MITSUBISHI ELECTRIC

INDOOR UNIT FOR VRF SYSTEM

November 2023
No. TCH129

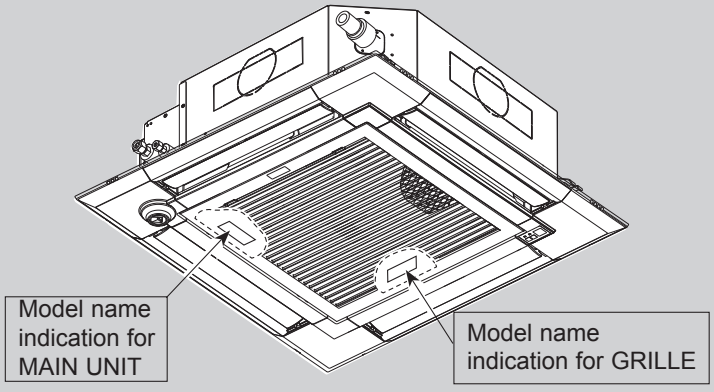
TECHNICAL & SERVICE MANUAL

Series PLFY Ceiling Cassettes R410A

Indoor unit [Model Name]	[Service Ref.]
PLFY-EP06NEMU1-E	PLFY-EP06NEMU1-E.TH
PLFY-EP08NEMU1-E	PLFY-EP08NEMU1-E.TH
PLFY-EP12NEMU1-E	PLFY-EP12NEMU1-E.TH
PLFY-EP15NEMU1-E	PLFY-EP15NEMU1-E.TH
PLFY-EP18NEMU1-E	PLFY-EP18NEMU1-E.TH
PLFY-EP24NEMU1-E	PLFY-EP24NEMU1-E.TH
PLFY-EP30NEMU1-E	PLFY-EP30NEMU1-E.TH
PLFY-EP36NEMU1-E	PLFY-EP36NEMU1-E.TH
PLFY-EP48NEMU1-E	PLFY-EP48NEMU1-E.TH

Grille model [Model Name]

PLP-41EAEU



INDOOR UNIT



WIRELESS REMOTE CONTROLLER (Option)



WIRED REMOTE CONTROLLER (Option)

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PARTS CATALOG (TCB129)

CITY MULTI

1 SAFETY PRECAUTION

CAUTIONS RELATED TO NEW REFRIGERANT

Cautions for units utilizing refrigerant R410A

Do not use the existing refrigerant piping.

The old refrigerant and lubricant in the existing piping contains a large amount of chlorine which may cause the lubricant deterioration of the new unit.

Use "low residual oil piping"

If there is a large amount of residual oil (hydraulic oil, etc.) inside the piping and joints, deterioration of the lubricant will result.

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

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

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

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

Charge refrigerant from liquid phase of gas cylinder.

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

Do not use refrigerant other than R410A.

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

Use a vacuum pump with a reverse flow check valve.

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

Use the following tools specifically designed for use with R410A refrigerant.

The following tools are necessary to use R410A refrigerant.

Tools for R410A	
Gauge manifold	Flare tool
Charge hose	Size adjustment gauge
Gas leak detector	Vacuum pump adaptor
Torque wrench	Electronic refrigerant charging scale

Handle tools with care.

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

Do not use a charging cylinder.

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

Use the specified refrigerant only.

Never use any refrigerant other than that specified.
Doing so may cause a burst, an explosion, or fire when the unit is being used, serviced, or disposed of.
Correct refrigerant is specified in the manuals and on the spec labels provided with our products.
We will not be held responsible for mechanical failure, system malfunction, unit breakdown or accidents caused by failure to follow the instructions.

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

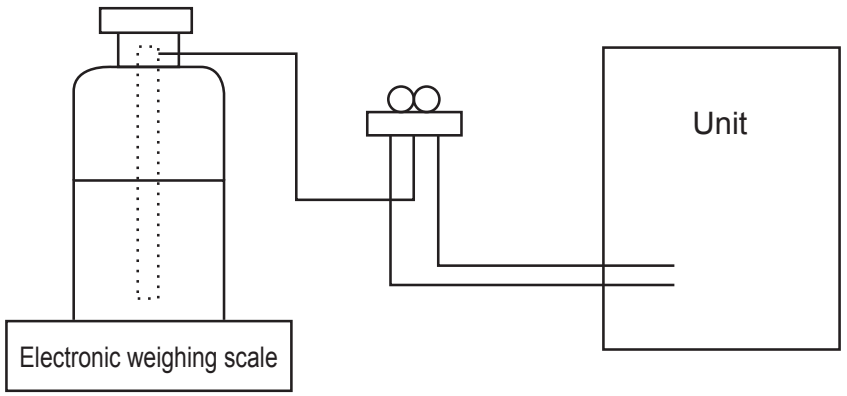
[1] Cautions for service

(1) Perform service after recovering the refrigerant left in unit completely.
(2) Do not release refrigerant in the air.
(3) After completing service, charge the cycle with specified amount of refrigerant.
(4) When performing service, install a filter drier simultaneously.
Be sure to use a filter drier for new refrigerant.

[2] Additional refrigerant charge

When charging directly from cylinder

· Check that cylinder for R410A on the market is a syphon type.
· Charging should be performed with the cylinder of syphon standing vertically. (Refrigerant is charged from liquid phase.)



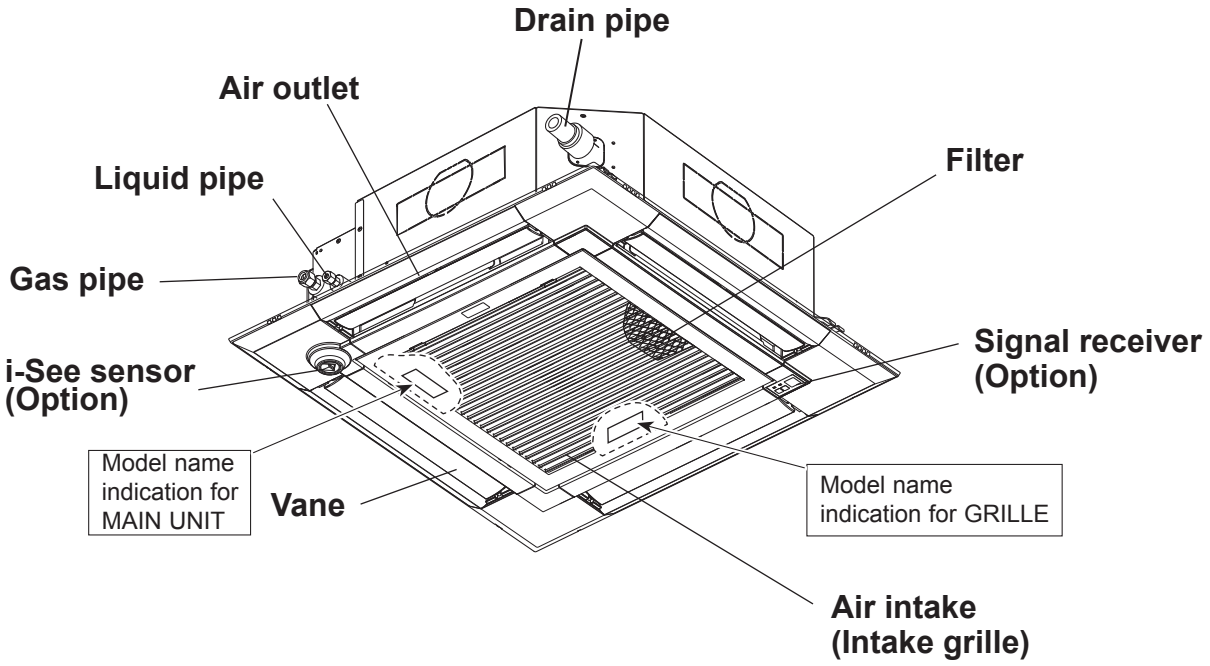
[3] Service tools

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

No.	Tool name	Specifications
①	Gauge manifold	· Only for R410A
		· Use the existing fitting specifications. (UNF1/2)
		· Use high-tension side pressure of 768.7 PSIG [5.3 MPa.G] or over.
②	Charge hose	· Only for R410A
		· Use pressure performance of 738.2 PSIG [5.09 MPa.G] or over.
③	Electronic weighing scale	——
④	Gas leak detector	· Use the detector for R134a, R407C or R410A.
⑤	Adaptor for reverse flow check	· Attach on vacuum pump.
⑥	Refrigerant charge base	——
⑦	Refrigerant cylinder	· Only for R410A · Top of cylinder (Pink) · Cylinder with syphon
⑧	Refrigerant recovery equipment	——

2 PARTS NAMES AND FUNCTIONS

2-1. Indoor Unit



2-2. Wired Remote Controller <PAR-41MAA> <PAC-YT53CRAU>

Wired remote controller function

The functions which can be used are restricted according to each model.

○: Supported ×: Unsupported

	Function	PAR-41MAA		PAC-YT53CRA
		Slim	CITY MULTI	
Body	Product size H × W × D mm (inch)	120 × 120 × 14.5 (4-3/4 × 4-3/4 × 9/16)		120 × 70 × 14.5 (4-3/4 × 2-3/4 × 9/16)
	LCD	Full Dot LCD		Partial Dot LCD
	Backlight	○		○
Energy saving	Energy saving operation schedule	○	×	×
	Automatic return to the preset temperature	○		×
Restriction	Setting the temperature range restriction	○		○
Function*	Operation lock function	○		○
	Weekly timer	○		×
	ON/OFF timer	○		×
	High Power	○	×	×
	Manual vane angle	○		×

*Some functions may not be available depending on model types.

3 SPECIFICATIONS

3-1. SPECIFICATIONS

Service Ref.			PLFY-EP06NEMU1-E.TH	PLFY-EP08NEMU1-E.TH	PLFY-EP12NEMU1-E.TH	PLFY-EP15NEMU1-E.TH
Power source			1-Phase 208/230 V, 60 Hz			
Cooling capacity (Nominal)	*1	Btu/h	6,000	8,000	12,000	15,000
	*1	kW	1.8	2.4	3.5	4.4
	Power input	kW	0.02	0.03		
	Current input	A	0.19	0.31		
Heating capacity (Nominal)	*2	Btu/h	6,700	9,000	13,500	17,000
	*2	kW	2.0	2.7	4.0	5.0
	Power input	kW	0.02			
	Current input	A	0.14	0.26		
External finish			Galvanized steel sheet			
External dimension H × W × D		in	10-3/16 × 33-1/16 × 33-1/16			
		mm	258 × 840 × 840			
Net weight		lbs [kg]	46 [21]			
Grille	External finish (Panel)		PLP-41EAEU: Munsell 1.0Y 9.2/0.2			
	Dimension H × W × D	in	1-9/16 × 37-13/32 × 37-13/32			
		mm	40 × 950 × 950			
	Net weight	lbs [kg]	11 [5]			
Heat exchanger			Cross fin			
FAN	Type × Quantity		Turbo fan × 1			
	External static press.	in. WG	0.000 (208 V)			
		Pa	0			
		in. WG	0.000 (230 V)			
		Pa	0			
	Motor type		DC motor			
	Motor output	kW	0.050			
	Driving mechanism		Direct drive			
	Airflow rate (Low-Mid2-Mid1-High)	cfm	300-424-459-494	494-530-565-600		530-547-565-600
		m³/min	8.5-12.0-13.0-14.0	14.0-15.0-16.0-17.0		15.0-15.5-16.0-17.0
		L/s	142-200-217-233	233-250-267-283		250-258-267-283
Sound pressure level (Low-Mid2-Mid1-High) (measure in anechoic room)		dB <A>	19-23-25-27 (208/230 V)	27-29-30-31 (208/230 V)		28-29-30-31 (208/230 V)
Insulation material			PS			
Air filter			PP honeycomb (long life filter, anti-bacterial type)			
Protection device			Fuse			
Refrigerant control device			LEV			
Connectable outdoor unit			R410, CITY MULTI			
Diameter of refrigerant pipe (O.D.)	Liquid	in [mm]	1/4 [6.35] Flare			
	Gas	in [mm]	1/2 [12.7] Flare			
Field drain pipe size		in [mm]	O.D 1-1/4 [32]			
Standard attachment	Document, accessory		Installation Manual, Instruction Book			
Optional parts	Air outlet shutter plate		PAC-SJ37SP-E			
	High efficiency filter element		PAC-SH59KF-E			
	Multi-function casement		PAC-SJ41TM-E			
Remarks	Installation		Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.			

*1 Nominal cooling conditions
Indoor: 80°F D.B./67°F W.B
[26.7°C D.B./19.4°C W.B]
Outdoor: 95°F D.B.
[35°C D.B.]
Pipe length: 25 ft [7.6m]
Level difference: 0 ft [0 m]

*2 Nominal heating conditions
70°F D.B.
[21.1°C D.B.]
47°F D.B./43°F W.B
[8.3°C D.B./6.1°C W.B]
25 ft [7.6m]
0 ft [0 m]

Unit converter

kcal/h = kW × 860
Btu/h = kW × 3,412
cfm = m^3/min x 35.31
lb = kg/0.4536

Above specification data is subject to rounding variation.

Note: Specifications are subject to change without notice.

Service Ref.			PLFY-EP18NEMU1-E.TH	PLFY-EP24NEMU1-E.TH	PLFY-EP30NEMU1-E.TH
Power source			1-Phase 208/230 V, 60 Hz		
Cooling capacity (Nominal)	*1	Btu/h	18,000	24,000	30,000
	*1	kW	5.3	7.0	8.8
	Power input	kW	0.04		
	Current input	A	0.43		0.45
Heating capacity (Nominal)	*2	Btu/h	20,000	27,000	34,000
	*2	kW	5.9	7.9	10.0
	Power input	kW	0.04		
	Current input	A	0.38		0.40
External finish			Galvanized steel sheet		
External dimension H × W × D		in	11-3/4 × 33-1/16 × 33-1/16		
		mm	298 × 840 × 840		
Net weight		lbs [kg]	55 [25]		
Grille	External finish (Panel)		PLP-41EAEU: Munsell 1.0Y 9.2/0.2		
	Dimension H × W × D	in	1-9/16 × 37-13/32 × 37-13/32		
		mm	40 × 950 × 950		
	Net weight	lbs [kg]	11 [5]		
Heat exchanger			Cross fin		
FAN	Type × Quantity		Turbo fan × 1		
	External static press.	in. WG	0.000 (208 V)		
		Pa	0		
		in. WG	0.000 (230 V)		
		Pa	0		
	Motor type		DC motor		
	Motor output	kW	0.120		
	Driving mechanism		Direct drive		
	Airflow rate (Low-Mid2-Mid1-High)	cfm	636-671-742-812		636-706-777-812
		m³/min	18.0-19.0-21.0-23.0		18.0-20.0-22.0-23.0
		L/s	300-317-350-383		300-333-367-383
Sound pressure level (Low-Mid2-Mid1-High) (measure in anechoic room)		dB <A>	28-30-32-34 (208/230 V)		28-31-33-35 (208/230 V)
Insulation material			PS		
Air filter			PP honeycomb (long life filter, anti-bacterial type)		
Protection device			Fuse		
Refrigerant control device			LEV		
Connectable outdoor unit			R410, CITY MULTI		
Diameter of refrigerant pipe (O.D.)	Liquid	in [mm]	1/4 [6.35] Flare	3/8 [9.52] Flare	
	Gas	in [mm]	1/2 [12.7] Flare	5/8 [15.88] Flare	
Field drain pipe size		in [mm]	O.D 1-1/4 [32]	O.D 1-1/4 [32]	
Standard attachment	Document, accessory		Installation Manual, Instruction Book		
Optional parts	Air outlet shutter plate		PAC-SJ37SP-E		
	High efficiency filter element		PAC-SH59KF-E		
	Multi-function casement		PAC-SJ41TM-E		
Remarks	Installation		Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.		

*1 Nominal cooling conditions
Indoor: 80°F D.B./67°F W.B
[26.7°C D.B./19.4°C W.B]
Outdoor: 95°F D.B.
[35°C D.B.]
Pipe length: 25 ft [7.6m]
Level difference: 0 ft [0 m]

*2 Nominal heating conditions
70°F D.B.
[21.1°C D.B.]
47°F D.B./43°F W.B
[8.3°C D.B./6.1°C W.B]
25 ft [7.6m]
0 ft [0 m]

Unit converter

kcal/h = kW × 860
Btu/h = kW × 3,412
cfm = m^3/min x 35.31
lb = kg/0.4536

Above specification data is subject to rounding variation.

Note: Specifications are subject to change without notice.

Service Ref.				PLFY-EP36NEMU1-E.TH	PLFY-EP48NEMU1-E.TH
Power source				1-Phase 208/230 V, 60 Hz	
Cooling capacity (Nominal)		*1	Btu/h	36,000	48,000
		*1	kW	10.6	14.1
	Power input		kW	0.07	0.11
	Current input		A	0.73	1.01
Heating capacity (Nominal)		*2	Btu/h	40,000	54,000
		*2	kW	11.7	15.8
	Power input		kW	0.07	0.11
	Current input		A	0.68	0.96
External finish				Galvanized steel sheet	
External dimension H × W × D			in	11-3/4 × 33-1/16 × 33-1/16	
			mm	298 × 840 × 840	
Net weight			lbs [kg]	55 [25]	
Grille	External finish (Panel)			PLP-41EAEU: Munsell 1.0Y 9.2/0.2	
	Dimension H × W × D		in	1-9/16 × 37-13/32 × 37-13/32	
			mm	40 × 950 × 950	
	Net weight		lbs [kg]	11 [5]	
Heat exchanger				Cross fin	
FAN	Type × Quantity			Turbo fan × 1	
	External static press.		in. WG	0.000 (208 V)	
			Pa	0	
			in. WG	0.000 (230 V)	
			Pa	0	
	Motor type			DC motor	
	Motor output		kW	0.120	
	Driving mechanism			Direct drive	
	Airflow rate (Low-Mid2-Mid1-High)		cfm	777-883-989-1,095	777-953-1,095-1,236
			m^3/min	22.0-25.0-28.0-31.0	22.0-27.0-31.0-35.0
			L/s	367-417-467-517	367-450-517-584
Sound pressure level (Low-Mid2-Mid1-High) (measure in anechoic room)			dB <A>	35-37-39-41 (208/230 V)	36-39-42-45 (208/230 V)
Insulation material				PS	
Air filter				PP honeycomb (long life filter, anti-bacterial type)	
Protection device				Fuse	
Refrigerant control device				LEV	
Connectable outdoor unit				R410, CITY MULTI	
Diameter of refrigerant pipe (O.D.)	Liquid		in [mm]	3/8 [9.52] Flare	
	Gas		in [mm]	5/8 [15.88] Flare	
Field drain pipe size			in [mm]	O.D 1-1/4 [32]	
Standard attachment	Document, accessory			Installation Manual, Instruction Book	
Optional parts	Air outlet shutter plate			PAC-SJ37SP-E	
	High efficiency filter element			PAC-SH59KF-E	
	Multi-function casement			PAC-SJ41TM-E	
Remarks	Installation			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.	

*1 Nominal cooling conditions
Indoor: 80°F D.B./67°F W.B
[26.7°C D.B./19.4°C W.B]
Outdoor: 95°F D.B.
[35°C D.B.]
Pipe length: 25 ft [7.6m]
Level difference: 0 ft [0 m]

*2 Nominal heating conditions
70°F D.B.
[21.1°C D.B.]
47°F D.B./43°F W.B
[8.3°C D.B./6.1°C W.B]
25 ft [7.6m]
0 ft [0 m]

Unit converter

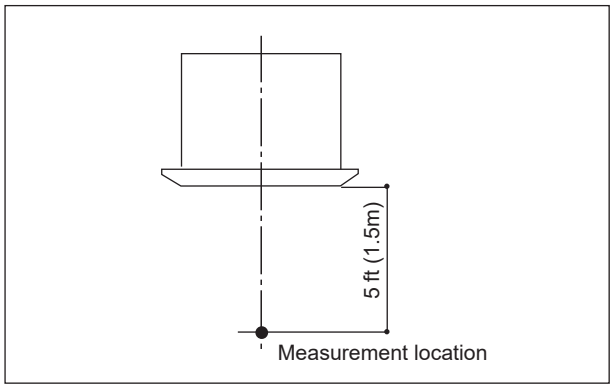
kcal/h = kW × 860
Btu/h = kW × 3,412
cfm = m^3/min x 35.31
lb = kg/0.4536

Above specification data is subject to rounding variation.

Note: Specifications are subject to change without notice.

3-2. SOUND PRESSURE LEVEL

PLFY-EP•NEMU1-E



Note: Measured in anechoic room.

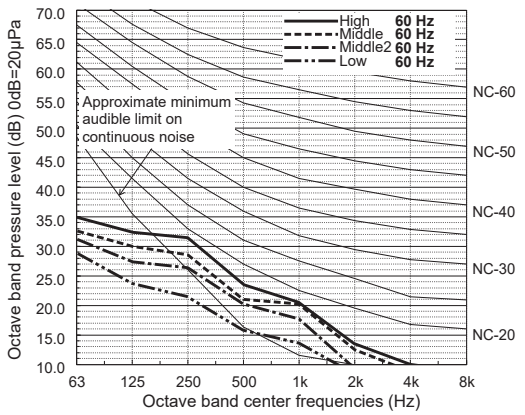
Sound pressure level in anechoic room: Low-Mid2-Mid1-High

	Sound pressure level dB (A)
PLFY-EP06NEMU1-E.TH	19-23-25-27
PLFY-EP08NEMU1-E.TH PLFY-EP12NEMU1-E.TH	27-29-30-31
PLFY-EP15NEMU1-E.TH	28-29-30-31
PLFY-EP18NEMU1-E.TH PLFY-EP24NEMU1-E.TH	28-30-32-34
PLFY-EP30NEMU1-E.TH	28-31-33-35
PLFY-EP36NEMU1-E.TH	35-37-39-41
PLFY-EP48NEMU1-E.TH	36-39-42-45

3-3. NC CURVES

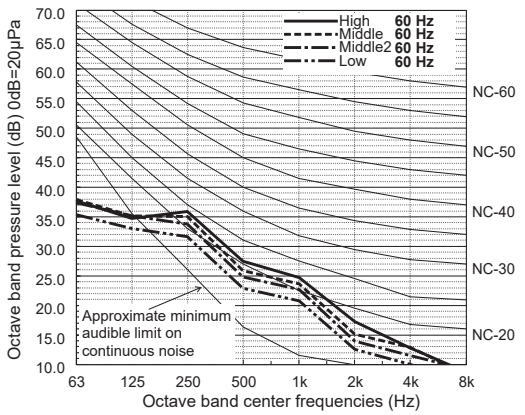
PLFY-EP06NEMU1-E.TH

External Static Pressure: 0 Pa [0.00 in.WG]
Power Source: 208/230 V 60 Hz



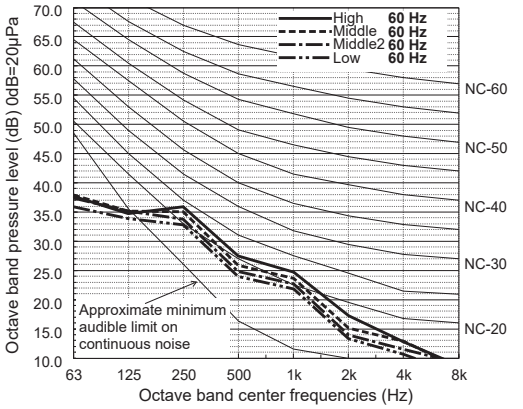
PLFY-EP08NEMU1-E.TH
PLFY-EP12NEMU1-E.TH

External Static Pressure: 0 Pa [0.00 in.WG]
Power Source: 208/230 V 60 Hz



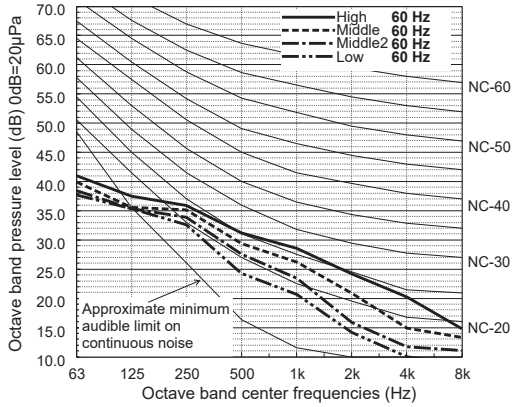
PLFY-EP15NEMU1-E.TH

External Static Pressure: 0 Pa [0.00 in.WG]
Power Source: 208/230 V 60 Hz



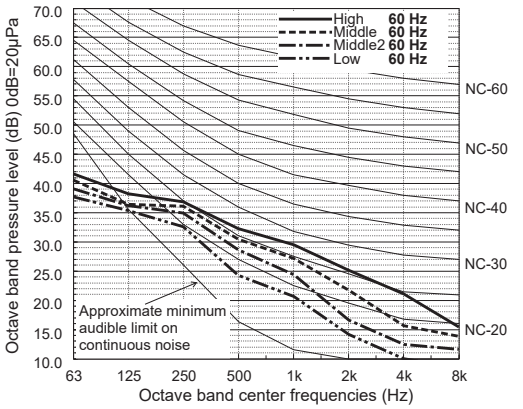
PLFY-EP18NEMU1-E.TH
PLFY-EP24NEMU1-E.TH

External Static Pressure: 0 Pa [0.00 in.WG]
Power Source: 208/230 V 60 Hz



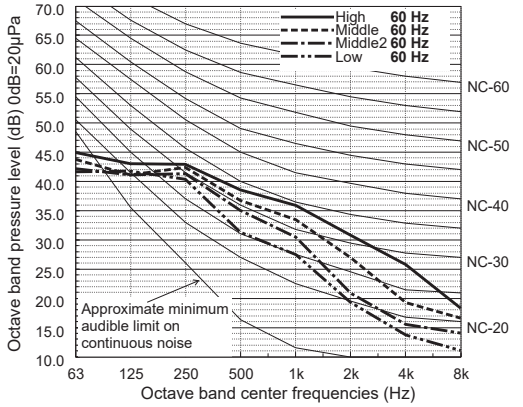
PLFY-EP30NEMU1-E.TH

External Static Pressure: 0Pa [0.00 in.WG]
Power Source: 208/230 V 60 Hz



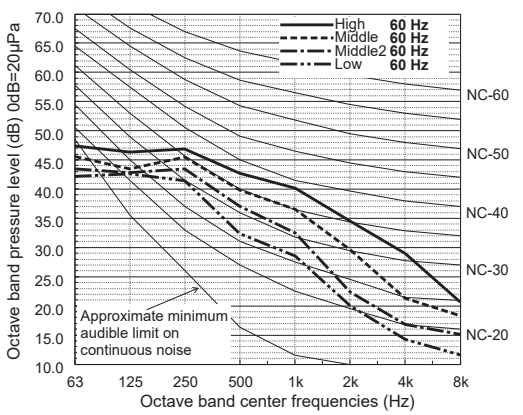
PLFY-EP36NEMU1-E.TH

External Static Pressure: 0 Pa [0.00 in.WG]
Power Source: 208/230 V 60 Hz



PLFY-EP48NEMU1-E.TH

External Static Pressure: 0 Pa [0.00 in.WG]
Power Source: 208/230 V 60 Hz



3-4. ELECTRICAL PARTS SPECIFICATIONS

Service Ref. / Parts name	Symbol	PLFY-EP06NEMU1-E.TH PLFY-EP08NEMU1-E.TH PLFY-EP12NEMU1-E.TH PLFY-EP15NEMU1-E.TH	PLFY-EP18NEMU1-E.TH PLFY-EP24NEMU1-E.TH	PLFY-EP30NEMU1-E.TH PLFY-EP36NEMU1-E.TH PLFY-EP48NEMU1-E.TH
Room temperature detection thermistor	TH21	Resistance 30°F/15.8 kΩ, 50°F/9.6 kΩ, 70°F/6.0 kΩ, 80°F/4.8 kΩ, 90°F/3.9 kΩ, 100°F/3.2 kΩ		
Pipe temperature dection thermistor/liquid	TH22	Resistance 30°F/15.8 kΩ, 50°F/9.6 kΩ, 70°F/6.0 kΩ, 80°F/4.8 kΩ, 90°F/3.9 kΩ, 100°F/3.2 kΩ		
Pipe temperature detection thermistor/gas	TH23	Resistance 30°F/15.8 kΩ, 50°F/9.6 kΩ, 70°F/6.0 kΩ, 80°F/4.8 kΩ, 90°F/3.9 kΩ, 100°F/3.2 kΩ		
Fuse (Indoor controller board)	FUSE	UL 6.3 A 250 VAC		
Fan motor	MF	8-pole OUTPUT 50 W	8-pole OUTPUT, 120 W	
Vane motor	MV	MSBPC20M04 12 VDC, 300 Ω/phase		
Drain pump	DP	PMD-12D13ME-13 INPUT 3.9 W 36 ℓ/Hr		
Drain float switch	FS	Open/short detection		
Linear expansion valve	LEV	12 VDC Stepping motor drive port dimension ø3.2 (0–2000pulse) EDM-40YGME		12 VDC Stepping motor drive port dimension ø5.2 (0–2000pulse) EDM-80YGME
Power supply terminal block	TB2	(L1, L2) 330 V, 30 A		
Transmission terminal block	TB5	(M1, M2, S) 250 V, 20 A		
MA remote controller terminal block	TB15	(1, 2) 250 V, 10 A		

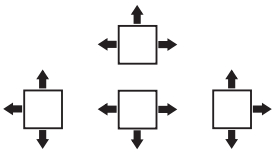
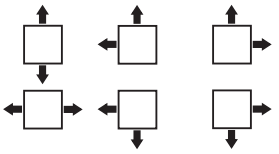
4 4-WAY AIRFLOW SYSTEM

4-1. PLACEMENT OF THE AIR OUTLETS

• For this grille, the blowout direction comes in 11 patterns.
Also, by setting the remote controller to the appropriate settings, you can adjust the airflow and speed. Select the settings from Table1 according to the location in which you want to install the unit.

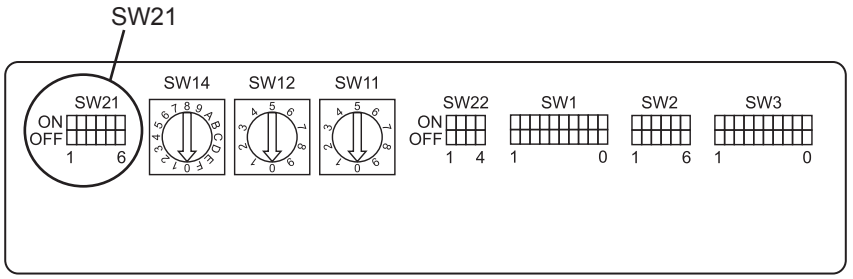
1) Decide on the pattern of the airflow direction.

<Table 1>

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

Note: For 3 and 2-direction settings, 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 up the switch (SW21) on the indoor controller board to the appropriate setting.
• Correspondence of ceiling heights to numbers of air outlets



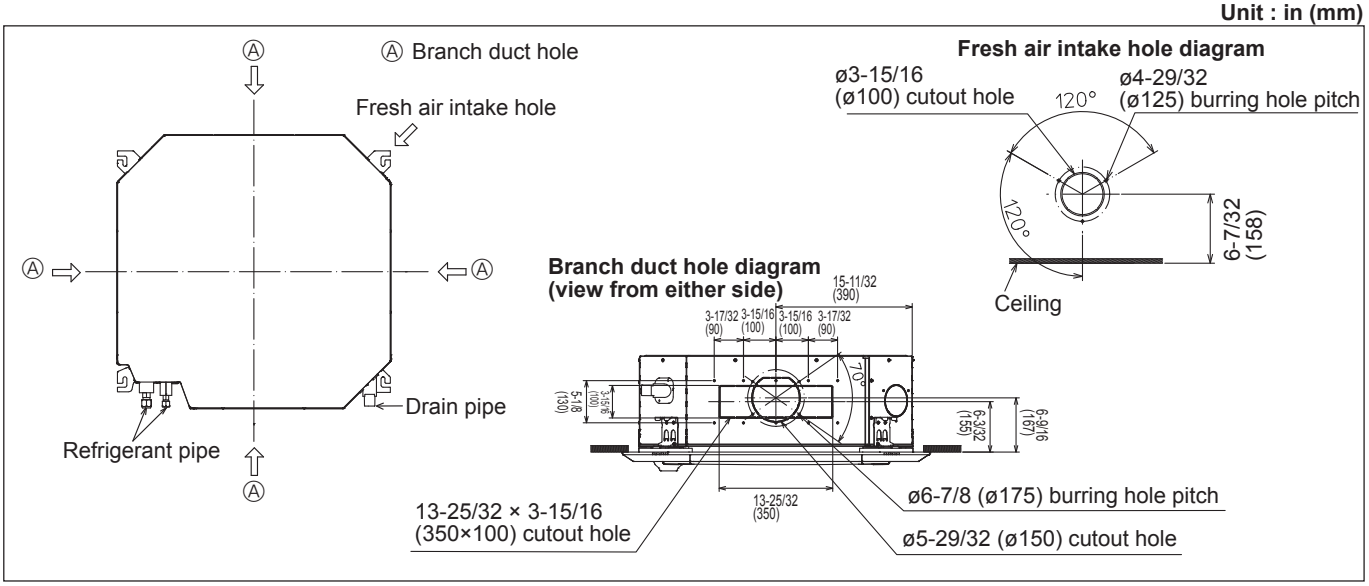
			PLFY-EP06NEMU1-E.TH PLFY-EP08NEMU1-E.TH PLFY-EP12NEMU1-E.TH PLFY-EP15NEMU1-E.TH PLFY-EP18NEMU1-E.TH PLFY-EP24NEMU1-E.TH PLFY-EP30NEMU1-E.TH						PLFY-EP36NEMU1-E.TH PLFY-EP48NEMU1-E.TH					
			Silent		Standard		High ceiling		Silent		Standard		High ceiling	
			SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2
			OFF	ON	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	ON	OFF
4 direction	SW21-3	OFF	8.2 ft [2.5 m]		8.9 ft [2.7 m]		11.5 ft [3.5 m]		8.9 ft [2.7 m]		10.5 ft [3.2 m]		14.8 ft [4.5 m]	
	SW21-4	ON												
3 direction	SW21-3	OFF	8.9 ft [2.7 m]		9.8 ft [3.0 m]		11.5 ft [3.5 m]		9.8 ft [3.0 m]		11.8 ft [3.6 m]		14.8 ft [4.5 m]	
	SW21-4	OFF												
2 direction	SW21-3	ON	9.8 ft [3.0 m]		10.8 ft [3.3 m]		11.5 ft [3.5 m]		10.8 ft [3.3 m]		13.1 ft [4.0 m]		14.8 ft [4.5 m]	
	SW21-4	OFF												

4-2. BRANCH DUCT HOLE AND FRESH AIR INTAKE HOLE

At the time of installation, use the duct holes (cut out) located at the positions shown in following diagram, as and when required.
• A fresh air intake hole for the optional multi function casement can also be made.

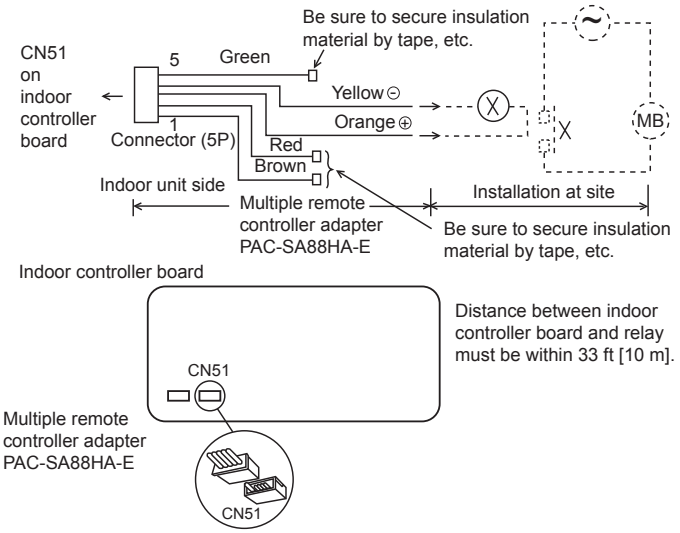
Note:
When installing the optional multi function casement, add 5-5/16" (135 mm) to the dimensions marked on the figure.
When installing the branch ducts, be sure to insulate adequately.
Otherwise, condensation and dripping may occur.

Unit : in (mm)



4-3. OPERATION IN CONJUNCTION WITH DUCT FAN (Booster fan)

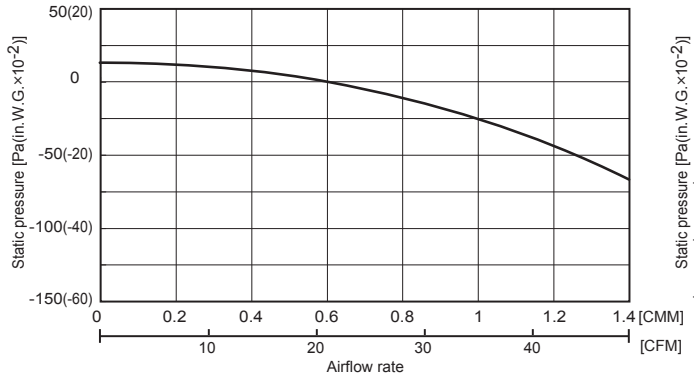
• Whenever the indoor unit is operating, the duct fan also operates.
(1) Connect the optional multiple remote controller adapter (PAC-SA88HA-E) to the connector CN51 on the indoor controller board.
(2) Drive the relay after connecting the 12 VDC relay between the Yellow and Orange connector lines.
MB: Electromagnetic switch power relay for duct fan.
X: Auxiliary relay (For 12 VDC, coil rating: 1.0 W or smaller)



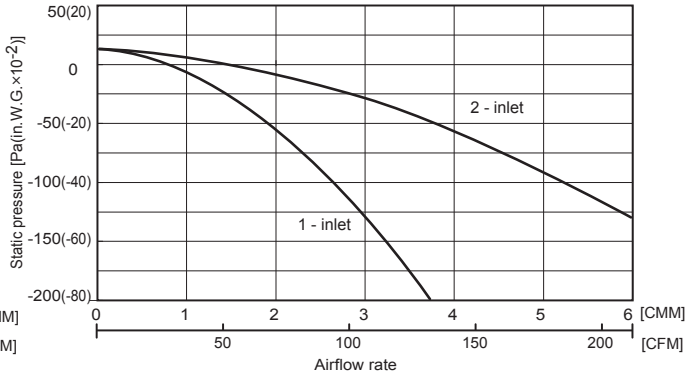
4-4. FRESH AIR INTAKE AMOUNT & STATIC PRESSURE CHARACTERISTICS

1 PLFY-EP06/08/12/15NEMU1-E.TH

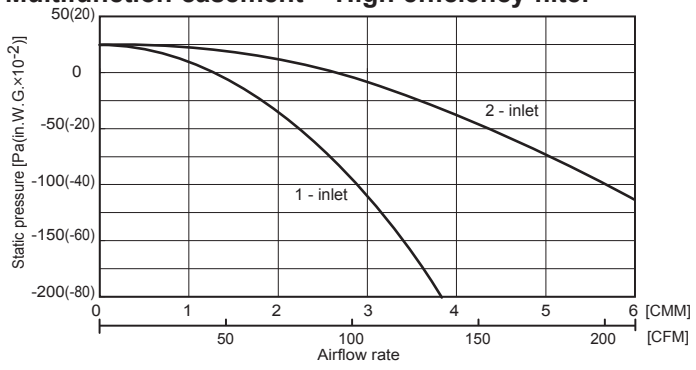
Taking air into the unit



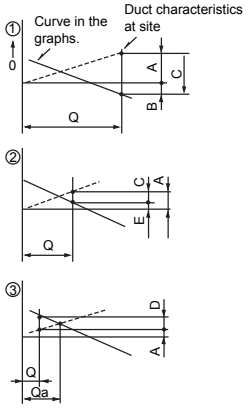
Multifunction casement + Standard filter



Multifunction casement + High efficiency filter



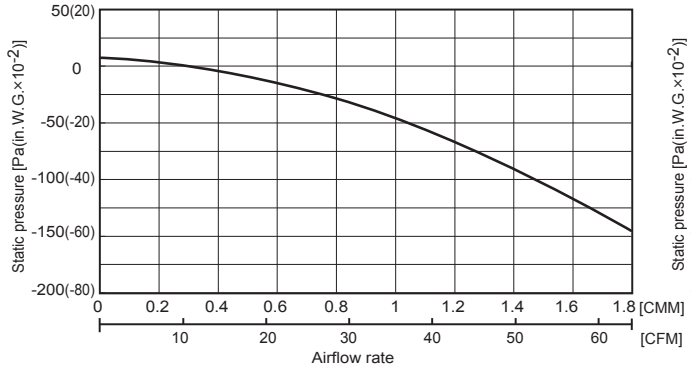
How to read curves



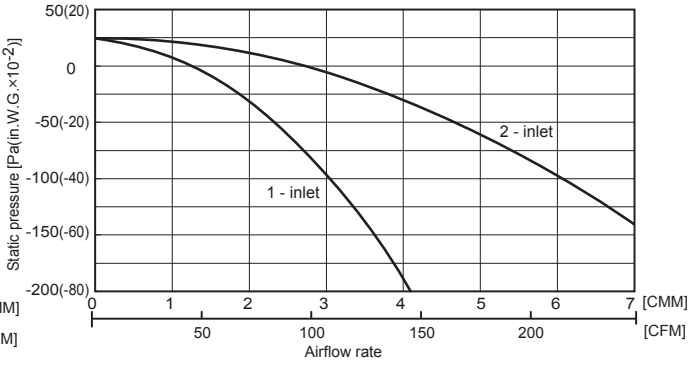
Q···Designed amount of fresh air intake <CMM (CFM)>
A···Static pressure loss of fresh air intake duct system with airflow amount Q <Pa (in.W.G.×10-2)>
B···Forced static pressure at air conditioner inlet with airflow amount Q <Pa (in.W.G.×10-2)>
C···Static pressure of booster fan with airflow amount Q <Pa (in.W.G.×10-2)>
D···Static pressure loss increase amount of fresh air intake duct system for airflow amount Q <Pa (in.W.G.×10-2)>
E···Static pressure of indoor unit with airflow amount Q <Pa (in.W.G.×10-2)>
Qa···Estimated amount of fresh air intake without D <CMM (CFM)>

2 PLFY-EP18/24/30/36/48NEMU1-E.TH

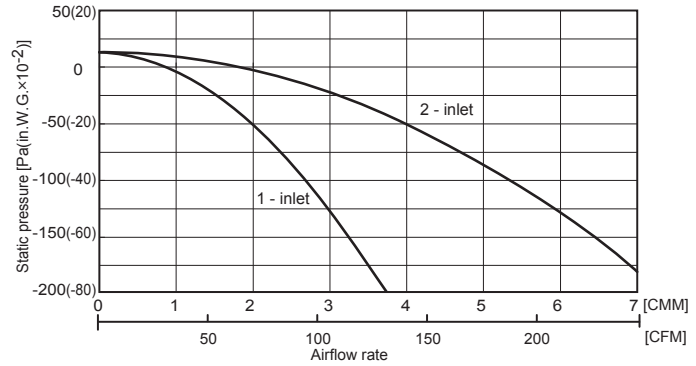
Taking air into the unit



Multifunction casement + Standard filter

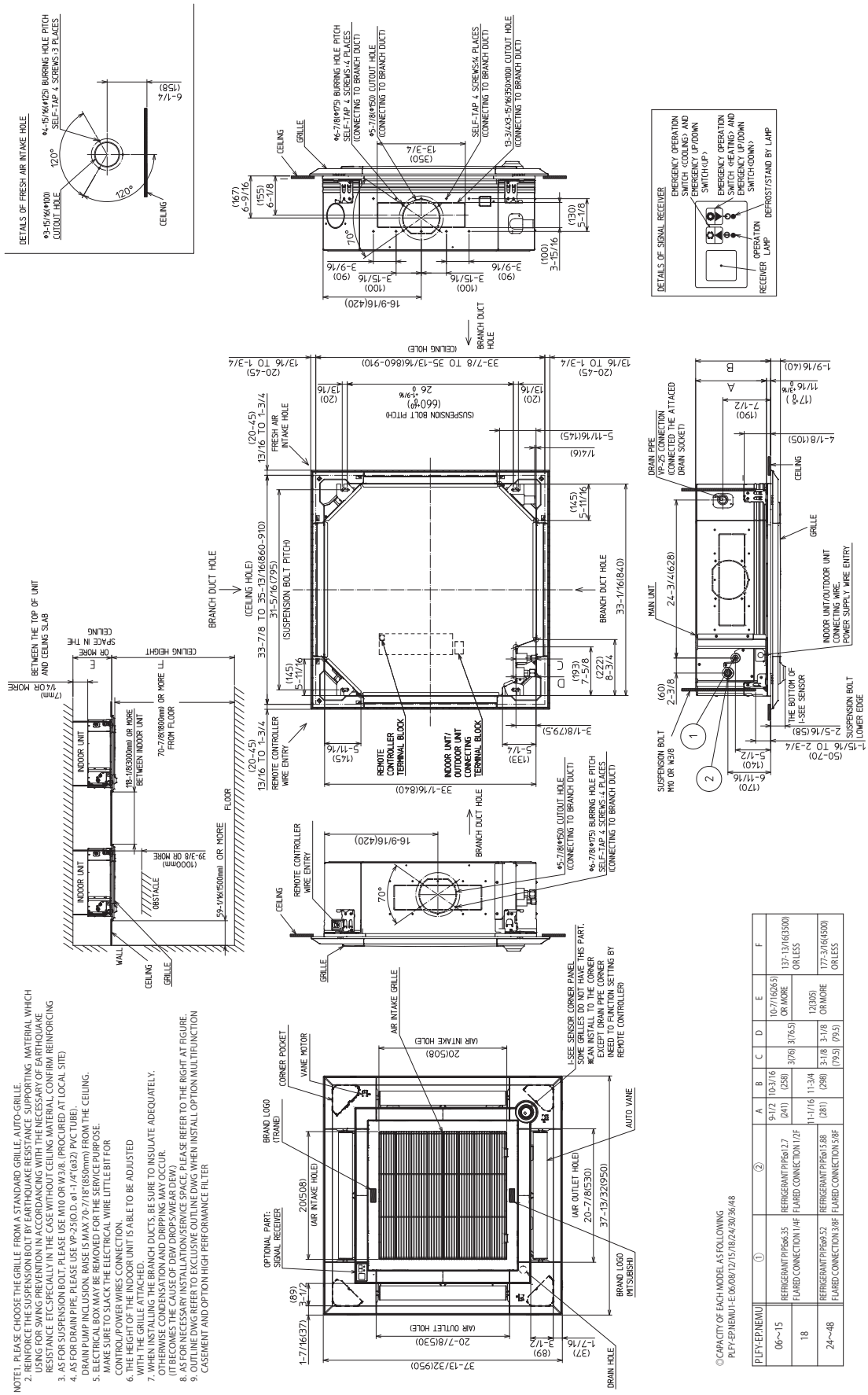


Multifunction casement + High efficiency filter



5 OUTLINES AND DIMENSIONS

Unit: in (mm)

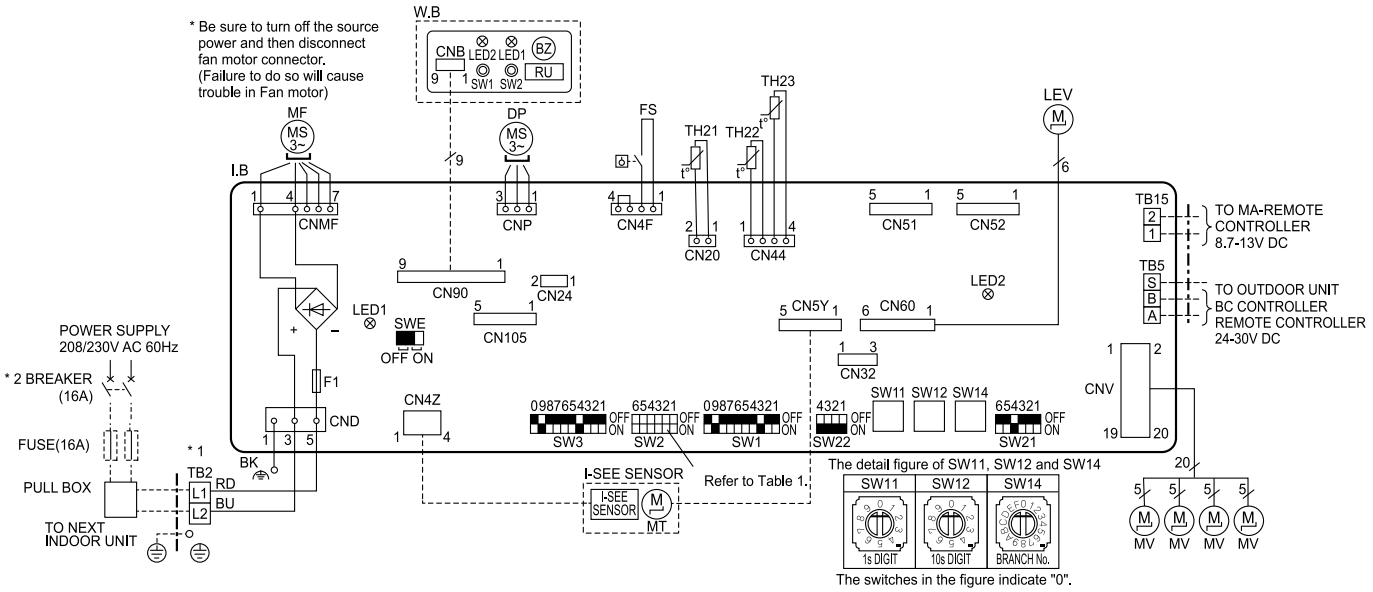


NOTE) 1. PLEASE CHOOSE THE GRILLE FROM A STANDARD GRILLE, AUTO-GRILLE.
2. REINFORCE THE SUSPENSION BOLT BY EARTHQUAKE RESISTANCE SUPPORTING MATERIAL WHICH USING FOR SWING PREVENTION IN ACCORDANCING WITH THE NECESSARY OF EARTHQUAKE RESISTANCE ETC.SPECIALLY IN THE CASE WITHOUT CEILING MATERIAL CONFIRM REINFORCING
3. AS FOR SUSPENSION BOLT, PLEASE USE M10 OR W3/8. (PROCURED AT LOCAL SITE)
4. AS FOR DRAIN PIPE, PLEASE USE VP-25(O.D. ø1-1/4"(ø32) PVC TUBE).
DRAIN PUMP INCLUSION, RAISE IS MAX 70-7/18"(850mm) FROM THE CEILING.
5. ELECTRICAL BOX MAY BE REMOVED FOR THE SERVICE PURPOSE.
MAKE SURE TO SLACK THE ELECTRICAL WIRE LITTLE BIT FOR CONTROL/POWER WIRES CONNECTION.
6. THE HEIGHT OF THE INDOOR UNIT IS ABLE TO BE ADJUSTED WITH THE GRILLE ATTACHED.
7. WHEN INSTALLING THE BRANCH DUCTS, BE SURE TO INSULATE ADEQUATELY. OTHERWISE CONDENSATION AND DRIPPING MAY OCCUR. (IT BECOMES THE CAUSE OF DEW DROPS,WEAR DEW.)
8. AS FOR NECESSARY INSTALLATION/SERVICE SPACE, PLEASE REFER TO THE RIGHT AT FIGURE.
9. OUTLINE DWG REFER TO EXCLUSIVE OUTLINE DWG WHEN INSTALL OPTION MULTIFUNCTION CASEMENT AND OPTION HIGH PERFORMANCE FILTER

©CAPACITY OF EACH MODEL AS FOLLOWING
PLFY-EP□NEMU-E.06/08/12/15/18/24/30/36/48

PLFY-EP□NEMU	①	②	A	B	C	D	E	F
06~15	REFRIGERANT PIPE ø6.35 FLARED CONNECTION 1/4F	REFRIGERANT PIPE ø12.7 FLARED CONNECTION 1/2F	9-1/2 (241)	10-3/16 (258)	3/76)	3/76.5)	10-7/16(265) OR MORE	137-13/16(3500) OR LESS
18			11-1/16	11-3/4			12(305)	
24~48	REFRIGERANT PIPE ø9.52 FLARED CONNECTION 3/8F	REFRIGERANT PIPE ø15.88 FLARED CONNECTION 5/8F	(281)	(298)	3-1/8 (79.5)	3-1/8 (79.5)	OR MORE	177-3/16(4500) OR LESS

6 WIRING DIAGRAM



<Table 1> SW2 (CAPACITY CODE)

MODELS	SW2	MODELS	SW2
06	ON OFF 1 2 3 4 5 6	24	ON OFF 1 2 3 4 5 6
08	ON OFF 1 2 3 4 5 6	30	ON OFF 1 2 3 4 5 6
12	ON OFF 1 2 3 4 5 6	36	ON OFF 1 2 3 4 5 6
15	ON OFF 1 2 3 4 5 6	48	ON OFF 1 2 3 4 5 6
18	ON OFF 1 2 3 4 5 6		

NOTES:
1. At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
2. In case of using MA-Remote controller, please connect to TB15. (Remote controller wire is non-polar.)
3. In case of using M-NET-Remote controller, please connect to TB5. (Transmission line is non-polar.)
4. Symbol [S]of TB5 is the shield wire connection.
5. Symbols used in wiring diagram above are, ☐☐☐ : terminal block, ○○○ : connector.
6. The setting of SW2 differs in the capacity. For the detail, refer the table 1 .
7. Make sure to turn off the indoor and the outdoor units before replacing indoor controller board.
8. ■ is the switch position.
*1. Use copper supply wires.
Utilisez des fils d'alimentation en cuivre.
*2. A disconnect should be required by local code.
Se procurer un sectionneur conforme aux réglementations Locales.

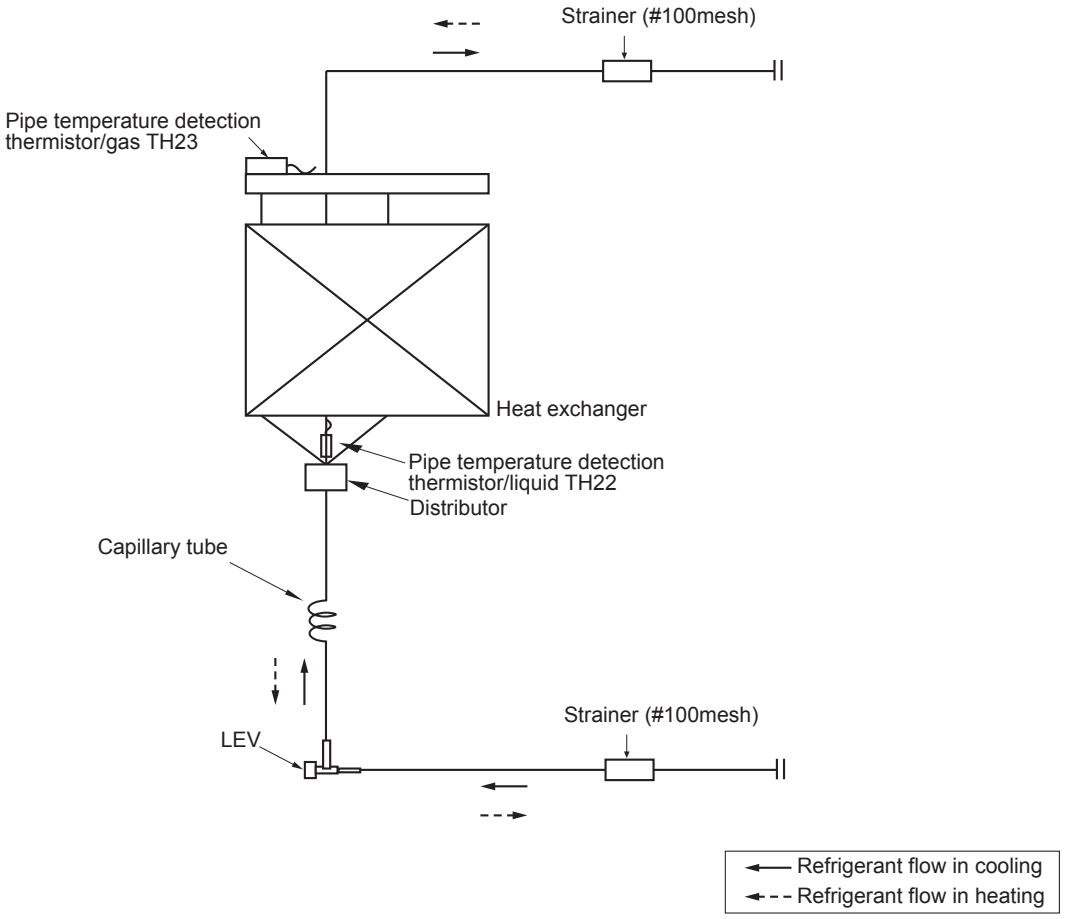
【LEGEND】

SYMBOL		NAME		SYMBOL		NAME	
I. B		INDOOR CONTROLLER BOARD		TH23	THERMISTOR	PIPE TEMP. DETECTION / GAS (32°F/15kΩ, 77°F/5.4kΩ)
	F1	FUSE (UL 6.3A 250V AC)				
	CN24	CONNECTOR	EXTERNAL HEATER	MF	FAN MOTOR	
	CN32		REMOTE SWITCH	MV	VANE MOTOR	
	CN51		CENTRALLY CONTROL	MT	I-SEE SENSOR MOTOR	
	CN52		REMOTE INDICATION	DP	DRAIN PUMP	
	CN105		IT TERMINAL	FS	DRAIN FLOAT SWITCH	
	SW1	SWITCH	MODE SELECTION	TB2	TERMINAL BLOCK	POWER SUPPLY
	SW2		CAPACITY CODE	TB5		TRANSMISSION
	SW3		MODE SELECTION	TB15		MA-REMOTE CONTROLLER
	SW11		ADDRESS SETTING 1s DIGIT	LEV	LINEAR EXPANSION VALVE	
	SW12		ADDRESS SETTING 10s DIGIT	OPTION PART		
	SW14		BRANCH NO.	W.B	PCB FOR WIRELESS REMOTE CONTROLLER	
	SW21		CEILNG HEIGHT/DISCHARGE OUTLET NUMBER/OPTION SELECTOR	BZ	BUZZER	
				LED1	LED (OPERATION INDICATION : GREEN)	
	SW22		PAIR NO. SETTING	LED2	LED (PREPARATION FOR HEATING : ORANGE)	
	SWE		DRAIN PUMP (TEST MODE)	RU	RECEVING UNIT	
TH21		THERMISTOR	ROOM TEMP. DETECTION (32°F/15kΩ, 77°F/5.4kΩ)	SW1	EMERGENCY OPERATION (HEAT / DOWN)	
				SW2	EMERGENCY OPERATION (COOL / UP)	
TH22			PIPE TEMP. DETECTION / LIQUID (32°F/15kΩ, 77°F/5.4kΩ)			

LED on indoor board for service

Mark	Meaning	Function
LED1	Main power supply	Main Power supply (Indoor unit:208/230V AC) power on → lamp is lit
LED2	Power supply for MA-Remote controller	Power supply for MA-Remote controller on → lamp is lit

7 REFRIGERANT SYSTEM DIAGRAM

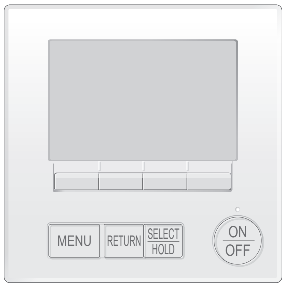


Unit: in [mm]

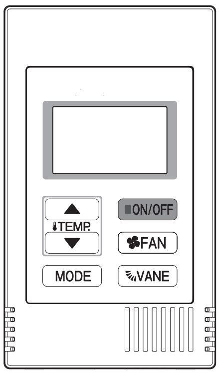
Item \ Model	PLFY-EP06NEMU1-E.TH PLFY-EP08NEMU1-E.TH PLFY-EP12NEMU1-E.TH PLFY-EP15NEMU1-E.TH PLFY-EP18NEMU1-E.TH	PLFY-EP24NEMU1-E.TH PLFY-EP30NEMU1-E.TH PLFY-EP36NEMU1-E.TH PLFY-EP48NEMU1-E.TH
Gas pipe	ø1/2 [12.7]	ø 5/8 [15.88]
Liquid pipe	ø1/4 [6.35]	ø 3/8 [9.52]

8 MICROPROCESSOR CONTROL

INDOOR UNIT CONTROL
8-1. COOL OPERATION

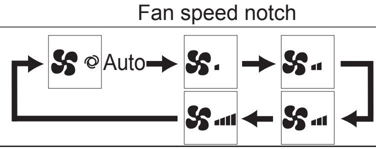
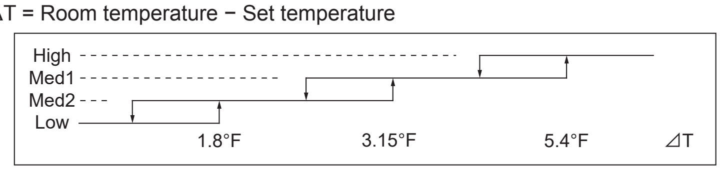


<How to operate>
① Press ON/OFF button.
② Press [F1] button to display COOL.
③ Press [F2] [F3] button to set the set temperature.
NOTE: The settable temperature range varies with the model of outdoor units and remote controller.

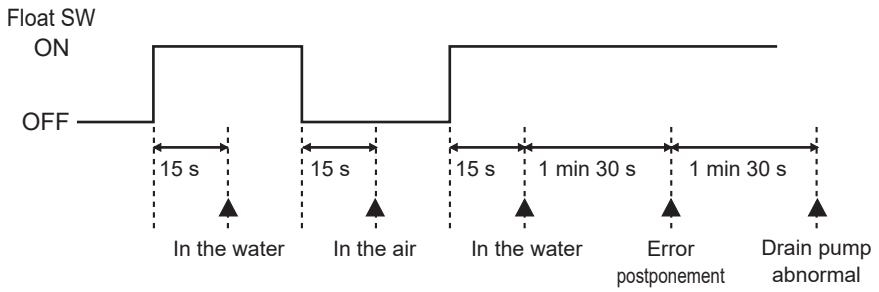


<How to operate>
① Press POWER ON/OFF button.
② Press the operation MODE button to display COOL.
③ Press the TEMP. button to set the set temperature.
NOTE: The set temperature changes 1°F when the ▽ or △ button is pressed one time. Cooling 67 to 87°F

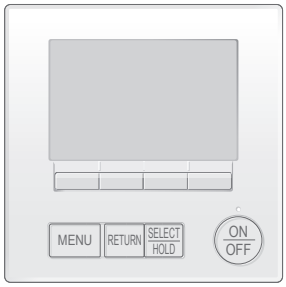
<table>
<tr><th>Control Mode</th><th>Control Details</th><th>Remarks</th></tr>
<tr><td>1. Temperature adjustment function</td><td>1-1. Determining temperature adjustment function
(Function to prevent restarting for 3 minutes)
• Room temperature ≧ Set temperature + 2°F ···Thermo-ON
• Room temperature ≦ Set temperature ···Thermo-OFF

1-2. Anti-freeze control
■ Condition to detect
When the pipe temperature detection thermistor/liquid (TH22) detects 32°F or less in 16 minutes from thermo-ON, the anti-freeze control initiates, and the unit enters to the thermo-OFF.
■ Condition to release
The timer which prevents reactivating is set for 3 minutes, and anti-freeze control is cancelled when any one of the following conditions has been satisfied:
① Pipe temperature detection thermistor/liquid (TH22) reaches 50°F or above.
② The condition of thermo-OFF has been completed by the thermostat.
③ The operation has changed to a mode other than COOLING.</td><td>• The ON/OFF commands by the indoor unit thermostatic control are not an ON/OFF commands to the compressor but an open/close commands to the linear expansion valve. (The compressor stops only when the thermostatic control for all the indoor units connected to the same outdoor unit turns OFF.)</td></tr>
<tr><td>2. Fan</td><td>By the remote controller setting (switch of 4 speeds+Auto)
<table><tr><th>Type</th><th>Fan speed notch</th></tr><tr><td>4 speeds + Auto type</td><td>  </td></tr></table>When [Auto] is set, fan speed is changed depending on the value of:
ΔT = Room temperature − Set temperature
  </td><td></td></tr>
</table>

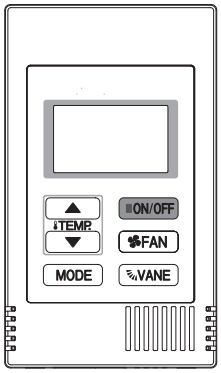
Continue to the next page

Control Mode	Control Details	Remarks
3. Drain pump	3-1. Drain pump control • The drain pump will always run when the unit is in COOL or DRYING mode. (Regardless of the thermo ON/OFF) • Whenever the operation is changed over to the other modes (including Stop), the drain pump will stop pumping after approximately 3 minutes.	
	Float switch control • Float switch control judges whether the sensor is in the air or in the water by turning the float switch ON/OFF. In the water: Detected that the float switch is ON for 15 seconds. In the air: Detected that the float switch is OFF for 15 seconds 	
4. Vane (up/down vane position change)	(1) The initial vane setting for COOL mode is the horizontal position. (2) Vane position: Horizontal →Downward A →Downward B →Downward C→Downward D→Swing→Auto (3) Restriction of the downward vane setting If the vane position is set to Downward A/B/C/D in [Med1], [Med2], or [Low], the vane will return to the horizontal position after 1 hour has passed.	• "ONLY 1 hr" appears on the wired remote controller.

8-2. DRYING OPERATION



<How to operate>
① Press ON/OFF button.
② Press [F1] button to display DRYING.
③ Press [F2] [F3] button to set the set temperature.

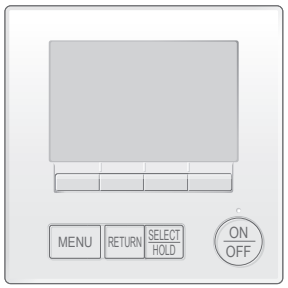


<How to operate>
① Press POWER ON/OFF button.
② Press the operation MODE button to display DRYING.
③ Press the TEMP. button to set the set temperature.
NOTE: The set temperature changes 1°F when the ▽ or △ button is pressed one time. Dry 67 to 87°F

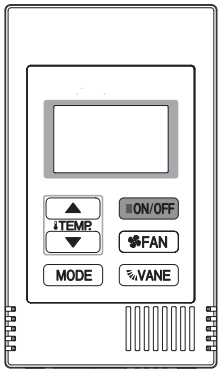
<table>
<tr><th>Control Mode</th><th>Control Details</th><th>Remarks</th></tr>
<tr><td>1. Temperature adjustment function</td><td>1-1. Determining temperature adjustment function
(Function to prevent restarting for 3 minutes)
Setting the Dry thermo by the thermostat signal and the room temperature (TH21).
Dry thermo-ON Room temperature ≧ Set temperature + 2°F
Dry thermo-OFF Room temperature ≦ Set temperature

<table>
<tr><td rowspan="2">Room temperature</td><td colspan="2">3 minutes passed since starting operation</td><td rowspan="2">Dry thermo-ON time (min)</td><td rowspan="2">Dry thermo-OFF time (min)</td></tr>
<tr><td>Thermostat signal</td><td>Room temperature (T1)</td></tr>
<tr><td rowspan="5">Over 64°F</td><td rowspan="4">ON</td><td>T1 ≧ 83°F</td><td>9</td><td>3</td></tr>
<tr><td>83°F > T1 ≧ 79°F</td><td>7</td><td>3</td></tr>
<tr><td>79°F > T1 ≧ 75°F</td><td>5</td><td>3</td></tr>
<tr><td>75°F > T1</td><td>3</td><td>3</td></tr>
<tr><td>OFF</td><td>Unconditional</td><td>3</td><td>10</td></tr>
<tr><td>Below 64°F</td><td colspan="4">Dry thermo OFF</td></tr>
</table>
</td><td></td></tr>
<tr><td></td><td>1-2. Anti-freeze control
No control function</td><td></td></tr>
<tr><td>2. Fan</td><td>Indoor fan operation control depends on the compressor conditions.
<table>
<tr><td>Dry thermo</td><td colspan="2">Fan speed notch</td></tr>
<tr><td>ON</td><td colspan="2">[Low]</td></tr>
<tr><td rowspan="2">OFF</td><td>Excluding the following</td><td>Stop</td></tr>
<tr><td>Room temp. < 64°F</td><td>[Low]</td></tr>
</table>
Note: Fan speed change is not allowed during DRYING operation.</td><td></td></tr>
<tr><td>3. Drain pump</td><td>Operates as it would in COOL operation.</td><td></td></tr>
<tr><td>4. Vane (up/down vane position change)</td><td>Settings are the same in DRYING operation as they are in COOL operation.</td><td></td></tr>
</table>

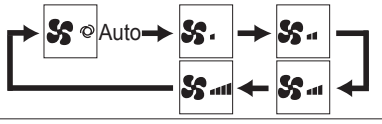
8-3. FAN OPERATION



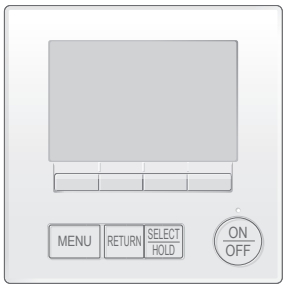
<How to operate>
① Press ON/OFF button.
② Press [F1] button to display FAN.



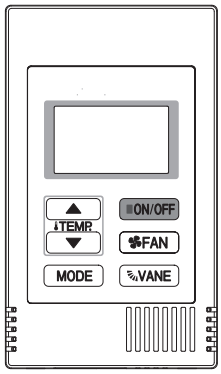
<How to operate>
① Press POWER ON/OFF button.
② Press the operation MODE button to display FAN.

Control Mode	Control Details	Remarks
1. Temperature adjustment function	Set by remote controller. Type: 4 speeds + Auto type Fan speed notch:  When [Auto] is set, fan speed becomes [Low].	
2. Drain pump	2-1. Drain pump control The drain pump turns ON for the specified amount of time when any of the following conditions has been satisfied: ① ON for 3 minutes after the operation mode is switched from COOL or DRYING to another operation mode (FAN). ② ON for 6 minutes after the float switch is submerged in the water when the float switch control judges the sensor is in the water.	
	2-2. Float switch control • Float switch control judges whether the sensor is in the air or in the water by turning the float switch ON/OFF. In the water: Detected that the float switch is ON for 15 seconds. In the air: Detected that the float switch is OFF for 15 seconds.	• Operates as it would in COOL operation.
3. Vane (up/down vane position change)	Same as the control performed during the COOL operation, but with no restriction on the vane's downward blow setting	

8-4. HEAT OPERATION



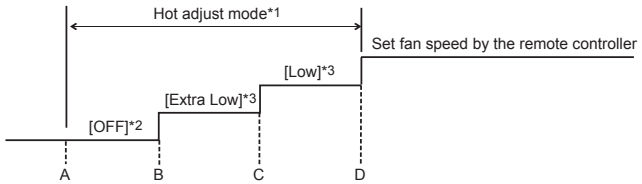
<How to operate>
① Press ON/OFF button.
② Press [F1] button to display HEAT.
③ Press [F2] [F3] button to set the set temperature.
NOTE: The settable temperature range varies with the model of outdoor units and remote controller.



<How to operate>
① Press POWER ON/OFF button.
② Press the operation MODE button to display HEAT.
③ Press the TEMP. button to set the set temperature.
NOTE: The set temperature changes 1°F when the ▽ or △ button is pressed one time. Heating 63 to 83°F

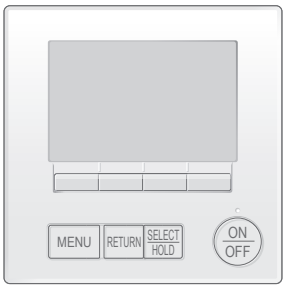
Control Mode	Control Details	Remarks
1. Temperature adjustment function	1-1. Determining temperature adjustment function (Function to prevent restarting for 3 minutes) • Room temperature ≦ Set temperature −2°F ⋯Thermo-ON • Room temperature ≧ Set temperature ⋯Thermo-OFF	
2. Fan	By the remote controller setting (switch of 4 speeds+Auto) Type: 4 speeds + Auto type — Fan speed notch: Auto → ▪ → ▪▪ → ▪▪▪ → ▪▪▪▪ When [Auto] is set, fan speed is changed depending on the value of: ΔT = Set temperature − Room temperature Give priority to under-mentioned controlled mode 2-1. Hot adjust mode 2-2. Residual heat exclusion mode 2-3. Thermo-OFF mode (When the compressor off by the temperature adjustment function) 2-4. Cool air prevention mode (Defrosting mode)	

Continue to the next page.

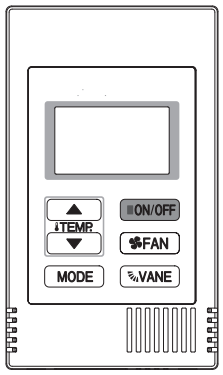
<table>
<tr><th>Control Mode</th><th>Control Details</th><th>Remarks</th></tr>
<tr><td></td><td>2-1. Hot adjust mode
The fan controller becomes the hot adjust mode for the following conditions.
① When starting HEAT operation
② When the temperature adjustment function changes from OFF to ON.
③ When HEAT defrosting operation is released
 

A: Hot adjust mode starts.
B: 5 minutes have passed since the condition A or the indoor liquid pipe temperature reached 86°F or more.
C: 5 minutes have passed since the condition A or the indoor liquid pipe temperature reached 95°F or more.
D: 2minutes have passed since the condition C.
(Terminating the hot adjust mode)
<table><tr><td colspan="2" rowspan="2"></td><td colspan="2">DIP SW 1-8</td></tr><tr><td>ON</td><td>OFF</td></tr><tr><td rowspan="2">DIP SW 1-7</td><td>ON</td><td>B to C [Extra Low]
C to D [Low]</td><td>B to C [Low]
C to D [Low]</td></tr><tr><td>OFF</td><td>B to C [Setting airflow]
C to D [Setting airflow]</td><td>B to C [Extra Low]
C to D [Low]
Note: Initial setting</td></tr></table></td><td>*1 "STAND BY" will be displayed during the hot adjust mode.
*2 The step change of A to B will not be performed at the first thermo-ON mode since HEAT operation has started.
*3 The fan speed varies according to the setting of DIP SW1-7 and 1-8 as shown in the table below.</td></tr>
<tr><td></td><td>2-2. Residual heat exclusion mode
When the condition changes the auxiliary heater ON to OFF (temperature adjustment function, or operation stop, etc.), the indoor fan operates in [Low] mode for 1 minute.</td><td>• This control is same for the model without auxiliary heater.</td></tr>
<tr><td></td><td>2-3. Thermo-OFF mode
When the temperature adjustment function changes to OFF, the indoor fan operates in [Extra low].</td><td></td></tr>
<tr><td></td><td>2-4. Heat defrosting mode
The indoor fan stops.</td><td></td></tr>
<tr><td>3. Drain pump</td><td>3-1. Drain pump control
The drain pump turns ON for the specified amount of time when any of the following conditions has been satisfied:
① ON for 3 minutes after the operation mode is switched from COOL or DRYING to another operation mode (FAN).
② ON for 6 minutes after the float switch is submerged in the water when the float switch control judges the sensor is in the water.</td><td></td></tr>
<tr><td></td><td>3-2. Float switch control
• Float switch control judges whether the sensor is in the air or in the water by turning the float switch ON/OFF.
In the water: Detected that the float switch is ON for 15 seconds.
In the air: Detected that the float switch is OFF for 15 seconds.</td><td>• Operates as it would in COOL operation.</td></tr>
<tr><td>4. Vane control (Up/down vane change)</td><td>(1) Initial setting: OFF → HEAT⋯[last setting]
When the last setting is [Swing] ⋯ [Downward D]
When changing the mode from exception of HEAT to HEAT operation
⋯[Downward D]
(2) Vane position:
Horizontal →Downward A →Downward B →Downward C→Downward D→Swing→Auto
(3) Restriction of vane position
① The vane is horizontally fixed for the following modes.
(The control by the remote controller is temporally invalidated and control by the unit.)
• Thermo-OFF
• Hot adjust [Extra low] mode
• Heat defrost mode</td><td></td></tr>
</table>

8-5. AUTO OPERATION [AUTOMATIC COOL/HEAT CHANGE OVER OPERATION]



<How to operate>
① Press ON/OFF button.
② Press [F1] button to display AUTO.
③ Press [F2] [F3] button to set the set temperature.
NOTE: The settable temperature range varies with the model of outdoor units and remote controller.



<How to operate>
① Press POWER ON/OFF button.
② Press the operation MODE button to display AUTO.
③ Press the TEMP. button to set the set temperature.
NOTE: The set temperature changes 1°F when the ▽ or △ button is pressed one time. Automatic 67 to 83°F

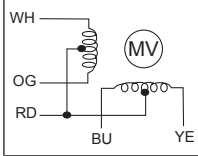
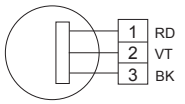
Control Mode	Control Details	Remarks
1. Initial value of operation mode	HEAT mode for room temperature < Set temperature COOL mode for room temperature ≧ Set temperature	
2. Mode change	(1) HEAT mode → COOL mode Room temperature ≧ Set temperature + 3°F and 3 minutes have passed. (2) COOL mode → HEAT mode Room temperature ≦ Set temperature − 3°F and 3 minutes have passed.	
3. COOL mode	Operates as it would in COOL operation.	
4. HEAT mode	Operates as it would in HEAT operation.	

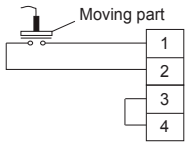
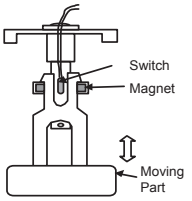
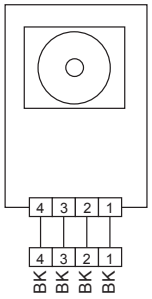
8-6. WHEN UNIT IS STOPPED CONTROL MODE

Control Mode	Control Details	Remarks
1. Drain pump	1-1. Drain pump control The drain pump turns ON for the specified amount of time when any of the following conditions has been satisfied: ① ON for 3 minutes after the operation mode is switched from COOL or DRYING to another operation mode (FAN). ② ON for 6 minutes after the float switch is submerged in the water when the float switch control judges the sensor is in the water.	
	1-2. Float switch control • Float switch control judges whether the sensor is in the air or in the water by turning the float switch ON/OFF. In the water: Detected that the float switch is ON for 15 seconds. In the air: Detected that the float switch is OFF for 15 seconds.	• Operates as it would in COOL operation.

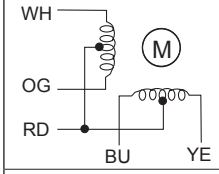
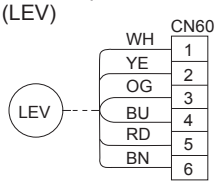
9 TROUBLESHOOTING

9-1. HOW TO CHECK THE PARTS

<table>
<tr><th>Parts name</th><th>Checkpoints</th></tr>
<tr><td>Room temperature detection thermistor (TH21)
Pipe temperature detection thermistor/liquid (TH22)
Pipe temperature detection thermistor/gas (TH23)</td><td>Disconnect the connector then measure the resistance with a multimeter. (At the ambient temperature 50 to 86°F)
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>4.3 to 9.6 Ω</td><td>Open or short</td></tr></table>Refer to “9-1-1. Thermistor”.</td></tr>
<tr><td>Fan motor (MF)</td><td>Refer to “9-1-3. DC Fan motor (fan motor/indoor controller board)”.</td></tr>
<tr><td>Vane motor (MV)
 
</td><td>Measure the resistance between the terminals with a multimeter. (At the ambient temperature of 68 to 86°F)
<table><tr><th>Connector</th><th>Normal</th><th>Abnormal</th></tr><tr><td>Red–Yellow (⑤–③, ⑩–⑧, ⑮–⑬, ⑳–⑱)</td><td rowspan="4">300 Ω</td><td rowspan="4">Open or short</td></tr><tr><td>Red–Blue (⑤–①, ⑩–⑥, ⑮–⑪, ⑳–⑯)</td></tr><tr><td>Red–Orange (⑤–④, ⑩–⑨, ⑮–⑭, ⑳–⑲)</td></tr><tr><td>Red–White (⑤–②, ⑩–⑦, ⑮–⑫, ⑳–⑰)</td></tr></table></td></tr>
<tr><td>Drain pump (DP)
 
</td><td>① Check if the drain float switch works properly.
② Check if the drain pump works and drains water properly in cooling operation.
③ If no water drains, confirm that the check code 2502 will not be displayed 10 minutes after the operation starts.
Note: The drain pump for this model is driven by the internal DC motor, so it is not possible to measure the resistance between the terminals.

Normal
Red–Black: Input 13 VDC → The pump motor starts to rotate.
Purple–Black: Abnormal (check code 2502) if it outputs 0–13 V square wave (5 pulses/rotation), and the number of rotation is not normal.</td></tr>
<tr><td>Drain float switch (FS)
 
</td><td>Measure the resistance between the terminals with a multimeter.
<table><tr><th>State of moving part</th><th>Normal</th><th>Abnormal</th></tr><tr><td>UP</td><td>Short</td><td>Other than short</td></tr><tr><td>DOWN</td><td>Open</td><td>Other than open</td></tr></table> 
</td></tr>
<tr><td>3D i-See sensor
 
</td><td>Turn the power ON while the i-See sensor connector is connected to the CN4Z on indoor controller board.
A communication between the indoor controller board and i-See sensor board is made to detect the connection.

Normal: When the operation starts, the motor for i-See sensor is driven to rotate the i-See sensor.
Abnormal: The motor for i-See sensor is not driven when the operation starts.

Note: The voltage between the terminals cannot be measured accurately since it is pulse output.</td></tr>
<tr><td>i-See sensor motor (MT) (Option)
 
</td><td>Measure the resistance between the terminals with a multimeter. (At the ambient temperature of 68 to 86°F)
<table><tr><th>Connector</th><th>Normal</th><th>Abnormal</th></tr><tr><td>Red–Yellow
Red–Blue
Red–Orange
Red–White</td><td>250 Ω</td><td>Open or short</td></tr></table></td></tr>
<tr><td>Linear expansion valve (LEV)
 
</td><td>Disconnect the connector then measure the resistance with a multimeter. (At the coil temperature 50 to 86°F)
<table><tr><th>Connector</th><th>Normal</th><th>Abnormal</th></tr><tr><td>White–Red
Yellow–Brown
Orange–Red
Blue–Brown</td><td>200 Ω ± 10%</td><td>Open or short</td></tr></table>Refer to “9-1-2. Linear expansion valve”.</td></tr>
</table>

9-1-1. Thermistor

<Thermistor characteristic graph>

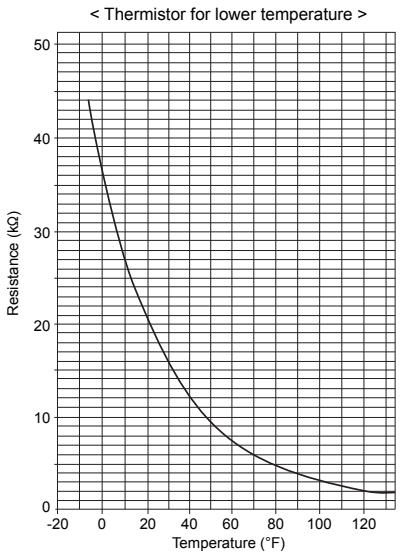
Thermistor for lower temperature

Room temperature detection thermistor (TH21)
Pipe temperature detection thermistor/liquid (TH22)
Pipe temperature detection thermistor/gas (TH23)

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

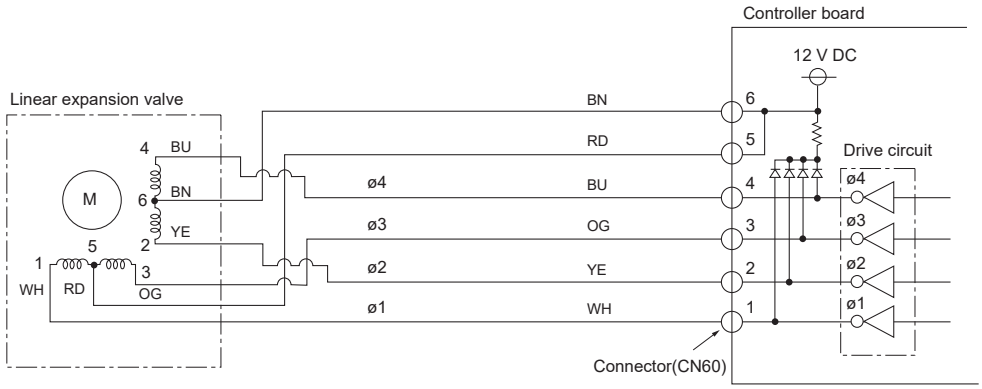
$$Rt=15\exp\{3480(\frac{1}{273+(t-32)/1.8}-\frac{1}{273})\}$$

30°F	15.8 kΩ
50°F	9.6 kΩ
70°F	6.0 kΩ
80°F	4.8 kΩ
90°F	3.9 kΩ
100°F	3.2 kΩ



9-1-2. Linear expansion valve

① Operation summary of the linear expansion valve
• Linear expansion valve opens/closes through stepping motor after receiving the pulse signal from the indoor controller board.
• Valve position can be changed in proportion to the number of pulse signals.
<Connection between the indoor controller board and the linear expansion valve>



Note: Since the number of the connector at the controller board side and the relay connector are different, follow the color of the lead wire.

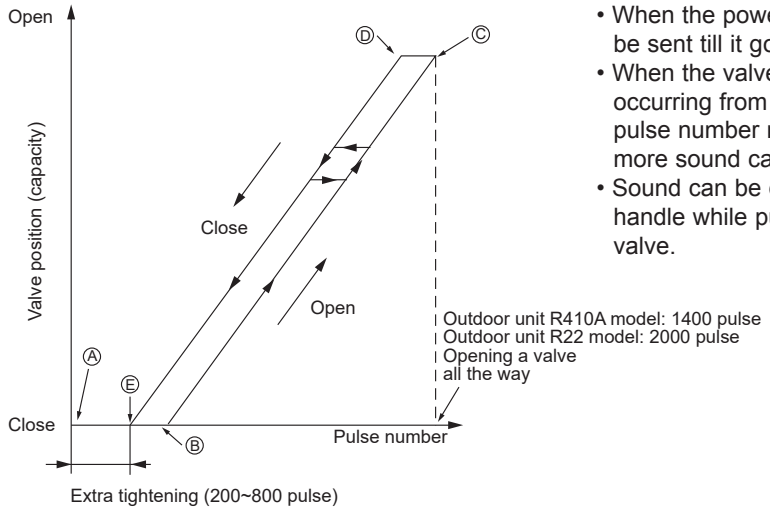
<Output pulse signal and the valve operation>

Output (Phase)	Output			
	1	2	3	4
ø1	ON	OFF	OFF	ON
ø2	ON	ON	OFF	OFF
ø3	OFF	ON	ON	OFF
ø4	OFF	OFF	ON	ON

The output pulse shifts in below order.
Closing a valve: 1 → 2 → 3 → 4 → 1
Opening a valve: 4 → 3 → 2 → 1 → 4

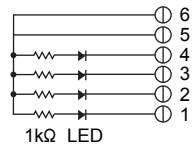
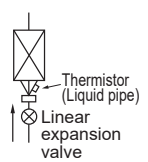
Notes:
- When linear expansion valve operation stops, all output phases become OFF.
- At phase interruption or when phase does not shift in order, motor does not rotate smoothly and motor will lock and vibrate.

② Linear expansion valve operation



Notes:
- When the power is turned on, 2200 pulse closing valve signal will be sent till it goes to point Ⓐ in order to define the valve position.
- When the valve moves smoothly, there is no sound or vibration occurring from the linear expansion valves, however, when the pulse number moves from Ⓔ to Ⓐ or when the valve is locked, more sound can be heard than in a normal situation.
- Sound can be detected by placing the ear against the screw driver handle while putting the screw driver tip to the linear expansion valve.

③ Troubleshooting

Symptom	Checkpoints	Countermeasures
Operation circuit failure of the micro processor	Disconnect the connector on the controller board, then connect LED for checking.  When power is turned on, pulse signals will output for 10 seconds. There must be some defects in the operation circuit if the LED does not light while the signals are output or keeps lighting even after the signals stop.	Exchange the indoor controller board at drive circuit failure.
Linear expansion valve mechanism is locked.	Motor will idle and make a ticking noise when the motor is operated while the linear expansion valve is locked. This ticking sound is the sign of the abnormality.	Exchange the linear expansion valve.
Short or breakage of the motor coil of the linear expansion valve	Measure the resistance between each coil (white-red, yellow-brown, orange-red, blue-brown) with a multimeter. It is normal if the resistance is in the range of 200 Ω ±10%.	Exchange the linear expansion valve.
Valve does not close completely.	To check the linear expansion valve, operate the indoor unit in fan mode and at the same time operate other indoor units in cooling mode, then check the pipe temperature <liquid pipe temperature> of the indoor unit by the outdoor multi controller board operation monitor. During fan operation, linear expansion valve is closed completely and if there is any leakage, detecting temperature of the thermistor will go lower. If the detected temperature is much lower than the temperature indicated in the remote controller, it means the valve is not closed all the way. It is not necessary to exchange the linear expansion valve, if the leakage is small and not affecting normal operation.  	If a large amount of refrigerant is leaked, exchange the linear expansion valve.
Wrong connection of the connector or contact failure	Check the color of lead wire and missing terminal of the connector.	Disconnect the connector at the controller board, then check for continuity.

9-1-3. DC Fan motor (fan motor/indoor controller board)

Check method of indoor fan motor (fan motor/indoor controller board)

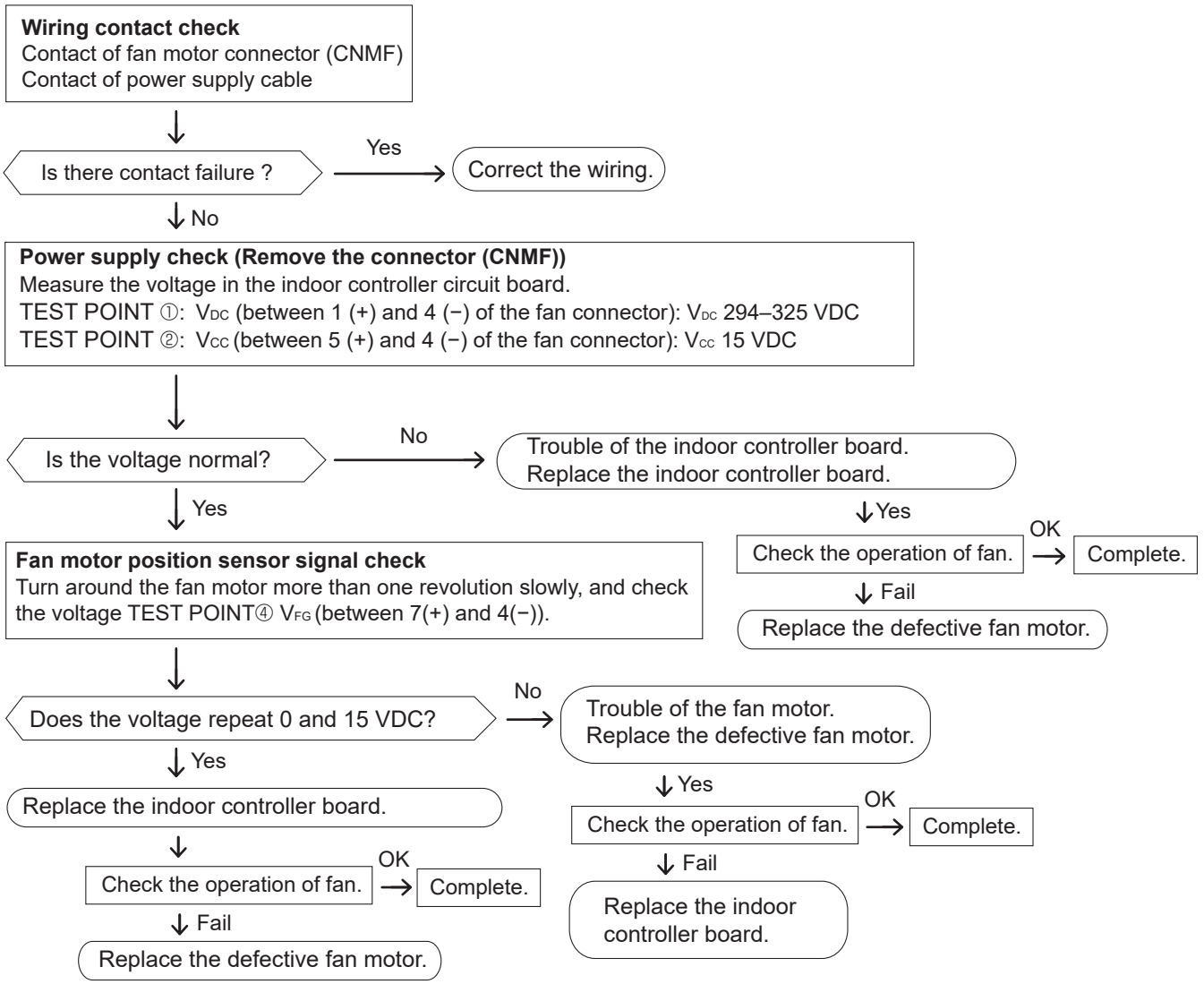
① Notes

· High voltage is applied to the connector (CNMF) for the fan motor. Pay attention to the service.

· Do not pull out the connector (CNMF) for the motor with the power supply on.
(It causes trouble of the indoor controller board and fan motor.)

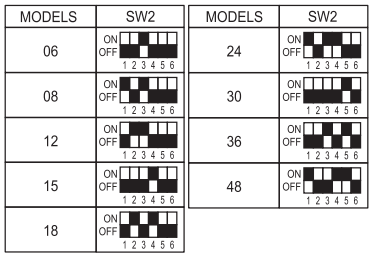
② Self check

Conditions: The indoor fan cannot rotate.



9-2. FUNCTION OF DIP SWITCH

The black square (■) indicates a switch position.

Switch	Pole	Function	Operation by switch		Effective timing	Remarks
			ON	OFF		
SW1 Function Setting	1	Thermistor <Room temperature detection> position	Built-in remote controller	Indoor unit	Under suspension	Indoor controller board <Initial setting> ON OFF 1 2 3 4 5 6 7 8 9 0 *1 Fan operation at heat mode *2 Heat thermo-ON is operating. *3 Refer to the <Table A> below.
	2	Filter clogging detection	Provided	Not provided		
	3	Filter cleaning	2,500h	100h		
	4	Fresh air intake	Effective	Not effective		
	5	Switching remote indication	Thermo-ON signal display	Indicating fan operation ON/OFF		
	6	Humidifier control	Always operated while the heat in ON*1	Operated depends on the condition*2		
	7	Airflow set in the case of heat thermo-OFF	Low*3	Extra low*3		
	8		Setting airflow*3	Depends on SW1-7		
	9	Auto restart function	Effective	Not effective		
	0	Power ON/OFF by breaker	Effective	Not effective		
SW2 Capacity code setting	1–6				Before power supply ON	Indoor controller board <Initial setting> Set for each capacity.
SW3 Function setting	1	Heat pump/Cooling only	Cooling only	Heat pump	Under suspension	Indoor controller board <Initial setting> Set for each capacity. ON OFF 1 2 3 4 5 6 7 8 9 0 *4 Refer to the <Table C> below for SW3-5 and SW-3-6.
	2	Louver/Humidifier	—	—		
	3	3D i-See sensor positioning	Depending on the combination of SW3-3 and SW3-4. Refer to the <Table B> below.		Before power supply ON	
	4					
	5	Vane horizontal angle ①	Second setting*4	First setting*4	Under suspension	
	6	Vane horizontal angle ②	Third setting*4	Depends on SW3-5		
	7	Changing the opening of linear expansion valve	Effective	Not effective		
	8	Sensible temperature correction	Not effective	Effective		
	9	3D i-See sensor ceiling height setting	Depending on the combination of SW3-9 and SW3-10. Refer to the <Table D> below.			
	0					

<Table A>

SW1-7	SW1-8	
OFF	OFF	Extra low
ON	OFF	Low
OFF	ON	Setting airflow
ON	ON	stop

<Table B>

SW3-3	SW3-4		Initial setting
OFF	OFF	Position ①	
ON	OFF	Position ②	
OFF	ON	Standard	●
ON	ON	(Standard)	

<Table D>

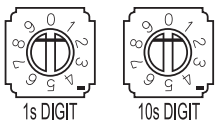
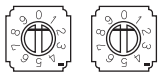
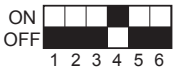
SW3-9	SW3-10		Initial setting
OFF	OFF	Low ceiling	
ON	OFF	Standard	●
OFF	ON	High ceiling	
ON	ON	(High ceiling)	

<Table C>

SW3-5	SW3-6	Vane setting	Initial setting	Setting	Vane position
OFF	OFF	Setting ①	●	Standard	Standard
ON	OFF	Setting ②		Less draft*5	Upward position than the standard
OFF	ON	Setting ③		Less smudging	Downward position than the standard
ON	ON	Unused		—	—

*5 Smudge could be left on the ceiling.

Continue to the next page

Switch	Pole	Function	Operation by switch		Effective timing	Remarks
			ON	OFF		
SW11 1s digit address setting SW12 10s digit address setting	Rotary switch	SW11 SW12  1s DIGIT 10s DIGIT	Address setting should be done when M-NET remote controller is being used.		Before power supply ON	Indoor controller board <Initial setting> SW11 SW12 
SW14 Connection No. setting	Rotary switch	SW14 	This is the switch to be used when the indoor unit is operated with R2 series outdoor unit as a set.			Indoor controller board <Initial setting> SW14 
SW21 Function Setting	1	Setting the ceiling height	Depending on the combination of SW21-1 and SW21-2. Refer to the <Table E> below.		Under suspension	Indoor controller board <Initial setting> 
	2	Setting the ceiling height				
	3	Setting the number of air outlet	Depending on the combination of SW21-3 and SW21-4. Refer to the <Table E> below.			
	4	Setting the number of air outlet				
	5	Setting for optional parts	Option	Standard		
	6	Not used	Not used	Not used		

<Table E>

			PLFY-EP06NEMU1-E.TH PLFY-EP08NEMU1-E.TH PLFY-EP12NEMU1-E.TH PLFY-EP15NEMU1-E.TH PLFY-EP18NEMU1-E.TH PLFY-EP24NEMU1-E.TH PLFY-EP30NEMU1-E.TH						PLFY-EP36NEMU1-E.TH PLFY-EP48NEMU1-E.TH					
			Silent		Standard		High ceiling		Silent		Standard		High ceiling	
			SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2
			OFF	ON	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	ON	OFF
4 direction	SW21-3	OFF	8.2 ft [2.5 m]		8.9 ft [2.7 m]		11.5 ft [3.5 m]		8.9 ft [2.7 m]		10.5 ft [3.2 m]		14.8 ft [4.5 m]	
	SW21-4	ON												
3 direction	SW21-3	OFF	8.9 ft [2.7 m]		9.8 ft [3.0 m]		11.5 ft [3.5 m]		9.8 ft [3.0 m]		11.8 ft [3.6 m]		14.8 ft [4.5 m]	
	SW21-4	OFF												
2 direction	SW21-3	ON	9.8 ft [3.0 m]		10.8 ft [3.3 m]		11.5 ft [3.5 m]		10.8 ft [3.3 m]		13.1 ft [4.0 m]		14.8 ft [4.5 m]	
	SW21-4	OFF												

Note: The setting with [ ] indicates the initial setting; To change it to other than [ ], switch setting is necessary.

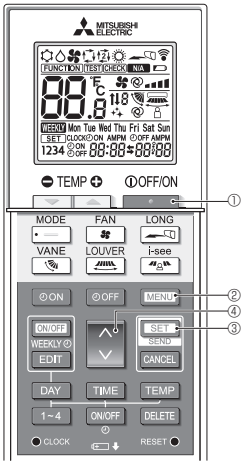
Continue to the next page.

The black square (■) indicates a switch position.

<table>
<tr><th>Switch</th><th>Pole</th><th>Operation by switch</th><th>Effective timing</th><th>Remarks</th></tr>
<tr>
<td>SW22
Function selection</td>
<td>Jumper</td>
<td>
<table>
<tr><th></th><th>Function</th><th>ON</th><th>OFF</th></tr>
<tr><td>1</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>2</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>3</td><td>Pair No. of wireless remote controller</td><td colspan="2" rowspan="2">Depends on SW22-3, 22-4</td></tr>
<tr><td>4</td><td>Pair No. of wireless remote controller</td></tr>
</table>
• To operate each indoor unit by each remote controller when installed 2 indoor units or more are near, Pair No. setting is necessary.
●Pair No. setting is available with the 4 patterns.

• Pair No. setting is not set necessarily when operating it by one remote controller. Setting for indoor unit.

Wireless remote controller pair number:
●Setting operation (Fig. 1 Ⓐ)
1. Press the ■ button ① to stop the air conditioner.
2. Press the MENU button ②.
3. Check that function No."1" is displayed, and then press the SET button ③. The Screen display setting screen will be displayed. (Fig. 2.)

●Pair No. changing operation (Fig. 2 Ⓑ)
1. Press the ^ v button ④.
2. Each time the ^ button ④ is pressed, the pair No.0–3 changes.
3. Press the SET button ③ to check the setting.
4. Press the MENU button ②.
<table>
<tr><th colspan="2">Indoor unit SW22</th><th rowspan="2">Pair No. of wireless remote controller</th><th></th></tr>
<tr><th>SW22-3</th><th>SW22-4</th><th></th></tr>
<tr><td>ON</td><td>ON</td><td>0</td><td>Initial setting</td></tr>
<tr><td>OFF</td><td>ON</td><td>1</td><td>—</td></tr>
<tr><td>ON</td><td>OFF</td><td>2</td><td>—</td></tr>
<tr><td>OFF</td><td>OFF</td><td>3–9</td><td>—</td></tr>
</table>
</td>
<td>Under operation or suspension</td>
<td>
<Initial setting>


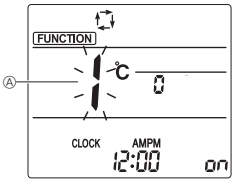


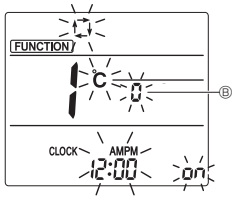
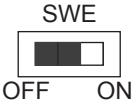
Fig. 1


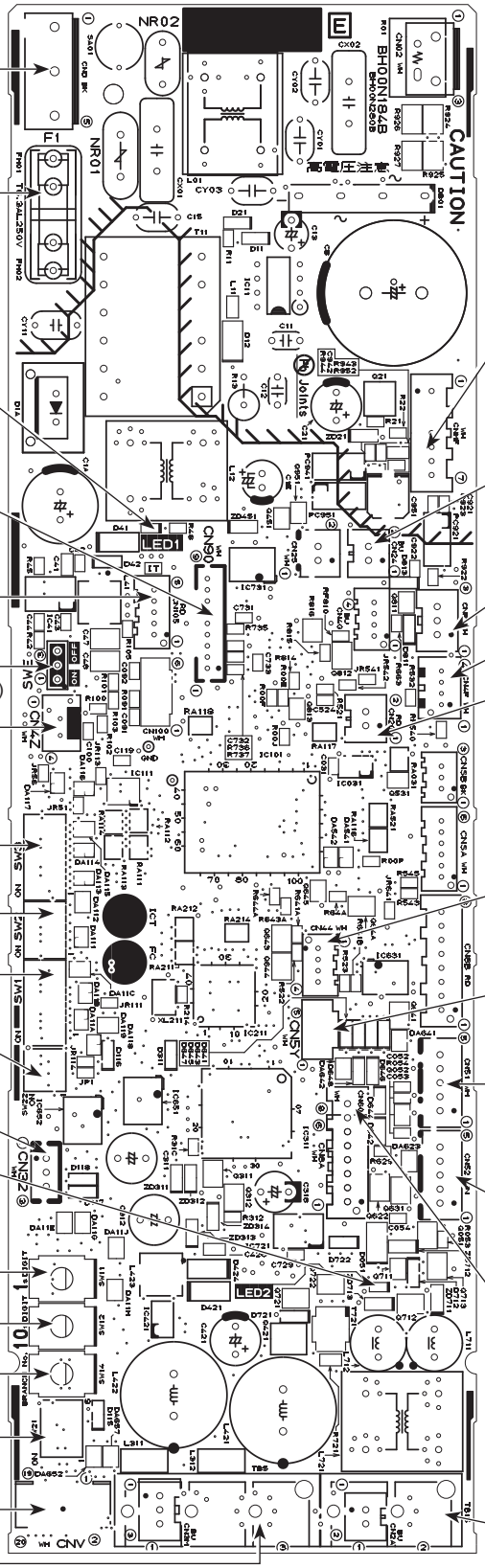
Fig. 2
</td>
</tr>
<tr>
<td>SWE
Test run for Drain pump and Indoor fan motor</td>
<td>Connector</td>
<td>
Drain pump and indoor fan motor are activated simultaneously after the connector SWE is set to ON and turn on the power.


The connector SWE is set to OFF after test run.
</td>
<td>Under operation</td>
<td>
<Initial setting>


</td>
</tr>
</table>

9-3. TEST POINT DIAGRAM

9-3-1. Indoor controller board



CND
Power supply for indoor controller board
③–⑤: 208/230 VAC

FUSE
6.3 A, 250 V

LED1
Main power supply
(Indoor unit: 208/230 V)

CN90
Connect to the wireless remote controller board (W.B)

CN105
IT Terminal

SWE
Test run (Drain pump and indoor fan motor)

CN4Z
i-See sensor (sensor)

SW3
Function setting

SW2
Capacity setting

SW1
Function setting

SW22
Pair No. setting for wireless remote controller

CN32
Remote switch

LED2
Power supply for MA-Remote controller

SW11
Address setting 1s digit

SW12
Address setting 10s digit

SW14
Branch No.

SW21
Ceiling height and discharge outlet number selector

CNV
Vane motor output
12 VDC pulse

TB5
M-NET transmission connecting wire
24–30 VDC (non-polar)

CNMF
Connect to the fan motor (MF)
①–④: 294/325 VDC
⑤–④: 15 VDC
⑥–④: 0–6 VDC
⑦–④: 0 or 15 VDC (Stop)
7.5 VDC (Operation)
(12 VDC pulse)

CN24
External heater
12 VDC (①: +)

CNP
Drain pump output (DP)
①–③: 12 VDC

CN4F
Drain float switch (FS)

CN20
Room temperature thermistor (TH21)

CN44
Pipe temperature thermistor
①–②: Liquid (TH22)
③–④: Gas (TH23)

CN5Y
i-See sensor motor output (MT)
12 VDC pulse output

CN51
Centrally control
①–②: Control signal
12 VDC pulse input (①: +)
③–④: Operation indicator
12 VDC (③: +)
③–⑤: Malfunction indicator
12 VDC (③: +)

CN52
Remote indicator
①–②: Status lamp 12 VDC (①: +)
Fan motor output (SW1-5 OFF)
Thermostat ON (SW1-5 ON)
①–③: Cooling/Dry status lamp
12 VDC (①: +)
①–④: Heating status lamp
12 VDC (①: +)

CN60
Linear expansion valve (LEV) output 12 VDC pulse output

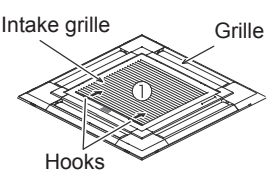
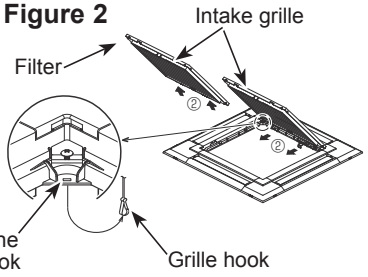
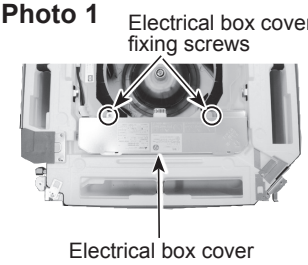
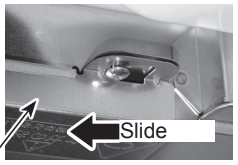
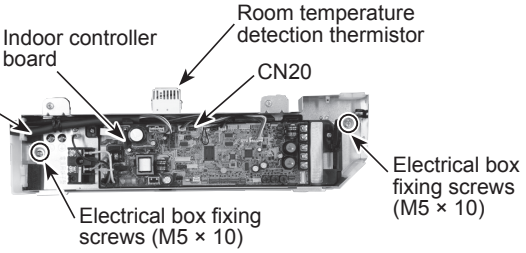
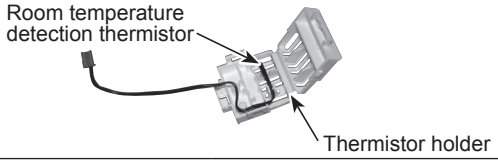
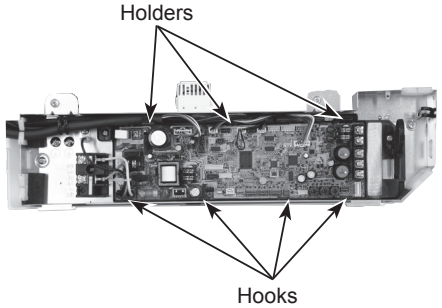
TB15
MA-Remote controller connecting wire
①–②: 8.7–13 VDC (non-polar)

Note: The voltage range of 12 VDC in this page is between 11.5 to 13.7 VDC.

10 DISASSEMBLY PROCEDURE

→ : Indicates the visible parts in the photos/figures.

Be careful when removing heavy parts.

OPERATING PROCEDURE	PHOTOS/FIGURES
1. Removing the intake grille and the filter (1) Slide the levers in the direction indicated by the arrows ① to open the intake grille. (See Figure 1.) (2) Unlatch the hook that secures the grille, and pull out the filter to remove. (3) With the intake grille in the "open" position, remove the hinge of the intake grille from the grille as indicated by the arrows ②. (See Figure 2.)	**Figure 1**  **Figure 2** 
2. Removing the electrical box cover (1) Remove the intake grille and the filter. (See Procedure 1.) (2) Loosen the 2 electrical box cover fixing screws (M4 ×8) approximately 2 to 3 mm. (See Photo 1.) (3) Slide the electrical box cover towards the arrow to remove. (See Photo 2.)	**Photo 1**  **Photo 2** 
3. Removing the room temperature detection thermistor (TH21) (1) Remove the intake grille and the filter. (See Procedure 1.) (2) Remove the electrical box cover. (See Procedure 2.) (3) Disconnect the connector CN20 (RD) from the indoor controller board. (4) Remove the room temperature detection thermistor with its holder. (See Photo 4.)	**Photo 3**  **Photo 4** 
4. Removing the indoor controller board (I.B) (1) Remove the intake grille and the filter. (See Procedure 1.) (2) Remove the electrical box cover. (See Procedure 2.) (3) Disconnect the connectors: CNMF (WH) for fan motor CNV (WH) for vane motor CN5Y (WH) for i-See sensor motor CN4Z (WH) for i-See sensor (sensor) CN90 (WH) for wireless remote controller board CNP (WH) for drain pump CN4F (WH) for float switch CN44 (WH) for pipe temperature detection thermistor/liquid CND (BK) for indoor controller board power supply Disconnect the connectors for optional parts, if any. (4) Disconnect the lead wire connected to the TB5 on the indoor controller board. TB5: M-NET transmission connecting wire (5) For the unit controlled with the wireless remote controller, disconnect the lead wire connected to the TB15 on the indoor controller board. TB15: MA remote controller connecting wire (6) Remove the indoor controller board by removing it from 3 holders and 4 hooks. (See Photo 5.)	**Photo 5** 

OPERATING PROCEDURE

5. Removing the electrical box

(1) Remove the intake grille and the filter. (See Procedure 1.)
(2) Remove the electrical box cover. (See Procedure 2.)
(3) Disconnect the connectors. (Refer to procedure 4.)
(4) Remove the 2 electrical box fixing screws (M5 × 10). (See Photo 3.)
<Electrical parts contained in the electrical box>
· Terminal block for power supply (TB2)
· Indoor controller board
· Room temperature detection thermistor (TH21)
(5) Pull the electrical box to remove by removing it from 2 holders.

6. Removing the turbo fan

(1) Remove the electrical box. (See Photo 3 and refer to 5.)
(2) Remove the bell mouth (tapping screw 4×10: 2 screws). (See Photo 6.)
(3) Remove the nut (M8 × 1) and a washer. (See Photo 7 and 8.)
(4) Remove the turbo fan. (See Photo 9.)

Note 1: When assembling the turbo fan, attach it so that its tabs fit the holes of washer.
Note 2: Nut tightening torque: 4.5 ± 0.5 Nm, 3.3 ± 0.4 ft·lbs.

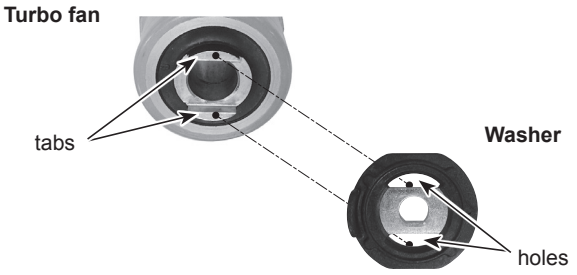


Photo 8



Turn this way to tighten. Turn this way to loosen.
(The same directions as the fan rotation.)

PHOTOS/FIGURES

Photo 6

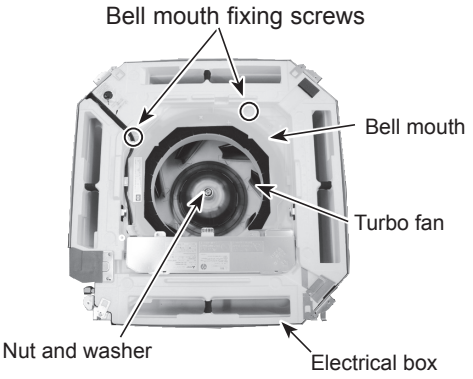
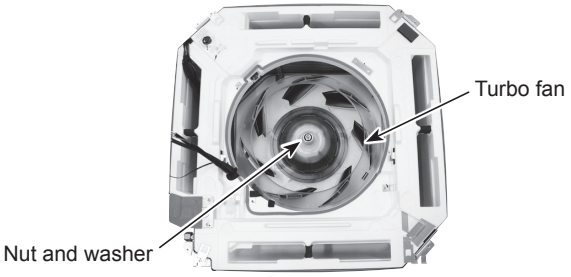


Photo 7

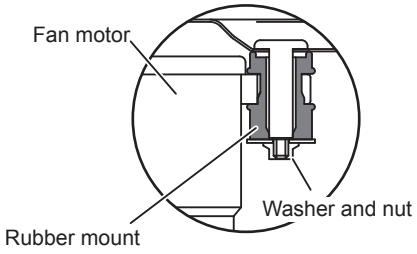
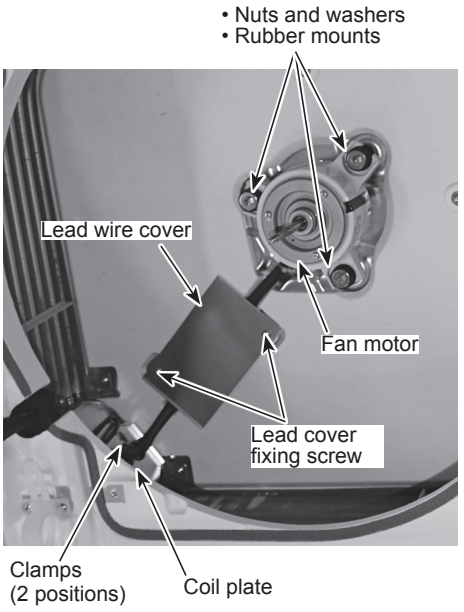
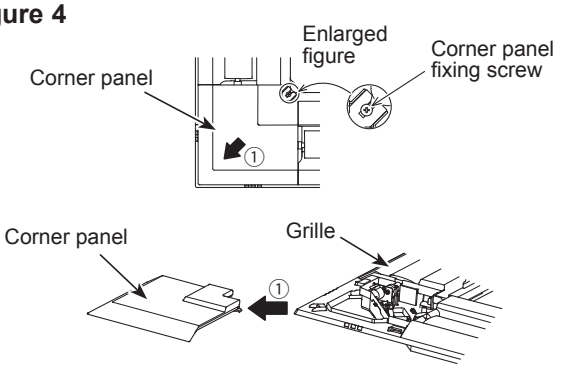
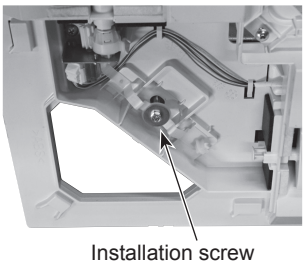
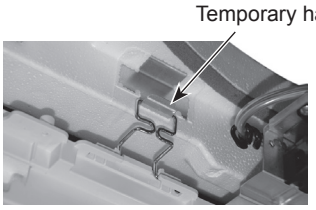


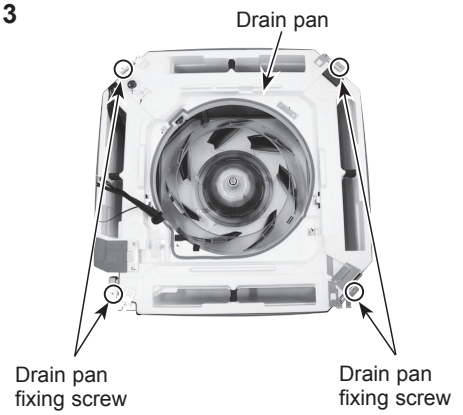
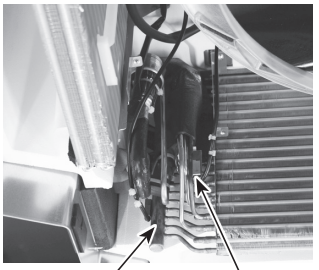
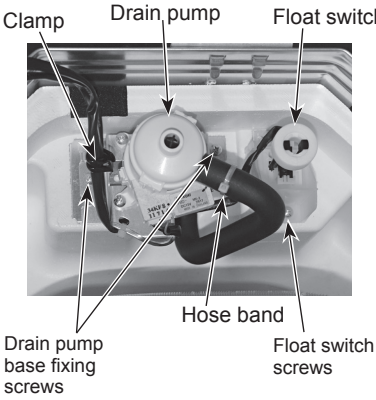
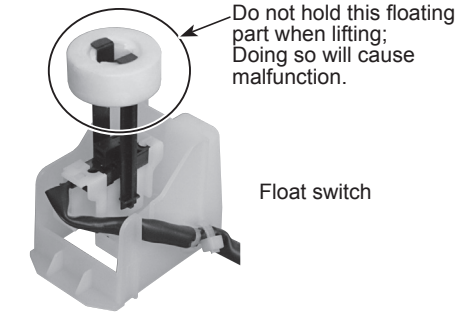
< Nut and washer >

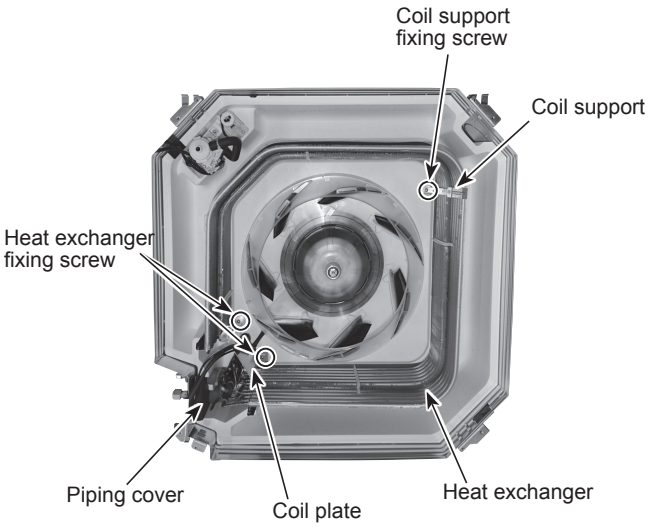
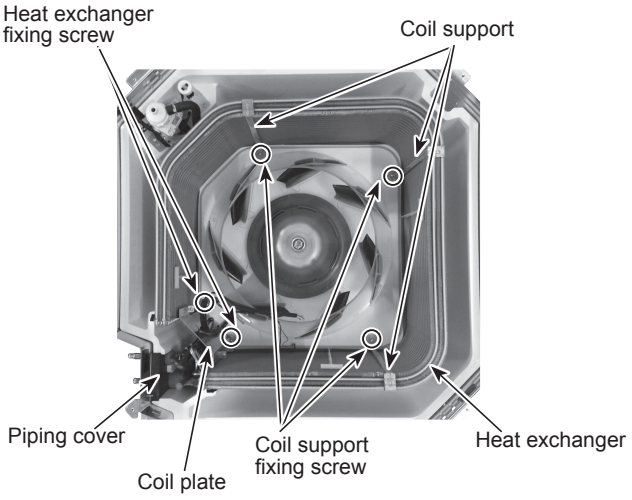


Photo 9



OPERATING PROCEDURE	PHOTOS/FIGURES
7. Removing the turbo fan motor (1) Remove the intake grille and the filter. (See Procedure 1.) (2) Remove the electrical box cover. (See Procedure 2.) (3) Disconnect the connectors. (Refer to procedure 4.) (4) Remove the electrical box. (See Procedure 5.) (5) Remove the turbo fan. (See Procedure 6.) (6) Remove the 2 lead wire cover fixing screws (tapping screw: 4 × 10) to remove the lead wire cover. (See Photo 10.) (7) Loosen the 2 clamps. (8) Remove the 3 nuts and washers. (9) Remove the turbo fan from the motor shaft. (10) Remove the 3 rubber mounts. **Figure 3: Partial cross section**  Note: When re-attaching the motor mount, make sure that the thicker end faces the motor shaft.	**Photo 10** 
8. Removing the grille (1) Remove the intake grille and the filter. (See Procedure 1.) (2) Remove the electrical box cover. (See Procedure 2.) (3) Disconnect the connector CNV (WH). (4) Loosen the 4 corner panel fixing screw (tapping: 4 × 16). (see Figure 4.) (5) Slide the corner panel to the direction of the arrow ①, and remove the corner panel. (6) Remove the 4 installation screws (M5 ×28). (See Photo 11.) (7) Release the 2 temporary hanging hooks to remove the panel. (See Photo 12.)	**Figure 4**  **Photo 11**  **Photo 12** 

OPERATING PROCEDURE	PHOTOS/FIGURES
9. Removing the drain pan (1) Remove the intake grille and the filter. (See Procedure 1.) (2) Remove the electrical box cover. (See Procedure 2.) (3) Disconnect the connectors. (Refer to Procedure 4.) (4) Remove the grille. (See Procedure 8.) (5) Remove the electrical box. (See Procedure 5.) (6) Remove the 2 bell mouth fixing screws (tapping screw: 4 × 10) to remove the bell mouth. (See Photo 6.) (7) Remove the 4 drain pan fixing screws (M5 × 10) and pull out the drain pan.	**Photo 13** 
10. Removing the pipe temperature detection thermistor/liquid (TH22) and pipe temperature detection thermistor/gas (TH23) (1) Remove the intake grille and the filter. (See Procedure 1.) (2) Remove the electrical box cover. (See Procedure 2.) (3) Disconnect the connectors. (Refer to Procedure 4.) (4) Remove the grille. (See Procedure 8.) (5) Remove the electrical box. (See Procedure 5.) (6) Remove the 2 bell mouth fixing screws (tapping screw: 4 × 10) to remove the bell mouth. (See Photo 6.) (7) Remove the drain pan. (See Procedure 9.) (8) Remove the thermistors which are inserted into the holders installed to the thin copper pipe.	**Photo 14** 
11. Removing the drain pump (DP) and float switch (FS) (1) Remove the intake grille and the filter. (See Procedure 1.) (2) Remove the electrical box cover. (See Procedure 2.) (3) Disconnect the connectors. (Refer to Procedure 4.) (4) Remove the grille. (See Procedure 8.) (5) Remove the electrical box. (See Procedure 5.) (6) Remove the 2 bell mouth fixing screws (tapping screw: 4 × 10) to remove the bell mouth. (See Photo 6.) (7) Remove the drain pan. (See Procedure 9.) **Drain pump (DP)** (8) Cut the hose band and remove the hose. (See Photo 15.) (9) Loosen the clamp for the drain pump. (See Photo 15.) (10) Remove the 2 drain pump base fixing screws (tapping screw: 4 ×10), and loosen the 2 hooks to remove the drain pump assembly. **Float switch (FS)** (8) Loosen the clamp for the drain pump. (See Photo 15.) (9) Remove the float switch fixing screw (tapping screw: 4 ×10), and loosen the hook to remove the float switch. (See Photo 15,16.)	**Photo 15**  **Photo 16** 

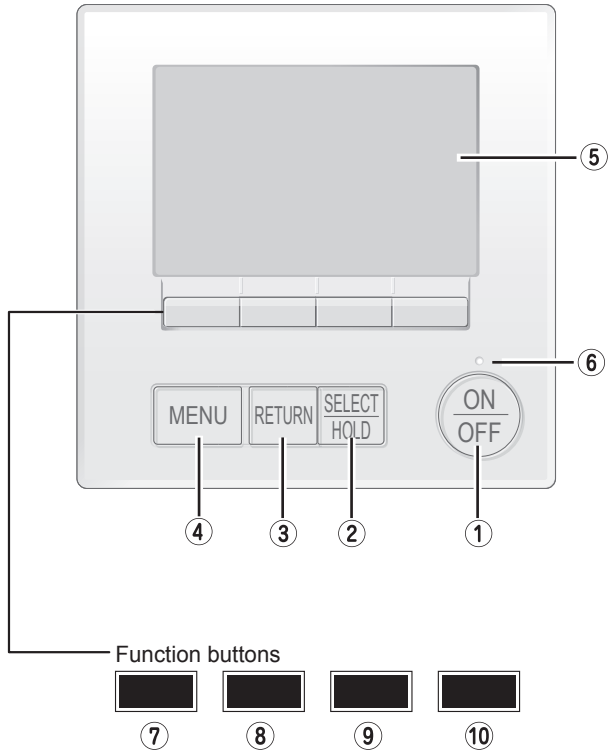
OPERATING PROCEDURE	PHOTOS/FIGURES
12. Removing the heat exchanger (1) Remove the intake grille and the filter. (See Procedure 1.) (2) Remove the electrical box cover. (See Procedure 2.) (3) Disconnect the connectors. (Refer to Procedure 4.) (4) Remove the grille. (See Procedure 8.) (5) Remove the electrical box. (See Procedure 5.) (6) Remove the 2 bell mouth fixing screws (tapping screw: 4 ×10) to remove the bell mouth. (See Photo 6.) (7) Remove the drain pan. (See Procedure 9.) (8) Remove the 3 piping cover fixing screws (tapping screw: 4 ×10) to remove the piping cover. (See Photo 17.) (9) Remove the 2 coil plate fixing screws (tapping screw: 4 ×10) to remove the coil plate. (See Photo 17.) (10) Remove the heat exchanger fixing screws (tapping screw: 4 ×10) to remove the coil support. (See Photo 17.) (11) Remove the coil support fixing screws (tapping screw: 4 ×10) to remove the coil support(*1). (See Photo 17.) • PLFY-EP06/08/12/15NEMU1-E.TH: 1 coil support • PLFY-EP18/24/30/36/48NEMU1-E.TH: 3 coil supports (12) Remove the heat exchanger. (See Photo 17.)	**Photo 17** ■ PLFY-EP06/08/12/15NEMU1-E.TH  ■ PLFY-EP18/24/30/36/48NEMU1-E.TH 

11 REMOTE CONTROLLER

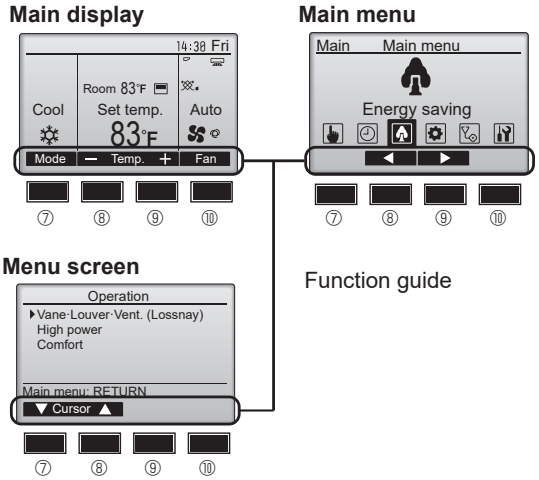
11-1. REMOTE CONTROLLER FUNCTIONS

<PAR-41MAA>

Controller interface



The functions of the function buttons change depending on the screen.
Refer to the button function guide that appears at the bottom of the LCD for the functions they serve on a given screen.
When the system is centrally controlled, the button function guide that corresponds to the locked button will not appear.



① [ON/OFF] button

Press to turn ON/OFF the indoor unit.

② [SELECT/HOLD] button

Press to save the setting.
When the Main menu is displayed, pressing this button will enable/disable the HOLD function.

③ [RETURN] button

Press to return to the previous screen.

④ [MENU] button

Press to bring up the Main menu.

⑤ Backlit LCD

Operation settings will appear.
When the backlight is off, pressing any button turns the backlight on and it will stay lit for a certain period of time depending on the screen.

When the backlight is off, pressing any button turns the backlight on and does not perform its function. (except for the [ON/OFF] button)

⑥ ON/OFF lamp

This lamp lights up in green while the unit is in operation. It blinks while the remote controller is starting up or when there is an error.

⑦ Function button [F1]

Main display: Press to change the operation mode.
Menu screen: The button function varies with the screen.

⑧ Function button [F2]

Main display: Press to decrease temperature.
Main menu: Press to move the cursor left.
Menu screen: The button function varies with the screen.

⑨ Function button [F3]

Main display: Press to increase temperature.
Main menu: Press to move the cursor right.
Menu screen: The button function varies with the screen.

⑩ Function button [F4]

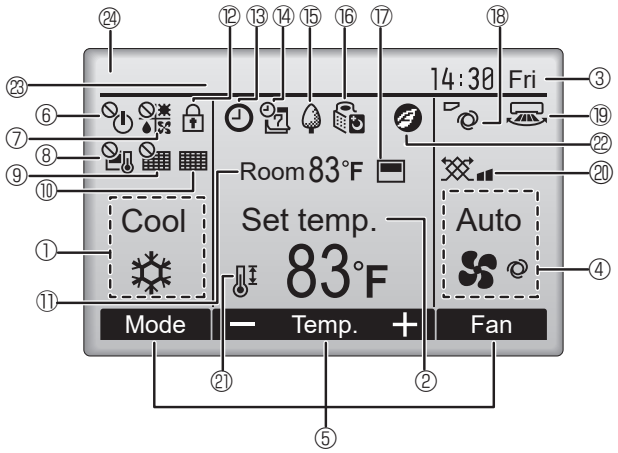
Main display: Press to change the fan speed.
Menu screen: The button function varies with the screen.

Display

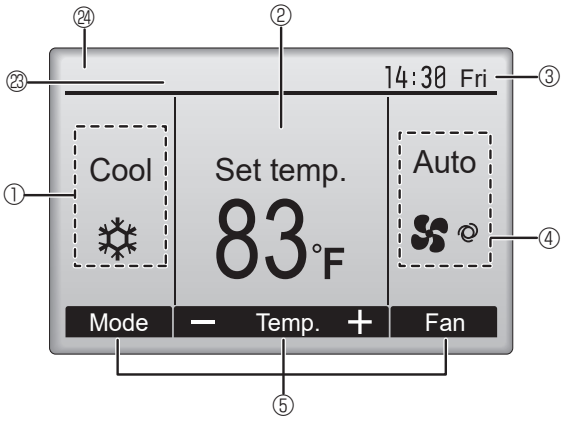
The main display can be displayed in two different modes: “Full” and “Basic”. The initial setting is “Full”. To switch to the “Basic” mode, change the setting on the Main display setting. (Refer to operation manual included with remote controller.)

<Full mode>

All icons are displayed for explanation.



<Basic mode>



① Operation mode

② Preset temperature

③ Clock

④ Fan speed

⑤ Button function guide

Functions of the corresponding buttons appear here.

⑥

Appears when the ON/OFF operation is centrally controlled.

⑦

Appears when the operation mode is centrally controlled.

⑧

Appears when the preset temperature is centrally controlled.

⑨

Appears when the filter reset function is centrally controlled.

⑩

Indicates when filter needs maintenance.

⑪ Room temperature

⑫

Appears when the buttons are locked.

⑬

Appears when the On/Off timer or Auto-off timer function is enabled.

appears when the timer is disabled by the centralized control system.

appears when the HOLD function is enable.

⑭

Appears when the Weekly timer is enabled.

⑮

Appears while the units are operated in the energy saving mode. (Will not appear on some models of indoor units)

⑯

Appears while the outdoor units are operated in the silent mode.

⑰

Appears when the built-in thermistor on the remote controller is activated to monitor the room temperature (1).

appears when the thermistor on the indoor unit is activated to monitor the room temperature.

⑱

Indicates the vane setting.

⑲

Indicates the louver setting.

⑳

Indicates the ventilation setting.

㉑

Appears when the preset temperature range is restricted.

㉒

Appears when an energy saving operation is performed using a “3D i-See sensor” function.

㉓ Centrally controlled

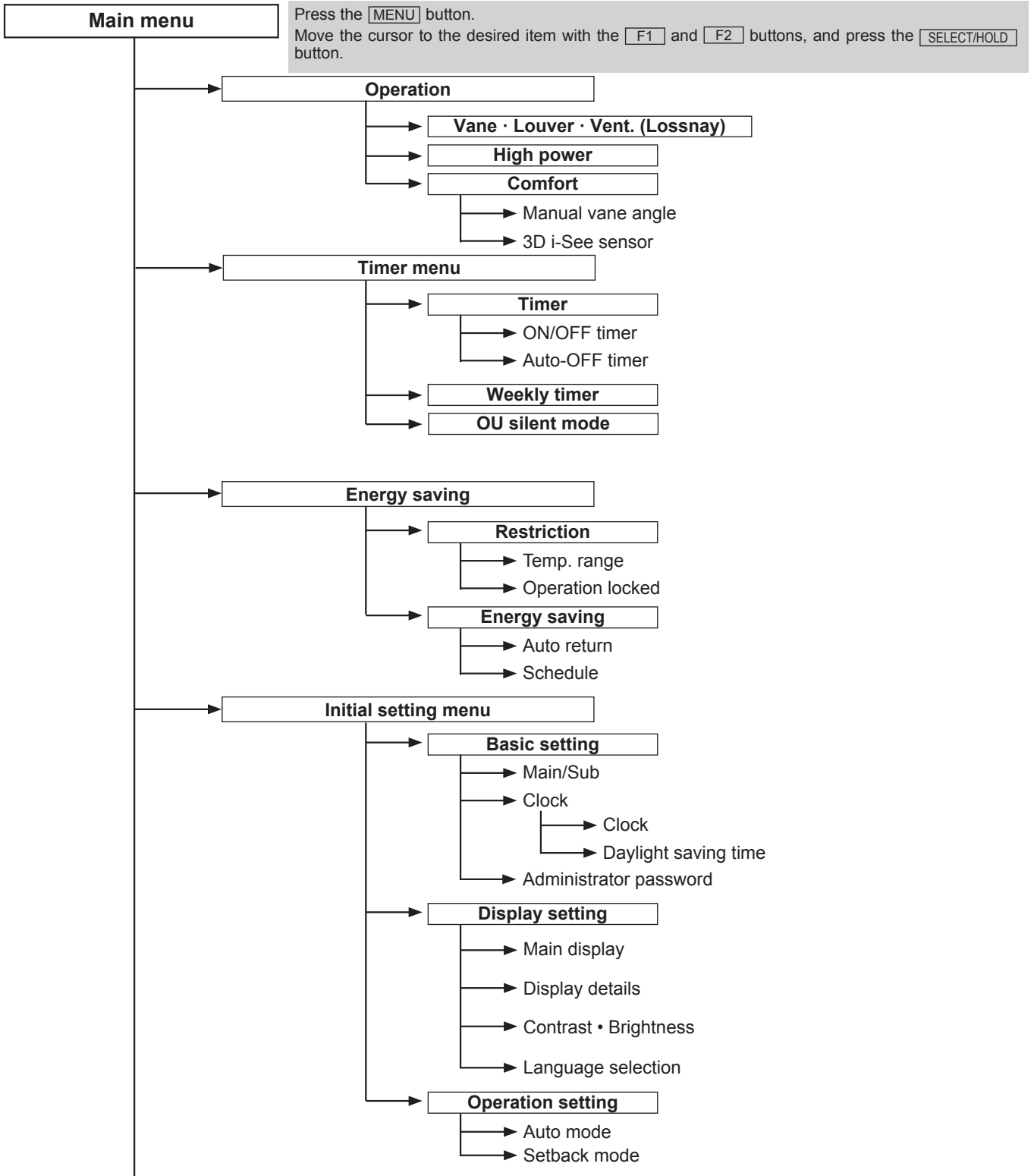
Appears for a certain period of time when a centrally-controlled item is operated.

㉔ Preliminary error display

A check code appears during the preliminary error.

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

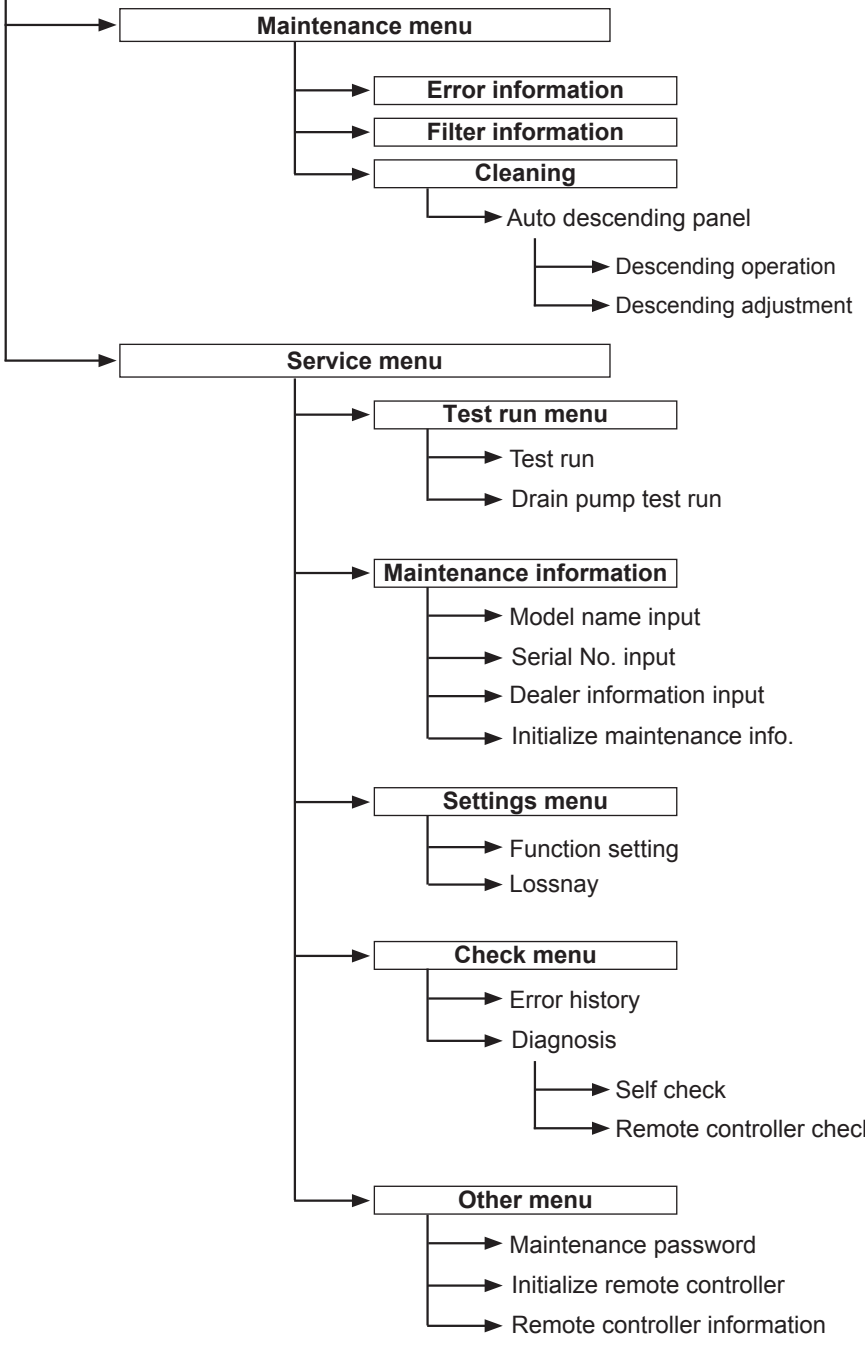
Menu structure



Continue to the next page.

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

Continue from the previous page.



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

Main menu list

Main menu	Setting and display items		Setting details
Operation	**Vane · Louver · Vent. (Lossnay)**		**Use to set the vane angle.** • Select a desired vane setting from 5 different settings. **Use to turn ON/OFF the louver.** • Select a desired setting from "ON" and "OFF." **Use to set the amount of ventilation.** • Select a desired setting from "Off," "Low," and "High."
	High power		**Use to reach the comfortable room temperature quickly.** • Units can be operated in the High-power mode for up to 30 minutes.
	Comfort	**Manual vane angle**	**Use to fix each vane angle.**
		3D i-see Sensor	**Use to set the following functions for 3D i-see Sensor.** • Air distribution • Energy saving option • Seasonal airflow
Timer	**Timer**	**ON/OFF timer *1**	**Use to set the operation ON/OFF times.** • Time can be set in 5-minute increments.
		Auto-Off timer	**Use to set the Auto-Off time.** • Time can be set to a value from 30 to 240 in 10-minute increments.
	Weekly timer *1, *2		**Use to set the weekly operation ON/OFF times.** • Up to 8 operation patterns can be set for each day. (Not valid when the ON/OFF timer is enabled.)
	OU silent mode *1		**Use to set the time periods in which priority is given to quiet operation of outdoor units over temperature control. Set the Start/Stop times for each day of the week.** •Select the desired silent level from "Normal," "Middle," and "Quiet."
Energy saving	**Restriction**	**Temp. range *2**	**Use to restrict the preset temperature range.** • Different temperature ranges can be set for different operation modes.
		Operation lock	**Use to lock selected functions.** • The locked functions cannot be operated.
	Energy saving	**Auto return *2**	**Use to get the units to operate at the preset temperature after performing energy saving operation for a specified time period.** • Time can be set to a value from 30 and 120 in 10-minute increments. (This function will not be valid when the preset temperature ranges are restricted.)
		Schedule *1	**Set the start/stop times to operate the units in the energy saving mode for each day of the week, and set the energy saving rate.** • Up to 4 energy saving operation patterns can be set for each day. • Time can be set in 5-minute increments. • Energy saving rate can be set to a value from 0% or 50 to 90% in 10% increments.

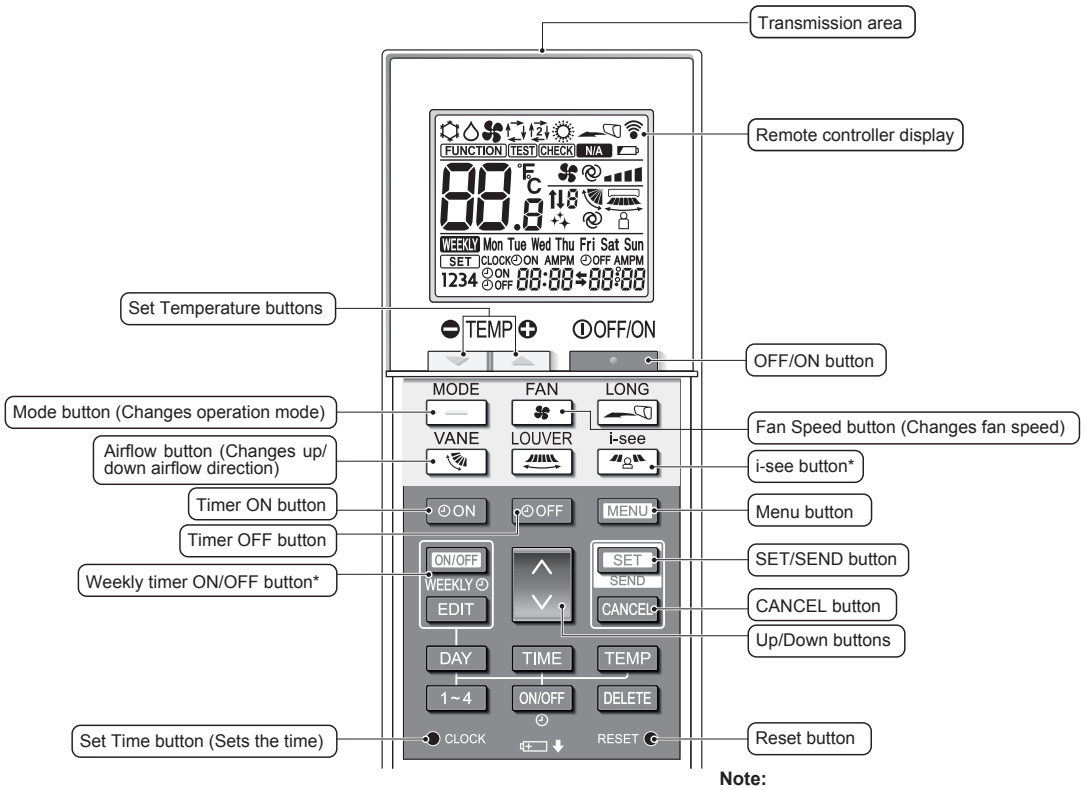
***1** Clock setting is required.

***2** 33.8°F (1°C) increments.

Main menu	Setting and display items		Setting details
Initial setting	Basic setting	Main/Sub	**When connecting 2 remote controllers, one of them needs to be designated as a sub controller.**
		Clock	**Use to set the current time.**
		Daylight saving time	**Set the daylight saving time.**
		Administrator password	**The administrator password is required to make the settings for the following items.** • Timer setting • Energy saving setting • Weekly timer setting • Restriction setting • Outdoor unit silent mode setting • Night set back
	Display setting	Main display	**Use to switch between "Full" and "Basic" modes for the Main display.** • The initial setting is "Full."
		Display details	**Make the settings for the remote controller related items as necessary.** **Clock:** The initial settings are "Yes" and "24h" format. **Temperature:** Set either Celsius (°C) or Fahrenheit (°F). **Room temp. :** Set Show or Hide. **Auto mode:** Set the Auto mode display or Only Auto display.
		Contrast • Brightness	**Use to adjust screen contrast and brightness.**
		Language selection	**Use to select the desired language.**
	Operation setting	Auto mode	**Whether or not to use the Auto mode can be selected by using the button. This setting is valid only when indoor units with the Auto mode function are connected.**
		Setback mode	**Whether or not to use the Setback mode can be selected by using the button. This setting is valid only when indoor units with the Setback mode function are connected.**
Maintenance	Error information		**Use to check error information when an error occurs.** • Check code, error source, refrigerant address, unit model, manufacturing number, contact information (dealer's phone number) can be displayed. (The unit model, manufacturing number, and contact information need to be registered in advance to be displayed.)
	Filter information		**Use to check the filter status.** • The filter sign can be reset.
	Cleaning	Auto descending panel	**Use to lift and lower the auto descending panel (Optional parts).**
Service	Test run		**Select "Test run" from the Service menu to bring up the Test run menu.** • Test run • Drain pump test run
	Input maintenance		**Select "Input maintenance Info." from the Service menu to bring up the Maintenance information screen.** **The following settings can be made from the Maintenance Information screen.** • Model name input • Serial No. input • Dealer information input • Initialize maintenance info.
	Settings	Function setting	**Make the settings for the indoor unit functions via the remote controller as necessary.**
		LOSSNAY setting	**This setting is required only when the operation of CITY MULTI units is interlocked with LOSSNAY units.**
	Check	Error history	Display the error history and execute "delete error history".
		Diagnosis	**Self check:** Error history of each unit can be checked via the remote controller. **Remote controller check:** When the remote controller does not work properly, use the remote controller checking function to troubleshoot the problem.
	Other	Maintenance password	**Use to change the maintenance password.**
		Initialize remote controller	**Use to initialize the remote controller to the factory shipment status.**
		Remote controller information	**Use to display the remote controller model name, software version, and serial number.**

<PAR-SL101A-E>

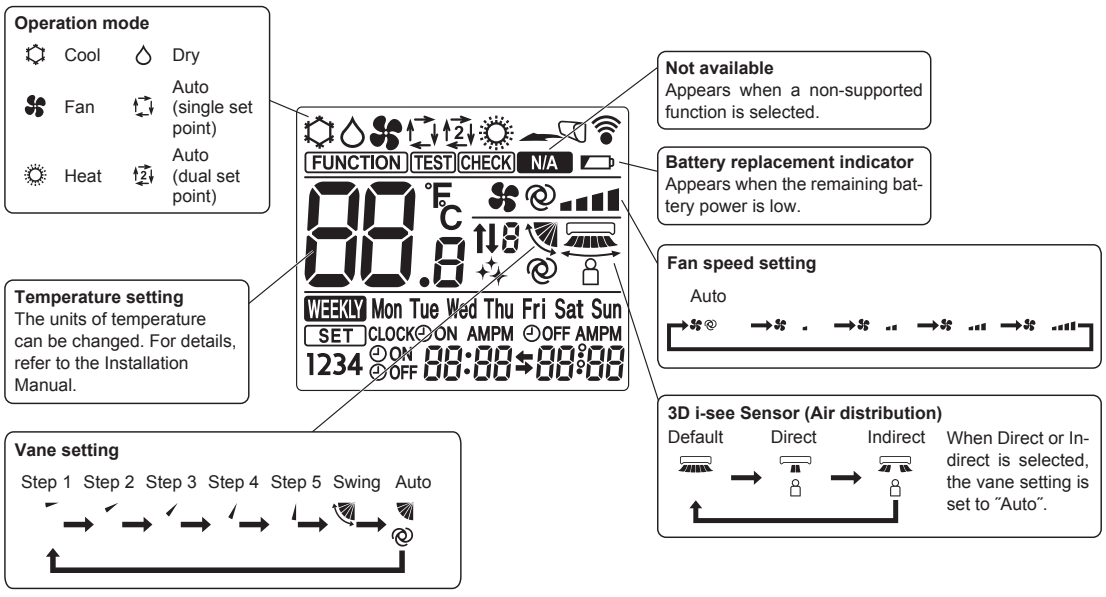
Controller interface



Note:

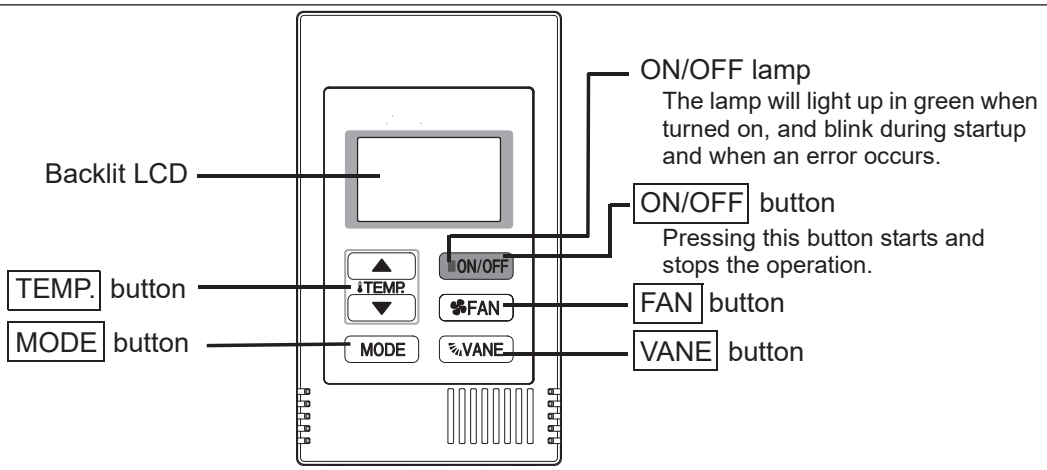
*** This button is enabled or disabled depending on the model of the indoor unit.**

Display



<PAC-YT53CRAU>

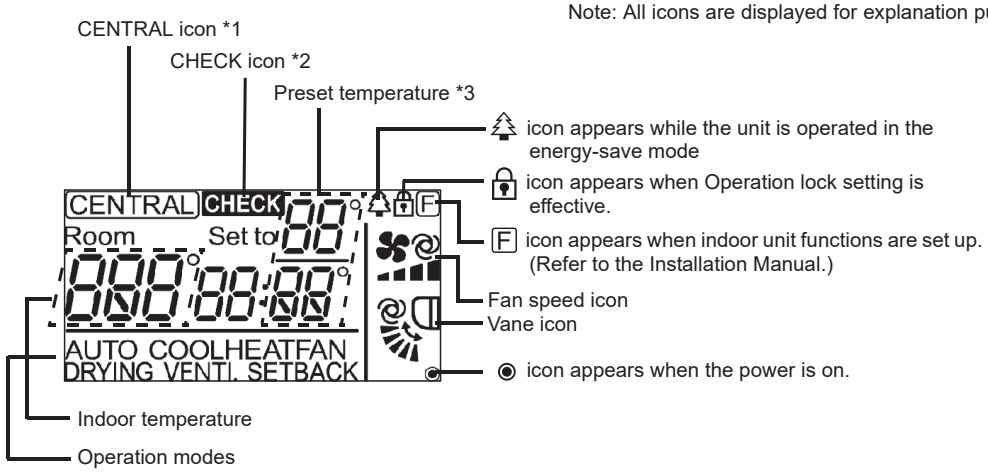
Note:
The phrase "Wired remote controller" in this manual refers only to the TAC-YT53CRAU.
If you need any information for the other remote controller, please refer to either the installation manual or initial setting manual which are included in remote controller's box.



Note: To set the functions that are not available on this controller (TAC-YT53CRAU) such as Louver, use the centralized controller.

Display section

Note: All icons are displayed for explanation purpose.



*1 CENTRAL icon

Appears when one of the following local operations is prohibited: ON/OFF; operation mode; preset temperature; fan speed; vane.

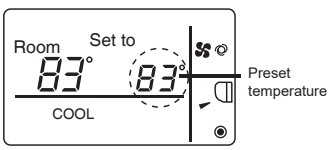
*2 CHECK icon

For City Multi, when an error occurs, power indicator will blink, and unit address (3 digits) and check code (4 digits) will blink.
Check the error status, stop the operation, and consult your dealer.

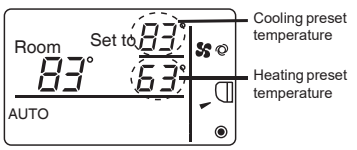
*3 Preset temperature

* Centigrade or Fahrenheit is selectable. Refer to the Installation Manual for details.

In COOL, DRYING, HEAT, or AUTO (single set point) modes



In AUTO (dual set point) or SETBACK modes

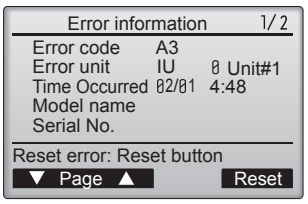


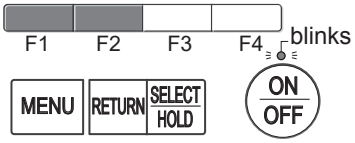
11-2. ERROR INFORMATION

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

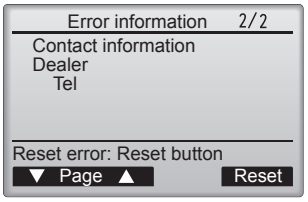
1. Check code, error unit, refrigerant address, model name, and serial number will appear.
   The model name and serial number will appear only if the information has been registered.

   Press the F1 or F2 button to go to the next page.





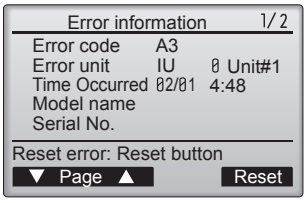
Contact information (dealer's phone number) will appear if the information has been registered.

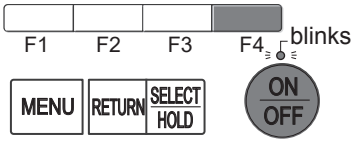


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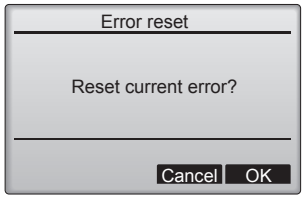
2. Press the F4 button or the [ON/OFF] button to reset the error that is occurring.

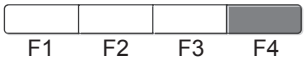
Errors cannot be reset while the ON/OFF operation is prohibited.

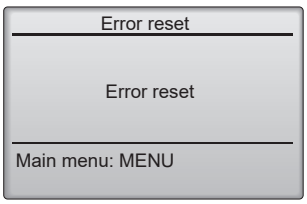




Select "OK" with the F4 button.



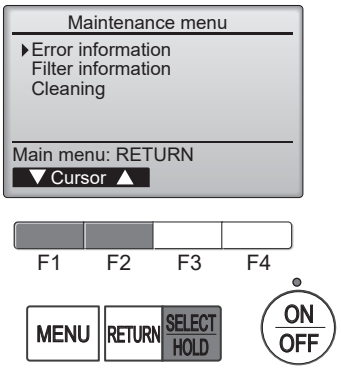




Navigating through the screens
• To go back to the Service menu ..... [MENU] button

• Checking the error information

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

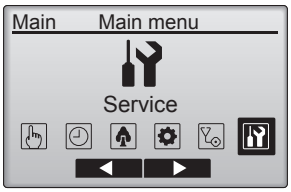


11-3. SERVICE MENU

Maintenance password is required

1. Select "Service" from the Main menu, and press the [SELECT/HOLD] button.

   *At the main display, the menu button and select "Service" to make the maintenance setting.



---

2. When the Service menu is selected, a window will appear asking for the password.

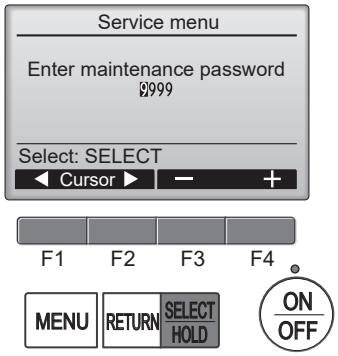
   To enter the current maintenance password (4 numerical digits), move the cursor to the digit you want to change with the F1 or F2 button.

   ▼

   Set each number (0 through 9) with the F3 or F4 button.

   ▼

   Then, press the [SELECT/HOLD] button.



Note: The initial maintenance password is "9999". Change the default password as necessary to prevent unauthorized access. Have the password available for those who need it.

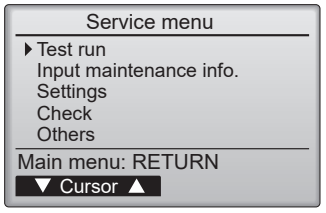
: If you forget your maintenance password, you can initialize the password to the default password "9999" by pressing and holding the F1 button for 10 seconds on the maintenance password setting screen.

---

3. If the password matches, the Service menu will appear.

   The type of menu that appears depends on the connected indoor units' type.

Note: Air conditioning units may need to be stopped to make only at "Settings". There may be some settings that cannot be made when the system is centrally controlled.



▼

A screen will appear that indicates the setting has been saved.



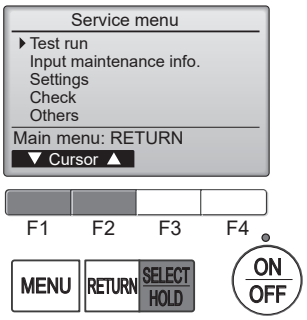
Navigating through the screens

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

11-4. TEST RUN

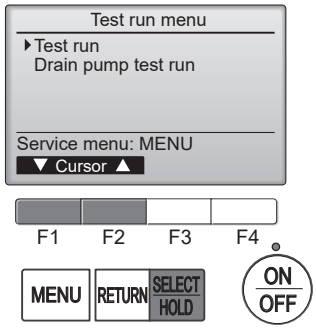
11-4-1. PAR-41MAA

1. Select "Service" from the Main menu, and press the [SELECT/HOLD] button.



Select "Test run" with the F1 or F2 button, and press the [SELECT/HOLD] button.

2. Select "Test run" with the F1 or F2 button, and press the [SELECT/HOLD] button.



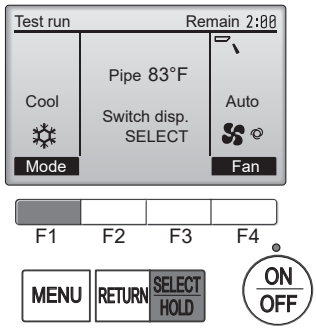
Test run operation

Press the F1 button to go through the operation modes in the order of "Cool and Heat".

Cool mode: Check the cold air blows out.
Heat mode: Check the heat blows out.

Check the operation of the outdoor unit's fan.

Press the [SELECT/HOLD] button and open the Vane setting screen.



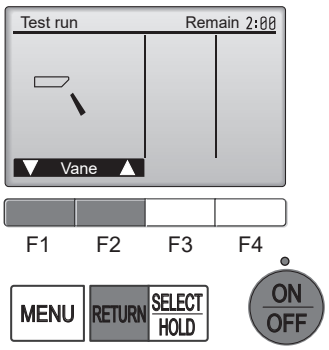
Auto vane check

Check the auto vane with the F1 F2 buttons.

Press the [RETURN] button to return to "Test run operation".

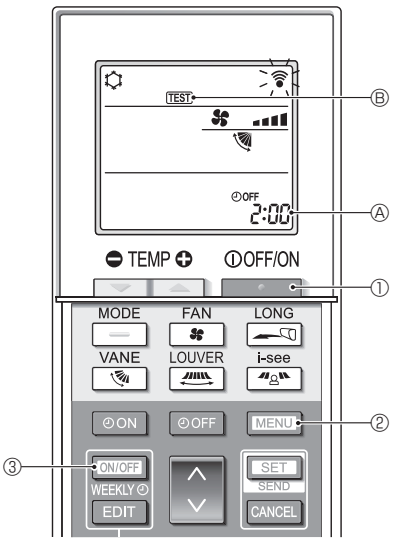
Press the [ON/OFF] button.

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



11-4-2. PAR-SL101A-E

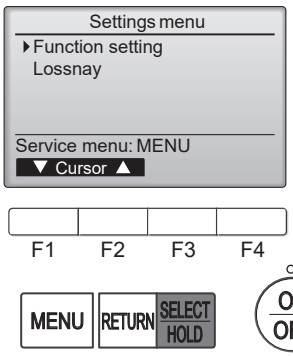
1. Press the [ ] button ① to stop the air conditioner.
   - If the weekly timer is enabled (WEEKLY is on), press the [ON/OFF WEEKLY] button ③ to disable it (WEEKLY is off).
2. Press the [MENU] button ② for 5 seconds.
   - CHECK comes on and the unit enters the service mode.
3. Press the [MENU] button ②.
   - TEST Ⓑ comes on and the unit enters the test run mode.
4. Press the following buttons to start the test run.
   [ ]: Switch the operation mode between cooling and heating and start the test run.
   [ ]: Switch the fan speed and start the test run.
   [ ]: Switch the airflow direction and start the test run.
   [ ]: Switch the louver and start the test run.
   [SET]: Start the test run.
5. Stop the test run.
   - Press the [ ] button ① to stop the test run.
   - After 2 hours, the stop signal is transmitted.



11-5. FUNCTION SETTING

11-5-1. PAR-41MAA

1. Select ″Service″ from the Main menu, and press the [SELECT/HOLD] button.



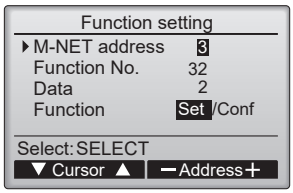
Select ″Setting″ from the Service menu, and press the [SELECT/HOLD] button.

Select ″Function setting″, and press the [SELECT/HOLD] button.

---

2. The Function setting screen will appear.

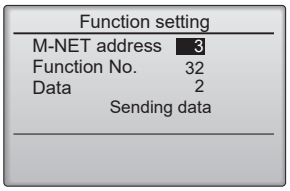
Press the F1 or F2 button to move the cursor to one of the following: M-NET address, function setting number, or setting value. Then, press the F3 or F4 button to change the settings to the desired settings.



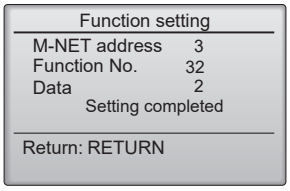
Once the settings have been completed, press the [SELECT/HOLD] button.

A screen will appear indicating that the settings information is being sent.
To check the current settings of a given unit, enter the setting for its M-NET address and function setting number, select Conf for the Function, and press the [SELECT/HOLD] button.

A screen will appear indicating that the settings are being searched for.
When the search is done, the current settings will appear.



When the settings information has been sent, a screen will appear indicating its completion.
To make additional settings, press the [RETURN] button to return to the screen shown in the above step. Set the function numbers for other indoor units by following the same steps.



Note:
- Refer to the indoor unit Installation Manual for information about the factory settings of indoor units, function setting numbers, and setting values.
- Be sure to write down the settings for all functions if any of the initial settings has been changed after the completion of installation work.

11-5-2. PAR-SL101A-E

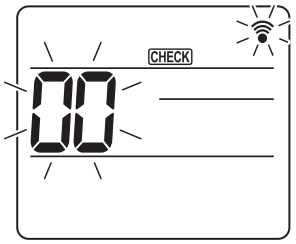


Fig. 11-1

1. Going to the function select mode
   Press the MENU button between of 5 seconds.
   (Start this operation from the status of remote controller display turned off.)
   [CHECK] is lit and ″00″ blinks. (Fig. 11-1)
   Press the ∧∨ button to set the ″50″.
   Direct the wireless remote controller toward the receiver of the indoor unit and press the SET button.

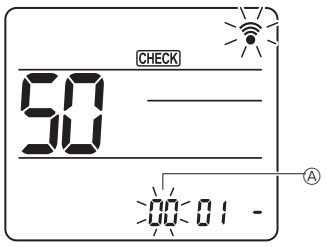


Fig. 11-2

2. Setting the unit number
   Press the ∧∨ button to set unit number Ⓐ. (Fig. 11-2)
   Direct the wireless remote controller toward the receiver of the indoor unit and press the SET button.

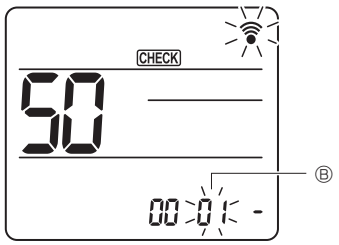


Fig. 11-3

3. Select a mode
   Press the ∧∨ button to set Mode number Ⓑ. (Fig. 11-3)
   Direct the wireless remote controller toward the receiver of the indoor unit and press the SET button.
   Current setting number: 1=1 beep (1 second)
   2=2 beep (1 second each)
   3=3 beep (1 second each)

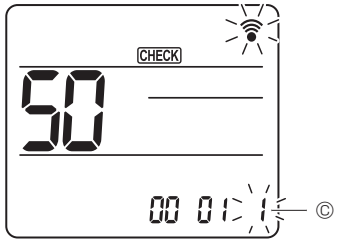


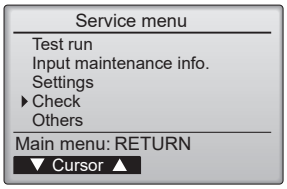
Fig. 11-4

4. Selecting the setting number
   Use the ∧ button to change the Setting number Ⓒ. (Fig. 11-4)
   Direct the wireless remote controller toward the receiver of the indoor unit and press the SET button.
5. To select multiple functions continuously
   Repeat select ③ and ④ to change multiple function settings continuously.
6. Complete function selection
   Direct the wireless remote controller toward the sensor of the indoor unit and press the ⏻OFF/ON button.

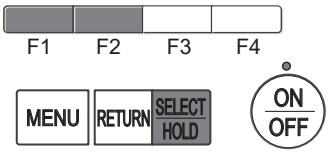
Note:
Make the above settings on Indoor units as necessary.
- **Be sure to write down the settings for all functions if any of the initial settings has been changed after the completion of installation work.**

11-6. ERROR HISTORY

1. Select ″Service″ from the Main menu, and press the [SELECT/HOLD] button.

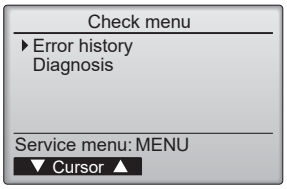


Select ″Check″ with the F1 or F2 button, and press the [SELECT/HOLD] button.



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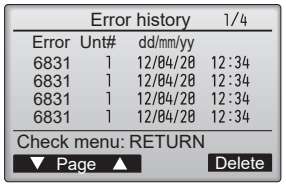
2. Select ″Error history″ with the F1 or F2 button, and press the [SELECT/HOLD] button.

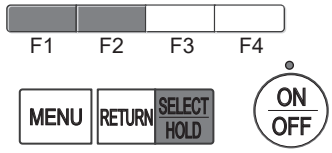


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3. 16 error history records will appear.

4 records are shown per page, and the top record on the first page indicates the latest error record.

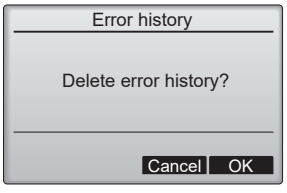




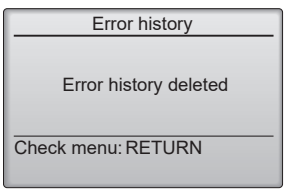
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4. Deleting the error history

To delete the error history, press the F4 button (Delete) on the screen that shows error history.
A confirmation screen will appear asking if you want to delete the error history.



Press the F4 button (OK) to delete the history.



″Error history deleted″ will appear on the screen.

Press the [RETURN] button to go back to the Check menu screen.

11-7. SELF-DIAGNOSIS

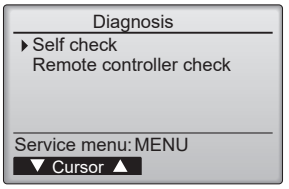
11-7-1. PAR-41MAA

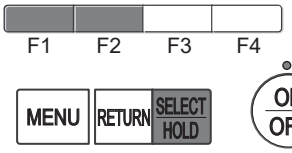
1. Select ″Service″ from the Main menu,
   and press the [SELECT/HOLD] button.

   Select ″Check″ from the Service menu,
   and press the [SELECT/HOLD] button.

   Select ″Diagnosis″ from the Check menu,
   and press the [SELECT/HOLD] button.

   Select ″Self check″ with the F1 or F2 button,
   and press the [SELECT/HOLD] button.



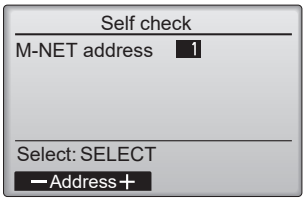


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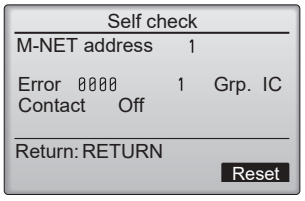
2. Select “Self check” from the Diagnosis menu, and press the [SELECT/HOLD] button to view the Self check screen.

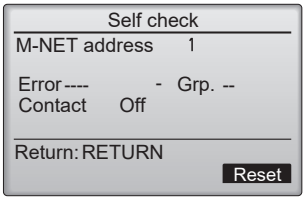
   With the F1 or F2 button, enter the M-NET address, and press the [SELECT/HOLD] button.

   Check code, unit number, attribute, and indoor unit demand signal ON/OFF status at the contact will appear. “-” will appear if no error history is available.



When there is no error history

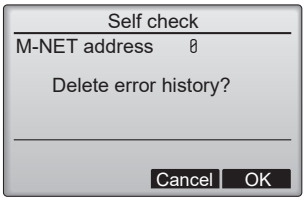


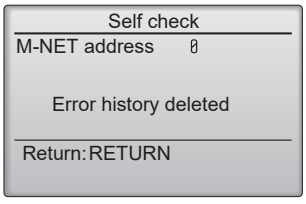


3. <u>Resetting the error history</u>

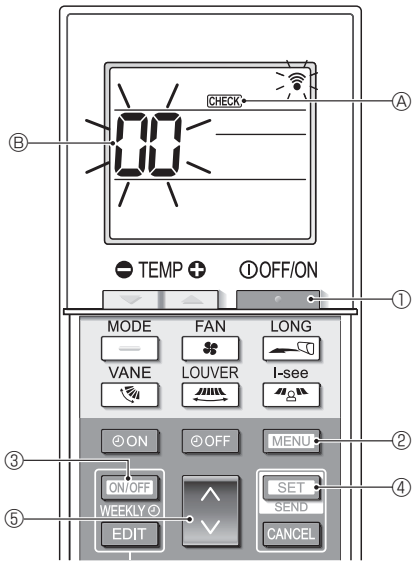
   Press the F4 button (Reset) on the screen that shows the error history. A confirmation screen will appear asking if you want to delete the error history.

   Press the F4 button (OK) to delete the error history. If deletion fails, “Request rejected” will appear, and “Unit not exist” will appear if indoor units that are correspond to the entered address are not found.





11-7-2. PAR-SL101A-E

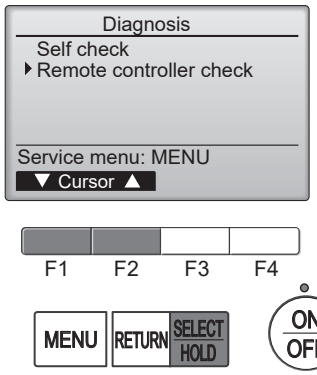


1. Press the [ ] button ① to stop the air conditioner.
   - If the weekly timer is enabled (WEEKLY is on), press the [ON/OFF WEEKLY] button ③ to disable it (WEEKLY is off).
2. Press the [MENU] button ② for 5 seconds.
   - CHECK Ⓐ comes on and the unit enters the self-check mode.
3. Press the [ ] button ⑤ to select the refrigerant address (M-NET address) Ⓑ of the indoor unit for which you want to perform the self-check.
4. Press the [SET] button ④.
   - If an error is detected, the check code is indicated by the number of beeps from the indoor unit and the number of blinks of the OPERATION INDICATOR lamp.
5. Press the [ ] button ①.
   - CHECK Ⓐ and the refrigerant address (M-NET address) Ⓑ go off and the self-check is completed.

11-8. REMOTE CONTROLLER CHECK

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

1. Select "Service" from the Main menu, and press the [SELECT/HOLD] button.



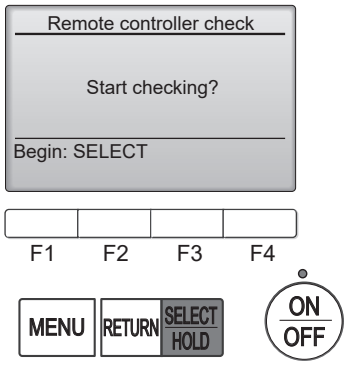
Select "Check" from the Service menu, and press the [SELECT/HOLD] button.

Select "Diagnosis" from the Check menu, and press the [SELECT/HOLD] button.

Select "Remote controller check" with the F1 or F2 button, and press the [SELECT/HOLD] button.

---

2. Select "Remote controller check" from the Diagnosis menu, and press the [SELECT/HOLD] button to start the remote controller check and see the check results.



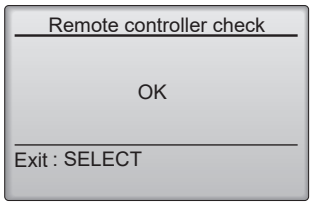
To cancel the remote controller check and exit the "Remote controller check" menu screen, press the [MENU] or the [RETURN] button.

The remote controller will not reboot itself.

3.

OK:	No problems are found with the remote controller. Check other parts for problems.
E3, 6832:	There is noise on the transmission line, or the indoor unit or another remote controller is faulty. Check the transmission line and the other remote controllers.
NG (ALL0, ALL1):	Send-receive circuit fault. The remote controller needs replacing.
ERC:	The number of data errors is the discrepancy between the number of bits in the data transmitted from the remote controller and that of the data that was actually transmitted over the transmission line. If data errors are found, check the transmission line for external noise interference.

Remote controller check results screen



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

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

CITY MULTI

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