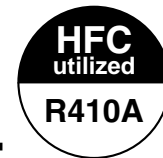


May 2012

No. OCH446

REVISED EDITION-D



TECHNICAL & SERVICE MANUAL

[Model name]
<Outdoor unit>

PUMY-P100VHMB

PUMY-P125VHMB

PUMY-P140VHMB

PUMY-P100VHMB-BS

PUMY-P125VHMB-BS

PUMY-P140VHMB-BS

PUMY-P100YHMB

PUMY-P125YHMB

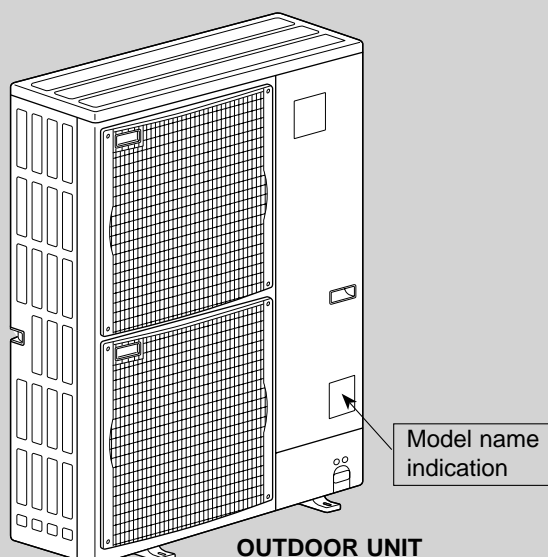
PUMY-P140YHMB

PUMY-P100YHMB-BS

PUMY-P125YHMB-BS

PUMY-P140YHMB-BS

[Service Ref.]
Refer to page 2.



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PARTS CATALOG (OCB446)

Revision :

- PUMY-P100/125/140VHMBR3(-BS), PUMY-P100/125/140YHMBR3(-BS) have been added in REVISED EDITION-D.
- Please void OCH446 REVISED EDITION-C.

NOTE :

- This service manual describes technical data of outdoor unit. As for indoor units, refer to its service manual.
- RoHS compliant products have <G> mark on spec name plate.
- For servicing of RoHS compliant products, refer to RoHS PARTS LIST.

[Service Ref.]

PUMY-P100VHMB
PUMY-P100VHMBR1
PUMY-P100VHMBR2
PUMY-P100VHMBR3
PUMY-P100VHMB-BS
PUMY-P100VHMBR1-BS
PUMY-P100VHMBR2-BS
PUMY-P100VHMBR3-BS
PUMY-P100YHMB
PUMY-P100YHMBR1
PUMY-P100YHMBR2
PUMY-P100YHMBR3
PUMY-P100YHMB-BS
PUMY-P100YHMBR1-BS
PUMY-P100YHMBR2-BS
PUMY-P100YHMBR3-BS

PUMY-P125VHMB
PUMY-P125VHMBR1
PUMY-P125VHMBR2
PUMY-P125VHMBR3
PUMY-P125VHMB-BS
PUMY-P125VHMBR1-BS
PUMY-P125VHMBR2-BS
PUMY-P125VHMBR3-BS
PUMY-P125YHMB
PUMY-P125YHMBR1
PUMY-P125YHMBR2
PUMY-P125YHMBR3
PUMY-P125YHMB-BS
PUMY-P125YHMBR1-BS
PUMY-P125YHMBR2-BS
PUMY-P125YHMBR3-BS

PUMY-P140VHMB
PUMY-P140VHMBR1
PUMY-P140VHMBR2
PUMY-P140VHMBR3
PUMY-P140VHMB-BS
PUMY-P140VHMBR1-BS
PUMY-P140VHMBR2-BS
PUMY-P140VHMBR3-BS
PUMY-P140YHMB
PUMY-P140YHMBR1
PUMY-P140YHMBR2
PUMY-P140YHMBR3
PUMY-P140YHMB-BS
PUMY-P140YHMBR1-BS
PUMY-P140YHMBR2-BS
PUMY-P140YHMBR3-BS

1 TECHNICAL CHANGE

PUMY-P100VHMBR2(-BS) → PUMY-P100VHMBR3(-BS)
PUMY-P125VHMBR2(-BS) → PUMY-P125VHMBR3(-BS)
PUMY-P140VHMBR2(-BS) → PUMY-P140VHMBR3(-BS)
PUMY-P100YHMBR2(-BS) → PUMY-P100YHMBR3(-BS)
PUMY-P125YHMBR2(-BS) → PUMY-P125YHMBR3(-BS)
PUMY-P140YHMBR2(-BS) → PUMY-P140YHMBR3(-BS)

• OUTDOOR CONTROLLER BOARD (C.B) has been changed. (S/W version up)

PUMY-P100VHMBR1(-BS) → PUMY-P100VHMBR2(-BS)
PUMY-P125VHMBR1(-BS) → PUMY-P125VHMBR2(-BS)
PUMY-P140VHMBR1(-BS) → PUMY-P140VHMBR2(-BS)
PUMY-P100YHMBR1(-BS) → PUMY-P100YHMBR2(-BS)
PUMY-P125YHMBR1(-BS) → PUMY-P125YHMBR2(-BS)
PUMY-P140YHMBR1(-BS) → PUMY-P140YHMBR2(-BS)

• THERMISTOR has been changed. (Discharge thermistor → Compressor thermistor)
• COMPRESSOR has been changed.

PUMY-P100VHMB(-BS) → PUMY-P100VHMBR1(-BS)
PUMY-P125VHMB(-BS) → PUMY-P125VHMBR1(-BS)
PUMY-P140VHMB(-BS) → PUMY-P140VHMBR1(-BS)
PUMY-P100YHMB(-BS) → PUMY-P100YHMBR1(-BS)
PUMY-P125YHMB(-BS) → PUMY-P125YHMBR1(-BS)
PUMY-P140YHMB(-BS) → PUMY-P140YHMBR1(-BS)

• OUTDOOR CONTROLLER BOARD (C.B) has been changed.
(Corresponding to the additional combination of PEFY-P-VMA-E.)

2-1. CAUTIONS RELATED TO NEW REFRIGERANT

Cautions for units utilizing refrigerant R410A

Use new refrigerant pipes.

Avoid using thin pipes.

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

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

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

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

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

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

Charge refrigerant from liquid phase of gas cylinder.

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

Do not use refrigerant other than 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.

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

Use the specified refrigerant only.

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

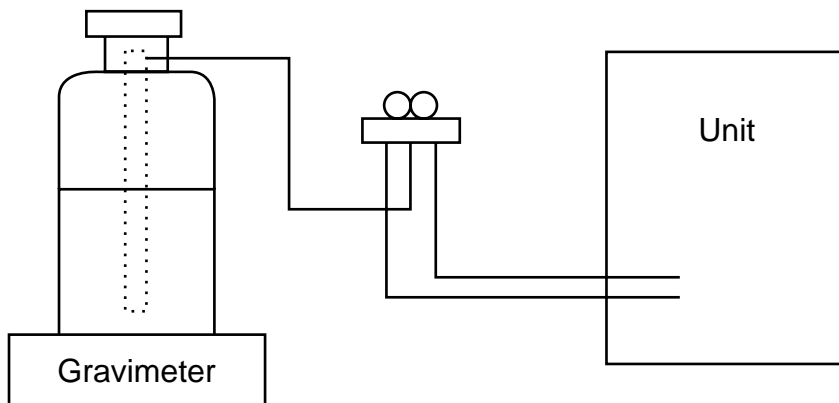
[1] Cautions for service

- (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 syphon type.
- Charging should be performed with the cylinder of syphon stood vertically. (Refrigerant is charged from liquid phase.)



[3] Service tools

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

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

2-2. PRECAUTIONS FOR SALT PROOF TYPE "-BS" MODEL

Although "-BS" model has been designed to be resistant to salt damage, observe the following precautions to maintain the performance of the unit.

1. Avoid installing the unit in a location where it will be exposed directly to seawater or sea breeze.
2. If the cover panel may become covered with salt, be sure to install the unit in a location where the salt will be washed away by rainwater. (If a sunshade is installed, rainwater may not clean the panel.)
3. To ensure that water does not collect in the base of the outdoor unit, make sure that the base is level, not at angle. Water collecting in the base of the outdoor unit could cause rust.
4. If the unit is installed in a coastal area, clean the unit with water regularly to remove any salt build-up.
5. If the unit is damaged during installation or maintenance, be sure to repair it.
6. Be sure to check the condition of the unit regularly.
7. Be sure to install the unit in a location with good drainage.

Cautions for refrigerant piping work

New refrigerant R410A is adopted for replacement inverter series. Although the refrigerant piping work for R410A is same as for R22, exclusive tools are necessary so as not to mix with different kind of refrigerant. Furthermore as the working pressure of R410A is 1.6 times higher than that of R22, their sizes of flared sections and flare nuts are different.

① Thickness of pipes

Because the working pressure of R410A is higher compared to R22, be sure to use refrigerant piping with thickness shown below. (Never use pipes of 0.7 mm or below.)

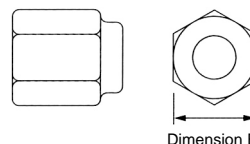
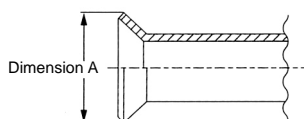
Diagram below: Piping diameter and thickness

Nominal dimensions(inch)	Outside diameter (mm)	Thickness (mm)	
		R410A	R22
1/4	6.35	0.8	0.8
3/8	9.52	0.8	0.8
1/2	12.70	0.8	0.8
5/8	15.88	1.0	1.0
3/4	19.05	—	1.0

② Dimensions of flare cutting and flare nut

The component molecules in HFC refrigerant are smaller compared to conventional refrigerants. In addition to that, R410A is a refrigerant, which has higher risk of leakage because its working pressure is higher than that of other refrigerants. Therefore, to enhance airtightness and intensity, flare cutting dimension of copper pipe for R410A has been specified separately from the dimensions for other refrigerants as shown below. The dimension B of flare nut for R410A also has partly been changed to increase intensity as shown below. Set copper pipe correctly referring to copper pipe flaring dimensions for R410A below. For 1/2 and 5/8 inch, the dimension B changes.

Use torque wrench corresponding to each dimension.



Flare cutting dimensions

(mm)

Nominal dimensions(inch)	Outside diameter	Dimension A ($^{+0}_{-0.4}$)	
		R410A	R22
1/4	6.35	9.1	9.0
3/8	9.52	13.2	13.0
1/2	12.70	16.6	16.2
5/8	15.88	19.7	19.4
3/4	19.05	—	23.3

Flare nut dimensions

(mm)

Nominal dimensions(inch)	Outside diameter	Dimension B	
		R410A	R22
1/4	6.35	17.0	17.0
3/8	9.52	22.0	22.0
1/2	12.70	26.0	24.0
5/8	15.88	29.0	27.0
3/4	19.05	—	36.0

③ Tools for R410A (The following table shows whether conventional tools can be used or not.)

Tools and materials	Use	R410A tools	Can R22 tools be used?	Can R407C tools be used?
Gauge manifold	Air purge, refrigerant charge and operation check	Tool exclusive for R410A	×	×
Charge hose	Gas leak check	Tool exclusive for R410A	×	×
Gas leak detector	Refrigerant recovery	Tool for HFC refrigerant	×	○
Refrigerant recovery equipment	Refrigerant charge	Tool exclusive for R410A	×	×
Refrigerant cylinder	Apply to flared section	Tool exclusive for R410A	×	×
Applied oil	Prevent compressor malfunction when charging refrigerant by spraying liquid refrigerant	Ester oil, ether oil and alkylbenzene oil (minimum amount)	×	Ester oil, ether oil: ○ Alkylbenzene oil: minimum amount
Safety charger	Prevent gas from blowing out when detaching charge hose	Tool exclusive for R410A	×	×
Charge valve	Vacuum drying and air purge	Tools for other refrigerants can be used if equipped with adopter for reverse flow check	△ (Usable if equipped with adopter for reverse flow)	△ (Usable if equipped with adopter for reverse flow)
Vacuum pump	Flaring work of piping	Tools for other refrigerants can be used by adjusting flaring dimension	△ (Usable by adjusting flaring dimension)	△ (Usable by adjusting flaring dimension)
Flare tool	Bend the pipes	Tools for other refrigerants can be used	○	○
Bender	Cut the pipes	Tools for other refrigerants can be used	○	○
Pipe cutter	Weld the pipes	Tools for other refrigerants can be used	○	○
Welder and nitrogen gas cylinder	Refrigerant charge	Tools for other refrigerants can be used	○	○
Refrigerant charging scale	Check the degree of vacuum. (Vacuum valve prevents back flow of oil and refrigerant to thermistor vacuum gauge)	Tools for other refrigerants can be used	○	○
Vacuum gauge or thermistor vacuum gauge and vacuum valve	Refrigerant charge	Tool exclusive for R410A	×	—
Charging cylinder				

× : Prepare a new tool. (Use the new tool as the tool exclusive for R410A.)

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

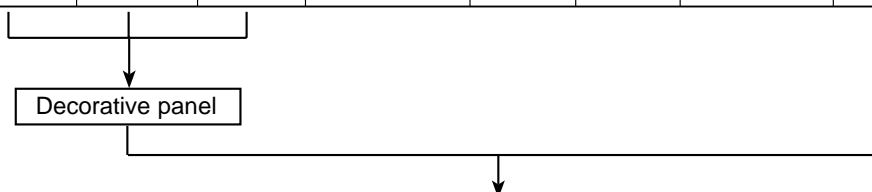
○ : Tools for other refrigerants can be used.

3-1. UNIT CONSTRUCTION

Outdoor unit		4HP	5HP	6HP
		PUMY-P100VHMB(-BS) PUMY-P100VHMBR1(-BS) PUMY-P100VHMBR2(-BS) PUMY-P100VHMBR3(-BS) PUMY-P100YHMB(-BS) PUMY-P100YHMBR1(-BS) PUMY-P100YHMBR2(-BS) PUMY-P100YHMBR3(-BS)	PUMY-P125VHMB(-BS) PUMY-P125VHMBR1(-BS) PUMY-P125VHMBR2(-BS) PUMY-P125VHMBR3(-BS) PUMY-P125YHMB(-BS) PUMY-P125YHMBR1(-BS) PUMY-P125YHMBR2(-BS) PUMY-P125YHMBR3(-BS)	PUMY-P140VHMB(-BS) PUMY-P140VHMBR1(-BS) PUMY-P140VHMBR2(-BS) PUMY-P140VHMBR3(-BS) PUMY-P140YHMB(-BS) PUMY-P140YHMBR1(-BS) PUMY-P140YHMBR2(-BS) PUMY-P140YHMBR3(-BS)
Applicable indoor unit	Capacity	Type 15 ~ Type 125		Type 15 ~ Type 140
	Number of units	1 ~ 8 unit	1 ~ 10 unit	1 ~ 12 unit
	Total system wide capacity	50% ~130% of outdoor unit capacity *2 *3		

	CMY-Y62-G-E	CMY-Y64-G-E	CMY-Y68-G-E
Branching pipe components	Branch header (2 branches)	Branch header (4 branches)	Branch header (8 branches)

Model Capacity	Cassette Ceiling			Ceiling Concealed	Wall Mounted	Ceiling Suspended	Floor standing		Ceiling Concealed (Fresh Air) *1	Air to Water Unit *3
	4-way flow	2-way flow	1-way flow				Exposed	Concealed		
	PLFY-P	PLFY-P	PMFY-P	PEFY-P	PKFY-P	PCFY-P	PFFY-P	PFFY-P	PEFY-P	PWFY-P
15	-	-	-	15VMS1-E	15VBM-E	-	-	-	-	-
20	20VCM-E(2)	20VLMD-E	20VBM-E	20VMS1-E/VMA-E	20VBM-E	-	20VLEM-E/VKM-E	20VLRM-E	-	-
25	25VCM-E(2)	25VLMD-E	25VBM-E	25VMS1-E/VMA-E	25VBM-E	-	25VLEM-E/VKM-E	25VLRM-E	-	-
32	32VCM-E(2)/32VBM-E	32VLMD-E	32VBM-E	32VMS1-E/VMA-E	32VHM-E	-	32VLEM-E/VKM-E	32VLRM-E	-	-
40	40VCM-E(2)/40VBM-E	40VLMD-E	40VBM-E	40VMS1-E/VMA-E	40VHM-E	40VKM-E	40VLEM-E/VKM-E	40VLRM-E	-	-
50	50VBM-E	50VLMD-E	-	50VMS1-E/VMA-E	50VHM-E	-	50VLEM-E	50VLRM-E	-	-
63	63VBM-E	63VLMD-E	-	63VMS1-E/VMA-E	63VKM-E	63VKM-E	63VLEM-E	63VLRM-E	-	-
71	-	-	-	71VMA-E	-	-	-	-	-	-
80	80VBM-E	80VLMD-E	-	80VMH-E/VMA-E	-	-	-	-	80VMH-E-F	-
100	100VBM-E	100VLMD-E	-	100VMH-E/VMA-E	100VKM-E	100VKM-E	-	-	-	100VM-E-AU
125	125VBM-E	125VLMD-E	-	125VMH-E/VMA-E	-	125VKM-E	-	-	-	-
140	-	-	-	140VMH-E/VMA-E	-	-	-	-	140VMH-E-F	-



Remote controller	Name	M-NET remote controller	MA remote controller
	Model number	PAR-F27MEA-E	PAR-21MAA PAR-W21MAA(when using PWFY)
	Functions	<ul style="list-style-type: none"> A handy remote controller for use in conjunction with the Melans centralized management system. Addresses must be set. 	<ul style="list-style-type: none"> Addresses setting is not necessary.

*1. PUMY-P-YHMB is connectable to Fresh Air type indoor unit.

It is possible to connect 1 Fresh Air type indoor unit to 1 outdoor unit. (1:1 system)

Operating temperature range (outdoor temperature) for fresh air type indoor units differ from other indoor units.

Refer to 3-2(3).

*2. When the indoor unit of Fresh Air type is connected with the outdoor unit, the maximum connectable total indoor unit capacity is 110% (100% in case of heating below -5°C [23°F]).

*3. When connecting PWFY series

• Only 1 PWFY-P100VM-E-AU can be connected. PWFY-P200VM-E-AU and PWFY-P100VM-E-BU cannot be connected.

• The PWFY unit cannot be the only unit connected to an outdoor unit. Select an indoor unit so that the total rated capacity of the indoor units, excluding the PWFY unit, is 50–100% of the outdoor unit capacity.

3-2. UNIT SPECIFICATIONS

(1) Outdoor Unit

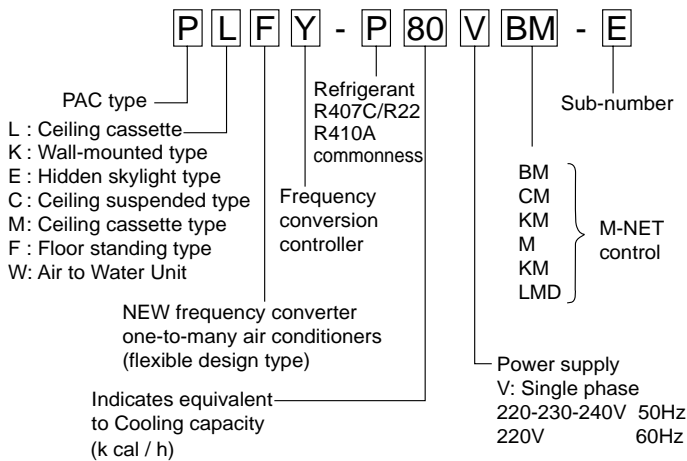
Service Ref.		PUMY-P100VHMB(-BS) PUMY-P100VHMBR1(-BS) PUMY-P100VHMBR2(-BS) PUMY-P100VHMBR3(-BS) PUMY-P100YHMB(-BS) PUMY-P100YHMBR1(-BS) PUMY-P100YHMBR2(-BS) PUMY-P100YHMBR3(-BS)	PUMY-P125VHMB(-BS) PUMY-P125VHMBR1(-BS) PUMY-P125VHMBR2(-BS) PUMY-P125VHMBR3(-BS) PUMY-P125YHMB(-BS) PUMY-P125YHMBR1(-BS) PUMY-P125YHMBR2(-BS) PUMY-P125YHMBR3(-BS)	PUMY-P140VHMB(-BS) PUMY-P140VHMBR1(-BS) PUMY-P140VHMBR2(-BS) PUMY-P140VHMBR3(-BS) PUMY-P140YHMB(-BS) PUMY-P140YHMBR1(-BS) PUMY-P140YHMBR2(-BS) PUMY-P140YHMBR3(-BS)
Capacity	Cooling (kW)	11.2	14.0	15.5
	Heating (kW)	12.5	16.0	18.0
Compressor (kW)		1.9	2.4	2.9

Cooling/Heating capacity indicates the maximum value at operation under the following condition.

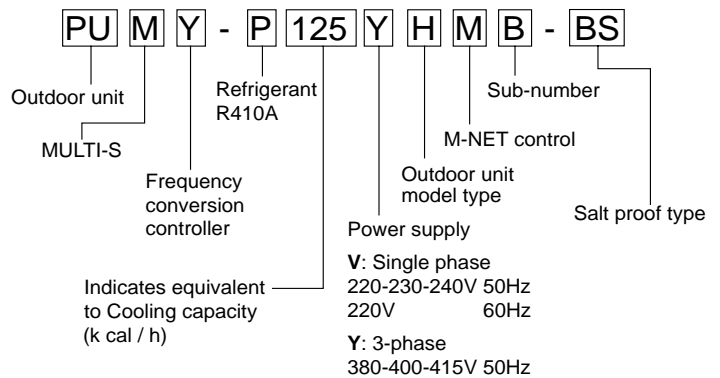
*Cooling Indoor : D.B. 27°C/W.B. 19.0°C
Outdoor : D.B. 35°C
Heating Indoor : D.B. 20°C
Outdoor : D.B. 7°C/W.B. 6°C

(2) Method for identifying MULTI-S model

■ Indoor unit < When using Model 80 >



■ Outdoor unit <When using model 125 >



(3) Operating temperature range

	Cooling	Heating
Indoor-side intake air temperature	W.B. 15~24°C	D.B. 15~27°C
Outdoor-side intake air temperature	D.B. -5~46°C *1	W.B. -15~15°C

Notes D.B. : Dry Bulb Temperature
W.B. : Wet Bulb Temperature

*1. 10~46°C DB : When connecting PKFY-P15/P20/P25 type indoor unit.

■ When connecting fresh air type indoor unit

	Capacity of Fresh air type indoor	Cooling	Heating
Indoor-side and Outdoor-side intake air temperature	P80	D.B.21 - 43°C *2 W.B.15.5 - 35°C	D.B.-10 - 20°C *3
	P140	D.B.21 - 43°C *2 W.B.15.5 - 35°C	D.B.-5 - 20°C *3

*2. Thermo-off (FAN-mode) automatically starts if the outdoor temp. is lower than 21°C D.B..

*3. Thermo-off (FAN-mode) automatically starts if the outdoor temp. is higher than 20°C D.B..

■ When connecting Air to Water Unit

	Cooling	Heating
Indoor-side intake water temperature	— *4	D.B. 10 - 45°C
Outdoor-side intake air temperature	— *4	W.B. -15 - 15°C

*4. • PWFY series can operate in Heating mode but not in Cooling mode. An indoor unit other than that of PWFY series can operate in Cooling mode.

• A PWFY series and other series cannot operate simultaneously.

• The operation of PWFY series takes precedence over other series. While a PWFY series is operating, other series do not operate.

• The set temperature on the remote controller represents the target temperature of the outlet water.

Model		PUMY-P100VHMB(-BS) PUMY-P100VHMBR1(-BS) PUMY-P100VHMBR2(-BS) PUMY-P100VHMBR3(-BS)	PUMY-P125VHMB(-BS) PUMY-P125VHMBR1(-BS) PUMY-P125VHMBR2(-BS) PUMY-P125VHMBR3(-BS)	PUMY-P140VHMB(-BS) PUMY-P140VHMBR1(-BS) PUMY-P140VHMBR2(-BS) PUMY-P140VHMBR3(-BS)
Power source		1-phase 220-230-240V 50Hz, 1-phase 220V 60Hz		
Cooling capacity (Nominal)	* 1 kW	11.2	14.0	15.5
	* 1 kcal/h	9,600	12,000	13,300
	* 1 Btu/h	38,200	47,800	52,900
	* 2 kcal/h	10,000	12,500	14,000
	Power input kW	3.34	4.32	5.35
Current input A	15.4-14.8-14.1, 15.4	20.0-19.1-18.3, 20.0	24.7-23.6-22.7, 24.7	
COP (kW/kW)	3.35	3.24	2.9	
Temp. range of cooling	Indoor	W.B.	15 ~ 24°C (59 ~ 75°F)	
	Outdoor	D.B.	- 5 ~ 46°C (23 ~ 115°F)	
10 to 46°C D.B. (50 to 115°F D.B.) : when connecting PKFY-P15/P20/P25 type indoor unit.				
Heating capacity (Nominal)	* 3 kW	12.5	16.0	18.0
	* 3 kcal/h	10,800	13,800	15,500
	* 3 Btu/h	42,700	54,600	61,400
	Power input kW	3.66	4.33	5.58
	Current input A	16.9-16.2-15.5, 16.9	20.0-19.1-18.3, 20.0	25.8-24.7-23.6, 25.8
COP (kW/kW)	3.42	3.69	3.23	
Temp. range of heating	Indoor temp.	D.B.	15 ~ 27°C (59 ~ 81°F)	
	Outdoor temp.	W.B.	-15 ~ 15°C (5 ~ 59°F)	
Inlet water temp. 10 ~ 45°C (50 ~ 113°F): when connecting PWFY type indoor unit				
-15 ~ 15°C (5 ~ 59°F) : when connecting PWFY type indoor unit				
Indoor unit connectable	Total capacity	50 ~ 130% of outdoor unit capacity		
	Model/Quantity	50 ~ 100% of outdoor unit capacity without PWFY: when connecting PWFY type indoor unit		
Noise level (measured in anechoic room)	dB <A>	P15 ~ P125/1 ~ 8 49/51	P15 ~ P140/1 ~ 10 50/52	P15 ~ P140/1 ~ 12 51/53
Diameter of refrigerant pipe	Liquid (High press.)	mm (in.)	ø9.52 (ø3/8") Liquid	ø9.52 (ø3/8") Liquid
	Gas (Low press.)	mm (in.)	ø15.88 (ø5/8") Gas	ø15.88 (ø5/8") Gas

External finish		Galvanized steel sheet <MUNSELL 3Y 7.8/1.1>		
External dimension H x W x D	mm	1,350 x 950 x 330	1,350 x 950 x 330	1,350 x 950 x 330
	in.	53-3/16" x 37-7/16" x 13"	53-3/16" x 37-7/16" x 13"	53-3/16" x 37-7/16" x 13"
Net weight	kg (lb)	129 (284 lb)	129 (284 lb)	129 (284 lb)
Heat exchanger		Salt-resistant cross fin & copper tube	Salt-resistant cross fin & copper tube	Salt-resistant cross fin & copper tube
Compressor	Type	Inverter scroll hermetic comp.		
	Manufacturer	MITSUBISHI ELECTRIC CORPORATION		
	Starting method	Inverter		
	Motor output kW	2.2	2.9	3.3
	Case heater kW	-	-	-
	Lubricant	FV50S x 2.3 L		
FAN	Air flow rate	m ³ /min	100	100
		L/s	1667	1667
		cfm	3532	3532
	External static press.	0 Pa		
	Type x Quantity	Propeller fan x 2		
	Control, Driving mechanism	DC-control, Direct-driven by motor		
	Motor output kW	0.06 x 2		
HIC circuit (HIC: Heat Inter-Changer)		-		
Protection	High pressure protection	High pressure sensor, High pressure switch 4.15 MPa		
	Inverter circuit (COMP/FAN)	Over-heat protection, Over-current protection		
	Compressor	Discharge thermo protection, Over-current protection (PUMY-P.VHMB(-BS), PUMY-P.VHMBR1(-BS)) Compressor thermo protection, Over-current protection (PUMY-P.VHMBR2(-BS), PUMY-P.VHMBR3(-BS))		
	Fan motor	Over-heat protection, Voltage protection		
Defrosting method		Auto-defrost mode (Reversed refrigerant circle)		
Refrigerant	Type x Original charge	R410A x 8.5kg (19 lb)	R410A x 8.5kg (19 lb)	R410A x 8.5kg (19 lb)
	Control	LEV circuit		
Standard attachment	Document	Installation Manual		
	Accessory	Grounded lead wire x 2		
Optional parts		Joint: CMY-Y62-G-E Header:CMY-Y64/68-G-E	Joint: CMY-Y62-G-E Header:CMY-Y64/68-G-E	Joint: CMY-Y62-G-E Header:CMY-Y64/68-G-E
Remark		In case of connecting all fresh air type indoor unit PEFY-P-VHM-E-F, only one indoor unit can be connected with one PUMY. Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.		

Note :	* 1 Nominal cooling conditions	* 2 Nominal cooling conditions	* 3 Nominal heating conditions	Unit converter
	Indoor : 27°CDB/19°CWB (81°FDB/66°FWB)	27°CDB/19.5°CWB (81°FDB/67°FWB)	20°CDB (68°FDB)	kcal/h = kW x 860
	Outdoor : 35°CDB (95°FDB)	35°CDB (95°FDB)	7°CDB/6°CWB (45°FDB/43°FWB)	Btu/h = kW x 3,412
	Pipe length : 7.5 m (24-9/16 ft)	5 m (16-3/8 ft)	7.5 m (24-9/16 ft)	cfm = m ³ /min x 35.31
	Level difference : 0 m (0 ft)	0 m (0 ft)	0 m (0 ft)	lb = kg/0.4536

* Nominal conditions * 1, * 3 are subject to JIS B8615-1.

* Due to continuing improvement, above specifications may be subject to change without notice.

*Above specification data is subject to rounding variation.



Model			PUMY-P100YHMB(-BS) PUMY-P100YHMBR1(-BS) PUMY-P100YHMBR2(-BS) PUMY-P100YHMBR3(-BS)	PUMY-P125YHMB(-BS) PUMY-P125YHMBR1(-BS) PUMY-P125YHMBR2(-BS) PUMY-P125YHMBR3(-BS)	PUMY-P140YHMB(-BS) PUMY-P140YHMBR1(-BS) PUMY-P140YHMBR2(-BS) PUMY-P140YHMBR3(-BS)
Power source			3-phase 4-wire 380-400-415V 50Hz		
Cooling capacity (Nominal)	* 1	kW	11.2	14.0	15.5
		kcal/h	9,600	12,000	13,300
		Btu/h	38,200	47,800	52,900
		* 2 kcal/h	-	12,500	14,000
	Power input	kW	3.30	4.27	5.32
Current input	A	5.28-5.02-4.84	6.83-6.49-6.26	8.51-8.09-7.80	
COP (kW/kW)		3.39	3.28	2.91	
Temp. range of cooling	Indoor	W.B.	15 ~ 24°C (59 ~ 75°F)		
	Outdoor	D.B.	- 5 ~ 46°C (23 ~ 115°F) 10 to 46°C D.B. (50 to 115°F D.B.): when connecting PKFY-P15/P20/P25 type indoor unit.		
Heating capacity (Nominal)	* 3	kW	12.5	16.0	18.0
		kcal/h	10,800	13,800	15,500
		Btu/h	42,700	54,600	61,400
	Power input	kW	3.63	4.29	5.32
	Current input	A	5.81-5.52-5.32	6.87-6.52-6.29	8.51-8.09-7.80
COP (kW/kW)		3.44	3.73	3.38	
Temp. range of heating	Indoor temp.	D.B.	15 ~ 27°C (59 ~ 81°F) Inlet water temp. 10 ~ 45°C (50 ~ 113°F): when connecting PWFY type indoor unit		
	Outdoor temp.	W.B.	-15 ~ 15°C (5 ~ 59°F) -15 ~ 15°C (5 ~ 59°F): when connecting PWFY type indoor unit		
Indoor unit connectable	Total capacity	50 ~ 130% of outdoor unit capacity 50 ~ 100% of outdoor unit capacity without PWFY: when connecting PWFY type indoor unit			
	Model/Quantity	P15 ~ P125/1 ~ 8	P15 ~ P140/1 ~ 10	P15 ~ P140/1 ~ 12	
Noise level (measured in anechoic room)	dB <A>	49/51	50/52	51/53	
Diameter of refrigerant pipe	Liquid (High press.)	mm (in.)	ø9.52 (ø3/8") Flare	ø9.52 (ø3/8") Flare	ø9.52 (ø3/8") Flare
	Gas (Low press.)	mm (in.)	ø15.88 (ø5/8") Flare	ø15.88 (ø5/8") Flare	ø15.88 (ø5/8") Flare

External finish		Galvanized steel sheet <MUNSELL 3Y 7.8/1.1>				
External dimension H x W x D	mm	1,350 x 950 x 330	1,350 x 950 x 330	1,350 x 950 x 330		
	in.	53-3/16" x 37-7/16" x 13"	53-3/16" x 37-7/16" x 13"	53-3/16" x 37-7/16" x 13"		
Net weight	kg (lb)	142 (313 lb)	142 (313 lb)	142 (313 lb)		
Heat exchanger		Salt-resistant cross fin & copper tube	Salt-resistant cross fin & copper tube	Salt-resistant cross fin & copper tube		
Compressor	Type	Inverter scroll hermetic comp.				
	Manufacturer	MITSUBISHI ELECTRIC CORPORATION				
	Starting method	Inverter				
	Motor output	kW	1.9	2.4	2.9	
	Case heater	kW	-	-	-	
	Lubricant		FV50S x 2.3 L	FV50S x 2.3 L	FV50S x 2.3 L	
FAN	Air flow rate	m³/min	100	100	100	
		L/s	1667	1667	1667	
		cfm	3532	3532	3532	
	External static press.		0 Pa	0 Pa	0 Pa	
	Type x Quantity		Propeller fan x 2	Propeller fan x 2	Propeller fan x 2	
	Control, Driving mechanism		DC-control, Direct-driven by motor	DC-control, Direct-driven by motor	DC-control, Direct-driven by motor	
Motor output	kW	0.06 x 2	0.06 x 2	0.06 x 2		
HIC circuit (HIC: Heat Inter-Changer)		-				
Protection	High pressure protection	High pressure sensor, High pressure switch 4.15 MPa				
	Inverter circuit (COMP/FAN)	Over-heat protection, Over-current protection				
	Compressor	Discharge thermo protection, Over-current protection (PUMY-P-YHMB(-BS), PUMY-P-YHMBR1(-BS)) Compressor thermo protection, Over-current protection (PUMY-P-YHMBR2(-BS), PUMY-P-YHMBR3(-BS))				
	Fan motor	Over-heat protection, Voltage protection				
Defrosting method		Auto-defrost mode (Reversed refrigerant circle)				
Refrigerant	Type x Original charge	R410A x 8.5kg (19 lb)	R410A x 8.5kg (19 lb)	R410A x 8.5kg (19 lb)		
	Control	LEV circuit				
Standard attachment	Document	Installation Manual				
	Accessory	Grounded lead wire x 2				
Optional parts		Joint: CMY-Y62-G-E Header: CMY-Y64/68-G-E	Joint: CMY-Y62-G-E Header: CMY-Y64/68-G-E	Joint: CMY-Y62-G-E Header: CMY-Y64/68-G-E		
Remark		Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.				

Note :	* 1 Nominal cooling conditions	* 2 Nominal cooling conditions	* 3 Nominal heating conditions	Unit converter
	Indoor : 27°CDB/19°CWB (81°FDB/66°FWB) Outdoor : 35°CDB (95°FDB) Pipe length : 7.5 m (24-9/16 ft) Level difference : 0 m (0 ft)	27°CDB/19.5°CWB (81°FDB/67°FWB) 35°CDB (95°FDB) 5 m (16-3/8 ft) 0 m (0 ft)	20°CDB (68°FDB) 7°CDB/6°CWB (45°FDB/43°FWB) 7.5 m (24-9/16 ft) 0 m (0 ft)	kcal/h = kW x 860 Btu/h = kW x 3,412 cfm = m³/min x 35.31 lb = kg/0.4536
	* Nominal conditions * 1, * 3 are subject to JIS B8615-1.			*Above specification data is subject to rounding variation.
	* Due to continuing improvement, above specifications may be subject to change without notice.			

5-1. COOLING AND HEATING CAPACITY AND CHARACTERISTICS

5-1-1. Method for obtaining system cooling and heating capacity:

To obtain the system cooling and heating capacity and the electrical characteristics of the outdoor unit, first add up the ratings of all the indoor units connected to the outdoor unit (see table below), and then use this total to find the standard capacity with the help of the tables on 5-2. STANDARD CAPACITY DIAGRAM.

(1) Capacity of indoor unit

Model Number for indoor unit	Model 15	Model 20	Model 25	Model 32	Model 40	Model 50	Model 63	Model 71	Model 80	Model 100	Model 125	Model 140
Model Capacity	17	22	28	36	45	56	71	80	90	112	140	160

(2) Sample calculation

① System assembled from indoor and outdoor unit (in this example the total capacity of the indoor units is greater than that of the outdoor unit)

- Outdoor unit PUMY-P125YHMB
- Indoor unit PKFY-P25VBM-E × 2 , PLFY-P50VLMD-E × 2

② According to the conditions in ①, the total capacity of the indoor unit will be: $28 \times 2 + 56 \times 2 = 168$

③ The following figures are obtained from the 168 total capacity row of the standard capacity diagram (5-2.):

Capacity (kW)		Outdoor unit power consumption (kW)		Outdoor unit current (A)/400V	
Cooling	Heating	Cooling	Heating	Cooling	Heating
Ⓐ 14.60	Ⓑ 16.33	4.34	3.95	6.59	6.01

5-1-2. Method for obtaining the heating and cooling capacity of an indoor unit:

(1) The capacity of each indoor unit (kW) = the capacity Ⓐ (or Ⓑ) × $\frac{\text{model capacity}}{\text{total model capacity of all indoor units}}$

(2) Sample calculation (using the system described above in 5-1-1. (2)):

During cooling:

- The total model capacity of the indoor unit is:
 $2.8 \times 2 + 5.6 \times 2 = 16.8 \text{ kW}$
 Therefore, the capacity of PKFY-P25VBM-E and PLFY-P50VLMD-E will be calculated as follows by using the formula in 5-1-2. (1):

$$\text{Model 25} = 14.6 \times \frac{2.8}{16.8} = 2.43 \text{ kW}$$

$$\text{Model 50} = 14.6 \times \frac{5.6}{16.8} = 4.87 \text{ kW}$$

During heating:

- The total model capacity of indoor unit is:
 $3.2 \times 2 + 6.3 \times 2 = 19.0$
 Therefore, the capacity of PKFY-P25VBM-E and PLFY-P50VLMD-E will be calculated as follows by using the formula in 5-1-2. (1):

$$\text{Model 25} = 16.33 \times \frac{3.2}{19.0} = 2.75 \text{ kW}$$

$$\text{Model 50} = 16.33 \times \frac{6.3}{19.0} = 5.41 \text{ kW}$$

5-2. STANDARD CAPACITY DIAGRAM

5-2-1. PUMY-P100VHMB(-BS)

PUMY-P100VHMBR1(-BS)

PUMY-P100VHMBR2(-BS)

PUMY-P100VHMBR3(-BS)

* Before calculating the sum of total capacity of indoor units, please convert the value into the kW model capacity following the formula on 5-1-1.

Total capacity of indoor units*	Capacity(kW)		Power Consumption(kW)		Current(A)/220V		Current(A)/230V		Current(A)/240V	
	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
56	5.60	6.30	1.37	1.79	6.3	8.3	6.1	7.9	5.8	7.6
57	5.70	6.41	1.39	1.82	6.4	8.4	6.2	8.1	5.9	7.7
58	5.80	6.53	1.42	1.85	6.6	8.6	6.3	8.2	6.0	7.8
59	5.90	6.64	1.44	1.88	6.7	8.7	6.4	8.3	6.1	8.0
60	6.00	6.75	1.46	1.91	6.8	8.8	6.5	8.4	6.2	8.1
61	6.10	6.87	1.49	1.94	6.9	9.0	6.6	8.6	6.3	8.2
62	6.20	6.98	1.51	1.97	7.0	9.1	6.7	8.7	6.4	8.4
63	6.30	7.09	1.54	2.00	7.1	9.2	6.8	8.8	6.5	8.5
64	6.40	7.20	1.56	2.03	7.2	9.4	6.9	9.0	6.6	8.6
65	6.50	7.32	1.59	2.06	7.4	9.5	7.0	9.1	6.7	8.7
66	6.60	7.43	1.62	2.09	7.5	9.7	7.2	9.2	6.9	8.9
67	6.70	7.54	1.64	2.12	7.6	9.8	7.3	9.4	7.0	9.0
68	6.80	7.66	1.67	2.15	7.7	9.9	7.4	9.5	7.1	9.1
69	6.90	7.77	1.70	2.18	7.9	10.1	7.5	9.6	7.2	9.2
70	7.00	7.88	1.73	2.22	8.0	10.3	7.7	9.8	7.3	9.4
71	7.10	8.00	1.76	2.25	8.1	10.4	7.8	10.0	7.5	9.5
72	7.20	8.11	1.79	2.28	8.3	10.5	7.9	10.1	7.6	9.7
73	7.30	8.22	1.82	2.31	8.4	10.7	8.1	10.2	7.7	9.8
74	7.40	8.33	1.85	2.34	8.6	10.8	8.2	10.3	7.8	9.9
75	7.50	8.44	1.88	2.37	8.7	11.0	8.3	10.5	8.0	10.0
76	7.60	8.56	1.91	2.41	8.8	11.1	8.4	10.7	8.1	10.2
77	7.70	8.67	1.94	2.44	9.0	11.3	8.6	10.8	8.2	10.3
78	7.80	8.78	1.97	2.47	9.1	11.4	8.7	10.9	8.4	10.5
79	7.90	8.89	2.00	2.50	9.2	11.6	8.8	11.1	8.5	10.6
80	8.00	9.00	2.04	2.54	9.4	11.7	9.0	11.2	8.6	10.8
81	8.10	9.10	2.07	2.57	9.6	11.9	9.2	11.4	8.8	10.9
82	8.20	9.20	2.10	2.60	9.7	12.0	9.3	11.5	8.9	11.0
83	8.30	9.30	2.14	2.64	9.9	12.2	9.5	11.7	9.1	11.2
84	8.40	9.40	2.17	2.67	10.0	12.3	9.6	11.8	9.2	11.3
85	8.50	9.50	2.21	2.70	10.2	12.5	9.8	11.9	9.4	11.4
86	8.60	9.60	2.24	2.74	10.4	12.7	9.9	12.1	9.5	11.6
87	8.70	9.70	2.28	2.77	10.5	12.8	10.1	12.2	9.7	11.7
88	8.80	9.80	2.32	2.80	10.7	12.9	10.3	12.4	9.8	11.9
89	8.90	9.90	2.35	2.84	10.9	13.1	10.4	12.6	10.0	12.0
90	9.00	10.00	2.39	2.87	11.1	13.3	10.6	12.7	10.1	12.2
91	9.10	10.10	2.43	2.91	11.2	13.5	10.7	12.9	10.3	12.3
92	9.20	10.22	2.47	2.94	11.4	13.6	10.9	13.0	10.5	12.5
93	9.30	10.33	2.50	2.97	11.6	13.7	11.1	13.1	10.6	12.6
94	9.40	10.45	2.54	3.01	11.7	13.9	11.2	13.3	10.8	12.8
95	9.50	10.56	2.58	3.04	11.9	14.1	11.4	13.4	10.9	12.9
96	9.60	10.67	2.62	3.08	12.1	14.2	11.6	13.6	11.1	13.1
97	9.70	10.79	2.66	3.11	12.3	14.4	11.8	13.8	11.3	13.2
98	9.80	10.90	2.70	3.15	12.5	14.6	11.9	13.9	11.4	13.3
99	9.90	11.02	2.75	3.19	12.7	14.7	12.2	14.1	11.7	13.5
100	10.00	11.13	2.79	3.22	12.9	14.9	12.3	14.2	11.8	13.6
101	10.10	11.24	2.83	3.26	13.1	15.1	12.5	14.4	12.0	13.8
102	10.20	11.36	2.87	3.29	13.3	15.2	12.7	14.5	12.2	13.9
103	10.30	11.47	2.91	3.33	13.5	15.4	12.9	14.7	12.3	14.1
104	10.40	11.59	2.96	3.36	13.7	15.5	13.1	14.9	12.5	14.2
105	10.50	11.70	3.00	3.40	13.9	15.7	13.3	15.0	12.7	14.4
106	10.60	11.81	3.05	3.44	14.1	15.9	13.5	15.2	12.9	14.6
107	10.70	11.93	3.09	3.47	14.3	16.0	13.7	15.3	13.1	14.7
108	10.80	12.04	3.14	3.51	14.5	16.2	13.9	15.5	13.3	14.9
109	10.90	12.16	3.18	3.55	14.7	16.4	14.1	15.7	13.5	15.0
110	11.00	12.27	3.23	3.59	14.9	16.6	14.3	15.9	13.7	15.2



Total capacity of indoor units*	Capacity(kW)		Power Consumption(kW)		Current(A)/220V		Current(A)/230V		Current(A)/240V	
	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
111	11.10	12.38	3.27	3.62	15.1	16.7	14.5	16.0	13.9	15.3
112	11.20	12.50	3.34	3.66	15.4	16.9	14.8	16.2	14.1	15.5
113	11.22	12.51	3.35	3.65	15.5	16.9	14.8	16.1	14.2	15.5
114	11.24	12.53	3.35	3.64	15.5	16.8	14.8	16.1	14.2	15.4
115	11.26	12.54	3.36	3.63	15.5	16.8	14.9	16.0	14.2	15.4
116	11.28	12.55	3.36	3.62	15.5	16.7	14.9	16.0	14.2	15.3
117	11.30	12.56	3.36	3.61	15.5	16.7	14.9	16.0	14.2	15.3
118	11.32	12.57	3.37	3.59	15.6	16.6	14.9	15.9	14.3	15.2
119	11.34	12.58	3.37	3.58	15.6	16.5	14.9	15.8	14.3	15.2
120	11.36	12.60	3.38	3.57	15.6	16.5	14.9	15.8	14.3	15.1
121	11.38	12.61	3.38	3.56	15.6	16.5	14.9	15.7	14.3	15.1
122	11.40	12.62	3.38	3.55	15.6	16.4	14.9	15.7	14.3	15.0
123	11.42	12.63	3.39	3.54	15.7	16.4	15.0	15.7	14.4	15.0
124	11.44	12.64	3.39	3.52	15.7	16.3	15.0	15.6	14.4	14.9
125	11.47	12.66	3.40	3.51	15.7	16.2	15.0	15.5	14.4	14.9
126	11.49	12.67	3.40	3.50	15.7	16.2	15.0	15.5	14.4	14.8
127	11.51	12.68	3.40	3.49	15.7	16.1	15.0	15.4	14.4	14.8
128	11.53	12.69	3.41	3.48	15.8	16.1	15.1	15.4	14.4	14.7
129	11.55	12.70	3.41	3.47	15.8	16.0	15.1	15.3	14.4	14.7
130	11.57	12.71	3.42	3.45	15.8	15.9	15.1	15.3	14.5	14.6
131	11.59	12.73	3.42	3.44	15.8	15.9	15.1	15.2	14.5	14.6
132	11.61	12.74	3.42	3.43	15.8	15.9	15.1	15.2	14.5	14.5
133	11.63	12.75	3.43	3.42	15.9	15.8	15.2	15.1	14.5	14.5
134	11.65	12.76	3.43	3.41	15.9	15.8	15.2	15.1	14.5	14.4
135	11.67	12.77	3.44	3.40	15.9	15.7	15.2	15.0	14.6	14.4
136	11.69	12.78	3.44	3.38	15.9	15.6	15.2	14.9	14.6	14.3
137	11.71	12.80	3.45	3.37	15.9	15.6	15.3	14.9	14.6	14.3
138	11.73	12.81	3.45	3.36	15.9	15.5	15.3	14.9	14.6	14.2
139	11.75	12.82	3.45	3.35	15.9	15.5	15.3	14.8	14.6	14.2
140	11.77	12.83	3.46	3.34	16.0	15.4	15.3	14.8	14.7	14.2
141	11.79	12.84	3.46	3.32	16.0	15.3	15.3	14.7	14.7	14.1
142	11.82	12.86	3.47	3.31	16.0	15.3	15.3	14.6	14.7	14.0
143	11.84	12.87	3.47	3.30	16.0	15.3	15.3	14.6	14.7	14.0
144	11.86	12.88	3.47	3.29	16.0	15.2	15.3	14.5	14.7	13.9
145	11.88	12.89	3.48	3.28	16.1	15.2	15.4	14.5	14.7	13.9

**5-2-2. PUMY-P125VHMB(-BS)
PUMY-P125VHMBR2(-BS)**

**PUMY-P125VHMBR1(-BS)
PUMY-P125VHMBR3(-BS)**

* Before calculating the sum of total capacity of indoor units, please convert the value into the kW model capacity following the formula on 5-1-1.

Total capacity of indoor units*	Capacity(kW)		Power Consumption(kW)		Current(A)/ 220V		Current(A)/ 230V		Current(A)/ 240V	
	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
70	7.00	7.88	1.83	2.05	8.4	9.5	8.1	9.1	7.7	8.7
71	7.10	8.00	1.85	2.08	8.6	9.6	8.2	9.2	7.8	8.8
72	7.20	8.11	1.88	2.11	8.7	9.7	8.3	9.3	8.0	8.9
73	7.30	8.22	1.90	2.13	8.8	9.8	8.4	9.4	8.1	9.0
74	7.40	8.33	1.93	2.16	8.9	10.0	8.5	9.5	8.2	9.1
75	7.50	8.44	1.96	2.19	9.0	10.1	8.6	9.6	8.3	9.2
76	7.60	8.56	1.98	2.21	9.2	10.2	8.8	9.8	8.4	9.4
77	7.70	8.67	2.01	2.24	9.3	10.3	8.9	9.9	8.5	9.5
78	7.80	8.78	2.04	2.27	9.4	10.5	9.0	10.0	8.6	9.6
79	7.90	8.89	2.07	2.29	9.5	10.6	9.1	10.1	8.7	9.7
80	8.00	9.00	2.09	2.32	9.7	10.7	9.3	10.3	8.9	9.8
81	8.10	9.10	2.12	2.35	9.8	10.8	9.4	10.4	9.0	9.9
82	8.20	9.20	2.15	2.38	9.9	11.0	9.5	10.5	9.1	10.1
83	8.30	9.30	2.18	2.41	10.1	11.1	9.6	10.6	9.2	10.2
84	8.40	9.40	2.21	2.44	10.2	11.2	9.8	10.8	9.4	10.3
85	8.50	9.50	2.24	2.46	10.3	11.4	9.9	10.9	9.5	10.4
86	8.60	9.60	2.27	2.49	10.5	11.5	10.0	11.0	9.6	10.5
87	8.70	9.70	2.30	2.52	10.6	11.6	10.2	11.1	9.7	10.7
88	8.80	9.80	2.33	2.55	10.8	11.8	10.3	11.3	9.9	10.8
89	8.90	9.90	2.36	2.58	10.9	11.9	10.4	11.4	10.0	10.9
90	9.00	10.00	2.39	2.61	11.0	12.0	10.6	11.5	10.1	11.0
91	9.10	10.10	2.42	2.64	11.2	12.2	10.7	11.7	10.3	11.2
92	9.20	10.22	2.45	2.67	11.3	12.3	10.8	11.8	10.4	11.3
93	9.30	10.33	2.49	2.70	11.5	12.5	11.0	11.9	10.5	11.4
94	9.40	10.45	2.52	2.73	11.6	12.6	11.1	12.1	10.7	11.6
95	9.50	10.56	2.55	2.76	11.8	12.7	11.3	12.2	10.8	11.7
96	9.60	10.67	2.58	2.79	11.9	12.9	11.4	12.3	10.9	11.8
97	9.70	10.79	2.62	2.82	12.1	13.0	11.6	12.5	11.1	11.9
98	9.80	10.90	2.65	2.85	12.2	13.2	11.7	12.6	11.2	12.1
99	9.90	11.02	2.68	2.89	12.4	13.3	11.9	12.7	11.4	12.2
100	10.00	11.13	2.72	2.92	12.6	13.5	12.0	12.9	11.5	12.3
101	10.10	11.24	2.75	2.95	12.7	13.6	12.2	13.0	11.7	12.5
102	10.20	11.36	2.79	2.98	12.9	13.8	12.3	13.2	11.8	12.6
103	10.30	11.47	2.82	3.01	13.0	13.9	12.5	13.3	11.9	12.7
104	10.40	11.59	2.86	3.05	13.2	14.1	12.6	13.4	12.1	12.9
105	10.50	11.70	2.89	3.08	13.4	14.2	12.8	13.6	12.2	13.0
106	10.60	11.81	2.93	3.11	13.5	14.4	12.9	13.7	12.4	13.2
107	10.70	11.93	2.96	3.14	13.7	14.5	13.1	13.9	12.6	13.3
108	10.80	12.04	3.00	3.18	13.9	14.7	13.3	14.0	12.7	13.4
109	10.90	12.16	3.04	3.21	14.0	14.8	13.4	14.2	12.9	13.6
110	11.00	12.27	3.07	3.24	14.2	15.0	13.6	14.3	13.0	13.7
111	11.10	12.38	3.11	3.28	14.4	15.1	13.7	14.5	13.2	13.9
112	11.20	12.50	3.15	3.31	14.5	15.3	13.9	14.6	13.3	14.0
113	11.30	12.63	3.19	3.34	14.7	15.4	14.1	14.8	13.5	14.1
114	11.40	12.75	3.22	3.38	14.9	15.6	14.2	14.9	13.7	14.3
115	11.50	12.88	3.26	3.41	15.1	15.7	14.4	15.1	13.8	14.4
116	11.60	13.00	3.30	3.45	15.3	15.9	14.6	15.2	14.0	14.6
117	11.70	13.13	3.34	3.48	15.4	16.1	14.8	15.4	14.1	14.7
118	11.80	13.25	3.38	3.52	15.6	16.2	14.9	15.5	14.3	14.9
119	11.90	13.38	3.42	3.55	15.8	16.4	15.1	15.7	14.5	15.0
120	12.00	13.50	3.46	3.59	16.0	16.5	15.3	15.8	14.7	15.2
121	12.10	13.63	3.50	3.62	16.2	16.7	15.5	16.0	14.8	15.3
122	12.20	13.75	3.54	3.66	16.4	16.9	15.6	16.1	15.0	15.5
123	12.30	13.88	3.58	3.69	16.5	17.0	15.8	16.3	15.2	15.6
124	12.40	14.00	3.62	3.73	16.7	17.2	16.0	16.5	15.3	15.8
125	12.50	14.13	3.66	3.76	16.9	17.4	16.2	16.6	15.5	15.9
126	12.60	14.25	3.71	3.80	17.1	17.5	16.4	16.8	15.7	16.1
127	12.70	14.38	3.75	3.84	17.3	17.7	16.6	16.9	15.9	16.2
128	12.80	14.50	3.79	3.87	17.5	17.9	16.7	17.1	16.0	16.4
129	12.90	14.63	3.83	3.91	17.7	18.0	16.9	17.3	16.2	16.5
130	13.00	14.75	3.88	3.95	17.9	18.2	17.1	17.4	16.4	16.7

Total capacity of indoor units*	Capacity(kW)		Power Consumption(kW)		Current(A)/ 220V		Current(A)/ 230V		Current(A)/ 240V	
	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
131	13.10	14.88	3.92	3.98	18.1	18.4	17.3	17.6	16.6	16.9
132	13.20	15.00	3.96	4.02	18.3	18.6	17.5	17.8	16.8	17.0
133	13.30	15.13	4.01	4.06	18.5	18.7	17.7	17.9	17.0	17.2
134	13.40	15.25	4.05	4.10	18.7	18.9	17.9	18.1	17.1	17.3
135	13.50	15.38	4.09	4.14	18.9	19.1	18.1	18.3	17.3	17.5
136	13.60	15.50	4.14	4.17	19.1	19.3	18.3	18.4	17.5	17.7
137	13.70	15.63	4.18	4.21	19.3	19.4	18.5	18.6	17.7	17.8
138	13.80	15.75	4.23	4.25	19.5	19.6	18.7	18.8	17.9	18.0
139	13.90	15.88	4.27	4.29	19.7	19.8	18.9	18.9	18.1	18.1
140	14.00	16.00	4.32	4.33	20.0	20.0	19.1	19.1	18.3	18.3
141	14.02	16.01	4.33	4.32	20.0	19.9	19.1	19.1	18.3	18.3
142	14.04	16.02	4.33	4.31	20.0	19.9	19.1	19.0	18.3	18.2
143	14.06	16.03	4.33	4.30	20.0	19.8	19.1	19.0	18.3	18.2
144	14.08	16.04	4.33	4.28	20.0	19.8	19.1	18.9	18.3	18.1
145	14.10	16.06	4.33	4.27	20.0	19.7	19.2	18.9	18.4	18.1
146	14.12	16.07	4.34	4.26	20.0	19.7	19.2	18.8	18.4	18.0
147	14.15	16.08	4.34	4.25	20.0	19.6	19.2	18.7	18.4	18.0
148	14.17	16.09	4.34	4.23	20.1	19.5	19.2	18.7	18.4	17.9
149	14.19	16.10	4.34	4.22	20.1	19.5	19.2	18.6	18.4	17.9
150	14.21	16.12	4.35	4.21	20.1	19.4	19.2	18.6	18.4	17.8
151	14.23	16.13	4.35	4.20	20.1	19.4	19.2	18.5	18.4	17.8
152	14.25	16.14	4.35	4.19	20.1	19.3	19.2	18.5	18.4	17.7
153	14.27	16.15	4.35	4.17	20.1	19.3	19.2	18.4	18.4	17.7
154	14.30	16.16	4.35	4.16	20.1	19.2	19.2	18.4	18.4	17.6
155	14.32	16.17	4.36	4.15	20.1	19.1	19.3	18.3	18.4	17.5
156	14.34	16.19	4.36	4.14	20.1	19.1	19.3	18.3	18.5	17.5
157	14.36	16.20	4.36	4.12	20.1	19.0	19.3	18.2	18.5	17.4
158	14.38	16.21	4.36	4.11	20.2	19.0	19.3	18.2	18.5	17.4
159	14.40	16.22	4.37	4.10	20.2	18.9	19.3	18.1	18.5	17.3
160	14.42	16.23	4.37	4.09	20.2	18.9	19.3	18.0	18.5	17.3
161	14.45	16.25	4.37	4.08	20.2	18.8	19.3	18.0	18.5	17.2
162	14.47	16.26	4.37	4.06	20.2	18.8	19.3	17.9	18.5	17.2
163	14.49	16.27	4.37	4.05	20.2	18.7	19.3	17.9	18.5	17.1
164	14.51	16.28	4.38	4.04	20.2	18.6	19.3	17.8	18.5	17.1
165	14.53	16.29	4.38	4.03	20.2	18.6	19.3	17.8	18.5	17.0
166	14.55	16.31	4.38	4.01	20.2	18.5	19.4	17.7	18.6	17.0
167	14.57	16.32	4.38	4.00	20.2	18.5	19.4	17.7	18.6	16.9
168	14.60	16.33	4.39	3.99	20.3	18.4	19.4	17.6	18.6	16.9
169	14.62	16.34	4.39	3.98	20.3	18.4	19.4	17.6	18.6	16.8
170	14.64	16.35	4.39	3.97	20.3	18.3	19.4	17.5	18.6	16.8
171	14.66	16.36	4.39	3.95	20.3	18.2	19.4	17.5	18.6	16.7
172	14.68	16.38	4.39	3.94	20.3	18.2	19.4	17.4	18.6	16.7
173	14.70	16.39	4.40	3.93	20.3	18.1	19.4	17.3	18.6	16.6
174	14.72	16.40	4.40	3.92	20.3	18.1	19.4	17.3	18.6	16.6
175	14.75	16.41	4.40	3.91	20.3	18.0	19.4	17.2	18.6	16.5
176	14.77	16.42	4.40	3.89	20.3	18.0	19.5	17.2	18.6	16.5
177	14.79	16.44	4.41	3.88	20.4	17.9	19.5	17.1	18.7	16.4
178	14.81	16.45	4.41	3.87	20.4	17.9	19.5	17.1	18.7	16.4
179	14.83	16.46	4.41	3.86	20.4	17.8	19.5	17.0	18.7	16.3
180	14.85	16.47	4.41	3.84	20.4	17.7	19.5	17.0	18.7	16.3
181	14.87	16.48	4.42	3.83	20.4	17.7	19.5	16.9	18.7	16.2
182	14.89	16.50	4.42	3.82	20.4	17.6	19.5	16.9	18.7	16.2

**5-2-3. PUMY-P140VHMB(-BS)
PUMY-P140VHMBR2(-BS)**

**PUMY-P140VHMBR1(-BS)
PUMY-P140VHMBR3(-BS)**

* Before calculating the sum of total capacity of indoor units, please convert the value into the kW model capacity following the formula on 5-1-1.

Total capacity of indoor units*	Capacity(kW)		Power Consumption(kW)		Current(A)/220V		Current(A)/230V		Current(A)/240V	
	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
80	8.00	9.00	2.35	2.86	10.9	13.2	10.4	12.6	10.0	12.1
81	8.10	9.10	2.38	2.90	11.0	13.4	10.5	12.8	10.1	12.3
82	8.20	9.20	2.41	2.93	11.1	13.5	10.7	13.0	10.2	12.4
83	8.30	9.30	2.44	2.96	11.3	13.7	10.8	13.1	10.3	12.5
84	8.40	9.40	2.48	2.99	11.5	13.8	11.0	13.2	10.5	12.7
85	8.50	9.50	2.51	3.03	11.6	14.0	11.1	13.4	10.6	12.8
86	8.60	9.60	2.54	3.06	11.7	14.1	11.2	13.5	10.8	13.0
87	8.70	9.70	2.57	3.09	11.9	14.3	11.4	13.7	10.9	13.1
88	8.80	9.80	2.61	3.13	12.1	14.5	11.5	13.8	11.1	13.3
89	8.90	9.90	2.64	3.16	12.2	14.6	11.7	14.0	11.2	13.4
90	9.00	10.00	2.67	3.19	12.3	14.7	11.8	14.1	11.3	13.5
91	9.10	10.11	2.71	3.23	12.5	14.9	12.0	14.3	11.5	13.7
92	9.20	10.23	2.74	3.26	12.7	15.1	12.1	14.4	11.6	13.8
93	9.30	10.34	2.77	3.29	12.8	15.2	12.2	14.5	11.7	13.9
94	9.40	10.46	2.81	3.33	13.0	15.4	12.4	14.7	11.9	14.1
95	9.50	10.57	2.84	3.36	13.1	15.5	12.6	14.9	12.0	14.2
96	9.60	10.68	2.88	3.40	13.3	15.7	12.7	15.0	12.2	14.4
97	9.70	10.80	2.91	3.43	13.5	15.9	12.9	15.2	12.3	14.5
98	9.80	10.91	2.95	3.46	13.6	16.0	13.0	15.3	12.5	14.7
99	9.90	11.03	2.98	3.50	13.8	16.2	13.2	15.5	12.6	14.8
100	10.00	11.14	3.02	3.53	14.0	16.3	13.4	15.6	12.8	15.0
101	10.10	11.25	3.05	3.57	14.1	16.5	13.5	15.8	12.9	15.1
102	10.20	11.37	3.09	3.60	14.3	16.6	13.7	15.9	13.1	15.3
103	10.30	11.48	3.13	3.64	14.5	16.8	13.8	16.1	13.3	15.4
104	10.40	11.60	3.16	3.67	14.6	17.0	14.0	16.2	13.4	15.6
105	10.50	11.71	3.20	3.71	14.8	17.1	14.1	16.4	13.6	15.7
106	10.60	11.82	3.24	3.74	15.0	17.3	14.3	16.5	13.7	15.8
107	10.70	11.94	3.27	3.78	15.1	17.5	14.5	16.7	13.9	16.0
108	10.80	12.05	3.31	3.81	15.3	17.6	14.6	16.8	14.0	16.1
109	10.90	12.17	3.35	3.85	15.5	17.8	14.8	17.0	14.2	16.3
110	11.00	12.28	3.39	3.88	15.7	17.9	15.0	17.2	14.4	16.4
111	11.10	12.39	3.43	3.92	15.9	18.1	15.2	17.3	14.5	16.6
112	11.20	12.51	3.46	3.95	16.0	18.3	15.3	17.5	14.7	16.7
113	11.30	12.63	3.50	3.99	16.2	18.4	15.5	17.6	14.8	16.9
114	11.40	12.75	3.54	4.03	16.4	18.6	15.7	17.8	15.0	17.1
115	11.50	12.88	3.58	4.06	16.5	18.8	15.8	17.9	15.2	17.2
116	11.60	13.00	3.62	4.10	16.7	18.9	16.0	18.1	15.3	17.4
117	11.70	13.13	3.66	4.13	16.9	19.1	16.2	18.3	15.5	17.5
118	11.80	13.25	3.70	4.17	17.1	19.3	16.4	18.4	15.7	17.7
119	11.90	13.38	3.74	4.21	17.3	19.5	16.5	18.6	15.8	17.8
120	12.00	13.50	3.78	4.24	17.5	19.6	16.7	18.7	16.0	18.0
121	12.10	13.63	3.82	4.28	17.7	19.8	16.9	18.9	16.2	18.1
122	12.20	13.75	3.86	4.32	17.8	20.0	17.1	19.1	16.4	18.3
123	12.30	13.88	3.90	4.35	18.0	20.1	17.2	19.2	16.5	18.4
124	12.40	14.00	3.95	4.39	18.3	20.3	17.5	19.4	16.7	18.6
125	12.50	14.13	3.99	4.43	18.4	20.5	17.6	19.6	16.9	18.8
126	12.60	14.25	4.03	4.46	18.6	20.6	17.8	19.7	17.1	18.9
127	12.70	14.38	4.07	4.50	18.8	20.8	18.0	19.9	17.2	19.1
128	12.80	14.50	4.12	4.54	19.0	21.0	18.2	20.1	17.5	19.2
129	12.90	14.63	4.16	4.58	19.2	21.2	18.4	20.2	17.6	19.4
130	13.00	14.75	4.20	4.61	19.4	21.3	18.6	20.4	17.8	19.5
131	13.10	14.88	4.24	4.65	19.6	21.5	18.7	20.6	18.0	19.7
132	13.20	15.00	4.29	4.69	19.8	21.7	19.0	20.7	18.2	19.9
133	13.30	15.13	4.33	4.73	20.0	21.9	19.1	20.9	18.3	20.0
134	13.40	15.25	4.38	4.77	20.2	22.0	19.4	21.1	18.6	20.2
135	13.50	15.38	4.42	4.80	20.4	22.2	19.5	21.2	18.7	20.3
136	13.60	15.50	4.46	4.84	20.6	22.4	19.7	21.4	18.9	20.5
137	13.70	15.63	4.51	4.88	20.8	22.6	19.9	21.6	19.1	20.7
138	13.80	15.75	4.55	4.92	21.0	22.7	20.1	21.7	19.3	20.8
139	13.90	15.88	4.60	4.96	21.3	22.9	20.3	21.9	19.5	21.0
140	14.00	16.00	4.64	5.00	21.4	23.1	20.5	22.1	19.7	21.2
141	14.10	16.13	4.69	5.03	21.7	23.2	20.7	22.2	19.9	21.3
142	14.20	16.26	4.74	5.07	21.9	23.4	21.0	22.4	20.1	21.5
143	14.30	16.40	4.78	5.11	22.1	23.6	21.1	22.6	20.3	21.6
144	14.40	16.53	4.83	5.15	22.3	23.8	21.4	22.8	20.5	21.8
145	14.50	16.66	4.87	5.19	22.5	24.0	21.5	22.9	20.6	22.0



Total capacity of indoor units*	Capacity(kW)		Power Consumption(kW)		Current(A)/220V		Current(A)/230V		Current(A)/240V	
	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
146	14.60	16.80	4.92	5.23	22.7	24.2	21.7	23.1	20.8	22.2
147	14.70	16.93	4.97	5.27	23.0	24.4	22.0	23.3	21.1	22.3
148	14.80	17.06	5.02	5.31	23.2	24.5	22.2	23.5	21.3	22.5
149	14.90	17.20	5.06	5.35	23.4	24.7	22.4	23.6	21.4	22.7
150	15.00	17.33	5.11	5.39	23.6	24.9	22.6	23.8	21.6	22.8
151	15.10	17.46	5.16	5.43	23.8	25.1	22.8	24.0	21.9	23.0
152	15.20	17.60	5.21	5.47	24.1	25.3	23.0	24.2	22.1	23.2
153	15.30	17.73	5.26	5.51	24.3	25.5	23.3	24.4	22.3	23.3
154	15.40	17.86	5.31	5.55	24.5	25.6	23.5	24.5	22.5	23.5
155	15.50	18.00	5.35	5.58	24.7	25.8	23.6	24.7	22.7	23.6
156	15.51	18.01	5.35	5.57	24.7	25.7	23.7	24.6	22.7	23.6
157	15.52	18.02	5.35	5.55	24.7	25.7	23.7	24.5	22.7	23.5
158	15.54	18.04	5.36	5.54	24.8	25.6	23.7	24.5	22.7	23.5
159	15.55	18.05	5.36	5.52	24.8	25.5	23.7	24.4	22.7	23.4
160	15.57	18.06	5.36	5.51	24.8	25.5	23.7	24.4	22.7	23.3
161	15.58	18.07	5.37	5.49	24.8	25.4	23.7	24.3	22.7	23.3
162	15.60	18.09	5.37	5.48	24.8	25.3	23.7	24.2	22.7	23.2
163	15.61	18.10	5.37	5.47	24.8	25.3	23.7	24.2	22.8	23.2
164	15.62	18.11	5.37	5.45	24.8	25.2	23.8	24.1	22.8	23.1
165	15.64	18.12	5.38	5.44	24.8	25.1	23.8	24.0	22.8	23.0
166	15.65	18.14	5.38	5.42	24.9	25.1	23.8	24.0	22.8	23.0
167	15.67	18.15	5.38	5.41	24.9	25.0	23.8	23.9	22.8	22.9
168	15.68	18.16	5.38	5.39	24.9	24.9	23.8	23.8	22.8	22.8
169	15.70	18.17	5.39	5.38	24.9	24.9	23.8	23.8	22.8	22.8
170	15.71	18.19	5.39	5.36	24.9	24.8	23.8	23.7	22.8	22.7
171	15.73	18.20	5.39	5.35	24.9	24.7	23.8	23.6	22.8	22.7
172	15.74	18.21	5.40	5.34	24.9	24.7	23.9	23.6	22.9	22.6
173	15.76	18.22	5.40	5.32	24.9	24.6	23.9	23.5	22.9	22.5
174	15.77	18.24	5.40	5.31	25.0	24.5	23.9	23.5	22.9	22.5
175	15.79	18.25	5.40	5.29	25.0	24.5	23.9	23.4	22.9	22.4
176	15.80	18.26	5.41	5.28	25.0	24.4	23.9	23.3	22.9	22.4
177	15.81	18.27	5.41	5.26	25.0	24.3	23.9	23.3	22.9	22.3
178	15.83	18.29	5.41	5.25	25.0	24.3	23.9	23.2	22.9	22.2
179	15.84	18.30	5.41	5.23	25.0	24.2	23.9	23.1	22.9	22.2
180	15.86	18.31	5.42	5.22	25.0	24.1	23.9	23.1	23.0	22.1
181	15.87	18.32	5.42	5.21	25.0	24.1	24.0	23.0	23.0	22.1
182	15.89	18.34	5.42	5.19	25.1	24.0	24.0	22.9	23.0	22.0
183	15.90	18.35	5.43	5.18	25.1	23.9	24.0	22.9	23.0	21.9
184	15.92	18.36	5.43	5.16	25.1	23.9	24.0	22.8	23.0	21.9
185	15.93	18.37	5.43	5.15	25.1	23.8	24.0	22.8	23.0	21.8
186	15.95	18.39	5.43	5.13	25.1	23.7	24.0	22.7	23.0	21.7
187	15.96	18.40	5.44	5.12	25.1	23.7	24.0	22.6	23.0	21.7
188	15.97	18.41	5.44	5.10	25.1	23.6	24.0	22.6	23.0	21.6
189	15.99	18.42	5.44	5.09	25.2	23.5	24.1	22.5	23.1	21.6
190	16.00	18.44	5.45	5.07	25.2	23.5	24.1	22.4	23.1	21.5
191	16.02	18.45	5.45	5.06	25.2	23.4	24.1	22.4	23.1	21.4
192	16.03	18.46	5.45	5.05	25.2	23.3	24.1	22.3	23.1	21.4
193	16.05	18.47	5.45	5.03	25.2	23.3	24.1	22.2	23.1	21.3
194	16.06	18.49	5.46	5.02	25.2	23.2	24.1	22.2	23.1	21.3
195	16.08	18.50	5.46	5.00	25.2	23.1	24.1	22.1	23.1	21.2
196	16.09	18.51	5.46	4.99	25.2	23.1	24.1	22.1	23.1	21.1
197	16.11	18.52	5.46	4.97	25.3	23.0	24.2	22.0	23.1	21.1
198	16.12	18.54	5.47	4.96	25.3	22.9	24.2	21.9	23.2	21.0
199	16.14	18.55	5.47	4.94	25.3	22.9	24.2	21.9	23.2	20.9
200	16.15	18.56	5.47	4.93	25.3	22.8	24.2	21.8	23.2	20.9
201	16.16	18.57	5.48	4.92	25.3	22.7	24.2	21.7	23.2	20.8
202	16.18	18.59	5.48	4.90	25.3	22.7	24.2	21.7	23.2	20.8
203	16.19	18.60	5.48	4.89	25.3	22.6	24.2	21.6	23.2	20.7
204	16.21	18.61	5.48	4.87	25.3	22.5	24.2	21.5	23.2	20.6
205	16.22	18.62	5.49	4.86	25.4	22.5	24.3	21.5	23.2	20.6
206	16.24	18.64	5.49	4.84	25.4	22.4	24.3	21.4	23.3	20.5
207	16.25	18.65	5.49	4.83	25.4	22.3	24.3	21.3	23.3	20.5
208	16.27	18.66	5.49	4.81	25.4	22.3	24.3	21.3	23.3	20.4

**5-2-4. PUMY-P100YHMB(-BS)
PUMY-P100YHMBR2(-BS)**

**PUMY-P100YHMBR1(-BS)
PUMY-P100YHMBR3(-BS)**

* Before calculating the sum of total capacity of indoor units, please convert the value into the kW model capacity following the formula on 5-1-1.

Total capacity of indoor units *	Capacity(kW)		Power Consumption(kW)		Current(A)/380V		Current(A)/400V		Current(A)/415V	
	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
56	5.60	6.30	1.57	1.87	2.52	3.00	2.39	2.85	2.31	2.75
57	5.70	6.41	1.59	1.90	2.55	3.05	2.42	2.89	2.34	2.79
58	5.80	6.53	1.62	1.92	2.60	3.08	2.47	2.93	2.38	2.82
59	5.90	6.64	1.64	1.95	2.63	3.13	2.50	2.97	2.41	2.86
60	6.00	6.75	1.66	1.98	2.66	3.17	2.53	3.02	2.44	2.91
61	6.10	6.87	1.69	2.00	2.71	3.21	2.58	3.05	2.48	2.94
62	6.20	6.98	1.71	2.03	2.74	3.26	2.61	3.09	2.51	2.98
63	6.30	7.09	1.74	2.06	2.79	3.30	2.65	3.14	2.56	3.02
64	6.40	7.20	1.76	2.08	2.82	3.34	2.68	3.17	2.59	3.05
65	6.50	7.32	1.78	2.11	2.85	3.38	2.71	3.21	2.61	3.10
66	6.60	7.43	1.81	2.14	2.90	3.43	2.76	3.26	2.66	3.14
67	6.70	7.54	1.83	2.17	2.93	3.48	2.79	3.31	2.69	3.19
68	6.80	7.66	1.86	2.20	2.98	3.53	2.83	3.35	2.73	3.23
69	6.90	7.77	1.89	2.22	3.03	3.56	2.88	3.38	2.78	3.26
70	7.00	7.88	1.91	2.25	3.06	3.61	2.91	3.43	2.81	3.30
71	7.10	8.00	1.94	2.28	3.11	3.66	2.96	3.47	2.85	3.35
72	7.20	8.11	1.97	2.31	3.16	3.70	3.00	3.52	2.89	3.39
73	7.30	8.22	1.99	2.34	3.19	3.75	3.03	3.56	2.92	3.44
74	7.40	8.33	2.02	2.37	3.24	3.80	3.08	3.61	2.97	3.48
75	7.50	8.44	2.05	2.40	3.28	3.85	3.12	3.66	3.01	3.52
76	7.60	8.56	2.08	2.43	3.33	3.90	3.17	3.70	3.05	3.57
77	7.70	8.67	2.11	2.46	3.38	3.94	3.21	3.75	3.10	3.61
78	7.80	8.78	2.13	2.49	3.41	3.99	3.24	3.79	3.13	3.66
79	7.90	8.89	2.16	2.52	3.46	4.04	3.29	3.84	3.17	3.70
80	8.00	9.00	2.19	2.55	3.51	4.09	3.34	3.88	3.22	3.74
81	8.10	9.10	2.22	2.58	3.56	4.14	3.38	3.93	3.26	3.79
82	8.20	9.20	2.25	2.61	3.60	4.18	3.43	3.97	3.30	3.83
83	8.30	9.30	2.28	2.64	3.65	4.23	3.47	4.02	3.35	3.88
84	8.40	9.40	2.31	2.67	3.70	4.28	3.52	4.07	3.39	3.92
85	8.50	9.50	2.35	2.70	3.76	4.33	3.58	4.11	3.45	3.96
86	8.60	9.60	2.38	2.74	3.81	4.39	3.62	4.17	3.49	4.02
87	8.70	9.70	2.41	2.77	3.86	4.44	3.67	4.22	3.54	4.07
88	8.80	9.80	2.44	2.80	3.91	4.49	3.72	4.26	3.58	4.11
89	8.90	9.90	2.47	2.83	3.96	4.54	3.76	4.31	3.63	4.15
90	9.00	10.00	2.51	2.86	4.02	4.58	3.82	4.35	3.68	4.20
91	9.10	10.10	2.54	2.90	4.07	4.65	3.87	4.42	3.73	4.26
92	9.20	10.22	2.57	2.93	4.12	4.70	3.91	4.46	3.77	4.30
93	9.30	10.33	2.60	2.96	4.16	4.74	3.96	4.51	3.82	4.34
94	9.40	10.45	2.64	3.00	4.23	4.81	4.02	4.57	3.88	4.40
95	9.50	10.56	2.67	3.03	4.28	4.86	4.07	4.61	3.92	4.45
96	9.60	10.67	2.71	3.06	4.34	4.90	4.13	4.66	3.98	4.49
97	9.70	10.79	2.74	3.10	4.39	4.97	4.17	4.72	4.02	4.55
98	9.80	10.90	2.78	3.13	4.45	5.02	4.23	4.77	4.08	4.59
99	9.90	11.02	2.81	3.17	4.50	5.08	4.28	4.83	4.12	4.65
100	10.00	11.13	2.85	3.20	4.56	5.13	4.34	4.87	4.18	4.70
101	10.10	11.24	2.88	3.24	4.61	5.19	4.39	4.93	4.23	4.75
102	10.20	11.36	2.92	3.27	4.67	5.24	4.45	4.98	4.29	4.80
103	10.30	11.47	2.96	3.31	4.74	5.30	4.51	5.04	4.34	4.86
104	10.40	11.59	2.99	3.34	4.79	5.35	4.55	5.08	4.39	4.90
105	10.50	11.70	3.03	3.38	4.85	5.42	4.61	5.15	4.45	4.96
106	10.60	11.81	3.07	3.41	4.91	5.46	4.67	5.19	4.51	5.00
107	10.70	11.93	3.11	3.45	4.98	5.53	4.74	5.25	4.56	5.06
108	10.80	12.04	3.14	3.48	5.03	5.58	4.78	5.30	4.61	5.11
109	10.90	12.16	3.18	3.52	5.09	5.64	4.84	5.36	4.67	5.17
110	11.00	12.27	3.22	3.56	5.15	5.70	4.90	5.42	4.73	5.22
111	11.10	12.38	3.26	3.59	5.22	5.75	4.96	5.47	4.78	5.27
112	11.20	12.50	3.30	3.63	5.28	5.81	5.02	5.52	4.84	5.32
113	11.22	12.51	3.31	3.62	5.30	5.80	5.04	5.51	4.86	5.31
114	11.24	12.53	3.31	3.61	5.30	5.78	5.04	5.50	4.86	5.30
115	11.26	12.54	3.32	3.60	5.31	5.77	5.05	5.48	4.87	5.28
116	11.28	12.55	3.32	3.59	5.31	5.75	5.05	5.47	4.87	5.27
117	11.30	12.56	3.32	3.58	5.31	5.74	5.05	5.45	4.87	5.25
118	11.32	12.57	3.33	3.56	5.33	5.70	5.07	5.42	4.89	5.22
119	11.34	12.58	3.33	3.55	5.33	5.69	5.07	5.40	4.89	5.21
120	11.36	12.60	3.34	3.54	5.35	5.67	5.08	5.39	4.90	5.19



Total capacity of indoor units *	Capacity(kW)		Power Consumption(kW)		Current(A)/380V		Current(A)/400V		Current(A)/415V	
	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
121	11.38	12.61	3.34	3.53	5.35	5.66	5.08	5.37	4.90	5.18
122	11.40	12.62	3.34	3.52	5.35	5.64	5.08	5.36	4.90	5.17
123	11.42	12.63	3.35	3.51	5.36	5.62	5.10	5.34	4.92	5.15
124	11.44	12.64	3.35	3.50	5.36	5.61	5.10	5.33	4.92	5.14
125	11.47	12.66	3.36	3.48	5.38	5.58	5.12	5.30	4.93	5.11
126	11.49	12.67	3.36	3.47	5.38	5.56	5.12	5.28	4.93	5.09
127	11.51	12.68	3.36	3.46	5.38	5.54	5.12	5.27	4.93	5.08
128	11.53	12.69	3.37	3.45	5.39	5.53	5.13	5.25	4.95	5.06
129	11.55	12.70	3.37	3.44	5.39	5.51	5.13	5.24	4.95	5.05
130	11.57	12.71	3.38	3.43	5.41	5.50	5.15	5.22	4.96	5.03
131	11.59	12.73	3.38	3.41	5.41	5.46	5.15	5.19	4.96	5.00
132	11.61	12.74	3.38	3.40	5.41	5.45	5.15	5.18	4.96	4.99
133	11.63	12.75	3.39	3.39	5.43	5.43	5.16	5.16	4.97	4.97
134	11.65	12.76	3.39	3.38	5.43	5.42	5.16	5.15	4.97	4.96
135	11.67	12.77	3.40	3.37	5.44	5.40	5.18	5.13	4.99	4.95
136	11.69	12.78	3.40	3.36	5.44	5.38	5.18	5.12	4.99	4.93
137	11.71	12.80	3.40	3.34	5.44	5.35	5.18	5.08	4.99	4.90
138	11.73	12.81	3.41	3.33	5.46	5.34	5.19	5.07	5.00	4.89
139	11.75	12.82	3.41	3.32	5.46	5.32	5.19	5.05	5.00	4.87
140	11.77	12.83	3.42	3.31	5.47	5.30	5.21	5.04	5.02	4.86
141	11.79	12.84	3.42	3.30	5.47	5.29	5.21	5.02	5.02	4.84
142	11.82	12.86	3.42	3.29	5.47	5.27	5.21	5.01	5.02	4.83
143	11.84	12.87	3.43	3.27	5.49	5.24	5.22	4.98	5.03	4.80
144	11.86	12.88	3.43	3.26	5.49	5.22	5.22	4.96	5.03	4.78
145	11.88	12.89	3.44	3.25	5.51	5.21	5.24	4.95	5.05	4.77

**5-2-5. PUMY-P125YHMB(-BS)
PUMY-P125YHMBR2(-BS)**

**PUMY-P125YHMBR1(-BS)
PUMY-P125YHMBR3(-BS)**

* Before calculating the sum of total capacity of indoor units, please convert the value into the kW model capacity following the formula on 5-1-1.

Total capacity of indoor units *	Capacity(kW)		Power Consumption(kW)		Current(A)/380V		Current(A)/400V		Current(A)/415V	
	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
70	7.00	7.88	1.80	2.04	2.88	3.27	2.74	3.10	2.64	3.00
71	7.10	8.00	1.83	2.06	2.93	3.30	2.79	3.13	2.69	3.02
72	7.20	8.11	1.85	2.09	2.96	3.35	2.82	3.18	2.72	3.07
73	7.30	8.22	1.88	2.11	3.01	3.38	2.86	3.21	2.76	3.10
74	7.40	8.33	1.91	2.14	3.06	3.43	2.91	3.26	2.81	3.14
75	7.50	8.44	1.93	2.17	3.09	3.48	2.94	3.30	2.83	3.19
76	7.60	8.56	1.96	2.19	3.14	3.51	2.98	3.33	2.88	3.22
77	7.70	8.67	1.99	2.22	3.19	3.56	3.03	3.38	2.92	3.26
78	7.80	8.78	2.01	2.25	3.22	3.61	3.06	3.42	2.95	3.30
79	7.90	8.89	2.04	2.28	3.27	3.66	3.10	3.47	3.00	3.35
80	8.00	9.00	2.07	2.30	3.32	3.69	3.15	3.50	3.04	3.38
81	8.10	9.10	2.10	2.33	3.36	3.74	3.20	3.55	3.08	3.42
82	8.20	9.20	2.12	2.36	3.40	3.78	3.23	3.59	3.11	3.46
83	8.30	9.30	2.15	2.39	3.44	3.83	3.27	3.64	3.16	3.51
84	8.40	9.40	2.18	2.42	3.49	3.88	3.32	3.68	3.20	3.55
85	8.50	9.50	2.21	2.44	3.54	3.91	3.36	3.71	3.24	3.58
86	8.60	9.60	2.24	2.47	3.59	3.96	3.41	3.76	3.29	3.63
87	8.70	9.70	2.27	2.50	3.64	4.01	3.45	3.80	3.33	3.67
88	8.80	9.80	2.30	2.53	3.68	4.06	3.50	3.85	3.38	3.71
89	8.90	9.90	2.33	2.56	3.73	4.10	3.55	3.89	3.42	3.76
90	9.00	10.00	2.36	2.59	3.78	4.15	3.59	3.94	3.46	3.80
91	9.10	10.10	2.39	2.62	3.83	4.20	3.64	3.99	3.51	3.85
92	9.20	10.22	2.42	2.65	3.88	4.25	3.68	4.03	3.55	3.89
93	9.30	10.33	2.45	2.68	3.92	4.30	3.73	4.08	3.60	3.93
94	9.40	10.45	2.49	2.71	3.99	4.34	3.79	4.12	3.66	3.98
95	9.50	10.56	2.52	2.74	4.04	4.39	3.83	4.17	3.70	4.02
96	9.60	10.67	2.55	2.77	4.08	4.44	3.88	4.21	3.74	4.07
97	9.70	10.79	2.58	2.80	4.13	4.49	3.92	4.26	3.79	4.11
98	9.80	10.90	2.62	2.83	4.20	4.54	3.99	4.30	3.85	4.15
99	9.90	11.02	2.65	2.86	4.24	4.58	4.03	4.35	3.89	4.20
100	10.00	11.13	2.68	2.89	4.29	4.63	4.08	4.40	3.93	4.24
101	10.10	11.24	2.72	2.92	4.36	4.68	4.14	4.44	3.99	4.29
102	10.20	11.36	2.75	2.96	4.40	4.74	4.18	4.50	4.04	4.34
103	10.30	11.47	2.79	2.99	4.47	4.79	4.24	4.55	4.10	4.39
104	10.40	11.59	2.82	3.02	4.52	4.84	4.29	4.59	4.14	4.43
105	10.50	11.70	2.86	3.05	4.58	4.89	4.35	4.64	4.20	4.48
106	10.60	11.81	2.89	3.08	4.63	4.94	4.40	4.68	4.24	4.52
107	10.70	11.93	2.93	3.12	4.69	5.00	4.46	4.75	4.30	4.58
108	10.80	12.04	2.96	3.15	4.74	5.05	4.50	4.79	4.34	4.62
109	10.90	12.16	3.00	3.18	4.80	5.10	4.56	4.84	4.40	4.67
110	11.00	12.27	3.04	3.21	4.87	5.14	4.62	4.88	4.46	4.71
111	11.10	12.38	3.07	3.25	4.91	5.21	4.67	4.94	4.51	4.77
112	11.20	12.50	3.11	3.28	4.98	5.26	4.73	4.99	4.56	4.81
113	11.30	12.63	3.15	3.31	5.04	5.30	4.79	5.03	4.62	4.86
114	11.40	12.75	3.19	3.35	5.11	5.37	4.85	5.09	4.68	4.92
115	11.50	12.88	3.22	3.38	5.15	5.42	4.90	5.14	4.73	4.96
116	11.60	13.00	3.26	3.42	5.22	5.48	4.96	5.20	4.78	5.02
117	11.70	13.13	3.30	3.45	5.28	5.53	5.02	5.25	4.84	5.06
118	11.80	13.25	3.34	3.49	5.35	5.59	5.08	5.31	4.90	5.12
119	11.90	13.38	3.38	3.52	5.41	5.64	5.14	5.35	4.96	5.17
120	12.00	13.50	3.42	3.55	5.47	5.69	5.20	5.40	5.02	5.21
121	12.10	13.63	3.46	3.59	5.54	5.75	5.26	5.46	5.08	5.27
122	12.20	13.75	3.50	3.62	5.60	5.80	5.32	5.51	5.14	5.31
123	12.30	13.88	3.54	3.66	5.67	5.86	5.38	5.57	5.19	5.37
124	12.40	14.00	3.58	3.70	5.73	5.93	5.44	5.63	5.25	5.43
125	12.50	14.13	3.62	3.73	5.79	5.98	5.51	5.67	5.31	5.47
126	12.60	14.25	3.66	3.77	5.86	6.04	5.57	5.73	5.37	5.53
127	12.70	14.38	3.70	3.80	5.92	6.09	5.63	5.78	5.43	5.58
128	12.80	14.50	3.74	3.84	5.99	6.15	5.69	5.84	5.49	5.63
129	12.90	14.63	3.79	3.88	6.07	6.22	5.76	5.90	5.56	5.69
130	13.00	14.75	3.83	3.91	6.13	6.26	5.82	5.95	5.62	5.74

Total capacity of indoor units *	Capacity(kW)		Power Consumption(kW)		Current(A)/380V		Current(A)/400V		Current(A)/415V	
	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
131	13.10	14.88	3.87	3.95	6.19	6.33	5.88	6.01	5.68	5.80
132	13.20	15.00	3.91	3.99	6.26	6.39	5.95	6.07	5.74	5.85
133	13.30	15.13	3.96	4.02	6.34	6.44	6.02	6.11	5.81	5.90
134	13.40	15.25	4.00	4.06	6.40	6.51	6.08	6.17	5.87	5.96
135	13.50	15.38	4.04	4.10	6.47	6.57	6.14	6.23	5.93	6.02
136	13.60	15.50	4.09	4.14	6.55	6.63	6.22	6.30	6.00	6.07
137	13.70	15.63	4.13	4.17	6.61	6.68	6.28	6.34	6.06	6.12
138	13.80	15.75	4.18	4.21	6.69	6.75	6.36	6.40	6.13	6.18
139	13.90	15.88	4.22	4.25	6.75	6.81	6.42	6.46	6.19	6.24
140	14.00	16.00	4.27	4.29	6.83	6.87	6.49	6.52	6.26	6.29
141	14.02	16.01	4.28	4.28	6.84	6.86	6.50	6.51	6.27	6.28
142	14.04	16.02	4.28	4.27	6.85	6.84	6.50	6.49	6.28	6.26
143	14.06	16.03	4.28	4.26	6.85	6.82	6.51	6.47	6.28	6.24
144	14.08	16.04	4.28	4.24	6.85	6.80	6.51	6.45	6.28	6.23
145	14.10	16.06	4.28	4.23	6.86	6.78	6.51	6.43	6.29	6.21
146	14.12	16.07	4.29	4.22	6.86	6.76	6.52	6.42	6.29	6.19
147	14.15	16.08	4.29	4.21	6.86	6.74	6.52	6.40	6.29	6.17
148	14.17	16.09	4.29	4.19	6.87	6.72	6.52	6.38	6.29	6.15
149	14.19	16.10	4.29	4.18	6.87	6.70	6.53	6.36	6.30	6.14
150	14.21	16.12	4.30	4.17	6.87	6.68	6.53	6.34	6.30	6.12
151	14.23	16.13	4.30	4.16	6.88	6.66	6.53	6.32	6.30	6.10
152	14.25	16.14	4.30	4.15	6.88	6.64	6.54	6.31	6.31	6.08
153	14.27	16.15	4.30	4.13	6.88	6.62	6.54	6.29	6.31	6.07
154	14.30	16.16	4.30	4.12	6.89	6.61	6.54	6.27	6.31	6.05
155	14.32	16.17	4.31	4.11	6.89	6.59	6.55	6.25	6.32	6.03
156	14.34	16.19	4.31	4.10	6.90	6.57	6.55	6.23	6.32	6.01
157	14.36	16.20	4.31	4.09	6.90	6.55	6.55	6.21	6.32	6.00
158	14.38	16.21	4.31	4.07	6.90	6.53	6.56	6.20	6.33	5.98
159	14.40	16.22	4.32	4.06	6.91	6.51	6.56	6.18	6.33	5.96
160	14.42	16.23	4.32	4.05	6.91	6.49	6.56	6.16	6.33	5.94
161	14.45	16.25	4.32	4.04	6.91	6.47	6.57	6.14	6.34	5.92
162	14.47	16.26	4.32	4.03	6.92	6.45	6.57	6.12	6.34	5.91
163	14.49	16.27	4.32	4.01	6.92	6.43	6.57	6.10	6.34	5.89
164	14.51	16.28	4.33	4.00	6.92	6.41	6.58	6.09	6.35	5.87
165	14.53	16.29	4.33	3.99	6.93	6.39	6.58	6.07	6.35	5.85
166	14.55	16.31	4.33	3.98	6.93	6.37	6.58	6.05	6.35	5.84
167	14.57	16.32	4.33	3.97	6.93	6.35	6.59	6.03	6.36	5.82
168	14.60	16.33	4.34	3.95	6.94	6.33	6.59	6.01	6.36	5.80
169	14.62	16.34	4.34	3.94	6.94	6.32	6.59	5.99	6.36	5.78
170	14.64	16.35	4.34	3.93	6.95	6.30	6.60	5.98	6.37	5.77
171	14.66	16.36	4.34	3.92	6.95	6.28	6.60	5.96	6.37	5.75
172	14.68	16.38	4.34	3.91	6.95	6.26	6.61	5.94	6.37	5.73
173	14.70	16.39	4.35	3.89	6.96	6.24	6.61	5.92	6.38	5.71
174	14.72	16.40	4.35	3.88	6.96	6.22	6.61	5.90	6.38	5.69
175	14.75	16.41	4.35	3.87	6.96	6.20	6.62	5.88	6.38	5.68
176	14.77	16.42	4.35	3.86	6.97	6.18	6.62	5.87	6.39	5.66
177	14.79	16.44	4.36	3.84	6.97	6.16	6.62	5.85	6.39	5.64
178	14.81	16.45	4.36	3.83	6.97	6.14	6.63	5.83	6.39	5.62
179	14.83	16.46	4.36	3.82	6.98	6.12	6.63	5.81	6.40	5.61
180	14.85	16.47	4.36	3.81	6.98	6.10	6.63	5.79	6.40	5.59
181	14.87	16.48	4.36	3.80	6.98	6.08	6.64	5.77	6.40	5.57
182	14.89	16.50	4.37	3.78	6.99	6.06	6.64	5.76	6.41	5.55

**5-2-6. PUMY-P140YHMB(-BS)
PUMY-P140YHMBR2(-BS)**

**PUMY-P140YHMBR1(-BS)
PUMY-P140YHMBR3(-BS)**

* Before calculating the sum of total capacity of indoor units, please convert the value into the kW model capacity following the formula on 5-1-1.

Total capacity of indoor units *	Capacity(kW)		Power Consumption(kW)		Current(A)/380V		Current(A)/400V		Current(A)/415V	
	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
80	8.00	9.00	2.34	2.73	3.75	4.37	3.56	4.16	3.44	4.01
81	8.10	9.10	2.37	2.76	3.80	4.42	3.61	4.20	3.48	4.05
82	8.20	9.20	2.40	2.79	3.84	4.47	3.66	4.25	3.52	4.10
83	8.30	9.30	2.43	2.82	3.89	4.52	3.70	4.29	3.57	4.14
84	8.40	9.40	2.46	2.86	3.94	4.58	3.75	4.35	3.61	4.20
85	8.50	9.50	2.49	2.89	3.99	4.63	3.79	4.40	3.66	4.24
86	8.60	9.60	2.53	2.92	4.05	4.67	3.85	4.45	3.71	4.29
87	8.70	9.70	2.56	2.95	4.10	4.72	3.90	4.49	3.76	4.33
88	8.80	9.80	2.59	2.98	4.15	4.77	3.94	4.54	3.80	4.37
89	8.90	9.90	2.62	3.01	4.20	4.82	3.99	4.58	3.85	4.42
90	9.00	10.00	2.66	3.04	4.26	4.87	4.05	4.63	3.90	4.46
91	9.10	10.11	2.69	3.08	4.31	4.93	4.10	4.69	3.95	4.52
92	9.20	10.23	2.72	3.11	4.36	4.98	4.14	4.74	3.99	4.56
93	9.30	10.34	2.76	3.14	4.42	5.03	4.20	4.78	4.05	4.61
94	9.40	10.46	2.79	3.17	4.47	5.07	4.25	4.83	4.10	4.65
95	9.50	10.57	2.83	3.21	4.53	5.14	4.31	4.89	4.15	4.71
96	9.60	10.68	2.86	3.24	4.58	5.19	4.35	4.93	4.20	4.75
97	9.70	10.80	2.89	3.27	4.63	5.23	4.40	4.98	4.24	4.80
98	9.80	10.91	2.93	3.30	4.69	5.28	4.46	5.02	4.30	4.84
99	9.90	11.03	2.97	3.34	4.75	5.35	4.52	5.08	4.36	4.90
100	10.00	11.14	3.00	3.37	4.80	5.39	4.57	5.13	4.40	4.95
101	10.10	11.25	3.04	3.40	4.87	5.44	4.63	5.18	4.46	4.99
102	10.20	11.37	3.07	3.43	4.91	5.49	4.67	5.22	4.51	5.03
103	10.30	11.48	3.11	3.47	4.98	5.55	4.74	5.28	4.56	5.09
104	10.40	11.60	3.14	3.50	5.03	5.60	4.78	5.33	4.61	5.14
105	10.50	11.71	3.18	3.53	5.09	5.65	4.84	5.37	4.67	5.18
106	10.60	11.82	3.22	3.57	5.15	5.71	4.90	5.43	4.73	5.24
107	10.70	11.94	3.26	3.60	5.22	5.76	4.96	5.48	4.78	5.28
108	10.80	12.05	3.29	3.63	5.27	5.81	5.01	5.53	4.83	5.33
109	10.90	12.17	3.33	3.67	5.33	5.87	5.07	5.59	4.89	5.39
110	11.00	12.28	3.37	3.70	5.39	5.92	5.13	5.63	4.95	5.43
111	11.10	12.39	3.41	3.74	5.46	5.99	5.19	5.69	5.00	5.49
112	11.20	12.51	3.45	3.77	5.52	6.03	5.25	5.74	5.06	5.53
113	11.30	12.63	3.48	3.80	5.57	6.08	5.30	5.78	5.11	5.58
114	11.40	12.75	3.52	3.84	5.63	6.15	5.36	5.85	5.17	5.63
115	11.50	12.88	3.56	3.87	5.70	6.19	5.42	5.89	5.22	5.68
116	11.60	13.00	3.60	3.91	5.76	6.26	5.48	5.95	5.28	5.74
117	11.70	13.13	3.64	3.94	5.83	6.31	5.54	6.00	5.34	5.78
118	11.80	13.25	3.68	3.98	5.89	6.37	5.60	6.06	5.40	5.84
119	11.90	13.38	3.72	4.01	5.95	6.42	5.66	6.10	5.46	5.88
120	12.00	13.50	3.76	4.05	6.02	6.48	5.72	6.16	5.52	5.94
121	12.10	13.63	3.80	4.08	6.08	6.53	5.78	6.21	5.58	5.99
122	12.20	13.75	3.84	4.12	6.15	6.59	5.85	6.27	5.63	6.04
123	12.30	13.88	3.88	4.15	6.21	6.64	5.91	6.32	5.69	6.09
124	12.40	14.00	3.92	4.19	6.27	6.71	5.97	6.38	5.75	6.15
125	12.50	14.13	3.97	4.22	6.35	6.75	6.04	6.42	5.82	6.19
126	12.60	14.25	4.01	4.26	6.42	6.82	6.10	6.48	5.88	6.25
127	12.70	14.38	4.05	4.29	6.48	6.87	6.16	6.53	5.94	6.29
128	12.80	14.50	4.09	4.33	6.55	6.93	6.23	6.59	6.00	6.35
129	12.90	14.63	4.13	4.36	6.61	6.98	6.29	6.64	6.06	6.40
130	13.00	14.75	4.18	4.40	6.69	7.04	6.36	6.70	6.13	6.46
131	13.10	14.88	4.22	4.44	6.75	7.11	6.42	6.76	6.19	6.51
132	13.20	15.00	4.26	4.47	6.82	7.15	6.48	6.80	6.25	6.56
133	13.30	15.13	4.31	4.51	6.90	7.22	6.56	6.86	6.32	6.62
134	13.40	15.25	4.35	4.54	6.96	7.27	6.62	6.91	6.38	6.66
135	13.50	15.38	4.39	4.58	7.03	7.33	6.68	6.97	6.44	6.72
136	13.60	15.50	4.44	4.62	7.11	7.39	6.76	7.03	6.51	6.78
137	13.70	15.63	4.48	4.65	7.17	7.44	6.82	7.08	6.57	6.82
138	13.80	15.75	4.53	4.69	7.25	7.51	6.89	7.14	6.65	6.88
139	13.90	15.88	4.57	4.73	7.31	7.57	6.96	7.20	6.70	6.94
140	14.00	16.00	4.62	4.76	7.39	7.62	7.03	7.24	6.78	6.98
141	14.10	16.13	4.66	4.80	7.46	7.68	7.09	7.31	6.84	7.04
142	14.20	16.26	4.71	4.84	7.54	7.75	7.17	7.37	6.91	7.10
143	14.30	16.40	4.76	4.87	7.62	7.79	7.24	7.41	6.98	7.14

Total capacity of indoor units *	Capacity(kW)		Power Consumption(kW)		Current(A)/380V		Current(A)/400V		Current(A)/415V	
	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
144	14.40	16.53	4.80	4.91	7.68	7.86	7.31	7.47	7.04	7.20
145	14.50	16.66	4.85	4.95	7.76	7.92	7.38	7.53	7.11	7.26
146	14.60	16.80	4.89	4.99	7.83	7.99	7.44	7.59	7.17	7.32
147	14.70	16.93	4.94	5.02	7.91	8.03	7.52	7.64	7.25	7.36
148	14.80	17.06	4.99	5.06	7.99	8.10	7.59	7.70	7.32	7.42
149	14.90	17.20	5.04	5.10	8.07	8.16	7.67	7.76	7.39	7.48
150	15.00	17.33	5.08	5.14	8.13	8.23	7.73	7.82	7.45	7.54
151	15.10	17.46	5.13	5.17	8.21	8.27	7.81	7.87	7.53	7.58
152	15.20	17.60	5.18	5.21	8.29	8.34	7.88	7.93	7.60	7.64
153	15.30	17.73	5.23	5.25	8.37	8.40	7.96	7.99	7.67	7.70
154	15.40	17.86	5.28	5.29	8.45	8.47	8.04	8.05	7.75	7.76
155	15.50	18.00	5.32	5.32	8.51	8.51	8.09	8.09	7.80	7.80
156	15.51	18.01	5.32	5.31	8.52	8.49	8.10	8.08	7.81	7.79
157	15.52	18.02	5.32	5.29	8.52	8.47	8.10	8.06	7.81	7.77
158	15.54	18.04	5.33	5.28	8.52	8.45	8.11	8.04	7.81	7.74
159	15.55	18.05	5.33	5.27	8.53	8.43	8.11	8.01	7.82	7.72
160	15.57	18.06	5.33	5.25	8.53	8.40	8.12	7.99	7.82	7.70
161	15.58	18.07	5.34	5.24	8.54	8.38	8.12	7.97	7.83	7.68
162	15.60	18.09	5.34	5.22	8.54	8.36	8.12	7.95	7.83	7.66
163	15.61	18.10	5.34	5.21	8.55	8.34	8.13	7.93	7.83	7.64
164	15.62	18.11	5.34	5.20	8.55	8.32	8.13	7.91	7.84	7.62
165	15.64	18.12	5.35	5.18	8.56	8.29	8.14	7.89	7.84	7.60
166	15.65	18.14	5.35	5.17	8.56	8.27	8.14	7.87	7.85	7.58
167	15.67	18.15	5.35	5.16	8.56	8.25	8.14	7.85	7.85	7.56
168	15.68	18.16	5.35	5.14	8.57	8.23	8.15	7.83	7.85	7.54
169	15.70	18.17	5.36	5.13	8.57	8.21	8.15	7.80	7.86	7.52
170	15.71	18.19	5.36	5.11	8.58	8.18	8.16	7.78	7.86	7.50
171	15.73	18.20	5.36	5.10	8.58	8.16	8.16	7.76	7.87	7.48
172	15.74	18.21	5.37	5.09	8.59	8.14	8.17	7.74	7.87	7.46
173	15.76	18.22	5.37	5.07	8.59	8.12	8.17	7.72	7.87	7.44
174	15.77	18.24	5.37	5.06	8.59	8.10	8.17	7.70	7.88	7.42
175	15.79	18.25	5.37	5.05	8.60	8.07	8.18	7.68	7.88	7.40
176	15.80	18.26	5.38	5.03	8.60	8.05	8.18	7.66	7.89	7.38
177	15.81	18.27	5.38	5.02	8.61	8.03	8.19	7.64	7.89	7.36
178	15.83	18.29	5.38	5.00	8.61	8.01	8.19	7.62	7.89	7.34
179	15.84	18.30	5.38	4.99	8.62	7.99	8.19	7.59	7.90	7.32
180	15.86	18.31	5.39	4.98	8.62	7.96	8.20	7.57	7.90	7.30
181	15.87	18.32	5.39	4.96	8.63	7.94	8.20	7.55	7.91	7.28
182	15.89	18.34	5.39	4.95	8.63	7.92	8.21	7.53	7.91	7.26
183	15.90	18.35	5.40	4.94	8.63	7.90	8.21	7.51	7.91	7.24
184	15.92	18.36	5.40	4.92	8.64	7.88	8.22	7.49	7.92	7.22
185	15.93	18.37	5.40	4.91	8.64	7.85	8.22	7.47	7.92	7.20
186	15.95	18.39	5.40	4.89	8.65	7.83	8.22	7.45	7.93	7.18
187	15.96	18.40	5.41	4.88	8.65	7.81	8.23	7.43	7.93	7.16
188	15.97	18.41	5.41	4.87	8.66	7.79	8.23	7.41	7.93	7.14
189	15.99	18.42	5.41	4.85	8.66	7.77	8.24	7.39	7.94	7.12
190	16.00	18.44	5.41	4.84	8.66	7.74	8.24	7.36	7.94	7.10
191	16.02	18.45	5.42	4.82	8.67	7.72	8.24	7.34	7.95	7.08
192	16.03	18.46	5.42	4.81	8.67	7.70	8.25	7.32	7.95	7.06
193	16.05	18.47	5.42	4.80	8.68	7.68	8.25	7.30	7.95	7.04
194	16.06	18.49	5.43	4.78	8.68	7.66	8.26	7.28	7.96	7.02
195	16.08	18.50	5.43	4.77	8.69	7.63	8.26	7.26	7.96	7.00
196	16.09	18.51	5.43	4.76	8.69	7.61	8.27	7.24	7.97	6.98
197	16.11	18.52	5.43	4.74	8.70	7.59	8.27	7.22	7.97	6.96
198	16.12	18.54	5.44	4.73	8.70	7.57	8.27	7.20	7.97	6.94
199	16.14	18.55	5.44	4.71	8.70	7.54	8.28	7.18	7.98	6.92
200	16.15	18.56	5.44	4.70	8.71	7.52	8.28	7.15	7.98	6.90
201	16.16	18.57	5.44	4.69	8.71	7.50	8.29	7.13	7.99	6.88
202	16.18	18.59	5.45	4.67	8.72	7.48	8.29	7.11	7.99	6.86
203	16.19	18.60	5.45	4.66	8.72	7.46	8.29	7.09	7.99	6.84
204	16.21	18.61	5.45	4.65	8.73	7.43	8.30	7.07	8.00	6.82
205	16.22	18.62	5.46	4.63	8.73	7.41	8.30	7.05	8.00	6.79
206	16.24	18.64	5.46	4.62	8.73	7.39	8.31	7.03	8.01	6.77
207	16.25	18.65	5.46	4.60	8.74	7.37	8.31	7.01	8.01	6.75
208	16.27	18.66	5.46	4.59	8.74	7.35	8.31	6.99	8.01	6.73

5-3. CORRECTING COOLING AND HEATING CAPACITY

5-3-1. Correcting Changes in Air Conditions

(1) The performance curve charts (Figure 1, 2) show the change ratio of capacity and input (power consumption) according to the indoor and outdoor temperature condition when defining the rated capacity (total capacity) and rated input under the standard condition in standard piping length (5 m) as "1.0".

• Standard conditions:

Rated cooling capacity	Indoor D.B. 27°C / W.B. 19°C Outdoor D.B. 35°C
Rated heating capacity	Indoor D.B. 20°C Outdoor D.B. 7°C / W.B. 6°C

• Use the rated capacity and rated input given in "5-2."

• The input is the single value on the side of the outdoor unit; the input on the sides of each indoor unit must be added to obtain the total input.

(2) The capacity of each indoor unit may be obtained by multiplying the total capacity obtained in (1) by the ratio between the individual capacity at the rated time and the total capacity at the rated time.

$$\text{Individual capacity under stated conditions} = \text{total capacity under the stated conditions} \times \frac{\text{individual capacity at the rated time}}{\text{total capacity at the rated time}}$$

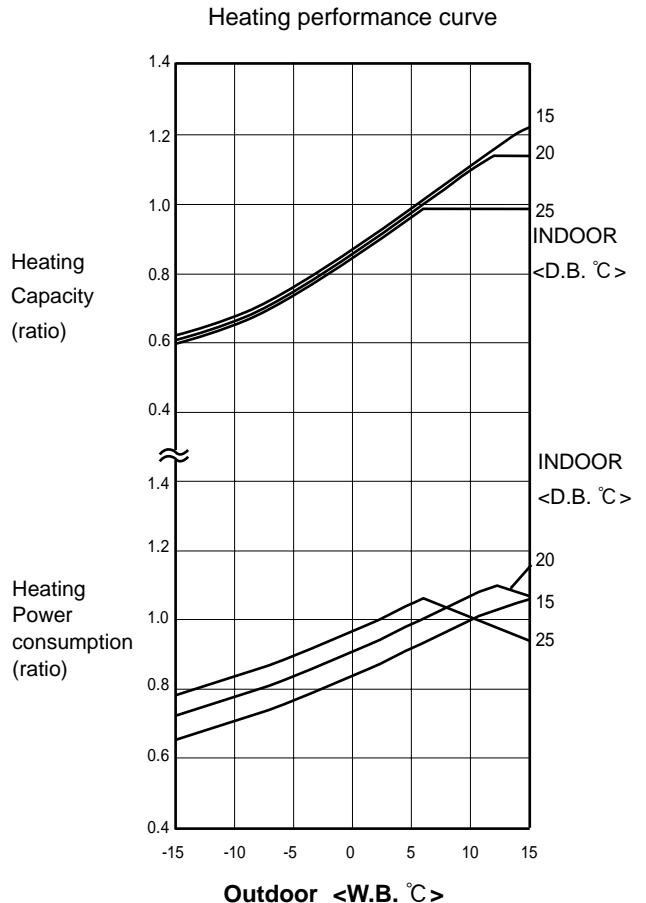
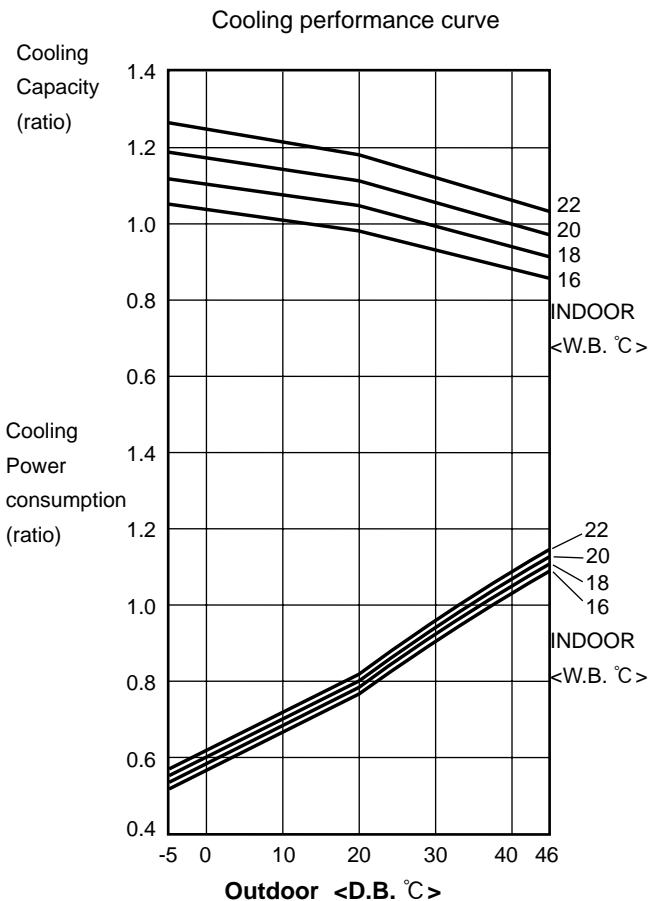
(3) Capacity correction factor curve

PUMY-P100/125/140VHMB(-BS)
PUMY-P100/125/140VHMBR1(-BS)
PUMY-P100/125/140VHMBR2(-BS)
PUMY-P100/125/140VHMBR3(-BS)

PUMY-P100/125/140YHMB(-BS)
PUMY-P100/125/140YHMBR1(-BS)
PUMY-P100/125/140YHMBR2(-BS)
PUMY-P100/125/140YHMBR3(-BS)

Figure 1

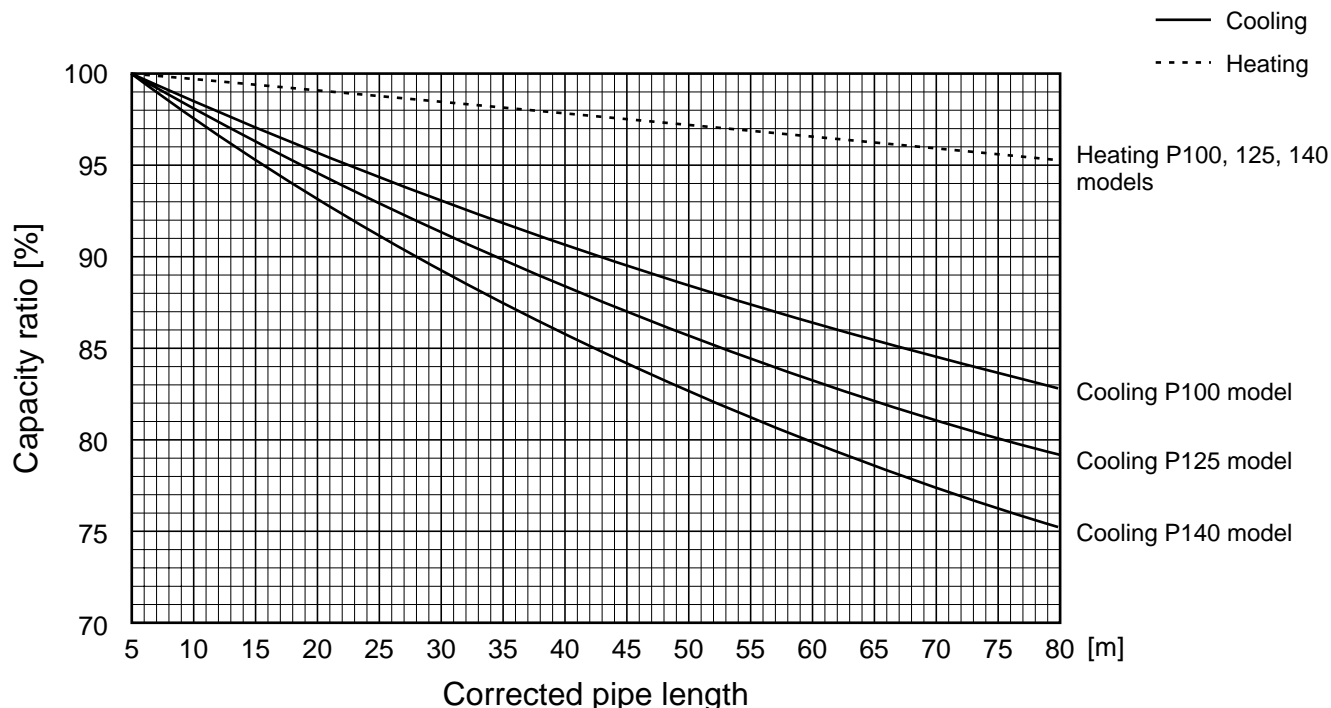
Figure 2



5-3-2. Correcting Capacity for Changes in the Length of Refrigerant Piping

- (1) During cooling, obtain the ratio (and the equivalent piping length) of the outdoor units rated capacity and the total in-use indoor capacity, and find the capacity ratio corresponding to the standard piping length from Figure 3. Then multiply by the cooling capacity from Figure 1 to obtain the actual capacity.
- (2) During heating, find the equivalent piping length, and find the capacity ratio corresponding to standard piping length from Figure 3. Then multiply by the heating capacity from Figure 2 to obtain the actual capacity.

(1) Capacity CORRECTION CURVE (Figure 3)



(2) Method for Obtaining the Equivalent Piping Length

Equivalent length for type P100-125-140 = (length of piping to farthest indoor unit) + (0.3 × number of bends in the piping) (m)
 Length of piping to farthest indoor unit: type P100~P140.....80m

5-3-3. Correction of Heating Capacity for Frost and Defrosting

If heating capacity has been reduced due to frost formation or defrosting, multiply the capacity by the appropriate correction factor from the following table to obtain the actual heating capacity.

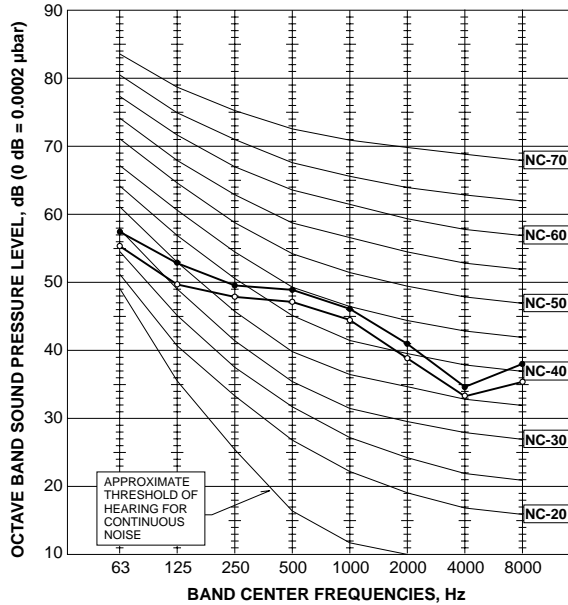
Correction factor diagram

Outdoor Intake temperature (W.B.°C)	6	4	2	0	-2	-4	-6	-8	-10
Correction factor	1.0	0.98	0.89	0.88	0.89	0.9	0.95	0.95	0.95

5-4. NOISE CRITERION CURVES

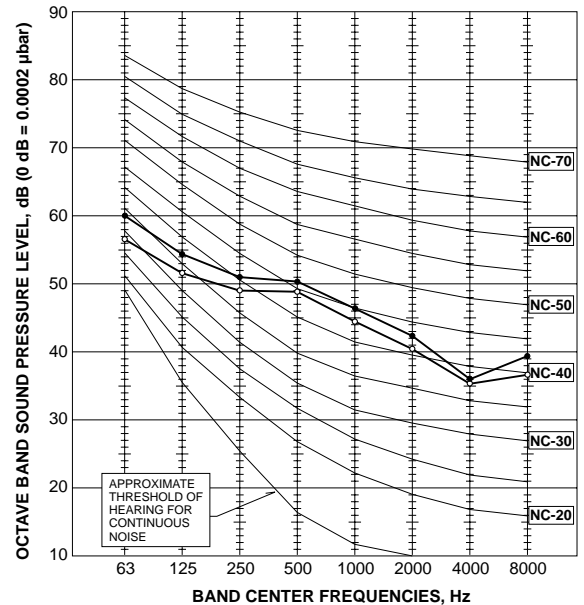
PUMY-P100VHMB(-BS)
 PUMY-P100VHMBR1(-BS)
 PUMY-P100VHMBR2(-BS)
 PUMY-P100VHMBR3(-BS)
 PUMY-P100YHMB(-BS)
 PUMY-P100YHMBR1(-BS)
 PUMY-P100YHMBR2(-BS)
 PUMY-P100YHMBR3(-BS)

MODE	SPL(dB)	LINE
COOLING	49	○—○
HEATING	51	●—●



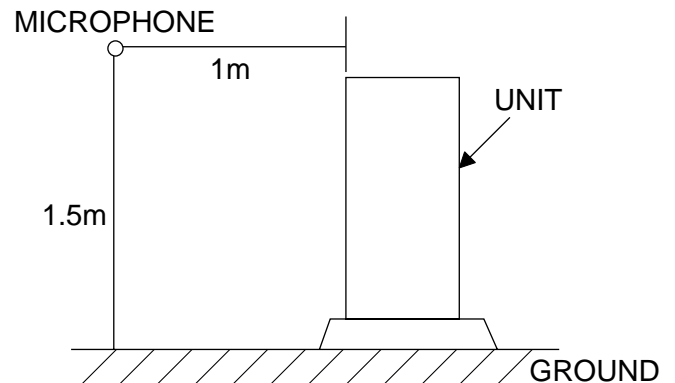
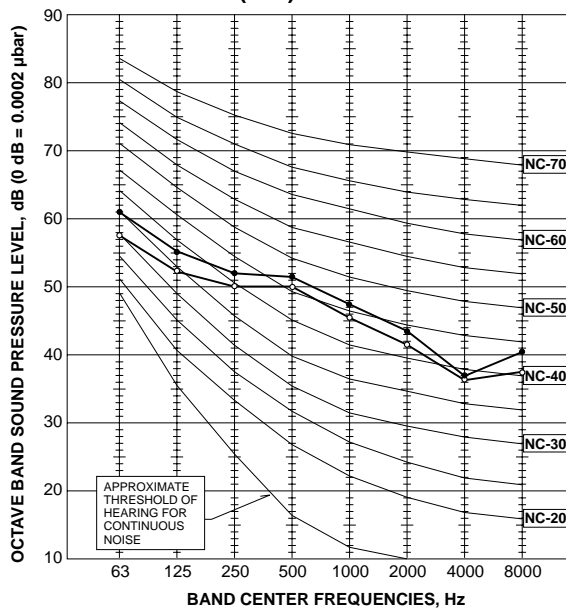
PUMY-P125VHMB(-BS)
 PUMY-P125VHMBR1(-BS)
 PUMY-P125VHMBR2(-BS)
 PUMY-P125VHMBR3(-BS)
 PUMY-P125YHMB(-BS)
 PUMY-P125YHMBR1(-BS)
 PUMY-P125YHMBR2(-BS)
 PUMY-P125YHMBR3(-BS)

MODE	SPL(dB)	LINE
COOLING	50	○—○
HEATING	52	●—●



PUMY-P140VHMB(-BS)
 PUMY-P140VHMBR1(-BS)
 PUMY-P140VHMBR2(-BS)
 PUMY-P140VHMBR3(-BS)
 PUMY-P140YHMB(-BS)
 PUMY-P140YHMBR1(-BS)
 PUMY-P140YHMBR2(-BS)
 PUMY-P140YHMBR3(-BS)

MODE	SPL(dB)	LINE
COOLING	51	○—○
HEATING	53	●—●



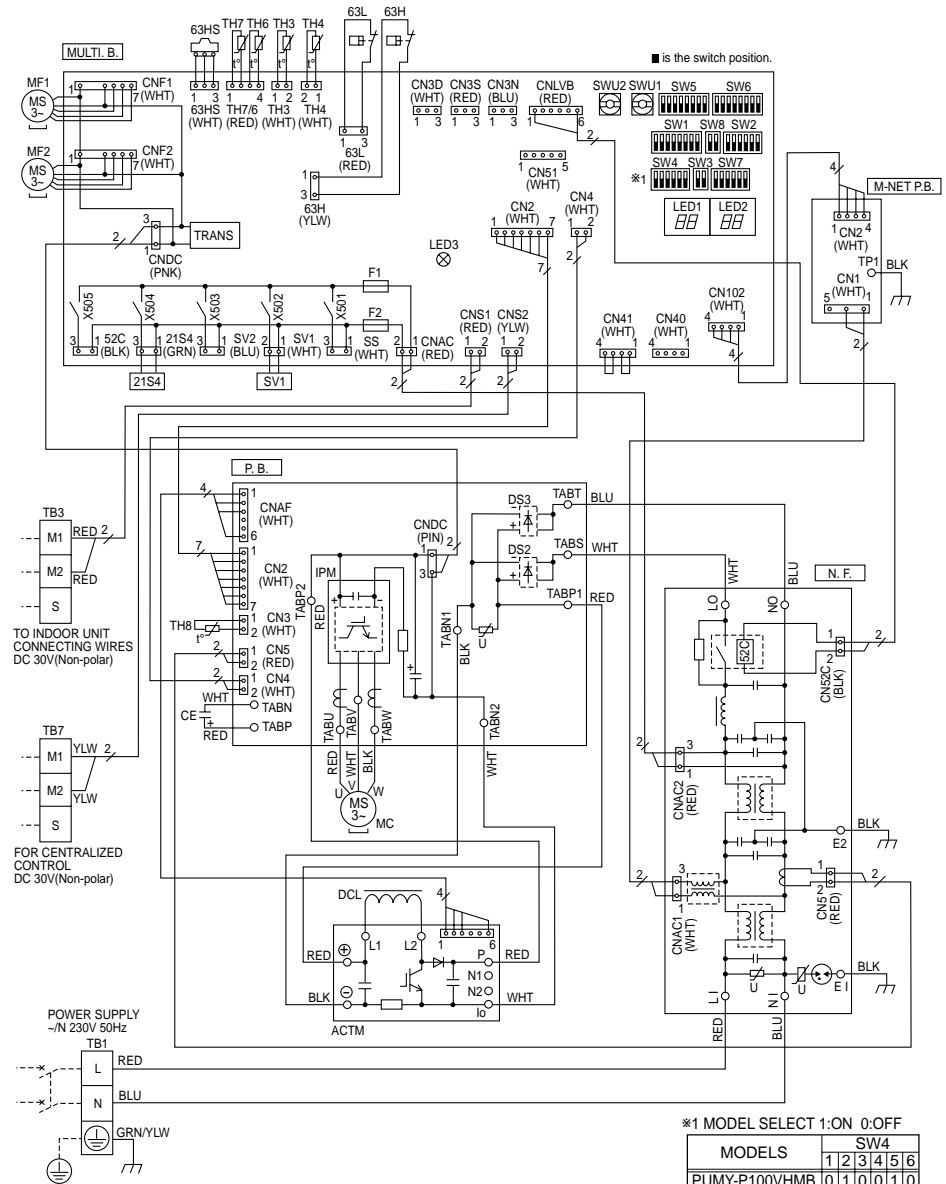
PUMY-P100VHMB(-BS)
 PUMY-P125VHMB(-BS)
 PUMY-P140VHMB(-BS)

PUMY-P100VHMBR1(-BS)
 PUMY-P125VHMBR1(-BS)
 PUMY-P140VHMBR1(-BS)

PUMY-P100VHMBR2(-BS)
 PUMY-P125VHMBR2(-BS)
 PUMY-P140VHMBR2(-BS)

PUMY-P100VHMBR3(-BS)
 PUMY-P125VHMBR3(-BS)
 PUMY-P140VHMBR3(-BS)

SYMBOL	NAME
TB1	Terminal Block <Power Supply>
TB3	Terminal Block <Communication Line>
TB7	Terminal Block <Centralized Control Line>
MC	Motor For Compressor
MF1, MF2	Fan Motor
21S4	Solenoid Valve<Four-Way Valve>
63H	High Pressure Switch
63L	Low Pressure Switch
63HS	High Pressure Sensor
SV1	Solenoid Valve<Bypass valve>
TH3	Thermistor<Outdoor Pipe>
TH4	Thermistor<Compressor>
TH6	Thermistor<Low Pressure Saturated>
TH7	Thermistor<Outdoor>
TH8	Thermistor<Heatsink>
DCL	Reactor
ACTM	Active Filter Module
CE	Main Smoothing Capacitor
P.B.	Power Circuit Board
TABU/V/W	Connection Terminal<U/V/W-Phase>
TABS/T	Connection Terminal<L/N-Phase>
TABP1/P2/P	Connection Terminal<DC Voltage>
TABN1/N2/N	Connection Terminal<DC Voltage>
DS2, DS3	Diode Bridge
IPM	Power Module
N.F.	Noise Filter Circuit Board
LI/LO	Connection Terminal<L-Phase>
NI/NO	Connection Terminal<N-Phase>
E1, E2	Connection Terminal<Ground>
52C	52C Relay
C.B.	Controller Circuit Board
SW1	Switch<Display Selection>
SW2	Switch<Function Selection>
SW3	Switch<Test Run>
SW4	Switch<Model Selection>
SW5	Switch<Function Selection>
SW6	Switch<Function Selection>
SW7	Switch<Function Selection>
SW8	Switch<Function Selection>
SWU1	Switch<Unit Address Selection, 1st digit>
SWU2	Switch<Unit Address Selection, 2nd digit>
CNLVB	Connector<To N.F. Board CN52C> (Symbol of Board is CNLVB)
SS	Connector<Connection For Option>
CN3D	Connector<Connection For Option>
CN3S	Connector<Connection For Option>
CN3N	Connector<Connection For Option>
CN51	Connector<Connection For Option>
LED1, LED2	LED<Operation Inspection Display>
LED3	LED<Power Supply to Main Microprocessor>
F1, F2	Fuse<T6, 3AL250V>
X501~505	Relay
M-NET P.B.	M-NET Power Circuit Board
TP1	Connection Terminal<Ground>



Cautions when Servicing

- ⚠ WARNING: When the main supply is turned off, the voltage [340 V] in the main capacitor will drop to 20 V in approx. 2 minutes (input voltage: 230 V). When servicing, make sure that LED1, LED2 on the outdoor circuit board goes out, and then wait for at least 1 minute.
- Components other than the outdoor board may be faulty: Check and take corrective action, referring to the service manual.
- Do not replace the outdoor board without checking.

NOTES:

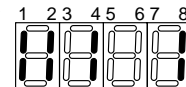
- Refer to the wiring diagrams of the indoor units for details on wiring of each indoor unit.
- Self-diagnosis function
The indoor and outdoor units can be diagnosed automatically using the self-diagnosis switch (SW1) and LED1, LED2 (LED indication) found on the multi-controller of the outdoor unit.
LED indication : Set all contacts of SW1 to OFF.
- During normal operation
The LED indicates the drive state of the controller in the outdoor unit.

Bit	1	2	3	4	5	6	7	8
Indication	Compressor operated	52C	21S4	SV1	(SV2)	—	—	Always lit

- When fault requiring inspection has occurred, the LED alternately indicates the inspection code and the location of the unit in which the fault has occurred.

[Example]

When the compressor and SV1 are turned on during cooling operation.



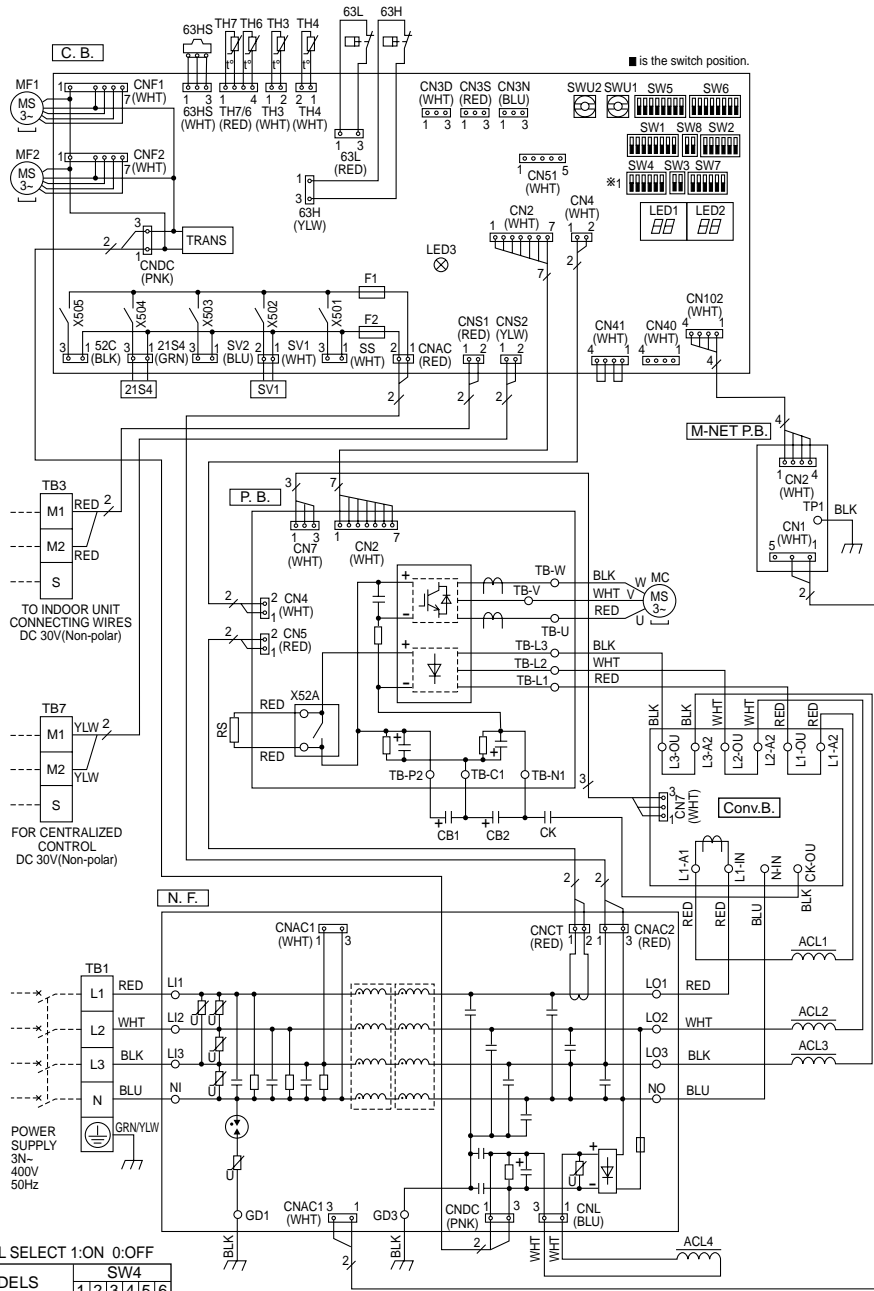
PUMY-P100YHMB(-BS)
PUMY-P125YHMB(-BS)
PUMY-P140YHMB(-BS)

PUMY-P100YHMBR1(-BS)
PUMY-P125YHMBR1(-BS)
PUMY-P140YHMBR1(-BS)

PUMY-P100YHMBR2(-BS)
PUMY-P125YHMBR2(-BS)
PUMY-P140YHMBR2(-BS)

PUMY-P100YHMBR3(-BS)
PUMY-P125YHMBR3(-BS)
PUMY-P140YHMBR3(-BS)

SYMBOL	NAME
TB1	Terminal Block <Power Supply>
TB3	Terminal Block <Communication Line>
TB7	Terminal Block <Centralized Control Line>
MC	Motor For Compressor
MF1, MF2	Fan Motor
21S4	Solenoid Valve<Four-Way Valve>
63H	High Pressure Switch
63L	Low Pressure Switch
63HS	High Pressure Sensor
SV1	Solenoid Valve<Bypass Valve>
TH3	Thermistor<Outdoor Pipe>
TH4	Thermistor<Compressor>
TH6	Thermistor<Low Pressure Saturated>
TH7	Thermistor<Outdoor>
RS	Rush Current Protect Resistor
ACL1-ACL4	Reactor
CB1, CB2	Main Smoothing Capacitor
CK	Capacitor
P.B.	Power Circuit Board
TB-U/V/W	Connection Terminal<U/V/W-Phase>
TB-L1/L2/L3	Connection Terminal<L1/L2/L3-Power Supply>
TB-P2	Connection Terminal
TB-C1	Connection Terminal
TB-N1	Connection Terminal
X52A	Relay
N.F.	Noise Filter Circuit Board
L01/L02/L03N0	Connection Terminal<L1/L2/L3-Power Supply>
L1/L1/L2/L3N1	Connection Terminal<L1/L2/L3-Power Supply>
GD1, GD3	Connection Terminal<Ground>
CONV.B.	Converter Circuit Board
L1-A1/IN	Connection Terminal<L1-Power Supply>
L1-A2/OU	Connection Terminal<L1-Power Supply>
L2-A2/OU	Connection Terminal<L2-Power Supply>
L3-A2/OU	Connection Terminal<L3-Power Supply>
N-IN	Connection Terminal
CK-OU	Connection Terminal
C.B.	Controller Circuit Board
SW1	Switch<Display Selection>
SW2	Switch<Function Selection>
SW3	Switch<Test Run>
SW4	Switch<Model Selection>
SW5	Switch<Function Selection>
SW6	Switch<Function Selection>
SW7	Switch<Function Selection>
SW8	Switch<Function Selection>
SWU1	Switch<Unit Address Selection, 1st digit>
SWU2	Switch<Unit Address Selection, 2nd digit>
SS	Connector<Connection For Option>
CN3D	Connector<Connection For Option>
CN3S	Connector<Connection For Option>
CN3N	Connector<Connection For Option>
CN51	Connector<Connection For Option>
CN51	Connector<Connection For Option>
LED1, LED2	LED<Operation Inspection Display>
LED3	LED<Power Supply to Main Microprocessor>
F1, F2	Fuse<T6.3AL250V>
X501-X505	Relay
M-NET P.B.	M-NET Power Circuit Board
TP1	Connection Terminal<Ground>



*1 MODEL SELECT 1:ON 0:OFF

MODELS	1	2	3	4	5	6
PUMY-P100YHMB	1	1	0	0	1	0
PUMY-P125YHMB	1	1	0	0	0	1
PUMY-P140YHMB	1	1	0	0	1	1

Cautions when Servicing

- ⚠ WARNING: When the main supply is turned off, the voltage [570 V] in the main capacitor will drop to 20 V in approx. 5 minutes (input voltage: 400 V). When servicing, make sure that LED1 and LED2 on the outdoor circuit board goes out, and then wait for at least 5 minute.
- Components other than the outdoor board may be faulty: Check and take corrective action, referring to the service manual. Do not replace the outdoor board without checking.

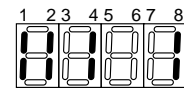
NOTES:

- Refer to the wiring diagrams of the indoor units for details on wiring of each indoor unit. Self-diagnosis function
The indoor and outdoor units can be diagnosed automatically using the self-diagnosis switch (SW1), LED1 and LED2 (LED indication) found on the multi-controller of the outdoor unit. LED indication : Set all contacts of SW1 to OFF.
- During normal operation
The LED indicates the drive state of the controller in the outdoor unit.

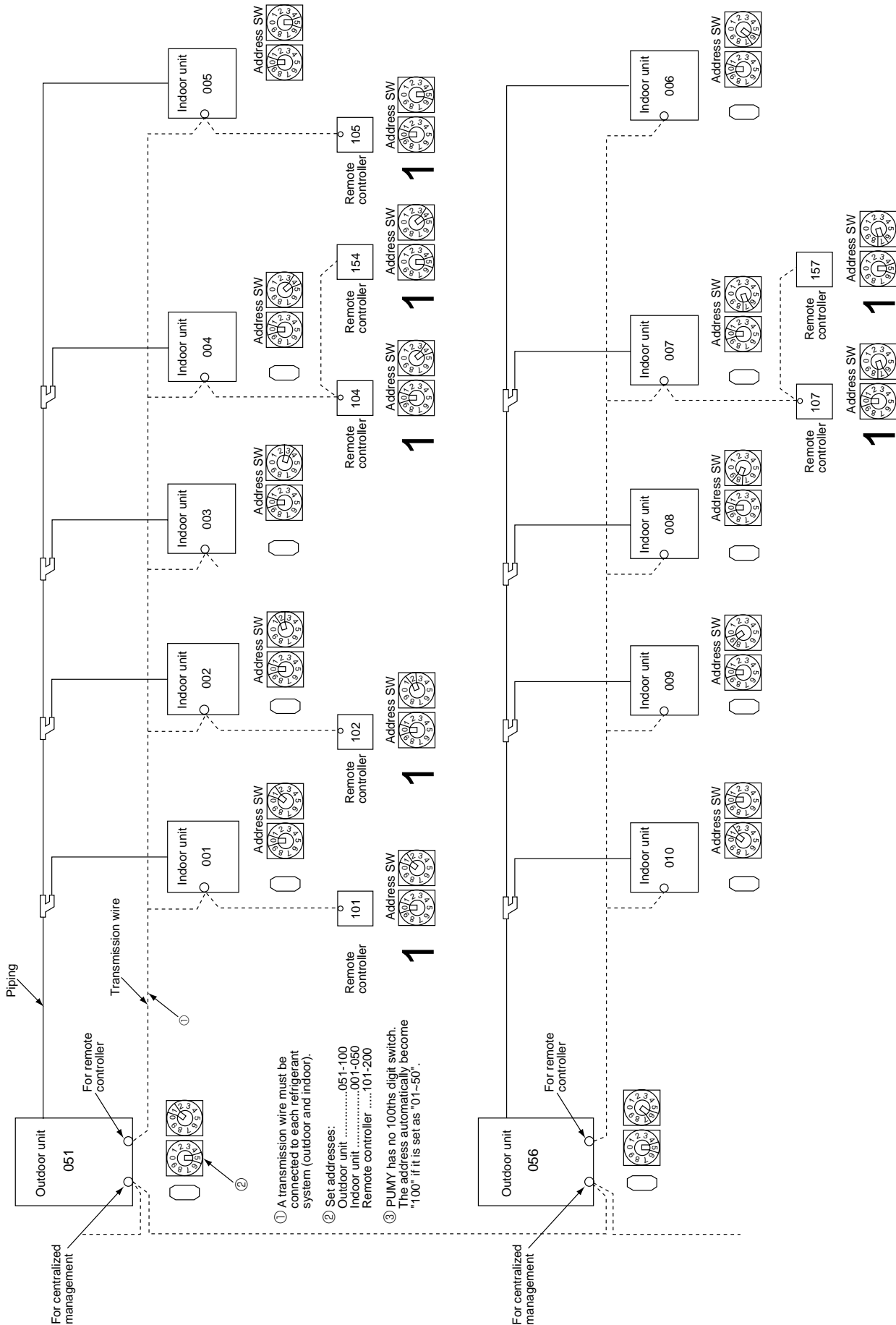
Bit	1	2	3	4	5	6	7	8
Indication	Compressor operated	52C	21S4	SV1	(SV2)	—	—	Always lit

- When fault requiring inspection has occurred, the LED alternately indicates the inspection code and the location of the unit in which the fault has occurred.

[Example]
When the compressor and SV1 are turned on during cooling operation.



8-1. TRANSMISSION SYSTEM SETUP



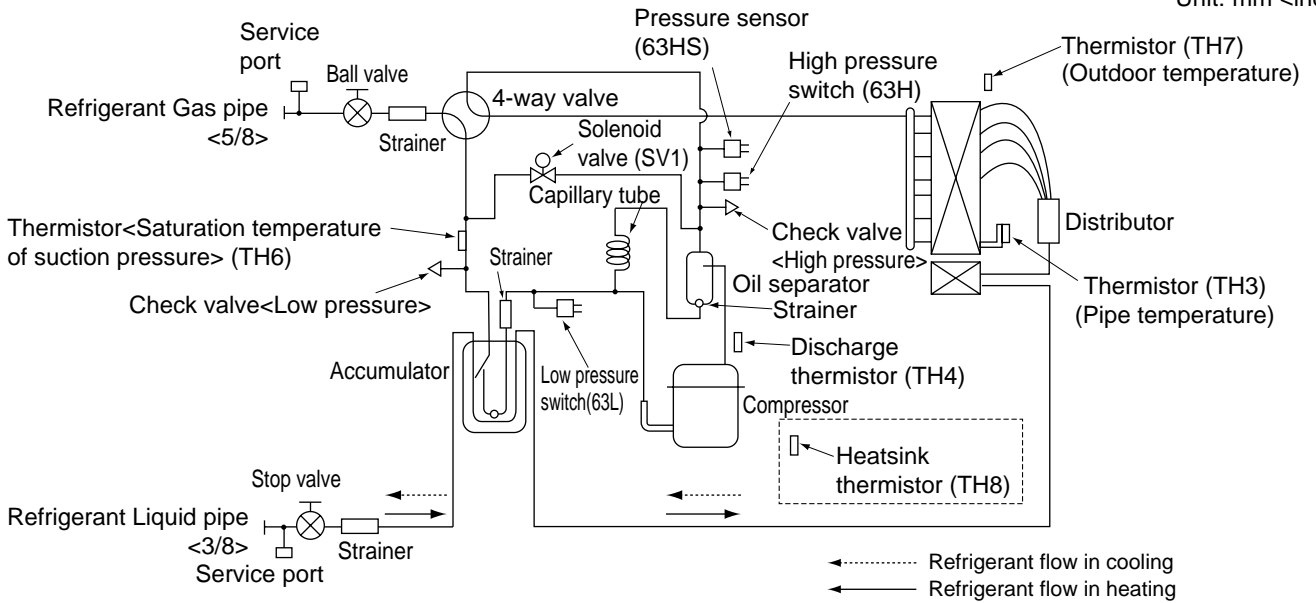
8-2. REFRIGERANT SYSTEM DIAGRAM

PUMY-P100VHMB(-BS)
 PUMY-P100VHMBR1(-BS)
 PUMY-P100YHMB(-BS)
 PUMY-P100YHMBR1(-BS)

PUMY-P125VHMB(-BS)
 PUMY-P125VHMBR1(-BS)
 PUMY-P125YHMB(-BS)
 PUMY-P125YHMBR1(-BS)

PUMY-P140VHMB(-BS)
 PUMY-P140VHMBR1(-BS)
 PUMY-P140YHMB(-BS)
 PUMY-P140YHMBR1(-BS)

Unit: mm <inch>

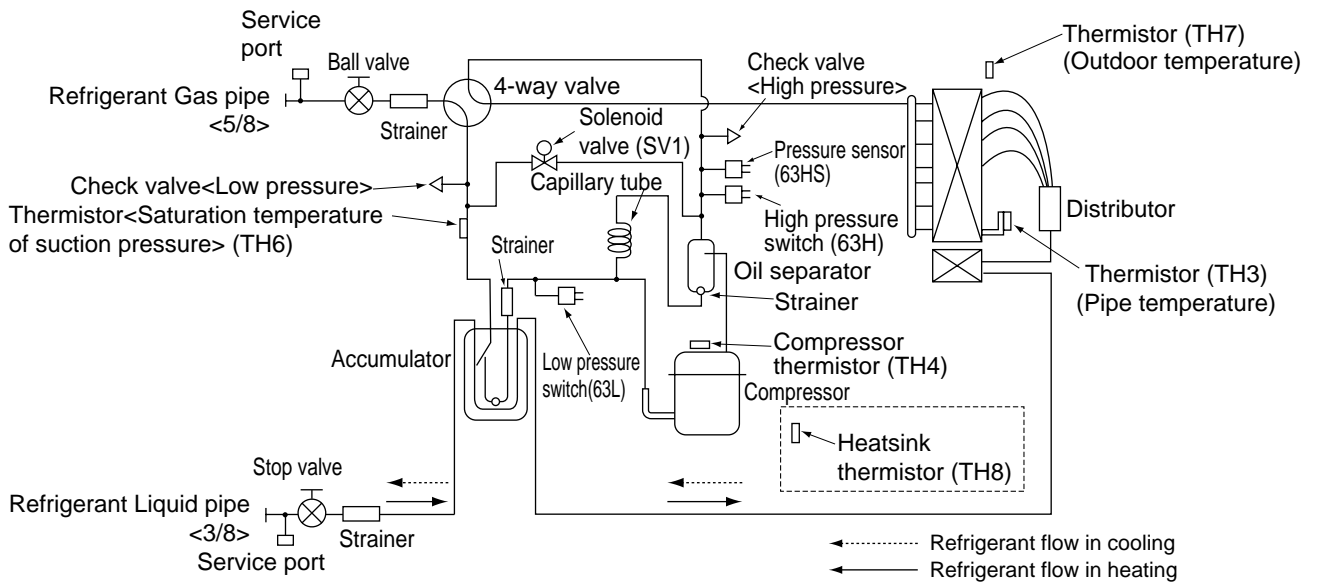


PUMY-P100VHMBR2(-BS)
 PUMY-P100VHMBR3(-BS)
 PUMY-P100YHMBR2(-BS)
 PUMY-P100YHMBR3(-BS)

PUMY-P125VHMBR2(-BS)
 PUMY-P125VHMBR3(-BS)
 PUMY-P125YHMBR2(-BS)
 PUMY-P125YHMBR3(-BS)

PUMY-P140VHMBR2(-BS)
 PUMY-P140VHMBR3(-BS)
 PUMY-P140YHMBR2(-BS)
 PUMY-P140YHMBR3(-BS)

Unit: mm <inch>



Capillary tube for oil separator : $\phi 2.5 \times \phi 0.8 \times L1000$

Refrigerant piping specifications <dimensions of flared connector>

Capacity		Item	Liquid piping	Gas piping
Indoor unit	P15, P20, P25, P32, P40, P50		$\phi 6.35$ <1/4>	$\phi 12.7$ <1/2>
	P63, P80, P100 P125, P140		$\phi 9.52$ <3/8>	$\phi 15.88$ <5/8>
Outdoor unit	P100, P125, P140		$\phi 9.52$ <3/8>	$\phi 15.88$ <5/8>

8-3. SYSTEM CONTROL

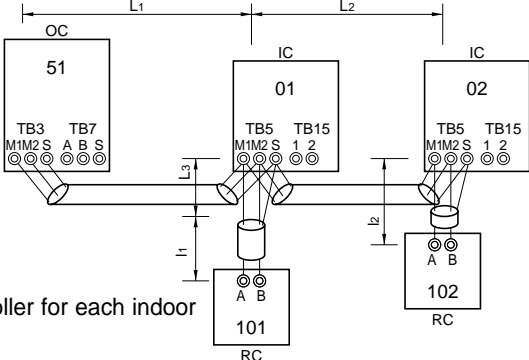
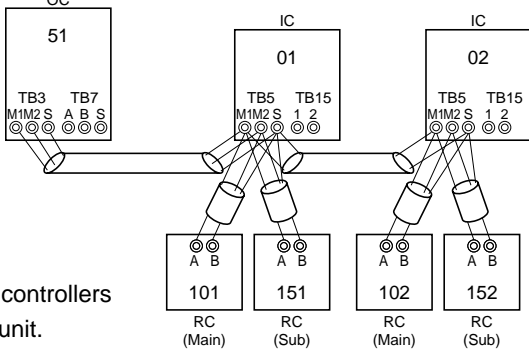
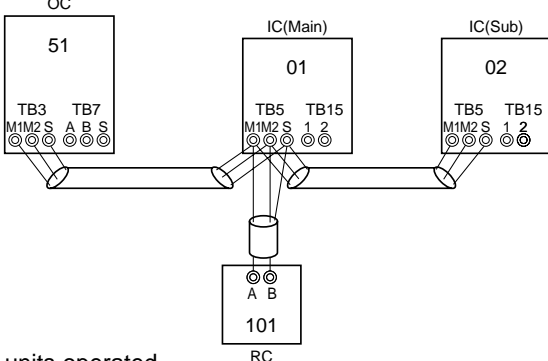
8-3-1. Example for the System

- Example for wiring control cables, wiring method and address setting, permissible lengths, and the prohibited items are listed in the standard system with detailed explanation.

The explanation for the system in this section : Use 1 single outdoor unit and multiple outdoor units for M-NET remote control system.

Use 1 single outdoor unit and multiple indoor units in the multiple outdoor units for the M-NET remote control system.

A. Example of a M-NET remote controller system (address setting is necessary.)

Example of wiring control cables	Wiring Method and Address Setting																				
<p>1. Standard operation</p>  <ul style="list-style-type: none"> • 1 remote controller for each indoor unit. • There is no need for setting the 100 position on the remote controller. 	<p>a. Use feed wiring to connect terminals M1 and M2 on transmission cable block (TB3) for the outdoor unit (OC) to terminals M1 and M2 on the transmission cable block (TB5) of each indoor unit (IC). Use non-polarized 2 wire.</p> <p>b. Connect terminals M1 and M2 on transmission cable terminal block (TB5) for each indoor unit with the terminal block (TB6) for the remote controller (RC).</p> <p>c. Set the address setting switch (on outdoor unit P.C.B) as shown below.</p> <table border="1" data-bbox="836 869 1444 1077"> <thead> <tr> <th>Unit</th> <th>Range</th> <th>Setting Method</th> </tr> </thead> <tbody> <tr> <td>Indoor unit (IC)</td> <td>001 to 050</td> <td>—</td> </tr> <tr> <td>Outdoor unit (OC)</td> <td>051 to 100</td> <td>Use the smallest address of all the indoor unit plus 50.</td> </tr> <tr> <td>Remote controller (RC)</td> <td>101 to 150</td> <td>Indoor unit address plus 100.</td> </tr> </tbody> </table>			Unit	Range	Setting Method	Indoor unit (IC)	001 to 050	—	Outdoor unit (OC)	051 to 100	Use the smallest address of all the indoor unit plus 50.	Remote controller (RC)	101 to 150	Indoor unit address plus 100.						
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Indoor unit (IC)	001 to 050	—																			
Outdoor unit (OC)	051 to 100	Use the smallest address of all the indoor unit plus 50.																			
Remote controller (RC)	101 to 150	Indoor unit address plus 100.																			
<p>2. Operation using 2 remote controllers</p>  <ul style="list-style-type: none"> • Using 2 remote controllers for each indoor unit. 	<p>a. Same as above.</p> <p>b. Same as above.</p> <p>c. Set address switch (on outdoor unit P.C.B) as shown below.</p> <table border="1" data-bbox="836 1205 1444 1496"> <thead> <tr> <th>Unit</th> <th>Range</th> <th>Setting Method</th> </tr> </thead> <tbody> <tr> <td>Indoor Unit (IC)</td> <td>001 to 050</td> <td>—</td> </tr> <tr> <td>Outdoor unit (OC)</td> <td>051 to 100</td> <td>Use the smallest address of all the indoor units plus 50.</td> </tr> <tr> <td>Main Remote Controller (RC)</td> <td>101 to 150</td> <td>Indoor unit address plus 100.</td> </tr> <tr> <td>Sub Remote Controller (RC)</td> <td>151 to 200</td> <td>Indoor unit address plus 150.</td> </tr> </tbody> </table>			Unit	Range	Setting Method	Indoor Unit (IC)	001 to 050	—	Outdoor unit (OC)	051 to 100	Use the smallest address of all the indoor units plus 50.	Main Remote Controller (RC)	101 to 150	Indoor unit address plus 100.	Sub Remote Controller (RC)	151 to 200	Indoor unit address plus 150.			
Unit	Range	Setting Method																			
Indoor Unit (IC)	001 to 050	—																			
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Sub Remote Controller (RC)	151 to 200	Indoor unit address plus 150.																			
<p>3. Group operation</p>  <ul style="list-style-type: none"> • Multiple indoor units operated together by 1 remote controller 	<p>a. Same as above.</p> <p>b. Connect terminals M1 and M2 on transmission cable terminal block (TB5) of the IC main unit with the most recent address within the same indoor unit (IC) group to terminal block (TB6) on the remote controller.</p> <p>c. Set the address setting switch (on outdoor unit P.C.B) as shown below.</p> <table border="1" data-bbox="836 1702 1444 2004"> <thead> <tr> <th>Unit</th> <th>Range</th> <th>Setting Method</th> </tr> </thead> <tbody> <tr> <td>IC (Main)</td> <td>001 to 050</td> <td>Use the smallest address within the same group of indoor units.</td> </tr> <tr> <td>IC (Sub)</td> <td>001 to 050</td> <td>Use an address, other than that of the IC (Main) from among the units within the same group of indoor units. This must be in sequence with the IC (Main).</td> </tr> <tr> <td>Outdoor Unit</td> <td>051 to 100</td> <td>Use the smallest address of all the indoor units plus 50.</td> </tr> <tr> <td>Main Remote Controller</td> <td>101 to 150</td> <td>Set at an IC (Main) address within the same group plus 100.</td> </tr> <tr> <td>Sub Remote Controller</td> <td>151 to 200</td> <td>Set at an IC (Main) address within the same group plus 150.</td> </tr> </tbody> </table> <p>d. Use the indoor unit (IC) within the group with the most functions as the IC (Main) unit.</p>			Unit	Range	Setting Method	IC (Main)	001 to 050	Use the smallest address within the same group of indoor units.	IC (Sub)	001 to 050	Use an address, other than that of the IC (Main) from among the units within the same group of indoor units. This must be in sequence with the IC (Main).	Outdoor Unit	051 to 100	Use the smallest address of all the indoor units plus 50.	Main Remote Controller	101 to 150	Set at an IC (Main) address within the same group plus 100.	Sub Remote Controller	151 to 200	Set at an IC (Main) address within the same group plus 150.
Unit	Range	Setting Method																			
IC (Main)	001 to 050	Use the smallest address within the same group of indoor units.																			
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Outdoor Unit	051 to 100	Use the smallest address of all the indoor units plus 50.																			
Main Remote Controller	101 to 150	Set at an IC (Main) address within the same group plus 100.																			
Sub Remote Controller	151 to 200	Set at an IC (Main) address within the same group plus 150.																			
<p>Combinations of 1 through 3 above are possible.</p>																					

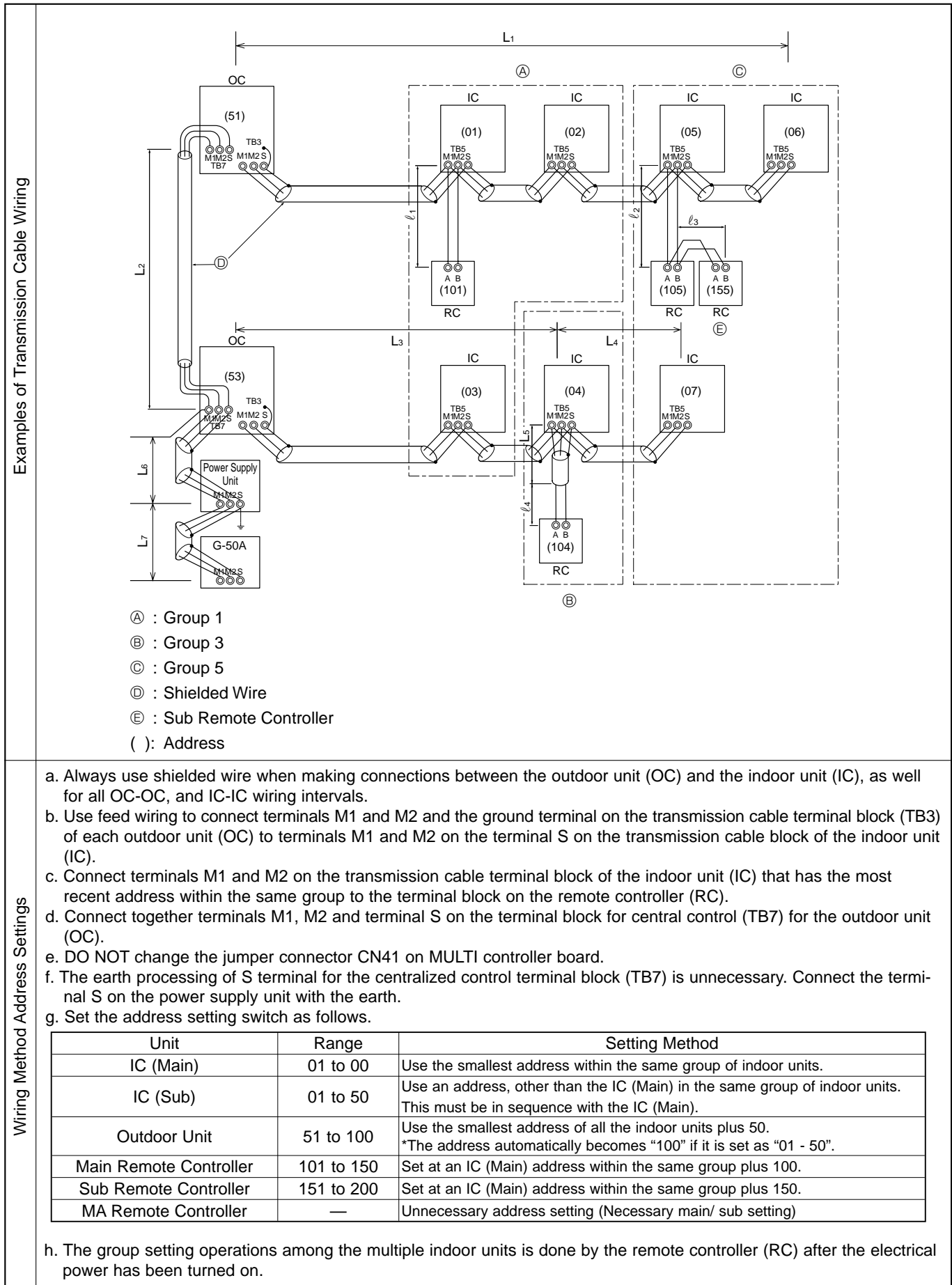


• Name, Symbol and the Maximum Remote controller Units for Connection

Name	Symbol	Maximum units for connection
Outdoor unit	OC	—
Indoor unit	IC	1 OC unit can be connected to 1~8 (P100)/1~10 (P125)/1~12 (P140) IC units
M-NET remote controller	RC	Maximum 2 RC for 1 indoor unit, Maximum 12 RC for 1 OC

Permissible Lengths	Prohibited items
<p>Longest transmission cable length (1.25 mm²) $L_1 + L_2, L_2 + L_3, L_3 + L_1 \leq 200\text{m}$ Remote controller cable length 1. If 0.5 to 1.25 mm² $l_1, l_2 \leq 10\text{m}$ 2. If the length exceeds 10 meters, the exceeding section should be 1.25 mm² and that section should be a value within the total extension length of the transmission cable and maximum transmission cable length. (L₃)</p>	<ul style="list-style-type: none"> • M-NET remote controller (RC) and MA remote controller (MA) cannot be used together. • Do not connect anything with TB15 of indoor unit (IC).
Same as above	<ul style="list-style-type: none"> • Use the indoor unit (IC) address plus 150 as the sub remote controller address. In this case, it should be 152. • 3 or more remote controller (RC) cannot be connected to 1 indoor unit.
Same as above	<ul style="list-style-type: none"> • The remote controller address is the indoor unit main address plus 100. In this case, it should be 101.

B. Example of a group operation system with 2 or more outdoor units and a M-NET remote controller.
(Address settings are necessary.)

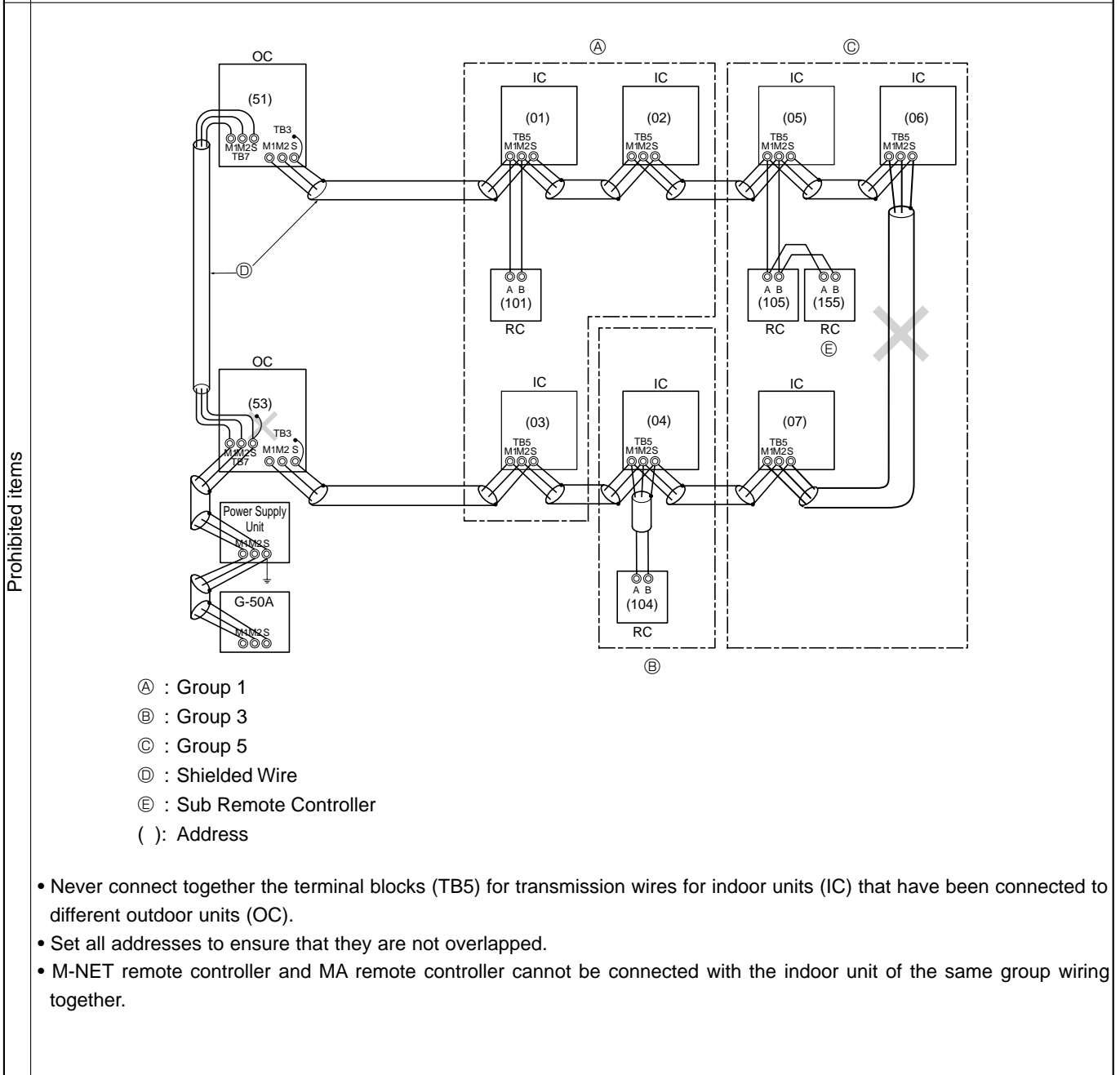


Name, Symbol, and the Maximum Units for Connection

Permissible Length

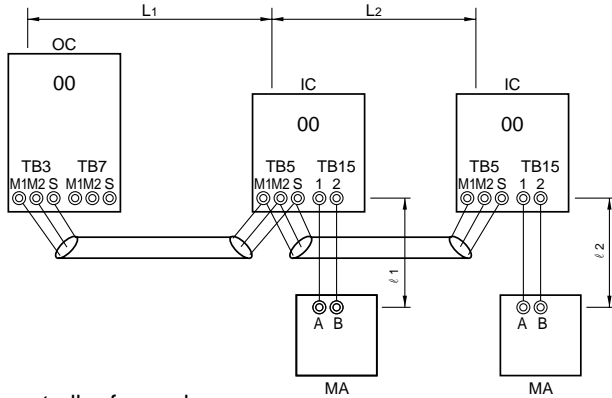
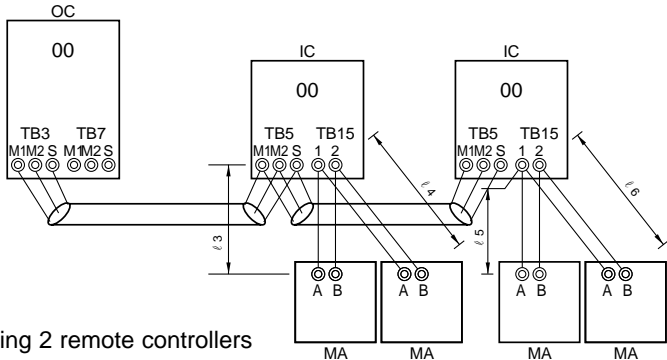
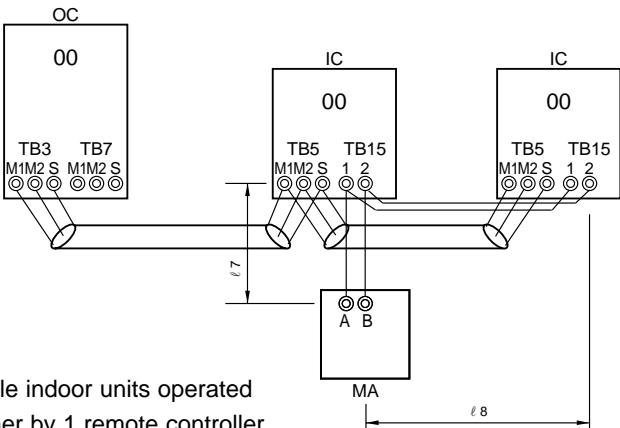
- Longest length via outdoor units : $L_1+L_2+L_3+L_4, L_1+L_2+L_3+L_5, L_1+L_2+L_6+L_7 \leq 500$ meters (1.25mm²)
- Longest transmission cable length : $L_1, L_3+L_4, L_3+L_5, L_6, L_2+L_6, L_7 \leq 200$ meters (1.25mm²)
- Remote controller cable length : $l_1, l_2, l_2+l_3, l_4 \leq 10$ meters (0.5 to 1.25mm²)

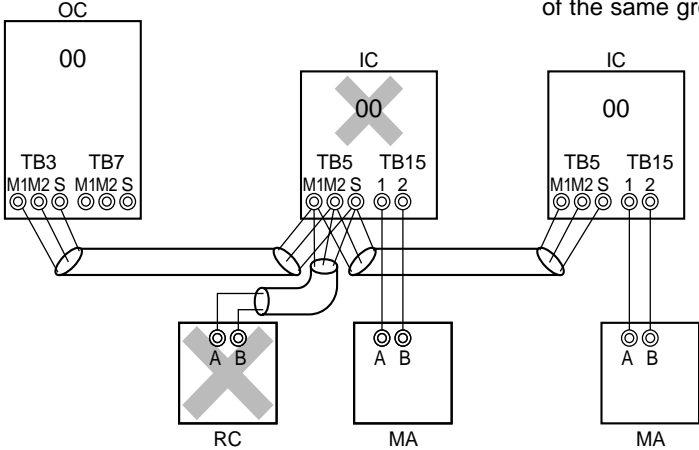
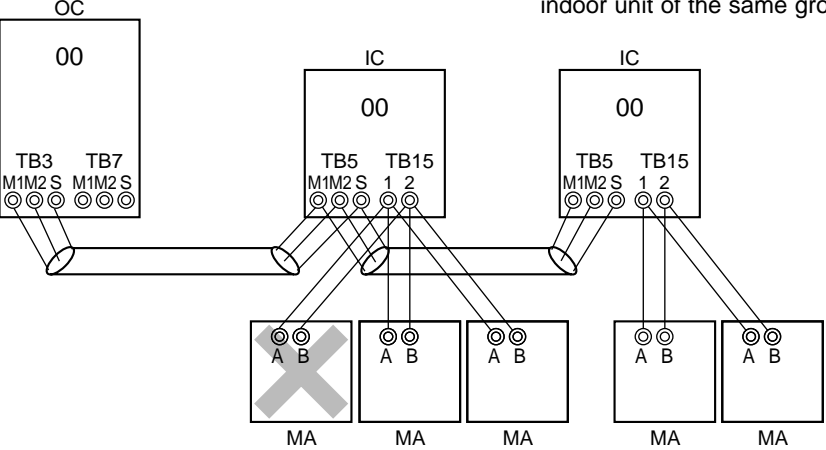
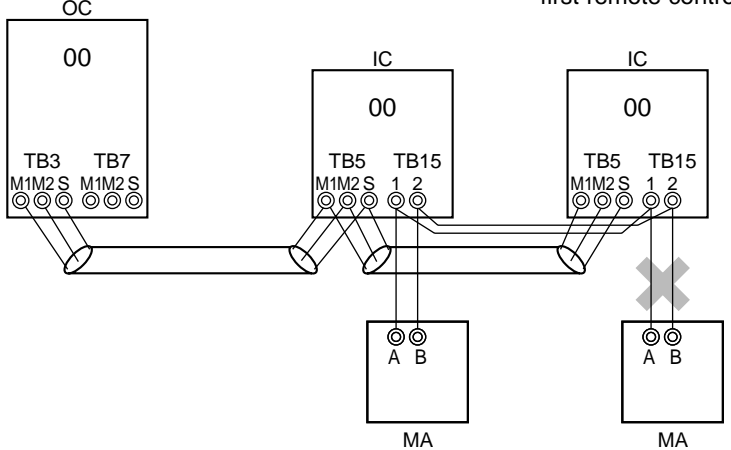
If the length exceeds 10 meters, use a 1.25 mm² shielded wire. The length of this section (L₈) should be included in the calculation of the maximum length and overall length.



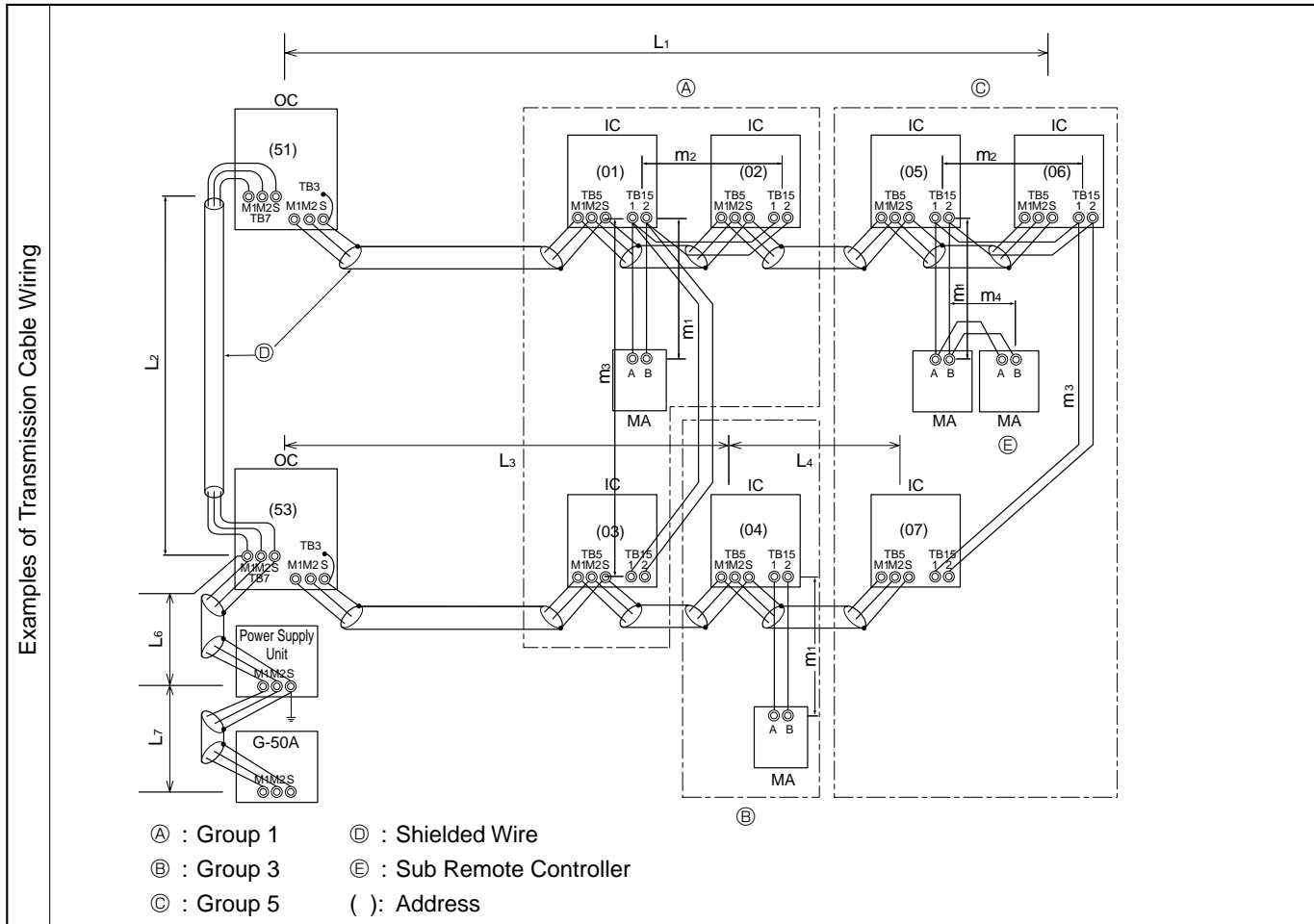
C. Example of a MA remote controller system (address setting is not necessary.)

NOTE : In the case of same group operation, need to set the address that is only main indoor unit.

Example of wiring control cables	Wiring Method and Address Setting
<p>1. Standard operation</p>  <p>• 1 remote controller for each indoor unit.</p>	<p>a. Use feed wiring to connect terminals M1 and M2 on transmission cable block (TB3) for the outdoor unit (OC) to terminals M1 and M2 on the transmission cable block (TB5) of each indoor unit (IC). Use non-polarized 2 wire.</p> <p>b. Connect terminals 1 and 2 on transmission cable terminal block (TB15) for each indoor unit with the terminal block for the MA remote controller (MA).</p>
<p>2. Operation using two remote controllers</p>  <p>• Using 2 remote controllers for each indoor unit.</p>	<p>a. The same as above.</p> <p>b. The same as above.</p> <p>c. In the case of using 2 remote controllers, connect terminals 1 and 2 on transmission cable terminal block (TB15) for each indoor unit with the terminal block for 2 remote controllers.</p> <p>• Set the sub remote controller position for one of MA remote controller's main switch. Refer to the installation manual of MA remote controller.</p>
<p>3. Group operation</p>  <p>• Multiple indoor units operated together by 1 remote controller.</p>	<p>a. The same as above.</p> <p>b. The same as above.</p> <p>c. Connect terminals 1 and 2 on transmission cable terminal block (TB15) of each indoor unit, which is doing group operation with the terminal block the MA remote controller. Use non-polarized 2 wire.</p> <p>d. In the case of same group operation, need to set the address that is only main indoor unit. Please set the smallest address within number 01-50 of the indoor unit with the most functions in the same group.</p>
<p>Combinations of 1 through 3 above are possible.</p>	

Permissible Lengths	Prohibited items
<p>Longest transmission cable length $L_1 + L_2 \leq 200\text{m}$ (1.25 mm²) MA remote controller cable length $l_1, l_2 \leq 200\text{m}$ (0.3 ~ 1.25 mm²)</p>	<p>The MA remote controller and the M-NET remote controller cannot be used together with the indoor unit of the same group.</p> 
<p>Longest transmission cable length The same as above. MA remote controller cable length $l_3 + l_4, l_5 + l_6 \leq 200\text{m}$ (0.3 ~ 1.25 mm²)</p>	<p>3 MA remote controller or more cannot be connected with the indoor unit of the same group.</p> 
<p>Longest transmission cable length The same as above. MA remote controller cable length $l_7 + l_8 \leq 200\text{m}$ (0.3 ~ 1.25 mm²)</p>	<p>The second MA remote controller is connected with the terminal block (TB15) for the MA remote controller of the same indoor unit (IC) as the first remote control.</p> 

D. Example of a group operation with 2 or more outdoor units and a MA remote controller.
(Address settings are necessary.)

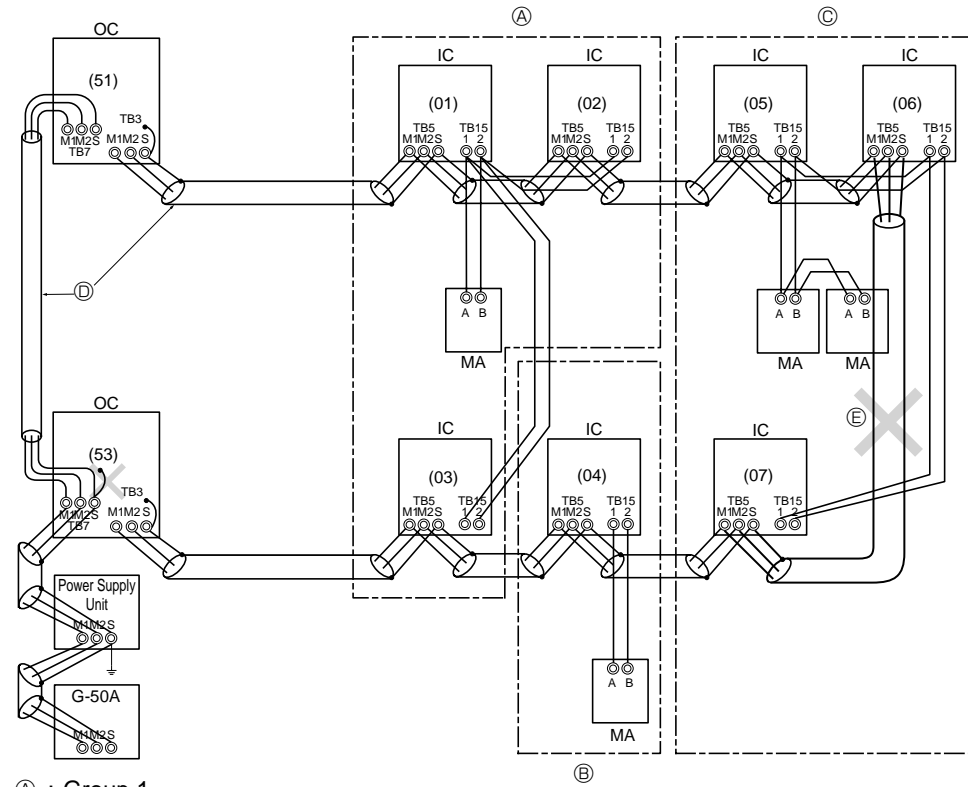


- Wiring Method Address Settings
- Always use shielded wire when making connections between the outdoor unit (OC) and the indoor unit (IC), as well for all OC-OC, and IC-IC wiring intervals.
 - Use feed wiring to connect terminals M1 and M2 and the ground terminal on the transmission cable terminal block (TB3) of each outdoor unit (OC) to terminals M1 and M2 on the terminal S on the transmission cable block of the indoor unit (IC).
 - Connect terminals M1 and M2 on the transmission cable terminal block of the indoor unit (IC) that has the most recent address within the same group to the terminal block on the remote controller (RC).
 - Connect together terminals M1, M2 and terminal S on the terminal block for central control (TB7) for the outdoor unit (OC).
 - DO NOT change the jumper connector CN41 on MULTI controller board.
 - The earth processing of S terminal for the centralized control terminal block (TB7) is unnecessary. Connect the terminal S on the power supply unit with the earth.
 - Set the address setting switch as follows.

Unit	Range	Setting Method
IC (Main)	01 to 00	Use the smallest address within the same group of indoor units.
IC (Sub)	01 to 50	Use an address, other than the IC (Main) in the same group of indoor units. This must be in sequence with the IC (Main).
Outdoor Unit	51 to 100	Use the smallest address of all the indoor units plus 50. *The address automatically becomes "100" if it is set as "01 - 50".
Main Remote Controller	101 to 150	Set at an IC (Main) address within the same group plus 100.
Sub Remote Controller	151 to 200	Set at an IC (Main) address within the same group plus 150.
MA Remote Controller	—	Unnecessary address setting (Necessary main/ sub setting)

- The group setting operations among the multiple indoor units is done by the remote controller (RC) after the electrical power has been turned on.
- When connecting PWFY unit
 - For PWFY series, do not set up group connection with other indoor units.
 - LOSSNAY is not available for use with PWFY series.
 - Use a WMA remote controller for operation of PWFY series.
 For more details, refer to the service manual for PWFY series.

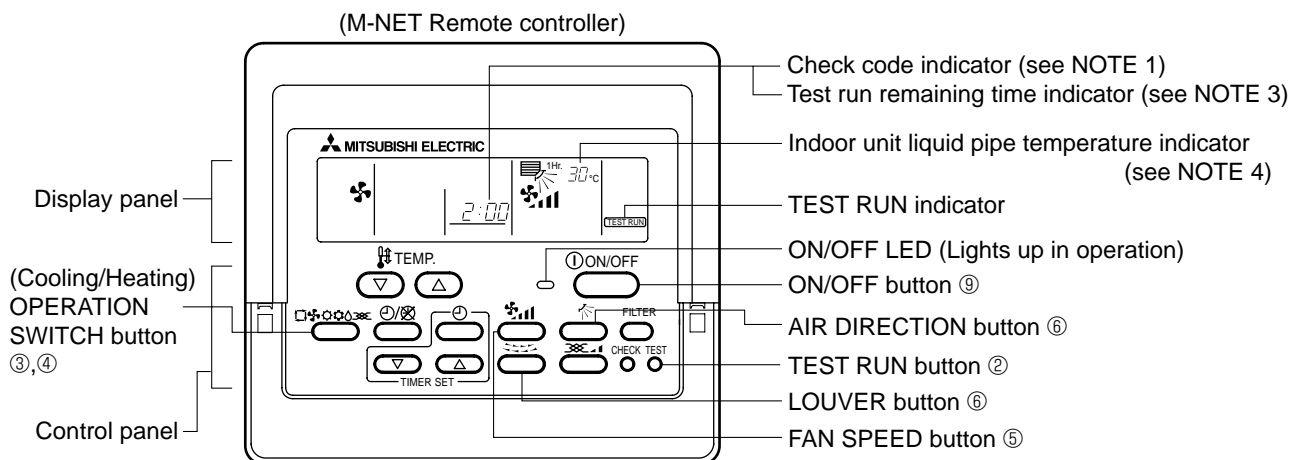
• Name, Symbol, and the Maximum Units for Connection

Permissible Length	<p>Longest length via outdoor unit (M-NET cable): $L_1+L_2+L_3+L_4$ and $L_1+L_2+L_6+L_7 \leq 500$ m (1.25 mm² or more) Longest transmission cable length (M-NET cable): L_1 and L_3+L_4 and L_6 and L_2+L_6 and $L_7 \leq 200$ m (1.25 mm² or more) Remote controller cable length: m_1 and $m_1+m_2+m_3$ and $m_1+m_2+m_3+m_4 \leq 200$ m (0.3 to 1.25 mm²)</p>
Prohibited items	 <p> (A) : Group 1 (B) : Group 3 (C) : Group 5 (D) : Shielded Wire (E) : Sub Remote Controller () : Address </p> <ul style="list-style-type: none"> • Never connect together the terminal blocks (TB5) for transmission wires for indoor units (IC) that have been connected to different outdoor units (OC). • M-NET remote controller and MA remote controller cannot be connected with the indoor unit of the same group wiring together.

9-1. CHECK POINTS FOR TEST RUN

9-1-1. Procedures of test run

- (1) Before a test run, make sure that the following work is completed.
 - Installation related :
 - Make sure that the panel of cassette type and electrical wiring are done.
 - Otherwise electrical functions like auto vane will not operate normally.
 - Piping related :
 - Perform leakage test of refrigerant and drain piping.
 - Make sure that all joints are perfectly insulated.
 - Check stop valves on both liquid and gas side for full open.
 - Electrical wiring related :
 - Check ground wire, transmission cable, remote controller cable, and power supply cable for secure connection.
 - Make sure that all switch settings of address or adjustments for special specification systems are correctly settled.
- (2) Safety check :
 - With the insulation tester of 500V, inspect the insulation resistance.
 - Do not touch the transmission cable and remote controller cable with the tester.
 - The resistance should be over 1.0 MΩ. Do not proceed inspection if the resistance is under 1.0 MΩ.
 - Inspect between the outdoor unit power supply terminal block and ground first, metallic parts like refrigerant pipes or the electrical box next, then inspect all electrical wiring of outdoor unit, indoor unit, and all linked equipment .
- (3) Before operation :
 - a) Turn the power supply switch of the outdoor unit to on for compressor protection. For a test run, wait at least 12 hours from this point.
 - b) Register control systems into remote controller(s). Never touch the on/off switch of the remote controller(s). Refer to “9-1-2. Special Function Operation and Settings (for M-NET Remote Controller)” as for settings. In MA remote controller(s), this registration is unnecessary.
- (4) More than 12 hours later from power supply to the outdoor unit, turn all power switch to on for the test run. Perform test run according to the “Operation procedure” table of the bottom of this page. While test running, make test run reports .
- (5) When you deliver the unit after the test run, instruct the end user for proper usage of the system using owners’ manual and the test run report you made to certificate normal operation. If abnormalities are detected during test run, refer to “9-1-3 Countermeasures for Error During Test Run”. As for DIP switch setting of outdoor unit, refer to “9-5. INTERNAL SWITCH FUNCTION TABLE”.



Operation procedure

①	Turn on the main power supply of all units at least 12 hours before test run. "HO" appears on display panel for 3 min.
②	12 hours later, press TEST RUN button twice to perform test run. "TEST RUN " appears on display panel.
③	Press OPERATION SWITCH button to make sure that air blows out.
④	Select Cooling (or Heating) by OPERATION SWITCH button to make sure that cool (or warm) air blows out.
⑤	Press Fan speed button to make sure that fan speed is changed by the button.
⑥	Press AIR DIRECTION button or LOUVER button to make sure that air direction is adjustable (horizontal, downward, upward, and each angle).
⑦	Check outdoor fans for normal operation.
⑧	Check interlocked devices (like ventilator) for normal operation, if any. This is the end of test run operation.
⑨	Press ON/OFF button to stop and cancel test run.

NOTE 1 : If error code appears on remote controller or remote controller malfunctions, refer to “9-1-3 Countermeasures for Error During Run”.

NOTE 2 : During test run operation, 2-hour off timer activates automatically and remaining time is on remote controller and test run stops 2 hours later.

NOTE 3 : During test run, the indoor liquid pipe temperature is displayed on remote controller instead of room temperature.

NOTE 4 : Depending on a model, “This function is not available” appears when air direction button is pressed. However, this is not malfunction.

9-1-2. Special Function Operation and Settings (for M-NET Remote Controller)

- It is necessary to perform "group settings" and "paired settings" at making group settings of different refrigerant systems (multiple outdoor unit).
- (A) Group settings: Enter the indoor unit controlled by the remote controller, check the content of entries, and clear entries, etc.
- (B) Paired settings: Used to set the linked operation of a Lossnay unit.

(1) Entering address: Follow the steps below to enter the addresses of the indoor unit using the remote controller.

a) Group settings




- Turning off the remote controller: Press the ON/OFF button to stop operation (the indicator light will go off).
- Changing to indoor unit address display mode: If the FILTER and  buttons on the remote controller are pressed simultaneously and held for 2 seconds, the display shown in Figure 1 will appear.
- Changing address: Press the temperature adjustment  buttons to change the displayed address to the address to be entered.
- Entering the displayed address: Press the TEST RUN button to enter the indoor unit with the displayed address. The type of the unit will be displayed as shown in Figure 2 if entry is completed normally. If a selected indoor unit does not exist, an error signal will be displayed as shown in Figure 3. When this happens, check whether the indoor unit actually exists and perform entry again.
- Returning to the normal mode after completing entry: Press the FILTER and  buttons simultaneously and hold for 2 seconds to return to the normal mode.

Figure 1. (A) Group setting display

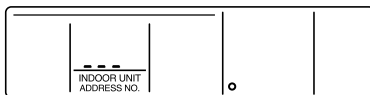
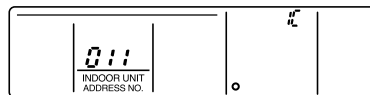
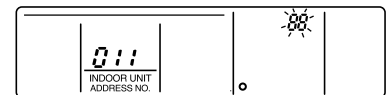


Figure 2. Normal completion of entry



Type of unit is displayed.

Figure 3. Entry error signal



Flashing "88" indicates entry error.

b) Paired Settings






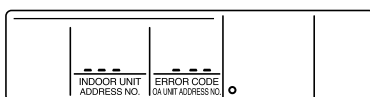
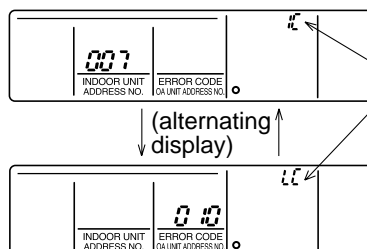
- Turn off the remote controller: Press the remote controller's ON/OFF button to turn it off (the indicator light will go off).
- Put in indoor unit address display mode: Press the FILTER and  buttons on the remote controller simultaneously and hold for 2 seconds.
- *The above steps are the same as when making group settings (A).
- Changing to the linked operation unit address display state: The display shown in Figure 4 will appear when the  button on the remote control is pressed.
- Displaying the address of the Lossnay unit and linked indoor unit: In this situation, the indoor unit number will be the lowest address of the group. The Lossnay unit will not operate if this setting is incorrect.
- * If the temperature adjustment  buttons are pressed, the address may be changed to the indoor unit that are to be linked.
- * If the time setting  buttons are pressed, the address of the linked units may be changed to the address where it is desired to enter the Lossnay.
- Linking the Lossnay and the indoor unit: The display shown in Figure 5 will appear when the TEST RUN button is pressed. The indoor unit whose address is displayed and the Lossnay unit with a linked address will operate in a linked manner.
- * If it is desired to display the address of the Lossnay in the indoor unit address, display the indoor unit address in the linked unit address, and the above content will also be recorded.
- * Apart from the indoor unit with the lowest address in the group, display and enter the addresses of the other indoor unit that are to be linked with the Lossnay unit.
- Returning to the normal mode after completing entry: Press the FILTER and  buttons on the remote controller simultaneously and hold for 2 seconds to return to the normal mode.

Figure 4. (B) Making paired settings



The addresses of indoor unit and linked units are displayed simultaneously.

Figure 5. Completing normal entry





These alternating IC or LC displays will appear when entry is completed normally.






A flashing "88" will appear if there is a problem with the entry (indicating that the unit does not exist).

(2) Address check: Refer to section (1) regarding address entry.

a) In making group settings:

- Turn off the remote controller: Press the remote controller's ON/OFF button to stop operation (the indicator light will go off).
- Locate the indoor unit address display mode: Press the FILTER and  buttons on the remote controller simultaneously and hold for 2 seconds.
- Display indoor unit address: The entered indoor units address and type will be displayed each time the button is pressed.
* When 1 entry is made, only 1 address will be displayed no matter how many times the button is pressed.
- Returning to the normal mode after completing check: Simultaneously press the FILTER and  buttons on the remote controller and hold for 2 seconds to return to the normal mode.

b) In making paired settings:

- Turn off the remote controller: Press the remote controller's ON/OFF button to stop operation (the indicator light will go off).
- Put in indoor unit address display mode: Press the FILTER and  buttons on the remote controller simultaneously and hold for 2 seconds.
- Changing to the linked operation unit address display state: Press the  button on the remote control.
- Displaying the address of the indoor unit to be checked: Change the address to that of the indoor unit to be checked by pressing the temperature adjustment buttons  .
- Displaying the address of the linked Lossnay unit: Press the button to display the addresses of the linked Lossnay and indoor unit in alternation.
- Displaying the addresses of other entered units: The addresses of the other entered units will be displayed in alternating fashion after resting the button again.
- Returning to the normal mode after completing the check: Simultaneously press the FILTER and  buttons on the remote controller and hold for 2 seconds to return to the normal mode.

(3) Clearing an address: Refer to section (1) regarding the address entry and section (2) regarding checking addresses.

a) In making group settings:


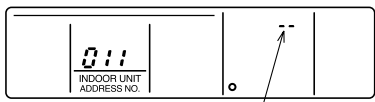
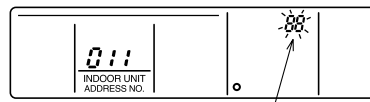
- Turn off the remote controller: The procedure is same as **a)** in (2) Address check.
- Put in the indoor unit address display mode: The procedure is same as **a)** in (2) Address check.
- Displaying the indoor unit address to be cleared: The procedure is same as **a)** in (2) Address check.
- Clearing indoor unit address : Pressing the  button on the remote controller twice will clear the address entry of the displayed indoor unit, resulting in the display shown in Figure 6.
The display shown in Figure 7 will appear if an abnormality occurs and the entry is not cleared.
Please repeat the clearing procedure.
- Returning to the normal mode after clearing an address: The procedure is same as **a)** in (2) Address check.

Figure 6. Display after address has been cleared normally



"--" will appear in the room temperature display location.

Figure 7. Display when an abnormality has occurred during clearing



"88" will appear in the room temperature display location.

b) In making paired settings:


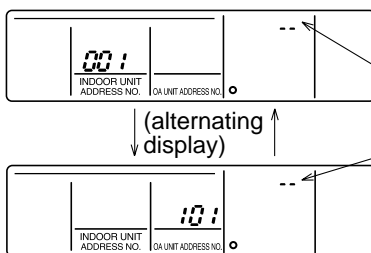
- Turn off the remote controller: The procedure is same as **b)** in (2) Address check.
- Put into the indoor unit address display mode: The procedure is same as **b)** in (2) Address check.
- Put into the linked unit address display mode: The procedure is same as **b)** in (2) Address check.
- Display the address of the Lossnay unit or the indoor unit to be cleared.
- Deleting the address of a linked indoor unit: Pressing the  button on the remote controller twice will clear the address entry of the displayed indoor unit, resulting in the display shown in Figure 8.
- Returning to the normal mode after clearing an address: The procedure is same as **b)** in (2) Address check.

Figure 8. Display after address has been cleared normally



"--" will appear in the unit type display location when an address has been cleared normally.

"88" will appear in the unit type display location when an abnormality has occurred during clearing.

9-1-3. Countermeasures for Error During Test Run

- If a problem occurs during test run, a code number will appear in the temperature display area on the remote controller (or LED on the outdoor unit), and the air conditioning system will automatically cease operating.

Determine the nature of the abnormality and apply corrective measures.

Check code	Trouble	Detected unit			Remarks
		Indoor	Outdoor	Remote controller	
0403	Serial transmission trouble		○		Outdoor unit Multi controller board ~ Power board communication trouble
1102	Discharge/Compressor temperature trouble		○		Check delay code 1202
1300	Low Pressure trouble		○		Check delay code 1400
1302	High pressure trouble		○		Check delay code 1402
1500	Excessive refrigerant replenishment		○		Check delay code 1600
1501	Insufficient refrigerant trouble		○		Check delay code 1601
1505	Vacuum operation protection		○		
2000	Pump interlock error * 1	○			Check delay code 2100
2134	Abnormal water temperature * 1	○			Check delay code 2234
2135	Water-source heat exchanger freezing * 1	○			Check delay code 2235
2500	Water leakage	○			
2502	Drain pump trouble	○	○		
2503	Drain sensor trouble (THd)	○			
4100	Overcurrent trouble (Overload, compressor lock)		○		Check delay code 4350
4115	Power synchronization signal trouble		○		Check delay code 4165
4220	Inverter trouble		○		Check delay code 4320
4230	Overheat protection of radiator panel		○		Check delay code 4330
4250	Power module trouble or Overcurrent trouble		○		Check delay code 4350
4400	Fan controller trouble (Outdoor)		○		Check delay code 4500
5101	Air inlet sensor trouble (TH21) or Discharge/Compressor temperature sensor trouble (TH4)	○	○		Check delay code 1202
5102	Liquid pipe temp. sensor trouble (TH22)	○			
	Low pressure saturated temp. sensor trouble (TH6)		○		Check delay code 1211
5103	Gas pipe temperature sensor trouble (TH23)	○			
5105	Piping temperature sensor trouble (TH3)		○		Check delay code 1205
5106	Temperature sensor fault (TH6) * 1	○			Check delay code 2237
	Outdoor temperature sensor trouble (TH7)		○		Check delay code 1221
5108	Temperature sensor fault (TH8) * 1	○			Check delay code 2238
5110	Heatsink temperature sensor trouble (TH8)		○		Check delay code 1214
5201	Pressure sensor trouble (63HS)		○		Check delay code 1402
5300	Current sensor trouble		○		Check delay code 4310
5701	Contact failure of drain float switch	○			
6600	Duplicated unit address setting	○	○	○	Only M-NET Remote controller is detected.
6602	Transmission error (Transmission processor hardware error)	○	○	○	Only M-NET Remote controller is detected.
6603	Transmission error (Transmission route BUSY)	○	○	○	Only M-NET Remote controller is detected.
6606	Transmission and reception error (Communication trouble with transmission processor)	○	○	○	Only M-NET Remote controller is detected.
6607	Transmission and reception error (No ACK error)	○		○	Only M-NET Remote controller is detected. *
6608	Transmission and reception error (No response error)	○		○	Only M-NET Remote controller is detected. *
6831	MA communication receive signal error (no receive signal)	○		○	Only MA Remote controller is detected.
6832	MA communication send signal error (starting bit detection error)	○		○	Only MA Remote controller is detected.
6833	MA communication send error (H/W error)	○		○	Only MA Remote controller is detected.
6834	MA communication receive error (Synchronous recovery error)	○		○	Only MA Remote controller is detected.
7100	Total capacity error		○		
7101	Capacity code error	○	○		
7102	Connecting unit number error		○		
7105	Address set error		○		
7111	Remote controller sensor trouble			○	

*1 Abnormality for PWFY series

NOTE)

When the outdoor unit detects No ACK error/No response error, an object indoor unit is treated as a stop, and not assumed to be abnormal.

Self-diagnosis function

The indoor and outdoor units can be diagnosed automatically using the self-diagnosis switch (SW1) and LED1, LED2 (LED indication) found on the multi-controller of the outdoor unit.

LED indication : Set all contacts of SW1 to OFF.

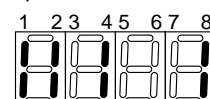
During normal operation

The LED indicates the drive state of the controller in the outdoor unit.

Bit	1	2	3	4	5	6	7	8
Indication	Compressor operated	52C	21S4	SV1	(SV2)	—	—	Always lit

[Example]

When the compressor and SV1 are turned during cooling operation.





Display	Abnormal point and detecting method	Causes	Check points
1102	<p>High discharge/compressor temperature Abnormal if discharge/compressor temperature thermistor (TH4) exceeds 125°C or 110°C continuously for 5 minutes. Abnormal if pressure detected by high-pressure sensor and converted to saturation temperature exceeds 40°C during defrosting and discharge/compressor temperature thermistor (TH4) exceeds 110°C.</p>	<p>① Over-heated compressor operation caused by shortage of refrigerant ② Defective operation of stop valve ③ Defective thermistor ④ Defective outdoor controller board ⑤ Defective action of linear expansion valve</p>	<p>① Check intake super heat. Check leakage of refrigerant. Charge additional refrigerant. ② Check if stop valve is full open. ③④ Turn the power off and check if 5101 is displayed when the power is put again. When 5101 is displayed, refer to "Check points" for 5101. ⑤ Check linear expansion valve.</p>
1300	<p>Low pressure (63L operated) Abnormal if 63L is operated (under- 0.03MPa) during compressor operation. 63L: Low-pressure switch</p>	<p>① Stop valve of outdoor unit is closed during operation. ② Disconnection or loose connection of connector (63L) on outdoor controller board ③ Disconnection or loose connection of 63L ④ Defective outdoor controller board ⑤ Leakage or shortage of refrigerant ⑥ Malfunction of linear expansion valve</p>	<p>① Check stop valve. ②~④ Check the connector (63L) on outdoor controller board. ⑤ Correct to proper amount of refrigerant. ⑥ Check linear expansion valve.</p>
1302	<p>(1) High pressure (High-pressure switch 63H operated) Abnormal if high-pressure switch 63H operated (*) during compressor operation. * 4.15 MPa 63H: High-pressure switch</p> <p>(2) High pressure (High - pressure sensor 63HS detect) Abnormal if high-pressure sensor detects 4.31MPa or more (or over 4.15MPa for 3 minutes) during the compressor operation.</p>	<p>① Short cycle of indoor unit ② Clogged filter of indoor unit ③ Decreased airflow caused by dirt of indoor fan ④ Dirt of indoor heat exchanger ⑤ Locked indoor fan motor ⑥ Malfunction of indoor fan motor ⑦ Defective operation of stop valve (Not fully open) ⑧ Clogged or broken pipe ⑨ Locked outdoor fan motor ⑩ Malfunction of outdoor fan motor ⑪ Short cycle of outdoor unit ⑫ Dirt of outdoor heat exchanger ⑬ Decreased airflow caused by defective inspection of outside temperature thermistor (It detects lower temperature than actual temperature.) ⑭ Disconnection or contact failure of connector (63H) on outdoor controller board ⑮ Disconnection or contact failure of 63H connection ⑯ Defective outdoor controller board ⑰ Defective action of linear expansion valve ⑱ Malfunction of fan driving circuit ⑲ Solenoid valve (SV1) performance failure (High-pressure pressure cannot be controlled by SV1.) ⑳ High-pressure sensor defective ㉑ High-pressure sensor input circuit defective in multi controller board</p>	<p>①~⑥ Check indoor unit and repair defectives. ⑦ Check if stop valve is fully open. ⑧ Check piping and repair defectives. ⑨~⑫ Check outdoor unit and repair defectives. ⑬ Check the inspected temperature of outside temperature thermistor on LED display. ⑭~⑯ Check the connector (63H) on outdoor controller board. ⑰ Check linear expansion valve. ⑱ Replace outdoor controller board. ⑲ Check the solenoid valve performance. ⑳ Check the high-pressure sensor. ㉑ Check the high-pressure sensor.</p>
1500	<p>Superheat due to low discharge temperature Abnormal if discharge superheat is continuously detected less than or equal to -15°C even though linear expansion valve has minimum open pulse after compressor starts operating for 10 minutes.</p>	<p>① Disconnection or loose connection of discharge/compressor temperature thermistor (TH4) ② Defective holder of discharge temperature thermistor</p>	<p>①② Check the installation conditions of discharge/compressor temperature thermistor (TH4).</p>

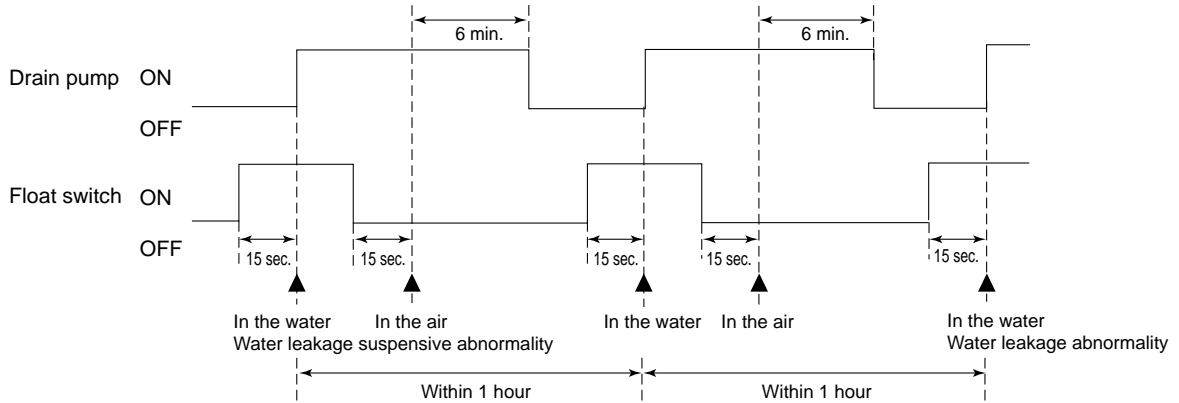


Display	Abnormal point and detecting method	Causes	Check points
1501	<p>Refrigerant shortage</p> <p>When the conditions of below detecting mode I or II are satisfied during the compressor operation.</p> <p><Detecting mode I ></p> <p>When the below conditions are satisfied completely.</p> <ol style="list-style-type: none"> 1. Compressor is operating in HEAT mode. 2. Discharge super heat is 80°C or more. 3. Difference of outer temperature thermistor (TH7) and outdoor piping temp. thermistor (TH3) applies to the formula of $(TH7-TH3) < 5^{\circ}C$. 4. High-pressure sensor is below about 2.04MPa. <p><Detecting mode II ></p> <p>When the below conditions are satisfied completely.</p> <ol style="list-style-type: none"> 1. Compressor is operating. 2. When cooling, discharge superheat is 80°C or more. When heating, discharge superheat is 90°C or more. <p>High pressure sensor is below about 2.32MPa.</p>	<ol style="list-style-type: none"> ① Gas leakage, Gas shortage ② When heating operation, refrigerant shortage feeling operation (When heating, airflow or thermo OFF are mixed-operation, it cause a refrigerant shortage operation.) ③ Ball valve performance failure (not fully opened.) ④ Error detection of discharge super heat <ol style="list-style-type: none"> 1) High-pressure sensor defective 2) Discharge temperature thermistor defective 3) Thermistor input circuit defective and high-pressure sensor defective in multi controller board ⑤ Error detection of TH7/TH3 <ol style="list-style-type: none"> 1) Thermistor defective 2) Thermistor input circuit defective in multi controller board 	<ol style="list-style-type: none"> ① Check the refrigerant amount. ② Check the operation condition and refrigerant amount. ③ Check the ball valve is fully opened. ④ <ol style="list-style-type: none"> 1) Check the ball valve is fully opened. 2) Check the resistance of discharge temperature thermistor. 3) According to "Outdoor unit functions", set the SW2 and check the high-pressure sensor level. According to "Outdoor unit functions", check the discharge temp. thermistor level. When the high-pressure sensor and discharge temp. thermistor are normal, if the above mentioned detecting pressure level and temp. are very different from the actual pressure and temp., replace the multi controller board. ⑤ <ol style="list-style-type: none"> 1) Check the resistance of thermistor. 2) According to "Outdoor unit functions", check the outdoor pipe temp. thermistor level. 3) According to "Outdoor unit functions", check the outer temp. thermistor level.
2000	<p>Pump interlock error</p> <ul style="list-style-type: none"> • Preliminary pump interlock error is detected when the pump interlock circuit becomes open while the units are stopped during Thermo-ON. • While in a preliminary error state, if the units come to a stop due to Thermo-OFF, they will remain in the restart delay mode for 9 minutes and 59 seconds, and during that period they will not be permitted to restart. 	Pump is not connected properly.	Check the pump for proper connection. Check the pump interlock circuit.
2134	<p>Abnormal water temperature</p> <ul style="list-style-type: none"> • In the case of BU and WH, if the value of TH6 becomes equal to or greater than 85°C, units will stop and go into the 3 minute restart delay mode. • For a period of thirty minutes after the units came to a stop is considered a preliminary error. 	<ol style="list-style-type: none"> ① Pump is not connected properly. ② Thermistor fault ③ Disconnected thermistor connector 	<ol style="list-style-type: none"> ① Check the pump for proper connection. ② Replace thermistor TH6. ③ Check the thermistor connector.
2135	<p>Water heat exchanger freeze up</p> <ul style="list-style-type: none"> • If a water inlet temperature (TH6) or a water outlet temperature (TH8) of 2°C or lower is detected during operation, units will stop and go into the 3 minute restart delay mode. • For a period of sixty minutes after the units came to a stop is considered a preliminary error. 	<ol style="list-style-type: none"> ① Pump is not connected properly. ② Thermistor fault ③ Disconnected thermistor connector 	<ol style="list-style-type: none"> ① Check the pump for proper connection. Check the amount of circulating refrigerant. ② Replace thermistor TH6, TH8. ③ Check the thermistor connector.



Display	Abnormal point and detecting method	Causes	Check points
2500 (Float switch model)	<p>Water leakage</p> <ol style="list-style-type: none"> Suspensive Abnormality when float switch detects to be in the water and drain pump turns on and off except during cooling or dry mode. Abnormal when detecting that the drain pump turns on and off again within 1 hour after the detection of water leakage suspensive abnormality, and repeats the detection twice. <2500> is displayed. The unit continues to detect abnormality while turned off. To release water leakage suspensive abnormality <ul style="list-style-type: none"> When not detecting that the drain pump turns off and on within 1 hour after detecting suspensive abnormality. When turning to cooling operation or dry operation. Detected that [liquid pipe temperature – room temperature] ≤ -10deg[-18°F] 	<ol style="list-style-type: none"> Defective drain Clogged drain pump Clogged drain pipe Adverse flow of drain in other units Defective moving part of float switch Foreign matter on the moving part of float switch(ex. sludge etc.) Defective float switch 	<ol style="list-style-type: none"> Check the drain function. Check moving part of float switch. Check the value of resistance with the float switch ON/OFF.

Operation mode: When drain pump turns on as float switch detects to be in the water except during cooling/dry mode





Display	Abnormal point and detecting method	Causes	Check points
2502 (Drain sensor model)	<p>Drain pump (DP)</p> <p>① Let drain sensor self-heated, and if temperature rises slightly, as suspensive abnormality operation stops and changes to protect mode of restarting in 3 minutes.</p> <p>② Drain pump is abnormal if the condition above is detected during suspensive abnormality. <2502> is displayed.</p> <p>③ Malfunction of drain pipe is constantly detected during drain pump operation.</p>	<p>① Malfunction of drain pump</p> <p>② Defective drain Clogged drain pump Clogged drain pipe</p> <p>③ Water drops on drain sensor • Drops of drain trickles from lead wire. • Clogged filter is causing wave of drain.</p> <p>④ Defective indoor controller board</p>	<p>① Check if drain pump works.</p> <p>② Check drain function.</p> <p>③ Check the setting of lead wire of drain sensor and check clogs of the filter.</p> <p>④ Replace indoor controller board when there is no problem in the above mentioned ①~③.</p>
	<p>④ The unit enters to forced outdoor unit stop when following conditions, a) and b), are satisfied (while the above mentioned detection is performed).</p> <p>a) The drain sensor detects to be soaked in the water 10 times in a row.</p> <p>b) Detected that [liquid pipe temperature – room temperature] ≤ -10deg[-18°F] for (30 minutes constantly.) (When the drain sensor detects to be NOT soaked in the water, the detection record of a) and b) will be cleared.)</p> <p>* Drain pump abnormality (above ①~③) is detected before it becomes an outdoor unit forced stop condition.</p> <p>⑤ When indoor unit detects above ④ condition, outdoor unit in same refrigerant sytem stops. Also, indoor unit except for Fan or OFF mode unit stop. <2502> is displayed on stopped unit.</p> <p>⑥ Detection timing of forced outdoor unit stop Constantly detected during unit operation and stop</p> <p>⑦ Releasing of forced outdoor unit stop Reset power supply of both abnormal indoor unit and its outdoor unit in same refrigerant system. Forced outdoor unit stop cannot be released by remote controller OFF.</p> <p>NOTE) Above-mentioned ①~③ and ④~⑦ are detected independently.</p>	<p>⑤ Both of above mentioned ①~④ and the indoor linear expansion valve full-closed failure (leakage) happens synchronistically.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 20px;"> <p>(Note) Address/Attribute displayed on the remote controller shows the indoor unit which is cause of trouble.</p> </div>	<p>Check whether the indoor linear expansion valve leaks or not.</p>

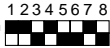


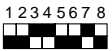
Display	Abnormal point and detecting method	Causes	Check points
2502 (Float switch model)	<p>Drain pump (DP)</p> <p>① Judge whether the sensor is in the water or in the air by turning the float switch ON/OFF. In the water: Detected that the float switch is ON for 15 seconds. In the air: Detected that the float switch is OFF for 15 seconds.</p> <p>② When the float switch remains to be turned ON for 3 minutes after detected to be in the water, the drain pump is judged to be abnormal and <2502> will be displayed. *It takes 3 minutes and 15 seconds to detect abnormality including the time to judge to be in the water.</p> <p>③ The unit continue to detect abnormality while turned off.</p> <p>④ When the conditions below 1, 2 and forced outdoor unit stop condition are met 1. Detected that [liquid pipe temperature – room temperature] $\leq -10\text{deg}[-18^{\circ}\text{F}]$ for 30 minutes constantly. 2. Float switch detects to be in the water for 15 minutes constantly.</p> <p>*Before Forced outdoor unit stop condition is met, the unit always detects ①-③ above.</p> <p>⑤ The indoor unit detecting ④ above stops due to detecting abnormality the outdoor unit in same refrigerant system (compressor is inhibited to operate). The unit which stops due to detecting abnormality displays <2502>.</p> <p>⑥ Detection timing of forced outdoor unit stop Constantly detected during unit operation and stop</p> <p>⑦ Releasing of forced outdoor unit stop Reset power supply of both abnormal indoor unit and its outdoor unit in same refrigerant system. Forced outdoor unit stop cannot be released by remote controller OFF.</p> <p>NOTE) Above-mentioned ①~③ and ④~⑦ are detected independently.</p>	<p>① Malfunction of drain pump</p> <p>② Defective drain Clogged drain pump Clogged drain pipe</p> <p>③ Defective moving part of float switch Foreign matter on the moving part of float switch (ex. sludge etc.)</p> <p>④ Defective float switch</p> <p>⑤ Defective indoor controller board Defective driving circuit of drain pump Defective input circuit of float switch</p> <p>⑥ Both of above mentioned ①~⑤ and the indoor linear expansion valve full-closed failure (leakage) happens synchronistically.</p> <div data-bbox="627 887 999 969" style="border: 1px solid black; padding: 2px;"> <p>(Note) Address/Attribute displayed on the remote controller shows the indoor unit which is cause of trouble.</p> </div>	<p>① Check if drain pump works.</p> <p>② Check drain function.</p> <p>③ Check moving part of float switch.</p> <p>④ Check the value of resistance with the float switch ON/OFF.</p> <p>⑤ Change the indoor controller board.</p> <p>⑥ Check whether the indoor linear expansion valve leaks or not.</p>
2503	<p>Drain sensor (THd, DS) abnormality When the drain sensor detects short/open while the operation.</p>	<p>① Connector (CN31) contact failure (insertion failure)</p> <p>② Thermistor wiring disconnection or half disconnection</p> <p>③ Thermistor defective</p> <p>④ Indoor controller board (detecting circuit) failure</p>	<p>① Check whether the indoor controller board connector (CN31) is disconnected or not.</p> <p>② Check whether the thermistor wiring is disconnected or not.</p> <p>③ Check the resistance of thermistor.</p> <p>④ If abnormality is not found in the method of the above-mentioned from ① to ③, it is defective of the indoor controller board.</p>
4100	<p>Compressor overcurrent interruption (When compressor locked) Abnormal if overcurrent of DC bus or compressor is detected within 30 seconds after compressor starts operating.</p> <p>Over current level: 27.5A (V)/18.0A (Y)</p>	<p>① Stop valve is closed.</p> <p>② Decrease of power supply voltage</p> <p>③ Looseness, disconnection or converse of compressor wiring connection</p> <p>④ Defective compressor</p> <p>⑤ Defective outdoor power board</p>	<p>① Open stop valve.</p> <p>② Check facility of power supply.</p> <p>③ Correct the wiring (U·V·W phase) to compressor.</p> <p>④ Check compressor.</p> <p>⑤ Replace outdoor power circuit board.</p>



Display	Abnormal point and detecting method	Causes	Check points
4220	<p>Overvoltage or voltage shortage Abnormal if any of followings are detected during compressor operation:</p> <ul style="list-style-type: none"> • Decrease of DC bus voltage to 310V • Instantaneous decrease of DC bus voltage to 200V (V)/350V (Y). • Increase of DC bus voltage to 400V (V)/760V (Y). • Decrease of input current of outdoor unit to 0.1A only if operation frequency is more than or equal to 40Hz or compressor current is more than or equal to 6A. 	<ol style="list-style-type: none"> ① Decrease of power supply voltage ② Disconnection of compressor wiring ③ Defective X52A (Y)/52C (V) ④ Defective outdoor converter circuit board (Y) ⑤ Disconnection or loose connection of CN5 on the outdoor power circuit board ⑥ Defective 52C drive circuit of outdoor multi controller board (V) ⑦ Disconnection or loose connection of CN2 on the outdoor power circuit board. ⑧ Defective ACT module (V) ⑨ Disconnection or loose connection of CNAF (V) ⑩ Defective ACT module drive circuit of outdoor controller circuit board (V) 	<ol style="list-style-type: none"> ① Check the facility of power supply. ② Correct the wiring (U-V-W phase) to compressor. (Outdoor power circuit board) ③ Replace power board (Y)/noise filter circuit board (V). ④ Replace outdoor converter circuit board (Y). ⑤ Check CN5 wiring on the outdoor power circuit board. ⑥ Replace outdoor multi controller board (V). ⑦ Check CN2 wiring on the outdoor power circuit board. ⑧ Replace ACT module (V). ⑨ Check CNAF wiring (V). ⑩ The 4220 error history can be confirmed with SW1 No.189. <div style="text-align: right;"> <small>1 2 3 4 5 6 7 8</small>  </div>
4230	<p>Temperature of heatsink Abnormal if heatsink thermistor (TH8) detects 85°C (V)/95°C (Y)</p> <p>NOTE) TH8 is internal thermistor of power module on power board. (Y)</p>	<ol style="list-style-type: none"> ① The outdoor fan motor is locked. ② Failure of outdoor fan motor ③ Airflow path is clogged. ④ Rise of ambient temperature ⑤ Defective thermistor ⑥ Defective input circuit of outdoor power circuit board ⑦ Failure of outdoor fan drive circuit 	<ol style="list-style-type: none"> ①② Check outdoor fan. ③ Check air flow path for cooling. ④ Check if there is something which causes temperature rise around outdoor unit. (Upper limit of ambient temperature is 46°C.) Turn off power, and on again to check if 4230 is displayed within 30 minutes. ⑤ Check thermistor <TH8> temperature by microprocessor. ⑥ Replace outdoor power circuit board. ⑦ Replace outdoor controller circuit board.
4250	<p>(1) Power module Check abnormality by driving power module in case overcurrent is detected.</p>	<ol style="list-style-type: none"> ① Outdoor stop valve is closed. ② Decrease of power supply voltage ③ Looseness, disconnection or converse of compressor wiring connection ④ Defective compressor ⑤ Defective outdoor power circuit board 	<ol style="list-style-type: none"> ① Open stop valve. ② Check facility of power supply. ③ Correct the wiring (U-V-W phase) to compressor. (Outdoor power circuit board). ④ Check compressor. ⑤ Replace outdoor power circuit board.
	<p>(2) Compressor overcurrent interruption Abnormal if overcurrent DC bus or compressor is detected after compressor starts operating for 30 seconds.</p> <p>Over current level: 27.5A (V)/18.0A (Y)</p>	<ol style="list-style-type: none"> ① Stop valve of outdoor unit is closed. ② Decrease of power supply voltage ③ Looseness, disconnection or converse of compressor wiring connection ④ Defective fan of indoor/outdoor units ⑤ Short cycle of indoor/outdoor units ⑥ Defective input circuit of outdoor controller board ⑦ Defective compressor 	<ol style="list-style-type: none"> ① Open stop valve. ② Check facility of power supply. ③ Correct the wiring (U-V-W phase) to compressor. (Outdoor power circuit board). ④ Check indoor/outdoor fan. ⑤ Solve short cycle. ⑥ Replace outdoor controller circuit board. ⑦ Check compressor. * Before the replacement of the outdoor controller circuit board, disconnect the wiring to compressor from the outdoor power circuit board and check the output voltage among phases, U, V, W, during test run (SW7-1 ON). No defect on board if voltage among phases (U-V, V-W and W-U) is same. Make sure to perform the voltage check with same performing frequency.
4400	<p>Outdoor fan motor The outdoor fan motor is considered to be abnormal if the rotational frequency of fan motor is abnormal when detected during operation. Fan motor rotational frequency is abnormal if:</p> <ul style="list-style-type: none"> • 100 rpm or below detected continuously for 15 seconds at 20°C or more outside air temperature • 50 rpm or below or 1500 rpm or more detected continuously for 1 minute. 	<ol style="list-style-type: none"> ① Failure in the operation of the DC fan motor ② Failure in the outdoor circuit controller board 	<ol style="list-style-type: none"> ① Check or replace the DC fan motor. ② Check the voltage of the outdoor circuit controller board during operation. ③ Replace the outdoor circuit controller board. (when the failure is still indicated even after performing the check points ① above.)

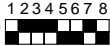



Display	Abnormal point and detecting method	Causes	Check points
5101	<p>Room temperature thermistor (TH21)</p> <p>When controller detects short (high temp.)/open (low temp.) in thermistor during the operation, the operation stops and the operation changes to protect mode of restarting in 3 minutes. If the thermistor does not recover in 3 minutes, the operation stops due to detecting abnormality. In this time, <5101> is displayed. Then, if the thermistor recover in 3 minutes, it operates normally.</p> <p>Short: Detected 90°C or more Open: Detected -40°C or less</p>	<p>① Connector (CN20) contact failure</p> <p>② Thermistor wiring disconnection or half disconnection</p> <p>③ Thermistor failure</p> <p>④ Detecting circuit failure in the indoor controller board</p>	<p>① Check whether the connector (CN20) in the indoor controller board is connected or not.</p> <p>② Check whether the thermistor wiring is disconnected or not.</p> <p>③ Check the resistance of thermistor; 0°C ...15kΩ 10°C ...9.6kΩ 20°C ...6.3kΩ 30°C ...4.3kΩ 40°C ...3.0kΩ</p> <p>④ When there is no problem in above mentioned ①②③, replace the indoor controller board.</p>
	<p>Discharge/Compressor temperature thermistor (TH4)</p> <p>① When controller detects short/open in thermistor during the operation, the outdoor unit stops once and restarts operation in 3 minutes. When the detected temperature is normal at just before of restarting, the outdoor unit restarts.</p> <p>② When controller detects short/open in thermistor at just before of restarting, the unit stops due to detecting abnormality. In this time, <5101> is displayed.</p> <p>③ For 10 minutes after starting compressor, for defrosting or for 3 minutes after recover of defrosting, above-mentioned short/open are not detected.</p> <p>Short: 219.4°C or more (1kΩ) Open: 1.5°C or less (700kΩ)</p> <p>Note) When outer temperature thermistor (TH7) is 5°C or less on cooling, open detecting is not determined as abnormality.</p>	<p>① Connector (TH4) contact failure</p> <p>② Thermistor wiring disconnection or half disconnection</p> <p>③ Thermistor failure</p> <p>④ Multi controller board input circuit failure</p>	<p>① Check whether the connector (TH4) in the multi controller board is connected or not.</p> <p>② Check whether the thermistor wiring is disconnected or not.</p> <p>③ Check the resistance of thermistor; When the resistance is not below value, replace the thermistor. 0°C ... about 700kΩ 10°C ... about 410kΩ 20°C ... about 250kΩ 30°C ... about 160kΩ 40°C ... about 104kΩ</p> <p>④ Set the SW1 to ^{on} </p> <p>When the temperature in multi controller board is not an actual temperature, replace the multi controller board.</p> <p>1.3: Open 219.4: Short</p>

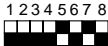
Display	Abnormal point and detecting method	Causes	Check points
5102 *1	<p>Liquid pipe temperature thermistor (TH22)</p> <p>When the thermistor detects short/open during the operation, the operation stops and the operation changes to protect mode of restarting in 3 minutes. If the thermistor does not recover in 3 minutes, the operation stops due to detecting abnormality. In this time, <5102> is displayed. Then, if the thermistor recovers in 3 minutes, it operates normally.</p> <p>Short: Detected 90°C or more</p> <p>Open: Detected -40°C or less</p>	<p>① Connector (CN21) contact failure</p> <p>② Thermistor wiring disconnection or half disconnection</p> <p>③ Thermistor failure</p> <p>④ Detecting circuit failure in the indoor controller board</p>	<p>① Check whether the connector (CN21) in the indoor controller board is connected or not.</p> <p>② Check whether the thermistor wiring is disconnected or not.</p> <p>③ Check the resistance of thermistor; 0°C15kΩ 10°C ...9.6kΩ 20°C ...6.3kΩ 30°C ...4.3kΩ 40°C ...3.0kΩ</p> <p>④ When there is no problem in above mentioned ①②③, replace the indoor controller board.</p>
	<p>Low pressure saturation temperature thermistor (TH6)</p> <p>① When controller detects short/open in thermistor during the operation, the outdoor unit stops once and restarts operation in 3 minutes. When the detected temperature is normal at just before of restarting, the outdoor unit restarts.</p> <p>② When controller detects short/open in thermistor at just before of restarting, the unit stops due to detecting abnormality. In this time, <5102> is displayed.</p> <p>③ For 10 minutes after starting compressor, heating mode, above-mentioned short/open are not detected.</p> <p>Short: 90°C or more</p> <p>Open: -40°C or less</p>	<p>① Connector (TH6) contact failure</p> <p>② Thermistor wiring disconnection or half disconnection</p> <p>③ Thermistor failure</p> <p>④ Multi controller board input circuit failure</p>	<p>① Check whether the connector (TH6) in the multi controller board is connected or not.</p> <p>② Check whether the thermistor wiring is disconnected or not.</p> <p>③ Check the resistance of thermistor; 0°C15kΩ 10°C ...9.6kΩ 20°C ...6.3kΩ 30°C ...4.3kΩ 40°C ...3.0kΩ</p> <p>④ Set the SW1 to on  on</p> <p>When the temperature in multi controller board is not an actual temperature, replace the multi controller board.</p> <p>-42.5: Open 91.9: Short</p>
5103 *1	<p>Gas pipe temperature thermistor (TH23)</p> <p>When the thermistor detects short/open after 3 minutes-continuous thermo ON during cooling or dry operation, the operation stops and the operation changes to protect mode of restarting in 3 minutes. If the thermistor does not recover in 3 minutes, the operation stops due to detecting abnormality. In this time, <5103> is displayed. Then, if the thermistor recover in 3 minutes, it operates normally.</p> <p>Short: Detected 90°C or more</p> <p>Open: Detected -40°C or less</p>	<p>① Connector (CN29) contact failure</p> <p>② Thermistor wiring disconnection or half disconnection</p> <p>③ Thermistor failure</p> <p>④ Detecting circuit failure in the indoor controller board</p>	<p>① Check whether the connector (CN29) in the indoor controller board is connected or not.</p> <p>② Check whether the thermistor wiring is disconnected or not.</p> <p>③ Check the resistance of thermistor: 0°C15kΩ 10°C ...9.6kΩ 20°C ...6.3kΩ 30°C ...4.3kΩ 40°C ...3.0kΩ</p> <p>④ When there is no problem in above mentioned ①②③, replace the indoor controller board.</p>

*1 For PWFY series, refer to page 53.



Display	Abnormal point and detecting method	Causes	Check points
5105	<p>Pipe temperature/judging defrost thermistor (TH3)</p> <p>① When controller detects short/open in thermistor during the operation, the outdoor unit stops once and restarts operation in 3 minutes. When the detected temperature is normal at just before of restarting, the outdoor unit restarts.</p> <p>② When controller detects short/open in thermistor at just before of restarting, the unit stops due to detecting abnormality. In this time, <5105> is displayed.</p> <p>③ For 10 minutes after starting compressor, for defrosting or for 3 minutes after recover of defrosting, above-mentioned short/open are not detected. Short: 88°C or more (0.4kΩ) Open: -39°C or less (115kΩ)</p>	<p>① Connector (TH3) contact failure</p> <p>② Thermistor wiring disconnection or half disconnection</p> <p>③ Thermistor failure</p> <p>④ Multi controller board input circuit failure</p>	<p>① Check whether the connector (TH3) in the multi controller board is connected or not.</p> <p>② Check whether the thermistor wiring is disconnected or not.</p> <p>③ Check the resistance of thermistor; When the resistance is not below value, replace the thermistor.</p> <p>0°C15kΩ 10°C ...9.6kΩ 20°C ...6.3kΩ 30°C ...4.3kΩ 40°C ...3.0kΩ</p> <p>④ Set the SW1 to on  When the temperature in multi controller board is not an actual temperature, replace the multi controller board. -42.5: Open 91.9: Short</p>
5106	<p>Outdoor temperature thermistor (TH7)</p> <p>① When controller detects short/open in thermistor during the operation, the outdoor unit stops once and restarts operation in 3 minutes. When the detected temperature is normal at just before of restarting, the outdoor unit restarts.</p> <p>② When controller detects short/open in thermistor at just before of restarting, the unit stops due to detecting abnormality. In this time, <5106> is displayed.</p> <p>③ For 10 minutes after starting compressor, for defrosting or for 3 minutes after recover of defrosting, above-mentioned short/open are not detected. Short: 90°C or more Open: -40°C or less</p>	<p>① Connector (TH7) contact failure</p> <p>② Thermistor wiring disconnection or half disconnection</p> <p>③ Thermistor failure</p> <p>④ Multi controller board input circuit failure</p>	<p>① Check whether the connector (TH7) in the multi controller board is connected or not.</p> <p>② Check whether the thermistor wiring is disconnected or not.</p> <p>③ Check the resistance of thermistor; When the resistance is not below value, replace the thermistor.</p> <p>0°C15kΩ 10°C ...9.6kΩ 20°C ...6.3kΩ 30°C ...4.3kΩ 40°C ...3.0kΩ</p> <p>④ Set the SW1 to on  When the temperature in multi controller board is not an actual temperature, replace the multi controller board. -42.5: Open 91.9: Short</p>



Display	Abnormal point and detecting method	Causes	Check points															
5102 5103 5106 5108	<p><For PWFY series> TH22 temperature sensor failure (5102) TH23 temperature sensor failure (5103) TH6 temperature sensor failure (5106) TH8 temperature sensor failure (5108)</p> <ul style="list-style-type: none"> When a short (high temperature intake) or an open (low temperature intake) of the thermistor is detected (the first detection), the outdoor unit stops, turns to anti-restart mode for 3 minutes, and restarts when the detected temperature of the thermistor. When a short or an open is detected again (the second detection) after the first restart of the outdoor unit, the outdoor unit stops, turns to anti-restart mode for 3 minutes, and restarts in 3 minutes when the detected temperature is within the normal range. When a short or an open is detected again (the third detection) after the previous restart of the outdoor unit, the outdoor unit makes an error stop. When a short or an open of the thermistor is detected just before the restart of the outdoor unit, the outdoor unit makes an error stop, and the error code "5102", "5103", "5105", "5106" or "5108" will appear. During 3-minute antirestart mode, preliminary errors will be displayed on the LED display. A short or an open described above is not detected for 10 minutes after the compressor start, during defrost mode, or for 3 minutes after defrost mode. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Short</th> <th>Open</th> </tr> </thead> <tbody> <tr> <td>TH22</td> <td>70°C or more (0.4kΩ)</td> <td>-40°C or less (130kΩ)</td> </tr> <tr> <td>TH23</td> <td>110°C or more (0.4kΩ)</td> <td>-40°C or less (130kΩ)</td> </tr> <tr> <td>TH6</td> <td>70°C or more (0.4kΩ)</td> <td>-40°C or less (130kΩ)</td> </tr> <tr> <td>TH8</td> <td>70°C or more (0.4kΩ)</td> <td>-40°C or less (130kΩ)</td> </tr> </tbody> </table>		Short	Open	TH22	70°C or more (0.4kΩ)	-40°C or less (130kΩ)	TH23	110°C or more (0.4kΩ)	-40°C or less (130kΩ)	TH6	70°C or more (0.4kΩ)	-40°C or less (130kΩ)	TH8	70°C or more (0.4kΩ)	-40°C or less (130kΩ)	<ul style="list-style-type: none"> ① Thermistor failure ② Pinched lead wire ③ Torn wire coating ④ A pin on the male connector is missing or contact failure ⑤ Disconnected wire ⑥ Thermistor input circuit failure on the control board 	<ul style="list-style-type: none"> ① Check thermistor resistance. ② Check for pinched lead wire. ③ Check for wire coating. ④ Check connector. ⑤ Check for wire. ⑥ Check the intake temperature of the sensor with the LED monitor. When the temperature is far different from the actual temperature, replace the control board.
	Short	Open																
TH22	70°C or more (0.4kΩ)	-40°C or less (130kΩ)																
TH23	110°C or more (0.4kΩ)	-40°C or less (130kΩ)																
TH6	70°C or more (0.4kΩ)	-40°C or less (130kΩ)																
TH8	70°C or more (0.4kΩ)	-40°C or less (130kΩ)																
5110	<p>Heatsink temperature thermistor (TH8) (Internal thermistor of power module (Y)) (Heatsink thermistor (V))</p> <ul style="list-style-type: none"> ① When controller detects short/open in thermistor during the operation, the outdoor unit stops once and restarts operation in 3 minutes. When the detected temperature is normal at just before of restarting, the outdoor unit restarts. ② When controller detects short/open in thermistor at just before of restarting, the unit stops due to detecting abnormality. In this time, <5110> is displayed. ③ For 10 minutes after starting compressor, for defrosting or for 3 minutes after recover of defrosting, above-mentioned short/open are not detected. <p>Short: 102°C (V)/170°C (Y) or more Open: -27°C (V)/-35°C (Y) or less</p>	<ul style="list-style-type: none"> ① Connector (TH8) contact failure ② Thermistor wiring disconnection or half disconnection ③ Thermistor failure ④ Power board input circuit failure 	<ul style="list-style-type: none"> ① Check whether the connector (TH8) in the power circuit board. (V) ② Check whether the thermistor wiring is disconnected or not. (V) ③ Check the resistance of thermistor; When the resistance is not below value, replace the thermistor. (V) <p>0°C180kΩ 10°C105kΩ 20°C63kΩ 30°C39kΩ 40°C25kΩ</p> <p>④ Set the SW1 to on </p> <p>When the temperature in multi controller board is not an actual temperature, replace the power board.</p>															



Display	Abnormal point and detecting method	Causes	Check points
5201	<p>Pressure sensor (63HS)</p> <p>① When detected pressure in high-pressure sensor is 1 MPa or less during the operation, the compressor stops and restarts operation in 3 minutes.</p> <p>② When the detected pressure is 1 MPa or less at just before of restarting, the compressor stops due to detecting abnormality. In this time, <5201> is displayed.</p> <p>③ For 3 minutes after starting compressor, for defrosting or for 3 minutes after recover of defrosting, abnormality is not determined as abnormality.</p>	<p>1) High-pressure sensor failure</p> <p>2) Internal pressure decrease by gas leakage</p> <p>3) Connector contact failure, disconnection</p> <p>4) Multi controller board input circuit failure</p>	<p>① Check the high-pressure sensor.</p> <p>② Check the internal pressure.</p> <p>③ Check the high-pressure sensor.</p> <p>④ Check the high-pressure sensor.</p>
5701	<p>Connection failure of float switch connector</p> <p>Abnormal if detected that the float switch connector is disconnected(open) during operation</p>	<p>1) Connection failure of connector (CN4F)</p>	<p>① Check the connection failure of connector (CN4F) on the indoor controller board.</p>
5300	<p>Current sensor error</p> <p>Abnormal if current sensor detects -1.5A to 1.5A during compressor operation. (This error is ignored in case of SW7-1 ON.)</p>	<p>1) Disconnection of compressor wiring</p> <p>2) Defective circuit of current sensor on outdoor power circuit board</p>	<p>① Correct the wiring (U-V-W phase) to compressor. (Outdoor power circuit board).</p> <p>② Replace outdoor power circuit board.</p>
6600	<p>Duplex address error</p> <p>Detected error when transmission of unit with the same address is confirmed.</p> <p>Note) Address/Attribute displayed on the remote controller shows the controller detecting abnormality.</p>	<p>1) There are 2 units or more with the same address among the outdoor unit or indoor unit or lossnay controller, remote controller.</p> <p>2) When noise has occurred in the transmission signal, and the signal has changed.</p>	<p>① Look for the unit, which is source of abnormality with the same address. When the same address is found, correct the address and turn off power supply of outdoor unit, indoor unit, and lossnay for 2 minutes or more as the same time. Then, turn on power supply.</p> <p>② Check the transmitted wave and the noise on the transmission line.</p>
6602	<p>Transmission processor H/W error</p> <p>" 1 " shows on the transmission line though the transmission processor transmitted " 0".</p> <p>Note) Address/Attribute displayed on the remote controller shows the controller detecting abnormality.</p>	<p>1) When the wiring for either of the indoor unit, the outdoor unit or lossnay transmission line is constructed or polarity is changed with the power supply turned on, the transmission waves change in case that the transmission data collides mutually. It causes to detect error.</p> <p>2) Transmission processor circuit failure</p> <p>3) When the transmission data has changed by the noise.</p>	<p>① When the transmission wire is constructed with the current flowed, turn off power supply of outdoor unit, indoor unit and lossnay for 2 minutes or more as the same time. Then, turn on power supply.</p> <p>② Check the transmitted wave and the noise on the transmission line.</p>



Display	Abnormal point and detecting method	Causes	Check points
6603	<p>Transmission bus busy error</p> <p>① Over error by collision Abnormality when the state, which cannot be transmitted by collision of transmission, is consecutive for 8 to 10minutes.</p> <p>② The state that data cannot to be output to the transmission line by the noise happens for 8 to 10 minutes consecutively.</p> <p>Note) Address/Attribute displayed on the remote controller shows the controller detecting abnormality.</p>	<p>1) The transmission processor cannot be transmitted since a short cycle voltage of the noise etc. mixes on the transmission line consecutively.</p> <p>2) The transmission volume increases and cannot be transmitted since the wiring method is mistaken and the routing technique to the terminal board (TB3) for the transmission line of the outdoor unit and the terminal board (TB7) for centralized control cannot be transmitted.</p> <p>3) The share becomes high since the data exists together to other transmitted data by a defective repeater (function which connects and intercepts the transmission of controlling system and centralized control system), and it causes abnormal detection.</p>	<p>① Check whether the transmission line of the indoor unit, fresh master, lossnay and remote controller is connected to the outdoor unit terminal board (TB7) for centralized controller or not.</p> <p>② Check whether the transmission line with the other refrigerant system of the indoor unit and lossnay is connected to the outdoor unit terminal board (TB3) for transmission or not.</p> <p>③ Check whether the outdoor unit terminal board for transmission line (TB3) and for centralized controller (TB7) are connected or not.</p> <p>④ Check the transmitted wave and the noise on the transmission line.</p>
6606	<p>Signal communication error with transmission processor</p> <p>Signal communication error between unit processor and transmission processor</p> <p>Note) Address/Attribute displayed on the remote controller shows the controller detecting abnormality.</p>	<p>1) The data of the unit/transmission processor was not normally transmitted due to accidental disturbance such as noise and lightening surge.</p> <p>2) The address transmission from the unit processor was not normally transmitted by the hardware of transmission processor defective.</p>	<p>Turn off power supply of outdoor unit, indoor unit, and lossnay for 2minutes or more at the same time. Then, turn on power supply. It normally recovers from the malfunction that happens by chance. When same abnormality occurs again, it is defective of the controller.</p>

Display	Abnormal point and detecting method	Causes	Check points
6607	<p>No ACK (Acknowledgement)</p> <p>① Abnormality which controller of the sending side detects when there is no answer (ACK) from other side though data was transmitted once. It is detected 6 times every 30 seconds continuously.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note) Address/Attribute displayed on the remote controller shows the controller, which did not send back reply (ACK).</p> </div>	<p>Factor that does not relate to origin</p> <p>1) Since the address switch was changed with the current passed, the unit in the last address does not exist.</p> <p>2) Decline of transmission voltage and signal by transmission line tolerance over · The furthest point...200m · Remote controller line...(12m) (Refer to 8-3.)</p> <p>3) Decline of transmission line voltage and signal by unmatched kind of line. · Shield line-CVVS,CPEVS Line diameter...1.25 mm² or more</p> <p>4) Decline of transmission line voltage and signal by a number of over-connected units.</p> <p>5) Mis-operation of origin controller, which happens by chance.</p> <p>6) Original controller defective</p>	<p>① Turn off power supply of outdoor unit, indoor unit, fresh master and lossnay for 2 minutes or more at the same time. Then, turn on power supply. It recovers normally from the malfunction that happens by chance.</p> <p>② Check the address switch of the address which causes abnormality.</p> <p>③ Check whether the transmission line is connected/loosen or not at origin. (Terminal board or connector)</p> <p>④ Check whether the transmission line tolerance is over or not.</p> <p>⑤ Check whether the kind of transmission line is mistaken or not.</p> <p>When there is any trouble from above ①-⑤, turn off power supply of outdoor unit, indoor unit and lossnay for 2 minutes or more at the same time. Then, turn on power supply.</p> <p>= When there is not any trouble in single refrigerant system (1 outdoor unit) from above ①-⑤, controller defective in displayed address and attribute.</p> <p>= When there is not any trouble in different refrigerant system (2 outdoor unit or more) from above ①-⑤, determine it after ⑥.</p> <p>⑥ When the address which should not exist is an origin, since there is the indoor unit which memorizes the address data, cancel the unnecessary address data by the manual setting function of remote controller. However, they are limited to the system, which sets the group between different refrigerant systems, or which fresh master/lossnay are connected.</p> <p>When there is not any trouble from above ①-⑥, replace the displayed address/attribute controller board.</p> <p>In this time, when the error does not recover to normal, the outdoor unit multi controller board (repeater circuit) defective is expected.</p> <p>Check the recovery by replacing the multi controller board one by one.</p>
	<p>1) When the cause of displayed address and attribute is on the outdoor unit side (The indoor unit detects when there is no reply (ACK) on transmitting from the indoor unit to the outdoor unit.)</p>	<p>1) Contact failure of outdoor unit or indoor unit transmission line</p> <p>2) Indoor unit transmission connector (CN2M) disconnection</p> <p>3) Sending/receiving signal circuit failure in the indoor/outdoor unit</p>	
	<p>2) When the cause of displayed address and attribute is on the indoor unit side</p> <p>(The remote controller detects when there is no reply (ACK) on transmitting from the remote controller to the indoor unit.)</p>	<p>1) When operating with multi refrigerant system indoor units, the remote controller transmits the signal to the indoor unit after the other refrigerant system outdoor unit is turned off or turned on again in 2 minutes, and detects abnormality.</p> <p>2) Contact failure of remote controller or indoor unit transmission line</p> <p>3) Indoor unit transmission connector (CN2M) disconnection</p> <p>4) Sending/receiving signal circuit failure in the indoor unit or remote controller.</p>	

Continued to the next page.

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Display	Abnormal point and detecting method	Causes	Check points
6607	<p>3) When the cause of displayed address and attribute is on the remote controller side</p> <p>(The indoor unit detects when there is no reply (ACK) on transmitting from the indoor unit to the remote controller unit.)</p>	<p>1) When operating with multi refrigerant system indoor units, the indoor units transmits the signal to the remote controller after the other refrigerant system outdoor unit is turned off or turned on again in 2 minutes, and detects abnormality.</p> <p>2) Contact failure of remote controller or indoor unit transmission line</p> <p>3) Indoor unit transmission connector (CN2M) disconnection</p> <p>4) Sending/receiving signal circuit failure in the indoor unit or remote controller</p>	
	<p>4) When the cause of displayed address and attribute is on the fresh master side</p> <p>(The indoor unit detects when there is no reply (ACK) on transmitting from the indoor unit to the fresh master.)</p>	<p>1) When synchronized operating with other refrigerant system fresh master, the indoor units transmits the signal to the fresh master after the fresh master and same refrigerant system outdoor unit is turned off or turned on again in 2 minutes, and detects abnormality.</p> <p>2) Contact failure of fresh master or indoor unit transmission line</p> <p>3) Indoor unit or fresh master transmission connector (CN2M) disconnection</p> <p>4) Sending/receiving signal circuit failure in the indoor unit or fresh master</p>	
	<p>5) When the cause of displayed address and attribute is on the lossnay side</p> <p>(The indoor unit detects when there is no reply (ACK) on transmitting from the indoor unit to the lossnay.)</p>	<p>1) When the lossnay power supply is off, the indoor unit detects abnormality at signal transmitting to the lossnay.</p>	

Continued to the next page.

From the previous page.

Display	Abnormal point and detecting method	Causes	Check points
6607		<p>2) When synchronized operating with other refrigerant system lossnay, the indoor units transmits the signal to the lossnay after the lossnay and same refrigerant system outdoor unit is turned off or turned on again in 2 minutes, and detects abnormality</p> <p>3) Contact failure of lossnay or indoor unit transmission line</p> <p>4) Indoor unit transmission connector (CN2M) disconnection</p> <p>5) Sending/receiving signal circuit failure in the indoor unit or lossnay</p>	
	6) When the controller of displayed address and attribute is not recognized	<p>1) Since the address switch was changed with the current passed, the unit in the last address does not exist.</p> <p>2) Since the fresh master/lossnay address are changed after synchronized setting of fresh master/lossnay by the remote controller, abnormality is detected at transmitting from the indoor unit.</p>	
6608	<p>No response Though there was a replay (ACK) of having received signal from the other side, it is the abnormality when the response command does not return. The sending side detects the abnormality continuously six times every 30 seconds.</p> <p>Note) Address/Attribute displayed on the remote controller shows the controller, which did not response.</p>	<p>1) Transmission repeats the failure by the noise etc.</p> <p>2) Decline of transmission voltage and signal by transmission line tolerance over</p> <ul style="list-style-type: none"> · The furthest point...200m · Remote controller line...(12m) (Refer to 8-3.) <p>3) Decline of transmission line voltage and signal by unmatched kind of line</p> <ul style="list-style-type: none"> · Shield wire-CVVS, CPEVS <p>Wire diameter...1.25mm² or more</p> <p>4) Mis-operation of origin controller, which happens by chance.</p>	<p>① Check the transmission wave and noise on the transmission line.</p> <p>② Turn off power supply of outdoor unit, indoor unit and lossnay for 2minutes or more at the same time. Then, turn on power supply again. It normally recovers from the malfunction that happens by chance. When same abnormality occurs again, it is defective of displayed address and attribute.</p>



Display	Abnormal point and detecting method	Causes	Check points
6831 6834	<p>Signal reception (Remote controller) Following symptoms are regarded as abnormality.</p> <p>1) When the remote controller cannot receive the signal from indoor controller normally even once for 3 minutes</p> <p>2) When the remote controller cannot receive the signal even once for 2 minutes</p>	<p>① Defect of the transmission and reception circuit of the remote controller.</p> <p>② Defect of the transmission and reception circuit of the indoor controller board</p> <p>③ Noise occurs on the transmission line of the remote controller</p> <p>④ All remote controllers are set as sub-remote controller.</p>	<p>①~③ Check the remote controller. According to the results, perform the following disposals.</p> <ul style="list-style-type: none"> • When "RC OK" is displayed, the remote controller is normal. Turn off the power supply and turn it on again. • If "HO" or "PLEASE WAIT" is displayed for 4 minutes or more, replace the indoor controller board. • When "RC NG" is displayed, replace the remote controller. • When "RC 6832 or 6833" or "ERC 00-66" is displayed, these displays may be due to noise, etc. <p>④ Set one remote controller to main remote controller and the other to sub-remote controller.</p>
6832 6833	<p>Signal transmission (Remote controller) Following symptoms are regarded as abnormality.</p> <p>1) When sub-remote controller cannot transmit the signal to the transmission path for 6 minutes</p> <p>2) When the remote controller cannot finish transmitting the signal for 30 times on end</p>	<p>① Defect of the transmission and reception circuit of the remote controller</p> <p>② Noise occurs on the transmission line of the remote controller</p> <p>③ There are 2 main remote controllers.</p>	<p>④ Set one remote controller to main remote controller and the other to sub-remote controller.</p>
7100	<p>When connected total models of the indoor units exceed the specified level (130% of the outdoor unit models), error code <7100> is displayed.</p>	<p>1) Connecting total models of the indoor unit exceed the specified level.</p> <ul style="list-style-type: none"> · PUMY-P100 (~ code 26) · PUMY-P125 (~ code 33) · PUMY-P140 (~ code 38) <hr/> <p>2) There is a mistake in the registration of model name code of the outdoor unit.</p>	<p>① Check the total models of connected indoor unit.</p> <p>② Check the model code registration switch (indoor controller board SW2) of connected indoor unit.</p> <hr/> <p>Check the model code registration switch (outdoor multi controller board SW4) of the outdoor unit.</p>



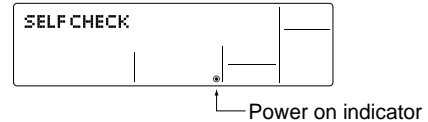
Display	Abnormal point and detecting method	Causes	Check points
7101	<p>Capacity code error</p> <p>When the connected indoor unit models cannot be connected, <7101> is displayed.</p>	<p>The indoor unit models is not possible to connect.</p> <p>The indoor unit of 15-140 (Code 3-28) is possible to connect.</p>	<p>① Check the model code registration switch (indoor controller board SW2) in the connected indoor unit.</p> <p>② The outdoor unit SW1 operation can check model code of the connected indoor units.</p> <p>Code of indoor unit</p> <p>No.1 </p> <p>No.2 </p> <p>No.3 </p> <p>No.4 </p> <p>No.5 </p> <p>No.6 </p> <p>No.7 </p> <p>No.8 </p> <p>No.9 </p> <p>No.10 </p> <p>No.11 </p> <p>No.12 </p> <p>The black square (■) indicates a switch position.</p>
7102	<p>Number of connecting unit over</p> <p>When the connecting unit exceeds a number of limitations, error code <7102> is displayed.</p> <p>(Even if the indoor unit is not connected, <7102> is displayed.)</p>	<p>Connecting unit exceeds a number of limitations. It is assumed abnormal excluding the following cases;</p> <p>1) The indoor unit can be totally connected up to 8 (P100)/10 (P125)/ 12 (P140) units. The indoor unit can be connected up to 8 (P100)/10 (P125)/ 12 (P140) units.</p> <p>2) Ventilation unit connecting is only 1 unit.</p>	<p>Check whether the connecting unit exceeds a number of limitations or not.</p>
7105	<p>Address setting error</p> <p>Address setting of the outdoor unit is wrong.</p>	<p>Addresses mis-setting of the outdoor unit</p> <p>The outdoor unit is not set in 000 or in the range of 51-100.</p>	<p>Check the address setting of the outdoor unit. The address should be set in 000 or 51-100.</p> <p>When the setting is out of the range, reset it, turn off power supply of the outdoor unit, indoor unit and lossnay for 2 minutes or more at the same time, and turn on power supply again.</p>
7111	<p>Remote controller sensor</p> <p>In the case of network remote controller, it is an abnormality when incapable response returns from the network remote controller during the operation.</p>	<p>When an old type remote controller for M-NET is used, and the remote controller sensor is specified (SW1-1 is ON).</p>	<p>Replace the remote controller to net work remote controller.</p>
0403	<p>Serial communication error</p> <p>Abnormal if serial communication between outdoor multi board and outdoor power board is defective.</p>	<p>① Breaking of wire or contact failure of connector CN2</p> <p>② Breaking of wire or contact failure of connector CN4</p> <p>③ Defective communication circuit of outdoor power board</p> <p>④ Defective communication circuit of outdoor multi board for power board</p>	<p>①② Check connection of each connector CN2, CN4.</p> <p>③ Replace outdoor power board.</p> <p>④ Replace outdoor multi board.</p>

9-2. REMOTE CONTROLLER DIAGNOSIS

- MA remote controller is equipped with the diagnosis function

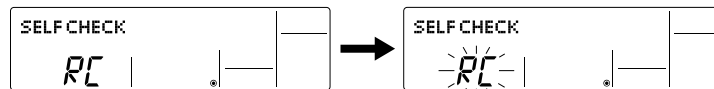
If the air conditioner cannot be operated from the remote controller, diagnose the remote controller as explained below.

- ① First, check that the power-on indicator is lit.
If the correct voltage (DC12 V) is not supplied to the remote controller, the indicator will not light.
If this occurs, check the remote controller's wiring and the indoor unit.



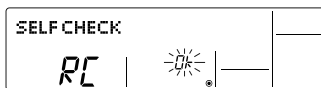
- ② Switch to the remote controller self-diagnosis mode.
Press the **CHECK** button for 5 seconds or more. The display content will change as shown below.

Press the **FILTER** button to start self-diagnosis.



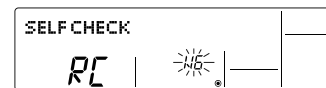
- ③ Remote controller self-diagnosis result

[When the remote controller is functioning correctly]



Check for other possible causes, as there is no problem with the remote controller.

[When the remote controller malfunctions]
(Error display 1) "NG" flashes. → The remote controller's transmitting-receiving circuit is defective.



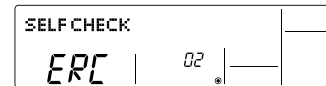
The remote controller must be replaced with a new one.

[Where the remote controller is not defective, but cannot be operated.]
(Error display 2) [E3], [6833] or [6832] flashes. → Transmission is not possible.




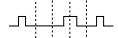
There might be noise or interference on the transmission path, or the indoor unit or other remote controllers are defective. Check the transmission path and other controllers.

(Error display 3) "ERC" and the number of data errors are displayed.
→ Data error has occurred.



The number of data errors is the difference between the number of bits sent from the remote controller and the number actually transmitted through the transmission path. If such a problem is occurring, the transmitted data is affected by noise, etc. Check the transmission path.

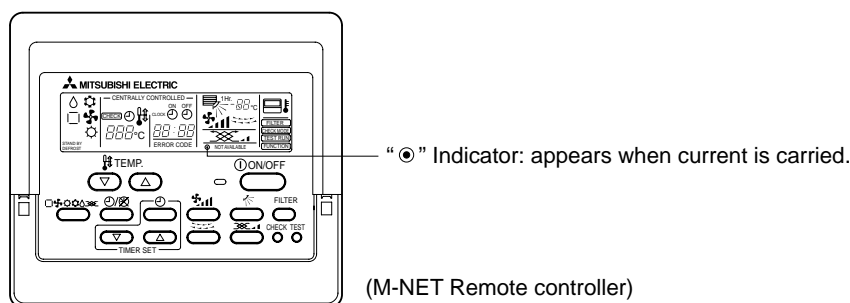
When the number of data errors is "02":

Transmission data from remote controller 
Transmission data on transmission path 

- ④ To cancel remote controller diagnosis

Press the **CHECK** button for 5 seconds or more. Remote controller diagnosis will be cancelled, "PLEASE WAIT" and operation lamp will flash.
After approximately 30 seconds, the state in effect before the diagnosis will be restored.

9-3. REMOTE CONTROLLER TROUBLE



(1) For M-NET remote controller systems

Symptom or inspection code	Cause	Inspection method and solution
Though the content of operation is displayed on the remote controller, some indoor units do not operate.	<ul style="list-style-type: none"> The power supply of the indoor unit is not on. The address of the indoor units in same group or the remote controller is not set correctly. The group setting between outdoor units is not registered to the remote controller. The fuse on the indoor unit controller board is blown. 	<ul style="list-style-type: none"> Check the part where the abnormality occurs. ① The entire system ② In the entire refrigerant system ③ In same group only ④ 1 indoor unit only
Though the indoor unit operates, the display of the remote controller goes out soon.	<ul style="list-style-type: none"> The power supply of the indoor unit is not on. The fuse on the indoor unit controller board is blown. 	<p><In case of the entire system or in the entire refrigerant system></p> <ul style="list-style-type: none"> Check the self-diagnosis LED of the outdoor unit. Check the items shown in the left that are related to the outdoor unit.
(●) is not displayed on the remote controller. (M-NET remote controller is not fed.)	<ul style="list-style-type: none"> The power supply of the outdoor unit is not on. The connector of transmission outdoor power board is not connected. The number of connected indoor unit in the refrigeration system is over the limit or the number of connected remote controller is over the limit. M-NET remote controller is connected to MA remote controller cable. The transmission line of the indoor/outdoor unit is shorted or down. M-NET remote controller cable is shorted or down. Transmission outdoor power board failure. 	<p><In case of in same group only or 1 indoor unit only></p> <ul style="list-style-type: none"> Check the items shown in the left that are related to the indoor unit.
"HO" keeps being displayed or it is displayed periodically. ("HO" is usually displayed about 3 minutes after the power supply of the outdoor unit is on.)	<ul style="list-style-type: none"> The power supply for the feeding expansion unit for the transmission line is not on. The address of the outdoor unit remains "00". The address of the indoor unit or the remote controller is not set correctly. MA remote controller is connected to the transmission line of the indoor/outdoor unit. 	
The remote controller does not operate though (●) is displayed.	<ul style="list-style-type: none"> The transmission line of the indoor/outdoor unit is connected to TB15. The transmission line of the indoor/outdoor unit is shorted, down or badly contacted. 	

(2) For MA remote controller systems

Symptom or inspection code	Cause	Inspection method and solution
Though the content of operation is displayed on the remote controller, some indoor units do not operate.	<ul style="list-style-type: none"> The power supply of the indoor unit is not on. Wiring between indoor units in same group is not finished. The indoor unit and Slim model are connected to same group. The fuse on the indoor unit controller board is blown. 	<ul style="list-style-type: none"> Check the part where the abnormality occurs. ① The entire system ② In the entire refrigerant system ③ In same group only ④ 1 indoor unit only
Though the indoor unit operates, the display of the remote controller goes out soon.	<ul style="list-style-type: none"> The power supply of the indoor unit (Master) is not on. In case of connecting the system controller, the setting of the system controller does not correspond to that of MA remote controller. The fuse on the indoor unit (Master) controller board is blown. 	<p><In case of the entire system or in the entire refrigerant system></p> <ul style="list-style-type: none"> Check the self-diagnosis LED of the outdoor unit. Check the items shown in the left that are related to the outdoor unit.
(●) is not displayed on the remote controller. (MA remote controller is not fed.)	<p>The remote controller is not fed until the power supply of both indoor unit and outdoor unit is on and the start-up of both units is finished normally.</p> <ul style="list-style-type: none"> The power supply of the indoor unit is not on. The power supply of the outdoor unit is not on. The number of connected remote controller is over the limit (Maximum: 2 units) or the number of connected indoor unit that is over the limit (Maximum: 16 units). The address of the indoor unit is "00" and the address for the outdoor unit is the one other than "00". The transmission line of the indoor/outdoor unit is connected to TB15. MA remote controller is connected to the transmission line of the indoor/outdoor unit. The remote controller cable is shorted or down. The power supply cable or the transmission line is shorted or down. The fuse on the indoor unit controller board is blown. 	<p><In case of in same group only or 1 indoor unit only></p> <ul style="list-style-type: none"> Check the items shown in the left that are related to the indoor unit.
"PLEASE WAIT" keeps being displayed or it is displayed periodically. ("PLEASE WAIT" is usually displayed about 3 minutes after the power supply of the outdoor unit is on.)	<ul style="list-style-type: none"> The power supply of the outdoor unit is not on. The power supply of the feeding expansion unit for the transmission line is not on. The setting of MA remote controller is not main remote controller, but sub-remote controller. MA remote controller is connected to the transmission line of the indoor/outdoor unit. 	
The remote controller does not operate though (●) is displayed.	<ul style="list-style-type: none"> The power supply of the indoor unit (Master) is not on. The transmission line of the indoor/outdoor unit is connected to TB15. The transmission line of the indoor/outdoor unit is shorted, down or badly contacted. The fuse on the indoor unit controller board is blown. 	



9-4. THE FOLLOWING SYMPTOM DO NOT REPRESENT TROUBLE (EMERGENCY)



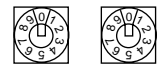


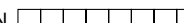

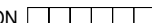



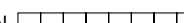

Symptom	Display of remote controller	CAUSE
Even the cooling (heating) operation selection button is pressed, the indoor unit cannot be operated.	"Cooling (Heating)" blinks	The indoor unit can not cool (Heat) if other indoor units are heating (Cooling).
The auto vane runs freely.	Normal display	Because of the control operation of auto vane, it may change over to horizontal blow automatically from the downward blow in cooling in cause the downward blow operation has been continued for 1 hour. At defrosting in heating, hot adjusting and thermostat OFF, it automatically changes over to horizontal blow.
Fan setting changes during heating.	Normal display	Ultra-low speed operation is commenced at thermostat OFF. Light air automatically change over to set value by time or piping temperature at thermostat ON.
Fan stops during heating operation.	"Defrost ☆"	The fan is to stop during defrosting.
Fan does not stop while operation has been stopped.	Light out	Fan is to run for 1 minute after stopping to exhaust residual heat (only in heating).
No setting of fan while start SW has been turned on.	STAND BY ☆	Ultra-low speed operation for 5 minutes after SW ON or until piping temperature becomes 35°C. There low speed operate for 2 minutes, and then set notch is commenced. (Hot adjust control)
Indoor unit remote controller shows "HO" or "PLEASE WAIT" indicator for about 2 minutes when turning ON power supply.	"HO" blinks "PLEASE WAIT" blinks	System is being driven. Operate remote controller again after "HO" or "PLEASE WAIT" disappears.
Drain pump does not stop while unit has been stopped.	Light out	After a stop of cooling operation, unit continues to operate drain pump for 3 minutes and then stops it.
Drain pump continues to operate while unit has been stopped.	—	Unit continues to operate drain pump if drainage is generated, even during a stop.

9-5. INTERNAL SWITCH FUNCTION TABLE

PUMY-P100/125/140VHMB(-BS)
 PUMY-P100/125/140VHMBR1(-BS)
 PUMY-P100/125/140VHMBR2(-BS)
 PUMY-P100/125/140VHMBR3(-BS)

PUMY-P100/125/140YHMB(-BS)
 PUMY-P100/125/140YHMBR1(-BS)
 PUMY-P100/125/140YHMBR2(-BS)
 PUMY-P100/125/140YHMBR3(-BS)

The black square (■) indicates a switch position.

Switch	Step	Function	Operation in Each Switch Setting			Remarks											
			ON	OFF	When to Set												
SW U1 1st digit SW U2 2nd digit	Rotary switch	 SWU2 (2nd digit)	 SWU1 (1st digit)		Before turning the power on	<Initial settings>  SWU2 SWU1 (2nd digit) (1st digit)											
SW1 Digital Display Switching	1~8	ON  OFF  1 2 3 4 5 6 7 8			Can be set either during operation or not.	<Initial settings> ON  OFF  1 2 3 4 5 6 7 8											
SW2 Function Switching	1	Selects operating system startup	With centralized controller	Without centralized controller	Before turning the power on	<Initial settings> ON  OFF  1 2 3 4 5 6											
	2	Connection Information Clear Switch	Clear	Do not clear	OFF to ON any time after the power is turned on.												
	3	Abnormal data clear switch input	Clear abnormal data	Normal	During compressor running												
	4	Pump down	Run adjustment mode	Normal	Before turning the power on												
	5	Auto change over from Remote controller	Enable *1	Disable	—												
	6	—	—	—	—												
SW3 Trial operation	1	ON/OFF from outdoor unit *2	ON	OFF	Any time after the power is turned on.	<Initial settings> ON  OFF  1 2											
	2	Mode setting	Heating	Cooling	—												
SW4 Model Switching	1~6	MODEL SELECT 1:ON 0:OFF			Before the power is turned on.	<Initial settings> Set for each capacity.											
		MODELS	SW4						MODELS	SW4							
			1	2			3	4	5	6		1	2	3	4	5	6
		PUMY-P100V	0	1			0	0	1	0	PUMY-P100Y	1	1	0	0	1	0
		PUMY-P125V	0	1			0	0	0	1	PUMY-P125Y	1	1	0	0	0	1
PUMY-P140V	0	1	0	0	1	1	PUMY-P140Y	1	1	0	0	1	1				
SW5 Function switching	1	Pressure limitation value change	Enable	Normal	Can be set when off or during operation OFF to ON during compressor running. Can be set when off or during operation	<Initial settings> ON  OFF  1 2 3 4 5 6 7 8											
	2	Change the indoor unit's LEV opening at start	Enable	Normal													
	3	Fixing the indoor units linear expansion valve opening	Fix	Normal													
	4	Fix the operation frequency	Fix	Normal													
	5	Change the indoor unit's LEV opening at defrost	Enable	Normal													
	6	Switching the target sub cool.	Enable	Normal													
	7	During the FAN or COOL mode, and thermo-OFF or OFF in heating operation, set the opening of linear expansion valve on indoor unit *3	Active	Inactive													
	8	During the FAN or COOL mode, and thermo-OFF in heating operation, set the opening of linear expansion valve on indoor unit *4	Active	Inactive													

* 1 When a PWFY series is connected, this function is always disabled regardless of this switch.

* 2 Test run on PWFY series cannot be run by the outdoor unit. Use a switch on the indoor unit or a remote controller to perform test run.

* 3 SW5-7 Refrigerant amount shortage measure during heating operation (Refrigerant piping is long etc.)

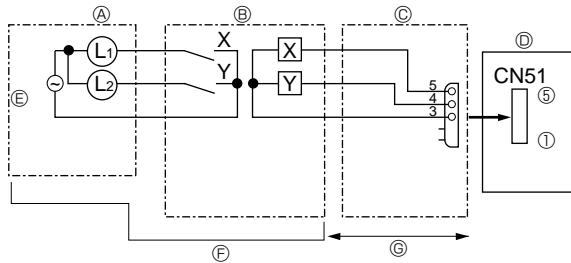
* 4 SW5-8 Countermeasure against room temperature rise for indoor unit in FAN, COOL, and thermo-OFF (heating) mode.

The black square (■) indicates a switch position.

	Switch	Step	Function	Operation in Each Switch Setting			Remarks																
				ON	OFF	When to Set																	
Outdoor unit	SW6 function switching	1	—	—	—	—	<Initial settings> ON <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> OFF <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> 1 2 3 4 5 6 7 8																
		2	Switch of current limitation reading in a different way	Enable	Normal	Before turning the power on.																	
		3	—	—	—	—																	
		4	Restriction of maximum frequency	Enable	Normal	Can be set when off or during operation																	
		5	Ignore refrigerant filling abnormality	Enable	Normal																		
		6	Switching the target discharge pressure (Pdm)	Enable	Normal																		
	7	Switching (1) the target evaporation temperature (ETm)	Enable	Normal																			
	8	Switching (2) the target evaporation temperature (ETm)	Enable	Normal																			
	SW7 function switching	1	Ignore current sensor abnormality	Enable	Normal	Before turning the power on.	<Initial settings> ON <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> OFF <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> 1 2 3 4 5 6																
		2	—	—	—	—																	
		3	—	—	—																		
		4	—	—	—																		
	5	—	—	—																			
	6	Forced defrost	Forced defrost	Normal	During compressor running in heating mode.																		
	SW8 function switching	1	Silent mode/Demand Control Selection (see next page)	Demand Control	Silent mode	Can be set when off or during operation	<Initial settings> ON <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td> </td><td> </td></tr></table> OFF <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td> </td><td> </td></tr></table> 1 2																
	2	Change of defrosting control	Enable (For high humidity)	Normal																			

9-6. OUTDOOR UNIT INPUT/OUTPUT CONNECTOR

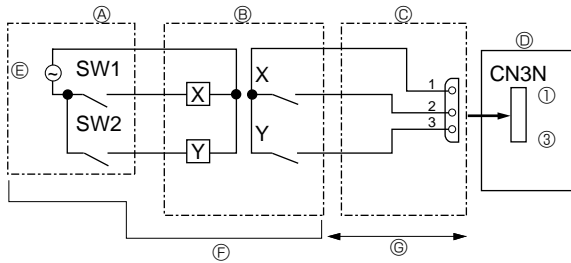
• State (CN51)



- Ⓐ Distant control board
- Ⓑ Relay circuit
- Ⓒ External output adapter (PAC-SA88HA-E)
- Ⓓ Outdoor unit control board
- Ⓔ Lamp power supply
- Ⓕ Procure locally
- Ⓖ Max. 10m

L1: Error display lamp
 L2: Compressor operation lamp
 X, Y: Relay (Coil standard of 0.9W or less for DC 12V)
 X, Y: Relay (DC1mA)

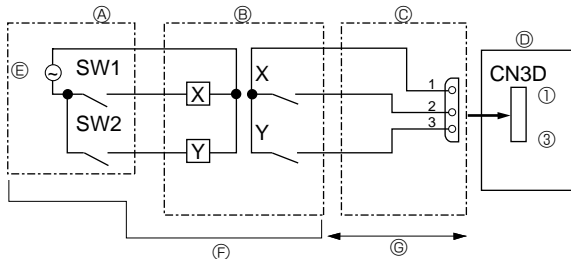
• Auto change over (CN3N)



- Ⓐ Remote control panel
- Ⓑ Relay circuit
- Ⓒ External input adapter (PAC-SC36NA)
- Ⓓ Outdoor unit control board
- Ⓔ Relay power supply
- Ⓕ Procure locally
- Ⓖ Max. 10m

	ON	OFF
SW1	Heating	Cooling
SW2	Validity of SW1	Invalidity of SW1

• Silent Mode / Demand Control (CN3D)



- Ⓐ Remote control panel
- Ⓑ Relay circuit
- Ⓒ External input adapter (PAC-SC36NA)
- Ⓓ Outdoor unit control board
- Ⓔ Relay power supply
- Ⓕ Procure locally
- Ⓖ Max. 10m

	ON	OFF
SW1	Heating	Cooling
SW2	Validity of SW1	Invalidity of SW1

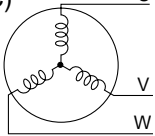
The silent mode and the demand control are selected by switching the Dip switch 8-1 on outdoor controller board. It is possible to set it to the following power consumption (compared with ratings) by setting SW1, 2.

	Outdoor controller board DIP SW8-1	SW1	SW2	Function
Silent mode	OFF	ON	—	Silent mode operation
Demand control	ON	OFF	OFF	100% (Normal)
		ON	OFF	75%
		ON	ON	50%
		OFF	ON	0% (Stop)

9-7. HOW TO CHECK THE PARTS

PUMY-P100/125/140VHMB(-BS)
PUMY-P100/125/140VHMBR1(-BS)
PUMY-P100/125/140VHMBR2(-BS)
PUMY-P100/125/140VHMBR3(-BS)

PUMY-P100/125/140YHMB(-BS)
PUMY-P100/125/140YHMBR1(-BS)
PUMY-P100/125/140YHMBR2(-BS)
PUMY-P100/125/140YHMBR3(-BS)

Parts name	Check points													
Thermistor (TH3) <Outdoor pipe> Thermistor (TH4) <Discharge> <Compressor> Thermistor (TH6) <Low pressure saturated temperature> Thermistor (TH7) <Outdoor> Thermistor (TH8) <Heatsink>	Disconnect the connector then measure the resistance with a tester. (At the ambient temperature 10°C ~30°C) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>TH4</td> <td>160kΩ~410kΩ</td> <td rowspan="4">Open or short</td> </tr> <tr> <td>TH3</td> <td rowspan="2">4.3kΩ~9.6kΩ</td> </tr> <tr> <td>TH6</td> </tr> <tr> <td>TH7</td> </tr> <tr> <td>TH8 *1</td> <td>39kΩ~105kΩ</td> <td></td> </tr> </tbody> </table> <p style="text-align: right; margin-right: 20px;">*1 TH8 is internal thermistor of power module. (Y)</p>		Normal	Abnormal	TH4	160kΩ~410kΩ	Open or short	TH3	4.3kΩ~9.6kΩ	TH6	TH7	TH8 *1	39kΩ~105kΩ	
	Normal	Abnormal												
TH4	160kΩ~410kΩ	Open or short												
TH3	4.3kΩ~9.6kΩ													
TH6														
TH7														
TH8 *1	39kΩ~105kΩ													
Fan motor (MF1, MF2)	Refer to next page.													
Solenoid valve coil <Four-way valve> (21S4)	Measure the resistance between the terminals with a tester. (At the ambient temperature 20°C) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>1435 ± 150Ω</td> <td>Open or short</td> </tr> </tbody> </table>	Normal	Abnormal	1435 ± 150Ω	Open or short									
Normal	Abnormal													
1435 ± 150Ω	Open or short													
Motor for compressor (MC) 	Measure the resistance between the terminals with a tester. (Winding temperature 20°C) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>0.330Ω</td> <td>Open or short</td> </tr> </tbody> </table>	Normal	Abnormal	0.330Ω	Open or short									
Normal	Abnormal													
0.330Ω	Open or short													
Solenoid valve coil <Bypass valve> (SV1)	Measure the resistance between the terminals with a tester. (At the ambient temperature 20°C) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>1197 ± 10Ω</td> <td>Open or short</td> </tr> </tbody> </table>	Normal	Abnormal	1197 ± 10Ω	Open or short									
Normal	Abnormal													
1197 ± 10Ω	Open or short													

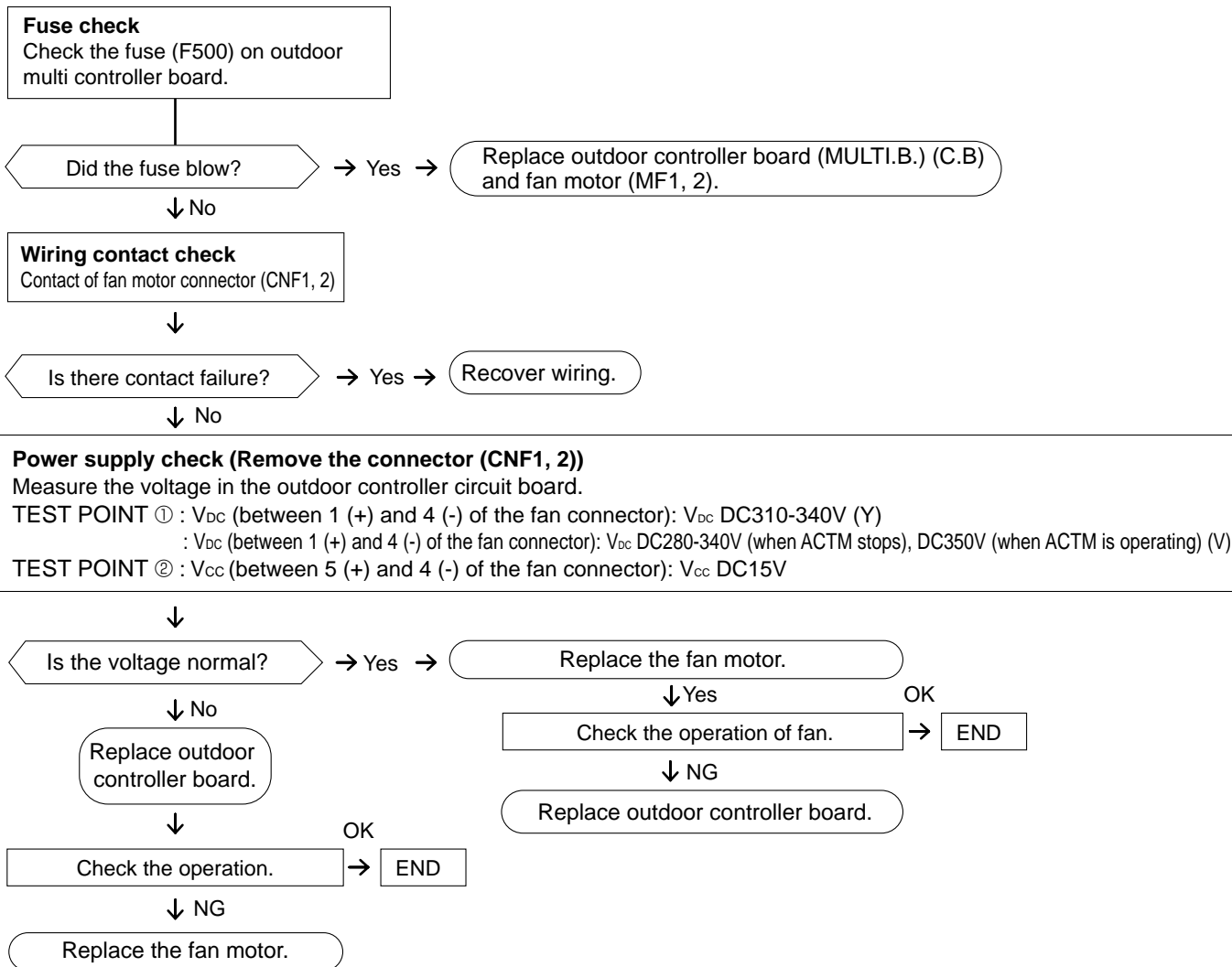
Check method of DC fan motor (fan motor/outdoor controller circuit board)

① Notes

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

② Self check

Symptom : The outdoor fan cannot turn around.



9-8. HOW TO CHECK THE COMPONENTS

<Thermistor feature chart>

Low temperature thermistors

- Thermistor <Outdoor pipe> (TH3)
- Thermistor <Low pressure saturated temperature> (TH6)
- Thermistor <Outdoor> (TH7)

Thermistor R0 = 15kΩ ± 3%

B constant = 3480 ± 2%

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

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

Medium temperature thermistor (Only VHMB)

- Heatsink temperature thermistor (TH8)

Thermistor R50 = 17kΩ ± 2%

B constant = 4170 ± 3%

$$R_t = 17 \exp\left\{4170 \left(\frac{1}{273+t} - \frac{1}{323}\right)\right\}$$

0°C	180kΩ
25°C	50kΩ
50°C	17kΩ
70°C	8kΩ
90°C	4kΩ

High temperature thermistor

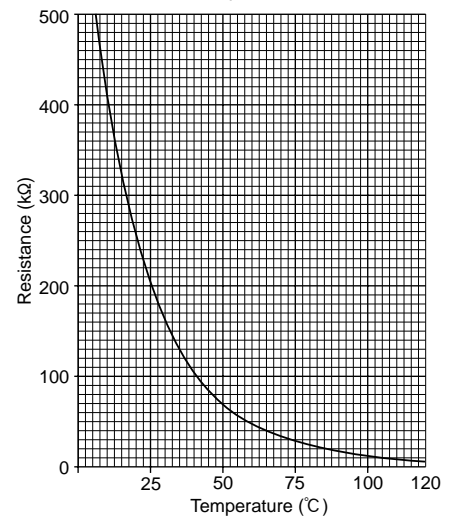
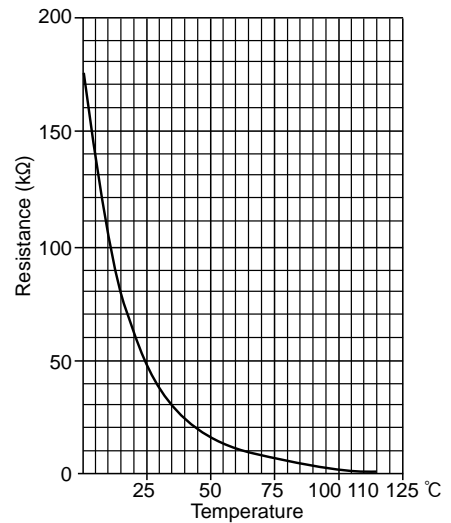
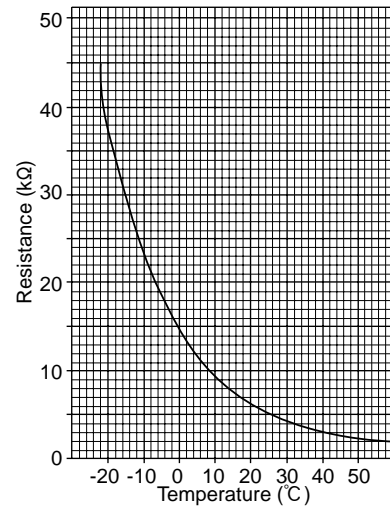
- Thermistor <Discharge/Compressor> (TH4)

Thermistor R120 = 7.465kΩ ± 2%

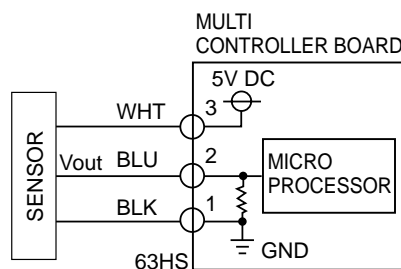
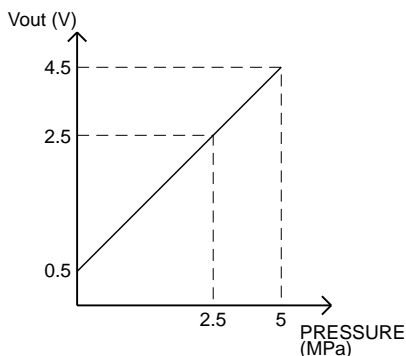
B constant = 4057 ± 2%

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

20°C	250kΩ	70°C	34kΩ
30°C	160kΩ	80°C	24kΩ
40°C	104kΩ	90°C	17.5kΩ
50°C	70kΩ	100°C	13.0kΩ
60°C	48kΩ	110°C	9.8kΩ



<HIGH PRESSURE SENSOR>



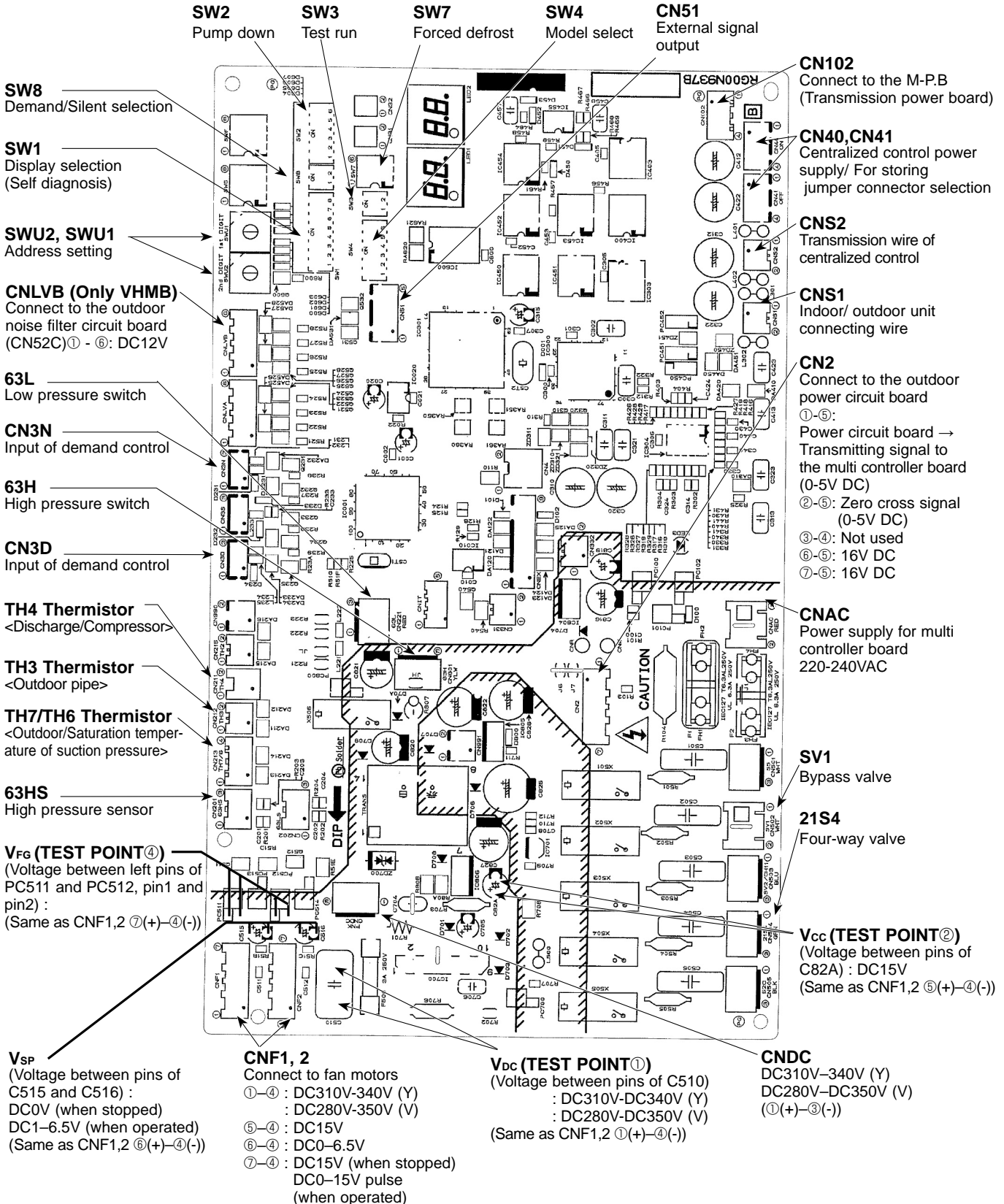
- ③-① : 5V (DC)
- ②-① : Output Vout (DC)

9-9. TEST POINT DIAGRAM

Outdoor multi controller board
PUMY-P100/125/140VHMB(-BS)
PUMY-P100/125/140VHMBR1(-BS)
PUMY-P100/125/140VHMBR2(-BS)
PUMY-P100/125/140VHMBR3(-BS)

PUMY-P100/125/140YHMB(-BS)
PUMY-P100/125/140YHMBR1(-BS)
PUMY-P100/125/140YHMBR2(-BS)
PUMY-P100/125/140YHMBR3(-BS)

<CAUTION> TEST POINT ① is high voltage.



Outdoor power circuit board
PUMY-P100/125/140VHMB(-BS)
PUMY-P100/125/140VHMBR1(-BS)
PUMY-P100/125/140VHMBR2(-BS)
PUMY-P100/125/140VHMBR3(-BS)

Brief Check of POWER MODULE

* Usually, they are in a state of being short-circuited if they are broken. Measure the resistance in the following points (connectors, etc.). If they are short-circuited, it means that they are broken.

1. Check of POWER MODULE

①. Check of DIODE circuit

[S]-P1, [T]-P1, [S]-N1, [T]-N1

②. Check of DIP-IPM

[P]-U, [P]-V, [P]-W, [N]-U, [N]-V, [N]-W

CN2
 Connect to the outdoor controller multi circuit board (CN2)
 ①-⑤: Transmitting signal to the outdoor controller circuit board (0~5V DC)
 ②-⑤: Zero cross signal (0~5V DC)
 ③-④: 18V DC
 ⑥-⑤: 16V DC
 ⑦-⑤: 16V DC

CNDC
 280V-350V DC (①+, ③-)
 Connect to the outdoor controller multi circuit board

CN3
 Thermistor (TH8)
 <Heatsink>

CN5
 Detection of primary current
 Connect to the outdoor noise filter circuit board (CN5)

CN4
 Connect to the outdoor controller multi circuit board (CN4)

TABP2/SC-P2
 Connect to the ACTM (P)

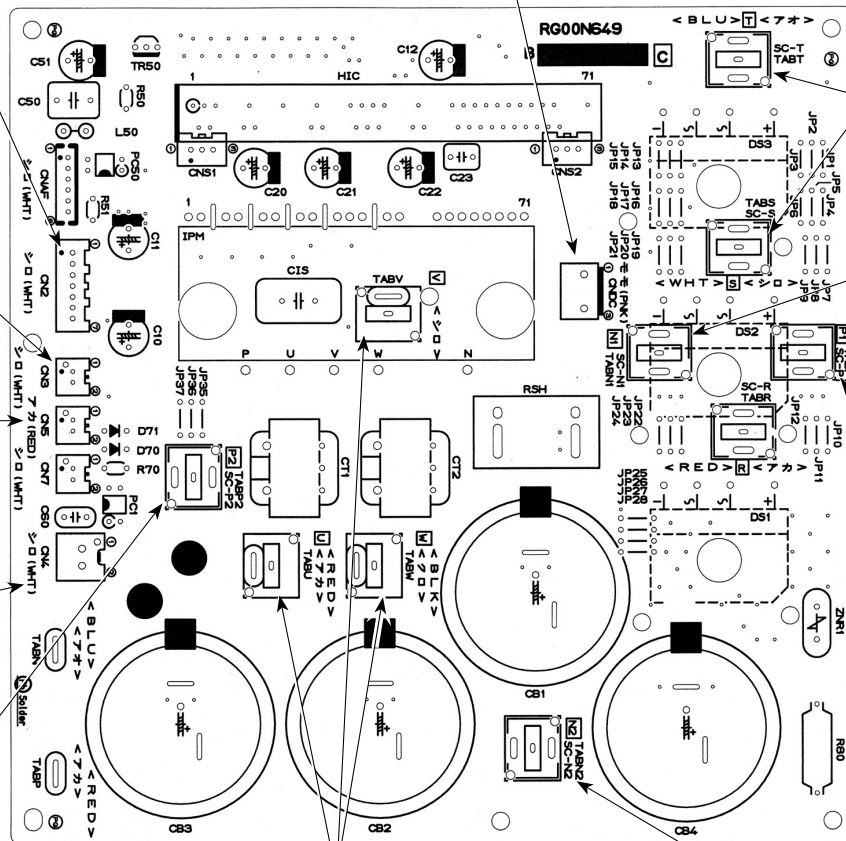
TABS/T
 Connect to the outdoor noise filter circuit board
 Voltage among phases: 220-240V AC

TABN1/SC-N1
 Connect to the ACTM(-)

TABP1/SC-P1
 Connect to 52C

TABU/V/W
 Connect to the compressor (MC)
 Voltage among phases: 10V~180V AC

TABN2/SC-N2
 Connect to the ACTM (N2)



Outdoor power circuit board
PUMY-P100/125/140YHMB(-BS)
PUMY-P100/125/140YHMBR1(-BS)
PUMY-P100/125/140YHMBR2(-BS)
PUMY-P100/125/140YHMBR3(-BS)

Brief check of POWER MODULE

* Usually, each point is in a state of being short-circuited if they are broken. Measure the resistance in the following points (connectors, etc.). If they are short-circuited, it means that they are broken.

1. Check of POWER MODULE

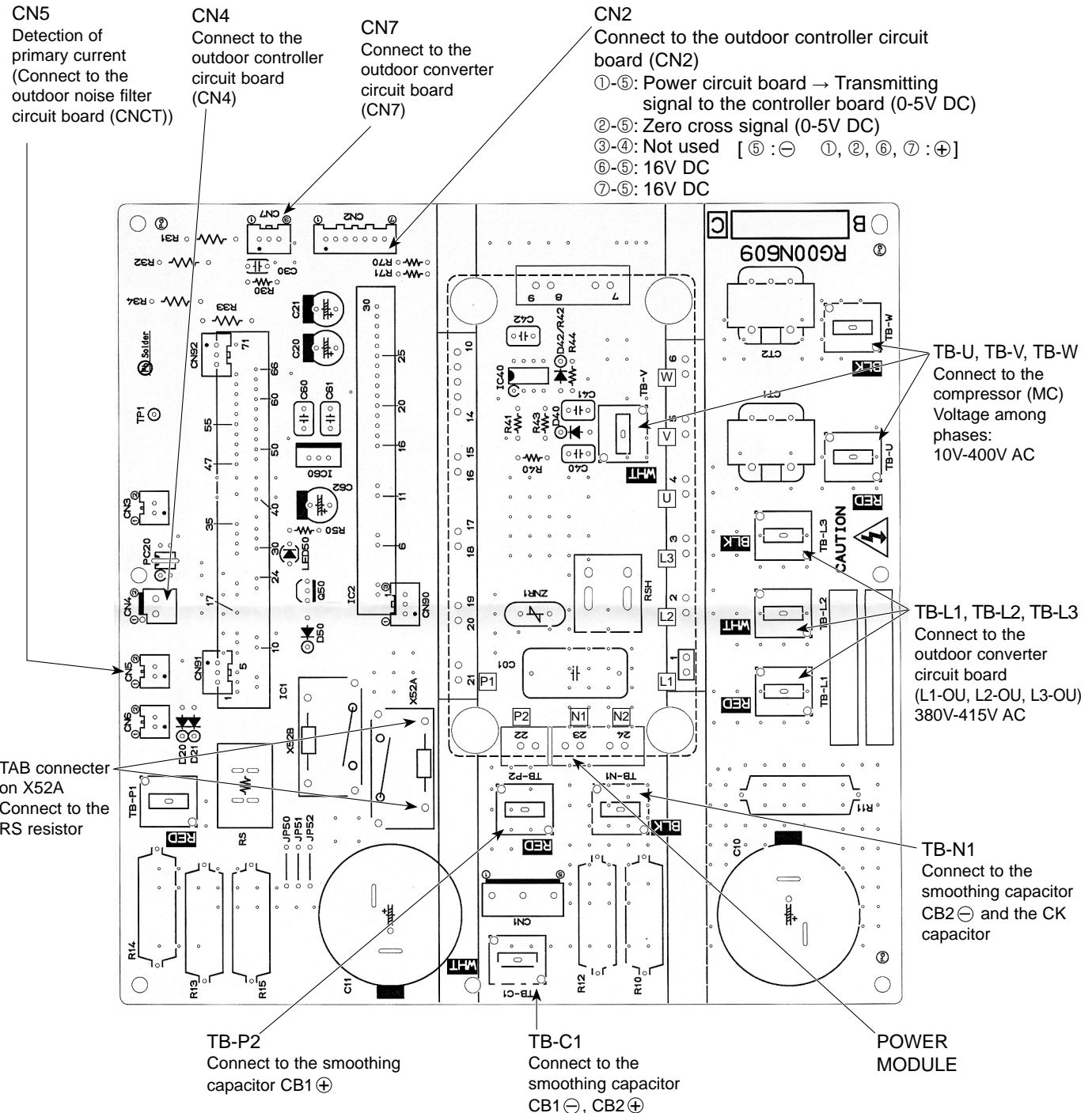
①. Check of DIODE circuit

L1 - P1, **L2 - P1**, **L3 - P1**, **L1 - N1**, **L2 - N1**, **L3 - N1**

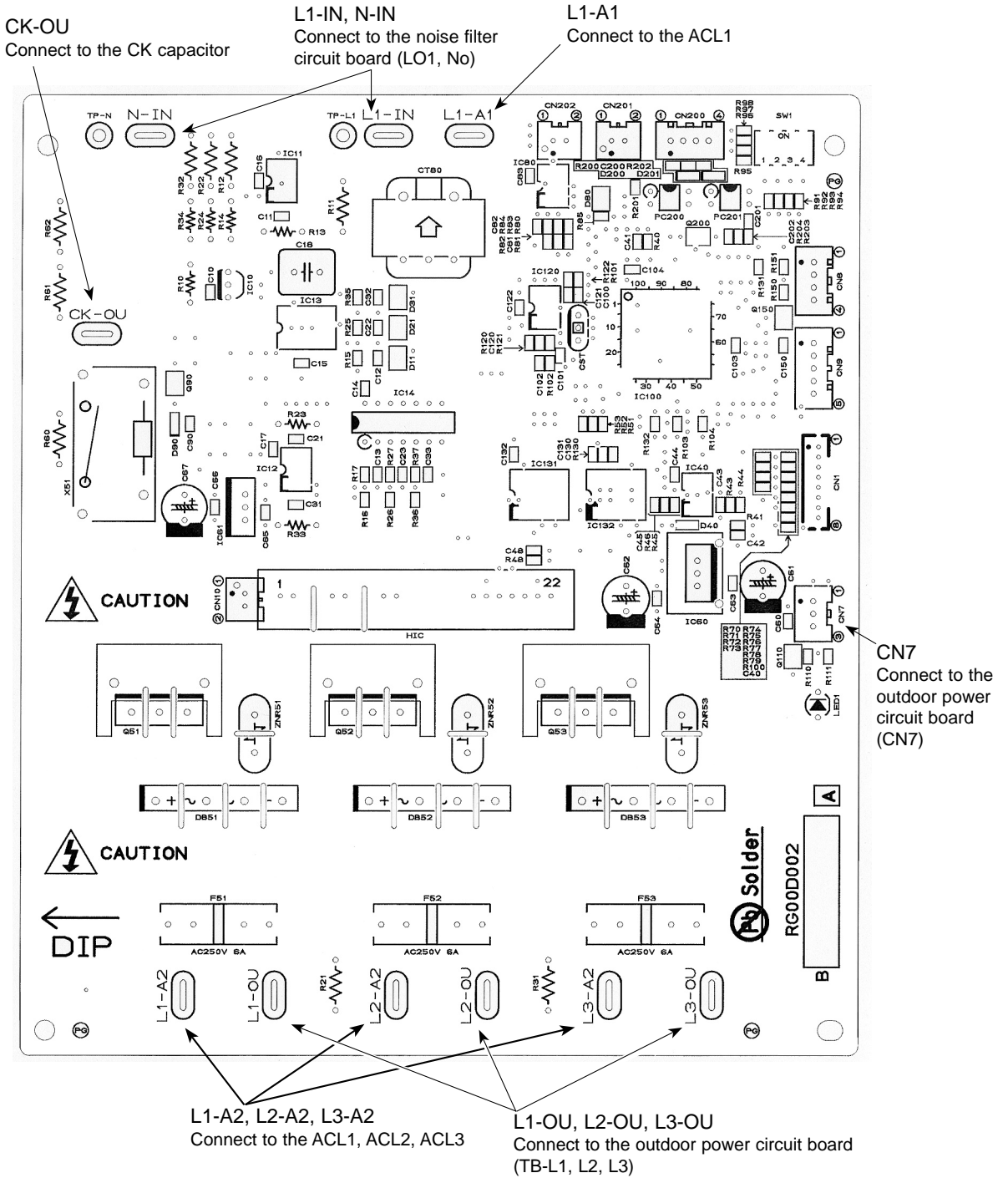
②. Check of IGBT circuit

P2 - U, **P2 - V**, **P2 - W**, **N2 - U**, **N2 - V**, **N2 - W**

Note: The marks, **L1**, **L2**, **L3**, **N1**, **N2**, **P1**, **P2**, **U**, **V** and **W** shown in the diagram are not actually printed on the board.



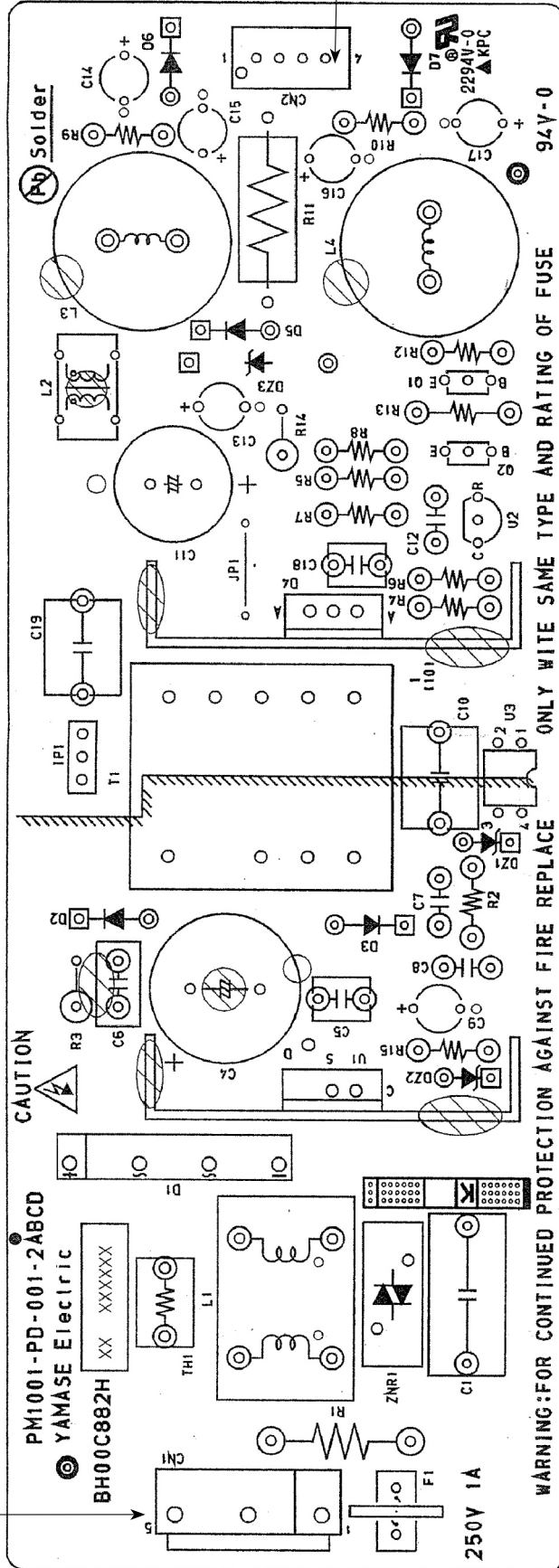
Outdoor converter circuit board
PUMY-P100/125/140YHMB(-BS)
PUMY-P100/125/140YHMBR1(-BS)
PUMY-P100/125/140YHMBR2(-BS)
PUMY-P100/125/140YHMBR3(-BS)



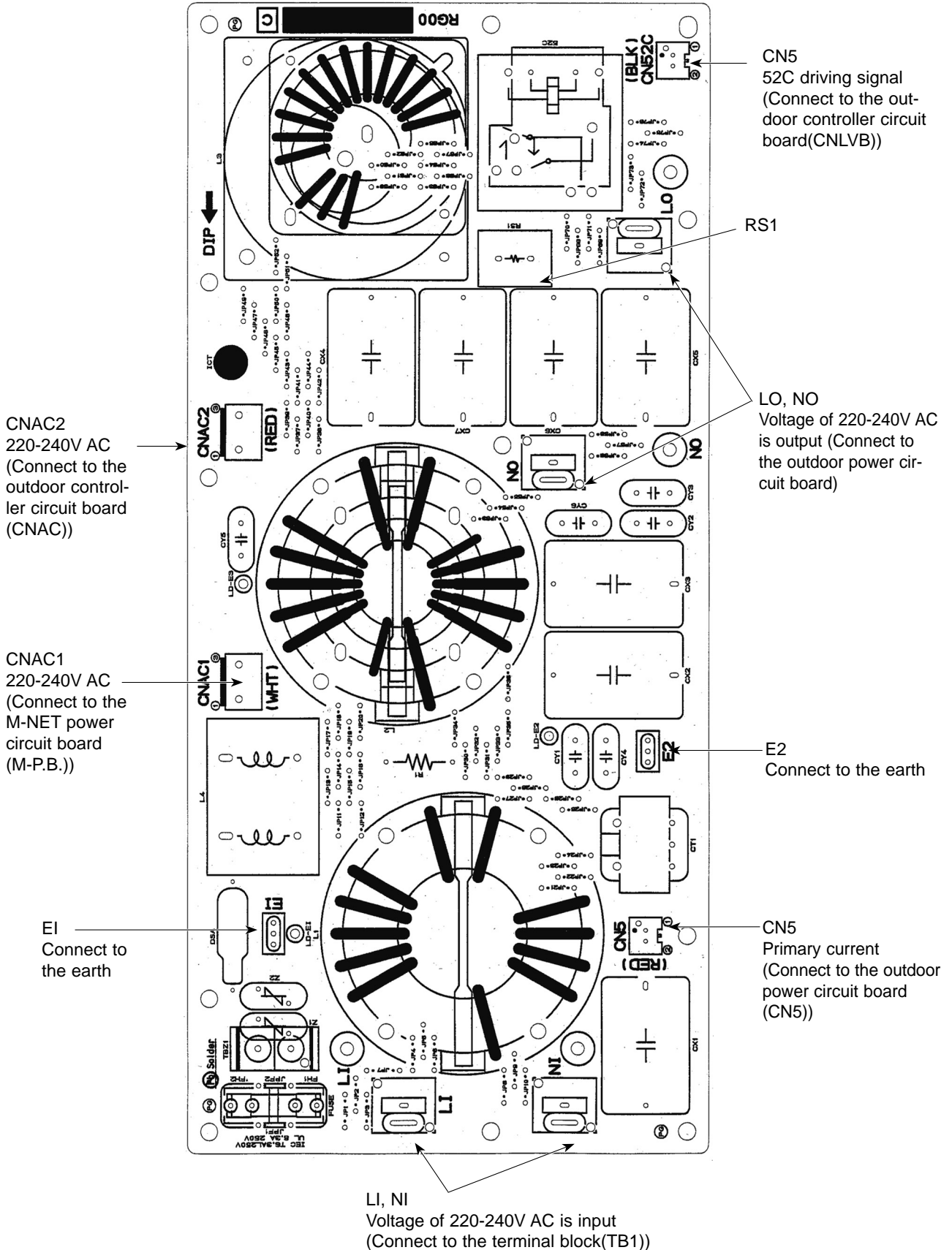
Transmission power board
PUMY-P100/125/140VHMB(-BS)
PUMY-P100/125/140YHMB(-BS)
PUMY-P100/125/140VHMBR1(-BS)
PUMY-P100/125/140YHMBR1(-BS)
PUMY-P100/125/140VHMBR2(-BS)
PUMY-P100/125/140YHMBR2(-BS)
PUMY-P100/125/140VHMBR3(-BS)
PUMY-P100/125/140YHMBR3(-BS)

CN2
 Connect to the outdoor multi controller board
 ①-②: 24-30V DC
 ③-④: 24-30V DC

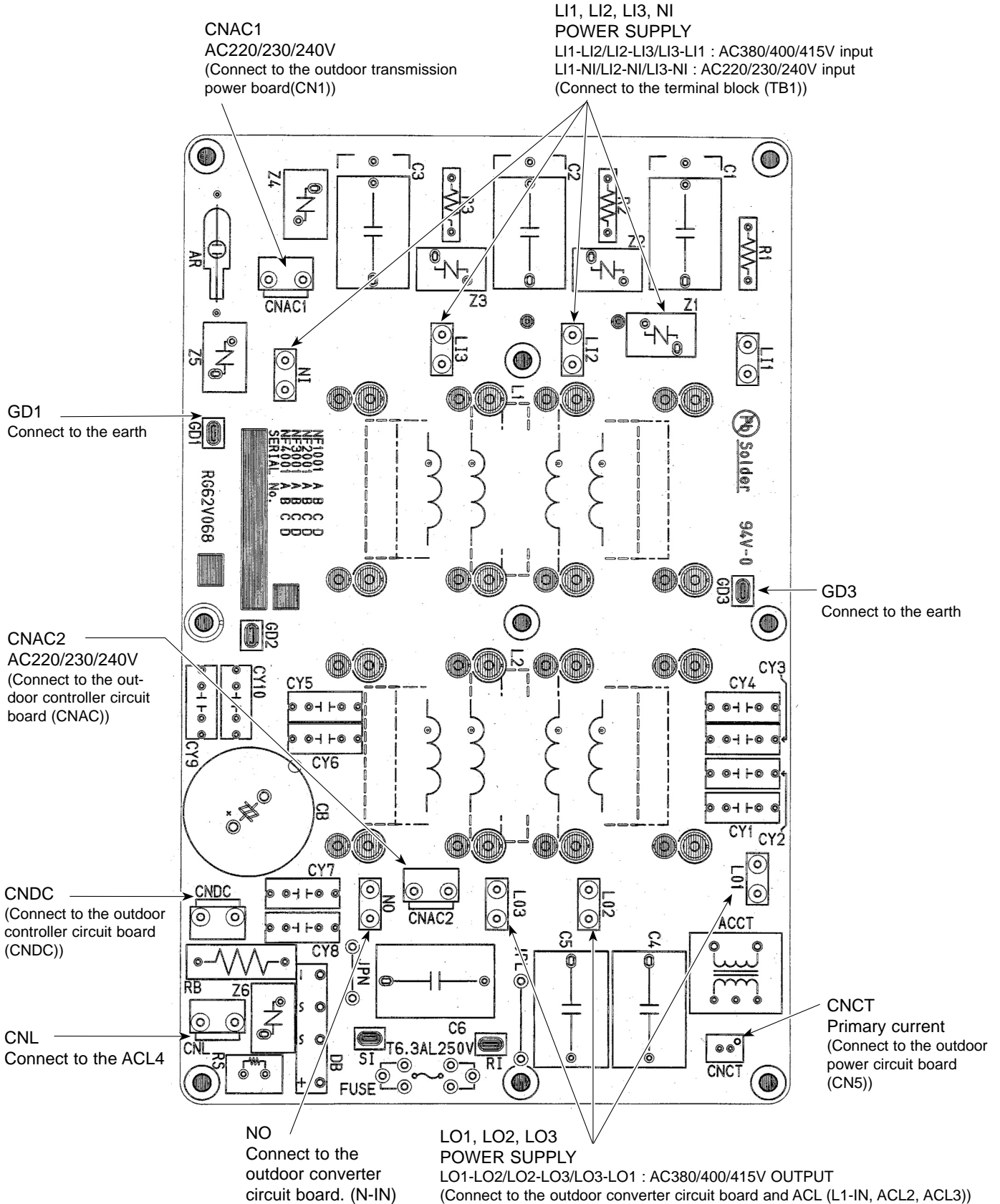
CN1
 Connect to the outdoor noise filter circuit board
 ①-③ : 220-240V AC



Outdoor noise filter circuit board
PUMY-P100/125/140VHMB(-BS)
PUMY-P100/125/140VHMBR1(-BS)
PUMY-P100/125/140VHMBR2(-BS)
PUMY-P100/125/140VHMBR3(-BS)

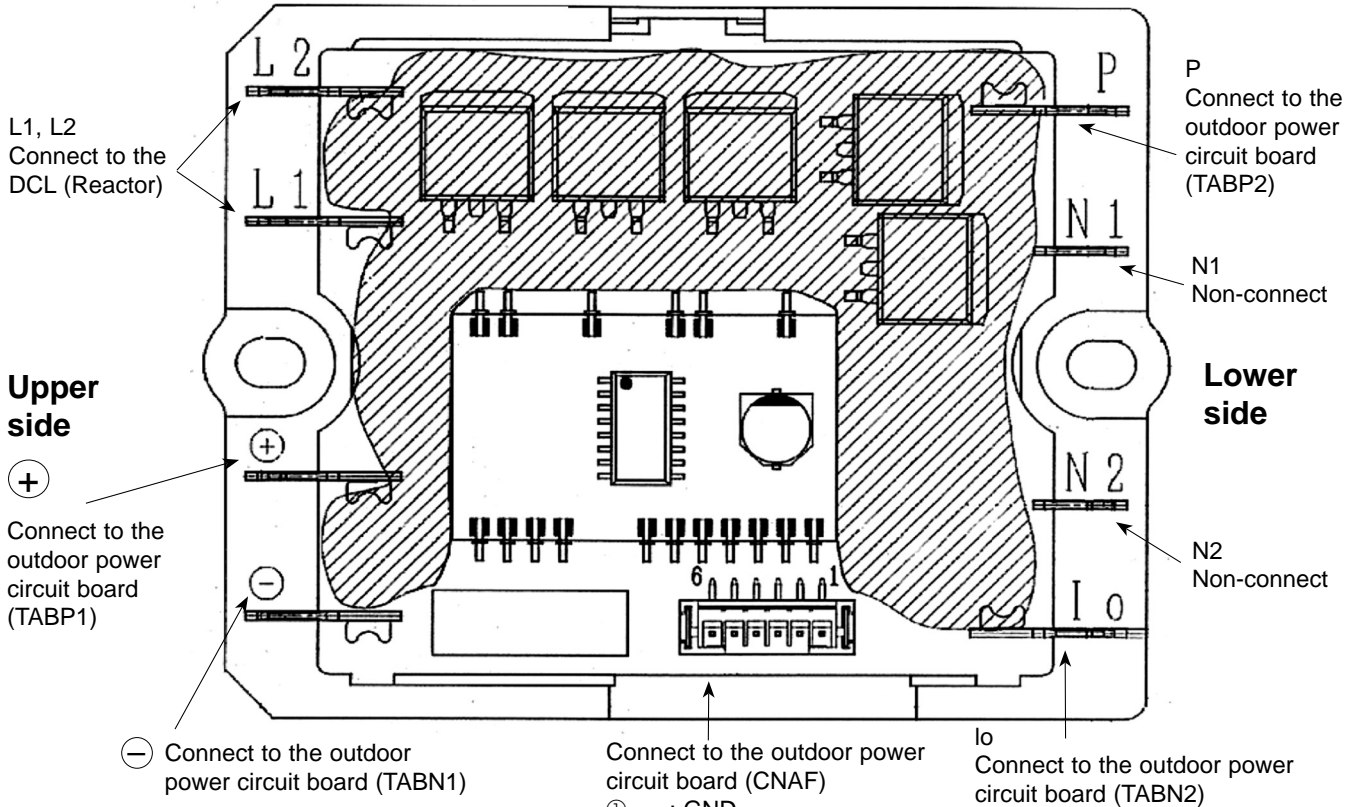


Outdoor noise filter circuit board
PUMY-P100/125/140YHMB(-BS)
PUMY-P100/125/140YHMBR1(-BS)
PUMY-P100/125/140YHMBR2(-BS)
PUMY-P100/125/140YHMBR3(-BS)

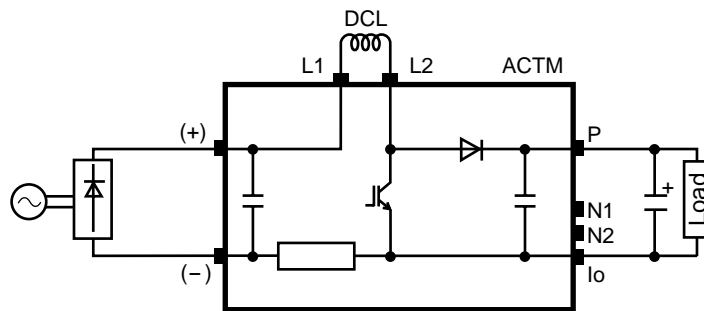


Active filter module

PUMY-P100/125/140VHMB(-BS)
 PUMY-P100/125/140VHMBR1(-BS)
 PUMY-P100/125/140VHMBR2(-BS)
 PUMY-P100/125/140VHMBR3(-BS)



Connection and internal circuit diagram



Tester check points of Active filter module

	Error condition	Normal value (reference)	Symptom when the unit is in trouble
(-) and lo	open	less than 1Ω	① The unit does not operate (can not be switched ON)
(-) and L2	short	100kΩ ~ 1MΩ	① The breaker operates
	open	*	① The unit does not operate (can not be switched ON) ② 4220 Abnormal stop (9-10. No.189 "ACTM error" display)
P and L2	short	100kΩ ~ 1MΩ	① The breaker operates
	open	*	① The unit does not operate (can not be switched ON) ② 4220 Abnormal stop (9-10. No.189 "ACTM error" display)
P and lo	short	100kΩ ~ 1MΩ	① The breaker operates
	open	*	① The unit does not operate (can not be switched ON) ② 4220 Abnormal stop (9-10. No.189 "ACTM error" display)
L2 and lo	short	100kΩ ~ 1MΩ	① The breaker operates
	open	*	① The unit does not operate (can not be switched ON) ② 4220 Abnormal stop (9-10. No.189 "ACTM error" display)

* The symptom when the unit is in open error condition is described to determine open error by tester check.

9-10. OUTDOOR UNIT FUNCTIONS

SW:setting
0...OFF
1...ON

No.	SW1 setting	Display mode	Display on the LED1, 2 (display data)								Notes	
			1	2	3	4	5	6	7	8		
0	00000000	Relay output display	Compressor operation	52C	21S4	SV1	(SV2)				Lighting always ON: light on OFF: light off	•When abnormality occurs, check display. Check: light on Normal: light off
1	10000000	Indoor unit check status	No.1 unit check	No.2 unit check	No.3 unit check	No.4 unit check	No.5 unit check	No.6 unit check	No.7 unit check	No.8 unit check	TH8 abnormality	Display input microprocessor protection (abnormality)
2	01000000	Protection input	High-pressure abnormality	High-pressure abnormality	Discharge/Compressor temperature abnormality	TH4 abnormality	TH3 abnormality	Outdoor fan rotational frequency abnormality	TH7 abnormality	TH8 abnormality	TH8 abnormality	Display all abnormalities remaining in abnormality delay
3	11000000	Protection input	Heatsink overheating	Over current interception	Voltage abnormality	Insufficient refrigerant amount abnormality	Over capacity	Low-pressure abnormality	63HS abnormality	63HS abnormality	63HS abnormality	Display all abnormalities remaining in abnormality delay
4	00100000	Protection input	Abnormality in the number of indoor units	Address double setting abnormality	Indoor unit capacity error	Over capacity	Indoor unit address error	Outdoor unit address error	Current sensor open/short	Current sensor open/short	Current sensor open/short	Display all abnormalities remaining in abnormality delay
5	10100000	Abnormality delay display 1	High-pressure abnormality	High-pressure abnormality	Discharge/Compressor temp. abnormality	TH4 abnormality	TH3 abnormality	Outdoor fan rotational frequency abnormality	TH7 abnormality	TH8 abnormality	TH8 abnormality	Display all abnormalities remaining in abnormality delay
6	01100000	Abnormality delay display 2	Heatsink overheating	Over current interception	Voltage abnormality	Insufficient refrigerant amount abnormality	Over capacity	Low-pressure abnormality	63HS abnormality	63HS abnormality	63HS abnormality	Display all abnormalities remaining in abnormality delay
7	11100000	Abnormality delay display 3	Abnormality in the number of indoor units	Address double setting abnormality	Indoor unit capacity error	Over capacity	Indoor unit address error	Outdoor unit address error	Current sensor open/short	Current sensor open/short	Current sensor open/short	Display all abnormalities remaining in abnormality delay
8	00010000	Abnormality delay history 1	High-pressure abnormality	High-pressure abnormality	Discharge/Compressor temp. abnormality	TH4 abnormality	TH3 abnormality	Outdoor fan rotational frequency abnormality	TH7 abnormality	TH8 abnormality	TH8 abnormality	Display all abnormalities remaining in abnormality delay
9	10010000	Abnormality delay history 2	Heatsink overheating	Over current interception	Voltage abnormality	Insufficient refrigerant amount abnormality	Over capacity	Low-pressure abnormality	63HS abnormality	63HS abnormality	63HS abnormality	Display all abnormalities remaining in abnormality delay
10	01010000	Abnormality delay history 3	Abnormality in the number of indoor units	Address double setting abnormality	Indoor unit capacity error	Over capacity	Indoor unit address error	Outdoor unit address error	Current sensor open/short	Current sensor open/short	Current sensor open/short	Display all abnormalities remaining in abnormality delay
11	11010000	Abnormality code history 1 (the latest)	Abnormality code history 1	Abnormality code history 1	Discharge/Compressor temp. abnormality	TH4 abnormality	TH3 abnormality	Outdoor fan rotational frequency abnormality	TH7 abnormality	TH8 abnormality	TH8 abnormality	Display all abnormalities remaining in abnormality delay
12	00110000	Abnormality code history 2	Abnormality code history 2	Abnormality code history 2	Voltage abnormality	Insufficient refrigerant amount abnormality	Over capacity	Low-pressure abnormality	63HS abnormality	63HS abnormality	63HS abnormality	Display all abnormalities remaining in abnormality delay
13	10110000	Abnormality code history 3	Abnormality code history 3	Abnormality code history 3	Voltage abnormality	Insufficient refrigerant amount abnormality	Over capacity	Low-pressure abnormality	63HS abnormality	63HS abnormality	63HS abnormality	Display all abnormalities remaining in abnormality delay
14	01110000	Abnormality code history 4	Abnormality code history 4	Abnormality code history 4	Voltage abnormality	Insufficient refrigerant amount abnormality	Over capacity	Low-pressure abnormality	63HS abnormality	63HS abnormality	63HS abnormality	Display all abnormalities remaining in abnormality delay
15	11110000	Abnormality code history 5	Abnormality code history 5	Abnormality code history 5	Voltage abnormality	Insufficient refrigerant amount abnormality	Over capacity	Low-pressure abnormality	63HS abnormality	63HS abnormality	63HS abnormality	Display all abnormalities remaining in abnormality delay
16	00001000	Abnormality code history 6	Abnormality code history 6	Abnormality code history 6	Voltage abnormality	Insufficient refrigerant amount abnormality	Over capacity	Low-pressure abnormality	63HS abnormality	63HS abnormality	63HS abnormality	Display all abnormalities remaining in abnormality delay
17	10001000	Abnormality code history 7	Abnormality code history 7	Abnormality code history 7	Voltage abnormality	Insufficient refrigerant amount abnormality	Over capacity	Low-pressure abnormality	63HS abnormality	63HS abnormality	63HS abnormality	Display all abnormalities remaining in abnormality delay
18	01001000	Abnormality code history 8	Abnormality code history 8	Abnormality code history 8	Voltage abnormality	Insufficient refrigerant amount abnormality	Over capacity	Low-pressure abnormality	63HS abnormality	63HS abnormality	63HS abnormality	Display all abnormalities remaining in abnormality delay
19	11001000	Abnormality code history 9	Abnormality code history 9	Abnormality code history 9	Voltage abnormality	Insufficient refrigerant amount abnormality	Over capacity	Low-pressure abnormality	63HS abnormality	63HS abnormality	63HS abnormality	Display all abnormalities remaining in abnormality delay
20	00101000	Abnormality code history 10 (the oldest)	Abnormality code history 10	Abnormality code history 10	Voltage abnormality	Insufficient refrigerant amount abnormality	Over capacity	Low-pressure abnormality	63HS abnormality	63HS abnormality	63HS abnormality	Display all abnormalities remaining in abnormality delay
21	10101000	Cumulative time	0~9999(unit: 1-hour)	0~9999(unit: 1-hour)	Abnormality delay code	Abnormality delay code	Abnormality delay code	Abnormality delay code	Abnormality delay code	Abnormality delay code	Abnormality delay code	Display of cumulative compressor operating time
22	01101000	Cumulative time	0~9999(unit: 10-hour)	0~9999(unit: 10-hour)	Abnormality delay code	Abnormality delay code	Abnormality delay code	Abnormality delay code	Abnormality delay code	Abnormality delay code	Abnormality delay code	Display of cumulative compressor operating time
23	11101000	Outdoor unit operation display	Excitation Current	Restart after 3 minutes	Compressor operation	Abnormality(detection)	Abnormality(detection)	Abnormality(detection)	Abnormality(detection)	Abnormality(detection)	Abnormality(detection)	Cooling : light on Heating: light flashing Stop fan: light off
24	00011000	Indoor unit operation mode	No.1 unit mode	No.2 unit mode	No.3 unit mode	No.4 unit mode	No.5 unit mode	No.6 unit mode	No.7 unit mode	No.8 unit mode	No.8 unit mode	Thermo ON : light on Thermo OFF : light off
25	10011000	Indoor unit operation display	No.1 unit operation	No.2 unit operation	No.3 unit operation	No.4 unit operation	No.5 unit operation	No.6 unit operation	No.7 unit operation	No.8 unit operation	No.8 unit operation	•Display of indoor unit capacity code
26	01011000	Capacity code (No. 1 indoor unit)	0~255	0~255	0~255	0~255	0~255	0~255	0~255	0~255	0~255	•The No. 1 unit will start from the address with the lowest number
27	11011000	Capacity code (No. 2 indoor unit)	0~255	0~255	0~255	0~255	0~255	0~255	0~255	0~255	0~255	•The No. 1 unit will start from the address with the lowest number
28	00111000	Capacity code (No. 3 indoor unit)	0~255	0~255	0~255	0~255	0~255	0~255	0~255	0~255	0~255	•The No. 1 unit will start from the address with the lowest number
29	10111000	Capacity code (No. 4 indoor unit)	0~255	0~255	0~255	0~255	0~255	0~255	0~255	0~255	0~255	•The No. 1 unit will start from the address with the lowest number
30	01111000	Capacity code (No. 5 indoor unit)	0~255	0~255	0~255	0~255	0~255	0~255	0~255	0~255	0~255	•The No. 1 unit will start from the address with the lowest number

No.	SW1 setting	Display mode	Display on the LED1, 2 (display data)								Notes
			1	2	3	4	5	6	7	8	
31	11111000	IC1 operation mode	OFF	Fan	Cooling thermo ON	Cooling thermo OFF	Heating thermo ON	Heating thermo OFF			•Display of indoor unit operating mode
32	00000100	IC2 operation mode									
33	10000100	IC3 operation mode									
34	01000100	IC4 operation mode									
35	11000100	IC5 operation mode									
36	00100100	OC operation mode	ON/OFF	Heating/Cooling	Abnormal/Normal	DEFROST/NO	Refrigerant pull back/no	Excitation current/no	3-min.delay/no		Light on/light off
37	10100100	External connection status	P97:Autochange over permission CN3N1-3 input	P96:Autochange over fixed mode CN3N1-2 input	P95:Undefined CN3S1-2 input	P94:Demand CN3D1-3 input	P93:Silent CN3D1-2 input				Input: light off No input: light on
38	01100100	Communication demand capacity	0~255								Display of communication demand capacity
39	11100100	Number of compressor ON/OFF	0000~9999 (unit : 010)								
40	000010100	Compressor operating current	0~999.9 (A)								
41	10010100	Input current of outdoor unit	0~999.9 (A)								
42	01010100	Thermo ON operating time	0000~9999 (unit : 010)								
43	11010100	Total capacity of thermo on	0~255								
44	00110100	Number of indoor units	0~255 (Max. 12 unit)								
45	10110100	DC bus voltage	0~999.9 (V)								
46	01110100	State of LEV control	Td over heat prevention	SHd decrease prevention	Min.Sj correction depends on Td	LEV opening correction depends on Pd	LEV opening correction depends on Td	LEV opening correction depends on Td	Correction of high compression ratio prevention		
47	11110100	State of compressor frequency control 1	Discharge pressure control	Discharge/Compressor temp.control	Max. Hz control	Discharge temp.(heating) Backup	Discharge pressure(heating) Backup	Max. Hz control	Freeze prevention control		
48	00001100	State of compressor frequency control 2	Heatsink over heat prevention control	Secondary current control	Input current control		Frequency restrain of receipt voltage change				
49	10001100	Protection input				Frozen protection	TH6 abnormality	Power module abnormality			
50	01001100	The second current value when microprocessor of POWER BOARD abnormality is detected	0~999.9 [Arms]								
51	11001100	The radiator panel temperature when microprocessor of POWER BOARD abnormality is detected	-99.9~999.9 (Short/Open:~99.9 or 999.9)								
State of compressor frequency(Hz) control (Words)			Content								
Discharge pressure control			Hz control by pressure limitation								
Discharge/Compressor temperature control			Hz control by discharge/compressor temperature limitation								
Max.Hz control			Max.Hz limitation when power supply on								
SV control			Hz control by bypass valve								
Abnormal rise of Pd control			Control that restrains abnormal rise of discharge pressure								
Heatsink over heat prevention control			Heatsink over heat prevention control								
Secondary current control			Secondary current control								
Input current control			Input current control								
Hz correction of receipt voltage decrease prevention			Max.Hz correction control due to voltage decrease								
Hz restrain of receipt voltage change			Max.Hz correction control due to receipt voltage change								

No.	SW1 setting	Display mode	Display on the LED1, 2 (display data)								Notes
			1	2	3	4	5	6	7	8	
52	00101100	Indoor unit check status	No.9 unit check	No.10 unit check	No.11 unit check	No.12 unit check					Check: light on Normal: light off
53	10101100	Indoor unit operation mode	No.9 unit mode	No.10 unit mode	No.11 unit mode	No.12 unit mode					COOL/DRY: light on HEAT: light flashing FAN/STOP: light off
54	01101100	Indoor unit operation display	No.9 unit operation	No.10 unit operation	No.11 unit operation	No.12 unit operation					Thermo ON: light on Thermo OFF: light off
57	10011100	IC6 operation mode									
58	01011100	IC7 operation mode									
59	11011100	IC8 operation mode									
60	00111100	IC9 operation mode	OFF	Fan	Cooling thermo ON	Cooling thermo OFF	Heating thermo ON	Heating thermo OFF			Display of indoor unit operation mode
61	10111100	IC10 operation mode									
62	01111100	IC11 operation mode									
63	11111100	IC12 operation mode									
64	00000010	Operational frequency	0~FF (16 progressive)								Display of actual operating frequency
65	10000010	Target frequency	0~255								Display of target frequency
66	01000010	Outdoor fan control step number	0~15								Display of number of outdoor fan control steps (target)
69	10100010	IC1 LEV Opening pulse	0~2000								Display of opening pulse of indoor LEV
70	01100010	IC2 LEV Opening pulse									
71	11100010	IC3 LEV Opening pulse									
72	00010010	IC4 LEV Opening pulse									
73	10010010	IC5 LEV Opening pulse									
74	01010010	High-pressure sensor (Pd) kgf/cm ²	-99.9 ~ 999.9								Display of outdoor subcool (SC) data and detection data from high-pressure sensor and each thermistor
75	11010010	TH4 (Td) °C									
76	00110010	TH6 (ET) °C									
77	10110010	TH7 (Outdoor-temp.) °C									
78	01110010	TH3 (Outdoor pipe) °C									
80	00001010	TH8 (Power module) °C									
81	10001010	IC1 TH23 (Gas) °C	-99.9 ~ 999.9								
82	01001010	IC2 TH23 (Gas) °C	(When the indoor unit is not connected, it is displayed as "0".)								
83	11001010	IC3 TH23 (Gas) °C	-99.9 ~ 999.9								
84	00101010	IC4 TH23 (Gas) °C									
85	10101010	IC5 TH23 (Gas) °C									

No.	SW1 setting 12345678	Display mode	Display on the LED1, 2 (display data)								Notes
			1	2	3	4	5	6	7	8	
86	01101010	IC1 TH22 (Liquid) °C	-99.9 ~ 999.9 (When the indoor unit is not connected, it is displayed as "0".)								Display of outdoor subcool (SC) data and detection data from high-pressure sensor and each thermistor
87	11101010	IC2 TH22 (Liquid) °C									
88	00011010	IC3 TH22 (Liquid) °C									
89	10011010	IC4 TH22 (Liquid) °C									
90	01011010	IC5 TH22 (Liquid) °C									
91	11011010	IC1 TH21 (Intake) °C	-99.9 ~ 999.9								Display of target subcool data
92	00111010	IC2 TH21 (Intake) °C									
93	10111010	IC3 TH21 (Intake) °C									
94	01111010	IC4 TH21 (Intake) °C									
95	11111010	IC5 TH21 (Intake) °C									
96	00000110	Outdoor SC (cooling) °C	0.0 ~ 20.0								Display of indoor SC/SH data
97	10000110	Target subcool °C									
98	01000110	IC1 SC/SH °C									
99	11000110	IC2 SC/SH °C									
100	00100110	IC3 SC/SH °C									
101	10100110	IC4 SC/SH °C	-99.9 ~ 999.9 during heating: subcool (SC)/during cooling: superheat (SH)								Display of target subcool step data
102	01100110	IC5 SC/SH °C									
103	11100110	Discharge superheat (SHd) °C									
105	10010110	Target Pd display (heating) kgf/cm ²									
106	01010110	Target ET display (cooling) °C									
107	11010110	Target outdoor SC (cooling) °C	Pdm (0.0 ~ 30.0) ETm (-2.0 ~ 23.0) SCm (0.0 ~ 20.0) SCm/SHm (0.0~20.0)								Display of all control target data
108	00110110	Target indoor SC/SH (IC1) °C									
109	10110110	Target indoor SC/SH (IC2) °C									
110	01110110	Target indoor SC/SH (IC3) °C									
111	11110110	Target indoor SC/SH (IC4) °C									
112	00001110	Target indoor SC/SH (IC5) °C									

No.	SW1 setting	Display mode	Display on the LED1, 2 (display data)								Notes									
			1	2	3	4	5	6	7	8										
113	10001110	Target indoor SC/SH (IC6) °C	SCm/SHm (0.0 ~ 20.0)								Display of all control target data									
114	01001110	Target indoor SC/SH (IC7) °C																		
115	11001110	Target indoor SC/SH (IC8) °C																		
116	00101110	Target indoor SC/SH (IC9) °C																		
117	10101110	Target indoor SC/SH (IC10) °C																		
118	01101110	Target indoor SC/SH (IC11) °C																		
119	11101110	Target indoor SC/SH (IC12) °C																		
121	10011110	TH4 (Td) °F										-99.9 ~ 999.9 [°F]								Display of detection data from high-pressure sensor and each thermistor
122	01011110	TH3 (Outdoor pipe) °F																		
123	11011110	TH6 (ET) °F																		
124	00111110	TH7 (Outdoor temp.) °F																		
125	10111110	High pressure sensor (Pd) PSIG	0.0 ~ 711.0 [PSIG]																	
126	01111110	TH8 (Power module) °F																		
128	00000001	IC1 LEV opening pulse abnormality delay	0 ~ 2000								Display of opening pulse of indoor LEV at time of abnormality delay									
129	10000001	IC2 LEV opening pulse abnormality delay																		
130	01000001	IC3 LEV opening pulse abnormality delay																		
131	11000001	IC4 LEV opening pulse abnormality delay																		
132	00100001	IC5 LEV opening pulse abnormality delay																		
133	10100001	IC6 LEV opening pulse abnormality delay																		
134	01100001	IC7 LEV opening pulse abnormality delay																		
135	11100001	IC8 LEV opening pulse abnormality delay																		
136	00010001	IC9 LEV opening pulse abnormality delay																		
137	10010001	IC10 LEV opening pulse abnormality delay																		
138	01010001	IC11 LEV opening pulse abnormality delay																		
139	11010001	IC12 LEV opening pulse abnormality delay																		
140	00110001	Actual frequency of abnormality delay	0 ~ FF (16 progressive)								Display of actual frequency at time of abnormality delay									
141	10110001	Fan step number at time of abnormality delay	0 ~ 15								Display of fan step number at time of abnormality delay									

No.	SW1 setting	Display mode	Display on the LED1, 2 (display data)								Notes	
			1	2	3	4	5	6	7	8		
142	01110001	High-pressure sensor data at time of abnormality delay kgf/cm ²										
143	11110001	OC SC (cooling) at time of abnormality delay °C										
145	10001001	TH4 sensor data at time of abnormality delay °C										
146	01001001	TH6 sensor data at time of abnormality delay °C										
147	11001001	TH3 sensor data at time of abnormality delay °C										
148	00101001	TH8 sensor data at time of abnormality delay °C										
149	10101001	IC1 SC/SH at time of abnormality delay °C										
150	01101001	IC2 SC/SH at time of abnormality delay °C										
151	11101001	IC3 SC/SH at time of abnormality delay °C										
152	00011001	IC4 SC/SH at time of abnormality delay °C										
153	10011001	IC5 SC/SH at time of abnormality delay °C										
154	01011001	IC6 SC/SH at time of abnormality delay °C										
155	11011001	IC7 SC/SH at time of abnormality delay °C										
156	00111001	IC8 SC/SH at time of abnormality delay °C										
157	10111001	IC9 SC/SH at time of abnormality delay °C										
158	01111001	IC10 SC/SH at time of abnormality delay °C										
159	11111001	IC11 SC/SH at time of abnormality delay °C										
160	00000101	IC12 SC/SH at time of abnormality delay °C										
170	01010101	ROM version monitor										Display of version data of ROM
171	11010101	ROM type										Display of ROM type
172	00110101	Check sum mode										Display of check sum code of ROM
173	10110101	IC1 LEV opening pulse at time of abnormality delay										
174	01110101	IC2 LEV opening pulse at time of abnormality delay										
175	11110101	IC3 LEV opening pulse at time of abnormality delay										
176	00001101	IC4 LEV opening pulse at time of abnormality delay										
177	10001101	IC5 LEV opening pulse at time of abnormality delay										
178	01001101	IC6 LEV opening pulse at time of abnormality delay										
179	11001101	IC7 LEV opening pulse at time of abnormality delay										
180	00101101	IC8 LEV opening pulse at time of abnormality delay										
181	10101101	IC9 LEV opening pulse at time of abnormality delay										
182	01101101	IC10 LEV opening pulse at time of abnormality delay										
183	11101101	IC11 LEV opening pulse at time of abnormality delay										
184	00011101	IC12 LEV opening pulse at time of abnormality delay										

Display of data from high-pressure sensor, all thermistors, and SC/SH at time of abnormality delay

-99.9 ~ 999.9

Display of opening pulse of indoor LEV at time of abnormality

0 ~ 2000

No.	SW1 setting 12345678	Display mode	Display on the LED1, 2 (display data)								Notes
			1	2	3	4	5	6	7	8	
185	10011101	Actual frequency of abnormality	0 ~ FF (16progressive)								Display of actual frequency at time of abnormality
186	01011101	Fan step number at time of abnormality	0 ~ 15								Display of fan step number at time of abnormality
187	11011101	High-pressure sensor data at time of abnormality	-99.9 ~ 999.9								Display of data from high-pressure sensor at time of abnormality
188	00111101	OC SC (cooling) at time of abnormality	-99.9 ~ 999.9								Display of SC data at time of abnormality
189	10111101	4420 Error history	—	—	ACTM error	—	—	CT sensor disconnection	Under voltage	Over Voltage	
190	01111101	TH4 sensor data at time of abnormality									
191	11111101	TH6 sensor data at time of abnormality									
192	00000011	TH3 sensor data at time of abnormality									
193	10000011	TH8 sensor data at time of abnormality									
194	01000011	IC1 SC/SH at time of abnormality									
195	11000011	IC2 SC/SH at time of abnormality									
196	00100011	IC3 SC/SH at time of abnormality									
197	10100011	IC4 SC/SH at time of abnormality									
198	01100011	IC5 SC/SH at time of abnormality									
199	11100011	IC6 SC/SH at time of abnormality									
200	00010011	IC7 SC/SH at time of abnormality									
201	10010011	IC8 SC/SH at time of abnormality									
202	01010011	IC9 SC/SH at time of abnormality									
203	11010011	IC10 SC/SH at time of abnormality									
204	00110011	IC11 SC/SH at time of abnormality									
205	10110011	IC12 SC/SH at time of abnormality									
211	11001011	IC6 Capacity code									
212	00101011	IC7 Capacity code									
213	10101011	IC8 Capacity code									
214	01101011	IC9 Capacity code									
215	11101011	IC10 Capacity code									
216	00011011	IC11 Capacity code									
217	10011011	IC12 Capacity code									
			-99.9 ~ 999.9								Display of data from high-pressure sensor, all thermistors, and SC/SH at time of abnormality
			0 ~ 255								Display of indoor unit capacity code

This chapter provides an introduction to electrical wiring for the CITY MULTI-S series, together with notes concerning power wiring, wiring for control (transmission wires and remote controller wires), and the frequency converter.

10-1. OVERVIEW OF POWER WIRING

- (1) Use a separate power supply for the outdoor unit and indoor unit.
- (2) Bear in mind ambient conditions (ambient temperature, direct sunlight, rain water, etc.) when proceeding with the wiring and connections.
- (3) The wire size is the minimum value for metal conduit wiring. The power cord size should be 1 rank thicker consideration of voltage drops. Make sure the power-supply voltage does not drop more than 10 %.
- (4) Specific wiring requirements should adhere to the wiring regulations of the region.
- (5) Power supply cords of parts of appliances for outdoor use shall not be lighter than polychloroprene sheathed flexible cord (design 60245 IEC57). For example, use wiring such as YZW.
- (6) Install an earth longer than other cables.

⚠ Warning:

- Be sure to use specified wires to connect so that no external force is imparted to terminal connections. If connections are not fixed firmly, it may cause heating or fire.
- Be sure to use the appropriate type of overcurrent protection switch. Note that generated overcurrent may include some amount of direct current.

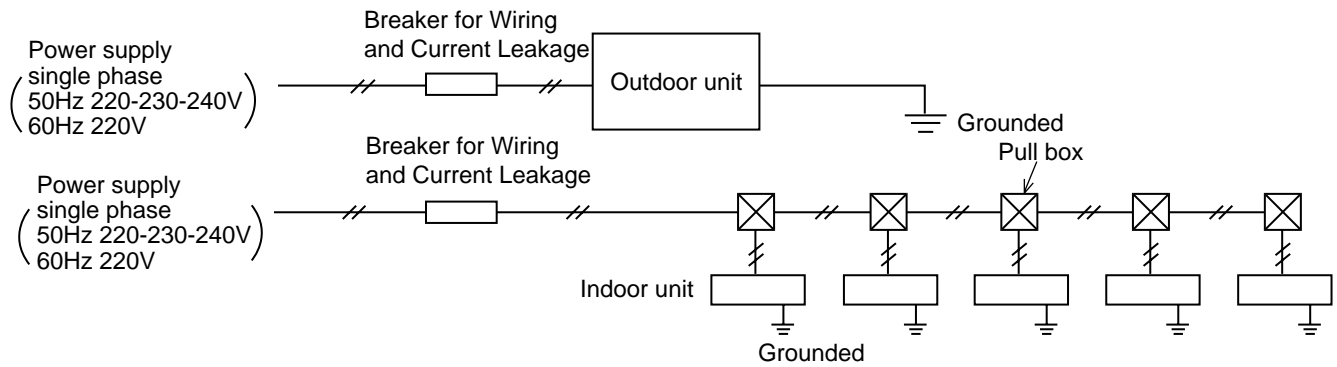
⚠ Caution:

- Some installation site may require attachment of an earth leakage breaker. If no earth leakage breaker is installed, it may cause an electric shock.
- Do not use anything other than breaker and fuse with correct capacity. Using fuse and wire or copper wire with too large capacity may cause a malfunction of unit or fire.
- Be sure to install N-Line. Without N-Line, it could casue damage to the unit.

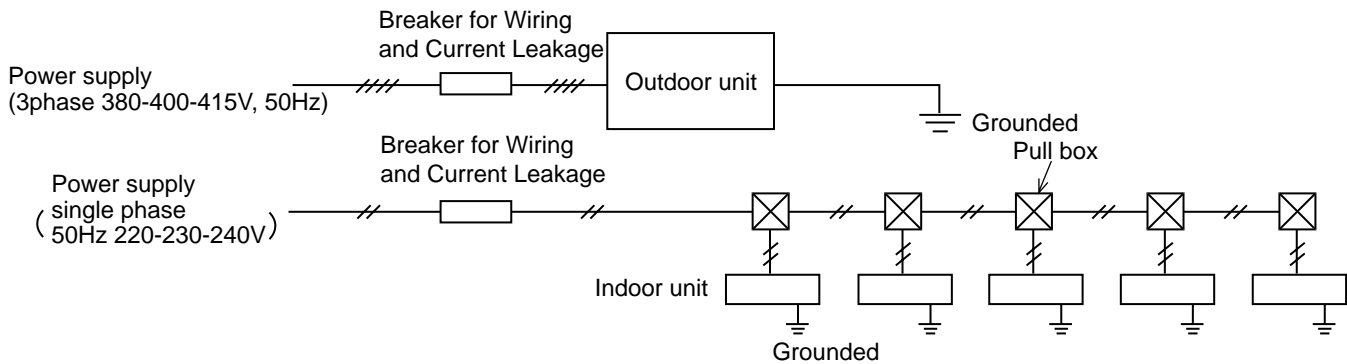
10-2. WIRE DIAMETER AND MAIN POWER SWITCH CAPACITY

10-2-1. Wiring diagram for main power supply

PUMY-P100/125/140VHMB(-BS) PUMY-P100/125/140VHMBR1(-BS)
PUMY-P100/125/140VHMBR2(-BS) PUMY-P100/125/140VHMBR3(-BS)



PUMY-P100/125/140YHMB(-BS) PUMY-P100/125/140YHMBR1(-BS)
PUMY-P100/125/140YHMBR2(-BS) PUMY-P100/125/140YHMBR3(-BS)

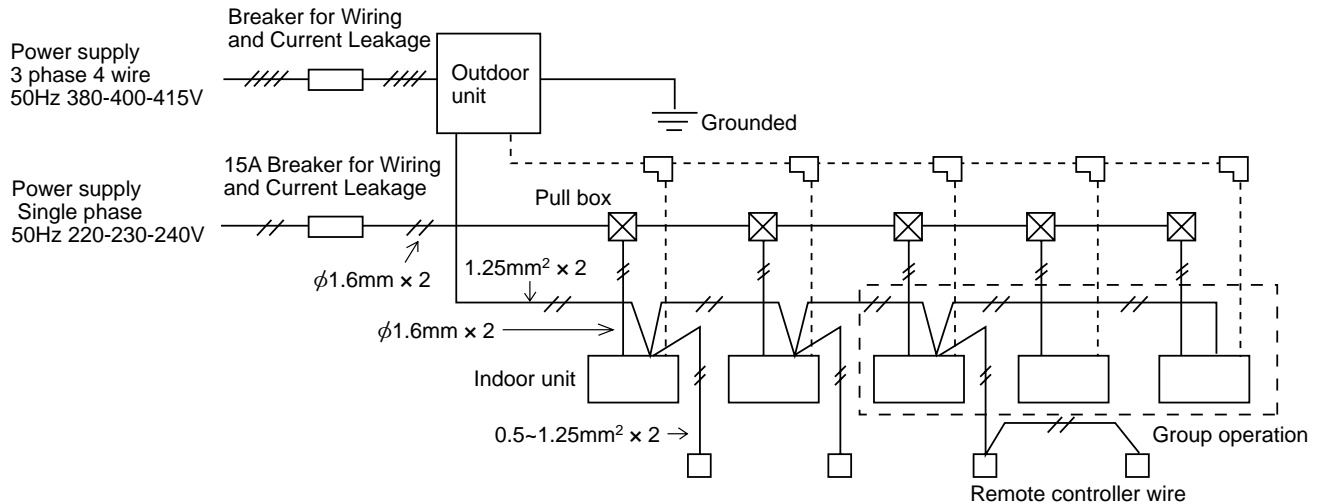


10-4. SYSTEM SWITCH SETTING

In order to identify the destinations of signals to the outdoor units, indoor units, and remote controller of the MULTI-S series, each microprocessor must be assigned an identification number (address). The addresses of outdoor units, indoor units, and remote controller must be set using their settings switches. Please consult the installation manual that comes with each unit for detailed information on setting procedures.

10-5. EXAMPLE EXTERNAL WIRING DIAGRAM FOR A BASIC SYSTEM

Example using a M-NET remote controller



10-6. METHOD FOR OBTAINING ELECTRICAL CHARACTERISTICS WHEN A CAPACITY AGREEMENT IS TO BE SIGNED WITH AN ELECTRIC POWER COMPANY

The electrical characteristics of connected indoor unit system for air conditioning systems, including the MULTI-S series, will depend on the arrangement of the indoor and outdoor units.

First read the data on the selected indoor and outdoor units and then use the following formulas to calculate the electrical characteristics before applying for a capacity agreement with the local electric power company.

10-6-1. Obtaining the electrical characteristics of a CITY MULTI-S series system

(1) Procedure for obtaining total power consumption

	Page numbers in this technical manual	Power consumption
Total power consumption of each indoor unit	See the technical manual of each indoor unit	①
*1 Power consumption of outdoor unit	Standard capacity table— Refer to 5-2.	②
Total power consumption of system	See the technical manual of each indoor unit	①+② <kW>

*1 Please note that the power consumption of the outdoor unit will vary depending on the total capacity of the selected indoor units.

(2) Method of obtaining total current

	Page numbers in this technical manual	Subtotal
Total current through each indoor unit	See the technical manual of each indoor unit	①
*2 Current through outdoor unit	Standard capacity table— Refer to 5-2.	②
Total current through system	See the technical manual of each indoor unit	①+② <A>

*2 Please note that the current through the outdoor unit will vary depending on the total capacity of the selected indoor units.

(3) Method of obtaining system power factor

Use the following formula and the total power and current obtained in parts ① and ② on the above tables to calculate the system power factor.

$$\text{System power factor} = \frac{(\text{Total system power consumption})}{(\text{Total system current} \times \text{voltage})} \times 100\%$$

10-6-2. Applying to an electric power company for power and total current

Calculations should be performed separately for heating and cooling employing the same methods; use the largest resulting value in your application to the electric power company.

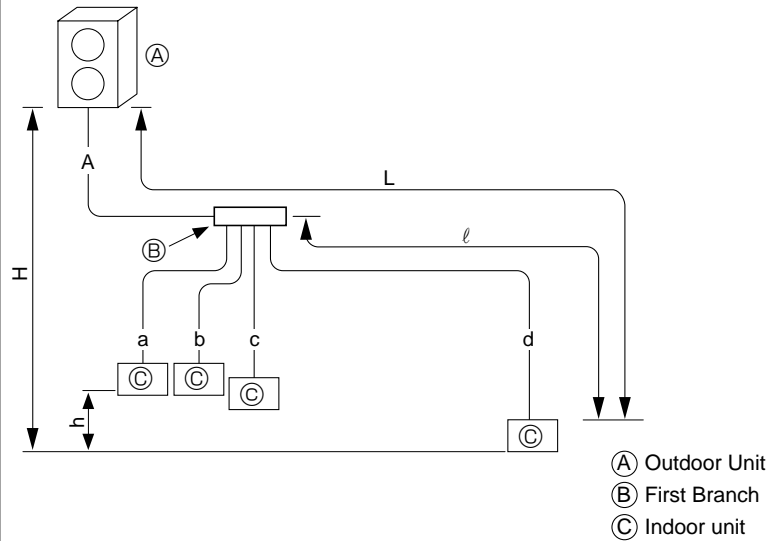
11-1. REFRIGERANT PIPING SYSTEM

Line-Branch Method
Connection Examples
(Connecting to 4 Indoor Units)

(A) Outdoor Unit
 (B) First Branch
 (C) Indoor unit

Permissible Length	Total Piping Length	$A+B+C+a+b+c+d \leq 120m$																													
	Farthest Piping Length (L)	$A+B+C+d \leq 80m$																													
	Farthest Piping Length After First Branch (l)	$B+C+d \leq 30m$																													
Permissible High/Low Difference	High/Low Difference in Indoor/Outdoor Section (H)	50 meters or less (If the outdoor unit is lower, 20 meters or less)																													
	High/Low Difference in Indoor/Indoor Section (h)	12 meters or less																													
<p>■ Selecting the Refrigerant Branch Kit Use an optional branch piping kit (CMY-Y62-G-E).</p>																															
<p>■ Select Each Section of Refrigerant Piping</p> <div style="display: flex; align-items: flex-start;"> <div style="width: 30%;"> <p>(1) Section From Outdoor Unit to First Branch (A)</p> <p>(2) Sections From Branch to Indoor Unit (a,b,c,d)</p> <p>(3) Section From Branch to Branch (B,C)</p> </div> <div style="width: 10%; text-align: center; font-size: 2em;">}</div> <div style="width: 60%;"> <p style="text-align: center;">Each Section of Piping</p> <p>Select the size from the table to the right.</p> </div> </div>																															
<p>(1) Refrigerant Piping Diameter In Section From Outdoor Unit to First Branch (Outdoor Unit Piping Diameter)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Model</th> <th colspan="2">Piping Diameter (mm)</th> </tr> </thead> <tbody> <tr> <td>PUMY-P100</td> <td>Liquid Line</td> <td>φ9.52</td> </tr> <tr> <td>PUMY-P125</td> <td></td> <td></td> </tr> <tr> <td>PUMY-P140</td> <td>Gas Line</td> <td>φ15.88</td> </tr> </tbody> </table> <p>(2) Refrigerant Piping Diameter In Section From Branch to Indoor Unit (Indoor Unit Piping Diameter)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Model number</th> <th colspan="2">Piping Diameter (mm)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">50 or lower</td> <td>Liquid Line</td> <td>φ6.35</td> </tr> <tr> <td>Gas Line</td> <td>φ12.7</td> </tr> <tr> <td rowspan="2">63 to 140</td> <td>Liquid Line</td> <td>φ9.52</td> </tr> <tr> <td>Gas Line</td> <td>φ15.88</td> </tr> </tbody> </table> <p>(3) Refrigerant Piping Diameter In Section From Branch to Branch</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Liquid Line (mm)</th> <th>Gas Line (mm)</th> </tr> </thead> <tbody> <tr> <td>φ9.52</td> <td>φ15.88</td> </tr> </tbody> </table>			Model	Piping Diameter (mm)		PUMY-P100	Liquid Line	φ9.52	PUMY-P125			PUMY-P140	Gas Line	φ15.88	Model number	Piping Diameter (mm)		50 or lower	Liquid Line	φ6.35	Gas Line	φ12.7	63 to 140	Liquid Line	φ9.52	Gas Line	φ15.88	Liquid Line (mm)	Gas Line (mm)	φ9.52	φ15.88
Model	Piping Diameter (mm)																														
PUMY-P100	Liquid Line	φ9.52																													
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Liquid Line (mm)	Gas Line (mm)																														
φ9.52	φ15.88																														
<p>■ Additional refrigerant charge</p> <ul style="list-style-type: none"> Refrigerant of 3kg equivalent to 50m total extended piping length is already included when the outdoor unit is shipped. Thus, if the total extended piping length is 50m or less, there is no need to charge with additional refrigerant. If the total extended piping length exceeds 50m, calculate the required additional refrigerant charge using the procedure shown on the right. If the calculated additional refrigerant charge is a negative amount, do not charge with any refrigerant. 																															
<p><Additional Charge></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Additional refrigerant charge (kg)</td> <td style="width: 25%;">=</td> <td style="width: 25%;">Liquid pipe size Total length of φ9.52 × 0.06 (m) × 0.06 (kg/m)</td> <td style="width: 25%;">+</td> <td style="width: 25%;">Liquid pipe size Total length of φ6.35 × 0.024 (m) × 0.024 (kg/m)</td> <td style="width: 25%;">-</td> <td style="width: 25%;">Refrigerant amount for outdoor unit 3.0kg</td> </tr> </table> <p><Example> Outdoor model : 125 Indoor 1 : 63 A : φ9.52 10m a : φ9.52 15m 2 : 40 B : φ9.52 10m b : φ6.35 10m 3 : 25 C : φ9.52 10m c : φ6.35 10m 4 : 20 d : φ6.35 20m</p> <p style="text-align: right;">} At the conditions below:</p> <p>The total length of each liquid line is as follows; φ9.52 : A + B + C + a = 10 + 10 + 10 + 15 = 45m φ6.35 : b + c + d = 10 + 10 + 20 = 40m</p> <p><Calculation example> Additional refrigerant charge = 45 × 0.06 + 40 × 0.024 - 3.0 = 0.7kg (rounded up)</p>			Additional refrigerant charge (kg)	=	Liquid pipe size Total length of φ9.52 × 0.06 (m) × 0.06 (kg/m)	+	Liquid pipe size Total length of φ6.35 × 0.024 (m) × 0.024 (kg/m)	-	Refrigerant amount for outdoor unit 3.0kg																						
Additional refrigerant charge (kg)	=	Liquid pipe size Total length of φ9.52 × 0.06 (m) × 0.06 (kg/m)	+	Liquid pipe size Total length of φ6.35 × 0.024 (m) × 0.024 (kg/m)	-	Refrigerant amount for outdoor unit 3.0kg																									

Header-Branch Method
Connection Examples
(Connecting to 4 Indoor Units)



Permissible Length	Total Piping Length	$A+a+b+c+d \leq 120m$
	Farthest Piping Length (L)	$A+d \leq 80m$
	Farthest Piping Length After First Branch (l)	d is 30 meters or less
Permissible High/Low Difference	High/Low Difference in Indoor/Outdoor Section (H)	50 meters or less (If the outdoor unit is lower, 20 meters or less)
	High/Low Difference in Indoor/Indoor Section (h)	12 meters or less

Selecting the Refrigerant Branch Kit

Please select branching kit, which is sold separately, from the table below. (The kit comprises sets for use with liquid pipes and for use with gas pipes.)

Branch header (4 branches)	Branch header (8 branches)
CMY-Y64-G-E	CMY-Y68-G-E

Select Each Section of Refrigerant Piping

- (1) Section From Outdoor Unit to First Branch (A)
 - (2) Sections From Branch to Indoor Unit (a,b,c,d)
- Each Section of Piping

Select the size from the table to the right.

(1) Refrigerant Piping Diameter In Section From Outdoor Unit to First Branch (Outdoor Unit Piping Diameter)		(2) Refrigerant Piping Diameter In Section From Branch to Indoor Unit (Indoor Unit Piping Diameter)	
Model	Piping Diameter (mm)	Model number	Piping Diameter (mm)
PUMY-P100 PUMY-P125 PUMY-P140	Liquid Line	50 or lower	Liquid Line
	Gas Line		Gas Line
		63 to 140	Liquid Line
			Gas Line

Additional refrigerant charge

- Refrigerant of 3kg equivalent to 50m total extended piping length is already included when the outdoor unit is shipped. Thus, if the total extended piping length is 50m or less, there is no need to charge with additional refrigerant.
- If the total extended piping length exceeds 50m, calculate the required additional refrigerant charge using the procedure shown on the right.
- If the calculated additional refrigerant charge is a negative amount, do not charge with any refrigerant.

<Additional Charge>

Additional refrigerant charge	=	Liquid pipe size Total length of $\phi 9.52 \times 0.06$	+	Liquid pipe size Total length of $\phi 6.35 \times 0.024$	-	Refrigerant amount for outdoor unit
(kg)		(m) \times 0.06 (kg/m)		(m) \times 0.024 (kg/m)		3.0kg

<Example> Outdoor : 125

Indoor 1 : 63	A : $\phi 9.52$	30m	a : $\phi 9.52$	15m	} At the conditions below:
2 : 40			b : $\phi 6.35$	10m	
3 : 25			c : $\phi 6.35$	10m	
4 : 20			d : $\phi 6.35$	20m	

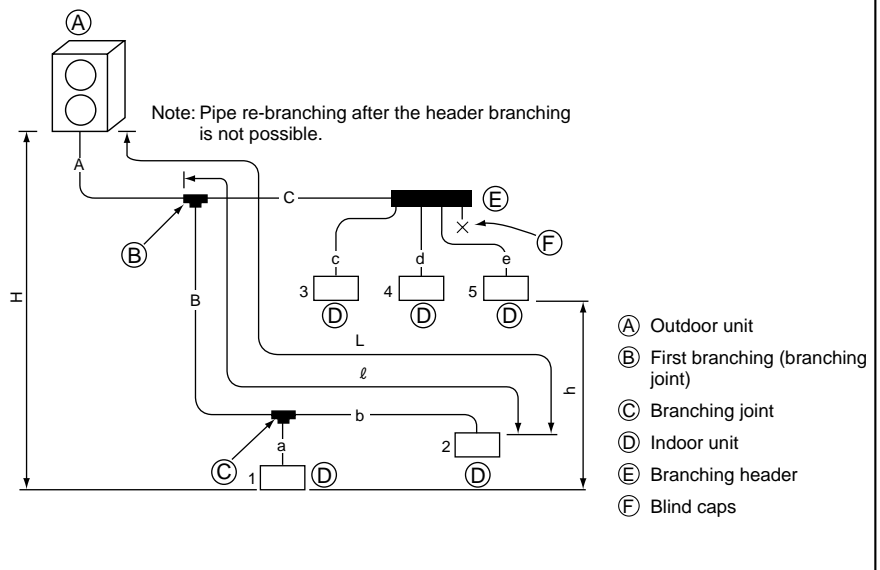
The total length of each liquid line is as follows;

$\phi 9.52 : A + a = 30 + 15 = 45m$
 $\phi 6.35 : b + c + d = 10 + 10 + 20 = 40m$

<Calculation example>

Additional refrigerant charge = $45 \times 0.06 + 40 \times 0.024 - 3.0 = 0.7kg$ (rounded up)

Method of Combined Branching of Lines and Headers
 Connection Examples
 (Connecting to 5 Indoor Units)



- (A) Outdoor unit
- (B) First branching (branching joint)
- (C) Branching joint
- (D) Indoor unit
- (E) Branching header
- (F) Blind caps

Permissible Length	Total Piping Length	A+B+C+a+b+c+d+e is 120 meters or less
	Farthest Piping Length (L)	A+B+b is 80 meters or less
	Farthest Piping Length After First Branch (ℓ)	B+b is 30 meters or less
Permissible High/Low Difference	High/Low Difference in Indoor/Outdoor Section (H)	50 meters or less (If the outdoor unit is lower, 20 meters or less)
	High/Low Difference in Indoor/Indoor Section (h)	12 meters or less

■ **Selecting the Refrigerant Branch Kit**

Please select branching kit, which is sold separately, from the table below.
 (The kit comprises sets for use with liquid pipes and for use with gas pipes.)

Branch Joint	Branch Header (4 branches)	Branch Header (8 branches)
CMY-Y62-G-E	CMY-Y64-G-E	CMY-Y68-G-E

■ **Select Each Section of Refrigerant Piping**

- (1) Section From Outdoor Unit to First Branch (A)
 - (2) Sections From Branch to Indoor Unit (a,b,c,d,e)
 - (3) Section From Branch to Branch (B,C)
- Each Section of Piping
- Select the size from the table to the right.

(1) Refrigerant Piping Diameter In Section From Outdoor Unit to First Branch (Outdoor Unit Piping Diameter)	Model	Piping Diameter (mm)	
	PUMY-P100	Liquid Line	φ9.52
(2) Refrigerant Piping Diameter In Section From Branch to Indoor Unit (Indoor Unit Piping Diameter)	Model number	Piping Diameter (mm)	
		50 or lower	Liquid Line
(3) Refrigerant Piping Diameter In Section From Branch to Branch	Liquid Line (mm)	Gas Line	φ15.88
		63 to 140	Liquid Line
		Gas Line	φ15.88

■ **Additional refrigerant charge**

- Refrigerant of 3kg equivalent to 50m total extended piping length is already included when the outdoor unit is shipped. Thus, if the total extended piping length is 50m or less, there is no need to charge with additional refrigerant.
- If the total extended piping length exceeds 50m, calculate the required additional refrigerant charge using the procedure shown on the right.
- If the calculated additional refrigerant charge is a negative amount, do not charge with any refrigerant.

<Additional Charge>

Additional refrigerant charge (kg)	=	Liquid pipe size Total length of φ9.52 × 0.06 (m) × 0.06 (kg/m)	+	Liquid pipe size Total length of φ6.35 × 0.024 (m) × 0.024 (kg/m)	-	Refrigerant amount for outdoor unit (125: 3.0kg)
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<Example>

Indoor 1 : 50	A : φ9.52	10m	a : φ9.52	5m
2 : 40	B : φ9.52	20m	b : φ6.35	10m
3 : 32	C : φ9.52	10m	c : φ6.35	5m
4 : 20			d : φ6.35	5m
5 : 20			e : φ6.35	5m

At the conditions below:

The total length of each liquid line is as follows;
 φ9.52 : A + B + C + a = 10 + 20 + 10 + 5 = 45m
 φ6.35 : b + c + d + e = 10 + 5 + 5 + 5 = 25m

<Calculation example>
 Additional refrigerant charge = 45 × 0.06 + 25 × 0.024 - 3.0 = 0.3kg (rounded up)

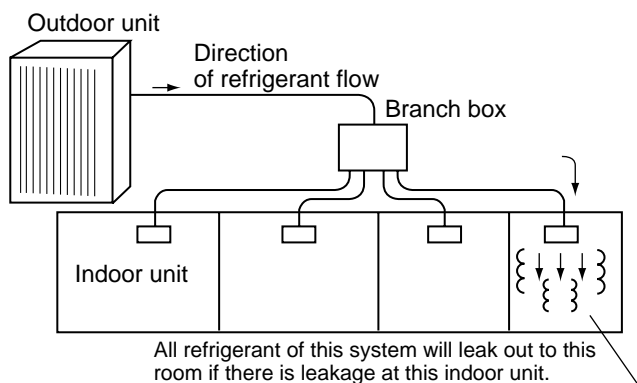
11-2. PRECAUTIONS AGAINST REFRIGERANT LEAKAGE

11-2-1. Introduction

R410A refrigerant of this air conditioner is non-toxic and non-flammable but leaking of large amount from an indoor unit into the room where the unit is installed may be deleterious. To prevent possible injury, the rooms should be large enough to keep the R410A concentration specified by KHK: (a high pressure gas safety association) installation guidelines S0010 as follows.

Maximum concentration
Maximum refrigerant concentration of R410A of a room is 0.3 kg/m³ accordance with the installation guidelines. To facilitate calculation, the maximum concentration is expressed in units of kg/m³ (kg of R410A per m³)

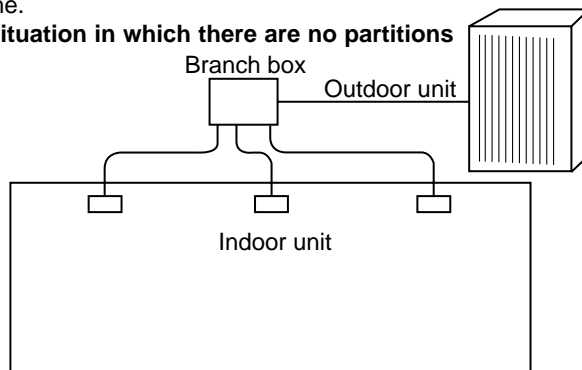
Maximum concentration of R410A: 0.3kg/m³
(KHK installation guidelines S0010)



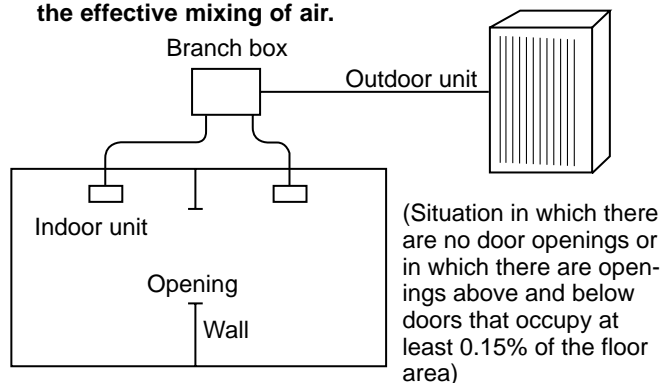
(2) Calculate room volumes (m³) and find the room with the smallest volume

The part with represents the room with the smallest volume.

(a) Situation in which there are no partitions



(b) There are partitions, but there are openings that allow the effective mixing of air.



11-2-2. Confirming procedure of R410A concentration

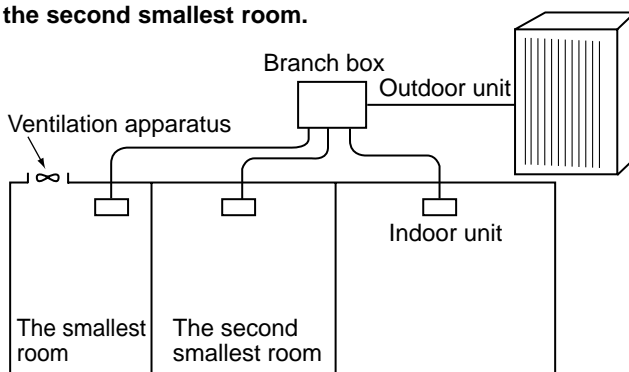
Follow (1) to (3) to confirm the R410A concentration and take appropriate treatment, if necessary.

(1) Calculate total refrigerant amount by each refrigerant system.

Total refrigerant amount is precharged refrigerant at ex-factory plus additional charged amount at field installation.

Note:
When single refrigeration system consists of several independent refrigeration circuit, figure out the total refrigerant amount by each independent refrigerant circuit.

(c) If the smallest room has mechanical ventilation apparatus that is linked to a household gas detection and alarm device, the calculations should be performed for the second smallest room.



(3) Use the results of calculations (1) and (2) to calculate the refrigerant concentration:

$$\frac{\text{Total refrigerant in the refrigerating unit (kg)}}{\text{The smallest room in which an indoor unit has been installed (m}^3\text{)}} \leq \text{Maximum concentration(kg/m}^3\text{)}$$

Maximum concentration of R410A:0.3kg/m³

If the calculation results do not exceed the maximum concentration, perform the same calculations for the larger second and third room, etc., until it has been determined that nowhere the maximum concentration will be exceeded.

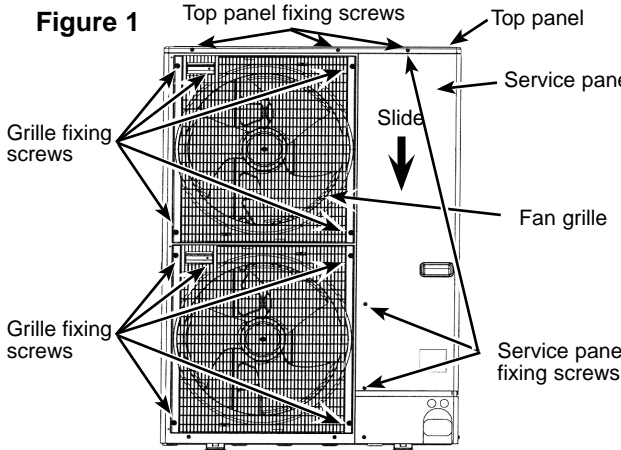
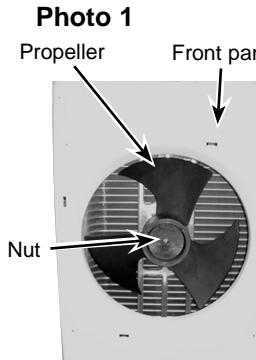
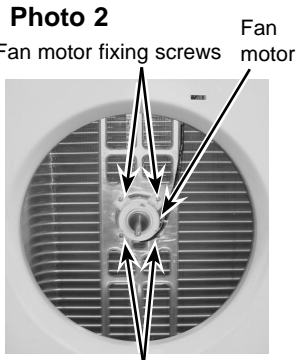
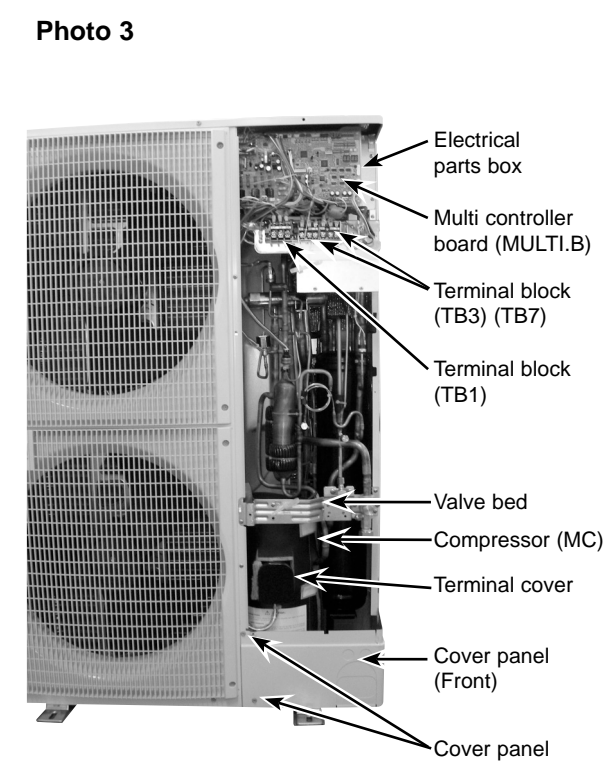
OUTDOOR UNIT:

PUMY-P100/125/140VHMB(-BS)

PUMY-P100/125/140VHMBR2(-BS)

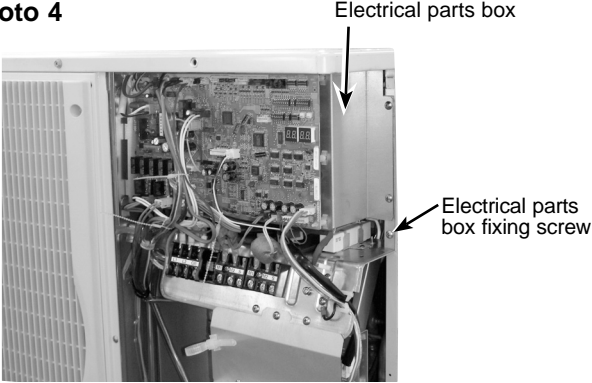
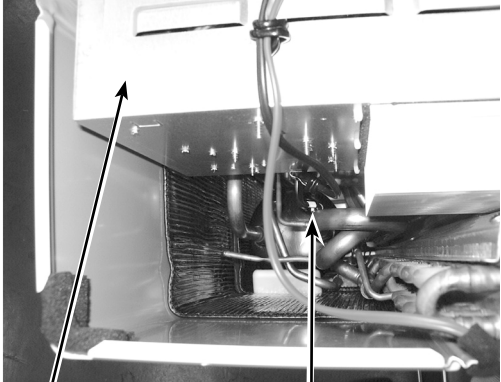
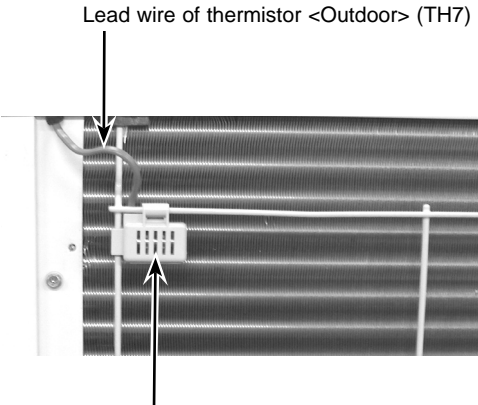
PUMY-P100/125/140VHMBR1(-BS)

PUMY-P100/125/140VHMBR3(-BS)

OPERATING PROCEDURE	PHOTOS & ILLUSTRATION
<p>1. Removing the service panel and top panel</p> <p>(1) Remove 3 service panel fixing screws (5 × 12) and slide the hook on the right downward to remove the service panel.</p> <p>(2) Remove screws (3 for front, 3 for rear/5 × 12) of the top panel and remove it.</p>	<p>Figure 1</p> 
<p>2. Removing the fan motor (MF1, MF2)</p> <p>(1) Remove the service panel. (See Figure 1)</p> <p>(2) Remove the top panel. (See Figure 1)</p> <p>(3) Remove 5 fan grille fixing screws (5 × 12) to detach the fan grille. (See Figure 1)</p> <p>(4) Remove a nut (for right handed screw of M6) to detach the propeller. (See Photo 1)</p> <p>(5) Disconnect the connectors, CNF1 and CNF2 on Multi controller board in electrical parts box.</p> <p>(6) Remove 4 fan motor fixing screws (5 × 25) to detach the fan motor. (See Photo 2)</p>	<p>Photo 1</p>  <p>Photo 2</p>  <p>Fan motor fixing screws</p>
<p>3. Removing the electrical parts box</p> <p>(1) Remove the service panel. (See Figure 1)</p> <p>(2) Remove the top panel. (See Figure 1)</p> <p>(3) Disconnect the connecting wire from terminal block.</p> <p>(4) Remove all the following connectors from Multi controller board; fan motor, thermistor <Outdoor pipe>, thermistor <Discharge>, thermistor <Low pressure saturated temp>, thermistor <Outdoor>, high pressure switch, high pressure sensor, low pressure switch, 4-way valve coil and bypass valve coil.</p> <p>Pull out the disconnected wire from the electrical parts box. <Diagram symbol in the connector housing></p> <ul style="list-style-type: none"> • Fan motor (CNF1, CNF2) • Thermistor <Outdoor pipe> (TH3) • Thermistor <Discharge> (TH4) (PUMY-P.VHMB(R1)(-BS)) • Thermistor <Compressor> (TH4) (PUMY-P.VHMBR2(-BS), PUMY-P.VHMBR3(-BS)) • Thermistor <Low pressure saturated temp, Outdoor> (TH6/7) • High pressure switch (63H) • High pressure sensor (63HS) • Low pressure switch (63L) • 4-way valve coil (21S4) • Bypass valve coil (SV1) <p>(5) Remove the terminal cover and disconnect the compressor lead wire.</p>	<p>Photo 3</p> 

Continued to the next page.

From the previous page.

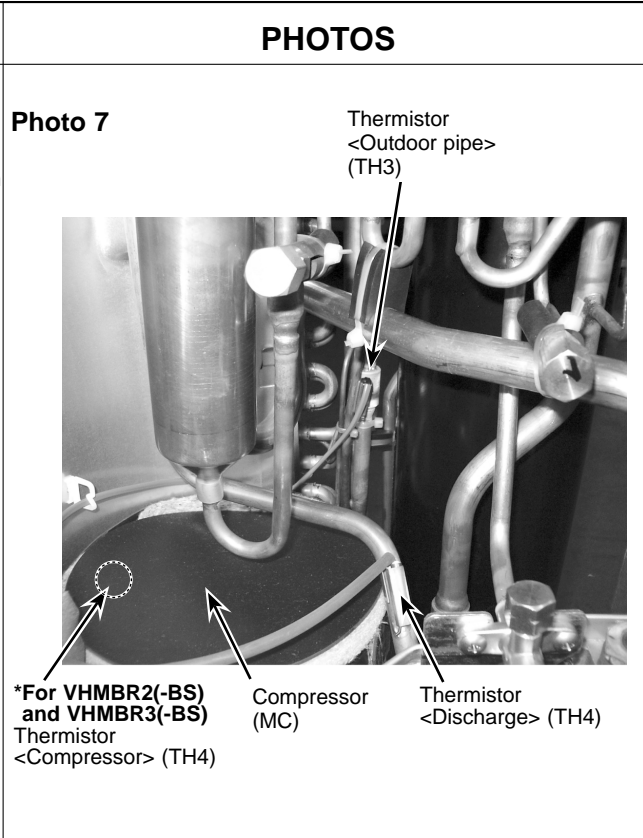
OPERATING PROCEDURE	PHOTOS & ILLUSTRATION
<p>(6) Remove electrical parts box fixing screw (4 × 10) and detach the electrical parts box by pulling it upward. The electrical parts box is fixed with 2 hooks on the left and 1 hook on the right.</p>	<p>Photo 4</p> 
<p>4. Removing the thermistor <Low pressure saturated temp.> (TH6)</p> <ol style="list-style-type: none"> (1) Remove the service panel. (See Figure 1) (2) Remove the top panel. (See Figure 1) (3) Disconnect the connectors, TH6 and TH7 (red), on the Multi controller board in the electrical parts box. (4) Loosen the wire clamps on top of the electrical parts box. (5) Pull out the thermistor <Low pressure saturated temp.> (TH6) from the sensor holder. <p>Note: In case of replacing thermistor <Low pressure saturated temp.> (TH6), replace it together with thermistor <Outdoor> (TH7) since they are combined together. Refer to No.5 below to remove thermistor <Outdoor>(TH7)>.</p>	<p>Photo 5</p> 
<p>5. Removing the thermistor <Outdoor> (TH7)</p> <ol style="list-style-type: none"> (1) Remove the service panel. (See Figure 1) (2) Remove the top panel. (See Figure 1) (3) Disconnect the connector TH7 (red) on the Multi controller board in the electrical parts box. (4) Loosen the wire clamps on top of the electrical parts box. (See Photo 4) (5) Pull out the thermistor <Outdoor> (TH7) from the sensor holder. <p>Note: In case of replacing thermistor <Outdoor> (TH7), replace it together with thermistor <Low pressure saturated temp> (TH6), since they are combined together. Refer to No.4 above to remove thermistor <Low pressure saturated temp>.</p>	<p>Photo 6</p> 



OPERATING PROCEDURE

6. Removing the thermistor <Outdoor pipe> (TH3) and thermistor <Discharge/Compressor> (TH4)

- (1) Remove the service panel. (See Figure 1)
- (2) Disconnect the connectors, TH3 (white) and TH4 (white), on the Multi controller board in the electrical parts box.
- (3) Loosen the clamp for the lead wire in the rear of the electrical parts box.
- (4) Pull out the thermistor <Outdoor pipe> (TH3) and thermistor <Discharge/Compressor> (TH4) from the sensor holder.

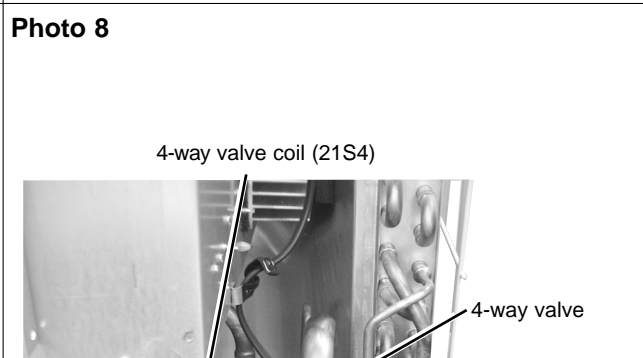


7. Removing the 4-way valve coil (21S4)

- (1) Remove the service panel. (See Figure 1)
- (2) Remove the top panel. (See Figure 1)

[Removing the 4-way valve coil]

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



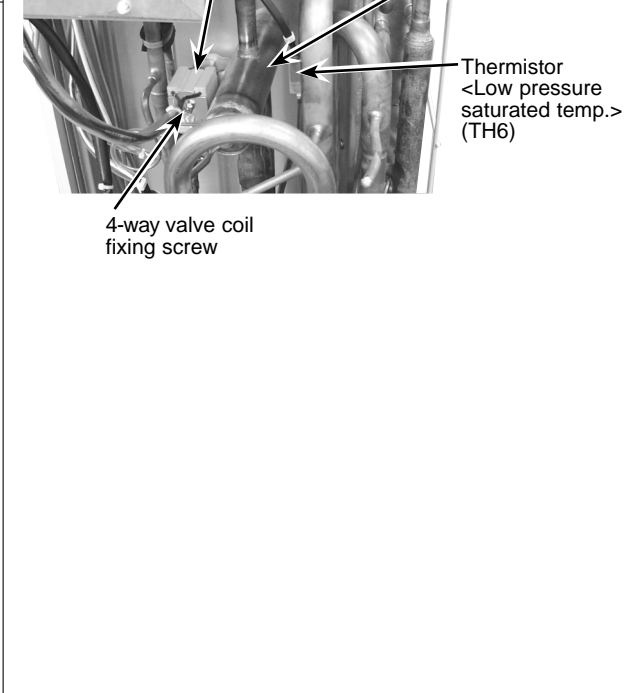
8. Removing the 4-way valve

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

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

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

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



OPERATING PROCEDURE

9. Removing bypass valve coil (SV1) and bypass valve

- (1) Remove the service panel. (See Figure 1)
- (2) Remove the top panel. (See Figure 1)
- (3) Remove 3 right side panel fixing screws (5 × 12) in the rear of the unit and remove the right side panel.
- (4) Remove the bypass valve coil fixing screw (M4 × 6).
- (5) Remove the bypass valve coil by sliding the coil upward.
- (6) Disconnect the connector SV1 (white) on the Multi controller circuit board in the electrical parts box.
- (7) Recover refrigerant.
- (8) Remove the welded part of bypass valve.

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

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

10. Removing the high pressure switch (63H) and low pressure switch (63L)

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

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

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

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

11. Removing the high pressure sensor (63HS)

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

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

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

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

PHOTOS

Photo 9

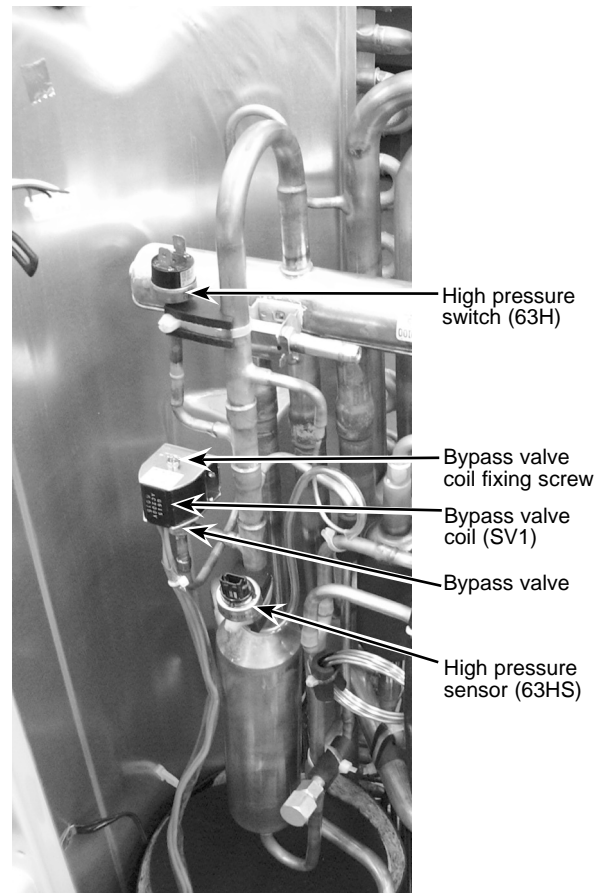
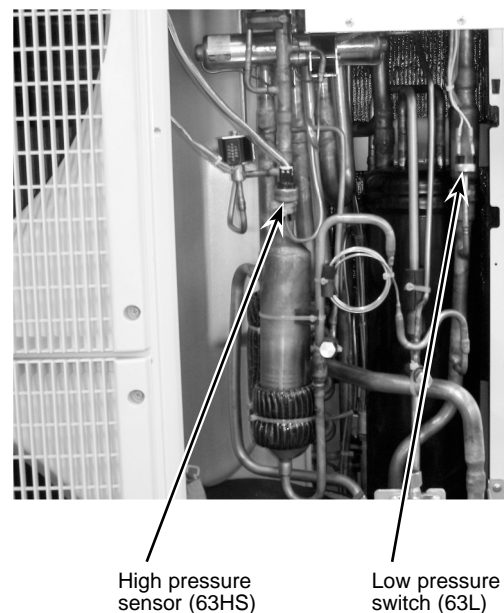


Photo 10



OPERATING PROCEDURE

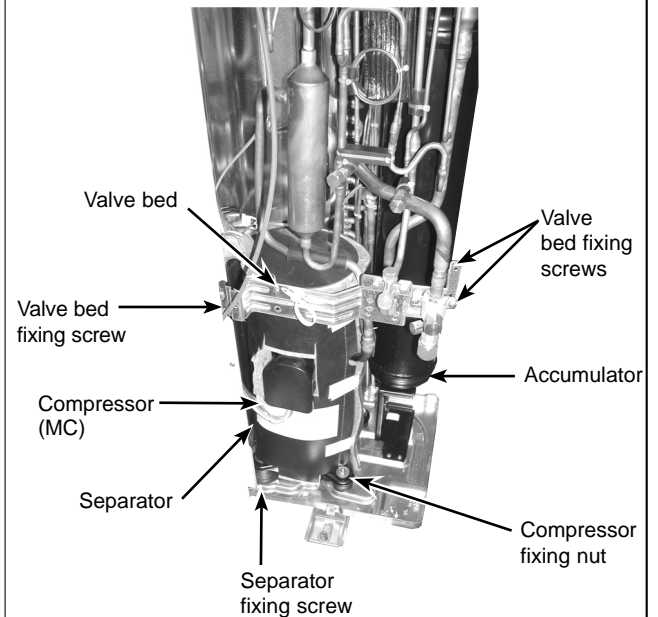
12. Removing the compressor (MC)

- (1) Remove the service panel. (See Figure 1)
- (2) Remove the top panel. (See Figure 1)
- (3) Remove 2 front cover panel fixing screws (5 × 12) and remove the front cover panel. (See Photo 3)
- (4) Remove 2 back cover panel fixing screws (5 × 12) and remove the back cover panel.
- (5) Remove the electrical parts box. (See Photo 4)
- (6) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed.
- (7) Remove 3 right side panel fixing screw (5 × 12) in the rear of the unit and then remove the right side panel.
- (8) Remove 3 separator fixing screws (4 × 10) and remove the separator.
- (9) Recover refrigerant.
- (10) Remove the 3 compressor fixing nuts for motor using spanner or adjustable wrench.
- (11) Remove the welded pipe of motor for compressor inlet and outlet and then remove the compressor.

Note: Recover refrigerant without spreading it in the air.

PHOTOS

Photo 11



13. Removing the accumulator

- (1) Remove the service panel. (See Figure 1)
- (2) Remove the top panel. (See Figure 1)
- (3) Remove 2 front cover panel fixing screws (5 × 12) and remove the front cover panel. (See Photo 3)
- (4) Remove 2 back cover panel fixing screws (5 × 12) and remove the back cover panel.
- (5) Remove the electrical parts box. (See Photo 4)
- (6) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed.
- (7) Remove 3 right side panel fixing screw (5 × 12) in the rear of the unit and then remove the right side panel.
- (8) Recover refrigerant.
- (9) Remove 4 welded pipes of power receiver inlet and outlet.
- (10) Remove 2 receiver leg fixing screws (4 × 10). (See Photo 13)

Note: Recover refrigerant without spreading it in the air.

Photo 12

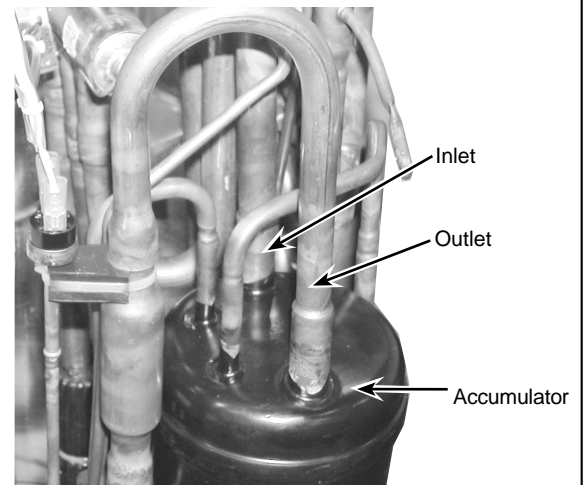
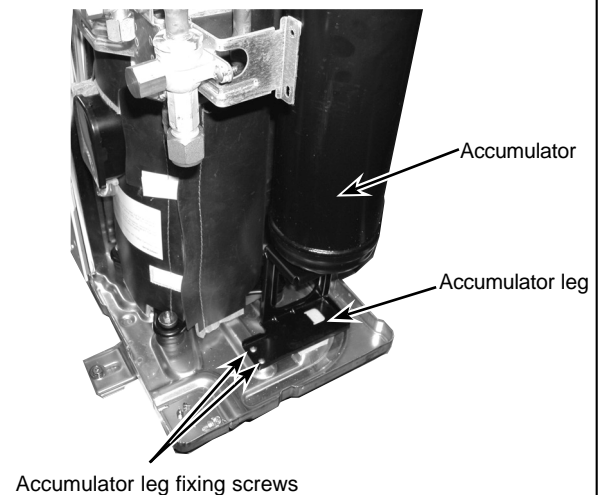
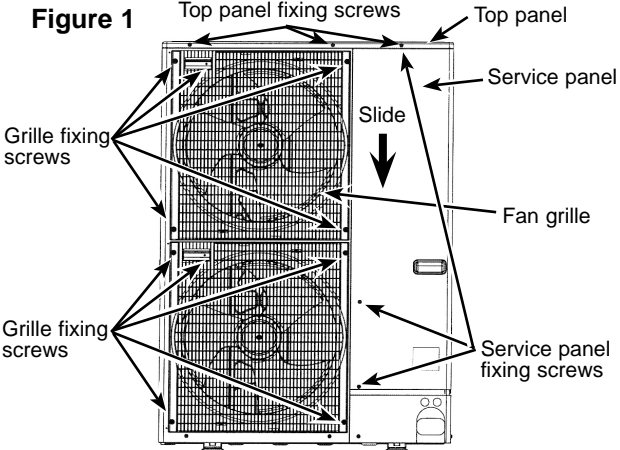
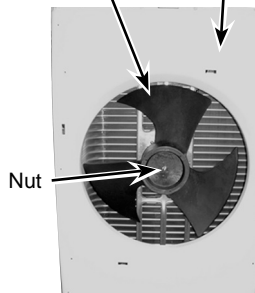
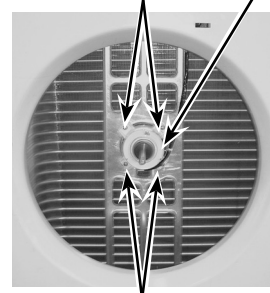
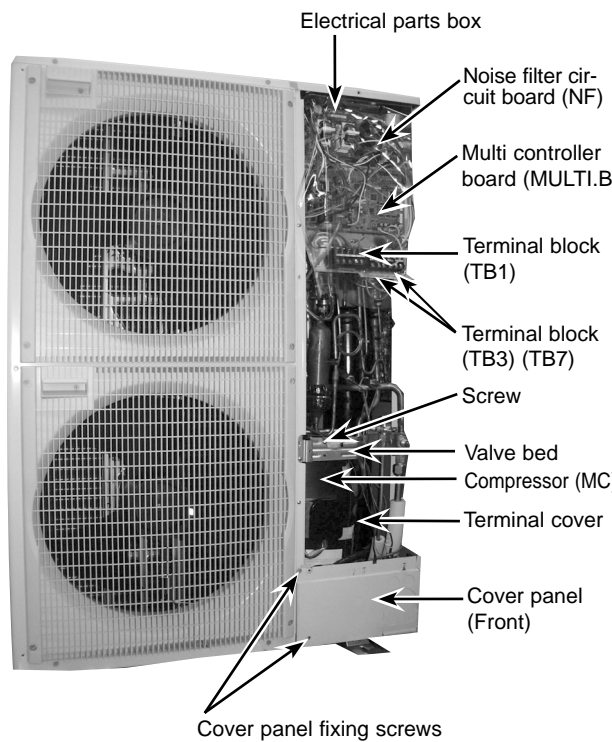


Photo 13

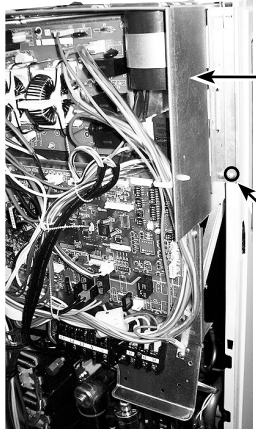
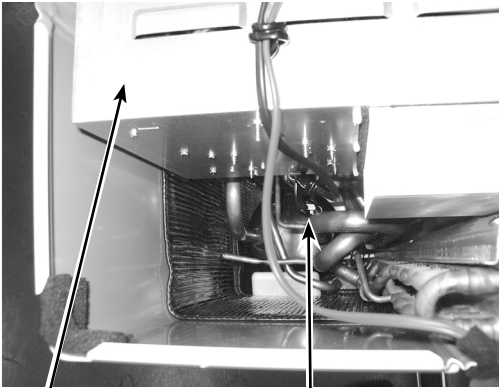
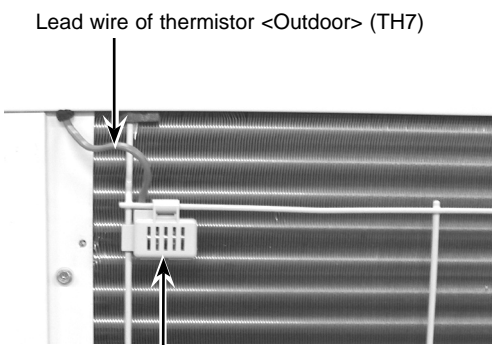


**OUTDOOR UNIT:
PUMY-P100/125/140YHMB(-BS)
PUMY-P100/125/140YHMBR2(-BS)**


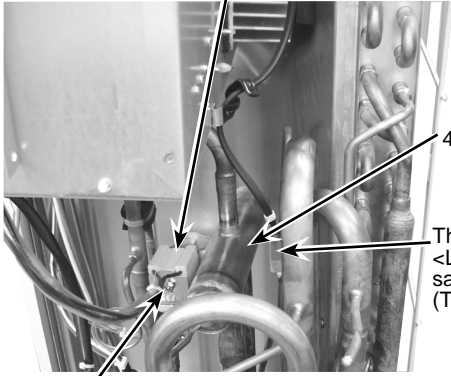
**PUMY-P100/125/140YHMBR1(-BS)
PUMY-P100/125/140YHMBR3(-BS)**

OPERATING PROCEDURE	PHOTOS & ILLUSTRATION
<p>1. Removing the service panel and top panel</p> <p>(1) Remove 3 service panel fixing screws (5 x 12) and slide the hook on the right downward to remove the service panel.</p> <p>(2) Remove screws (3 for front, 3 for rear/5 x 12) of the top panel and remove it.</p>	<p>Figure 1</p> 
<p>2. Removing the fan motor (MF1, MF2)</p> <p>(1) Remove the service panel. (See Figure 1)</p> <p>(2) Remove the top panel. (See Figure 1)</p> <p>(3) Remove 5 fan grille fixing screws (5 x 12) to detach the fan grille. (See Figure 1)</p> <p>(4) Remove a nut (for right handed screw of M6) to detach the propeller. (See Photo 1.)</p> <p>(5) Disconnect the connectors, CNF1 and CNF2 on Multi controller board in electrical parts box.</p> <p>(6) Remove 4 fan motor fixing screws (5 x 25) to detach the fan motor. (See Photo 2)</p>	<p>Photo 1</p>  <p>Photo 2</p>  <p>Fan motor fixing screws</p>
<p>3. Removing the electrical parts box</p> <p>(1) Remove the service panel. (See Figure 1)</p> <p>(2) Remove the top panel. (See Figure 1)</p> <p>(3) Disconnect the connecting wire from terminal block.</p> <p>(4) Remove all the following connectors from Multi controller board; fan motor, thermistor <Outdoor pipe>, thermistor <Compressor>, thermistor <Low pressure saturated temp>, thermistor <Outdoor>, high pressure switch, high pressure sensor, low pressure switch, solenoid valve coil <Four-way valve> and solenoid valve coil <Bypass valve>.</p> <p>Then remove a screw (4 x 8) from the valve bed to remove the lead wire.</p> <p>Pull out the disconnected wire from the electrical parts box.</p> <p><Diagram symbol in the connector housing></p> <ul style="list-style-type: none"> • Fan motor (CNF1, CNF2) • Thermistor <Outdoor pipe> (TH3) • Thermistor <Discharge> (TH4) (PUMY-P.YHMB(R1)(-BS)) • Thermistor <Compressor> (TH4) (PUMY-P.YHMBR2(-BS), PUMY-P.YHMBR3(-BS)) • Thermistor <Low pressure saturated temp, Outdoor> (TH6/7) • High pressure switch (63H) • High pressure sensor (63HS) • Low pressure switch (63L) • Solenoid valve coil <Four-way valve> (21S4) • Solenoid valve coil <Bypass valve> (SV1) <p>(5) Remove the terminal cover and disconnect the compressor lead wire.</p>	<p>Photo 3</p> 

From the previous page.

OPERATING PROCEDURE	PHOTOS & ILLUSTRATION
<p>(6) Remove electrical parts box fixing screw (4 x 10) and detach the electrical parts box by pulling it upward. The electrical parts box is fixed with 2 hooks on the left and 1 hook on the right.</p>	<p>Photo 4</p>  <p>Electrical parts box</p> <p>Electrical parts box fixing screw</p>
<p>4. Removing the thermistor <Low pressure saturated temp.> (TH6)</p> <ol style="list-style-type: none">(1) Remove the service panel. (See Figure 1)(2) Remove the top panel. (See Figure 1)(3) Disconnect the connectors, TH6 and TH7 (red), on the Multi controller board in the electrical parts box.(4) Loosen the wire clamps on top of the electrical parts box.(5) Pull out the thermistor <Low pressure saturated temp.> (TH6) from the sensor holder. <p>Note: In case of replacing thermistor <Low pressure saturated temp.> (TH6), replace it together with thermistor <Outdoor> (TH7) since they are combined together. Refer to No.5 below to remove thermistor <Outdoor>.</p>	<p>Photo 5</p>  <p>Electrical parts box</p> <p>Thermistor <TH6></p>
<p>5. Removing the thermistor <Outdoor> (TH7)</p> <ol style="list-style-type: none">(1) Remove the service panel. (See Figure 1)(2) Remove the top panel. (See Figure 1)(3) Disconnect the connector TH7 (red) on the Multi controller board in the electrical parts box.(4) Loosen the wire clamps on top of the electrical parts box. (See Photo 4.)(5) Pull out the thermistor <Outdoor> (TH7) from the sensor holder. <p>Note: In case of replacing thermistor <Outdoor> (TH7), replace it together with thermistor <Low pressure saturated temp> (TH6), since they are combined together. Refer to No.4 above to remove thermistor <Low pressure saturated temp>.</p>	<p>Photo 6</p>  <p>Lead wire of thermistor <Outdoor> (TH7)</p> <p>Sensor holder</p>



OPERATING PROCEDURE	PHOTOS
<p>6. Removing the thermistor <Outdoor pipe> (TH3) and thermistor <Discharge/Compressor> (TH4)</p> <p>(1) Remove the service panel. (See Figure 1)</p> <p>(2) Disconnect the connectors, TH3 (white) and TH4 (white), on the Multi controller board in the electrical parts box.</p> <p>(3) Loosen the clamp for the lead wire in the rear of the electrical parts box.</p> <p>(4) Pull out the thermistor <Outdoor pipe> (TH3) and thermistor <Discharge/Compressor> (TH4) from the sensor holder.</p>	<p>Photo 7</p>  <p>Thermistor <Outdoor pipe> (TH3)</p> <p>*For YHMBR2(-BS) and YHMBR3(-BS) Thermistor <Compressor> (TH4)</p> <p>Compressor (MC)</p> <p>Thermistor <Discharge> (TH4)</p>
<p>7. Removing the 4-way valve coil (21S4)</p> <p>(1) Remove the service panel. (See Figure 1)</p> <p>(2) Remove the top panel. (See Figure 1)</p> <p>[Removing the 4-way valve coil]</p> <p>(3) Remove 4-way valve coil fixing screw (M4 x 6).</p> <p>(4) Remove the 4-way valve coil by sliding the coil toward you.</p> <p>(5) Disconnect the connector 21S4 (green) on the Multi controller board in the electrical parts box.</p>	<p>Photo 8</p>  <p>4-way valve coil (21S4)</p> <p>4-way valve</p> <p>Thermistor <Low pressure saturated temp.> (TH6)</p> <p>4-way valve coil fixing screw</p>
<p>8. Removing the 4-way valve</p> <p>(1) Remove the service panel. (See Figure 1)</p> <p>(2) Remove the top panel. (See Figure 1)</p> <p>(3) Remove 3 valve bed fixing screws (4 x 10) and 4 ball valve and stop valve fixing screws (5 x 16) and then remove the valve bed.</p> <p>(4) Remove 4 right side panel fixing screws (5 x 12) in the rear of the unit and then remove the right side panel.</p> <p>(5) Remove the 4-way valve coil. (See Photo 8)</p> <p>(6) Recover refrigerant.</p> <p>(7) Remove the welded part of 4-way valve.</p> <p>Note 1: Recover refrigerant without spreading it in the air.</p> <p>Note 2: The welded part can be removed easily by removing the right side panel.</p> <p>Note 3: When installing the four-way valve, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pipes are not oxidized.</p>	

OPERATING PROCEDURE

9. Removing bypass valve coil (SV1) and bypass valve

- (1) Remove the service panel. (See Figure 1)
- (2) Remove the top panel. (See Figure 1)
- (3) Remove 3 right side panel fixing screws (5 × 12) in the rear of the unit and remove the right side panel.
- (4) Remove the bypass valve coil fixing screw (M4 × 6).
- (5) Remove the bypass valve coil by sliding the coil upward.
- (6) Disconnect the connector SV1 (white) on the Multi controller circuit board in the electrical parts box.
- (7) Recover refrigerant.
- (8) Remove the welded part of bypass valve.

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

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

10. Removing the high pressure switch (63H) and low pressure switch (63L)

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

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

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

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

11. Removing the high pressure sensor (63HS)

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

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

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

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

PHOTOS

Photo 9

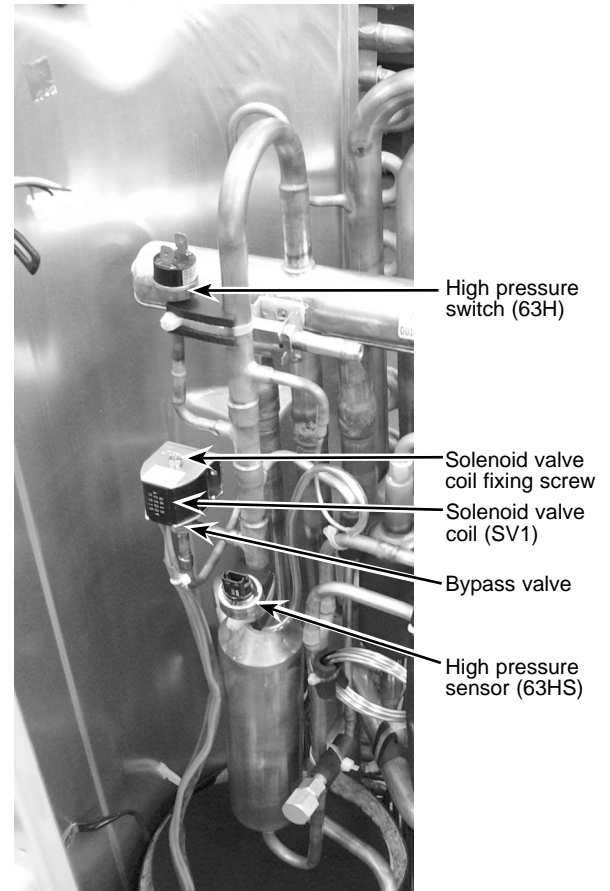
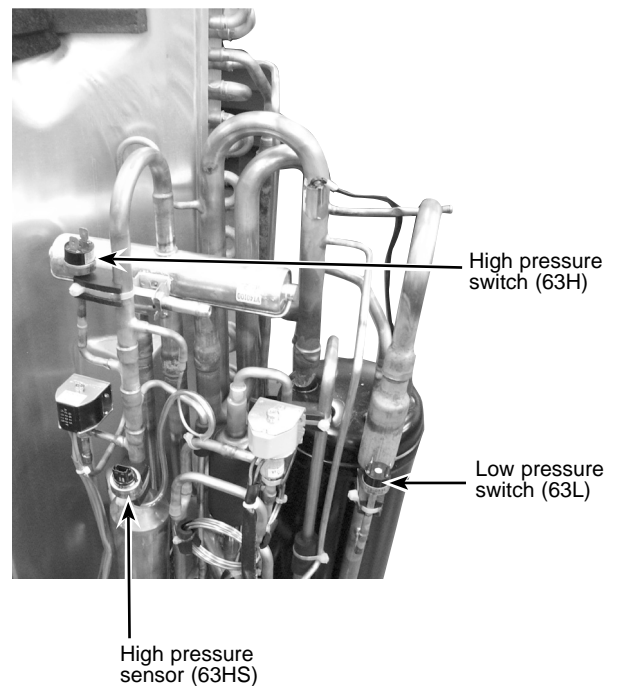


Photo 10



OPERATING PROCEDURE

12. Removing the reactors (ACL1, ACL2, ACL3)

- (1) Remove the service panel. (See Figure 1)
- (2) Remove the top panel. (See Figure 1)
- (3) Remove the 6 screws, screw ⑧ and ⑨ (5 × 12), that fix the front panel and remove the front panel. (See Photo 3)
- (4) Remove the 2 screws, screw ⑩ and ⑪ (both 4 × 10), that fix the separator, screw ⑩ from the valve bed and screw ⑪ from the bottom of the separator, and tilt the separator to the side of the fan motor slightly. (See Photo 11)
- (5) Disconnect the lead wires from the reactor and remove the 4 screws, screw ⑫, that fix the reactor to remove the reactor. (See Photo 12 and 13)

Note 1: The reactor is very heavy (4kg)! Be careful when handling it.

Note 2: The reactor box is also removable.

PHOTOS

Photo 11

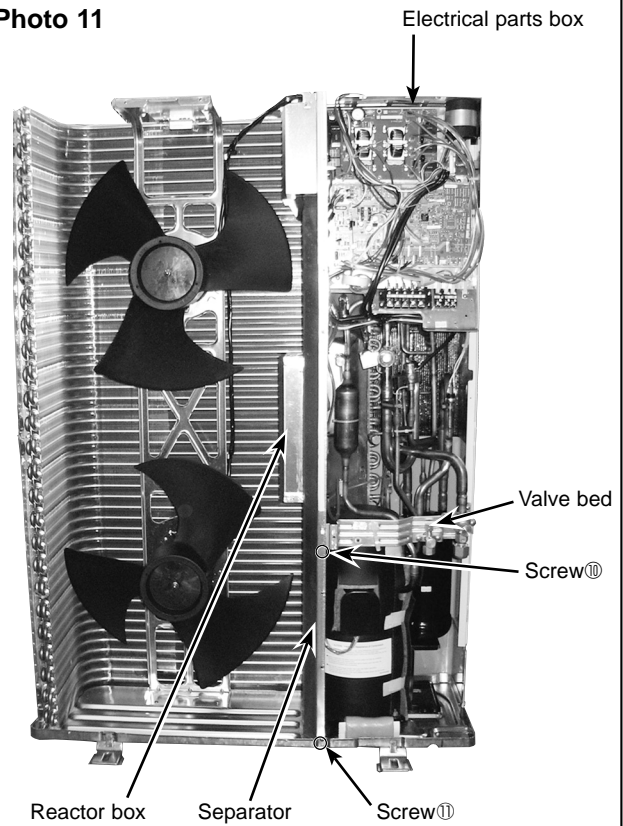


Photo 12

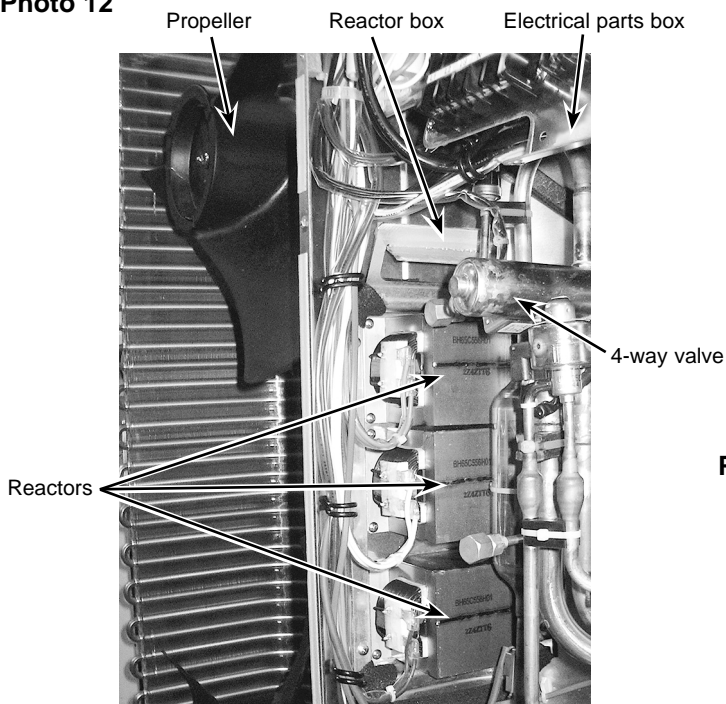
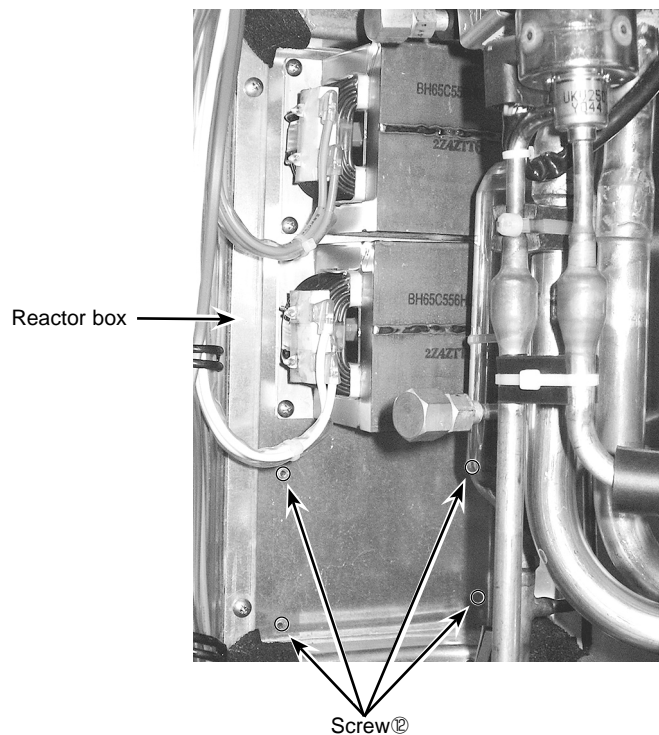


Photo 13



OPERATING PROCEDURE

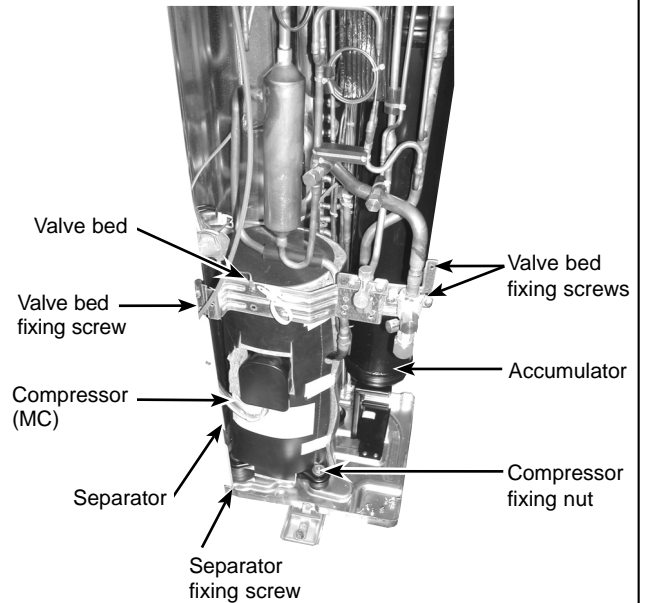
13. Removing the compressor (MC)

- (1) Remove the service panel. (See Figure 1)
- (2) Remove the top panel. (See Figure 1)
- (3) Remove 2 front cover panel fixing screws (5 × 12) and remove the front cover panel. (See Photo 3.)
- (4) Remove 2 back cover panel fixing screws (5 × 12) and remove the back cover panel.
- (5) Remove the electrical parts box. (See Photo 3)
- (6) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed.
- (7) Remove 3 right side panel fixing screws (5 × 12) in the rear of the unit and then remove the right side panel.
- (8) Remove 3 separator fixing screws (4 × 10) and remove the separator.
- (9) Recover refrigerant.
- (10) Remove the 3 points of the motor for compressor fixing nut using spanner or adjustable wrench.
- (11) Remove the welded pipe of motor for compressor inlet and outlet and then remove the compressor.

Note: Recover refrigerant without spreading it in the air.

PHOTOS

Photo 14



14. Removing the accumulator

- (1) Remove the service panel. (See Figure 1)
- (2) Remove the top panel. (See Figure 1)
- (3) Remove 2 front cover panel fixing screws (5 × 12) and remove the front cover panel. (See Photo 3)
- (4) Remove 2 back cover panel fixing screws (5 × 12) and remove the back cover panel.
- (5) Remove the electrical parts box. (See Photo 3)
- (6) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed.
- (7) Remove 3 right side panel fixing screws (5 × 12) in the rear of the unit and then remove the right side panel.
- (8) Recover refrigerant.
- (9) Remove 4 welded pipes of power receiver inlet and outlet.
- (10) Remove 2 receiver leg fixing screws (4 × 10). (See Photo 16)

Note: Recover refrigerant without spreading it in the air.

Photo 15

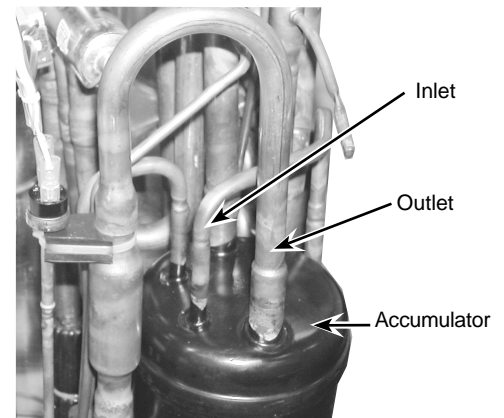
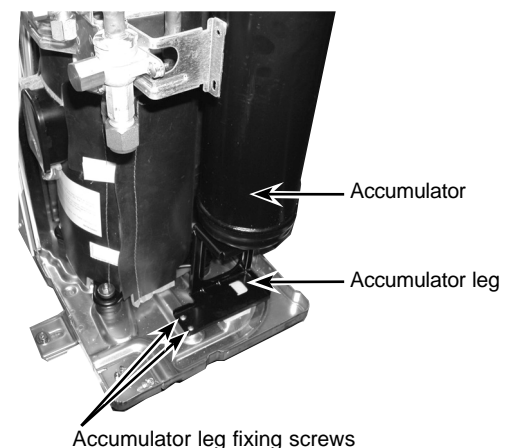


Photo 16



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