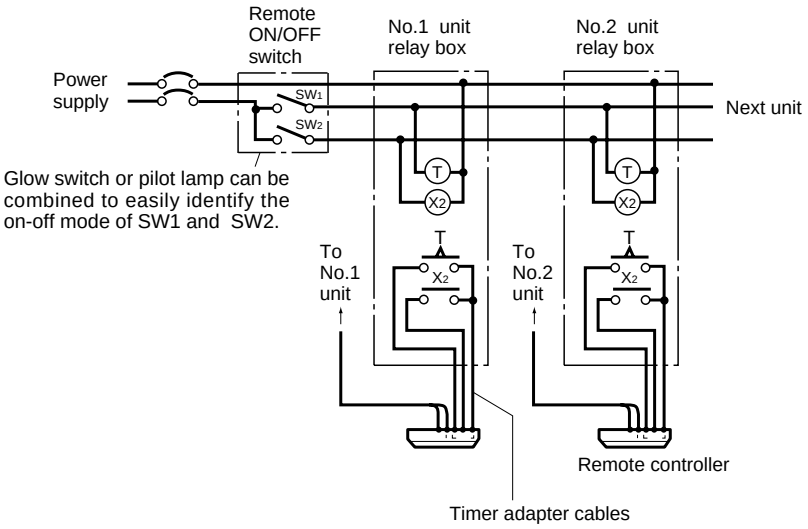
Figure 6



NOTE1 : Install the relay box where you can be serviced it easily.
NOTE2 : For control circuit wiring, use a wire of No. 14 AWG or a control cable according to the power supply of control circuit.
NOTE3 : When the power supply of the control circuit is 220/240V AC,
- ● Do not connect the control circuit wire to the remote controller cable directly.
- ● Do not place the control circuit wire and the remote controller cable into the same conduit tube.

4-2 Basic wiring

Caution : Before starting all units simultaneously by the remote ON-OFF switch, be sure to connect a sequence-start timer into the remote ON-OFF circuit. Otherwise, a rush of starting current may damage the power supply.



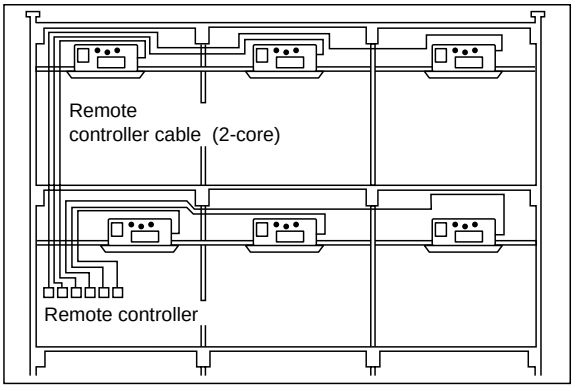
4-3 Switch function of remote ON-OFF switch

		SW2 (Switches between remote control and individual control)	
		ON (Remote ON-OFF control)	OFF (Individual control)
SW1 (Switches between remote ON and OFF.)	ON (Start)	All units start at once. ※1 Individual control is not available.	Each unit can be controlled by each remote controller. Remote ON-OFF switch is not available.
	OFF (Stop)	All units stop at once. ※2 Individual control is not available.	

※1 After all units start at once, if SW2 is turned OFF, each unit can be individually stopped by each remote controller.
※2 After all units stop at once, if SW2 is turned OFF, each unit can be individually started by each remote controller.

5. INDIVIDUAL CONTROL BY GROUPING THE REMOTE CONTROLLERS

- ● Grouping the remote controllers allows individual control and centralized monitoring of units installed in different places without a special control board.
- ● Remote control cables are extendible up to 500m. When the cable length exceeds 12m, use the double-insulated two-care cable such as Belden 9407. Also, the cable thickness must be No. 22 AWG or above.
- ● When gathering the power ON/OFF switches of air conditioners near the remote controllers, you should also install the power ON/OFF switch near each unit to prevent electric trouble during servicing.



6. MULTIPLE REMOTE CONTROL DISPLAY

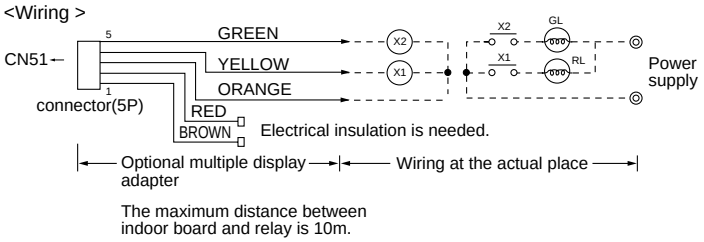
You can control several units with a multiple remote control display, by wiring an optional multiple display adapter (PAC-SA88HA-E) with relays and lamps on the market.

6-1 How to wire

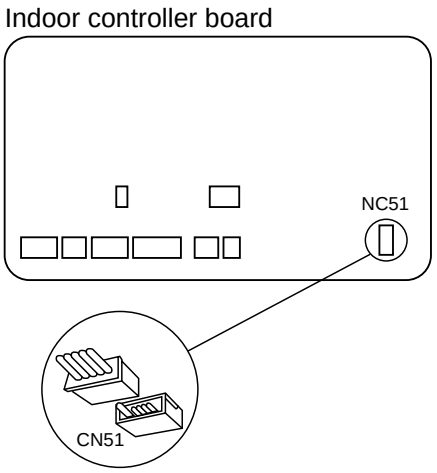
(1) Connect the multiple display adapter to the connector CN51 on the indoor controller board.

(2) Wire three of the five wires from the multiple display adapter as shown in the figure below.

<Wiring >

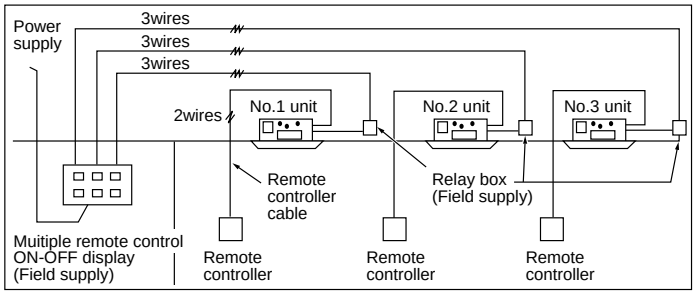


Indoor controller board



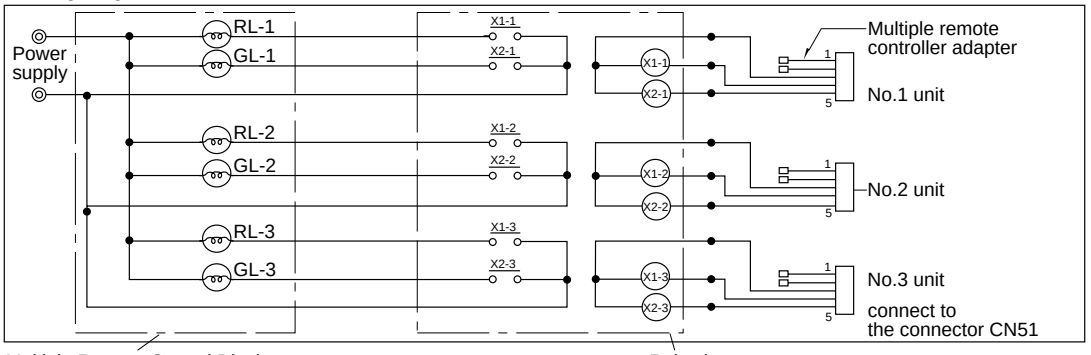
[Notes on Signs]
X1:Relay (for operation lamp)
X2:Relay (for check lamp)
RL:Operation Lamp
GL:Check Lamp
[Field supplied parts]
Relays:12V DC with rated coil power consumption below 0.9W.
Lamps:Matching to power supply voltage.

<System>



(Operation check)

<Wiring diagram>



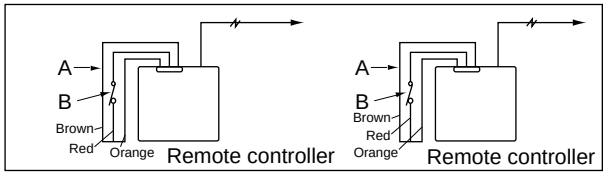
7. AUTO RESTART FUNCTION

By setting the dip switch SW1-8 to ON, the air conditioner can be started/stopped by power supply ON/OFF.
If the air conditioner is OFF before the power failure, it will not start operation by power restore.

•This function is mainly to emergency performance when the power supply stops temporarily. Therefore, since the protection function (for example, clank case heater and prevention from restarting in 3 minutes, etc.) of the device is not operated, this function should not be used mostly.

8. TIMER OPERATION OR THE OPERATION BY AN EXTERNAL SIGNAL

<Wiring>



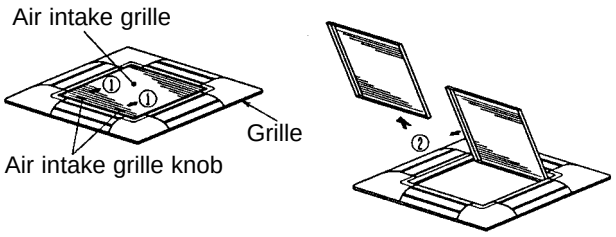
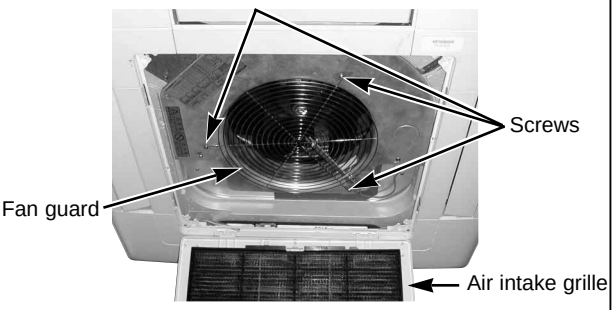
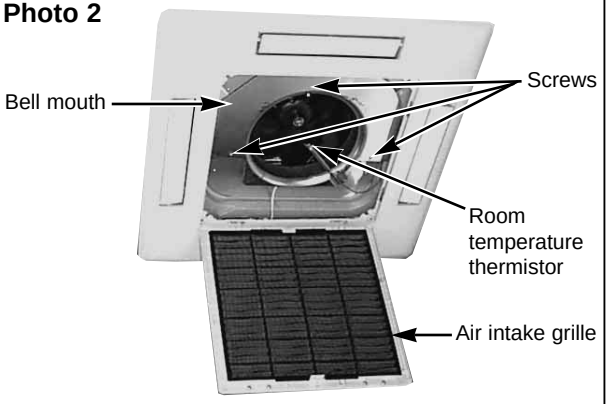
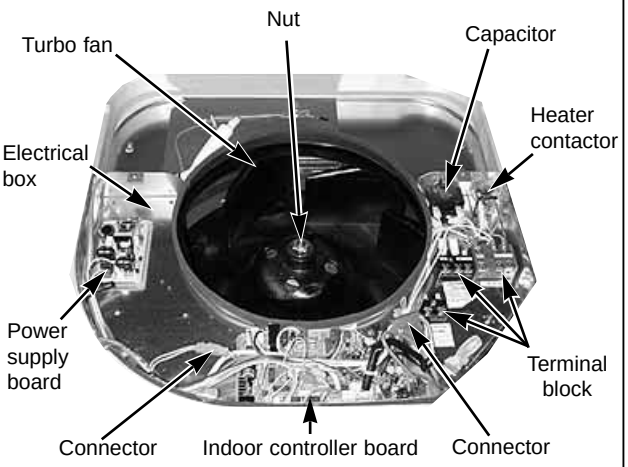
A : an optional timer adapter
B : a single-throw switch

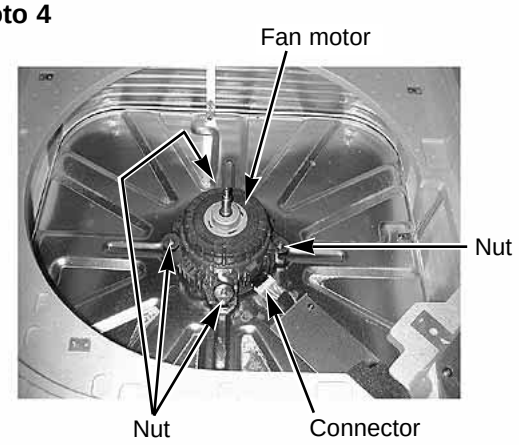
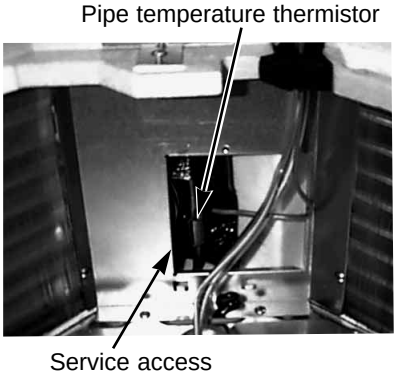
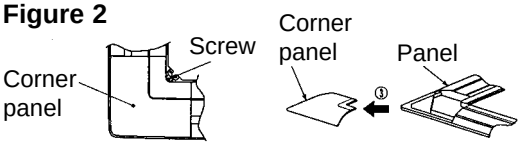
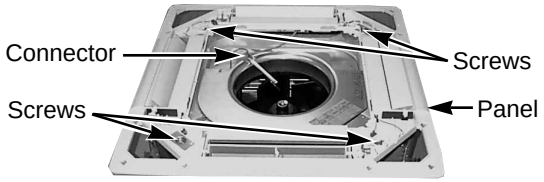
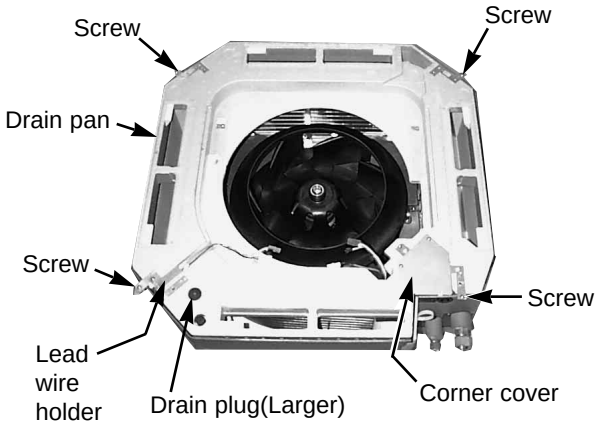
For remote control, connect the optional timer adapter (PAC-SA89TA-E)

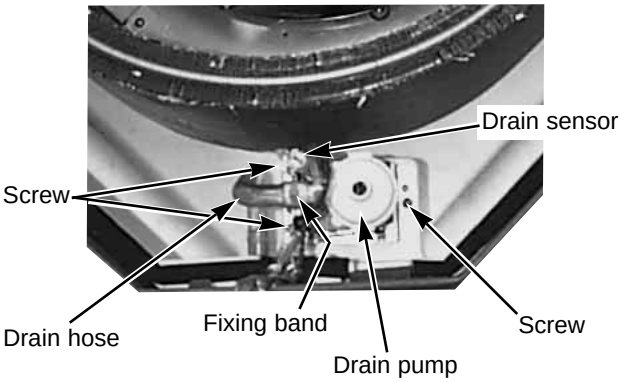
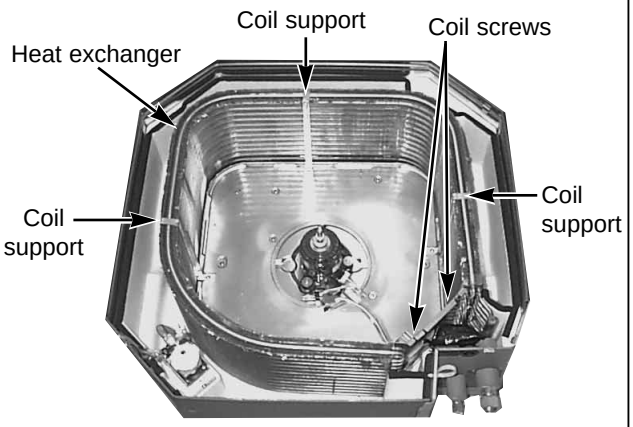
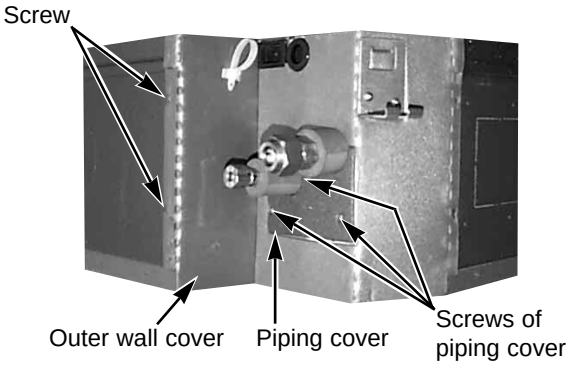
13 DISASSEMBLY PROCEDURE

PLH-3AK.UK
PLH-3AK$_1$.UK

Be careful on removing heavy parts.

OPERATING PROCEDURE	PHOTOS & ILLUSTRATIONS
1. Removing the air intake grille (1) Slide the knob of air intake grille toward the arrow ① to open the air intake grille. (2) Remove drop prevention hook from the panel. (3) Slide the shaft in the hinge to the direction of the arrow② and remove the air intake grille.	**Figure 1** 
2. Removing the fan guard (1) Open the air intake grille. (2) Remove the 3 screws of fan guard.	**Photo 1** 
3. Removing the room temperature thermistor (1)Remove the fan guard.(See photo 1) (2) Remove the screw in the room temperature thermistor holder to remove the holder and the room temperature thermistor. (3) Remove the 1 screw from the bell mouth, and unscrew the other 2 screws (fix to the oval hole which has a different diameter) to remove the bell mouth. (4) Hold the holder claw, and remove the room temperature thermistor and holder. (5) Disconnect the connector (red) from the indoor control board.	**Photo 2** 
4. Removing the electrical box (1) Remove the fan guard.(See photo 1) (2) Disconnect the lead wire of the vane motor from the clamp, and disconnect the white connector (8P). (3) Remove the room temperature thermistor with the holder. (4) Remove the bell mouth.(See photo 2) (5) Disconnect the relay connector in the electrical box. Red (3P) for ran motor power supply White (2P) for pipe temperature detecting thermistor Blue (2P) for drain pump White (3P) for drain sensor Green (6P) for auxiliary heater (6) Remove the 3 screws of the electrical box and loosen the other 2 screws to remove the box. <Electrical parts in the electrical box> Indoor controller board Power supply board Terminal block Capacitor Heater contactor	**Photo 3** 

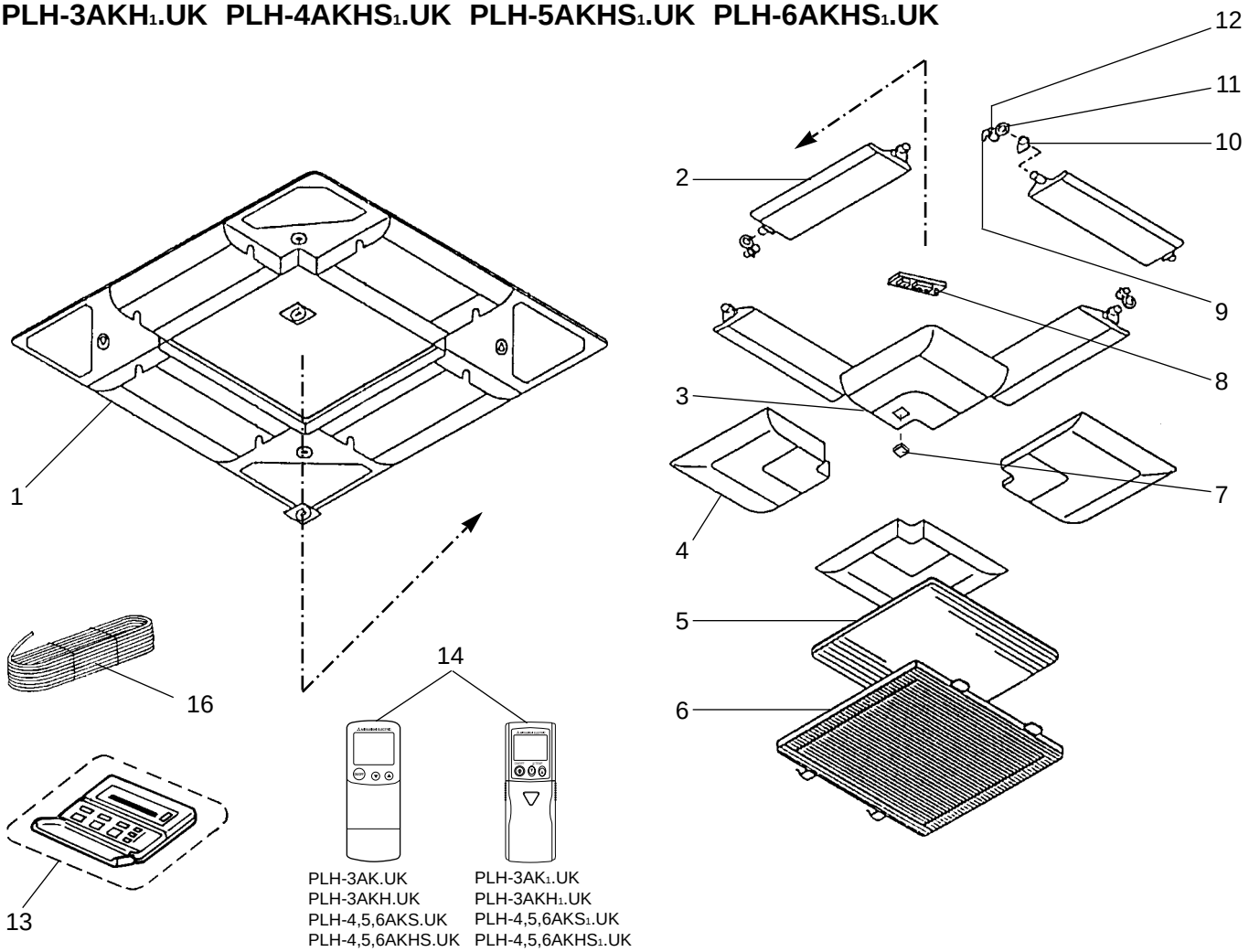
OPERATING PROCEDURE	PHOTOS & ILLUSTRATIONS
5. Remove the fan motor (1) Remove the fan guard.(See photo 1) (2) Remove the bell mouth.(See photo 2) (3) Remove the electrical box.(See photo 3) (4) Remove the turbo fan nut. (5) Pull out the turbo fan. (6) Disconnect the connector of the fan motor lead wire. (7) Remove the 4 nuts of the fan motor.	**Photo 4** 
6. Removing the pipe temperature thermistor (1) Remove the fan guard.(See photo 1) (2) Remove the bell mouth.(See photo 2) (3) Remove the electrical box.(See photo 3) (4) Remove the turbo fan. (5) Remove the screw of the service panel. (6) Remove the service panel. (7) Remove the pipe temperature thermistor which is inserted into the holder installed to the thin copper pipe. (8) Disconnect the 2-pin white connector.	**Photo 5** 
7. Removing the panel (1) Remove the air intake grille.(See figure 1) **Corner panel (See figure 2)** (1) Remove the corner screw. (2) Slide the corner panel to the direction of the arrow③, and remove the corner panel. **Panel (See photo 6)** (1) Disconnect the connector that connects with the unit. (2) Remove the 2 screws from the panel and loosen another 2 screws, which fix to the oval holes, have different diameters. (3) Rotate the panel a little to remove the panel.	**Figure 2**  **Photo 6** 
8. Removing the drain pan (1) Remove the panel. (See photo 6) (2) Remove the drain plug (Larger one), drain the remaining water in the drain pan. (3) Remove the corner cover. (2 screws) (4) Remove the bell mouth (See photo 2) (5) Remove the electrical box. (See photo 3) (6) Remove the lead wire holder. (1 screw) (7) Remove the 4 screws and pull out the drain pan. ※ Pull out the left and right of the pan gradually. Be careful not to crack or damage the pan.	**Photo 7** 

OPERATING PROCEDURE	PHOTOS & ILLUSTRATIONS
9. Removing the drain pump and drain sensor (1) Remove the panel. (See photo 6) (2) Remove the fan guard. (See photo 1) (3) Remove the bell mouth. (See photo 2) (4) Remove the electrical box. (See photo 3) (5) Remove the drain pan. (See photo 7) (6) Remove the 3 screws of the drain pump. (7) Cut the drain hose band, pull out the drain hose from the drain pump. (8) Pull out the drain pump. (9) Remove the drain sensor and the holder.	**Photo 8** 
10. Removing the heat exchanger (1) Remove the panel. (See photo 6) (2) Remove the fan guard. (See photo 1) (3) Remove the bell mouth. (See photo 2) (4) Remove the electrical box. (See photo 3) (5) Remove the drain pan. (See photo 7) (6) Remove the turbo fan. (See photo 4) (7) Remove the 3 screws of the piping cover, and pull out piping cover. (8) Remove the 4 screws of the outer wall cover, and pull out the outer wall cover. (9) Remove the screw of the coil support. (10) Remove the 2 screws of the coil. (11) Pull out the heat exchanger.	**Photo 9**  **Photo 10** 

14 PARTS LIST

PANEL PARTS

PLH-3AK.UK PLH-4AKS.UK PLH-5AKS.UK PLH-6AKS.UK
PLH-3AK$_1$.UK PLH-4AKS$_1$.UK PLH-5AKS$_1$.UK PLH-6AKS$_1$.UK
PLH-3AKH.UK PLH-4AKHS.UK PLH-5AKHS.UK PLH-6AKHS.UK
PLH-3AKH$_1$.UK PLH-4AKHS$_1$.UK PLH-5AKHS$_1$.UK PLH-6AKHS$_1$.UK



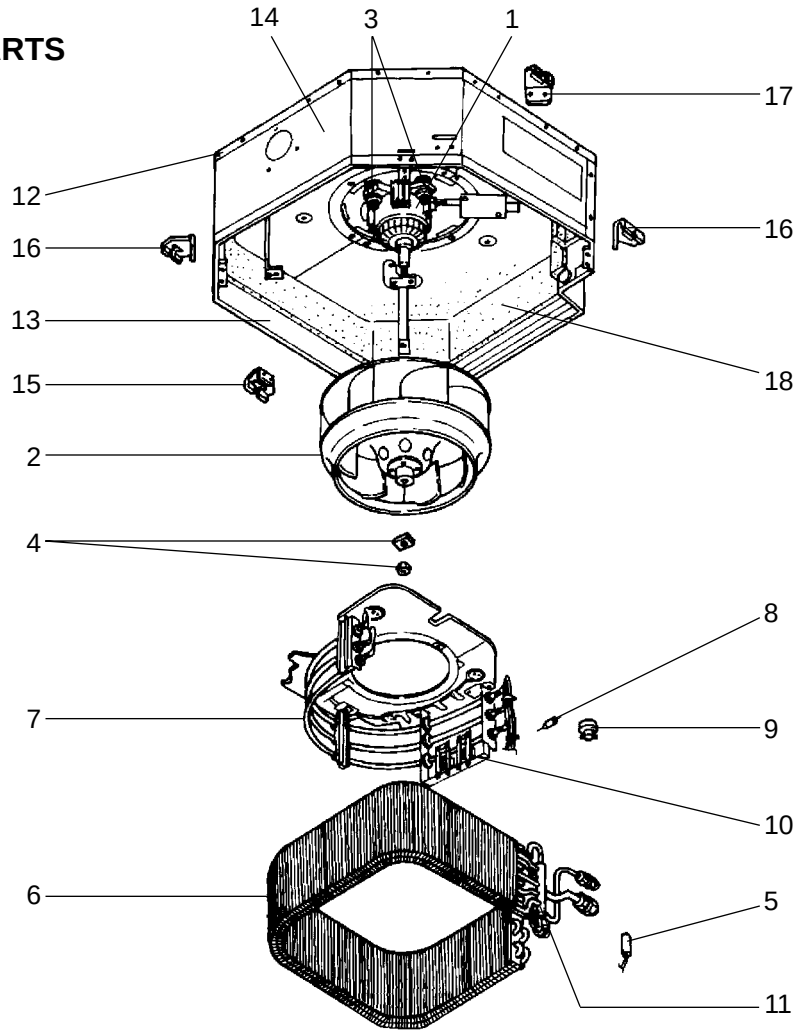
Part number that is circled is not shown in the figure.

No.	Parts No.	Parts Name	Specification	Q'ty / set				Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty	Price	
				PLH-3AK.UK PLH-3AKH.UK PLH-4, 5, 6AKS.UK PLH-4, 5, 6AKHS.UK		PLH-3AK1.UK PLH-3AKH1.UK PLH-4, 5, 6AKS1.UK PLH-4, 5, 6AKHS1.UK					Unit	Amount
				WIRED	WIRELESS	WIRED	WIRELESS					
1	S70 E10 003	AIR OUTLET GRILLE		1	1	1	1					
2	S70 E00 002	VANE ASSY		4	4	4	4					
3	S70 E01 638	CORNER PANEL		1	2	1	2					
4	S70 E00 638	CORNER PANEL		3	2	3	2					
5	S70 E00 500	L.L FILTER		1	1	1	1					
6	S70 E00 691	GRILLE ASSY		1	1	1	1					
7	S70 24K 658	RECEIVER			1		1					
8	S70 E00 317	WIRELESS ADAPTER			1		1		W.B			
9	S70 E00 223	STEPPING MOTOR		4	4	4	4		MV			
10	S70 E00 063	VANE BUSH		8	8	8	8					
11	S70 E00 040	GEAR (VANE)		4	4	4	4					
12	S70 E01 040	GEAR		4	4	4	4					
13	S70 E02 713	REMOTE CONTROLLER BOARD		1		1			R.B			
14	S70 E04 714	WIRELESS REMOTE CONTROLLER			1							
	S70 E03 713	WIRELESS REMOTE CONTROLLER					1					
(15)	S70 E00 673	SCREW ASSY		1	1	1	1					
16	S70 E01 305	CABLE ASSY		1		1						

FUNCTIONAL PARTS

PLH-3AK.UK
PLH-3AK$_1$.UK
PLH-3AKH.UK
PLH-3AKH$_1$.UK

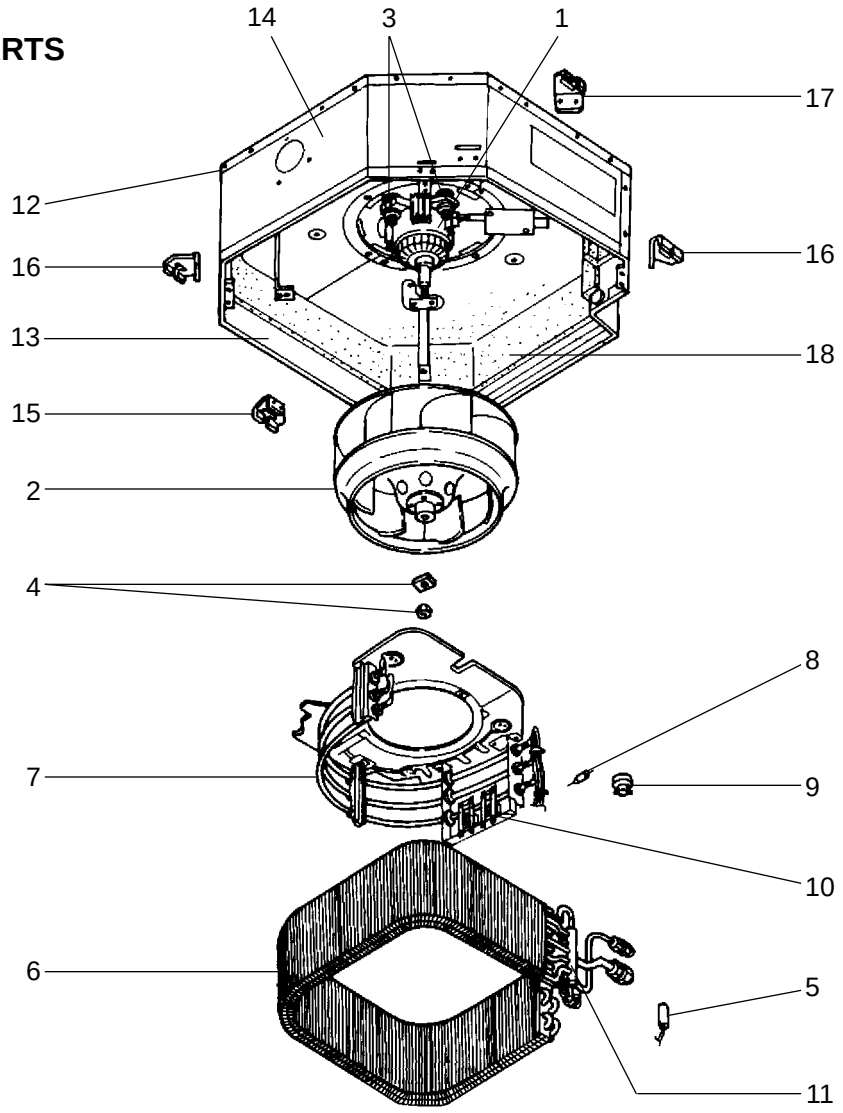
PLH-4AKS.UK
PLH-4AKS$_1$.UK
PLH-4AKHS.UK
PLH-4AKHS$_1$.UK



No.	Parts No.	Parts Name	Specification	Q'ty / set				Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty	Price	
				PLH-3		PLH-4					Unit	Amount
				AK AK$_1$	AKH AKH$_1$	AKS AKS$_1$	AKHS AKHS$_1$					
				.UK								
1	S70 E06 762	FAN MOTOR	D17B6P70MS	1	1				MF			
	S70 E07 762	FAN MOTOR	D176P120MS			1	1		MF			
2	S70 E00 114	TURBO FAN		1	1							
	S70 E01 114	TURBO FAN				1	1					
3	S70 A41 105	RUBBER MOUNT		4	4	4	4					
4	S70 08K 097	SPLIT WASHER		1	1	1	1					
5	S70 17J 202	PIPE TEMPERATURE THERMISTOR		1	1	1	1		RT2			
6	S70 E06 480	HEAT EXCHANGER		1	1							
	S70 E07 480	HEAT EXCHANGER				1	1					
7	S70 E07 300	HEATER ELEMENT 700W			3				H1			
	S70 E06 300	HEATER ELEMENT 867W					3		H1			
8	S70 E02 706	THERMAL FUSE	104°C, 16A		1		1		FS2			
9	S70 46K 700	THERMOSTAT	50°C OFF		1		1		26H			
10	S70 20J 303	INSULATOR			1		1					
11	S70 E00 418	RESTRICTOR VALVE		1	1	1	1					
12	S70 E03 687	BASE		1	1	1	1					
13	S70 005 688	DRUM 1 ASSY		1	1							
	S70 007 688	DRUM 1 ASSY				1	1					
14	S70 006 688	DRUM 2 ASSY		1	1							
	S70 008 688	DRUM 2 ASSY				1	1					
15	S70 E00 130	LEG		1	1	1	1					
16	S70 E01 130	LEG		2	2	2	2					
17	S70 E02 130	LEG		1	1	1	1					
18	S70 E00 659	INNER COVER ASSY		1								
	S70 E01 659	INNER COVER ASSY			1							
	S70 E02 659	INNER COVER ASSY				1						
	S70 E03 659	INNER COVER ASSY					1					

FUNCTIONAL PARTS
PLH-5AKS.UK
PLH-5AKS$_1$.UK
PLH-5AKHS.UK
PLH-5AKHS$_1$.UK

PLH-6AKS.UK
PLH-6AKS$_1$.UK
PLH-6AKHS.UK
PLH-6AKHS$_1$.UK

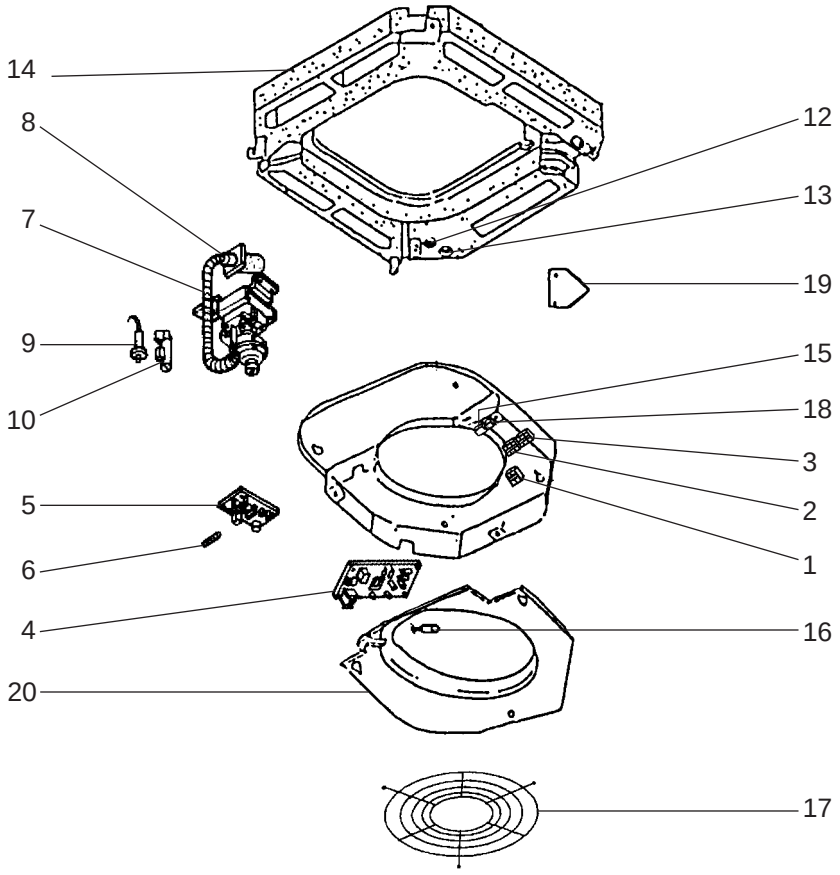


No.	Parts No.	Parts Name	Specification	Q'ty / set				Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty	Price	
				PLH-5		PLH-6					Unit	Amount
				AKS AKS$_1$	AKHS AKHS$_1$	AKS AKS$_1$	AKHS AKHS$_1$					
				.UK								
1	S70 E07 762	FAN MOTOR	D176P120MS	1	1	1	1		MF			
2	S70 E01 114	TURBO FAN		1	1	1	1					
3	S70 A41 105	RUBBER MOUNT		4	4	4	4					
4	S70 08K 097	SPLIT WASHER		1	1	1	1					
5	S70 17J 202	PIPE TEMPERATURE THERMISTOR		1	1	1	1		RT2			
6	S70 E08 480	HEAT EXCHANGER		1	1							
	S70 E09 480	HEAT EXCHANGER				1	1					
7	S70 E05 300	HEATER ELEMENT 1000W			3		3		H1			
8	S70 E02 706	THERMAL FUSE	104°C, 16A		1		1		FS2			
9	S70 46K 700	THERMOSTAT	50°C OFF		1		1		26H			
10	S70 20J 303	INSULATOR			1		1					
11	S70 E00 418	RESTRICTOR VALVE		1	1	1	1					
12	S70 003 687	BASE		1	1	1	1					
13	S70 007 688	DRUM 1 ASSY		1	1	1	1					
14	S70 008 688	DRUM 2 ASSY		1	1	1	1					
15	S70 E00 130	LEG		1	1	1	1					
16	S70 E01 130	LEG		2	2	2	2					
17	S70 E02 130	LEG		1	1	1	1					
18	S70 E02 659	INNER COVER ASSY		1		1						
	S70 E03 659	INNER COVER ASSY			1		1					

FUNCTIONAL PARTS

PLH-3AK.UK
PLH-3AK$_1$.UK
PLH-3AKH.UK
PLH-3AKH$_1$.UK

PLH-4AKS.UK
PLH-4AKS$_1$.UK
PLH-4AKHS.UK
PLH-4AKHS$_1$.UK



Part numbers that is circled is not shown in the figure.

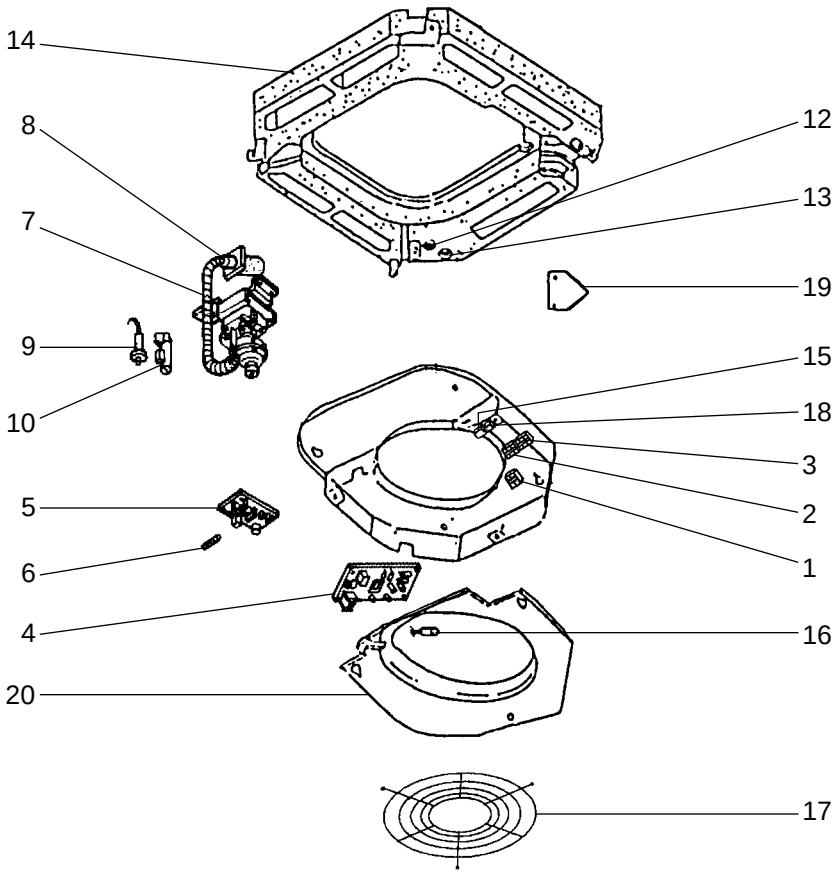
No.	Parts No.	Parts Name	Specification	Q'ty / set				Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty	Price	
				PLH-3		PLH-4					Unit	Amount
				AK AK$_1$	AKH AKH$_1$	AKS AKS$_1$	AKHS AKHS$_1$					
				.UK								
1	S70 512 716	TERMINAL BLOCK	2P (1, 2)	1	1	1	1		TB5			
2	S70 517 716	TERMINAL BLOCK	3P (1, 2, 3)	1	1	1	1		TB4			
3	S70 521 716	TERMINAL BLOCK	3P (L, N, ⏚)	1	1	1	1		TB2			
4	S70 E01 310*	CONTROLLER BOARD		1	1	1	1		I.B ※			
5	S70 E02 313	POWER BOARD		1	1	1	1		P.B			
6	S70 520 239	FUSE 250V 6.3A	250V 6.3A	2	2	2	2	PART OF PCB	F1, F2			
7	S70 E02 355	DRAIN PUMP		1	1	1	1		D.P			
8	S70 A41 523	DRAIN SOCKET		1	1	1	1	PART OF DRAIN PAN ASSY				
9	S70 E00 266	DRAIN SENSOR		1	1	1	1		D.S			
10	S70 31K 241	DRAIN SENSOR HOLDER		1	1	1	1					
⑪	S70 W28 527	DRAIN HOSE		1	1	1	1					
12	S70 A48 524	DRAIN PLUG		1	1	1	1					
13	S70 A41 524	DRAIN PLUG		1	1	1	1					
14	S70 E02 529	DRAIN PAN		1	1							
	S70 E00 529	DRAIN PAN				1	1					
15	S70 17T 255	CAPACITOR	3.5μF 440V	1	1				C			
	S70 E02 255	CAPACITOR	7.0μF 440V			1	1		C			
16	S70 E00 202	ROOM TEMPERATURE THERMISTOR		1	1	1	1		RT1			
17	S70 E10 675	FAN GUARD		1	1	1	1					
18	S70 71G 215	HEATER CONTACTOR			1		1		88H			
19	S70 001 663	CORNER COVER ASSY		1	1	1	1					
20	S70 003 503	CONTROL COVER ASSY		1	1	1	1					

※ The part name of symbol "I.B" is "SPCB".

FUNCTIONAL PARTS

PLH-5AKS.UK
PLH-5AKS$_1$.UK
PLH-5AKHS.UK
PLH-5AKHS$_1$.UK

PLH-6AKS.UK
PLH-6AKS$_1$.UK
PLH-6AKHS.UK
PLH-6AKHS$_1$.UK



Part numbers that is circled is not shown in the figure.

No.	Parts No.	Parts Name	Specification	Q'ty / set				Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty	Price	
				PLH-5		PLH-6					Unit	Amount
				AKS AKS$_1$	AKHS AKHS$_1$	AKS AKS$_1$	AKHS AKHS$_1$					
				.UK								
1	S70 512 716	TERMINAL BLOCK	2P (1, 2)	1	1	1	1		TB5			
2	S70 517 716	TERMINAL BLOCK	3P (1, 2, 3)	1	1	1	1		TB4			
3	S70 521 716	TERMINAL BLOCK	3P (L, N, ⏚)	1	1	1	1		TB2			
4	S70 E01 310*	CONTROLLER BOARD		1	1	1	1		I.B ※			
5	S70 E02 313	POWER BOARD		1	1	1	1		P.B			
6	S70 520 239	FUSE 250V 6.3A	250V 6.3A	2	2	2	2	PART OF PCB	F1, F2			
7	S70 E02 355	DRAIN PUMP		1	1	1	1		D.P			
8	S70 A41 523	DRAIN SOCKET		1	1	1	1	PART OF DRAIN PAN ASSY				
9	S70 E00 266	DRAIN SENSOR		1	1	1	1		D.S			
10	S70 31K 241	DRAIN SENSOR HOLDER		1	1	1	1					
⑪	S70 W28 527	DRAIN HOSE		1	1	1	1					
12	S70 A48 524	DRAIN PLUG		1	1	1	1					
13	S70 W28 524	DRAIN PLUG		1	1	1	1					
14	S70 E00 529	DRAIN PAN		1	1							
	S70 E01 529	DRAIN PAN				1	1					
15	S70 E02 255	CAPACITOR	7.0μF 440V	1	1	1	1		C			
16	S70 E00 202	ROOM TEMPERATURE THERMISTOR		1	1	1	1		RT1			
17	S70 E10 675	FAN GUARD		1	1	1	1					
18	S70 71G 215	HEATER CONTACTOR			1		1		88H			
19	S70 001 663	CORNER COVER ASSY		1	1	1	1					
20	S70 003 503	CONTROL COVER ASSY		1	1	1	1					

※ The part name of symbol "I.B" is "SPCB".

15 OPTIONAL PARTS

1. REFRIGERANT PIPES

Service Ref. : PLH-3AK.UK PLH-3AK$_1$.UK
PLH-3AKH.UK PLH-3AKH$_1$.UK

Part No.	PAC-05FFS-E	PAC-07FFS-E	PAC-10FFS-E	PAC-15FFS-E
Pipe length	5m	7m	10m	15m
Pipe size O.D .	Liquid:ϕ9.52 Gas:ϕ15.88			
Connection method	Indoor unit: Flared Outdoor unit: Flared			

Service Ref. : PLH-4AKS.UK, PLH-5AKS.UK, PLH-6AKS.UK PLH-4AKS$_1$.UK, PLH-5AKS$_1$.UK, PLH-6AKS$_1$.UK
PLH-4AKHS.UK, PLH-5AKHS.UK, PLH-6AKHS.UK PLH-4AKHS$_1$.UK, PLH-5AKHS$_1$.UK, PLH-6AKHS$_1$.UK

Part No.	PAC-PC51PI-E	PAC-SC52PI-E	PAC-SC53PI-E	PAC-SC54PI-E
Pipe length	5m	7m	10m	15m
Pipe size O.D.	Liquid:ϕ9.52 Gas:ϕ19.05			
Connection method	Indoor unit: Flared Outdoor unit: Flared			

Note 1. How to connect refrigerant pipes.
Factory supplied optional refrigerant pipings contain refrigerant at the above atmospheric pressures. As long as the connection takes no more than 5 minutes, no air will enter, and there will be no need for air purging.
Remove the blind caps and make the connections within 5 minutes. After the connections for the indoor and outdoor units are made, open the stop valve on the outdoor unit to allow refrigerant gas to flow.
Note 2. The following main parts are contained in the optional refrigerant piping kit.
Heat insulating cover, vinyl tapes, nipples, sleeve and flange (for wall hole).

2. TIMER

When using a program timer, a program timer adapter (PAC-825AD) is also needed.

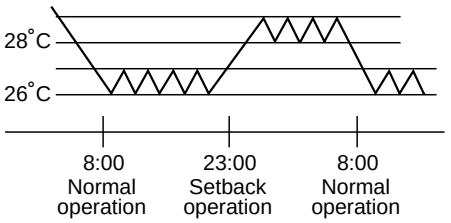
Part No.	PAC-SC32PTA (with set back function)
Model Name	Program timer

2-1 Program timer specifications

Parts name	Program timer
Parts No.	PAC-SC32PTA
Exterior dimensions (inch)	5-4/32x4-23/32x23/32 (130x120x18mm)
Installation	Wall mount
Type of clock	Quartz
Clock accuracy	±50 second / month at 25°C
Display-Time -Week -Timer setting unit	Liquid crystal display Liquid crystal display Liquid crystal display
Program cycle	24 hours
Timer setting unit	30 minutes
No. of set points	48 / day
Power rating	5V DC ±5% (Supplied by Remote Controller)

2-2 Feature of program timer

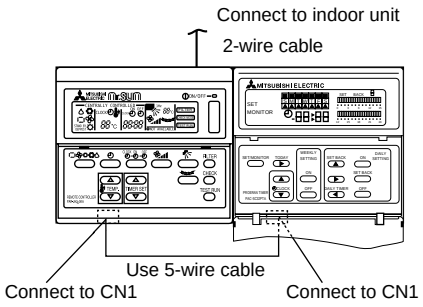
(1) Daily timer function
Daily timer can be set in 30 minutes units for up to 24 hours.
Each unit can be set for unit ON, unit OFF, or setback operation.
(2) Setback operation (PAC-SC32PT)
Set back operation is useful for reducing running costs
e.g. At a hotel with a 24-hour system
8:00~23:00 Cooling operation with set temperature at 26°C
23:00~8:00 Setback operation with 2 degrees of setback
As shown in the chart on the night, the set temperature rises 2 degrees automatically during the setback operation. When the setback operation ends, normal operation will begin.
(3) Weekly timer function
Daily timer function can apply to each day of the week.



2-3 How to connect program timer

(1) Install the program timer next to the remote controller the same way as the remote controller is installed.

(2) Connect the program timer and the remote controller with a 5-wire cable as shown in the figure below



NOTE:While the program timer is connected to the remote controller, the 24hour ON/OFF timer on the remote controller will not operate.

2-4 Names and functions

<PAC-SC32PTA>

WEEKLY TIMER SETTING DISPLAY

Used for selection of if or not the day operation pattern set by PATTERN SETTING is to be applied in weekly day unit, setting.

CURRENT TIME DISPLAY

During MONITOR status,current time is display.
During Daily timer setting, a time desire for timer setting is displayed.

SET BACK DISPLAY

Indicates the setting set back range.

DAILY TIMER SETTING DISPLAY

24 hours is divided into 48 blocks and each block express 30 minutes.
The block display consists of 3 pattern.

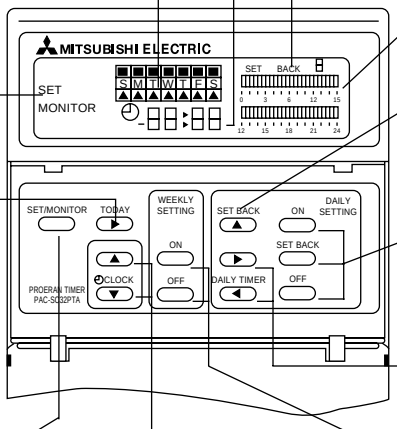
Set back can be done in the range of 1,2,4,6 and 8°C.

SET BACK SETTING SW

Used for set back setting.

SET/MONITOR DISPLAY

During SET is display, clock adjustment, change of weekly day, daily and weekly timer setting can be performed.
During MONITOR is display, all switches except SET/MONITOR SW are invalidated. This is normal status.



ON/SET BACK/OFF SW

Used to specify the time setting pattern.

WEEK DAY SETTING SW

Used for week day setting.

DAILY TIMER SW

Used for timer setting in 30 minutes unit.

MODE SELECTOR SW

Using this switch select “MONITOR” or “SET” Mode.

“MONITOR” :Indicates the current timer setting. All switch expect MODE SELECTOR SW are invalidated then.This is the normal status.

“ SET ” :Set to “SET” mode for clock adjustment, charge of week day, daily and weekly timer setting.

CLOCK ADJUSTMENT SW

Used for adjustment of the current time.

Push ▲ SW to advance the time. Each time the button is pushed the time advance by 1 minute, pushing continuously advances by 1 minute at 0.5 second interval, and when the lower digit of minute becomes 0 indication advances in 10 minutes unit.

▼ SW is used for reversing the time. Each time the button is pushed the time reverses by 1 minute, pushing continuously reverses the time by 1 minute at 0.5 second interval, and when the lower digit of minute becomes 0 indication reverses in 10 minutes unit.

WEEKLY TIMER SW

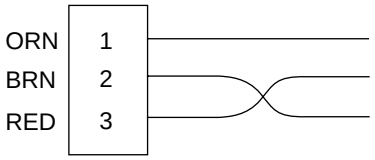
Used for setting timer in day of week unit.

Pushing ▼ SW moves the week day light display in order of
S → M → T → W ···
enabling to set the week day.

3. TIMER ADAPTER

This adapter is needed for system control and for operation via external contacts. Adapter connection is described on page 70.

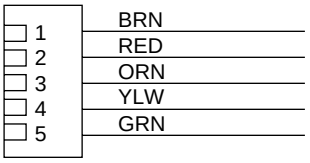
Part No.	PAC-SA89TA-E



4. MULTIPLE REMOTE CONTROLLER ADAPTER

This adapter is needed for remote indication (operation/check). Adapter connection is described on page 72.

Part No.	PAC-SA88HA-E



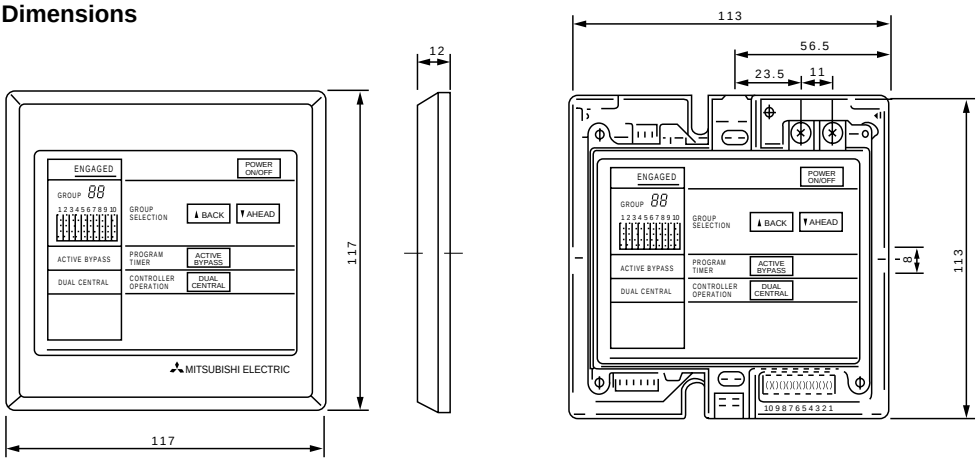
5. CENTRALIZED REMOTE CONTROLLER

Allows individual or combined control of up to 16 units. When using the PAC-805RC, the program timer adapter (PAC-825AD)is also needed.

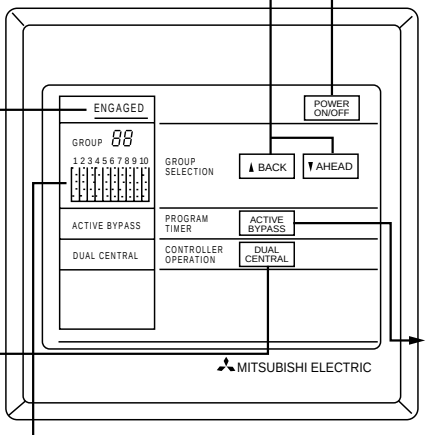
Part No.	PAC-805RC

Unit:mm

5-1 Dimensions



5-2 Functions



"ENGAGED" indicator
When this indicator is lit, transmission is in progress and all switches are inoperative.

DUAL/CENTRAL switch
This change-over switch governing the operation of the accessory remote controller.

"DUAL"
Instructions from both the accessory remote controller and the centralized remote controller are valid. (Priority given to the last instruction received.)

"CENTRAL"
ON/OFF switching by the accessory remote controller is invalidated. Control is by the centralized remote controller only.
Initial setting is "DUAL".

LCD Matrix Display
This display indicates the operational status of all connected units either by steady lighting or by flashing.

POWER ON/OFF switch
Operation ON/OFF switch.

▲BACK ▼AHEAD buttons
These buttons are used to designate the attached unit(s). (They designate the unit to be centrally controlled.)

●When group “00” is designated; collective ON/OFF instruction is sent to all units.

●When group “01”-“16“ is designated; ON/OFF instruction is sent to the designated units only.

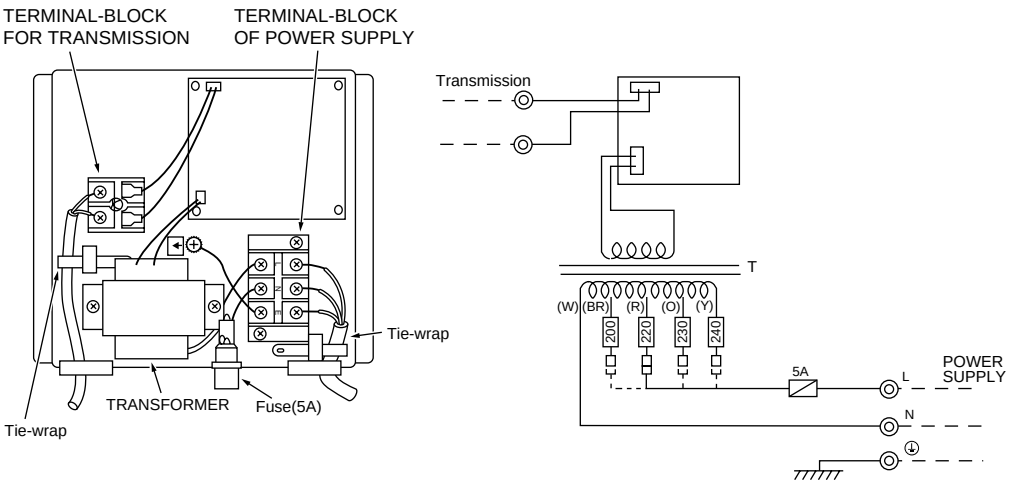
ACTIVE/BYPASS switch
This is a change-over switch for the program timer.
(It selects timer operation on the program timer.)
Use “BYPASS” when a program timer is not connected.
“ACTIVE”
The switch turns ON/OFF operational instructions from the program timer automatically.
“BYPASS”
ON/OFF Operation is by the centralized remote controller only.
Initial setting is “BYPASS”.

Independent “DUAL / CENTRAL” and “ACTIVE / BYPASS” setting of all the groups is possible. When the power supply to the centralized remote controller is cut due to power failure, all settings will return to original “DUAL” and “BYPASS”.

5-3 Connection method

(1) Connections in the power supply cord.

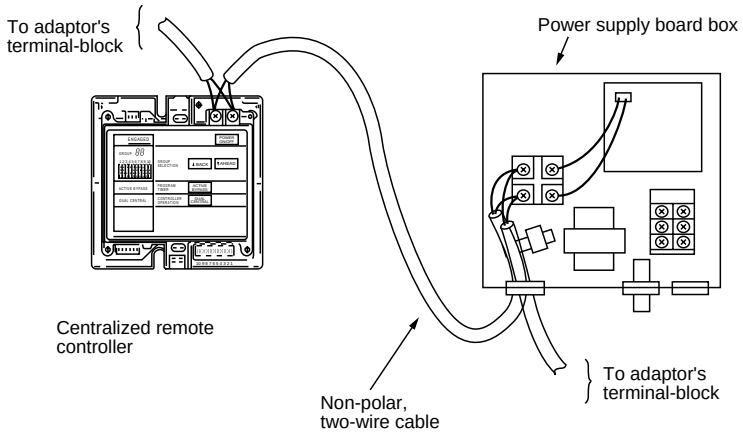
1. Connect the power supply cord to the power supply terminal-block and fix it in-place with a tie-wrap.
   Connect a single phase 200V AC (220, 230, 240V) to Ⓛ Ⓝ .
   As Ⓔ is the GND terminal, be sure to ground the earth wire.
2. Connect the transmission line to the transmission terminal-block and fix it in-place with a tie-wrap.
   Use a Ω1.6 (AWG 14) or above two-wire cable for the transmission line.
   CAUTION : Never connect the power supply cord to the transmission terminal-block.



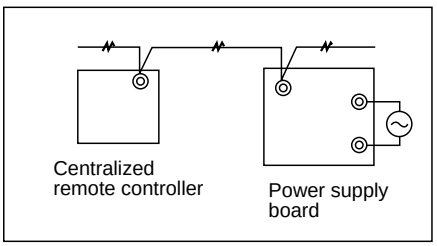
Wiring has to be changed when
a 200,230 or 240V power is used.

(2) Connection method of centralized remote controller and power supply board.

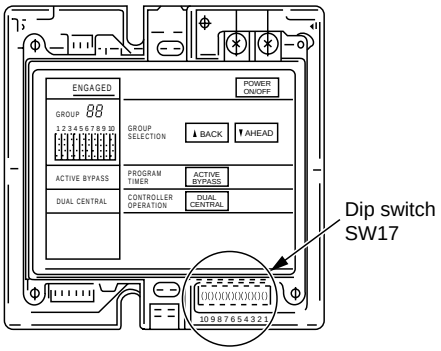
1. Connect the centralized remote controller and power supply board with a non-polar, two-wire cable.



2. Wiring diagram



3. Be sure to set the maximum address number with the dip switch SW17 on the centralized remote controller.

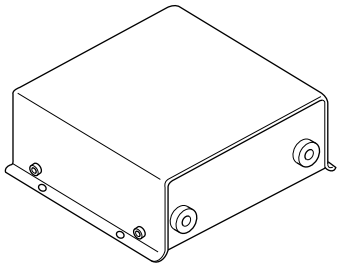
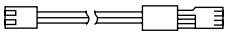
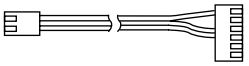
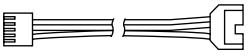
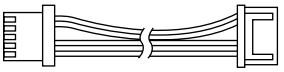


6. PROGRAM TIMER ADAPTER

This adapter is needed when a program timer(PAC-SC32PTA)or a centralized remote controller(PAC-805RC)is used.

Part No.	PAC-825AD

6-1 Parts included

① ADAPTER ·····1P	② 3-core cable·····1P	③ 3-core cable·····1P
	 Length : 2m (6' 7")	 Length : 2m (6' 7")
	④ 4-core cable·····1P	⑤ 5-core cable·····1P
	 Length : 2m (6' 7")	 Length : 2m (6' 7")

6-2 Connection method

Connection and wiring methods differ with the type of the indoor unit used. Confirm the type before carrying out the work.

(1) Connections in the adapter box

1. Connect the power supply cord to the terminal-block and fix it in-place with a tie-wrap.
   Connect a single phase 200V AC (220, 230, 240V) to Ⓛ Ⓝ.
   As Ⓔ is the GND terminal, be sure to ground the earth wire.
2. Connect the transmission line to the transmission terminal-block and fix it in-place with a tie-wrap (when a centralized remote controller is being used).
   CAUTION : Never connect the power supply cord to the transmission terminal-block

Fig.1

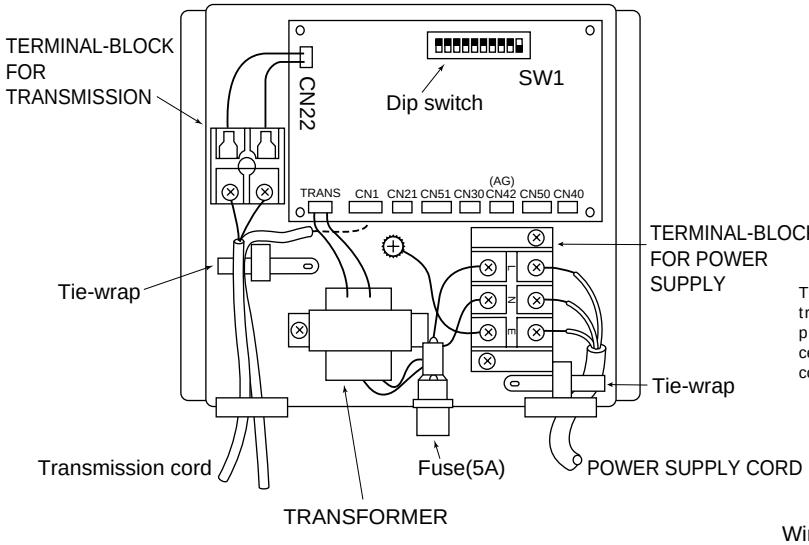
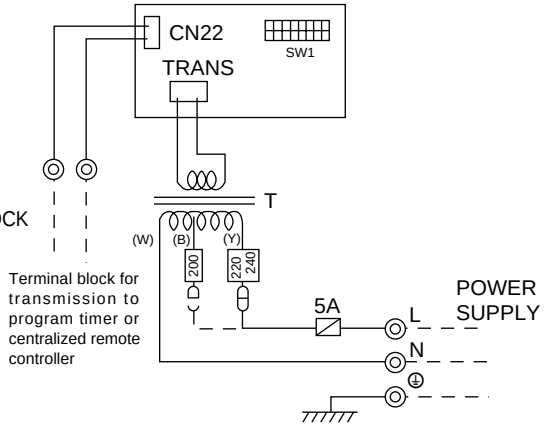


Fig.2

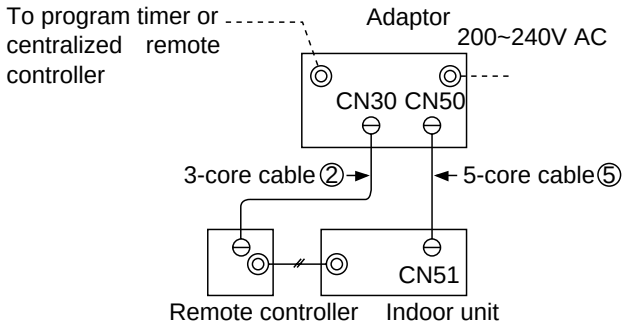


Wiring has to be changed when 200V power supply is used.

(2) When the centralized remote controller is used, set the address number with the dip switch SW1 of the program timer adapter.

(3) Connections from adaptor

Fig.3

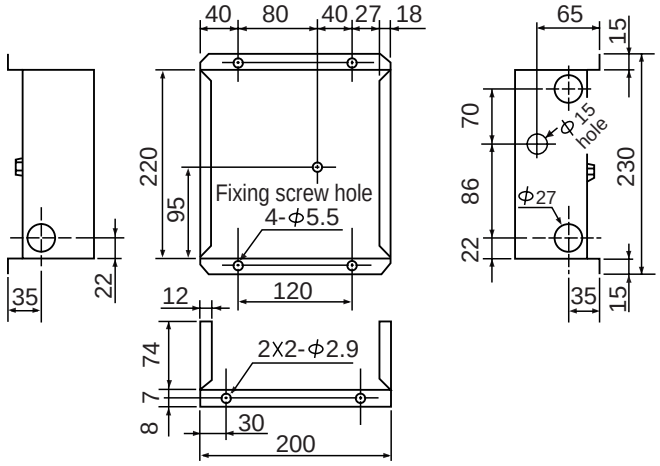


Max. length of each calbe is 10m.

6-3 Dimensions

(Unit : mm)

Fig. 4



7. MULTI FUNCTION CASEMENT (For HIGH EFFICIENCY FILTER AND FRESH AIR INTAKE)

Part No.	PAC-SG03TM-E
Applicable Service Ref.	PLH-3/4/5/6AK(H)(S).UK PLH-3/4/5/6AK(H)(S)$_1$.UK

8. HIGH EFFICIENCY FILTER ELEMENT

Part No.	PAC-SG01KF
Applicable Service Ref.	PLH-3/4/5/6AK(H)(S).UK PLH-3/4/5/6AK(H)(S)$_1$.UK

9. AIR OUTLET SHUTTER PLATE (20sets, 2pcs / 1set)

Part No.	PAC-SG06SP-E
Applicable Service Ref.	PLH-3/4/5/6AK(H)(S).UK PLH-3/4/5/6AK(H)(S)$_1$.UK

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Distributed in Sep. 2004 No. OC211 REVISED EDITION-A PDF 9
Issued in Aug. 2000 No. OC211 550
Made in Japan

New publication, effective Sep. 2004.
Specifications subject to change without notice