TOSHIBA

File No. A1C-2101

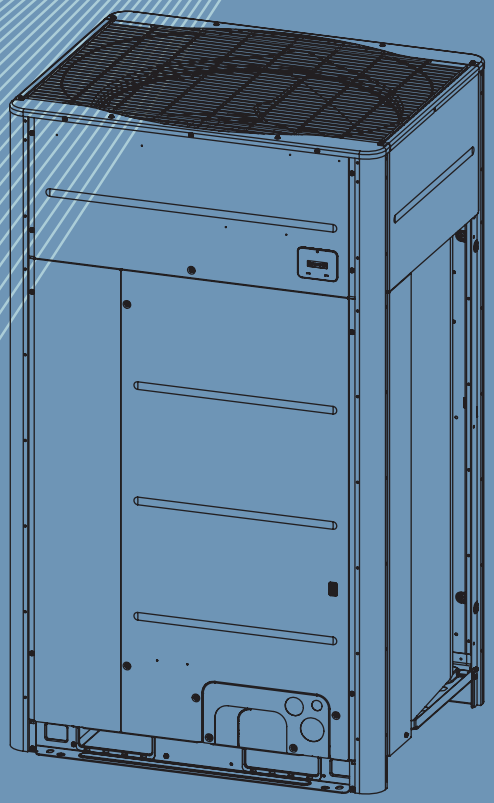
Quick reference

SMMS-u

SUPER MODULAR MULTI SYSTEM

< Super Modular Multi System-u>

MMY-MUP0801HT8
MMY-MUP1001HT8
MMY-MUP1201HT8
MMY-MUP1401HT8
MMY-MUP14A1HT8
MMY-MUP1601HT8
MMY-MUP1801HT8
MMY-MUP2001HT8
MMY-MUP2201HT8
MMY-MUP2401HT8



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Appendex

1. Indoor unit that can be connectted to Outdoor unit (SMMS-u)

This service manual provides relevant explanations about new outdoor unit (SMMS-u). Please refer to the following service manuals for each indoor units.

Related Outdoor Unit

Model name	SVM File No.
MMU-UP***1HT8-C (Made in Japan model)	A10-2003
MMU-UP***1HT8(J)P-E (Made in Thailand model)	SVM-20113-2

Indoor Unit

Model name	SVM File No.	Model name	SVM File No.
<4-Way Cassette Type> MMU-UP***1HP-E/-TR (Made in Thailand model) MMU-UP***1H-E/-TR (Made in Japan model) MMU-AP***4HP1-E/-TR (Made in Thailand model)	 SVM-20095 A10-2004 SVM-16041	<Floor Standing Cabinet Type> MML-UP***1H-E/-TR (Made in Japan model) MML-AP***4H1-E/-TR (Made in Japan model)	 A10-2004 A10-033
<Compact 4-Way Cassette Type> MMU-UP***1MH-E/-TR (Made in Japan model) MMU-AP***7MH-E/-TR (Made in Japan model)	 A10-2004 A10-1615-1	<Floor Standing Concealed Type> MML-UP***1BH-E/-TR (Made in Japan model) MML-AP***4BH1-E/-TR (Made in Japan model)	 A10-2004 A10-033
<2-Way Cassette Type> MMU-UP***1WH-E/-TR (Made in Japan model) MMU-AP***2WH1/-TR (Made in Japan model)	 A10-2004 A10-007	<Floor Standing Type> MMF-UP***1H-E/-TR (Made in Japan model) MMF-AP***6H1-E/-TR (Made in Japan model)	 A10-2004 A10-1420
<1-Way Cassette Type> MMU-UP***1SH-E/-TR (Made in Japan model) MMU-UP***1YHP-E/-TR (Made in Thailand model) MMU-AP***4YH1-E/-TR (Made in Japan model) MMU-AP***4SH1-E/-TR (Made in Japan model)	 A10-2004 SVM-20107 A10-033 A10-033	<Fresh Air Intake Indoor Unit> MMD-UP***1HFP-E/-TR (Made in Thailand model) MMD-AP***1HFE (Made in Japan model)	 SVM-20095 A06-016
<Concealed Duct Standard Type> MMD-UP***1BHP-E/-TR (Made in Thailand model) MMD-AP***6BHP1-E/-TR (Made in Thailand model) MMD-AP***6BHP1-E1 (Made in Thailand model)	 SVM-20095 SVM-16043 SVM-19065	<Air to Air Heat Exchanger with DX Coil Unit> MMD-VN***2HEX* (Made in Japan model)	 A10-022
<Concealed Duct High Static Pressure Type> MMD-UP***1HP-E/-TR (Made in Thailand model) MMD-AP***6HP1-E/-TR (Made in Thailand model)	 SVM-20095 SVM-16044	<High Wall Type> MMK-UP***1HP-E/-TR (Made in Thailand model) MMK-UP***1HPL-E (Made in Thailand model) MMK-AP***7HP-E (Made in Thailand model) MMK-AP***7HP-E1 (Made in Thailand model)	 SVM-20095 SVM-20095 SVM-17045 SVM-17046
<Slim Duct Type> MMD-UP***1SPHY-E (Made in China model) MMD-AP***4SPH1-E/-TR (Made in Japan model) MMD-AP***6SPH1-E/-TR (Made in Japan model)	 A10-2006 A10-033 A10-033	<Console Type> MML-UP***1NHP-E/-TR (Made in Thailand model) MML-AP***4NH1-E/-TR (Made in Thailand model)	 SVM-20095 SVM-16048
<Under Ceiling Type> MMC-UP***1HP-E/-TR (Made in Thailand model) MMC-AP***8HP-E (Made in Thailand model)	 SVM-20095 SVM-17015	<Hot Water Module Mid Temperature Type> MMW-UP***1LQ-E/-TR (Made in Japan model) MMW-AP***1LQ-E/-TR (Made in Japan model)	A10-2005 A10-1412

2. Main Parts List

2-1. Outdoor Unit (MMY-MUP***1HT8)

No.	Part name	Model	Specifications	MMY-MUP0801HT8	MMY-MUP1001HT8	MMY-MUP1201HT8	MMY-MUP1401HT8	MMY-MUP14A1HT8	MMY-MUP1601HT8	MMY-MUP1801HT8	MMY-MUP2001HT8	MMY-MUP2201HT8	MMY-MUP2401HT8
1	Compressor	LA771A3TB-20M	1900cc, 452+22h	1	1	1	1						
1	Compressor	LA1200K4FB-10UC	3000cc, 569+20h					1	1	1	1	1	1
1	Compressor	LA771A3TB-20M		1	1	1	1	1	1	1	1	1	1
2	4-way valve	SHF-35B-67-04		1	1	1	1	1	1	1	1	1	1
3	Ball valve		Ø25.4	1	1	1	1	1	1	1	1	1	1
4	Pulse motor valve	PAM-BA2YGTF-1	Ø4.8	1	1	1	1						
4	Pulse motor valve	HAM-BD28TF-2	Ø2.8					1	1	1	1	1	1
4	Pulse motor valve	UKV-18D64	Ø1.8	1	1	1	1	1	1	1	1	1	1
5	Pulse motor valve coil	PAM-MD121TF-30	100Ω	1	1	1	1	1	1	1	1	1	1
5	Pulse motor valve coil	HAM-MD12TE-7	46Ω	1	1	1	1	1	1	1	1	1	1
5	Pulse motor valve coil	UKV-A376	46Ω	1	1	1	1	1	1	1	1	1	1
6	Packedvalve		Ø12.7	1	1	1	1						
6	Packedvalve		Ø15.88					1	1	1	1		
6	Packedvalve		Ø19.05									1	1
7	2-way valve coil	FDF2A88	Ø1.2	1	1	1	1	1	1	1	1	2	2
7	2-way valve coil	TEV-S1920DQ50	Ø1.9	1	1	1	1	1	1	1	1	1	1
7	2-way valve coil												
8	Heatsink	REF										1	1
8	Heatsink	REF		1	1	1	1	1	1	1	1		
9	Pressure sensor SW	ACB-4UB237W	3.2 On/4.15 Off	1	1	1	1	1	1	1	1	1	1
10	Pressure sensor			1	1	1	1						
10	Pressure sensor												
11	Fan motor	ICF-620A1000-1		1	1	1	1	2	2	2	2	2	2
12	Propeller Fan (PS741-T)	SAN-GF20%	Ø741	1	1	1	1						
12	Propeller Fan (PF581-T)	SAN-GF20%	Ø581					2	2	2	2	2	2
13	4-way valve coil	AC220-240V	2085 Ω ± 10%	1	1	1	1	1	1	1	1	1	1
14	2-way valve coil	AC220-240V	2085 Ω ± 10%										
14	2-way valve coil	AC220-240V 50Hz	2163 Ω ± 7%										
15	Accumlator	24L		1	1	1	1						
15	Accumlator	28L						1	1	1	1		
15	Accumlator	28L										1	1
16	Reactor	CH-105		1	1	1	1	1	1	1	1	2	2
17	ASM-Screw-S	M5, SUS410		1									

Note:
Service compressor should be select each model with different suction pipes.

2-1-1. Winding resistance of outdoor unit main parts

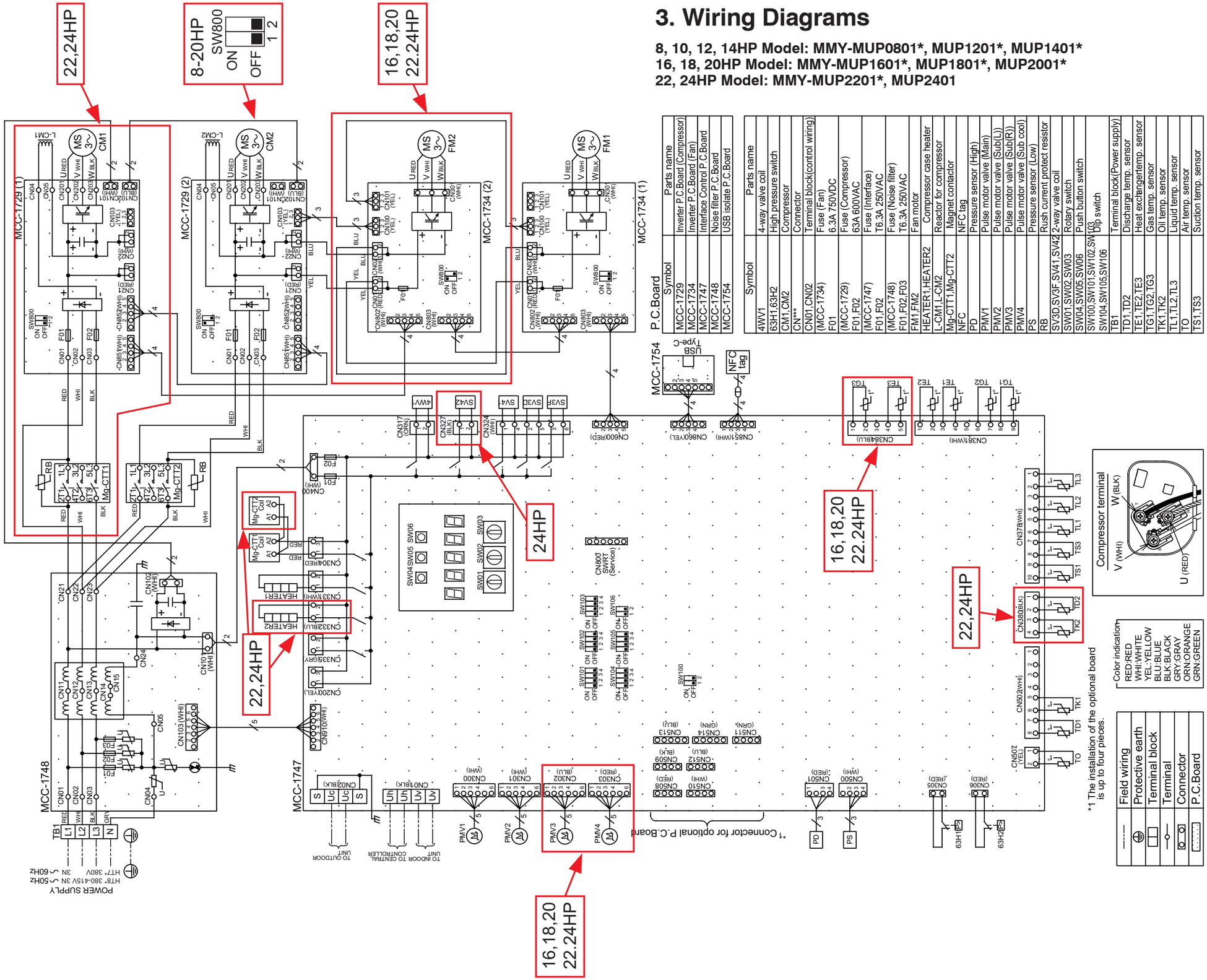
<table>
<tr><th>No.</th><th>Part name</th><th>Checking procedure</th></tr>
<tr><td>1</td><td>Compressor
(Model : LA771A3TB-20M)</td><td>Measure and compare each winding resistance by digital tester.
<table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>Red – White</td><td rowspan="3">0.242 Ω ±0.1</td></tr><tr><td>White – Black</td></tr><tr><td>Black – Red</td></tr></table>(all same resistance is ok.) at 20°C</td></tr>
<tr><td>2</td><td>Compressor
(Model : LA1200K4FB-10UC)</td><td>Measure and compare each winding resistance by digital tester.
<table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>Red – White</td><td rowspan="3">0.204 Ω ±0.1</td></tr><tr><td>White – Black</td></tr><tr><td>Black – Red</td></tr></table>(all same resistance is ok.) at 20°C</td></tr>
<tr><td>3</td><td>Fan motor
(Model : ICF-620A1000-1)</td><td>Measure and compare each winding resistance by digital tester.
<table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>Red – White</td><td rowspan="3">10.38Ω ±1.04</td></tr><tr><td>White – Black</td></tr><tr><td>Black – Red</td></tr></table>(all same resistance is ok.) at 20°C</td></tr>
<tr><td>4</td><td>PMV (Pulse Motor Vale) coil
(Model : HAM-MD12TF*)
(Model : PMV4-UKVA376)</td><td>Measure each winding resistance by digital tester.
<table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>White - Red (COM)</td><td rowspan="4">46 Ω ±4</td></tr><tr><td>Yellow - Red (COM)</td></tr><tr><td>Orange - Red (COM)</td></tr><tr><td>Blue - Red (COM)</td></tr></table>at 20°C</td></tr>
<tr><td>5</td><td>PMV (Pulse Motor Valve) coil
(Model : PMV1-PAM-MD12TF*)
(Model : PMV2, 3-HAM-BD28TCTH-1)</td><td>Measure each winding resistance by digital tester.
<table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>White - Red (COM)</td><td rowspan="4">100 Ω ±10</td></tr><tr><td>Yellow - Red (COM)</td></tr><tr><td>Orange - Red (COM)</td></tr><tr><td>Blue - Red (COM)</td></tr></table>at 20°C</td></tr>
<tr><td>6</td><td>4-way valve coil
(Model : SQ-A2522G*)</td><td>Measure each winding resistance by digital tester.
<table><tr><th>Resistance value</th></tr><tr><td>2085 Ω ±10%</td></tr></table>at 20°C</td></tr>
<tr><td>7</td><td>2-way valve coil
(Model : SV3D,SV41,SV42-FQ-A0522G*)</td><td>Measure each winding resistance by digital tester.
<table><tr><th>Resistance value</th></tr><tr><td>2085 Ω ±10%</td></tr></table>at 20°C</td></tr>
<tr><td>8</td><td>2-way valve coil
(Model : SV3F-TEV-SM0AJ2170B)</td><td>Measure each winding resistance by digital tester.
<table><tr><th>Resistance value</th></tr><tr><td>2163 Ω ±7%</td></tr></table>at 20°C</td></tr>
</table>

2-2. Inverter Assembly

No	Name	Model	Specifications	MMY-MUP0801*	MMY-MUP1001*	MMY-MUP1201*	MMY-MUP1401*	MMY-MUP14A1*	MMY-MUP1601*	MMY-MUP1801*	MMY-MUP2001*	MMY-MUP2201*	MMY-MUP2401*
1	Power supply terminal block	JXO-6004	AC600V/75A, 4P	○	○	○	○	○	○	○	○	○	○
2	Noise Filter P.C. board (1)	MCC-1748	-	○	○	○	○	-	-	-	-	-	-
3	Noise Filter P.C. board (2)	MCC-1748	-	-	-	-	-	○	○	○	○	○	○
4	Line filter	-	0.9mH/AC460V/50A	-	-	-	-	○	○	○	○	○	○
5	Interface P.C. board	MCC-1747	-	○	○	○	○	○	○	○	○	○	○
6	Inverter P.C. board for Compressor (1)	MCC-1729	50A	○	○	○	○	-	-	-	-	○	○
7	Inverter P.C. board for Compressor (2)	MCC-1729	75A	-	-	-	-	○	○	○	○	-	-
8	Inverter P.C. board for fan	MCC-1734	-	○	○	○	○	○	○	○	○	○	○
9	Magnet Contactor	FC-1S	-	○	○	○	○	-	-	-	-	○	○
10	Magnet Contactor	FC-2S	-	-	-	-	-	○	○	○	○	-	-
11	PTC Thermistor	MZ32-101R	13A/AC500V	○	○	○	○	○	○	○	○	○	○

3. Wiring Diagrams

8, 10, 12, 14HP Model: MMY-MUP0801*, MUP1201*, MUP1401*
16, 18, 20HP Model: MMY-MUP1601*, MUP1801*, MUP2001*
22, 24HP Model: MMY-MUP2201*, MUP2401



P.C.Board Symbol	Parts name
MCC-1729	Inverter P.C.Board (Compressor)
MCC-1734	Inverter P.C.Board (Fan)
MCC-1747	Interface Control P.C.Board
MCC-1748	Noise filter P.C.Board
MCC-1754	USB isolate P.C.Board

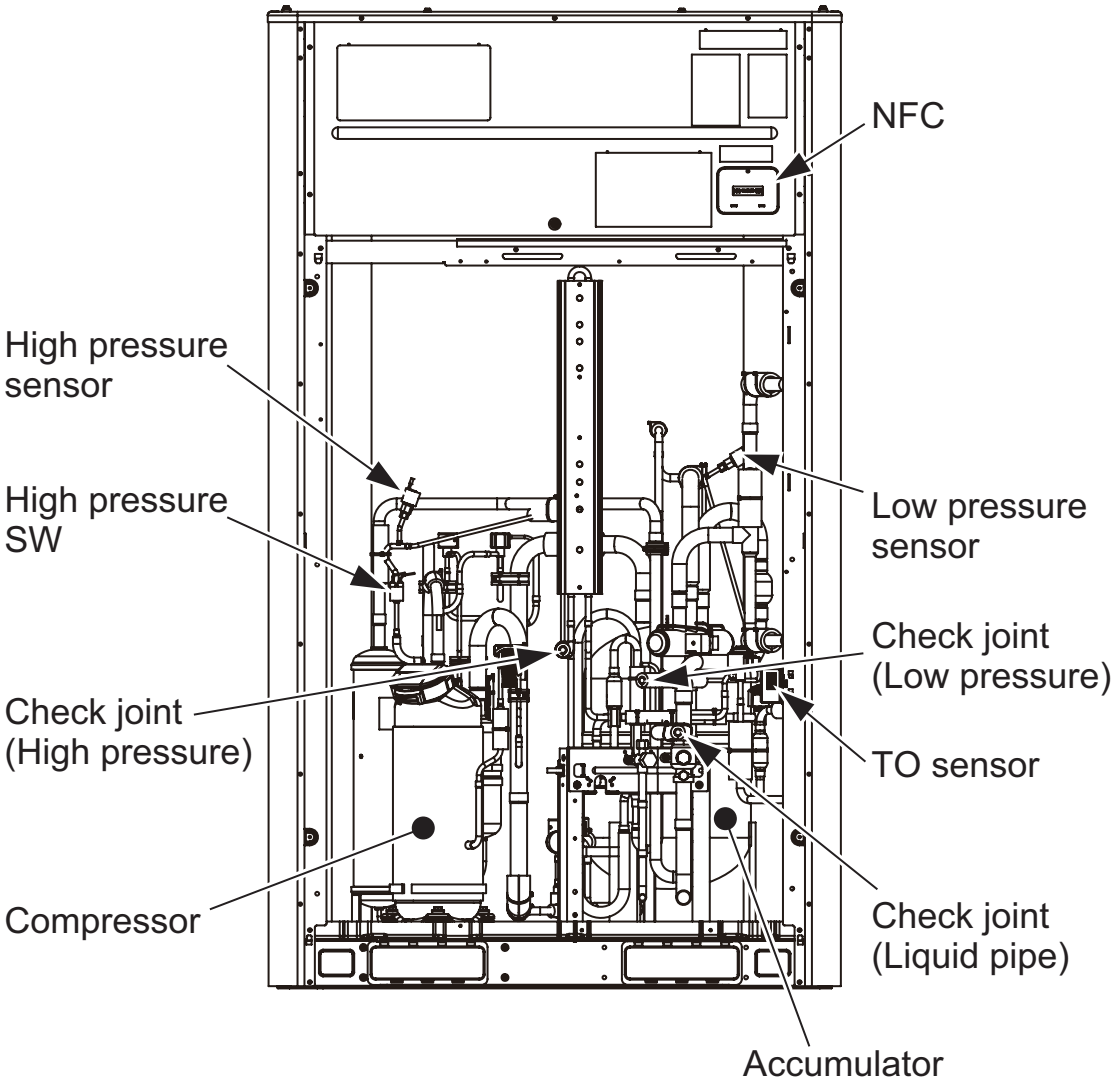
Symbol	Parts name
4WV1	4-way valve coil
63H1,63H2	High pressure switch
CM1,CM2	Compressor
CN***	Connector
CN01,CN02	Terminal block(control wiring)
(MCC-1734) F01	Fuse (Fan) 6.3A 750VDC
(MCC-1729) F01,F02	Fuse (Compressor) 63A 600VAC
(MCC-1747) F01,F02	Fuse (Interface) T6.3A 250VAC
(MCC-1748) F01,F02,F03	Fuse (Noise filter) T6.3A 250VAC
FM1,FM2	Fan motor
HEATER1,HEATER2	Compressor case heater
L-CM1,L-CM2	Reactor for compressor
Mg-CTT1,Mg-CTT2	Magnet contactor
NFC	NFC tag
PD	Pressure sensor (High)
PMV1	Pulse motor valve (Main)
PMV2	Pulse motor valve (Sub(L))
PMV3	Pulse motor valve (Sub(R))
PMV4	Pulse motor valve (Sub cool)
PS	Pressure sensor (Low)
RB	Rush current protect resistor
SV3D,SV3F,SV41,SV42	2-way valve coil
SW01,SW02,SW03	Rotary switch
SW04,SW05,SW06	Push button switch
SW100,SW101,SW102,SW103, SW104,SW105,SW106	Dip switch
TB1	Terminal block(Power supply)
TD1,TD2	Discharge temp. sensor
TE1,TE2,TE3	Heat exchangertemp. sensor
TG1,TG2,TG3	Gas temp. sensor
TK1,TK2	Oil temp. sensor
TL1,TL2,TL3	Liquid temp. sensor
TO	Air temp. sensor
TS1,TS3	Suction temp. sensor

*1 The installation of the optional board is up to four pieces.

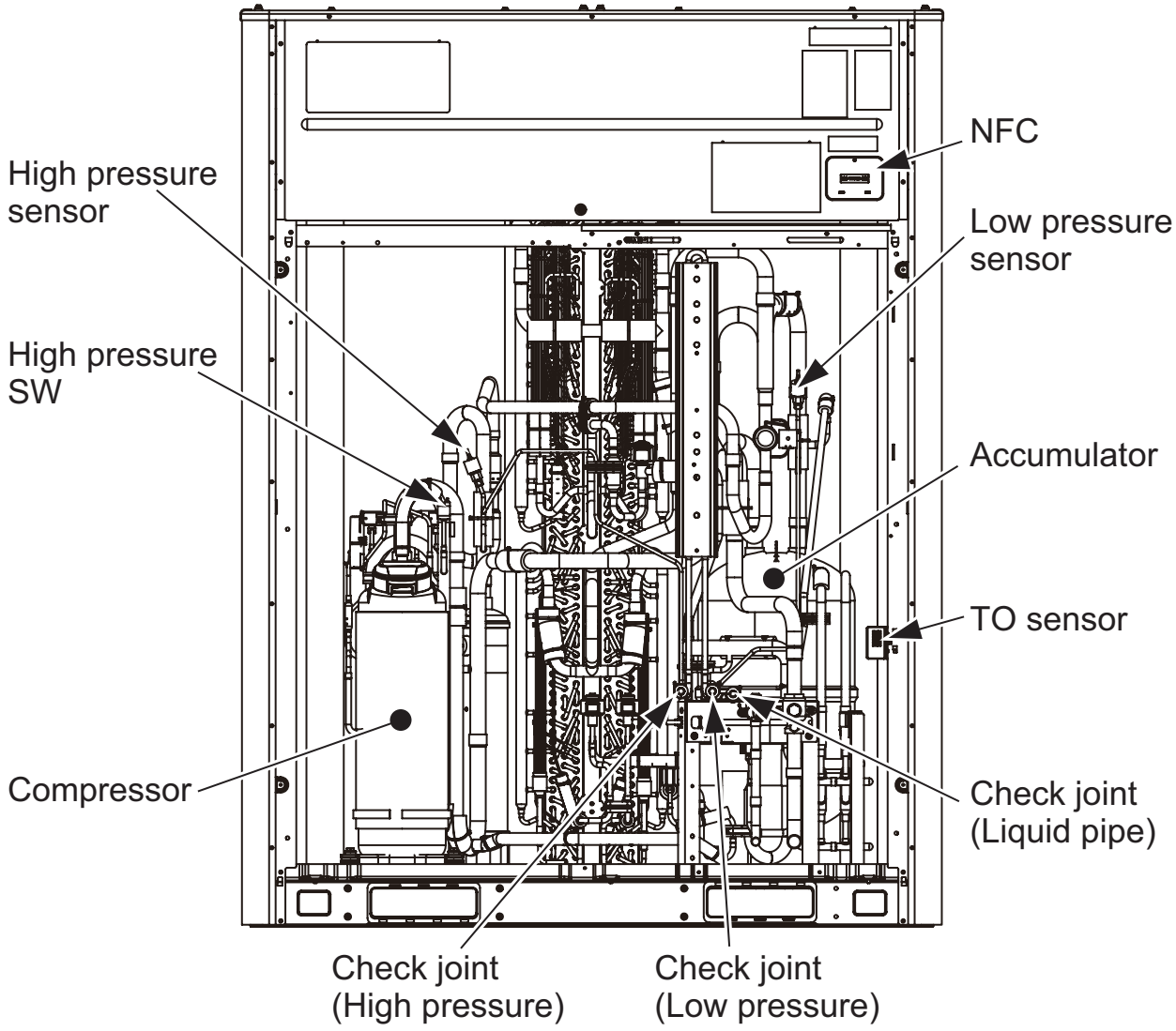
3-1. Parts Layout in Outdoor Unit

8,10,12,14HP

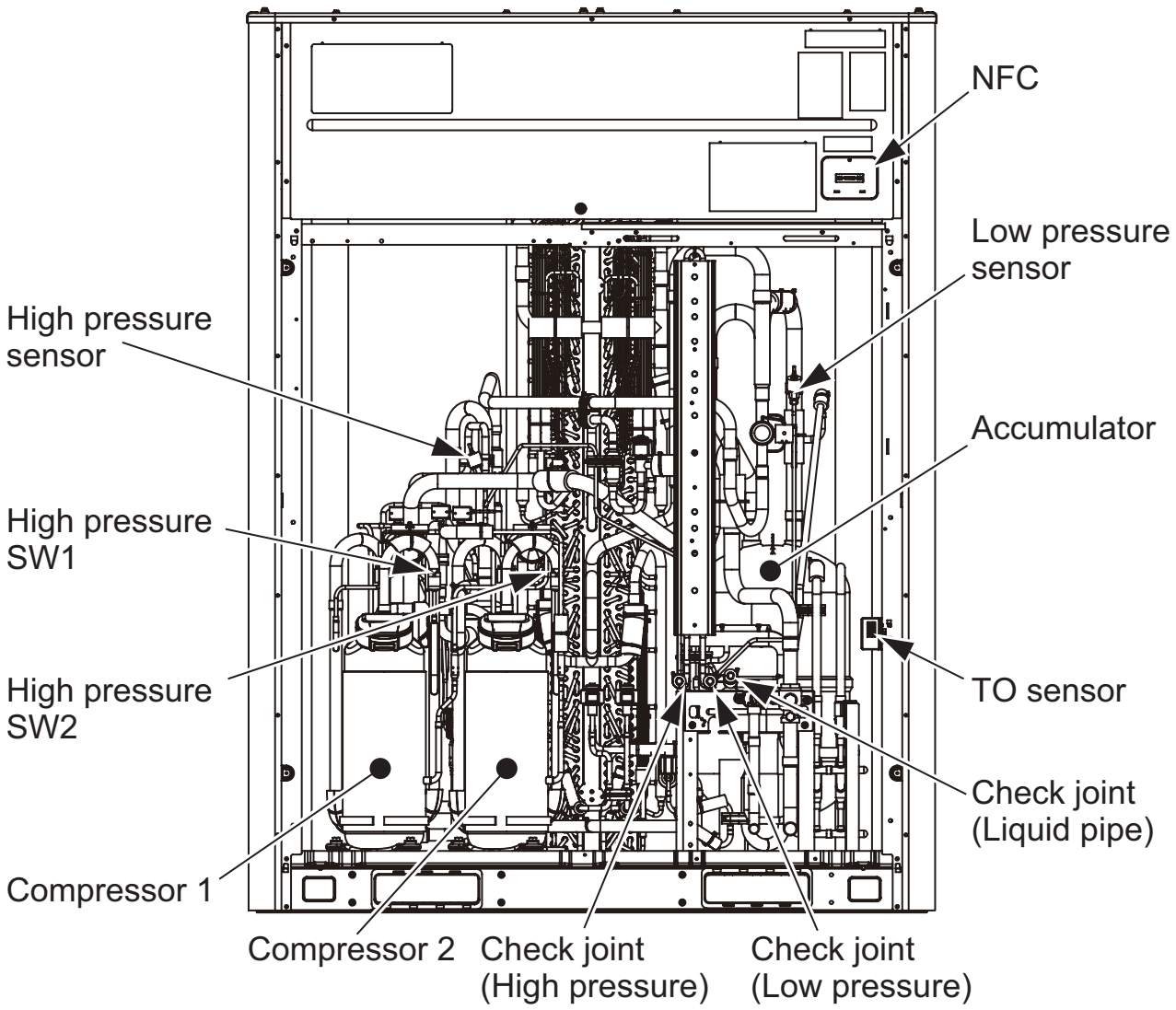
Model: MMY-MUP0801HT8, MMY-MUP1001HT8, MMY-MUP1201HT8. MMY-MUP1401HT8



14A,16,18,20HP
Model: MMY-MUP14A1HT8, MMY-MUP1601HT8, MMY-MUP1801HT8, MMY-MUP2001HT8



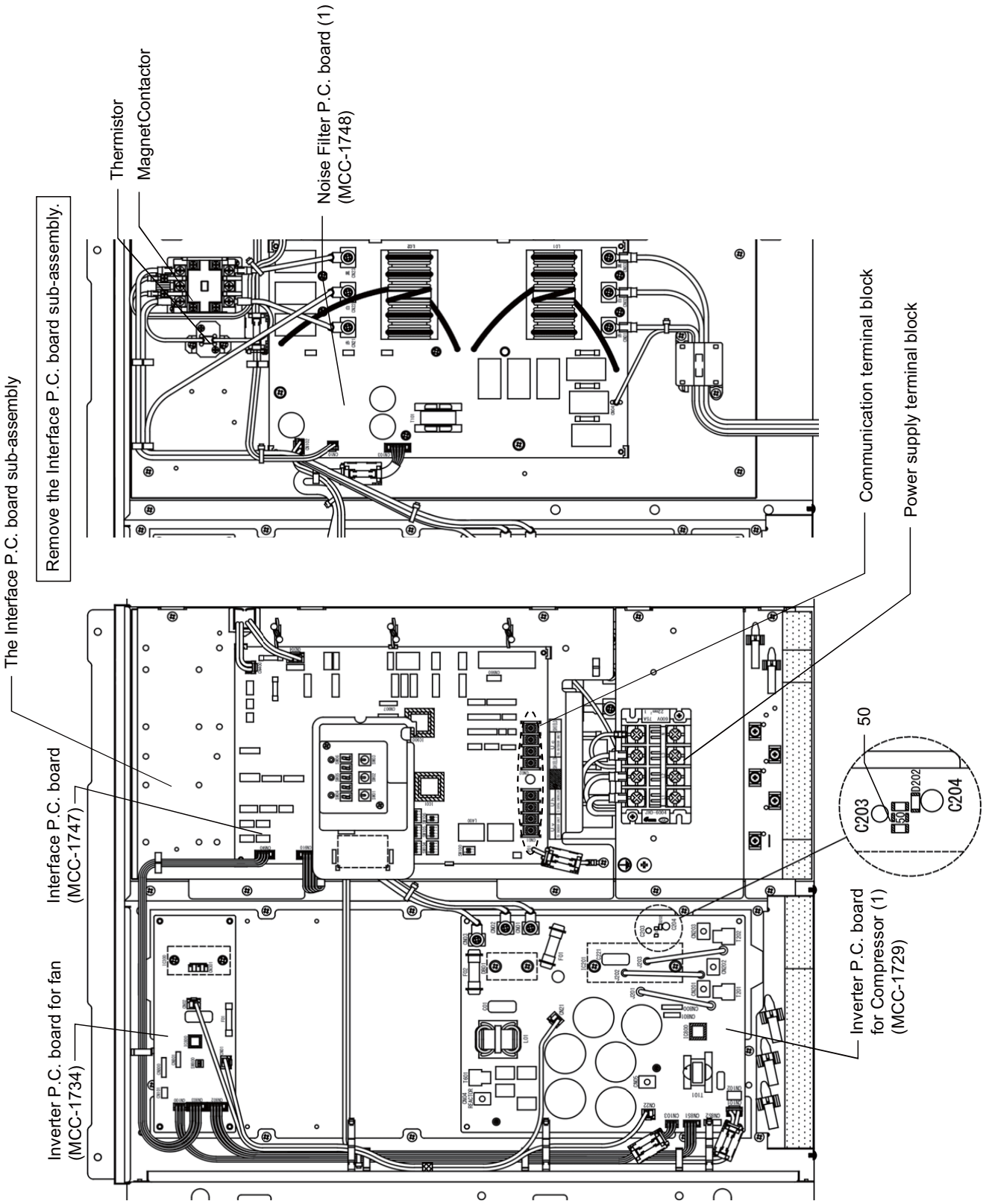
22,24HP
Model: MMY-MUP2201HT8, MMY-MUP2401HT8



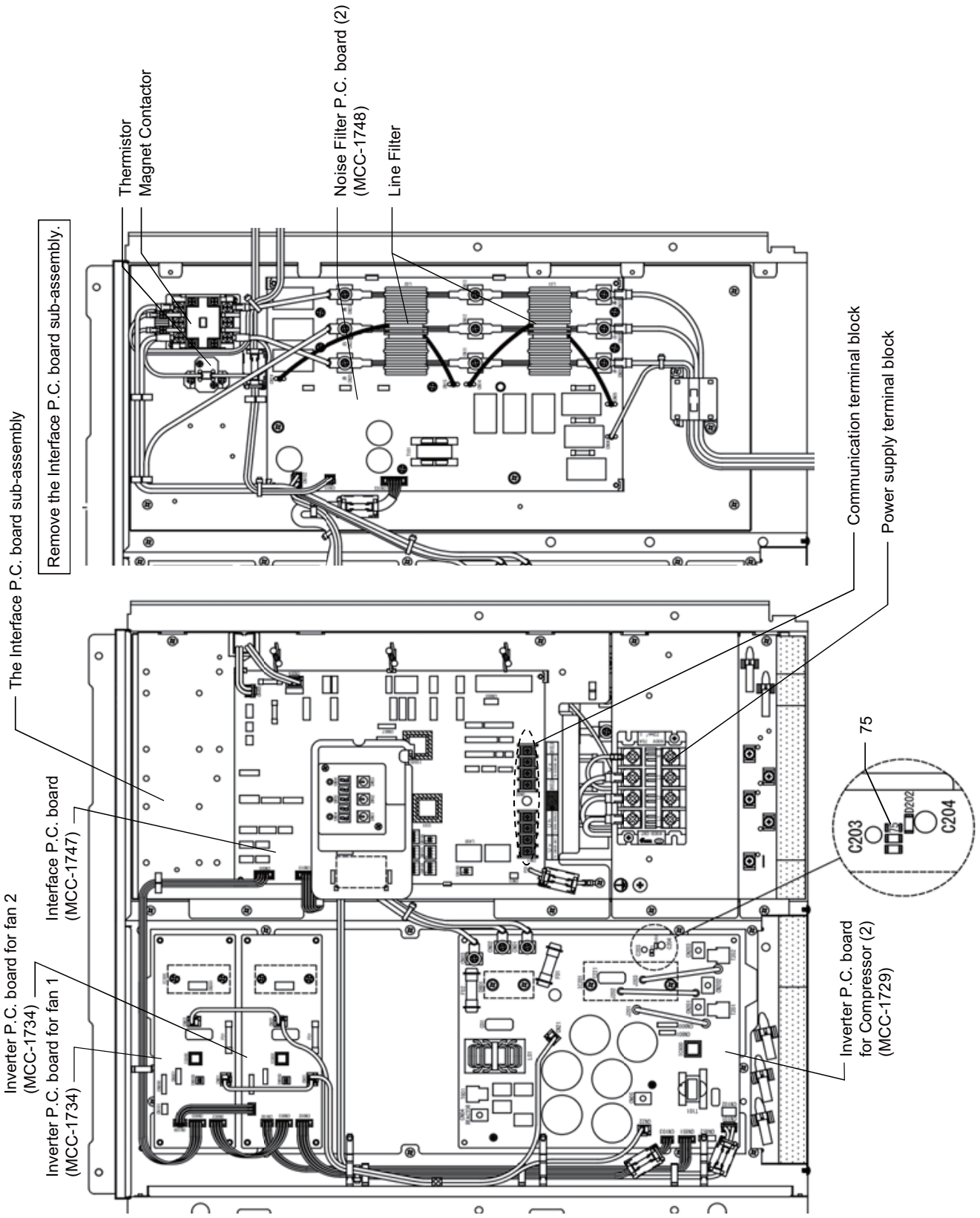
3-2. Parts Layout in Inverter Assembly

8, 10, 12, 14HP

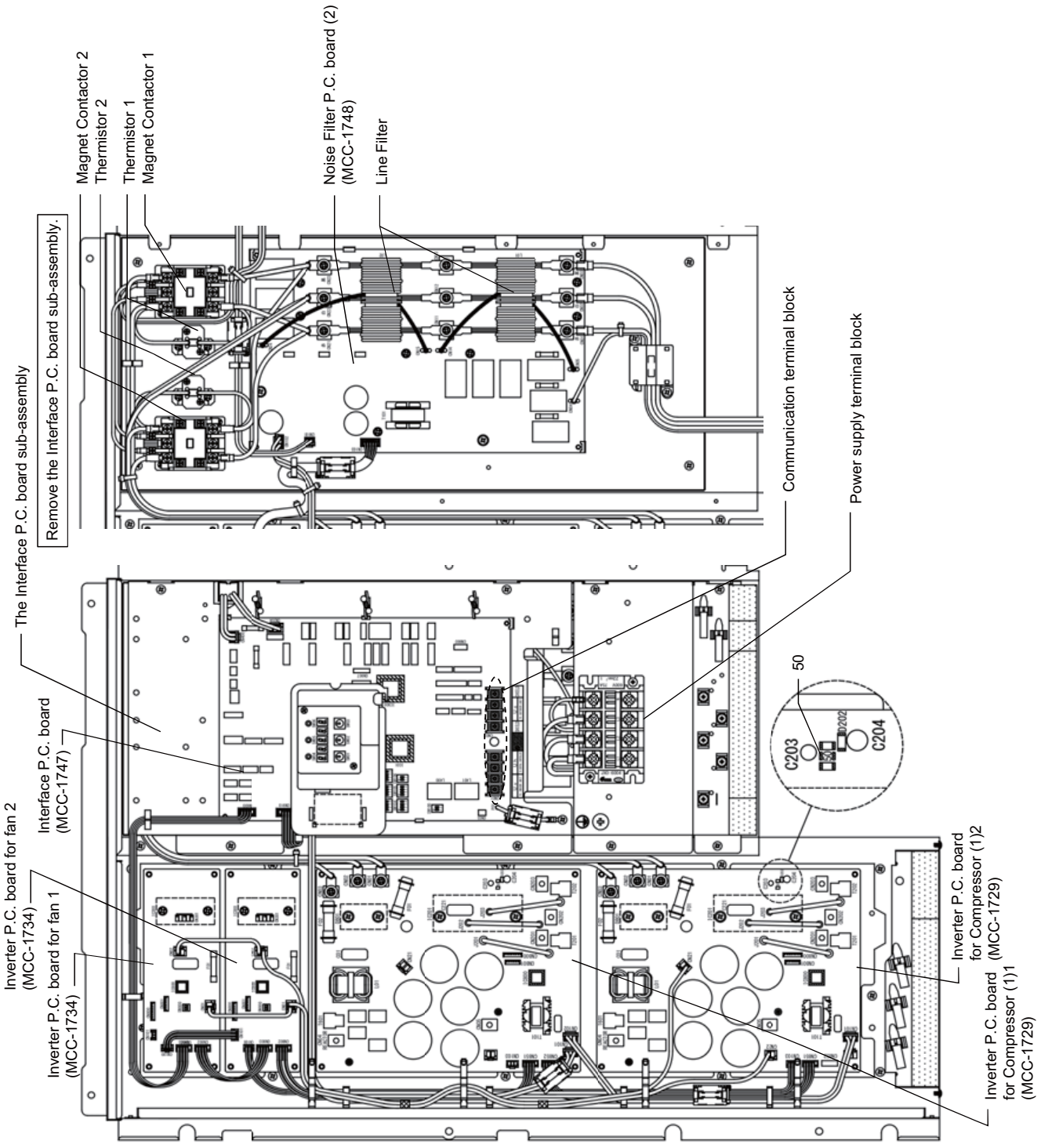
Model: MMY-MUP0801HT8, MUP1001HT8, MUP1201HT8, MUP1401HT8



14A, 16, 18, 20HP
Model: MMY-MUP14A1HT8, MUP1601HT8, MUP1801HT8, MUP2001HT8

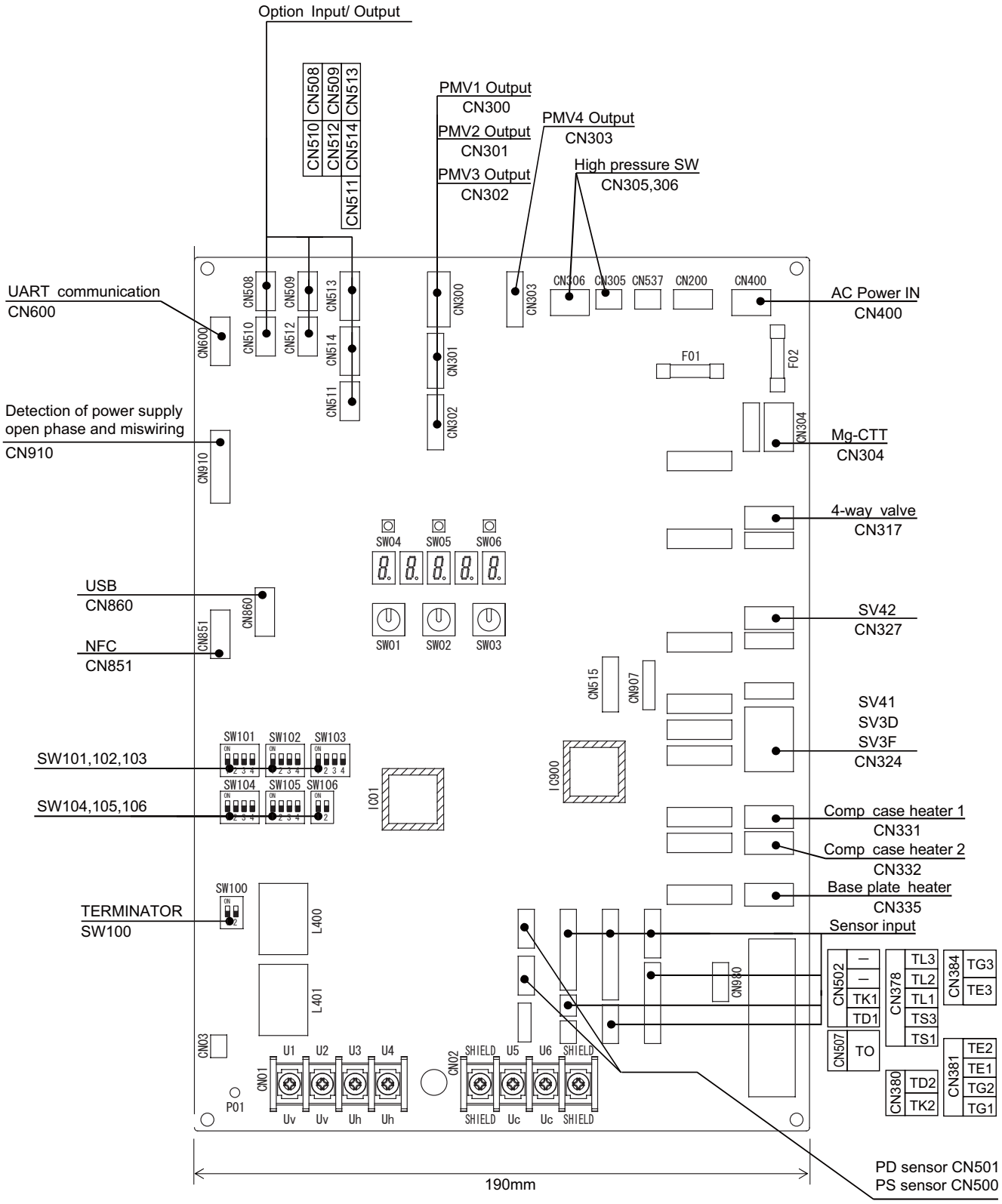


22, 24HP
Model: MMY-MUP2201HT8, MUP2401HT8



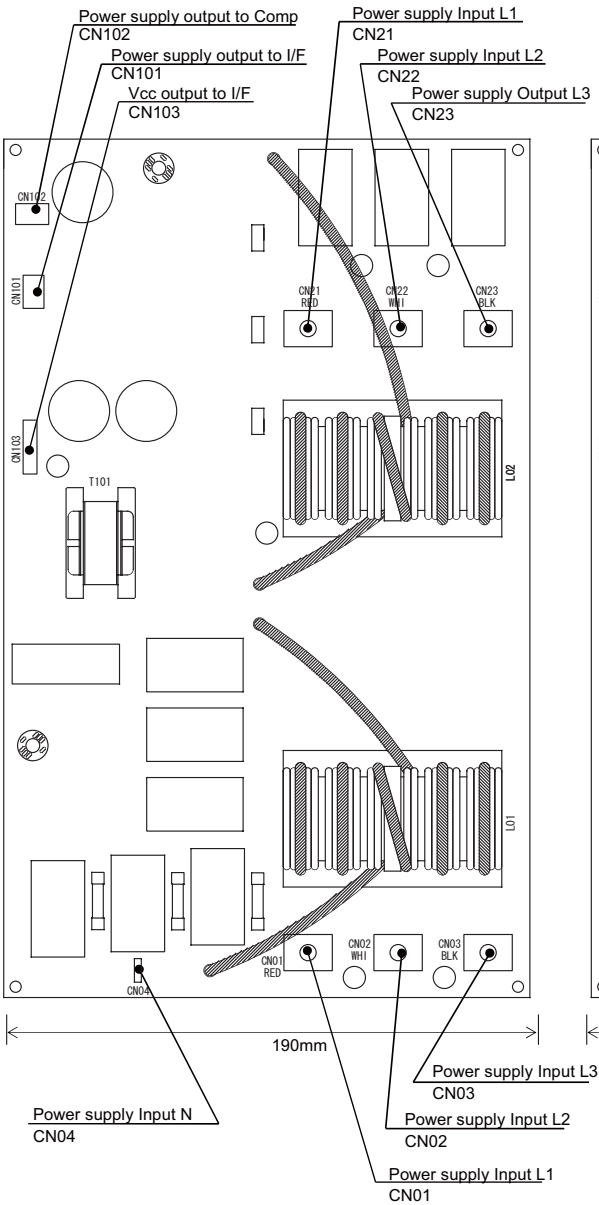
3-3. Outdoor (Inverter) Print Circuit Board

3-3-1. Interface P.C. board (MCC-1747)

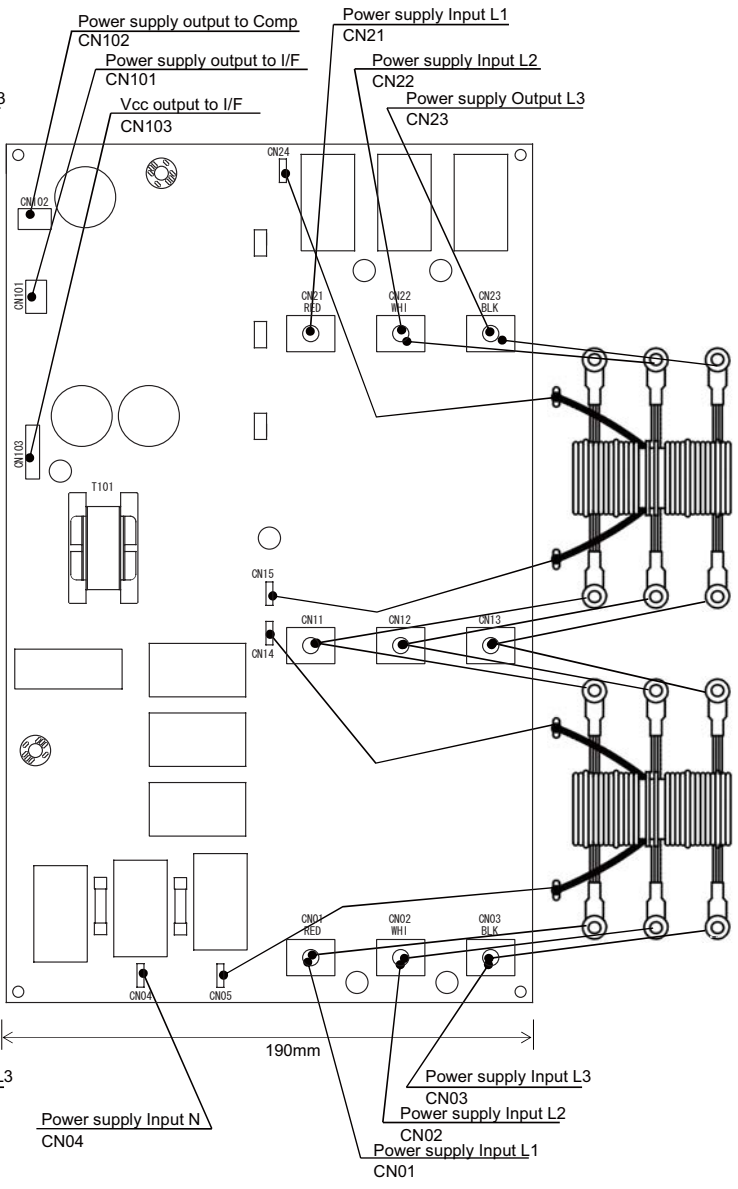


3-3-2. Noise Filter P.C. board (MCC-1748)

990W 1Comp 1Fan model (A3 Compressor)
(8, 10, 12. 14HP)



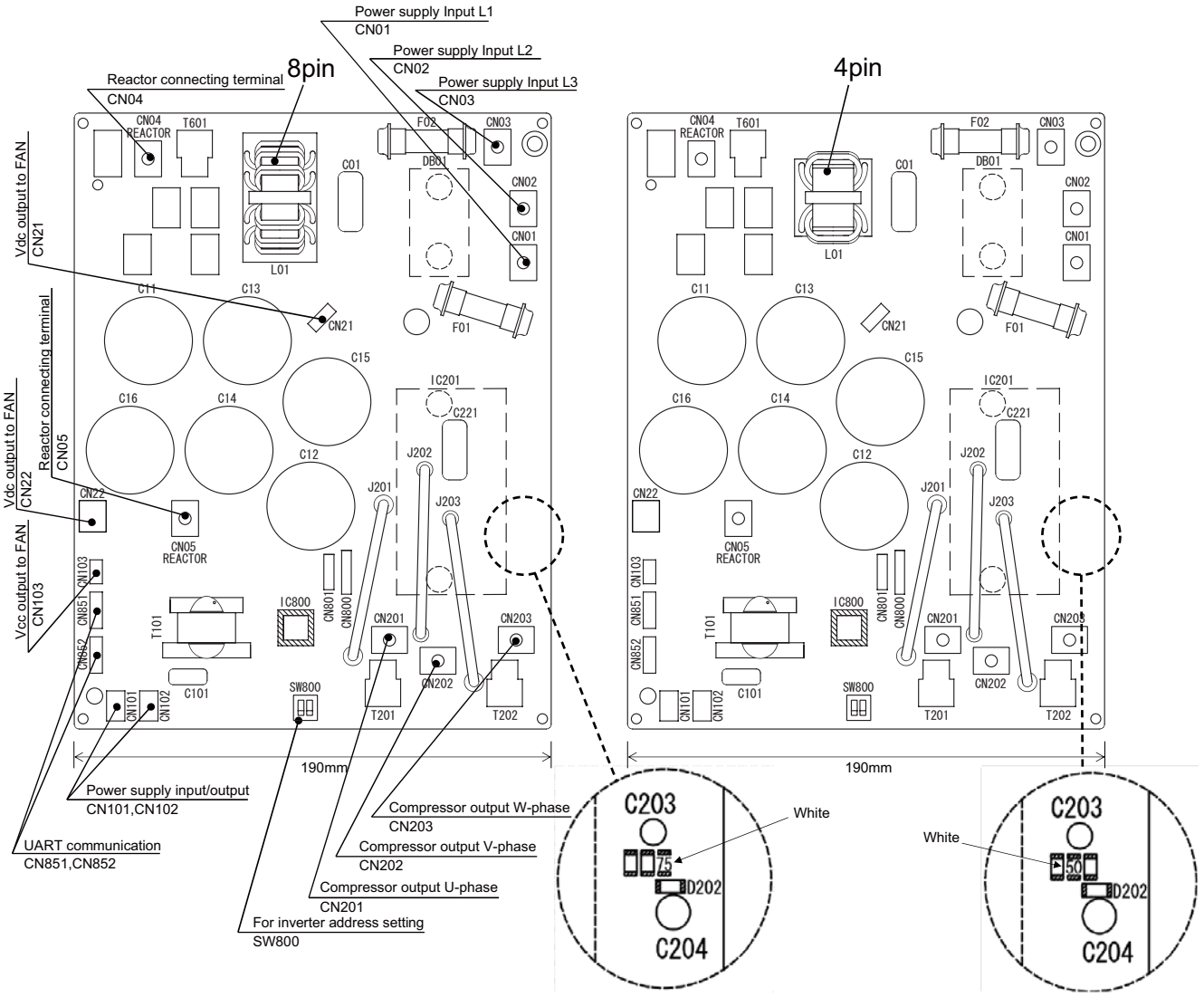
1290W 1Comp 2Fan model (K4 Compressor)
(14A/16/18/20HP)
1290W 2Comp 2Fan model (A3 Compressor)
(22/24HP)



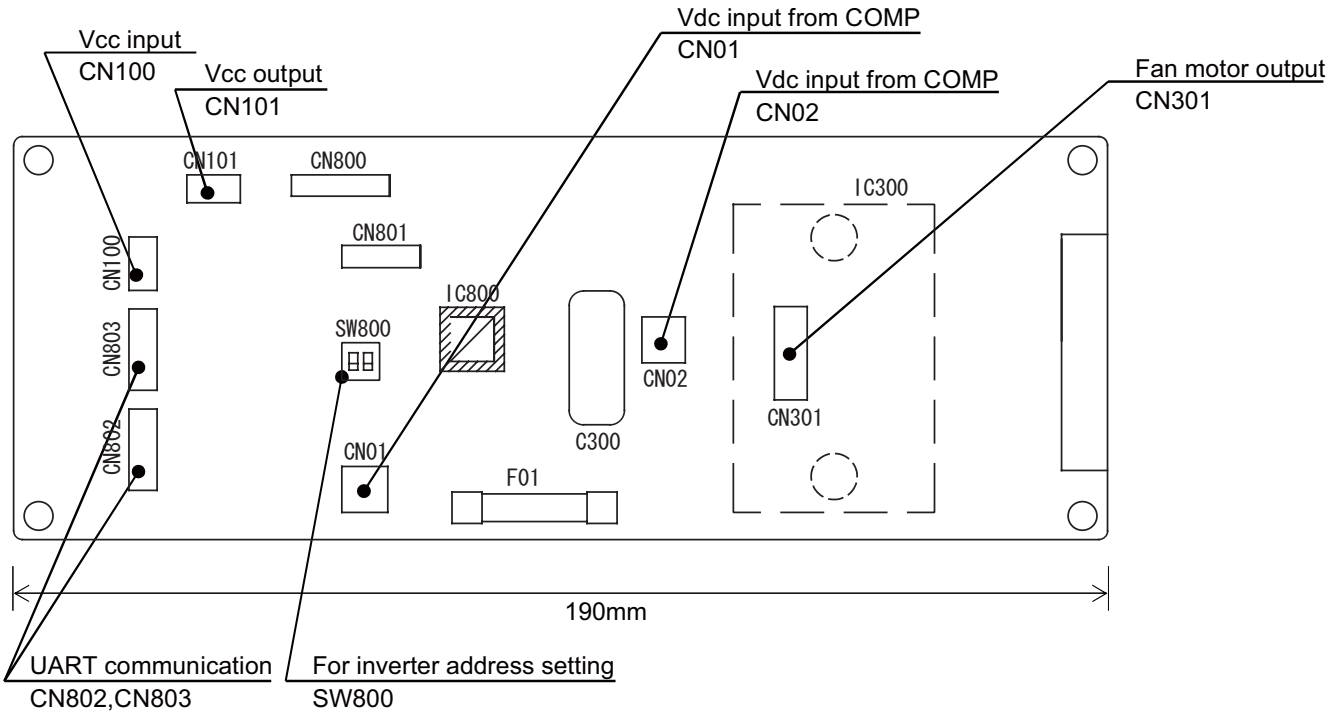
3-3-3. Inverter P.C. board for compressor (MCC-1729)

1290W 1Comp 2Fan model (K4 Compressor)
(14A/16/18/20HP)

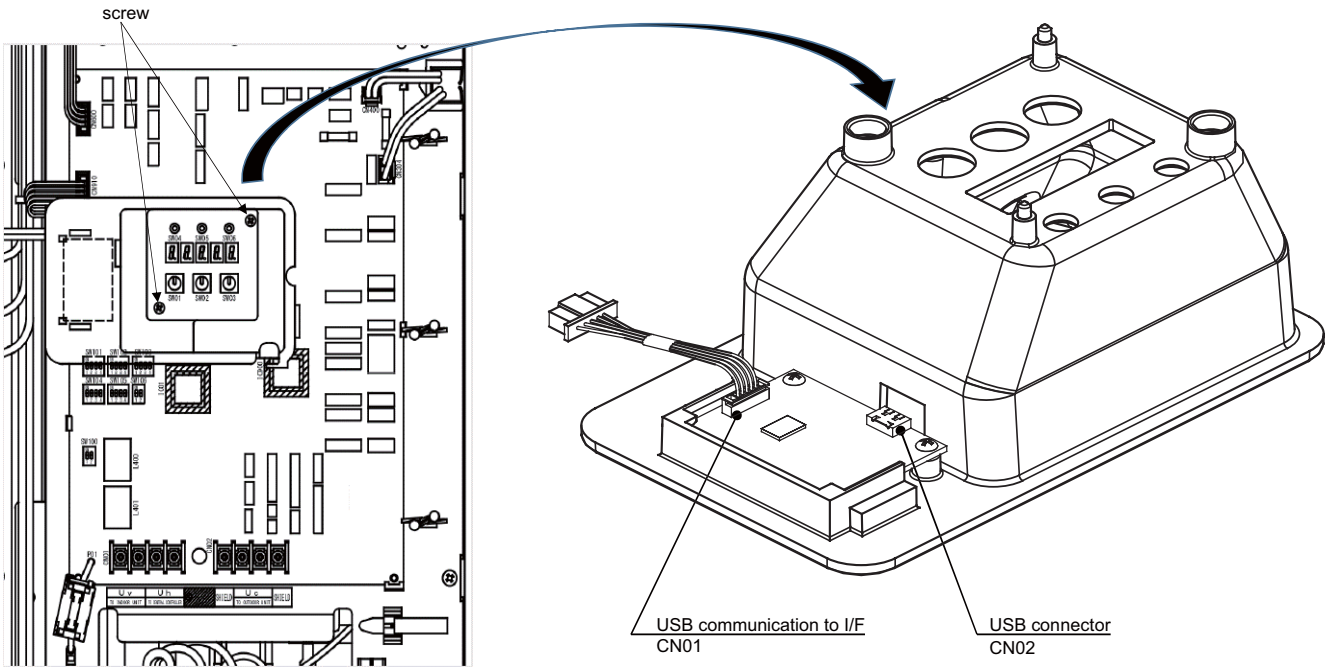
1290W 2Comp 2Fan model (A3 Compressor)
(22/24HP)
990W 1Comp 1Fan model (A3 Compressor)
(8/10/12/14HP)



3-3-4. Inverter P.C. board for fan (MCC-1734)

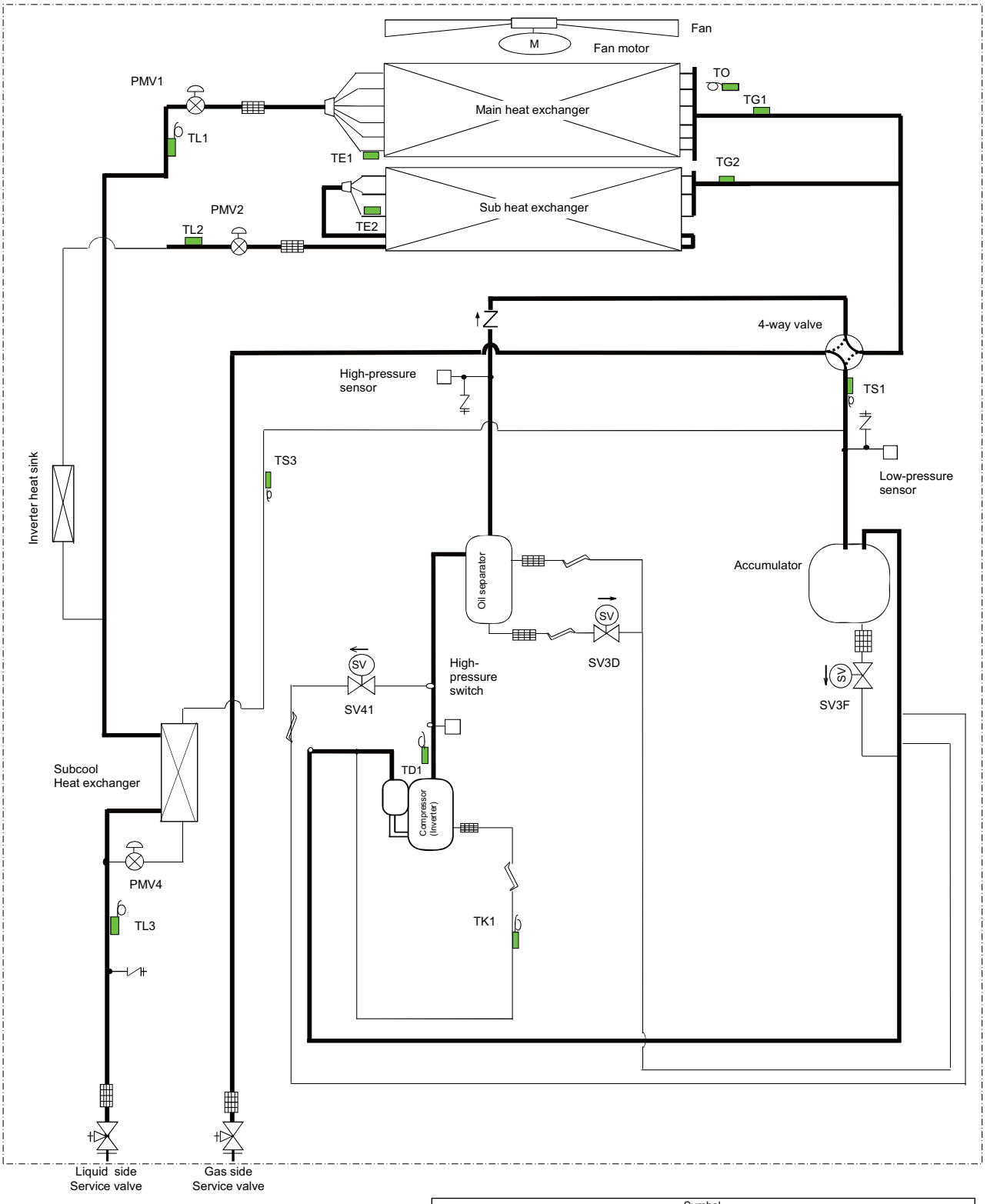


3-3-5. USB isolate P.C. board (MCC-1754)



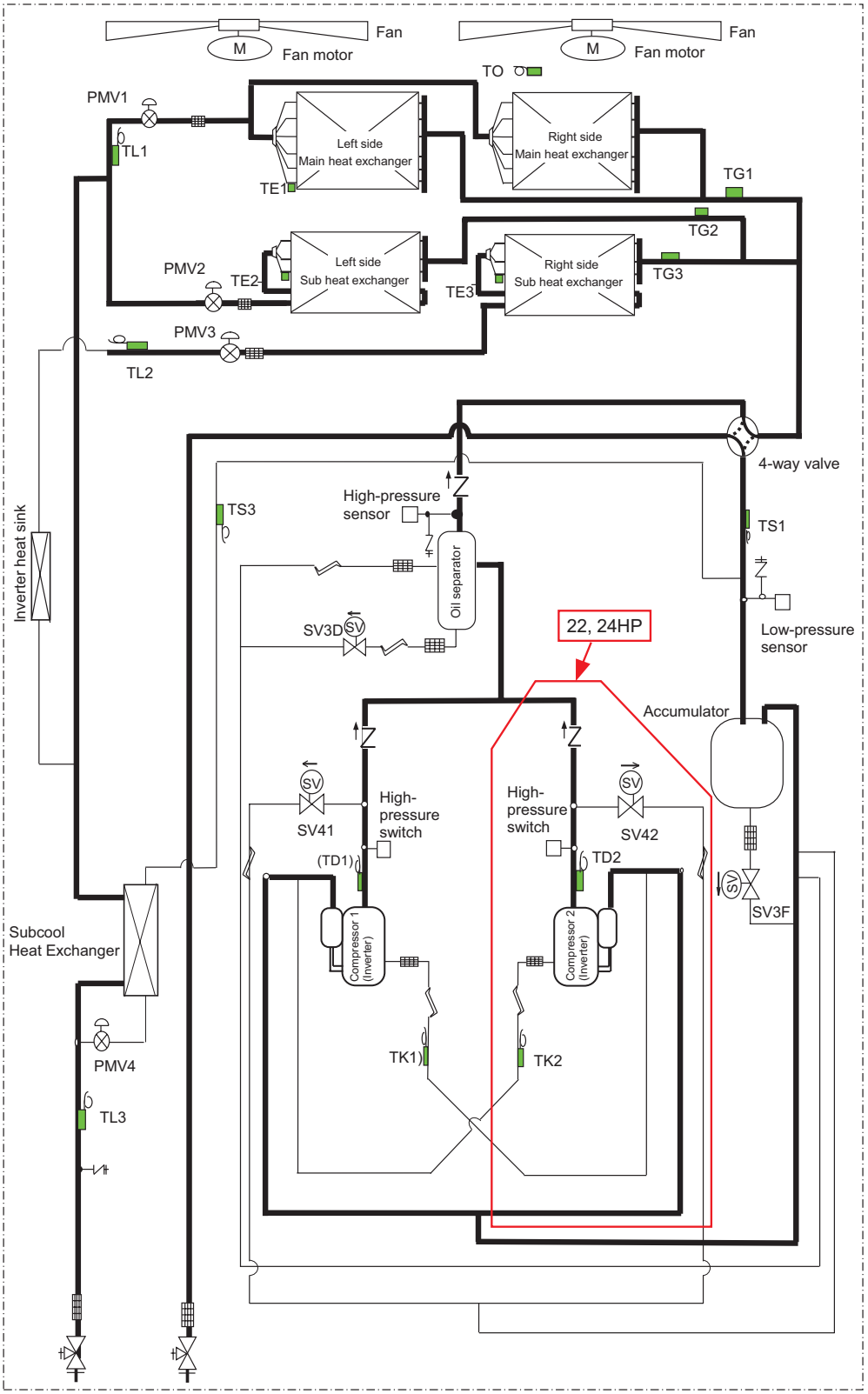
4. REFRIGERANT PIPING SCHEMATIC DRAWING

Outdoor unit
8, 10, 12, 14HP
Model: MMY-MUP0801∗, MUP1001∗, MUP1201∗, MUP1401∗



Symbol						
Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Temperature sensor	Distributor

14A, 16, 18, 20HP
Model: MMY-MUP14A1∗, MUP1601∗, MUP1801*, MUP2001∗
22, 24HP
Model: MMY-MUP2201∗, MUP2401∗



Symbol						
Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Temperature sensor	Distributor

5. Method to set Outdoor Unit Function Code No. (O.DN)

The settings can be changed by operating the switches on the interface board.
In the TU2C-Link communication system, it can also be done by operating the wired remote controller.

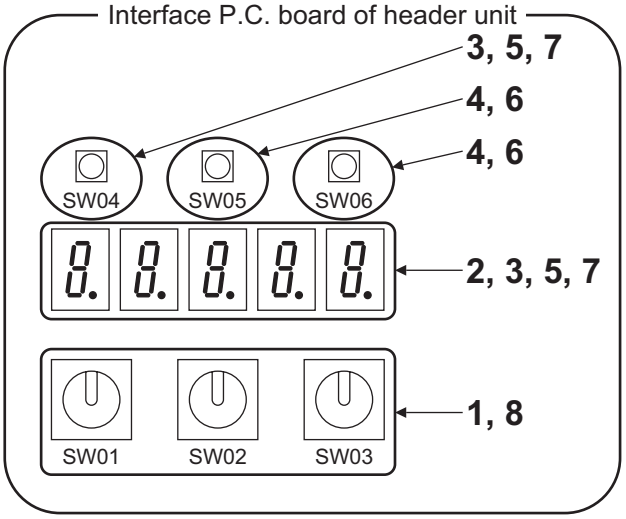
◆ Applicable controls setup

(settings at the site)

Basic procedure
Be sure to stop the air conditioner before making settings.
(Change the setup while the air conditioner is networking.)

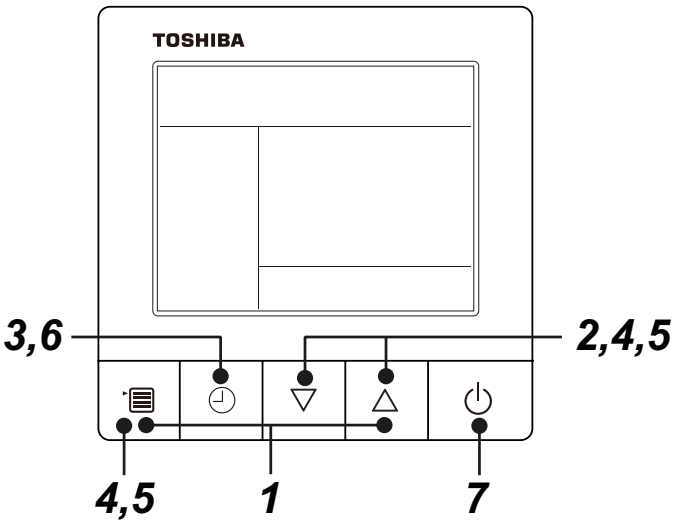
When switching settings from the interface P.C. board of the outdoor unit

1. Set the rotary switch of the interface P.C. board on the outdoor unit to SW01= [9], SW02= [1] and SW03= [1].
2. The 7-segment display shows “d n.S E t”.
3. When SW04 is pressed, the 7-segment display switches to “d n.0 0 1” and the outdoor unit code NO. [001] is displayed.
4. Change outdoor unit code NO. [∗ ∗ ∗] with SW05 or SW06.
   Press SW05 to advance the code. Press and hold SW05 to advance in 5 steps.
   Press SW06 to return the code. Press and hold SW05 to return in 5 steps.
5. When SW04 is pressed, the 7-segment display blinks “d.* * * *” and the setting data [∗ ∗ ∗ ∗] being set is displayed.
6. Change setting data [∗ ∗ ∗ ∗] with SW05 or SW06.
   Press SW05 to advance the data. Press SW06 to return the setting data.
7. Push and hold SW04 for more than 2 seconds.
   When the flashing stops and remain lit on the display, the setting is complete.
   (To return to the item code setting after completing the setting, or to return to the item code setting without setting, press SW04 once.)
8. Set the rotary switch on the interface P.C. board of the outdoor unit back to SW01= [1], SW02= [1], SW03= [1].
9. Reset the power of the outdoor unit (power off for one minute or more) .



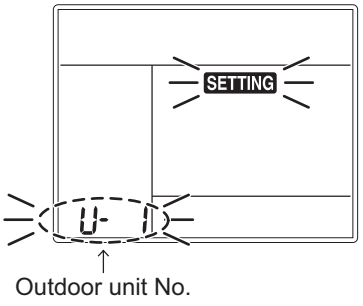
When switching from the wired remote controller (RBC-ASCU11-C)

Basic procedure
Be sure to stop the air conditioner before making settings.
(Change the setup while the air conditioner is not working.)



1 **Push and hold menu button and [△] setting button simultaneously for 10 seconds or more.**

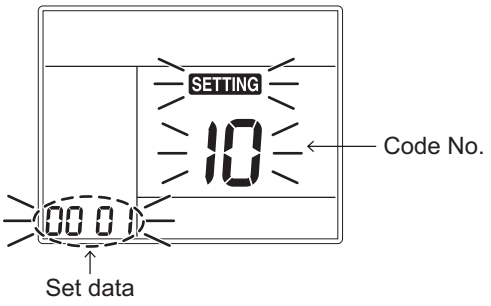
- After a while, the display flashes as shown in the figure. "ALL" is displayed as outdoor unit numbers during initial communication immediately after the power has been turned on.



2 **Each time [▽] [△] setting button is pushed, outdoor unit numbers in the group control change cyclically. Select the outdoor unit to change settings for.**

- The fan of the selected outdoor unit runs. The outdoor unit can be confirmed for which to change settings.

3 **Push OFF timer button to confirm the selected outdoor unit.**



4 **Push the menu button to make Code No. [**] flash.**
Change Code No. [**] with [▽] [△] setting button.

5 **Push the menu button to make Set data [****] flash.**
Change Set data [****] with [▽] [△] setting button.

6 **Push OFF timer button to complete the set up.**

- To change other settings of the selected outdoor unit, repeat from Procedure ***4*** .

7 **When all the settings have been completed, push ON/OFF button to finish the settings. (Return to the normal mode).**

" SETTING " flashes and then the display content disappears and the air conditioner enters the normal stop mode. (The remote controller is unavailable while " SETTING " is flashing.)

- To change settings of another outdoor unit, repeat from Procedure ***1*** .

Outdoor Unit Function Code No. (O. DN) Table (Includes Functions Needed to Perform Applied Control on Site)

<table>
<tr><th>DN</th><th>Item</th><th>Description</th><th>At shipment</th></tr>
<tr><td>003</td><td>Type Setting</td><td>Code range : 0000 to 0255
<table><tr><td>Type setting</td><td>0</td><td>1</td><td>2</td></tr><tr><td>DN Code [03]</td><td>0000</td><td>0001</td><td>0002</td></tr></table>* DN Code [003] = 0000 : Undefined</td><td>According to type</td></tr>
<tr><td>004</td><td>7-segment Display Contents Control</td><td>0000 : Outdoor unit No.
0001 : Start priority number</td><td>0000 : Outdoor unit No.</td></tr>
<tr><td>005</td><td>Prohibition/Permission of the NFC Setting</td><td>0000 : Allow Wave Tool Advance test operation within 48 hours elapsed from the outdoor unit power on time.
0001 : Regardless of the elapsed time, WTA cannot start test operation.
0002 : Regardless of the elapsed time, WTA can start test operation.</td><td>0000 : Allow WTA test operation</td></tr>
<tr><td>007</td><td>Compressor Maintenance Period Time</td><td>0000 : 0h
0001 to 0063 (1000 h to 63000 h)</td><td>0000 : 0h</td></tr>
<tr><td>008</td><td>Operation Mode Selection Control</td><td>0000 : Non-selected Indoor units keep stand-by state (thermostat OFF).
0001 : Changing non-selected indoor units t the mode selected</td><td>0000 : Non Priority</td></tr>
<tr><td>009</td><td>Capacity / Power Demand Control</td><td>0000 : Capacity demand
0001 : Power demand</td><td>0000 : Non Priority</td></tr>
<tr><td>00A</td><td>Power consumption upper limit standard value setting Heating (For power demand)_High</td><td rowspan="4">Code range
[0A] [0C] : 0000 to 0255 (1 kW to 255 kW)
[0B] [0D] : 0000 to 0099 (0.00 kW to 0.99 kW)
<table><tr><td colspan="2" rowspan="2">Power consumption upper limit standard value</td><td colspan="2">DN Code</td></tr><tr><td>Heating</td><td>[00A]</td><td>[00B]</td></tr><tr><td></td><td>Cooling</td><td>[00C]</td><td>[00D]</td></tr><tr><td colspan="2">No power demand function</td><td>0000</td><td>0000</td></tr><tr><td colspan="2">0.01 kW</td><td>0000</td><td>0001</td></tr><tr><td colspan="2">0.02 kW</td><td>0000</td><td>0002</td></tr><tr><td colspan="2">10.00 kW</td><td>0010</td><td>0000</td></tr><tr><td colspan="2">30.50 kW</td><td>0030</td><td>0050</td></tr></table></td><td>0000 : 0kW</td></tr>
<tr><td>00b</td><td>Power consumption upper limit standard value setting Heating (For power demand)_Low</td><td>0000 : 0kW</td></tr>
<tr><td>00C</td><td>Power consumption upper limit standard value setting Cooling (For power demand)_High</td><td>0000 : 0kW</td></tr>
<tr><td>00d</td><td>Power consumption upper limit standard value setting Cooling (For power demand)_Low</td><td>0000 : 0kW</td></tr>
<tr><td>00E</td><td>Setting Value during Demand Control</td><td rowspan="3">Setting Value during Demand Control for demand standard specifications can be set with DN code [00E]. Its value for expansion specifications can be set in two steps (DN codes [00F], [010]) during the normal operation and demand control (setting value DN Code [00E]).
<table><tr><td rowspan="2">Demand control</td><td colspan="3">DN Code</td></tr><tr><td>[00E]</td><td>[00F]</td><td>[010]</td></tr><tr><td>100%</td><td>0</td><td>0</td><td>0</td></tr><tr><td>95%</td><td>1</td><td>1</td><td>1</td></tr><tr><td>90%</td><td>2</td><td>2</td><td>2</td></tr><tr><td>85%</td><td>3</td><td>3</td><td>3</td></tr><tr><td>80%</td><td>4</td><td>4</td><td>4 (Factory default)</td></tr><tr><td>75%</td><td>5</td><td>5</td><td>5</td></tr><tr><td>70%</td><td>6</td><td>6</td><td>6</td></tr><tr><td>65%</td><td>7</td><td>7</td><td>7</td></tr><tr><td>60%</td><td>8</td><td>8 (Factory default)</td><td>8</td></tr><tr><td>55%</td><td>9</td><td>9</td><td>9</td></tr><tr><td>50%</td><td>10</td><td>10</td><td>10</td></tr><tr><td>–</td><td>11 to 14</td><td>11 to 14</td><td>11 to 14</td></tr><tr><td>0%</td><td>15 (Factory default)</td><td>15</td><td>15</td></tr></table></td><td>0015 : 0% (Forcedly stop)</td></tr>
<tr><td>00F</td><td>Setting value during Demand Control (Expansion 1)</td><td>0008 : 60%</td></tr>
<tr><td>010</td><td>Setting Value during Demand Control (Expansion 2)</td><td>0004 : 80%</td></tr>
<tr><td>012</td><td>Optional Output Setting Control 1 (CN514)</td><td>0000 : Compressor Operation Output
0001 : Operating Rate Output</td><td>0000 : Compressor Operation Output</td></tr>
<tr><td>018</td><td>Priority Operation Mode Setting</td><td>0000 : Priority heating
0001 : Priority cooling
0002 : Priority operation unit No.
0004 : Priority indoor unit</td><td>0000 : Priority heating</td></tr>
<tr><td>019</td><td>Outdoor Fan High Static Pressure Shift</td><td>0000 : Usual
0001 : High Static Pressure Operation</td><td>0000 : Usual</td></tr>
<tr><td>01A</td><td>Operation standby Heating standby</td><td>0000 : None
0001 : Stanby</td><td>0000 : None</td></tr>
<tr><td>01d</td><td>System cooperation defrosting settings 1 (number cooperating)</td><td>0000 : None (vassal)
0001 : Prohibition
0002 : 2-system cooperation (master unit)
0003 : 3-system cooperation (master unit)
* set [01D] = 0002 or 0003 to outdoor unit set to master unit in outdoor DN code [01F]</td><td>0000: None (vassal)</td></tr>
<tr><td>01E</td><td>System cooperation defrosting settings 2 (zone address)</td><td>0000 : None
0001 to 0128: Addresses
0001 when not using central controller for control for system cooperation defrosting,
0001 to 0128 when using central controller</td><td>0000: None</td></tr>
<tr><td>01F</td><td>System cooperation defrosting settings 3 (cooperation address)</td><td>0000: None
0001: Master unit
0002 or 0003: Vassal units 2 or 3</td><td>0000 : None</td></tr>
<tr><td>03d</td><td>Existence of Automatic Back Up</td><td>0000 : Provided
0001 : Not provided</td><td>0000 : Provided</td></tr>
<tr><td>03F</td><td>Operation Control during Overflow Detection of Indoor Unit</td><td>0000 : System abnormal stop
0001 : System continuous operation (Stop the corresponding indoor unit.)</td><td>0000 : System abnormal stop</td></tr>
<tr><td>040</td><td>Operation Control during Outside Abnormal Input Switching control in receiving [L30][L02] from indoor)</td><td>0000 : System continuous operation (Stop the corresponding indoor unit.)
0001 : System abnormal stop</td><td>0000 : System continuous operation (Stop the corresponding indoor unit.)</td></tr>
<tr><td>082</td><td>Communication setting</td><td>0000: TCC-Link
0003 : TU2C-Link</td><td>0000: TCC-Link</td></tr>
</table>

6. Troubleshooting in Test Operation

If there are phenomena such as the output of a check code or the remote controller is not accepted when poweredon after wiring work or during address setup operation, the following causes are considered.

A Check Code is Displayed on the Remote Controller

Check the code displayed on the indoor remote controller	Header unit 7-segment display	Cause	Countermeasures
E04		When outdoor power is off	Check that the header outdoor unit power is on
	L08	Address setup trouble • Only line addresses of the connected indoor units are undefined. • The outdoor line address and the line addresses of all the indoor units do not match. • The indoor addresses are duplicated. (Units except those displaying E04 are duplicated.) • A header unit is not set up in group control (except groups displaying E04).	Set up the address again.
	E08 ⇔ -XX Alternate blinking	Duplication of indoor addresses (address number in the subcode of the check code are duplicated).	Set up the address again.
	E07	When the terminator resistor (SW100 bit2) in the communication line between indoor and outdoor units (Uv) on the outdoor unit has not been turned on or two or more terminator resistors have been turned on (After address setup, when terminator resistor setup is changed after powering-on) SW100	Check SW100 bit 1 or bit 2 of the header unit. No connection between multiple refrigerant lines: Turn off SW100 bit 1 and turn on bit 2. Connection between multiple refrigerant lines: Turn on SW100 bit 1 of only the connected header unit for one line. Turn on SW100 bit2 of all the header units. *Factory default : SW100 bit 1 is off, bit 2 is off.
		Transmission circuit trouble at the interface side (P.C. board failure)	Replace the interface PC board.
	E06	After address setup, communication from all the indoor units is interrupted under the condition that a normal operation can be performed.	Check and correct disconnection of the indoor/ outdoor communication line (the communication line between the header unit and the leading indoor unit). Check for the influence of communication noise. In TU2C-LINK communication system, if the termination resistance is not set in any of the indoor units.
E16	E16 ⇔ -XX Alternate blinking	Exceeded the number or capacity of connected indoor units	Adjust the number or capacity of connected indoor units.
E23	E23	Communication between outdoor units has stopped.	Check the number of connected outdoor units. Check that outdoor unit power is on.
E25	E25	Duplication of outdoor addresses (only when an outdoor address was manually set up)	Do not use manual setup for outdoor addresses.
E26	E26 ⇔ -XX Alternate blinking	Number of connected outdoor units has decreased. • When installing an outdoor backup • The power of a follower unit is not turned on.	Correction of the cause of trouble occurrence • If it occurs when installing a backup, clear the trouble after setup finishes. • If the power of a follower unit is not turned on, turn on the power.
L04	L04	Duplication of outdoor line addresses • Line address setup trouble (occurred after connection between U1/U2 and U3/U4 connectors)	Modify the line address setup of the header unit between lines. (Set up SW13 and SW14 on the interface PC board.)
L05(*)	L06	Duplication of indoor units with priority	Set up priority only for one indoor unit.
L06(*)	None	There are two or more indoor units set up with priority.	Among indoor units indicating “L05,” set one unit with priority.
L08	L08	Address setup trouble • Only indoor addresses of all the connected indoor units are undefined.	Set up the addresses again. Modify the setup.

* “L05”: Displayed on the indoor unit set up with priority
“L06”: Displayed on the indoor units except the one set up with priority

No Remote Controller Response with Check Code

(Operation from the indoor remote controller is not accepted, and a check code is displayed on the 7-segment display of the interface PC board of the header unit)

Indoor remote controller status	Header unit 7-segment display	Cause	Countermeasures
No response	L08	Line addresses and indoor addresses of all the connected indoor units are not set.	Set up addresses.
		There is no header unit of group control.	Set up a group address.
	E19 ⇔ -00 Alternate blinking	Indoor unit power is not turned on.	Turn on the power again. (In the order: indoor → outdoor)
		Indoor/outdoor communication line is not correctly connected to the U1/U2 terminal of the header unit (Fig. 1). (Indoor/ outdoor cannot communicate before address setup.)	Correct wiring
		When the terminator resistor (SW100 bit2) in the communication line between indoor and outdoor units (Uv) on the outdoor unit has not been turned on or two or more terminator resistors have been turned on (After address setup, when terminator resistor setup is changed after powering-on) SW100	Check SW100 bit 1 or bit 2 of the header unit. No connection between multiple refrigerant lines: Turn off SW100 bit 1 and turn on bit 2. Connection between multiple refrigerant lines: Turn on SW100 bit 1 of only the connected header unit for one line. Turn on SW100 bit2 of all the header units. * Factory default : SW100 bit 1 is off, bit 2 is off.
	E19 ⇔ -02 Alternate blinking	When connecting an indoor/outdoor communication line between outdoor units under the condition of a connected communication line between outdoor units (Fig. 2).	Correct wiring
		SW08 setup trouble	Turn all SW08 switches to “off.”
	E20 ⇔ -01 Alternate blinking	Address setup is performed with connecting an indoor/ outdoor communication line between outdoor units (Fig. 3).	Correct wiring
		Address setup is performed under the condition of connecting multiple refrigerant lines (Fig. 3).	Correct wiring

No Remote Controller Response without Check Code

(There is no display of a check code on the 7-segment display on the interface PC board of the header unit, although there is indoor unit that is not accepting operation from the indoor remote controller)

Indoor remote controller status	Header unit 7-segment display	Cause	Countermeasures
No response	None	The communication line is not connected between indoor and outdoor (the unit that does not respond to the indoor remote controller).	Improve the wiring.
		Line address and indoor address are not set (the unit that does not respond to the indoor remote controller).	Set up the address.
		The power of the header unit of the group is not turned on in indoor group control (the unit that does not respond to the indoor remote controller).	Turn on the power.
		Group address is set to the follower unit for individual control (the unit that does not respond to the indoor remote controller).	Set the group address to “0” in the case of individual control.
No display on the indoor remote controller (no line is output.)	None	The power is not turned on (the unit that is not displayed on the indoor remote controller).	Turn on the power.
		The indoor remote controller is not connected with a wire (the unit that is not displayed on the indoor remote controller).	Improve the wiring.
		Miswiring of the indoor remote controller (the unit that is not displayed on the indoor remote controller)	Improve the wiring.
		Indoor remote controller communication circuit trouble (the unit that is not displayed on the indoor remote controller) If 220 V is incorrectly applied to the indoor remote controller terminal, the remote controller communication circuit fails.	Remove the quick connect terminal connected to indoor remote controller terminals A/B, and check the voltage. If voltage is not applied (normally 15 to 18 V), replace the PC board.

Connected Indoor/Outdoor Unit Quantity Check

(In checking the number of connected outdoor units and connected indoor units after address setup, a lower number of connected units is displayed (There are outdoor/ indoor units that do not operate in a test operation))

Status	Cause	Counter measures
The number of connected outdoor units is few.	Miswiring of communication lines between outdoor units or an unconnected wire (Fig. 4). (Address setup operation finished without recognizing a miswired follower unit.)	After improvement of wiring, set up the addresses again and check the number of connected outdoor units.
The number of connected indoor units is few.	Miswiring of communication lines between indoor units or an unconnected wire (Fig. 5). (Address setup operation finished without recognizing a miswired indoor unit.)	After modification of wiring, set up the addresses again and check the number of connected indoor units.
The number of indoor units connected to a group is few in groupoperation from an indoor remote controller.	The indoor remote controller is not connected with wire. Miswiring of the indoor remote controller	Using the main indoor remote controller connected to a group, start a test operation, specify the unit that is not operating (the unit not connected to the group), and then check the wiring.
	Indoor remote controller communication circuit trouble If 220 V is incorrectly applied to the remote controller terminal, the remote controller communication circuit fails.	Using the main indoor remote controller connected to a group, start a test operation and then specify the unit that is not operating (the unit not connected to the group). Remove the quick connect terminal connected to remote controller terminals A/B, and check the voltage. If voltage is not applied (normally 15 to18 V), replace the PC board.

6-1. Troubleshooting method

The list below summarizes check codes detected by various devices. Analyze the check code according to where it is displayed and work out the nature of the problem in consultation with the list.

- When investigating a problem on the basis of a display provided on the indoor remote controller or central remote controller See the “Remote control or main remote controller display” section of the list.
- When investigating a problem on the basis of a display provided on an outdoor unit - See the “Outdoor 7-segment display” section of the list.
- When investigating a problem on the basis of a wireless remote controller-controlled indoor unit - See the “Light sensor indicator light block” section of the list.

List of Check Codes (Indoor Unit)

(Check code detected by indoor unit)

◯ : Lighting, ◎ : Flashing, ● : Goes off
ALT.: Flashing is alternately when there are two flashing LED
SIM: Simultaneous flashing when there are two flashing LED

Check code			Display of receiving unit				Typical problem site	Description of Check code
Central control or main remote controller display	Outdoor 7-segment display		Indicator light block					
		Sub-code	Operation	Timer	Flash	Flash		
E03	—	—	◎	●	●		Indoor-remote controller periodic communication trouble	Communication from remote controller or network adaptor has been lost (so has central control communication).
E04	—	—	●	●	◎		Indoor-outdoor periodic communication trouble	Signals are not being received from outdoor unit.
E08	E08	Duplicated indoor address	◎	●	●		Duplicated indoor address	Indoor unit detects address identical to its own.
E10	—	—	◎	●	●		Indoor inter-MCU communication trouble	MCU communication between main controller and motor microcontroller is failure.
E11	—	—	◎	●	●		Communication check code between Application control kit and indoor unit	Communication check code between Application control kit and indoor unit P.C. board.
E18	—	—	◎	●	●		Trouble in periodic communication between indoor header and follower unit	Periodic communication between indoor header and follower units cannot be maintained.
F01	—	—	◎	◎	●	ALT	Indoor heat exchanger temperature sensor (TCJ) trouble	Heat exchanger temperature sensor (TCJ) has been open/short-circuited.
F02	—	—	◎	◎	●	ALT	Indoor heat exchanger temperature sensor (TC2) trouble	Heat exchanger temperature sensor (TC2) has been open/short-circuited.
F03	—	—	◎	◎	●	ALT	Indoor heat exchanger temperature sensor (TC1) trouble	Heat exchanger temperature sensor (TC1) has been open/short-circuited.
F10	—	—	◎	◎	●	ALT	Room air temperature sensor (TA/TSA) trouble	Room air temperature sensor (TA) has been open/short-circuited.
F11	—	—	◎	◎	●	ALT	Discharge air temperature sensor (TF/TFA) trouble	Discharge air temperature sensor (TF) has been open/short-circuited.
F29	—	—	◎	◎	●	SIM	P.C. board or other indoor trouble	Open/Short-circuit of indoor air suction temperature sensor (TRA) was detected.
L03	—	—	◎	●	◎	SIM	Duplicated indoor group header unit	There is more than one header unit in group.
L07	—	—	◎	●	◎	SIM	Connection of group control cable to stand-alone indoor unit	There is at least one stand-alone indoor unit to which group control cable is connected.
L08	L08	—	◎	●	◎	SIM	Indoor group address not set	Address setting has not been performed for one or more indoor units (also detected at outdoor unit end).
L09	—	—	◎	●	◎	SIM	Indoor capacity not set	Capacity setting has not been performed for indoor unit.
L20	—	—	◎	○	◎	SIM	Duplicated central control address	There is duplication in central control address setting.
L30	L30	Detected indoor unit No.	◎	○	◎	SIM	Indoor external trouble input (interlock)	Unit shutdown has been caused by external trouble input (CN80).
P01	—	—	●	◎	◎	ALT	Indoor AC fan trouble	Indoor AC fan trouble is detected (activation of fan motor thermal relay).
P10	P10	Detected indoor unit No.	●	◎	◎	ALT	Indoor overflow trouble	Float switch has been activated.
P12	—	—	●	◎	◎	ALT	Indoor DC fan trouble	Indoor DC fan trouble (e.g. overcurrent or lock-up) is detected.
P31	—	—	◎	●	◎	ALT	Other indoor unit trouble	Follower unit cannot be operated due to header unit alarm (E03/L03/L07/L08).

(Check code detected by remote controller)

Check code			Display of receiving unit				Typical fault site	Description of trouble
Remote control	Outdoor 7-segment display		Indicator light block					
		Sub-code	Operation	Timer	Ready	Flash		
E01	–	–	◎	●	●		No master remote control, failure remote control communication (reception)	Signals cannot be received from indoor unit; master remote controller has not been set (including two remote controller control).
E02	–	–	◎	●	●		Failure remote control communication (transmission)	Signals cannot be transmitted to indoor unit.
E09	–	–	◎	●	●		Duplicated master remote control	Both remote controllers have been set as master remote controller in two remote controller control (alarm and shutdown for header unit and continued operation for follower unit)

(Check code detected by central control device)

Check code			Display of receiving unit				Typical fault site	Description of trouble
Central control	Outdoor 7-segment display		Indicator light block					
		Sub-code	Operation	Timer	Ready	Flash		
C05	–	–	No indication (when main remote control also in use)				Failure central control communication (transmission)	Central control device is unable to transmit signal due to duplication of central control device
C06	–	–					Failure central control communication (reception)	Central control device is unable to receive signal.
C12	–	–	–				Bracket alarm for general-purpose device control interface	Device connected to general-purpose device control interface is failure.
P30	–	–	As per alarm unit (see above)				Group control follower unit trouble	Group follower unit is troubled (unit No. and above detail [＊＊＊] displayed on main remote controller)

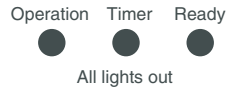
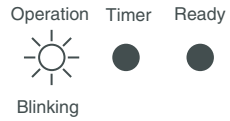
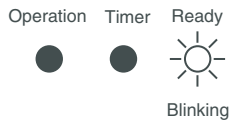
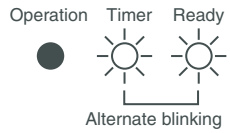
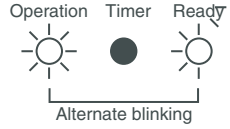
Note: The same trouble, e.g. a communication trouble, may result in the display of different check codes depending on the device that detects it.
Moreover, check codes detected by the main remote controller/central control device do not necessarily have a direct impact on air conditioner operation.

6-2. Troubleshooting based Information

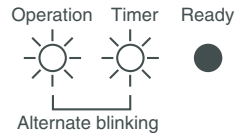
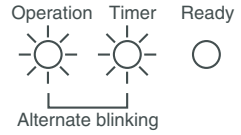
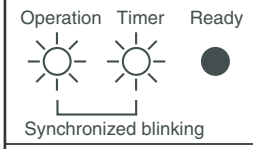
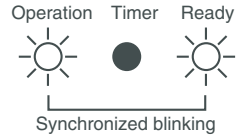
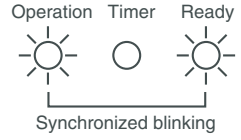
6-2-1. Using indoor unit indicators (receiving unit light block) (wireless type)

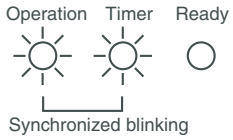
To identify the check code, check the 7-segment display on the header unit. To check for check codes not displayed on the 7-segment display, consult the “List of Check Codes (Indoor Unit)” in “8-2. Troubleshooting method”.

● : Goes off ◯ : Lighting ☼ : Blinking (0.5 seconds)

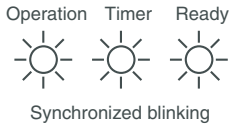
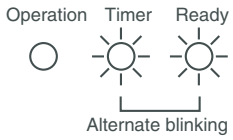
Light block	Check code	Cause of trouble		
	–	Power turned off or trouble in wiring between receiving and indoor units		
	E01	Trouble reception	Receiving unit	Trouble or poor contact in wiring between receiving unit and indoor units
	E02	Trouble transmission		
	E03	Loss of communication		
	E08	Duplicated indoor unit No. (address)		Setting trouble
	E09	Duplicated master remote controller		
	E10	Communication trouble between indoor unit MCU		
	E11	Communication trouble between Application control kit and indoor unit P.C. board		
	E12	Automatic address starting trouble		
	E18	Trouble or poor contact in wiring between indoor units, indoor power turned off		
	E04	Trouble or poor contact in wiring between indoor and outdoor units (loss of indoor-outdoor communication)		
	E06	Trouble reception in indoor-outdoor communication (dropping out of indoor unit)		
	E07	Trouble transmission in indoor-outdoor communication		
	E15	Indoor unit not found during automatic address setting		
	E16	Too many indoor units connected / overloading		
	E19	Trouble in number of outdoor header units		
	E20	Detection of refrigerant piping communication trouble during automatic address setting		
	E23	Trouble transmission in outdoor-outdoor communication		
	E25	Duplicated follower outdoor address		
	E26	Trouble reception in outdoor-outdoor communication, dropping out of outdoor unit		
	E28	Outdoor follower unit trouble		
	E31	P.C. board communication trouble		
	P01	Indoor AC fan trouble		
	P10	Indoor overflow trouble		
	P11	Outdoor heat exchanger freezing trouble		
	P12	Indoor DC fan trouble		
	P13	Outdoor liquid backflow detection trouble		
	P03	Outdoor discharge (TD1) temperature trouble		
	P04	Activation of outdoor high-pressure SW		
	P05	Open phase / power failure Inverter DC voltage (Vdc) trouble MG-CTT trouble		
	P07	Outdoor heat sink overheating trouble - Poor cooling of electrical component (IGBT) of outdoor unit		
	P15	Gas leak detection - insufficient refrigerant charging		
	P17	Outdoor discharge (TD2) temperature trouble		
	P18	Outdoor discharge (TD3) temperature trouble		
	P19	Outdoor 4-way valve reversing trouble		
	P20	Activation of high-pressure protection		
	P22	Outdoor fan P.C. board trouble		
	P26	Outdoor IPM, Compressor short-circuit trouble		
	P29	Compressor position detection circuit trouble		
	P31	Shutdown of other indoor unit in group due to trouble (group follower unit trouble)		

MG-CTT: Magnet contactor

Light block	Check code	Cause of trouble	
	F01	Heat exchanger temperature sensor (TCJ) trouble	Indoor unit temperature sensor trouble
	F02	Heat exchanger temperature sensor (TC2) trouble	
	F03	Heat exchanger temperature sensor (TC1) trouble	
	F10	Ambient temperature sensor (TA/TSA) trouble	
	F11	Discharge temperature sensor (TF) trouble	
	F04	Discharge temperature sensor (TD1) trouble	Outdoor unit temperature sensor trouble
	F05	Discharge temperature sensor (TD2) trouble	
	F06	Heat exchanger temperature sensor (TE1, TE2, TE3) trouble	
	F07	Liquid temperature sensor (TL1, TL2, TL3) trouble	
	F08	Outside air temperature sensor (TO) trouble	
	F09	Heat exchanger gas side temperature sensor (TG1, TG2, TG3) trouble	
	F12	Suction temperature sensor (TS1, TS3) trouble	
	F13	Heat sink sensor (TH) trouble	
	F15	Wiring trouble in heat exchanger sensor (TE1) and liquid temperature sensor (TL) Outdoor unit temperature sensor wiring / installation trouble	
	F16	Wiring trouble in outdoor high pressure sensor (Pd) and low pressure sensor (Ps) Outdoor pressure sensor wiring trouble	
	F23	Low pressure sensor (Ps) trouble	Outdoor unit pressure sensor trouble
	F24	High pressure sensor (Pd) trouble	
	F29	Trouble in indoor EEPROM	
	H01	Compressor breakdown	Outdoor unit compressor related trouble
	H02	Compressor lockup	
	H03	Current detection circuit trouble	
	H05	Wiring / installation trouble or detachment of outdoor discharge temperature sensor (TD1)	
	H06	Abnormal drop in low-pressure sensor (Ps) reading	Protective shutdown of outdoor unit
	H07	Abnormal drop in oil level	
	H08	Trouble in temperature sensor for oil level detection circuit (TK1, TK2)	
	H15	Wiring / installation trouble or detachment of outdoor discharge temperature sensor (TD2)	
	H16	Oil level detection circuit trouble - Trouble in outdoor unit TK1, TK2 circuit	
	H17	Compressor trouble (Step-out)	
	L02	Outdoor unit model mismatched trouble	
	L03	Duplicated indoor group header unit	
	L05	Duplicated priority indoor unit (as displayed on priority indoor unit)	
	L06	Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit)	
	L07	Connection of group control cable to stand-alone indoor unit	
	L08	Indoor group address not set	
	L09	Indoor capacity not set	
	L04	Duplicated outdoor refrigerant line address	
	L10	Outdoor capacity not set	
	L17	Outdoor model incompatibility trouble	
	L20	Duplicated central control address	
	L23	SW setting trouble	
	L28	Too many outdoor units connected	
	L29	Trouble in number of P.C. boards	
	L30	Indoor external interlock trouble	

Light block	Check code	Cause of trouble
	F30	Occupancy sensor trouble
	F31	Outdoor EEPROM trouble

Other (indications not involving check code)

Light block	Check code	Cause of trouble
	–	Test run in progress
	–	Setting incompatibility (automatic cooling / heating setting for model incapable of it and heating setting for cooling-only model)

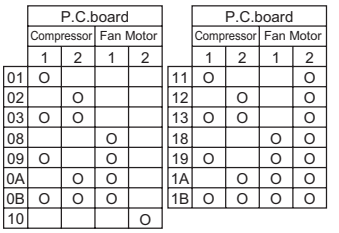
6-2-2. List of Check Codes (Outdoor Unit)

(Check code detected by outdoor interface - typical examples)
If "HELLO" is displayed on the oudoor 7-segment for 1 minute or more, turn off the power supply once and then turn on the power supply again after passage of 30 seconds or more. When the same symptom appears, it is considered there is a possibility of I/F board trouble.

◯ : Lighting, ◎ : Flashing, ● : Goes off
ALT.: Flashing is alternately when there are two flashing LED
SIM: Simultaneous flashing when there are two flashing LED

Check code			Display of receiving unit				Typical problem site	Description of problem
Outdoor 7-segment display		Central control or main remote controller display	Indicator light block					
	Sub-code		Operation ⏻	Timer ◴	Ready ❁	Flash		
E06	Number of indoor units from which signal is received normally	E06	●	●	◎		Signal lack of indoor unit	• Indoor unit initially communicating normally fails to return signal (reduction in number of indoor units connected). • In TU2C-LINK communication system, if the termination resistance is not set in any of the indoor units.
E07	–	(E04)	●	●	◎		Indoor-outdoor communication circuit trouble	Signal cannot be transmitted to indoor units (→ indoor units left without communication from outdoor unit).
E08	Duplicated indoor address	(E08)	◎	●	●		Duplicated indoor address	More than one indoor unit are assigned same address (also detected at indoor unit end).
E12	01: Indoor-outdoor communication 02: Outdoor-outdoor communication	E12	◎	●	●		Automatic address starting trouble	• Indoor automatic address setting is started while automatic address setting for equipment in other refrigerant line is in progress. • Outdoor automatic address setting is started while automatic address setting for indoor units is in progress.
E15	–	E15	●	●	◎		Indoor unit not found during automatic address setting	Indoor unit fails to communicate while automatic address setting for indoor units is in progress.
E16	00: Capacity over 01: Number of units connected	E16	●	●	◎		Too many indoor units connected/capacity over	Combined capacity of indoor units is too large. The maximum combined of indoor units shown in the specification table.
E19	00: No header unit 02: Two or more header units	E19	●	●	◎		Trouble in number of outdoor header units	There is no or more than one outdoor header unit in one refrigerant line.
E20	01: Connection of outdoor unit from other refrigerant line 02: Connection of indoor unit from other refrigerant line	E20	●	●	◎		Connection to other refrigerant line found during automatic address setting	Indoor unit from other refrigerant line is detected while indoor automatic address setting is in progress.
E23	–	E23	●	●	◎		Outdoor-outdoor communication transmission trouble	Signal cannot be transmitted to other outdoor units.
E25	–	E25	●	●	◎		Duplicated follower outdoor address	There is duplication in outdoor addresses set manually.
E26	Address of outdoor unit from which signal is not received normally	E26	●	●	◎		Signal lack of outdoor unit	Follower outdoor unit initially communicating normally fails to do so (reduction in number of follower outdoor units connected).
E28	Detected outdoor unit No.	E28	●	●	◎		Outdoor follower unit trouble	Outdoor header unit detects trouble relating to follower outdoor unit (detail displayed on follower outdoor unit).
E31	P.C.board (Compressor 1, 2 / Fan Motor 1, 2) 01 O 02 O 03 O O 08 O 09 O O 0A O O 0B O O O 10 O P.C.board (Compressor 1, 2 / Fan Motor 1, 2) 11 O O 12 O O 13 O O O 18 O O 19 O O O 1A O O O 1B O O O O Circle (O): Trouble P.C. board 80 : Communication trouble between MCU and Sub MCU	E31	●	●	◎		P.C. board communication trouble Sub MCU communication trouble	There is no communication between P.C. boards in inverter box.
F04	–	F04	◎	◎	○	ALT	Outdoor discharge temperature sensor (TD1) trouble	Outdoor discharge temperature sensor (TD1) has been open/short-circuited.
F05	–	F05	◎	◎	○	ALT	Outdoor discharge temperature sensor (TD2) trouble	Outdoor discharge temperature sensor (TD2) has been open/short-circuited.
F06	01: TE1 sensor 02: TE2 sensor 03: TE3 sensor	F06	◎	◎	○	ALT	Outdoor heat exchanger liquid side temperature sensor (TE1, TE2, TE3) trouble	Outdoor heat exchanger liquid side temperature sensors (TE1, TE2, TE3) have been open/short-circuited.
F07	01: TL1 sensor 02: TL2 sensor 03: TL3 sensor	F07	◎	◎	○	ALT	Outdoor liquid temperature sensor (TL1,TL2,TL3) trouble	Outdoor liquid temperature sensor (TL1,TL2,TL3) has been open/short-circuited.
F08	–	F08	◎	◎	○	ALT	Outdoor outside air temperature sensor (TO) trouble	Outdoor air temperature sensor (TO) has been open/short-circuited.
F09	01: TG1 sensor 02: TG2 sensor 03: TG3 sensor	F09	◎	◎	○	ALT	Outdoor heat exchanger gas side temperature sensor (TG1, TG2, TG3) trouble	Outdoor heat exchanger gas side temperature sensors (TG1, TG2, TG3) have been open/short-circuited.

Check code			Display of receiving unit				Typical problem site	Description of problem
Outdoor 7-segment display		Central control or main remote controller display	Indicator light block					
	Sub-code		Operation ⏻	Timer 🕘	Ready ✺	Flash		
F12	01 : TS1 sensor 03 : TS3 sensor 04 : TS3 sensor disconnect	F12	◎	◎	○	ALT	• Outdoor suction temperature sensor (TS1,TS3) trouble • When TS3 detects an unusual temperature during compressor operation and PMV4 operation in cooling mode	• Outdoor suction temperature sensor (TS1,TS3) has been open/short-circuited. • When the disconnect of outdoor temperature sensor (TS3) is detected.
F15	–	F15	◎	◎	○	ALT	Outdoor temperature sensor (TE1,TL1) wiring trouble	Wiring trouble in outdoor temperature sensors (TE1,TL1) has been detected.
F16	–	F16	◎	◎	○	ALT	Outdoor pressure sensor (Pd, Ps) wiring trouble	Wiring trouble in outdoor pressure sensors (Pd, Ps) has been detected.
F23	–	F23	◎	◎	○	ALT	Low pressure sensor (Ps) trouble	Output voltage of low pressure sensor (Ps) is zero.
F24	–	F24	◎	◎	○	ALT	High pressure sensor (Pd) trouble	Output voltage of high pressure sensor (Pd) is zero or provides abnormal readings when compressors have been turned off.
F31	–	F31	◎	◎	○	SIM	Outdoor EEPROM trouble	Outdoor EEPROM is failure (alarm and shutdown for header unit and continued operation for follower unit)
H05	–	H05	●	◎	●		Outdoor discharge temperature sensor (TD1) wiring trouble	Wiring/installation trouble or detachment of outdoor discharge temperature sensor (TD1) has been detected.
H06	–	H06	●	◎	●		Activation of low-pressure protection	Low pressure (Ps) sensor detects abnormally low operating pressure.
H07	–	H07	●	◎	●		Low oil level protection	Temperature sensor for oil level detection (TK1,TK2) detects abnormally low oil level.
H08	01: TK1 sensor trouble 02: TK2 sensor trouble	H08	●	◎	●		Trouble in temperature sensor for oil level detection (TK1,TK2)	Temperature sensor for oil level detection (TK1,TK2) has been open/short-circuited.
H15	–	H15	●	◎	●		Outdoor discharge temperature sensor (TD2) wiring trouble	Wiring/installation trouble or detachment of outdoor discharge temperature sensor (TD2) has been detected.
H16	01: TK1 oil circuit trouble 02: TK2 oil circuit trouble	H16	●	◎	●		Oil level detection circuit trouble	No temperature change is detected by temperature sensor for oil level detection (TK1,TK2) despite compressor having been started.
L04	–	L04	◎	○	◎	SIM	Duplicated outdoor refrigerant line address	Identical refrigerant line address has been assigned to outdoor units belonging to different refrigerant piping systems.
L06	Number of priority indoor units (check code L05 or L06 depending on individual unit)	L05	◎	●	◎	SIM	Duplicated priority indoor unit (as displayed on priority indoor unit)	More than one indoor unit have been set up as priority indoor unit.
		L06	◎	●	◎	SIM	Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit)	More than one indoor unit have been set up as priority indoor unit.
L08	–	(L08)	◎	●	◎	SIM	Indoor group address not set	Address setting have not been performed for one or more indoor units (also detected at indoor end).
L10	–	L10	◎	○	◎	SIM	Outdoor capacity not set	Outdoor unit capacity has not been set (after P.C. board replacement).
L17	–	L17	◎	○	◎	SIM	Outdoor model incompatibility trouble	Outdoor unit that cannot be connected is connected.
L23	02: Switch setting trouble of outdoor unit	L23	◎	○	◎	SIM	SW setting trouble	Switch setting trouble of outdoor units when HWM (Hot water module) is connected.
L28	–	L28	◎	○	◎	SIM	Too many outdoor units connected	More than six outdoor units have been connected.

Check code			Display of receiving unit				Typical problem site	Description of problem
Outdoor 7-segment display		Central control or main remote controller display	Indicator light block					
	Sub-code		Operation ⏻	Timer 🕘	Ready ❁	Flash		
L29	 Circle (O): Trouble P.C. board	L29	◎	○	◎	SIM	Trouble in number of P.C. boards	There are insufficient number of P.C. board in inverter box.
	00	L29	◎	○	◎	SIM	The number of P.C. board trouble	When there is much number of an inverter P.C. board to model setting of an interface P.C. board.
L30	Detected indoor unit No.	(L30)	◎	○	◎	SIM	Indoor external trouble input (interlock)	Indoor unit has been shut down for external trouble input in one refrigerant line (detected by indoor unit).
P03	–	P03	◎	●	◎	ALT	Outdoor discharge (TD1) temperature trouble	Outdoor discharge temperature sensor (TD1) has detected abnormally high temperature.
P04	01: Compressor 1 02: Compressor 2	P04	◎	●	◎	ALT	Activation of high-pressure SW	High-pressure SW is activated.
P05	00: Power detection trouble 01: Open phase 02: Power supply miswiring	P05	◎	●	◎	ALT	Power detection trouble /Open phase detection /Power supply miswiring detection	Open phase is detected when power is turned on. Inverter DC voltage is too high (overvoltage) or too low (undervoltage).
P07	00 : Compressor 1 or 2 heat sink trouble 01 : Compressor 1 heat sink trouble 02 : Compressor 2 heat sink trouble	P07	◎	●	◎	ALT	Heat sink overheating trouble	Temperature sensor built into IPM (TH) detects overheating.
	04: Heat sink dewing						Heat sink dewing trouble	Outdoor liquid temperature sensor (TL2) has detected abnormally low temperature.
P10	Indoor unit No. detected	(P10)	●	◎	◎	ALT	Indoor unit overflow	Indoor unit has been shutdown in one refrigerant line due to detection of overflow (detected by indoor unit).
P11	–	P11	●	◎	◎	ALT	Outdoor heat exchanger freeze trouble	Remaining frost on outdoor heat exchanger has been detected repeatedly.
P13	–	P13	●	◎	◎	ALT	Outdoor liquid backflow detection trouble	State of refrigerant cycle circuit indicates liquid backflow operation.
P15	01: TS condition 02: TD condition	P15	◎	●	◎	ALT	Gas leak detection	Outdoor suction temperature sensor (TS1) detects sustained and repeated high temperatures that exceed standard value.
P17	–	P17	◎	●	◎	ALT	Outdoor discharge (TD2) temperature trouble	Outdoor discharge temperature sensor (TD2) detects abnormally high temperature.
P19	Outdoor unit No. detected	P19	◎	●	◎	ALT	4-way valve reversing trouble	Abnormality in refrigerating cycle is detected during heating operation.
P20	–	P20	◎	●	◎	ALT	Activation of high-pressure protection	High pressure (Pd) sensor detects high pressure that exceeds standard value.

MG-CTT: Magnet contactor

(Check code detected by Inverter of Compressor featuring in outdoor unit - typical examples)

Check code			Display of receiving unit				Typical problem site	Description of proplem
Outdoor 7-segment display		Central control or main remote controller display	Indicator light block					
	Sub-code		Operation	Timer	Ready	Flash		
F13	1∗: Compressor 1 2∗: Compressor 2	F13	◎	◎	○	ALT	Trouble in temperature sensor built into indoor IPM (TH)	Temperature sensor built into indoor IPM (TH) has been open/short-circuited.
H01	1∗: Compressor 1 2∗: Compressor 2	H01	●	◎	●		Compressor breakdown	Inverter current (Idc) detection circuit detects overcurrent.
H02	1∗: Compressor 1 2∗: Compressor 2	H02	●	◎	●		Compressor trouble (lockup)	Compressor lockup is detected
H03	1∗: Compressor 1 2∗: Compressor 2	H03	●	◎	●		Current detection circuit trouble	Abnormal current is detected while inverter compressor is turned off.
H17	1∗: Compressor 1 2∗: Compressor 2	H17	●	◎	●		Compressor trouble (Step-out)	Compressor is in step-out condition.
P05	1∗: Compressor 1 side 2∗: Compressor 2 side	P05	◎	●	◎	ALT	Compressor Vdc trouble	Inverter DC voltage is too high (overvoltage) or too low (undervoltage).
P07	1∗: Compressor 1 side 2∗: Compressor 2 side	P07	◎	●	◎	ALT	Heat sink overheat trouble	Temperature sensor built into IPM (TH) detects overheating.
P11	–	P11	●	◎	◎	ALT	Outdoor heat exchanger freeze trouble	Remaining frost on outdoor heat exchanger has been detected repeatedly.
P22	1∗: Fan P.C. board 1 2∗: Fan P.C. board 2	P22	◎	●	◎	ALT	Outdoor fan P.C. board trouble	Outdoor fan P.C. board detects trouble.
P26	1∗: Compressor 1 2∗: Compressor 2	P26	◎	●	◎	ALT	Activation of IPM, compressor short-circuit protection	Short-circuit protection for compressor motor driver circuit components is activated (momentary overcurrent).
P29	1∗: Compressor 1 2∗: Compressor 2	P29	◎	●	◎	ALT	Compressor position detection circuit trouble	Compressor motor position detection trouble is detected.

Note: The above check codes are examples only, and different check codes may be displayed depending on the outdoor unit configuration

6-3. Check Codes Displayed on Remote Controller and SMMS-u Outdoor Unit (7-Segment Display on I/F Board) and Locations to Be Checked

For other types of outdoor units, refer to their own service manuals.

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
E01	—	—	Remote controller	Indoor-remote controller communication trouble (detected at remote controller end)	Stop of corresponding unit	Communication between indoor P.C. board and remote controller is disrupted.	• Check remote controller inter-unit tie cable (A/B). • Check for broken wire or connector bad contact. • Check indoor power supply. • Check for failure in indoor P.C. board. • Check remote controller address settings (when two remote controllers are in use). • Check remote controller P.C. board.
E02	—	—	Remote controller	Remote controller transmission trouble	Stop of corresponding unit	Signal cannot be transmitted from remote controller to indoor unit.	• Check internal transmission circuit of remote controller. --- Replace remote controller as necessary.
E03	—	—	Indoor unit	Indoor-remote controller communication trouble (detected at indoor end)	Stop of corresponding unit	There is no communication from remote controller (including wireless) or network adaptor.	• Check remote controller and network adaptor wiring.
E04	—	—	Indoor unit	Indoor-outdoor communication circuit trouble (detected at indoor end)	Stop of corresponding unit	Indoor unit is not receiving signal from outdoor unit.	• Check order in which power was turned on for indoor and outdoor units. • Check indoor address setting. • Check indoor-outdoor tie cable. • Check outdoor terminator resistor setting (SW100, Bit 2).
E04	E06	No. of indoor units from which signal is received normally	I/F	Dropping out of indoor unit	All stop	**Condition 1** All indoor unit initially communicating normally fails to return signal for specified length of time. **Condition 2** Outdoor I / F board SW103, Bit4 : OFF (Factory default)	• Check power supply to indoor unit. (Is power turned on?) • Check connection of indoor-outdoor communication cable. • Check connection of communication connectors on indoor P.C. board. • Check connection of communication connectors on outdoor P.C. board. • Check for failure in indoor P.C. board. • Check for failure in outdoor P.C. board (I/F).
	—	—	Indoor unit	Indoor-outdoor communication circuit trouble	Only specified indoor units stop	**Condition 1** Indoor unit initially communicating normally fails to return signal for specified length of time.	• Check power supply to indoor unit. (Is power turned on?) • Check indoor-outdoor power-on sequence. • Check indoor address setting • Check wiring of Indoor-outdoor communication wires • Check outdoor terminator resistor setting (SW100, Bit 2).

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
E04/E06	E06	No. of indoor units from which signal is received normally	Indoor unit	Indoor-outdoor communication circuit trouble (E04)	All stop	**Condition 1** One indoor unit or more initially communicating normally fails to return signal for specified length of time. **Condition 2** Outdoor I / F board SW103, Bit4 : ON (To switch the check code detection condition.) SW103 Display on main remote controller. Indoor units unavailable for indoor / outdoor communication. :E04 Indoor units available for indoor / outdoor communication. : E06 In TU2C-LINK communication system, if the termination resistance is not set in any of the indoor units.	• Check power supply to indoor unit. (Is power turned on?) • Check indoor-outdoor power-on sequence. • Check indoor address setting • Check wiring of Indoor-outdoor communication wires • Check outdoor terminator resistor setting (SW100, Bit 2).
			I/F	Dropping out of indoor unit (E06)			• Check power supply to indoor unit. (Is power turned on?) • Check connection of indoor-outdoor communication cable. • Check connection of communication connectors on indoor P.C. board. • Check connection of communication connectors on outdoor P.C. board. • Check for failure in indoor P.C. board. • Check for failure in outdoor P.C. board (I/F).
—	E07	—	I/F	Indoor-outdoor communication circuit trouble (detected at outdoor end)	All stop	Signal cannot be transmitted from outdoor to indoor units for 30 seconds continuously.	• Check outdoor terminator resistor setting (SW100, Bit 2). • Check connection of indoor-outdoor communication circuit.
E08	E08	Duplicated indoor address	Indoor unit I/F	Duplicated indoor address	All stop	More than one indoor unit are assigned same address.	• Check indoor addresses. • Check for any change made to remote controller connection (group/ individual) since indoor address setting.
E09	—	—	Remote controller	Duplicated master remote controller	Stop of corresponding unit	In two remote controller configuration (including wireless), both controllers are set up as master. (Header indoor unit is shut down with alarm, while follower indoor units continue operating.)	• Check remote controller settings. • Check remote controller P.C. boards.
E10	—	—	Indoor unit	Indoor inter-MCU communication trouble	Stop of corresponding unit	Communication cannot be established/maintained upon turning on of power or during communication.	• Check for failure in indoor P.C. board
E12	E12	01: Indoor-outdoor communication 02: Outdoor-outdoor communication	I/F	Automatic address starting trouble	All stop	• Indoor automatic address setting is started while automatic address setting for equipment in other refrigerant line is in progress. • Outdoor automatic address setting is started while automatic address setting for indoor units is in progress.	• Check whether the outdoor unit of other systems or the indoor unit is connected to Uv (U1/U2) line or Uc (U5/U6) line. • Perform automatic address setting again after disconnecting communication cable to that refrigerant line.
E15	E15	—	I/F	Indoor unit not found during automatic address setting	All stop	Indoor unit cannot be detected after indoor automatic address setting is started.	• Check connection of indoor-outdoor communication line. • Check for trouble in indoor power supply system. • Check for noise from other devices. • Check for power failure. • Check for failure in indoor P.C. board.

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
E16	E16	00: Capacity over 01-: No. of units connected	I/F	Too many indoor units connected	All stop	• Combined capacity of indoor units is too large. **Note:** **If this code comes up after backup setting for outdoor unit failure is performed, perform "No capacity over detected" setting.** <"No capacity over detected" setting method> Turn on SW103 / Bit 3 on I/F P.C. board of outdoor header unit. For Cooling Only model, this check code is not displayed even if it exceeds the combined capacity of indoor units. • More than 128 indoor units are connected.	• Check capacities of indoor units connected. • Check combined HP capacities of indoor units. • Check HP capacity settings of outdoor units. • Check No. of indoor units connected. • Check for failure in outdoor P.C. board (I/F).
E18	—	—	Indoor unit	Trouble in communication between indoor header and follower units	Stop of corresponding unit	Periodic communication between indoor header and follower units cannot be maintained.	• Check remote controller wiring. • Check indoor power supply wiring. • Check P.C. boards of indoor units.
E19	E19	00: No header unit 02: Two or more header units	I/F	Trouble in number of outdoor header units	All stop	• There are more than one outdoor header units in one line. • There is no outdoor header unit in one line.	The outdoor unit which turned on SW101 and the bit 1 of the interface P.C. board is set to Header unit. • Check SW101 bit 1 of follower outdoor unit. • Check connection of indoor-outdoor communication line. • Check for failure in outdoor P.C. board (I/F).
E20	E20	01: Connection of outdoor unit from other line 02: Connection of indoor unit from other line	I/F	Connection to other line found during automatic address setting	All stop	Equipment from other line is found to have been connected when indoor automatic address setting is in progress.	Check whether the outdoor unit of other systems or the indoor unit is connected to Uv (U1/U2) line or Uc (U5/U6) line.
E23	E23	—	I/F	Outdooroutdoor communication transmission trouble	All stop	Signal cannot be transmitted to other outdoor units for at least 30 seconds continuously.	• Check power supply to outdoor units. (Is power turned on?) • Check connection of tie cables between outdoor units for bad contact or broken wire. • Check communication connectors on outdoor P.C. boards. • Check for failure in outdoor P.C. board (I/F). • Check termination resistance setting for communication between outdoor units.
E25	E25	—	I/F	Duplicated follower outdoor address	All stop	There is duplication in outdoor addresses set manually.	**Note:** **Do not set outdoor addresses manually.**
E26	E26	Address of outdoor unit from which signal is not received normally	I/F	Signal lack of outdoor unit	All stop	Outdoor unit initially communicating normally fails to return signal for specified length of time.	• Backup setting is being used for outdoor units. • Check power supply to outdoor unit. (Is power turned on?) • Check connection of tie cables between outdoor units for bad contact or broken wire. • Check communication connectors on outdoor P.C. boards. • Check for failure in outdoor P.C. board (I/F).

<table>
<tr><th colspan="3">Check code</th><th rowspan="3">Location of detection</th><th rowspan="3">Description</th><th rowspan="3">System status</th><th rowspan="3">Check code detection condition(s)</th><th rowspan="3">Check items (locations)</th></tr>
<tr><th rowspan="2">Main remote controller</th><th colspan="2">Outdoor 7-segment display</th></tr>
<tr><th>Check code</th><th>Sub-code</th></tr>
<tr><td>The check code which occurred follower outdoor unit is displayed</td><td>E28</td><td>Detected outdoor unit No.</td><td>I/F</td><td>Outdoor follower unit trouble</td><td>All stop</td><td>Outdoor header unit receives trouble code from outdoor follower unit.</td><td>• Check check code displayed on outdoor follower unit.
<Convenient functions>
If SW04 is pressed and held for at least 1 second while [E28] is displayed on the 7-segment display of outdoor header unit, the fan of the outdoor unit that has been shut down due to an trouble comes on.
If SW04 and SW05 are pressed simultaneously, the fans of normal outdoor units come on.
To stop the fan or fans, press SW05 on its own.</td></tr>
<tr><td rowspan="2">E31</td><td rowspan="2">E31</td><td>P.C.board
Compressor / Fan Motor
1 2 1 2
01 O
02 O
03 O O
08 O
09 O O
0A O O
0B O O O
10 O
11 O O
12 O O
13 O O O
18 O O
19 O O O
1A O O O
1B O O O O
Circle (O): Trouble P.C. board</td><td>I/F</td><td>P.C. board communication trouble</td><td>All stop</td><td>Communication is disrupted between P.C. board in inverter box.</td><td>• Check wiring and connectors involved in communication between P.C. board I/F P.C. board for bad contact or broken wire.
• Check for failure in outdoor P.C. board (I/F, comp. P.C. board or Fan P.C. board).
• Check for external noise.</td></tr>
<tr><td>80</td><td></td><td>Communication trouble between MCU and Sub MCU</td><td>All stop</td><td>Communication between MCU and Sub MCU stopped.</td><td>• Operation of power supply reset (OFF for 60 seconds or more)
• Outdoor I/F PC board trouble check</td></tr>
<tr><td>F01</td><td>—</td><td>—</td><td>Indoor unit</td><td>Indoor TCJ sensor trouble</td><td>Stop of corresponding unit</td><td>Sensor resistance is infinity or zero (open/short circuit).</td><td>• Check connection of TCJ sensor connector and wiring.
• Check resistance characteristics of TCJ sensor.
• Check for failure in indoor P.C. board.</td></tr>
<tr><td>F02</td><td>—</td><td>—</td><td>Indoor unit</td><td>Indoor TC2 sensor trouble</td><td>Stop of corresponding unit</td><td>Sensor resistance is infinity or zero (open/short circuit).</td><td>• Check connection of TC2 sensor connector and wiring.
• Check resistance characteristics of TC2 sensor.
• Check for failure in indoor P.C. board.</td></tr>
<tr><td>F03</td><td>—</td><td>—</td><td>Indoor unit</td><td>Indoor TC1 sensor trouble</td><td>Stop of corresponding unit</td><td>Sensor resistance is infinity or zero (open/short circuit).</td><td>• Check connection of TC1 sensor connector and wiring.
• Check resistance characteristics of TC1 sensor.
• Check for failure in indoor P.C. board.</td></tr>
<tr><td>F04</td><td>F04</td><td>—</td><td>I/F</td><td>TD1 sensor trouble</td><td>All stop</td><td>Sensor resistance is infinity or zero (open/short circuit).</td><td>• Check connection of TD1 sensor connector.
• Check resistance characteristics of TD1 sensor.
• Check for failure in outdoor P.C. board (I/F).</td></tr>
</table>

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
F05	F05	—	I/F	TD2 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TD2 sensor connector. • Check resistance characteristics of TD2 sensor. • Check for failure in outdoor P.C. board (I/F).
F06	F06	01: TE1 sensor trouble 02: TE2 sensor trouble 03: TE3 sensor trouble	I/F	TE1/TE2/TE3 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TE1/TE2/TE3 sensor connectors. • Check resistance characteristics of TE1/TE2/TE3 sensors. • Check for failure in outdoor P.C. board (I/F).
F07	F07	01: TL1 sensor trouble 02: TL2 sensor trouble 03: TL3 sensor trouble	I/F	TL1/TL2/TL3 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TL1/TL2/TL3 sensor connector. • Check resistance characteristics of TL1/TL2/TL3 sensor. • Check for failure in outdoor P.C. board (I/F).
F08	F08	—	I/F	TO sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TO sensor connector. • Check resistance characteristics of TO sensor. • Check for failure in outdoor P.C. board (I/F).
F09	F09	01: TG1 sensor trouble 02: TG2 sensor trouble 03: TG3 sensor trouble	I/F	TG1/TG2/TG3 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TG1/TG2/TG3 sensor connectors. • Check resistance characteristics of TG1/TG2/TG3 sensors. • Check for failure in outdoor P.C. board (I/F).
F10	—	—	Indoor unit	Indoor TA sensor trouble	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TA sensor connector and wiring. • Check resistance characteristics of TA sensor. • Check for failure in indoor P.C. board.
F11	—	—	Indoor unit	Indoor TF sensor trouble	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TF sensor connector and wiring. • Check resistance characteristics of TF sensor. • Check for failure in indoor P.C. board.
F12	F12	01: TS1 sensor trouble 03: TS3 sensor trouble 04: TS3 sensor disconnect	I/F	TS1/TS3 sensor trouble	All stop	• Sensor resistance is infinity or zero (open/short circuit). • When TS3 detects an unusual temperature during compressor operation and PMV4 operation in cooling mode.	• Check connection of TS1/TS3 sensor connector • Check resistance characteristics of TS1/TS3 sensor. • The attachment check of TS3 sensor. • Check for failure in indoor P.C. board.
F13	F13	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	TH sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Failure in IPM built-in temperature sensor → Replace Compressor P.C. board.
F15	F15	—	I/F	Outdoor temperature sensor wiring trouble (TE1, TL1)	All stop	During compressor operation in HEAT mode, TL1 continuously provides temperature reading higher than indicated by TL1 by at least specified margin for 3 minutes or more.	• Check installation of TE1 and TL1 sensors. • Check resistance characteristics of TE1 and TL1 sensors. • Check for outdoor P.C. board (I/F) trouble

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
F16	F16	—	I/F	Outdoor pressure sensor wiring trouble (Pd, Ps)	All stop	Readings of high-pressure Pd sensor and low-pressure Ps sensor are switched. Output voltages of both sensors are zero.	• Check connection of high-pressure Pd sensor connector. • Check connection of low-pressure Ps sensor connector. • Check for failure in pressure sensors Pd and Ps. • Check for trouble in outdoor P.C. board (I/F). • Check for compressor poor compression.
F23	F23	—	I/F	Ps sensor trouble	All stop	Output voltage of Ps sensor is zero.	• Check for connection trouble involving Ps sensor and Pd sensor connectors. • Check connection of Ps sensor connector. • Check for failure in Ps sensor. • Check for compressor poor compression. • Check for failure in 4-way valve. • Check for failure in outdoor P.C. board (I/F). • Check for failure in SV4 circuit.
F24	F24	—	I/F	Pd sensor trouble	All stop	Output voltage of Pd sensor is zero (sensor open-circuited). Pd > 4.15MPa despite compressor having been turned off.	• Check connection of Pd sensor connector. • Check for failure in Pd sensor. • Check for failure in outdoor P.C. board (I/F).
F29	—	—	Indoor unit	Other indoor trouble	Stop of corresponding unit	Indoor P.C. board does not operate normally.	• Check for failure in indoor P.C. board (failure EEPROM)
F31	F31	—	I/F	Outdoor EEPROM trouble	All stop *1	Outdoor P.C. board (I/F) does not operate normally.	• Check power supply voltage. • Check power supply noise. • Check for failure in outdoor P.C. board (I/F).
H01	H01	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Compressor breakdown	All stop	Inverter current detection circuit detects overcurrent and shuts system down.	• Check power supply voltage. (AC380V ± 10%). • Check for failure in compressor. • Check for possible cause of abnormal overloading. • Check for failure in outdoor P.C. board (Compressor).
H02	H02	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Compressor trouble (lockup) MG-CTT trouble	All stop	Overcurrent is detected several seconds after startup of inverter compressor.	• Check for failure in compressor. • Check power supply voltage. (AC380V ± 10%). • Check compressor system wiring, particularly for open phase. • Check connection of connectors/terminals on compressor P.C. board. • Check conductivity of case heater. (Check for refrigerant problem inside compressor.) • Check for failure in outdoor P.C. board (Compressor). • Check outdoor MG-CTT.
H03	H03	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Current detection circuit trouble	All stop	Current flow of at least specified magnitude is detected despite inverter compressor having been shut turned off.	• Check current detection circuit wiring. • Check failure in outdoor P.C. board (Compressor).

*1 Total shutdown in case of header unit
Continued operation in case of follower unit

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
H05	H05	—	I/F	TD1 sensor miswiring (incomplete insertion)	All stop	Discharge temperature of compressor 1 (TD1) does not increase despite compressor being in operation.	• Check installation of TD1 sensor. • Check connection of TD1 sensor connector and wiring. • Check resistance characteristics of TD1 sensor. • Check for failure in outdoor P.C. board (I/F).
H06	H06	—	I/F	Activation of low-pressure protection	All stop	Low-pressure Ps sensor detects operating pressure lower than 0.02MPa.	• Check service valves to confirm full opening (both gas and liquid sides). • Check outdoor PMVs for clogging (PMV1, 2, 3). • Check for failure in SV4 circuits. • Check for failure in low-pressure Ps sensor. • Check indoor filter for clogging. • Check valve opening status of indoor PMV. • Check refrigerant piping for clogging. • Check operation of outdoor fan (during heating). • Check for insufficiency in refrigerant quantity.
H07	H07	—	I/F	Low oil level protection	All stop	Operating compressor detects continuous state of low oil level for about 2 hours.	<All outdoor units in corresponding line to be checked> • Check connection and installation of TK1 and TK2 sensors. • Check resistance characteristics of TK1 and TK2 sensors. • Check for gas or oil leak in same line. • Check for refrigerant problem inside compressor casing. • Check SV3D, SV3F valves for failure. • Check oil return circuit of oil separator for clogging. • Check oil equalizing circuit for clogging.
H08	H08	01: TK1 sensor trouble 02: TK2 sensor trouble	I/F	Trouble in temperature sensor for oil level detection	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TK1 sensor connector. • Check resistance characteristics of TK1 sensor. • Check for failure in outdoor P.C. board (I/F).
					All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TK2 sensor connector. • Check resistance characteristics of TK2 sensor. • Check for failure in outdoor P.C. board (I/F).
H15	H15	—	I/F	TD2 sensor miswiring (incomplete insertion)	All stop	Discharge temperature of (TD2) does not increase despite compressor 2 being in operation.	• Check installation of TD2 sensor. • Check connection of TD2 sensor connector and wiring. • Check resistance characteristics of TD2 sensor. • Check for failure in outdoor P.C. board (I/F).

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
H16	H16	01: TK1 oil circuit trouble 02: TK2 oil circuit trouble	I/F	Oil level detection circuit trouble	All stop	No temperature change is detected by TK1 despite compressor 1 having been started.	• Check for disconnection of TK1 sensor. • Check resistance characteristics of TK1 sensor. • Check for connection trouble involving TK1 and TK2 sensors • Check for clogging in oil equalizing circuit capillary. • Check for refrigerant entrapment inside compressor.
						No temperature change is detected by TK2 despite compressor 2 having been started.	• Check for disconnection of TK2 sensor. • Check resistance characteristics of TK2 sensor. • Check for connection trouble involving TK1 and TK2 sensors • Check SV3F valve malfunction. • Check for clogging in oil equalizing circuit capillary. • Check for refrigerant entrapment inside compressor.
H17	H17	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Compressor trouble (Step-out)	All stop	Compressor is in step-out condition.	• Check power supply voltage. (AC380V ± 10%). • Check for failure in compressor. • Check for possible cause of abnormal overloading. • Check for failure in outdoor P.C. board (compressor).
L02	L02	Detected indoor unit address	Indoor unit	Outdoor units model disagreement trouble	Stop of corresponding unit	In case of different outdoor unit (Not corresponded to Air to Air Heat Exchanger type)	• Check outdoor unit model. (Check whether the outdoor unit corresponds to Air to Air Heat Exchanger type or not.)
L03	—	—	Indoor unit	Duplicated indoor header unit	Stop of corresponding unit	There are more than one header units in group.	• Check indoor addresses. • Check for any change made to remote controller connection (group/ individual) since indoor address setting.
L04	L04	—	I/F	Duplicated outdoor line address	All stop	There is duplication in line address setting for outdoor units belonging to different refrigerant piping systems.	• Check line addresses.
L05	—	—	I/F	Duplicated priority indoor unit (as displayed on priority indoor unit)	All stop	More than one indoor units have been set up as priority indoor unit.	• Check display on priority indoor unit.
L06	L06	No. of priority indoor units	I/F	Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit)	All stop	More than one indoor units have been set up as priority indoor unit.	• Check displays on priority indoor unit and outdoor unit.
L07	—	—	Indoor unit	Connection of group control cable to standalone indoor unit	Stop of corresponding unit	There is at least one standalone indoor unit to which group control cable is connected.	• Check indoor addresses.
L08	L08	—	Indoor unit	Indoor group / addresses not set	Stop of corresponding unit	Address setting has not been performed for indoor units.	• Check indoor addresses. **Note:** **This code is displayed when power is turned on for the first time after installation.**
L09	—	—	Indoor unit	Indoor capacity not set	Stop of corresponding unit	Capacity setting has not been performed for indoor unit.	Set indoor capacity. (DN = 11)

<table>
<tr><th colspan="3">Check code</th><th rowspan="2">Location of detection</th><th rowspan="2">Description</th><th rowspan="2">System status</th><th rowspan="2">Check code detection condition(s)</th><th rowspan="2">Check items (locations)</th></tr>
<tr><th rowspan="2">Main remote controller</th><th>Outdoor 7-segment display</th></tr>
<tr><th>Check code</th><th>Sub-code</th></tr>
<tr><td>L10</td><td>L10</td><td>—</td><td>I/F</td><td>Outdoor capacity not set</td><td>All stop</td><td>Initial setting of I/F P.C. board has not been implemented.</td><td>• Check model setting of P.C. board for servicing outdoor I/F P.C. board.</td></tr>
<tr><td>L17</td><td>L17</td><td>—</td><td>I/F</td><td>Outdoor model incompatibility trouble</td><td>All stop</td><td>Outdoor unit that cannot be connected is connected.</td><td>• Check the model name of the outdoor unit.</td></tr>
<tr><td>L20</td><td>—</td><td>—</td><td>Network adaptor Indoor unit</td><td>Duplicated central control address</td><td>All stop</td><td>There is duplication in central control address setting.</td><td>• Check central control addresses.</td></tr>
<tr><td>L23</td><td>—</td><td>—</td><td>I/F</td><td>SW setting trouble</td><td>All stop</td><td>Outdoor P.C. board (I/F) does not operate normally.</td><td>• Check switch setting of outdoor P.C. board (I/F).</td></tr>
<tr><td>L28</td><td>L28</td><td>—</td><td>I/F</td><td>Too many outdoor units connected</td><td>All stop</td><td>There are more than 5 outdoor units.</td><td>• Check No. of outdoor units connected (Only up to 5 units per system allowed).
• Check communication lines between outdoor units.
• Check for failure in outdoor P.C. board (I/F).</td></tr>
<tr><td rowspan="2">L29</td><td rowspan="2">L29</td><td><table><tr><th></th><th colspan="4">P.C.board</th></tr><tr><th></th><th colspan="2">Compressor</th><th colspan="2">Fan Motor</th></tr><tr><th></th><th>1</th><th>2</th><th>1</th><th>2</th></tr><tr><td>01</td><td>O</td><td></td><td></td><td></td></tr><tr><td>02</td><td></td><td>O</td><td></td><td></td></tr><tr><td>03</td><td>O</td><td>O</td><td></td><td></td></tr><tr><td>08</td><td></td><td></td><td>O</td><td></td></tr><tr><td>09</td><td>O</td><td></td><td>O</td><td></td></tr><tr><td>0A</td><td></td><td>O</td><td>O</td><td></td></tr><tr><td>0B</td><td>O</td><td>O</td><td>O</td><td></td></tr><tr><td>10</td><td></td><td></td><td></td><td>O</td></tr><tr><td>11</td><td>O</td><td></td><td></td><td>O</td></tr><tr><td>12</td><td></td><td>O</td><td></td><td>O</td></tr><tr><td>13</td><td>O</td><td>O</td><td></td><td>O</td></tr><tr><td>18</td><td></td><td></td><td>O</td><td>O</td></tr><tr><td>19</td><td>O</td><td></td><td>O</td><td>O</td></tr><tr><td>1A</td><td></td><td>O</td><td>O</td><td>O</td></tr><tr><td>1B</td><td>O</td><td>O</td><td>O</td><td>O</td></tr></table>Circle (O): Trouble P.C. board</td><td>I/F</td><td>Trouble in No. of P.C. board</td><td>All stop</td><td>Insufficient number of P.C. board are detected when power is turned on.</td><td>• Check model setting of P.C. board for servicing outdoor I/F P.C. board.
• Check connection of UART communication connector.
• Check compressor P.C. board, fan P.C. board, and I/F P.C. board for failure.</td></tr>
<tr><td>00</td><td>I/F</td><td>The number of inverter P.C. boards is abnormal.</td><td>All stop</td><td>When there is much number of an inverter P.C. board to model setting of an interface P.C. board.</td><td>• Check I/F P.C. board exchange has been correctly performed as a procedure.
• Check for failure in I/F P.C. board.
• Check for inverter P.C. board for compressors and inverter P.C. board for fan</td></tr>
<tr><td>L30</td><td>L30</td><td>Detected indoor address</td><td>Indoor unit</td><td>Indoor external interlock (External abnormal input)</td><td>Stop of corresponding unit</td><td>• Indoor unit has been shut down due to external abnormal input signal.</td><td>When external device is connected:
1) Check for trouble in external device.
2) Check for trouble in indoor P.C. board.
When external device is not connected:
1) Check for trouble in indoor P.C. board.</td></tr>
<tr><td>—</td><td>L31</td><td>—</td><td>I/F</td><td>Extended IC trouble</td><td>Continued operation</td><td>There is part failure in P.C. board (I/F).</td><td>Check outdoor P.C. board (I/F).</td></tr>
<tr><td>P01</td><td>—</td><td>—</td><td>Indoor unit</td><td>Indoor fan motor trouble</td><td>Stop of corresponding unit</td><td></td><td>• Check the lock of fan motor (AC fan).
• Check wiring.</td></tr>
<tr><td>P03</td><td>P03</td><td>—</td><td>I/F</td><td>Discharge temperature TD1 trouble</td><td>All stop</td><td>Discharge temperature (TD1) exceeds 115 ˚C.</td><td>• Check outdoor service valves (gas side, liquid side) to confirm full opening.
• Check outdoor PMVs (PMV1, 2, 3, 4) for clogging.
• Check resistance characteristics of TD1 sensor.
• Check for insufficiency in refrigerant quantity.
• Check for failure in 4-way valve.
• Check for leakage of SV4 circuit.
• Check SV4 circuit (wiring or installation trouble in SV41 or SV42).</td></tr>
</table>

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
P04	P04	01: Compressor 1 side 02: Compressor 2 side	I/F	Activation of high-pressure SW	All stop	High-pressure SW is activated.	• Check connection of high-pressure SW connector. • Check for failure in Pd pressure sensor. • Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check for failure in outdoor fan. • Check for failure in outdoor fan motor. • Check outdoor PMVs (PMV1, 2, 3) for clogging. • Check indoor/outdoor heat exchangers for clogging. • Check for short-circuiting of outdoor suction/discharge air flows. • Check for failure in outdoor P.C. board (I/F). • Check for trouble in indoor fan system (possible cause of air flow reduction). • Check opening status of indoor PMV. • Check indoor-outdoor communication line for wiring trouble. • Check for failure operation of check valve in discharge pipe convergent section. • Check gas balancing SV4 valve circuit. • Check for refrigerant overcharging.
P05	P05	00: Power detection trouble 01: Open phase 02: Power supply miswiring	I/F	Power detection trouble / Open phase detection / Power supply miswiring	All stop	• Open phase is detected when power is turned on. • Inverter DC voltage is too high (overvoltage) or too low (undervoltage).	• Check for failure in outdoor P.C. board (I/F). • Check wiring of outdoor power supply. • Check power supply voltage.
		1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Compressor Vdc trouble			
P07	P07	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Heat sink overheating trouble	All stop	Temperature sensor built into IPM (TH) is overheated.	• Check outdoor fan system trouble. • Check IPM and heat sink for thermal performance for failure installation. (e.g. mounting screws and thermal conductivity) • Check for failure in Compressor P.C. board. (failure IPM built-in temperature sensor (TH))
		01: Compressor 1 heat sink trouble 02: Compressor 2 heat sink trouble 04: Heat sink dewing	I/F	Heat sink overheating trouble Heat sink dewing trouble	All stop	Condensation detection on heat sink has occurred four times or more in operation. Temperature sensor built into IPM (TH) is overheated.	• Check outdoor fan system trouble. • Check IPM and heat sink for thermal performance for troubled installation. (e. g. mounting screws and thermal conductivity) • Check for failure in compressor P.C. board. (failure IPM built-in temperature sensor (TH)) • Check shortage of refrigerant. • Check outdoor service valves. • Check connection of TL2 sensor. • Check resistance characteristics of TL2 sensor. • Check resistance characteristics of TO sensor. • Check malfunctions of Pd and Ps sensors. • Check outdoor I/F P.C. board malfunction. • Check PMV2 and PMV3

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
P10	P10	Detected indoor address	Indoor unit	Indoor overflow trouble	All stop	• Float switch operates. • Float switch circuit is open-circuited or disconnected at connector.	• Check float switch connector. • Check operation of drain pump. • Check drain pump circuit. • Check drain pipe for clogging. • Check for failure in indoor P.C. board.
P11	—	—	I/F	Outdoor heat exchanger freeze trouble	All stop	• Outdoor heat exchanger remaining frost detection has occurred eight times or more due to abnormal frost formation in heating operation.	• Check shortage of refrigerant. • Check connection of TE1, TE2 and TE3 sensors. • Check resistance characteristics of TE1, TE2, and TE3 sensors. • Check disconnection of TS1 sensor. • Check resistance characteristics of TS1 sensor. • Check outdoor I/F P.C. board malfunction. • Check operation of 4 way valve. • Check operation of outdoor PMV (1, 2, 3). • Check short circuit from outlet air to inlet air.
P12	—	—	Indoor unit	Indoor fan motor trouble	Stop of corresponding unit	• Motor speed measurements continuously deviate from target value. • Overcurrent protection is activated.	• Check connection of fan connector and wiring. • Check for failure in fan motor. • Check for failure in indoor P.C. board. • Check impact of outside air treatment (OA).
P13	P13	—	I/F	Outdoor liquid backflow detection trouble	All stop	<During cooling operation> When system is in cooling operation, high pressure is detected in the unit that has been turned off. <During heating operation> When system is in heating operation, low pressure is detected to be high in unit that has been turned off.	• Check full-close operation of outdoor PMV (1, 2, 3, 4). • Check for failure in Pd or Ps sensor. • Check failure in outdoor P.C. board (I/F). • Check capillary of oil separator oil return circuit for clogging. • Check for leakage of check valve in discharge pipe
P15	P15	01: TS condition	I/F	Gas leak detection (TS1 condition)	All stop	Protective shutdown due to sustained suction temperature at or above judgment criterion for at least 10 minutes is repeated four times or more. <TS trouble judgment criterion> In cooling operation: 60 ˚C In heating operation: 40 ˚C	• Check for insufficiency in refrigerant quantity. • Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check PMVs (PMV1, 2, 3, 4) for clogging. • Check resistance characteristics of TS1 sensor. • Check for failure in 4-way valve. • Check SV4 circuit for leakage
		02: TD condition	I/F	Gas leak detection (TD condition)	All stop	Protective shutdown due to sustained discharge temperature (TD1 or TD2) at or above 108 ˚C for at least 10 minutes is repeated four times or more.	• Check for insufficiency in refrigerant quantity. • Check PMVs (PMV 1, 2, 3, 4) for clogging. • Check resistance characteristics of TD1 and TD2 sensors. • Check indoor filter for clogging. • Check piping for clogging. • Check SV4 circuit (for leakage or coil installation trouble).

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
P17	P17	—	I/F	Discharge temperature TD2 trouble	All stop	Discharge temperature (TD2) exceeds 115 ˚C.	• Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check outdoor PMVs (PMV1, 2, 3, 4) for clogging. • Check resistance characteristics of TD2 sensor. • Check for failure in 4-way valve. • Check SV4 circuit for leakage. • Check SV4 circuit (for wiring or installation trouble involving SV41 and SV42).
P19	P19	Detected outdoor unit No.	I/F	4-way valve reversing trouble	All stop	Abnormal refrigerating cycle data is collected during heating operation.	• Check for failure in main body of 4-way valve. • Check for coil failure in 4-way valve and loose connection of its connector. • Check resistance characteristics of TS1 and TE1,TE2 sensors. • Check output voltage characteristics of Pd and Ps pressure sensors. • Check for wiring trouble involving TE1 and TL1 sensors.
P20	P20	—	I/F	Activation of high-pressure protection	All stop	<During cooling operation> Pd sensor detects pressure equal to or greater than 3.85 MPa. <During heating operation> Pd sensor detects pressure equal to or greater than 3.6 MPa.	• Check for failure in Pd pressure sensor. • Check service valves (gas side, liquid side) to confirm full opening. • Check for failure in outdoor fan. • Check for failure in outdoor fan motor. • Check outdoor PMV (PMV1, 2, 3, 4) for clogging. • Check indoor/outdoor heat exchangers for clogging. • Check for short-circuiting of outdoor suction/ discharge air flows. • Check for failure in outdoor P.C. board (I/F). • Check for failure in indoor fan system (possible cause of air flow reduction). • Check opening status of indoor PMV. • Check indoor-outdoor communication line for wiring trouble. • Check for troble operation of check valve in discharge pipe convergent section. • Check gas balancing SV4 valve circuit. • Check for refrigerant overcharging.

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
P22	P22	1∗: Fan P.C. board 1 2∗: Fan P.C. board 2	Fan INV. P.C. board	Outdoor fan P.C. board trouble	All stop	Protected operation of Fan inverter P.C. board	• Check fan motor. • Check for failure in fan P.C. board. • Check connection of fan motor connector. • Check power voltage of the main power supply.
P26	P26	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	IPM, Compressor shortcircuit protection trouble	All stop	Overcurrent is momentarily detected during startup of compressor.	• Check connector connection and wiring on compressor P.C. board. • Check for failure in compressor (layer shortcircuit). • Check for failure in outdoor P.C. board (Compressor).
P29	P29	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Compressor position detection circuit trouble	All stop	Position detection is not going on normally.	• Check wiring and connector connection. • Check for compressor layer short-circuit. • Check for failure in compressor P.C. board.
P31	—	—	Indoor unit	Other indoor trouble (group follower unit trouble)	Stop of corresponding unit	There is trouble in other indoor unit in group, resulting in detection of E07/L07/L03/L08.	• Check indoor P.C. board.

Check codes Detected by Central Control Device

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
C05	—		Central control device	Central control device transmission trouble	Continued operation	Central control device is unable to transmit signal.	• Check for failure in central control device. • Check for failure in central control communication line. • Check termination resistance setting.
C06	—		Central control device	Central control device reception trouble	Continued operation	Central control device is unable to receive signal.	• Check for failure in central control device. • Check for failure in central control communication line. • Check terminator resistor setting. • Check power supply for devices at other end of central control communication line. • Check failure in P.C. boards of devices at other end of central control communication line.
C12	—		General-purpose device I/F	Batch alarm for general-purpose device control interface	Continued operation	Trouble signal is input to control interface for general-purpose devices.	• Check trouble input.
P30	Differs according to nature of alarm-causing trouble		Central control device	Group control follower unit trouble	Continued operation	Trouble occurs in follower unit under group control. ([P30] is displayed on central control remote controller.)	• Check check code of unit that has generated alarm.
	(L20 displayed.)			Duplicated central control address	Continued operation	There is duplication in central control addresses.	• Check address settings.

▼ Points to Note When Servicing Compressor

(1) When checking the outputs of inverters, remove the wiring from all the compressors.

▼ How to Check Inverter Output

(1) Turn off the power supply.

(2) Remove compressor leads from the compressor P.C. board.
(The model with two compressor should remove the wiring for two sets (6 leads).

(3) Turn on the power supply and start cooling or heating operation.

(4) Check the output voltage across each pair of inverter-side. If the result is unsatisfactory according to the judgment criteria given in the table below, replace the compressor P.C. board.

No.	Measured leads	Criterion
1	CN201 - CN202	380~580V
2	CN202 - CN203	380~580V
3	CN203 - CN201	380~580V

▼ How to Check Resistance of Compressor Winding

(1) Turn off the power supply.

(2) Remove compressor leads from the compressor P.C. board. (Be sure to remove all the leads.)

(3) With each compressor, check the phase-to-phase winding resistances and winding-to-outdoor cabinet resistance using a multimeter.

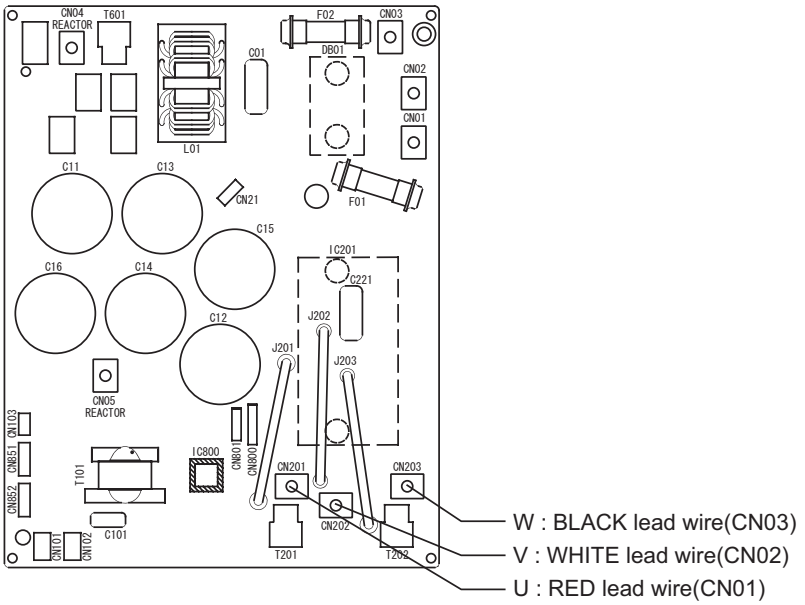
- Earth trouble?
  → It is normal if the winding-to-outdoor cabinet resistance is 10MΩ or more.
- Inter-winding short circuit?
  → It is normal if the phase-to-phase resistances are in the 0.1-1.0Ω range. (Use a digital multimeter.)

▼ How to Check Outdoor Fan Motor

(1) Turn off the power supply.

(2) Remove fan motor leads from the fan P.C. board for the outdoor fan.

(3) Rotate the fan by hand. If the fan does not turn, the fan motor is troubled (locked up). Replace the fan motor. If the fan turns, measure the phase-to-phase winding resistances using a multimeter. It is normal if the measurements are in the 8.1-9.9Ω range. (Use a digital multimeter.)



7. Applied Control of Indoor Unit

Control system using Remote location ON/OFF control box (TCB-IFCB-4E2)
Wiring and setting

- In the case of group control, the control system functions as long as it is connected to one of the indoor units (control P.C. board) in the group. If it is desired to access the operation and trouble statuses of other units, relevant signals must be brought to it from those units individually.

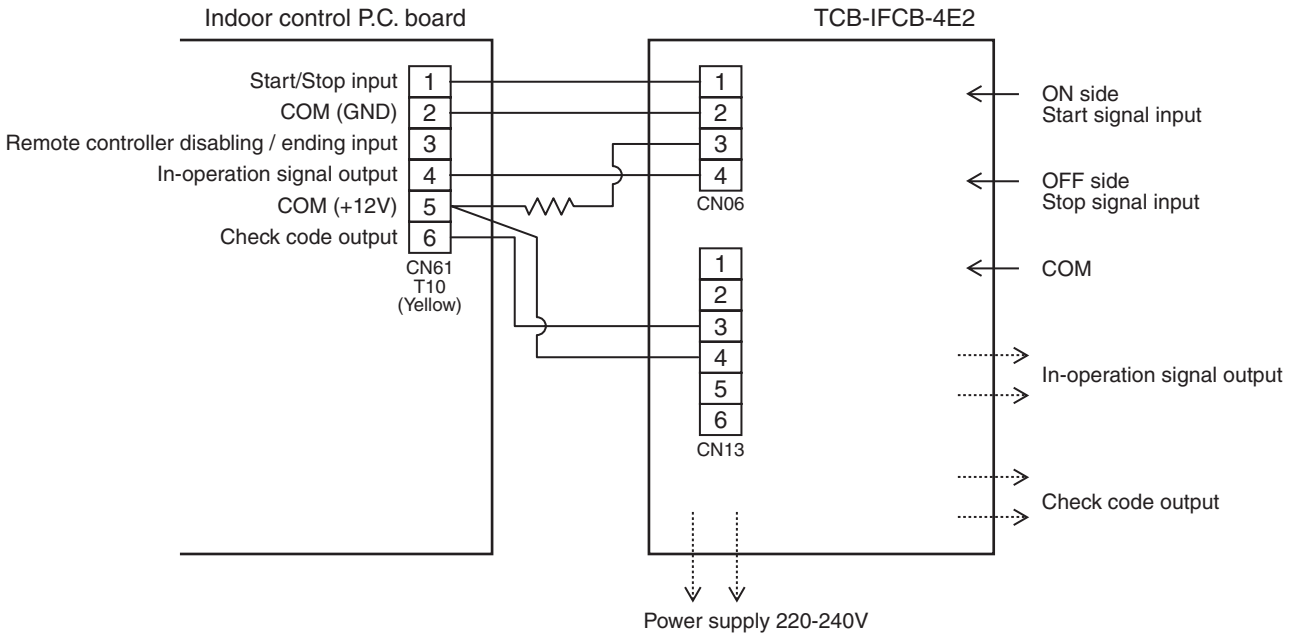
▼ Control items

(1) Start / Stop input signal	Start / stop of unit
(2) In-operation signal	Output present while unit in normal operation
(3) Check code Output	present while alarm (e.g. serial communication trouble or operation of protective device for indoor / outdoor unit) being activated

▼ Wiring diagram of control system using Remote location ON/OFF control box (TCB-IFCB-4E2)

Input IFCB-4E2: No-voltage ON / OFF serial signal

Output No-voltage contact (in-operation and check code indication)
Contact capacity: Max. AC 240 V, 0.5 A



▼Ventilating fan control from remote controller

[Function]

- The start / stop operation can be operated from the wired remote controller when air to air heat exchanger or ventilating fan is installed in the system.
- The fan can be operated even if the indoor unit is not operating.
- Use a fan which can receive the no-voltage normally-open contact as an outside input signal.
- In a group control, the units are collectively operated and they cannot be individually operated.

1. Operation

Handle a wired remote controller in the following procedure.

* Use the wired remote controller during stop of the system.

* Be sure to set up the wired remote controller to the header unit. (Same in group control)

* In a group control, if the wired remote controller is set up to the header unit, both header and follower units are simultaneously operable.

<RBC-AMT32E>

1 **Push concurrently SET + CL + TEST buttons for 4 seconds or more.**

The unit No. displayed firstly indicates the header indoor unit address in the group control.
In this time, the fan of the selected indoor unit turns on.

2 **Every pushing UNIT LOUVER button (left side of the button), the indoor unit numbers in group control are displayed successively.**

In this time, the fan of the selected indoor unit only turns on.

3 **Using the setup temp ▼ or ▲ button, specify the CODE No. 31.**

4 **Using the timer time ▼ or ▲ button, select the SET DATA. (At shipment: 0000)**

The setup data are as follows:

SET DATA	Handling of operation of air to air heat exchanger or ventilating fan
0000	Unavailable (At shipment)
0001	Available

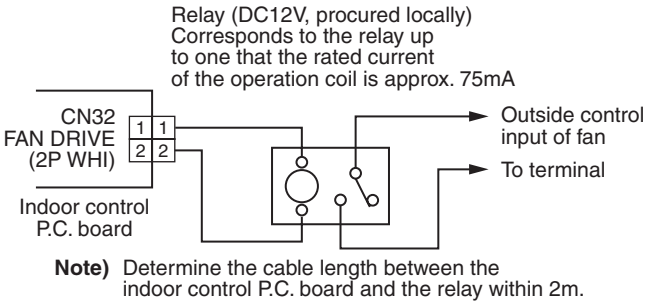
5 **Push SET button. (OK if display goes on.)**

- To change the selected indoor unit, go to the procedure ***2***).
- To change the item to be set up, go to the procedure ***3***).

6 **Pushing TEST returns the status to the usual stop status.**

* The ventilating fan control may be unavailable depending on the remote controllers.
(RBC-ASCU11-C does not have this function.)

2. Wiring



Note) Determine the cable length between the indoor control P.C. board and the relay within 2m.

▼ Auto-off feature control

[Function]

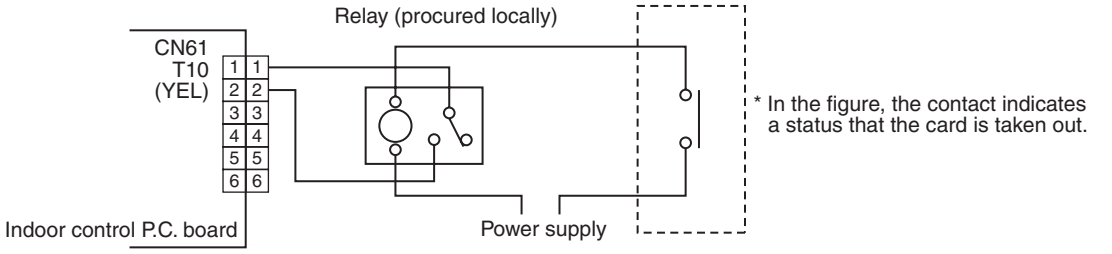
- This function controls the indoor units individually. It is used when the start operation from outside is unnecessary but the stop operation is necessary.
- A card switch box or card lock helps protect customers from forgetting to turn off the indoor unit. (not including the following Card Input 2)
- It is connected with connector on the indoor control P.C. board, and switched with the Code No. and jumper wire setup for use.
- Available connectors are CN61 or CN73. For models without CN73, CN4 on the optional Application control kit (TCB-PCUC2E) can be used.

* Leaving-ON prevention control cannot be set with both CN61 and CN73 (CN4). If both of them are set, CN73 (CN4) setting automatically turns to a factory default.

[Setup method]

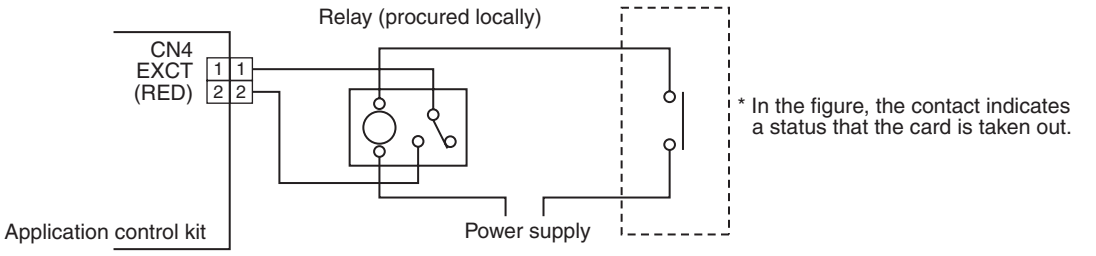
(1) Wiring

Connecting to the CN61 connector



NOTE) Determine the cable length between the indoor control P.C. board and the relay within 3m.

Connecting to the Application control kit (TCB-PCUC2E, connector : CN4)



NOTE) Determine the cable length between the indoor control P.C. board and the relay within 3m.

(2) Code (DN) setup

Set Code (DN) according to "**Indoor unit function Code No. (DN Code) table**".

Connector	Jumper wire (J01)	Code No. (DN)	Set data	Function
CN61	Short-circuit (Factory default)	002E	0000 (Factory default)	"HA normal setup" (pulse)
			0001	"Card Input 1" setup
			0003	"Card Input 2" setup
	Open-circuit (cut)		0000 (Factory default)	"HA normal setup" (Static)
			0001	"Card Input 3" setup
			0003	"Card Input 4" setup
CN73 (CN4)	Short-circuit (Factory default) or Open-circuit (cut)	000b	0000 (Factory default)	"EXCT demand" setup (Forced thermostat-OFF)
			0002	"Card Input 3" setup
			0004	"Card Input 4" setup

* If you set "Card Input 1 to 4" for Code No. of CN61 and CN73, Code No. 000b setup becomes unavailable and the functions of Card Input 3 or 4 in CN73 cannot be used.

[Control items]

Code No. (DN)	Code No. (DN)	
	ON (Status that card is inserted)	OFF (Status that card is taken out)
Card Input 1	Manual prohibition release (Manual operation)	Manual prohibition (Operation stop)
Card Input 2	Manual prohibition release (Automatic operation)	Manual prohibition (Operation stop)
Card Input 3	Operation status continues (Do nothing)	Operation status continues and setting temperature changes (COOL/DRY: 29ºC, HEAT: 18ºC)
Card Input 4	Manual prohibition release (The status returns to operating condition before removing the card.)	Manual prohibition (Operation stop)

* For the card switch box that does not involve contact operation described above, convert signals with a relay including a normally-closed contact.

■ Power peak-cut from indoor unit

When the relay is turned on, a forced thermostat OFF operation starts.

- For indoor P.C. boards other than MCC-1643, the “EXCT” is input with connector CN73 on the P.C. board. MCC-1643 requires Application control kit (TCB-PCUC2E) for input of a forced thermostat OFF “EXCT”. Please refer to the manual of Application control kit for a detailed setting.

8. Applied Control for Outdoor Unit

The outdoor fan high static pressure support and priority operation mode setting (cooling / heating / number of units / or priority indoor unit) functions are available by setting relevant switches provided on the interface P.C. board of the outdoor unit.

8-1. Outdoor Fan High Static Pressure Shift

Setup

Change the outdoor DN code (O. DN [19]) into “Outdoor Fan High Static Pressure operation”.
This function must be enabled with every discharge duct connected outdoor unit for both of the header and follower units.

Outdoor DN Code (O.DN) Setting Operation	Operation
O.DN [19] = 0000	Normal operation
O.DN [19] = 0001	Outdoor Fan High Static Pressure operation

Purpose/characteristics

Specifications

Increase the speed of the propeller fan units on the outdoor fan to allow the installation of a duct with a maximum external static pressure not greater than specified in the table below. If a discharge duct with a resistance greater than 15 Pa (1.5 mmAq) is to be used, enable this function. The maximum external static pressures of single units are shown below (Table 1). In the case of combined use of multiple outdoor units, set all the units to the same maximum external static pressure as the one with the lowest maximum external static pressure.

Model	MMY-MUP()HT8-C	0801	1001	1201	1401	14A1
Maximum external static pressure	(Pa)	80	80	80	80	80
(∗) Outdoor unit air flow	(m^3/min)	165	175	195	198	230
Model	MMY-MUP()HT8-C	1601	1801	2001	2201	2401
Maximum external static pressure	(Pa)	80	80	80	80	80
(∗) Outdoor unit air flow	(m^3/min)	255	280	265	275	275

Table 1: Maximum External Static Pressures of Single Outdoor Units
(∗) Calculate duct resistance from outdoor unit air flow.

8-2. Priority Operation Mode Setting

Purpose/characteristics

This function allows switching between priority cooling and priority heating.

Four patterns of priority operation mode setting are available as shown in the table below. Select a suitable priority mode according to the needs of the customer.

Setup

⚠ CAUTION

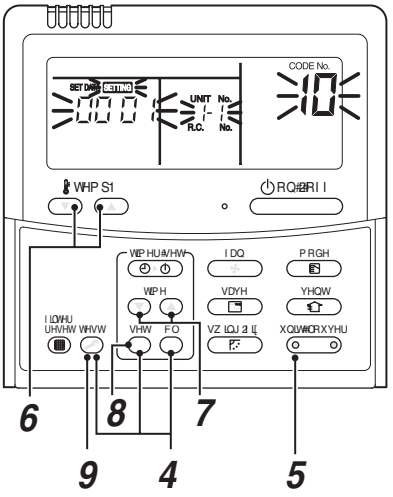
In the case of the priority indoor unit mode, it is necessary to set up the specific indoor unit chosen for priority operation
(a single unit only).

(1) Outdoor unit setup method (header unit)

Outdoor DN Code (O.DN) Setting	Operation
O.DN [18] = 0000	Priority heating (factory default)
O.DN [18] = 0001	Priority cooling
O.DN [18] = 0002	Priority operation based on No. of units in operation (priority given to the operation mode with the largest share of units in operation)
O.DN [18] = 0003	Priority indoor unit (priority given to the operation mode of the specific indoor unit set up for priority operation)

(2) Indoor unit setup method for priority indoor unit mode
The setting can be changed only when the system is at rest. (Be sure to turn off the system prior to this operation.)

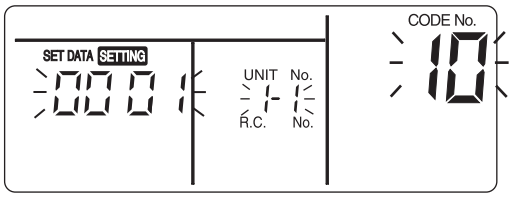
<RBC-AMT32E>



1 Push the TEST + SET + CL buttons simultaneously and hold for at least 4 seconds. The display window will start flashing in a little while.

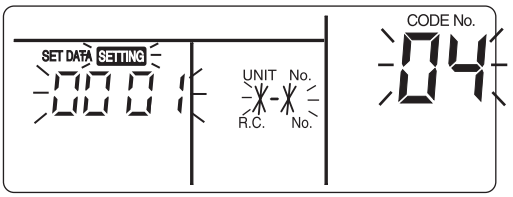
Verify that the displayed CODE No. is 10.

- If the displayed CODE No. is not 10, press the TEST button to erase the display and repeat the procedure from the beginning.
  (Note that the system does not respond to remote controller operation for about 1 minute after the TEST button is pushed.)
  (In the case of group control, the indoor unit No. displayed first indicates the header unit.)



2 Each time the UNIT LOUVER button is pushed, one of the indoor unit Nos. under group control is displayed in turn. Select the indoor unit whose setting is to be changed.

The fan and flap of the selected indoor unit then come on, so that the position of this unit can be confirmed.



3 Use the TEMP. button to select the CODE No. 04.

4 Use the TIME button to select the SET DATA 0001.

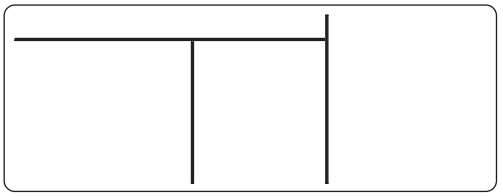
Priority set 0001 No priority set 0000

5 Push the SET button.

The setup is finished when the display changes from flashing to steady.

6 Upon finishing the setup, push the TEST button. (This finalizes the setting.)

When the TEST button is pushed, the display goes blank, and the system returns to normal off state.
(Note that the system does not respond to remote controller operation for about 1 minute after the TEST button is pushed.)



NOTE

Priority can be given to only one indoor unit. If more than one indoor unit is accidentally set to priority, an check code
(L5 or L6: Duplicated indoor unit priority setting) will be displayed.
All units displaying L5 have been set to 0001 (priority). Keep the unit to which priority should be given as it is, and change the value back to 0000 (no priority) for all the rest.

Check code	Description
L5	Duplicated indoor unit priority setting (The unit is set to 0001.)
L6	Duplicated indoor unit priority setting (The unit is set to 0000.)

8-3. Applied Control of Outdoor Unit

Optional control P.C. boards provide access to a range of functions as listed below.

No.	Function	Outdoor unit for control P.C. board Connection	Control P.C. board to be used			Outdoor unit interface P.C. board setting*			
			TCB-PCDM4E	TCB-PCMO4E	TCB-PCIN4E	Connector No.	DIP SW No.	Bit ON	Outdoor unit DN Code (O.DN)
1	Power peak-cut Control (Standard) *Limit a maximum capacity	Header unit	✓	—	—	CN513 (blue)	—	—	[009]=0 (Factory default)
	Power peak-cut Control (Standard) *Limit a maximum power	Header unit	✓	—	—	CN513 (blue)	—	—	[009]=1
	Power peak-cut Control (For one input function) *Limit a maximum capacity	Header unit	✓	—	—	CN513 (blue)	SW105	1	[009]=0 (Factory default)
	Power peak-cut Control (For one input function) *Limit a maximum power	Header unit	✓	—	—	CN513 (blue)	SW105	1	[009]=1
2	Power peak-cut Control (Enhanced Function) *Limit a maximum capacity	Header unit	✓	—	—	CN513 (blue)	SW105	2	[009]=0 (Factory default)
	Power peak-cut Control (Enhanced Function) *Limit a maximum power	Header unit	✓	—	—	CN513 (blue)	SW105	2	[009]=1
3	Snowfall Fan Control	Header unit	—	✓	—	CN509 (black)	—	—	—
4	External master ON/OFF Control	Header unit	—	✓	—	CN512 (blue)	—	—	—
5	Night operation (Sound reduction) Control	Header unit	—	✓	—	CN508 (red)	—	—	—
6	Operation Mode Selection Control	Header unit	—	✓	—	CN510 (white)	—	—	[008]=0 (Factory default)
	Operation Mode Selection Control (forced choice)	Header unit	—	✓	—	CN510 (white)	—	—	[008]=1
7	Trouble/Operation output	Header unit	—	—	✓	CN511 (green)	—	—	—
8	Compressor Operation Output	Individual outdoor unit	—	—	✓	CN514 (green)	—	—	[012]=0 (Factory default)
9	Operating Rate Output	Header unit	—	—	✓	CN514 (green)	—	—	[012]=1

To limit a maximum power, set the outdoor unit O.DN code to [009]=1, and set the criteria value of a maximum power consumption with O.DN code [00A], [00B], [00C] and [00D]. Input the values for both cooling and heating.
Outdoor unit DN Code (O.DN) [00C], [00D]
Criteria value setting for a maximum cooling power
(e.g.) When the maximum standard value of cooling power consumption is set as 19.35 kW = 19.35kW

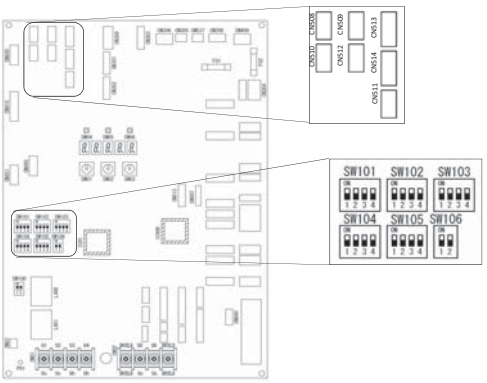
Outdoor unit DN Code (O.DN)	[00C]	[00D]
Value	19	35

Outdoor unit DN Code (O.DN) [00A], [00B]
Criteria value setting for a maximum heating power
(e.g.) When the maximum standard value of heating power consumption is set as 14.00 kW = 14.00kW

Outdoor unit DN Code (O.DN)	[00A]	[00B]
Value	14	00

Layout of Outdoor Unit Interface P.C. Board

***** For Applicable controls, switch the DIP SW on the P.C. board or set the outdoor unit O.DN.



8-4. Notice Code

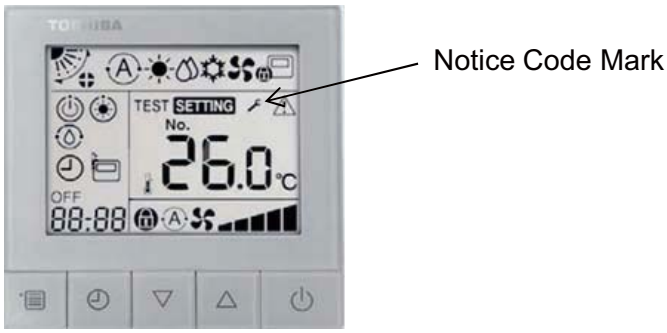
- Notice Code is a function only in TC2U-Link communication.
- When the outdoor or indoor unit detects its conditions requiring caution or maintenance, this function notices you to check your units with the spanner mark (Notice code mark) on the wired remote controller or central controller display.
- Even while the notice code mark is displayed, the air conditioner can operate normally.
- A maximum of five notice codes can be issued simultaneously in one system (line).

1. Notice Code Mark Display on Wired Remote Controller

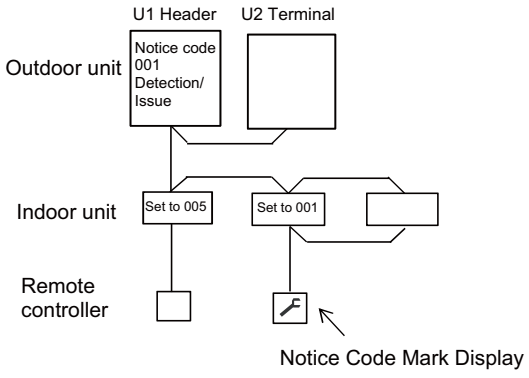
Set the notice codes from remote controller so that the notice code mark is displayed on the remote controller display when the outdoor unit issues the notice codes.
Please follow the steps below to set the notice code on the unit.

(1) Set the notice codes, which will be displayed, on the Indoor unit DN Code (I. DN) “180” to “189” from the remote controller.
Enter one of the notice codes for each DN Code. You can set it on any of “180” to “189”.
A maximum 10 types of the notice codes can be set on a single indoor unit.

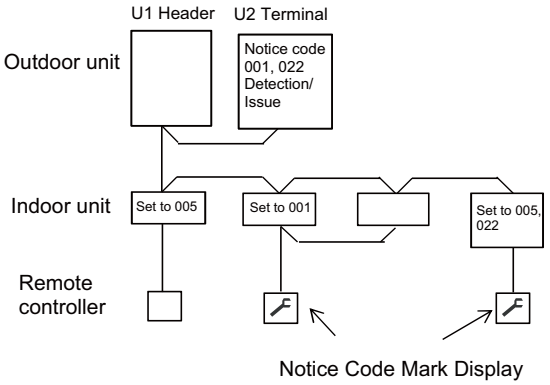
(2) A notice code mark will be displayed on the remote controller when any of the 10 notice codes set is received into the remote controller.
If the notice code that is not set is received, a notice code mark is not displayed.
Set the notice code that you want from the remote controller.



e.g. 1 . When the U1 outdoor unit detects and issues the notice code "001", the notice code mark is displayed remote controller connected to the indoor unit on on the which the "001" was set.



e.g. 2. When the U2 outdoor unit detects and issues the notice code "001" or "022", the notice code mark is displayed on the remote controller connected to the indoor unit on which the "001" or "022" were set.



2. Notice Code Display (7-segment display) on Outdoor Interface P.C. Board

The notice codes detected or issued from the outdoor unit can be confirmed with 7-segment display on the P.C. board.
(The notice codes detected or issued from the other outdoor unit cannot be displayed.)

(1) Displaying the notice code being issued now
Setting the SW01, SW02, SW03 to 1, 1, 14 respectively displays the notice code being issued from the outdoor unit on the 7-segment display 7-segment display [n. 1. . ∗∗∗] ∗∗∗ : Notice code
Every time SW04 is pushed for 1-second, the display changes and the second notice code or each subsequent code is displayed (up to fifth code).
[n. 1. ∗∗∗] (First) to [n. 2. ∗∗∗] (Second) to • • • to [n. 5. ∗∗∗] (Fifth) to [n. 1. ∗∗∗] (First)

(2) Displaying the notice code history
Setting the SW01, SW02, SW03 to 1, 2, 14 respectively displays the notice code history being issued from the outdoor unit on the 7-segmen 7-segment display [h. 1. ∗∗∗] ∗∗∗ : Notice code
Every time SW04 is pushed for 1-second, the display changes and the second notice code or each subsequent code is displayed (up to tenth code history).
[h. 1. ∗∗∗] (First) to [h. 2. ∗∗∗] (Second) • • • to [h. A. ∗∗∗] (Tenth) to [h. 1. ∗∗∗] (First)

(3) Clearing the notice code history
To clear the notice code history recorded in the outdoor unit, follow the steps below.
Set the SW01, SW02, SW03 to 2, 15, 8 respectively.
7-segment display [n. c]
When SW04 is pushed and held for 5-second, the notice code histories recorded in the outdoor unit are cleared.
7-segment display [n. c C L]

3. Notice Code List

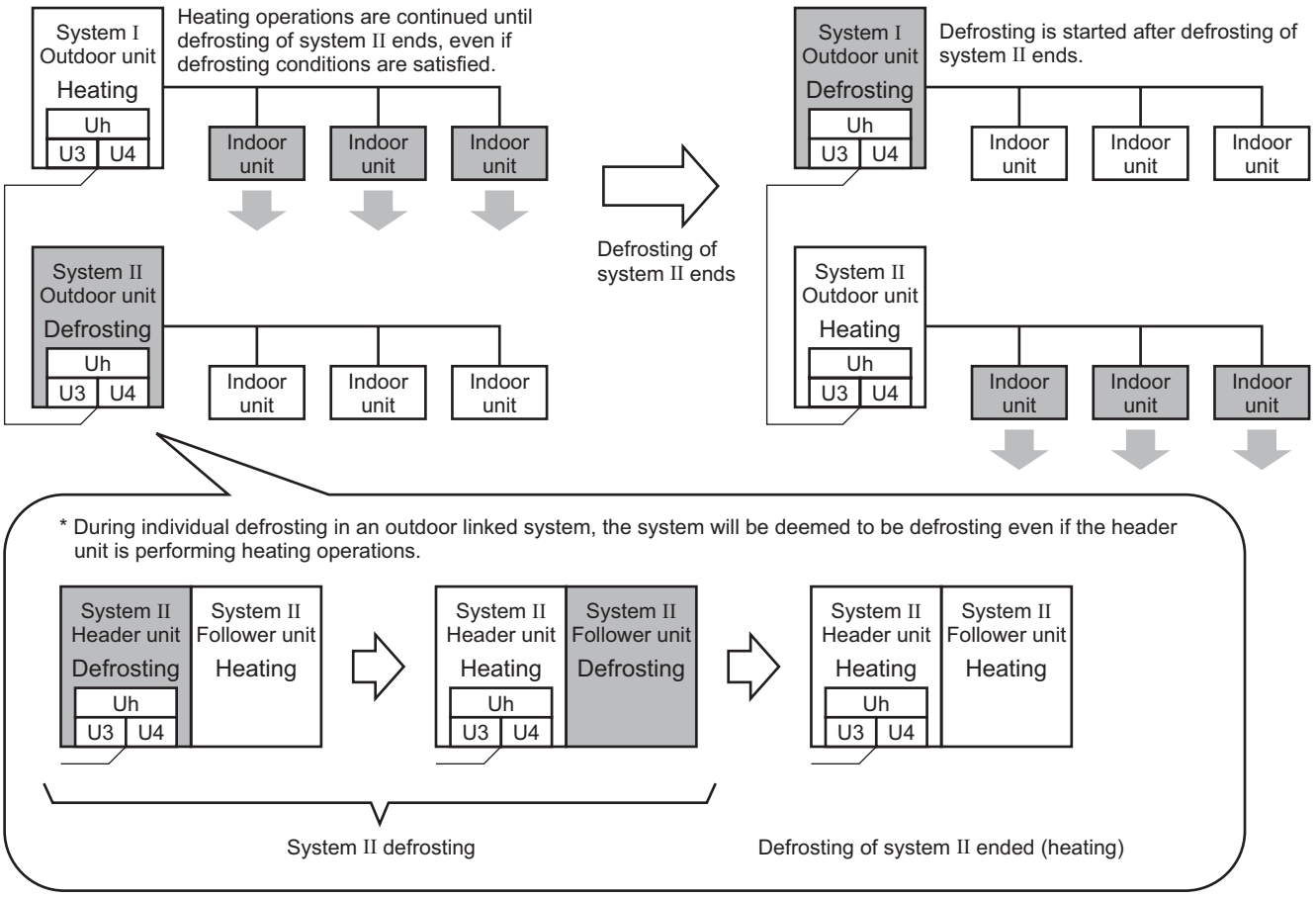
Notice code No.	Item	Content
001	Compressor maintenance timer over	This notice code is detected or issued from the outdoor unit when the actual operation cumulative time of comp.1 or comp.2 exceeds the compressor maintenance time set. The compressor maintenance time is not set at the factory. To use the notice code, set the compressor maintenance time* on O.DN"007".
022	NFC tag wiring trouble	This notice code is detected or issued from the outdoor unit when NFC tag is removed, failed, or cannot communicate with the outdoor interface P.C. board. The notice code stops when NFC tag communication recovers. (Note) A notice code [022] may be issued when connecting equipment to CN800 of the outdoor interface P.C. board, but this is not a faulty connection or a failure. Issuing of the notice code [022] will stop when the equipment is removed from the CN800 and the power of the outdoor unit is turned off. Determination of NFC tag failure should be performed in a state where no equipment is connected to the CN800.

***** Setting the compressor maintenance time to detect the time exceeded
Enter the compressor maintenance time to be detected as time over into Outdoor unit DN Code (O.DN) “007”.
Input values ×1,000=Detection time
e.g. When O.DN [007]=20 is set
20 × 1,000=20,000 hours • • • The notice code “001” is detected and issued when the actual operation cumulative time of comp.1 or comp.2 will exceed 20,000 hours.

8-5. System Cooperation Defrosting

■ Overview

This is a function in which two systems or three systems of SMMS-u are communicably connected, and the timing of defrosting at each system is offset.
Installing an indoor device of a different system in the same room and performing system cooperation defrosting



suppresses the room temperature from dropping while defrosting.

* In this section, system addresses are indicated by Roman numerals (Ⅰ, Ⅱ, Ⅲ…), to differentiate from system cooperation defrosting setup addresses.

■ Setup method

(1) Connect the header units of systems to perform system cooperation defrosting to each other by Uh (U3, U4) (Central control).

(2) Set the outdoor DN code (O. DN) [01D], [01E], [01F] to the header unit in each system by the following setup method. (Setting the outdoor DN code (O. DN) to follower unit is not necessary.)

1) Decide a master unit and vassal units from header units of each of the systems, and set the master unit to [01F] = 0001, and the vassal units to [01F] = 0002 or 0003.

2) Set the outdoor DN code [01E] of each header unit to 0001.
When using the central controller for system cooperation defrosting control, set to 0001 through 0128 in accordance with the manual for the central controller.

3) Set the number of systems performing defrosting cooperation (0002 or 0003) in the [01D] of the outdoor unit set to be the master unit.

Outdoor DN code	Item	Description	At shipment
01d	System cooperation defrosting settings 1 (number cooperating)	0000 : None (vassal) 0001 : Prohibition 0002 : 2-system cooperation (master unit) 0003 : 3-system cooperation (master unit) * set [01D] = 0002 or 0003 to outdoor unit set to master unit in outdoor DN code [01F]	0000: None (vassal)
01E	System cooperation defrosting settings 2 (zone address)	0000 : None 0001 to 0128: Addresses 0001 when not using central controller for control for system cooperation defrosting, 0001 to 0128 when using central controller	0000: None
01F	System cooperation defrosting settings 3 (cooperation address)	0000: None 0001: Master unit 0002 or 0003: Vassal units 2 or 3	0000: None

(3) Reset power supply of outdoor unit, and setup is complete.

<Wiring and setup examples>

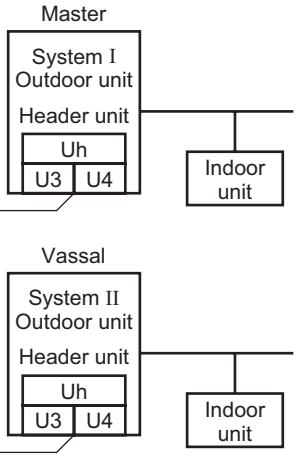
2-system setup

System I header unit

Outdoor DN code	Setting value
[01D]	2
[01E]	1
[01F]	1

System II header unit

Outdoor DN code	Setting value
[01D]	0
[01E]	1
[01F]	2



3-system setup

System I header unit

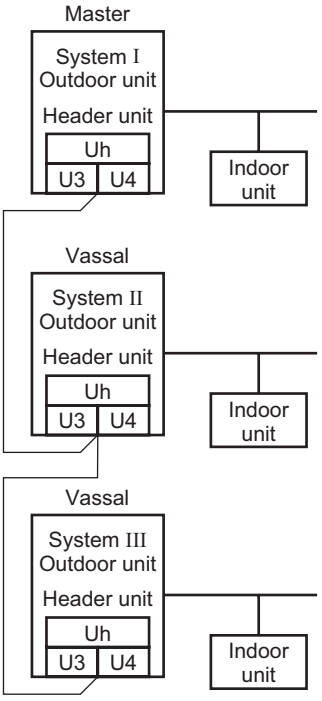
Outdoor DN code	Setting value
[01D]	3
[01E]	1
[01F]	1

System II header unit

Outdoor DN code	Setting value
[01D]	0
[01E]	1
[01F]	2

System III header unit

Outdoor DN code	Setting value
[01D]	0
[01E]	1
[01F]	3



■ Operations (contents of control)

(1) Defrosting conditions for system cooperation defrosting (hereinafter referred to as “cooperation defrosting conditions”) are measured at each system, separately from normal defrosting conditions.
When multiple systems satisfy the cooperation defrosting conditions at the same time, the system that has satisfied the conditions earlier starts defrosting.

(2) When a system that has started defrosting earlier is still defrosting, other systems do not perform defrosting but continue heating operations.

(3) When defrosting of the system that started defrosting earlier ends, the system that has satisfied the cooperation defrosting conditions next starts defrosting.

(4) When only one system satisfies the cooperation defrosting conditions, that system continues heating operations, and performs defrosting at the point that normal defrosting conditions are satisfied.

(5) A system that has satisfied normal defrosting conditions starts defrosting to avoid the risk of remaining frost, even if system cooperation defrosting is being performed.

<Operation examples of system cooperation defrosting>

(Example 1) 2-system cooperation defrosting
In a case where cooperation defrosting conditions are satisfied in the order of system II and system I, defrosting is performed in the order of system II and system I.

System I	Heating	→	Heating *1	→	Defrosting *2	→	Heating
System II	Heating	→	Defrosting	→	Heating	→	Heating

*1 Continue heating without starting defrosting control while system II is defrosting
*2 Start defrosting after system II ends defrosting

(Example 2) 3-system cooperation defrosting
In a case where cooperation defrosting conditions are satisfied in the order of system II, system I and system III, defrosting is performed in the order satisfying conditions among the three systems.

System I	Heating	→	Heating *1	→	Defrosting *2	→	Heating	→	Heating
System II	Heating	→	Defrosting	→	Heating	→	Heating	→	Heating
System III	Heating	→	Heating *1	→	Heating *1	→	Defrosting *3	→	Heating

*1 Continue heating without starting defrosting control while system II is defrosting
*2 Start defrosting after system II ends defrosting
*3 Start defrosting after system I ends defrosting.

(Example 3) 2-system cooperation defrosting out of three systems
In a case where cooperation defrosting conditions are satisfied in the order of system II and system III, but system I does not satisfy conditions, system cooperation defrosting is performed by system II and system III alone.

System I	Heating	→	Heating	→	Heating	→	Heating
System II	Heating	→	Defrosting	→	Heating	→	Heating
System III	Heating	→	Heating *1	→	Defrosting *2	→	Heating

*1 During system II defrosting, don't start defrosting control but continue heating.
*2 The system II is a defrosting start after the end of defrosting

(Example 4) Normal defrosting
In a case in where only system II satisfies defrosting conditions (system cooperation defrosting conditions and normal defrosting conditions), only system II performs defrosting.

System I	Heating	→	Heating	→	Heating
System II	Heating	→	Defrosting	→	Heating
System III	Heating	→	Heating	→	Heating

System I	Stop	→	Stop	→	Stop
System II	Heating	→	Defrosting	→	Heating
System III	Stop	→	Stop	→	Stop

(Example 5) Example of not performing system cooperation defrosting
In a case where normal defrosting conditions are satisfied due to sudden increase in frost or the like, defrosting is started to avoid the risk of remaining frost, even if other systems are performing system cooperation defrosting.

System I	Heating	→	Heating *1	→	Defrosting *2		→	Heating
System II	Heating	→	Defrosting		→	Heating	→	Heating

*1 State where heating operations are continuing while system II is performing cooperation defrosting
*2 If normal defrosting conditions are satisfied, defrosting is started without awaiting system II to end defrosting.

9. APPLIED CONTROL AND FUNCTIONS

9-1. Optional Connector Specifications of Indoor P.C. Board

(MCC-1643)

Connector No.	Color	Function	Compact Slim Duct	4-way Smart Cassette	Compact 4-way Smart Cassette	2-way Cassette	1-way Cassette (SH)	Floor standing	Pin No.	Specifications	Remarks
CN32	White	Ventilation output	○	○	○	○	○	○	① ②	DC12V Output (Open collector)	Setting at shipment: Interlock of ON by indoor unit operation, with OFF by stop operation * The single operation setting by FAN button on the remote controller is performed on the remote controller (DN=31).
CN34	Red	Input for float SW	● (Only MPH series)	●	●	●	●	× (With short-circuit connector)	① ② ③	DC12V NC Float SW input	Normal when between ①–③ short-circuits, but abnormal when open-circuits. (check code "P10" appears)
CN61	Yellow	HA	○	○	○	○	○	○	① ② ③ ④ ⑤ ⑥	ON/OFF input 0V（COM） Remote controller prohibited input Operation output (Open collector) DC12V（COM） Warning output (Open collector)	HA ON/OFF input (J01: YES/NO=Pulse (At shipment from factory) /Static input selection) Permission/Prohibition of remote controller operation stop is performed by input. Operation ON (Answer back of HA) Warning output ON
CN71	White	CHK Operation check	○	○	○	○	○	○	① ②	Check mode input 0V	This check is used to check indoor operation. (Performs operation of indoor fan “H” , Louver horizontal and Drain pump ON without communication with outdoor and remote controller)
CN72	White	DISP Exhibition mode	○	○	○	○	○	○	① ②	DISP mode input 0V	Communication is available by indoor unit and remote controller only (When the power is turned on). Shortening time of timer (Always)
CN81	Black	Output for PMV relay	△	△	△	△	△	△	① ② ③ ④ ⑤	DC12V EP valve output (Open collector) Balance valve output (Open collector) Suction valve output (Open collector) Discharge valve output (Open collector)	
CN309	Yellow	Output power supply for option	○	○	○	○	○	○	① ③	AC230V AC230V	This can be used as power supply for option devices.
CN501	White	(For service)	×	×	×	×	×	×	—	—	
CN521	Red	Connection for option P.C.board	△	△	△	△	△	△	① ② ③ ④ ⑤	DC12V DC5V Send Receive 0V	Connected Application control kit (TCB-PCUC2E)

● : Use in standard, ○ : Available, △: Use by connecting parts sold separately, × : Unavailable

* To use the functions operated by CN60, CN80, CN70 and CN73, which are provided for other P.C.board, use the Application control kit (TCB-PCUC2E) sold separately.

(MCC-1744)

Connector No.	Color	Function	1-way Cassette (YH)	Floor standing concealed	Floor standing cabinet	Pin No.	Specifications	Remarks
CN032	White	Ventilation output	○	○	○	① ②	DC12V (COM) Output (Open collector)	Setting at shipment: Interlock of ON by indoor unit operation, with OFF by stop operation * The single operation setting by FAN button on the remote controller is performed on the remote controller (DN=31).
CN033	White	Louver output	●	×	×	① ③	AC230V AC230V	Output is AC200V when louver is ON.
CN034	Red	Input for float SW	●	× (With short-circuit connector)	× (With short-circuit connector)	① ② ③	DC12V NC Float SW input	Normal when between ①–③ short-circuits, but abnormal when open-circuits. (check code "P10" appears)
CN060	White	Option output	○	○	○	① ② ③ ④ ⑤ ⑥	DC12V (COM) Defrost output (Open collector) Thermostat-off output (Open collector) Cooling output (Open collector) Heating output (Open collector) Fan output (Open collector)	 ON when outdoor unit is on defrost operation. ON when actual thermostat is ON (Comp. ON). ON when the operation mode is on cooling system (Cool, Dry, Auto (Cooling)). ON when the operation mode is on heating system (Heat, Auto (Heating)). ON when the indoor fan is on, (When an air cleaner is used) OFF when the clean operation is on.
CN061	Yellow	HA	○	○	○	① ② ③ ④ ⑤ ⑥	ON/OFF input 0V (COM) Remote controller prohibited input Operation output (Open collector) DC12V (COM) Warning output (Open collector)	HA ON/OFF input (J01: YES/NO=Pulse (At shipment from factory) /Static input selection) Permission/Prohibition of remote controller operation stop is performed by input. Operation ON (Answer back of HA) Warning output (Open collector)
CN068	Blue	Drain pump output	●	×	×	① ③	AC230V AC230V	Output is AC200V in cooling and float SW operation.
CN070	White	Filter	○	○	○	① ②	Input 0V	Option abnormal input (Display of protective operation for equipment installed to the outside) * Perform the settings having option abnormal input from the remote controller. (DN [2A] = 0002 → 0001).
CN071	White	CHK Operation check	○	○	○	① ②	Check mode input 0V	Use for operation check of indoor unit. (Performs operation of indoor fan "H" , Louver horizontal and Drain pump ON without communication with outdoor and remote controller)
CN072	White	DISP Exhibition mode	○	○	○	① ②	DISP mode input 0V	Communication is available by indoor unit and remote controller only (When the power is turned on). Shortening time of timer (Always)
CN073	Red	EXCT demand	○	○	○	① ②	Demand input 0V	Forced thermostat OFF operation for indoor unit
CN080	Green	External abnormal input	○	○	○	① ② ③	DC12V NC External abnormal input	Make the check code of "L30" occur (by continuing operation for one min) and perform the forced stop.
CN081	Black	Output for PMV relay	△	△	△	① ② ③ ④ ⑤	DC12V EP valve output (Open collector) Balance valve output (Open collector) Suction valve output (Open collector) Discharge valve output (Open collector)	
CN309	Yellow	Output power supply for option	○	○	○	① ③	AC230V AC230V	This can be used as power supply for option devices.
CN501	White	(For service)	×	×	×		AC230V	

● : Use in standard, ○ : Available, △: Use by connecting parts sold separately, × : Unavailable

9-2. Test Operation of Indoor Unit

▼ Check function for operation of indoor unit (Functions at indoor unit side)

This function is provided to check the operation of the indoor unit individually without connecting to the remote controller or the outdoor unit. This function can be used regardless of the ON/OFF operation.

However, it is recommend to avoid using this function for along time, otherwise the trouble of the equipment may occurred.

[How to operate]

1) Short-circuit CHK pin (CN71 on the indoor P.C. board).
   The operation mode may differ according to the indoor unit status at that time.
   Normal time: Both float SW and fan motor are normal.
   Abnormal time: Either one of float SW or fan motor is abnormal.
2) During the normal time, the minimum opening degree (30pls) of the indoor PMV can be set only when both CHK pin (CN71) and DISP pin (CN72) on the indoor P.C.board are short-circuited. If the shortcircuit at DISP pin (CN72) is opened, the indoor PMV will be at the maximum opening degree (1500pls)

[How to clear]

Open CHK pin. While the system is operating, it stops once but automatically returns to operation after several minutes.

	Short-circuit of CHK pin		
	Normal time		**Abnormal time**
	DISP pin open	**DISP pin short circuit**	
Fan motor	(H)	(H)	Stop
Indoor PMV (*)	Max. opening degree (1500 pls)	Min. opening degree (30 pls)	Min. opening degree (30 pls)
Louver	Vertical	Vertical	Immediate stop
Communication	All ignored	All ignored	All ignored
P.C. board LED	Lights	Lights	Flashes

* The actual indoor PMV opening degree may differ from the described values due to adjustment depending on PMV types.

• To exchange the indoor PMV coil, set the indoor PMV to Max. opening degree.

Indoor unit function Code No. (DN Code) table

(includes functions needed to perform applied control on site)

DN	Item	Description	At shipment
01	Filter display delay timer	0000: None 0001: 150H 0002: 2500H 0003: 5000H 0004: 10000H	Depending on model type
02	Dirty state of filter	0000: Standard 0001: High degree of dirt (Half of standard time)	0000: Standard
03	Central control address	0001: No.1 unit to 0064: No.64 unit … TCC-LINK 0001: No.1 unit to 0128: No.128 unit … TU2C-LINK 00Un: Unfixed (When using U series remote controller) 0099: Unfixed (Other than U series remote controller)	00Un/0099: Unfixed
04	Specific indoor unit priority	0000: No priority 0001: Priority	0000: No priority
06	Heating temp. shift	0000: 0 °C 0001: +1 °C 0002: +2 °C to 0010: +10 °C (Up to +6 recommended)	Depending on model type
0b	Demand control (CN73 / CN4)	0000 : Demand input 0001 : O2 sensor input 0002 : Card input setup.1 0003 : Fire alarm input (Normal open) 0004 : Card input setup.2 0005 : Fire alarm input (Normal close)	0000:Demand input
0d	Existence of [AUTO] mode	0000: Provided 0001: Not provided (Automatic selection from connected outdoor unit)	0001: Not provided
0F	Cooling only	0000: Heat pump 0001: Cooling only (No display of [AUTO] [HEAT])	0000: Heat pump Depending on model type
10	Type	Refer to **Type DN code "10" list**	
11	Indoor unit capacity	0000: Unfixed 0001 to 0034 Refer to Indoor Unit Capacity DN code "11" list	According to capacity type
12	Line address	0001: No.1 unit to 0064: No.30 unit … TCC-LINK 0001: No.1 unit to 0128: No.128 unit … TU2C-LINK 00Un: Unfixed (When using U series remote controller) 0099: Unfixed (Other than U series remote controller)	00Un/0099: Unfixed
13	Indoor unit address	0001: No.1 unit to 0064: No.64 unit … TCC-LINK 0001: No.1 unit to 0128: No.128 unit … TU2C-LINK 00Un: Unfixed (When using U series remote controller) 0099: Unfixed (Other than U series remote controller)	00Un/0099: Unfixed
14	Group address	0000: Individual 0001: Header unit of group 0002: Follower unit of group 00Un: Unfixed (When using U series remote controller) 0099: Unfixed (Other than U series remote controller)	00Un/0099: Unfixed
19	Louver type (Air direction adjustment)	0000: No louver 0001: Swing only 0004: (4-way Air Discharge Cassette type, etc.)	Depending on model type
1E	Temp difference of [AUTO] mode selection COOL → HEAT, HEAT → COOL	0000: 0 °C to 0010: 10 °C (Ts ± 5°C) Ts:Remote controller setup temp.	0003: 3 °C (Ts ±1.5 °C)
28	Automatic restart of power failure	0000: None 0001: Restart	0000: None
2A	Selection of option/Trouble input (TCB-PCUC2E: CN3)	0000: Filter input 0001: Alarm input 0002: None (Air washer, etc.)	0002: None
2E	HA terminal (CN61) select	0000: Usual 0001: Card input setup.1 0002: Fire alarm input (arbiter contact) 0003: Card input setup.2	0000: Usual (HA terminal)
31	Ventilating fan control	0000: Unavailable 0001: Available	0000: Unavailable
32	TA sensor selection	0000: Indoor unit TA sensor 0001: Remote controller sensor	0000: Indoor unit TA sensor
33	Temperature unit select	0000: °C 0001: °F	0000: °C

DN	Item	Description	At shipment
5d	External static pressure High-ceiling adjustment (Air flow selection)	Refer to next page.	0000: Standard
60	Timer setting (wired remote controller)	0000: Available (can be performed) 0001: Unavailable (cannot be performed)	0000: Available
77	Dual set point	0000: Unavailable 0002: Available	0000: Unavailable
79	Alarm output setup of the header unit	0000: Not including the state of following unit 0001: Including the state of following unit	0000: Not including the state of following unit
b3	Soft cooling	0000: Unavailable 0001: Available	0001: Available
b5	Occupancy sensor/ Wireless A-B selection Provided / None	0000: None 0001: Occupancy sensor provided 0002: Wireless remote controller provided	0000: None
b6	Occupancy sensor Enable / Invalid (Absence time judgment time)	0000: Invalid 0001: 30min. 0002: 60min. 0004: 120min. 0005: 150min.	0002: Enable (60 min.)
b7	Occupancy sensor operation at absent time	0000: Stand by 0001: operation stop	0000: Stand by
CF	Indoor unit case type	0000 : Standard Model 0001 : larger case model	Depending on model type
d0	Whether the power saving mode can be set by the remote controller	0000: Invalid 0001: Valid	0001: Valid
E0	Destination	0000 : Japan 0001 : North America 0002 : Australia 0003 : China	0003 : China
E6	Wireless remote controller A-B selection	0000: A 0001: B	0000: A
F0	Swing mode	0001 : Standard 0002 : Dual swing 0003 : Cycle swing	0001: Standard
F1	Louver fixed position (Louver No.1)	0000 : Release 0001 : Horizontal discharge position 0005 : Downward discharge position	0000: Not fixed
F2	Louver fixed position (Louver No.2)	0000 : Release 0001 : Horizontal discharge position 0005 : Downward discharge position	0000: Not fixed
F3	Louver fixed position (Louver No.3)	0000 : Release 0001 : Horizontal discharge position 0005 : Downward discharge position	0000: Not fixed
F4	Louver fixed position (Louver No.4)	0000 : Release 0001 : Horizontal discharge position 0005 : Downward discharge position	0000: Not fixed
F6	Presence of Application control kit (TCB-PCUC2E)	0000: None 0001: Exist	0000: None
FC	Communication protocol	0000 : TCC-LINK 0003 : TU2C-LINK	0000 : TCC-LINK
Fd	Priority operation mode (FS unit)	0000: Heating 0001: Cooling	0000: Heating
FE	FS unit address	0001: No.1 unit to 0064: No.64 unit … TCC-LINK 0001: No.1 unit to 0128: No.128 unit … TU2C-LINK 00Un: Unfixed (When using U series remote controller) 0099: Unfixed (Other than U series remote controller)	00Un/0099: Unfixed
103	Remote controller	0000 : Use 0001 : Do not use	0000 : Use
119	Vertical louver type (MMD-UP***M*H* model only)	0000 : No louver 0002 : 3D LOUVER	0000 : No louver

DN	Item	Description	At shipment
180	Effective notice code number 01	Judged notice code is set.	0000: None
181	Effective notice code number 02		0000: None
182	Effective notice code number 03		0000: None
183	Effective notice code number 04		0000: None
184	Effective notice code number 05		0000: None
185	Effective notice code number 06		0000: None
186	Effective notice code number 07		0000: None
187	Effective notice code number 08		0000: None
188	Effective notice code number 09		0000: None
189	Effective notice code number 10		0000: None
1FB	Central device control state	0000: No central device control (Remote controller use is possible) 0001: Central device control (Remote controller use is impossible)	0000: No central device control
1FC	Indoor Unit terminating resistance	0000 : OFF 0001 : ON	0000 : OFF

For Central control address (DN [03]), Indoor unit address (DN [13]), FS unit address (DN [FE])

Remote controller	Communication type	Display order
U series	TU2C-LINK	··· ⇔ 0128 ⇔ 00Un ⇔ 0001 ⇔ ···
	TCC-LINK	··· ⇔ 0064 ⇔ 00Un ⇔ 0001 ⇔ ···
Other than U series	TCC-LINK	··· ⇔ 0064 ⇔ 0099 ⇔ 0001 ⇔ ···

For Line address (DN [12])

Remote controller	Communication type	Display order
U series	TU2C-LINK	··· ⇔ 0128 ⇔ 00Un ⇔ 0001 ⇔ ···
	TCC-LINK	··· ⇔ 0030 ⇔ 00Un ⇔ 0001 ⇔ ···
Other than U series	TCC-LINK	··· ⇔ 0030 ⇔ 0099 ⇔ 0001 ⇔ ···

For Group address (DN [14])

Remote controller	Communication type	Display order
U series	TU2C-LINK TCC-LINK	··· ⇔ 0002 ⇔ 00Un ⇔ 0000 ⇔ ···
Other than U series	TCC-LINK	··· ⇔ 0002 ⇔ 0099 ⇔ 0000 ⇔ ···

*2 Communication protocol can be automatically switched with the setup in the outdoor unit during installation.

[5d] External static pressure & High-ceiling adjustment

<Compact Slim Duct type>

Set data	External static pressure	
0000	10 Pa	Standard (Factory default)
0001	20 Pa	High static pressure 1
0003	30 Pa	High static pressure 2

<4-way Cassette, 2-way Cassette, 1-way Cassette SH Type>

Set data	High-ceiling adjustment
0000	Standard (Factory default)
0001	High ceiling 1
0003	High ceiling 3

<Compact 4-way Cassette>

Set data	High-ceiling adjustment
0000	Standard (Factory default)
0001	High ceiling 1 (UP015 only)
0003	High ceiling 3 (UP015 only)

<Under Ceiling type>

Set data	High-ceiling adjustment
0000	Standard (Factory default)
0003	High ceiling 1

<Concealed Duct Type>

Set data	External static pressure	
0000	40 Pa	UP024 to 030 (Factory default)
0001	30 Pa	UP007 to 018 (Factory default)
0002	65 Pa	—
0003	50 Pa	UP036 to 056 (Factory default)
0004	80 Pa	—
0005	100 Pa	—
0006	120 Pa	—

<Slim Duct type>

Set data	External static pressure	
0000	10 Pa	Standard (Factory default)
0001	20 Pa	High static pressure 1
0003	35 Pa	High static pressure 2
0006	50 Pa	High static pressure 3

<Concealed Duct High Static Pressure Type (6 HP or less)>

Set data	External static pressure	
0000	100 Pa	Standard (Factory default)
0001	50 Pa	—
0002	75 Pa	—
0003	150 Pa	—
0004	125 Pa	—
0005	175 Pa	—
0006	200 Pa	—

<Concealed Duct High Static Pressure Type (8, 10 HP)>

Set data	External static pressure	
0000	150 Pa	Standard (Factory default)
0001	50 Pa	—
0002	83 Pa	—
0003	217 Pa	—
0004	117 Pa	—
0005	183 Pa	—
0006	250 Pa	—

Type
DN code "10"

Value	Type	Model
0000	1-way cassette	MMU-UP***SH*
0001	4-way cassette	MMU-UP***H*
0002	2-way cassette	MMU-UP***WH*
0003	1-way cassette	MMU-UP***YH*
0006	Concealed Duct / High Static Pressure	MMD-UP***HP*
0007	Under Ceiling	MMC-UP***HP*
0008	High Wall	MMK-UP***HP*
0010	Floor standing cabinet	MML-UP***H*
0011	Floor standing concealed	MML-UP***BH*
0013	Floor standing type	MMF-UP***H
0014	Compact 4-way cassette	MMU-UP***MH*
0015	Compact slim duct	MMD-UP***M*H*
0016	Fresh Air Intake indoor unit (Duct type)	MMD-UP***HFP*
0018	Bi-flow Console	MML-UP***NHP*
0060	Hot Water Module	MMW-UP***LQ*

Indoor Unit Capacity
DN code "11"

Value	Capacity
0000*	Invalid
0041	005 type
0001	007 type
0002	008 type
0003	009 type
0004	010 type
0005	012 type
0006	014 type
0007	015 type
0008	017 type
0009	018 type
0010	020 type
0011	024 type
0012	027 type
0013	030 type
0015	036 type
0017	048 type
0018	056 type
0021	072 type
0023	096 type
0024	112 type
0025	128 type

* "0000" is default value stored in EEPROM mounted on service P.C. board

9-3. Service Support Function

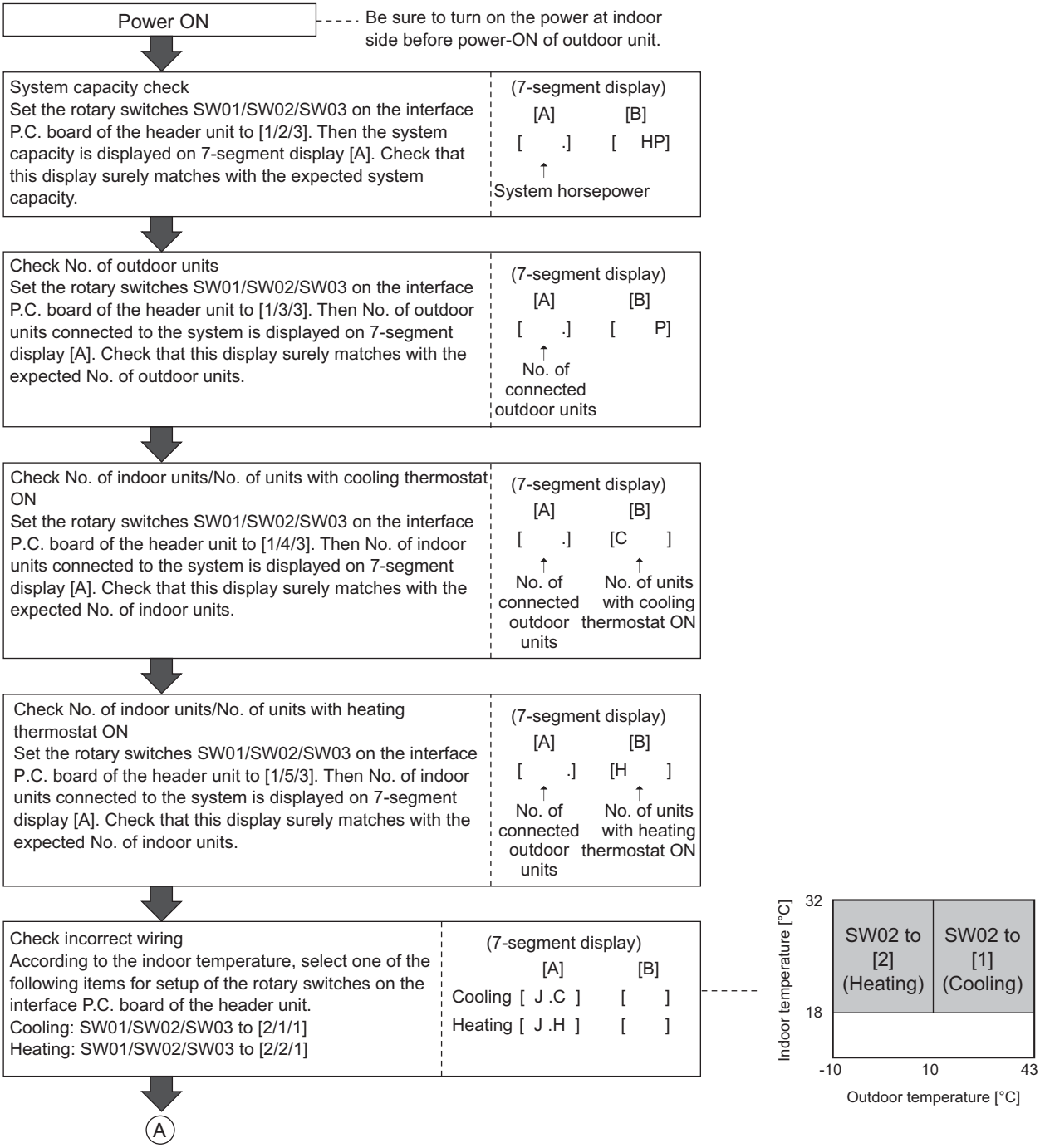
9-3-1. Check Function for Connecting of Refrigerant and Control Lines

This function is provided to check misconnection of the refrigerant pipes and the control transmission line (Wiring over lines) between indoor unit and outdoor unit by using the switch on the interface P.C. board of the header unit.
However, be sure to check the following items prior to executing this check function.

1 **This check function does not work when a group operation by remote controller is performed and it is used over outdoor units.**

2 **When using this check system, be sure to check for each 1 line in the unit of outdoor unit. If checking the multiple lines at the same time, misjudgment may be caused.**

(Check procedure)



On rotations of outdoor fans

Outdoor fans may rotate slowly to control pressure when cooling with low outer air temperature or heating with excessive load. For control content, also refer to items in Section 5, “Control Outline: Outdoor Unit, Outdoor Fan Control.”

Ⓐ

Operation start Press the push-switch SW04 on the interface P.C. board of the header unit for 2 seconds or more. The operation starts. Check that 7-segment display [B] shows [CC] for cooling and [HH] for heating.	(7-segment display) [A] [B] Cooling [C] [CC] Heating [H] [HH]

------ Operation

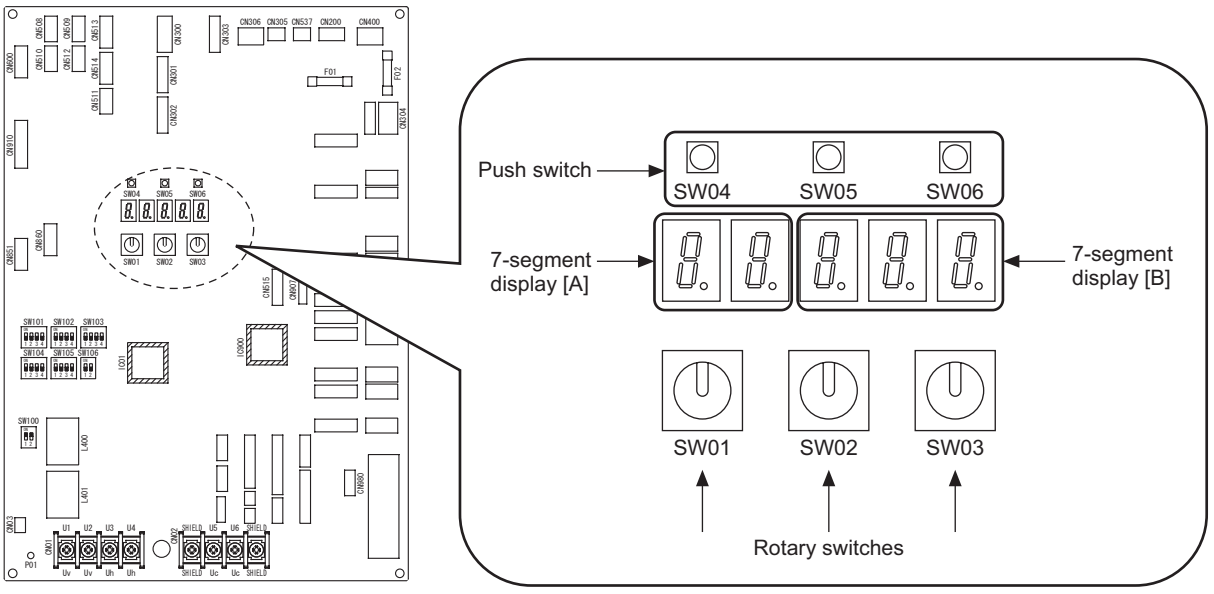
Confirmation of check results (1) Check that No. of misconnected indoor units is displayed on 7-segment display [B] after 15 minutes. (If there is no misconnection, [00P] is displayed.)	(7-segment display) [A] [B] [ ] [# # P] ↑ ↑ C or H No. of misconnected indoor units

------ This check operation requires 15 minutes even if there is no misconnection or there is any misconnection.

Confirmation of check results (2) Press the push-switch SW05 on the interface P.C. board of the header unit for 2 seconds or more. The indoor address in which trouble is being detected is displayed on 7-segment display [B]. If there are multiple indoor address in which trouble is being detected, they are successively exchanged and displayed. (When SW05 is turned on again, the display returns to display of No. of units.)	(7-segment display) [A] [B] [ ] [##] ↑ ↑ C or H Address display of misconnected indoor unit

After check, return the rotary switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [1/1/1].	(7-segment display) [A] [B] [U1] [ ]

Interface P.C. board



9-3-2. Function to Start/Stop (ON/OFF) Indoor Unit from Outdoor Unit

The following functions of the indoor unit can start or stop by the switches on the interface P.C. board of the header unit.

No	Function	Outline	Setup/Release	7-segment display
1	Cooling test operation	Changes the mode of all the connected indoor units collectively to cooling test operation. Note) Control operation same as usual test operation from remote control is performed.	[Setup] Set SW01/SW02/SW03 to [2/5/1], and press SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [C.] Section B [– C]
2	Heating test operation	Changes the mode of all the connected indoor units collectively to heating test operation. Note) Control operation same as usual test operation from remote control is performed.	[Setup] Set SW01/SW02/SW03 to [2/6/1], and press SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [H.] Section B [– H]
3	Fan test operation	Changes operation mode of all the connected indoor units collectively to test operation mode. Note) Control operation same as usual test operation from remote control is performed.	[Setup] Set SW01/SW02/SW03 to [2/9/1], and push SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [F.] Section B [– F]
4	Batch start	Starts all the connected indoor units collectively. Note) The contents follow to the setup of remote controller.	[Setup] Set SW01/SW02/SW03 to [2/7/1], and press SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1].	Section A [C.H] Section B [11] [00] is displayed on Section B for 5 seconds.
	Batch stop	Stops all the connected indoor units collectively.	[Setup] Set SW01/SW02/SW03 to [2/7/1], and press SW05 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1].	Section A [C.H] Section B [00] [00] is displayed on Section B for 5 seconds.
5	Individual start	Starts the specified indoor unit. Notes) • The contents follow to the setup of remote controller. • The other indoor units keep the status as they are.	[Setup] Set SW01 to [16], set SW02 and SW03 to address No. (1 to 128) to be started, and press SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [ ] Section B [ ] Section A: Displays the corresponding indoor address. Section B: Displays [11] for 5 seconds from operation-ON.
	Individual stop	Stops the specified indoor unit. Note) The other indoor units keep the status as they are.	[Setup] Set SW01 to [16], set SW02 and SW03 to address No. (1 to 128) to be stopped, and press SW05 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [ ] Section B [ ] Section A: Displays the corresponding indoor address. Section B: Displays [00] for 5 seconds from operation-OFF.
	Individual test operation	Operates the specified indoor unit. Note) The other indoor units keep the status as they are.	[Setup] Set SW01 to [16], set SW02 and SW03 to address No. to be operated, and press SW04 for 10 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [ ] Section B [ ] Section A: Displays the corresponding indoor address. Section B: Displays [FF] for 5 seconds from test operation-ON.

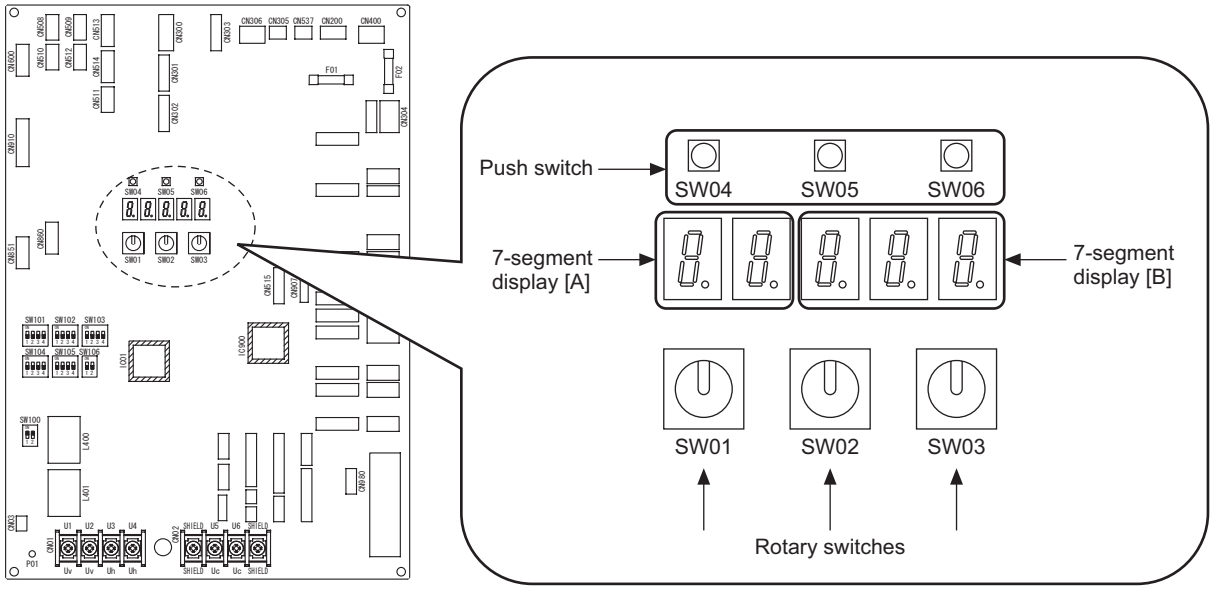
NOTE 1) This start/stop function only sends the signals from the outdoor unit to the indoor unit, such as start, stop, operation mode, etc. It does not resend the signals even if the indoor unit does not follow the sent signals.

NOTE 2) The above controls are not used during abnormal stop.

NOTE 3) If the signal receiving unit of the Compact 4-way Cassette type has never received a signal from the wireless remote controller, the indoor unit cannot be started or stopped (ON/OFF) from the outdoor unit. In the case above, follow the steps below.

1) Point the wireless remote controller at the receiving unit on the indoor unit and press the START/ STOP button on the wireless remote controller.
2) Confirm that the receiving unit sounds “Pi” and the operation lamp (green) on the receiving unit lights up, and then start/stop (ON/OFF) the indoor unit from the outdoor unit.

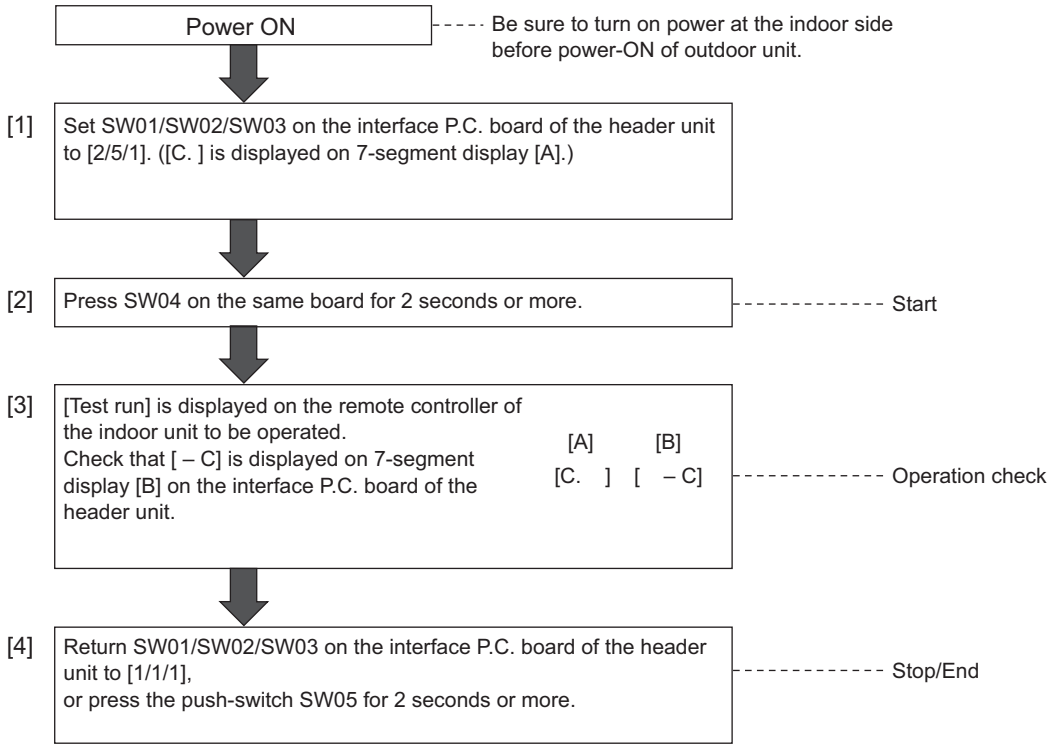
Interface P.C. board



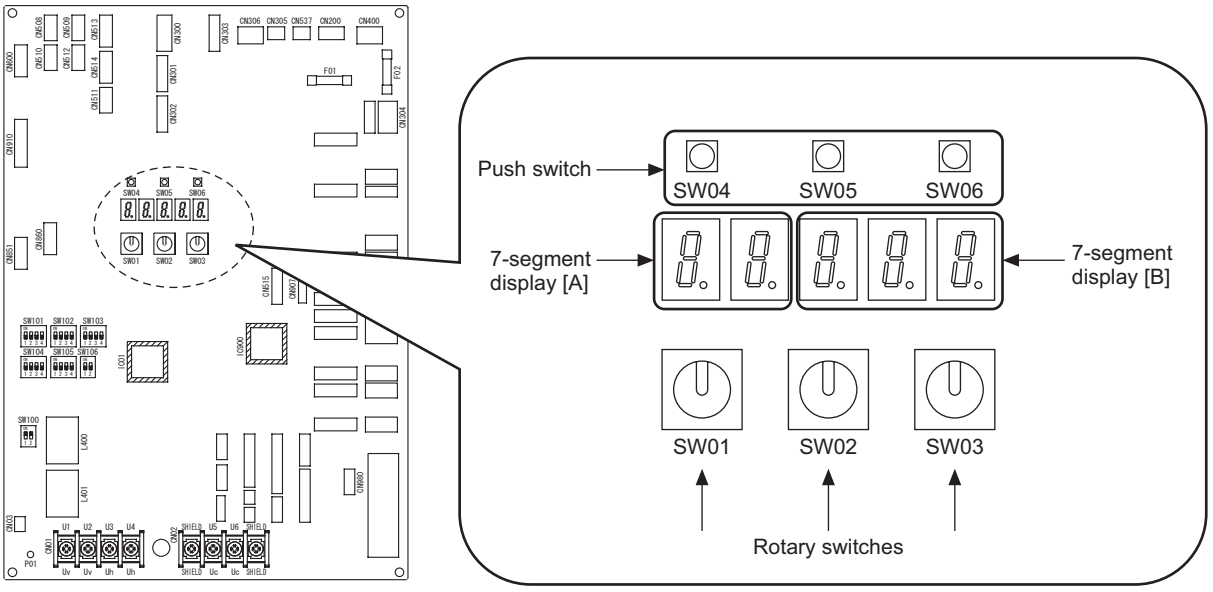
(1) Cooling test operation function

This function is provided to change collectively the mode of all the indoor units connected to the same system for the cooling test operation mode, by using switches on the interface board of the header unit.

<Operation procedure>



Interface P.C. board



NOTE) The test operation returns to the normal operation after 60 minutes.

(2) Heating test operation function

This function is provided to change collectively the mode of all the indoor units connected to the same system for the heating test operation mode, by using switches on the interface board of the header unit.

<Operation procedure>

Power ON ----- Be sure to turn on power at the indoor side before power-ON of outdoor unit.

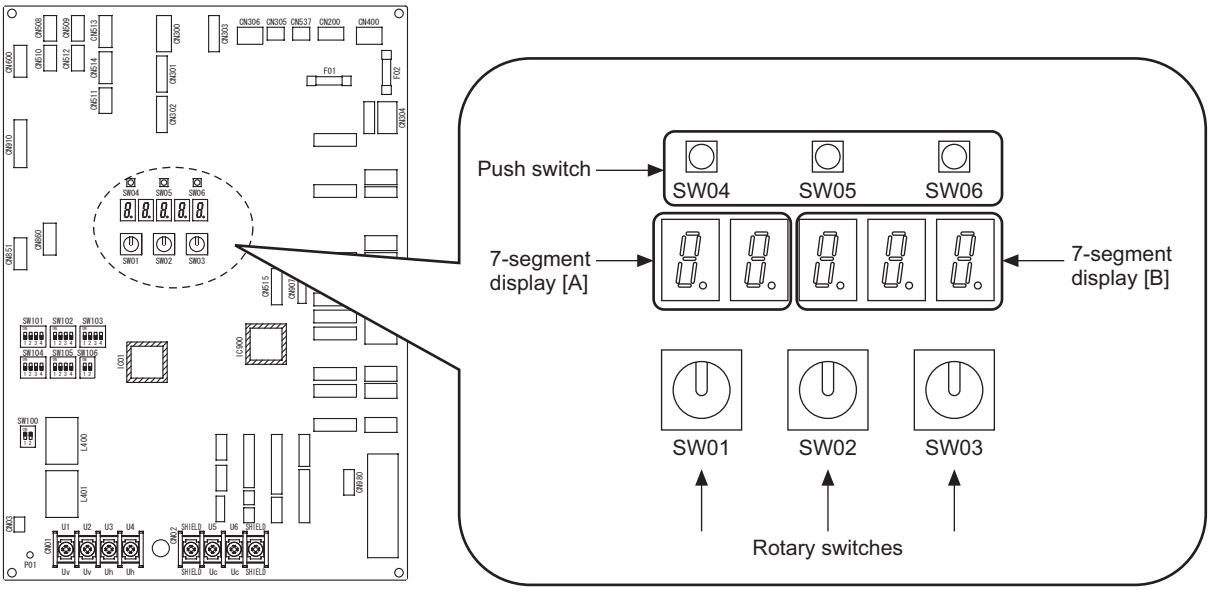
[1] Set SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/6/1].
([H] is displayed on 7-segment display [A].)

[2] Press SW04 on the same board for 2 seconds or more. ---------- Start

[3] [Test run] is displayed on the remote controller of the indoor unit to be operated. Check that [– H] is displayed on 7-segment display [B] on the interface P.C. board of the header unit.
[A] [B]
[H.] [– H] ---------- Operation check

[4] Return SW01/SW02/SW03 on the interface P.C. board of the header unit to [1/1/1],
or press the push-switch SW05 for 2 seconds or more. ---------- Stop/End

Interface P.C. board

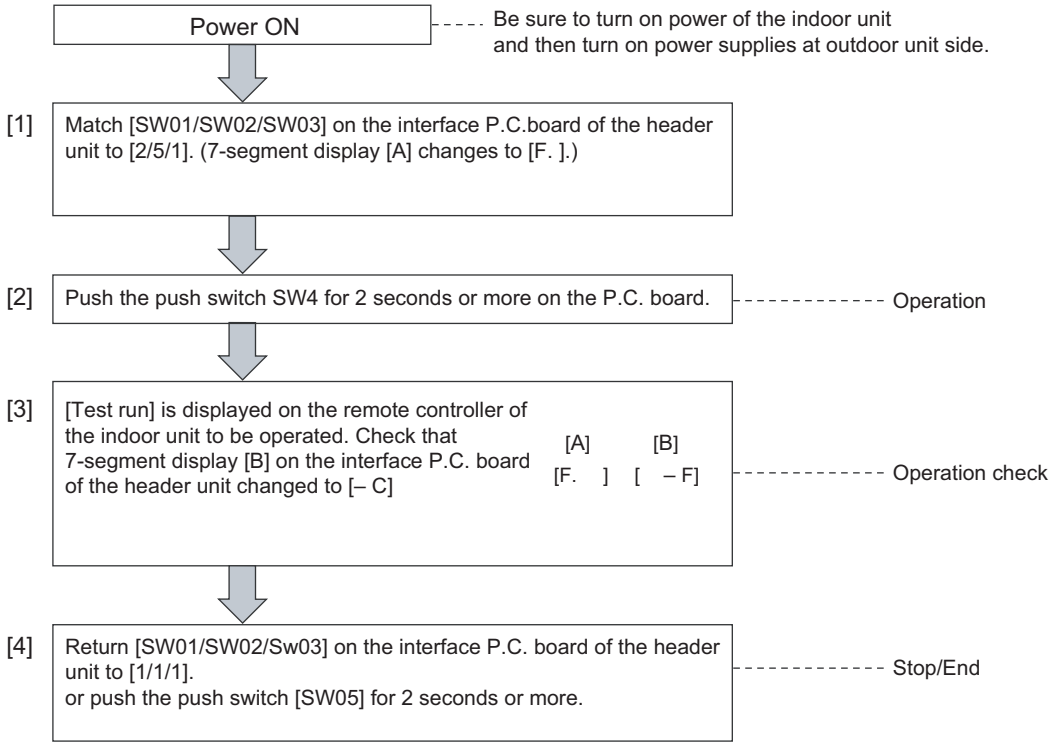


NOTE) The test operation returns to the normal operation after 60 minutes.

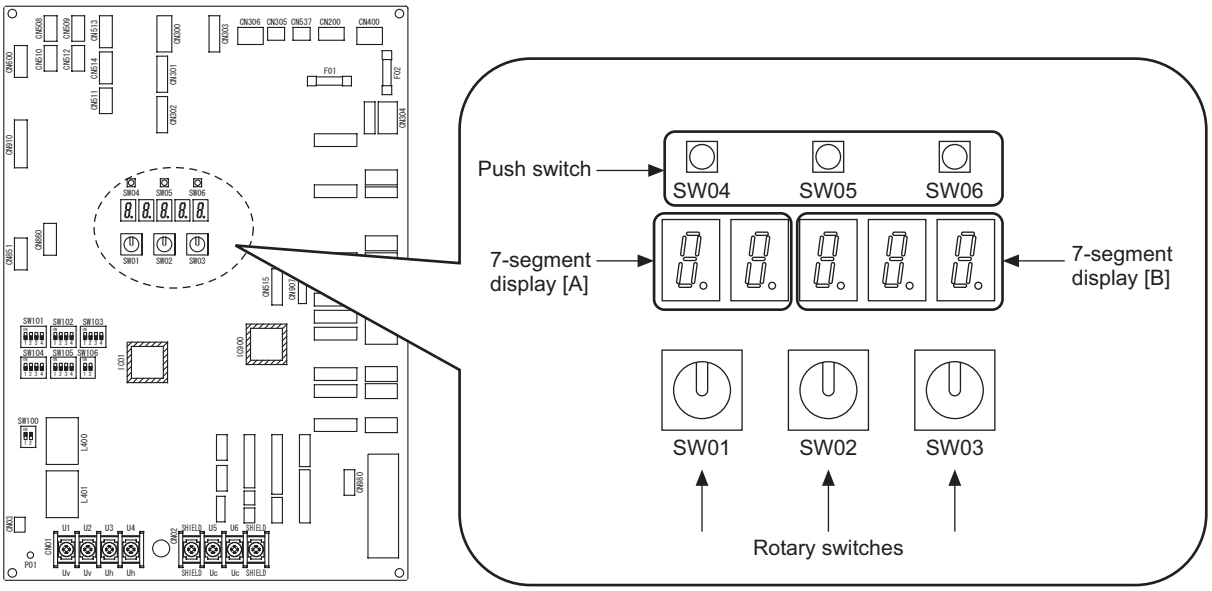
(3) Fan test operation function

This function is provided to change collectively the mode of all the indoor units connected to the same system for the fan test operation mode by using switches on the interface P.C. board of the header unit.

<Operation procedure>



Interface P.C. board



NOTE) The test operation ends after 60 minutes and the operation returns to normal status.

(4) Batch start/stop (ON/OFF) function

This function is provided to start/stop collectively all the indoor units connected to the same system by using switches on the interface board of the header unit.

<Operation procedure>

Power ON

Be sure to turn on power at the indoor side before power-ON of outdoor unit.

If a check code is already displayed with SW01/SW02/SW03 being [1/1/1], return the status to normal one according to troubleshooting and then execute a test operation.

[1] Set up the operation mode of the remote controller.
(If it is not set up, the operation continues with the current mode.)
(FAN/COOL/HEAT)

The unit which is not given with priority by heating priority control, cooling priority control, and selection of cooling or heating mode is not operated.
In this case, "operation ready" or "operation mode controlled" is displayed on the remote controller.

[2] Set SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/7/1].
([C.H] is displayed on 7-segment display [A].)

[3] Press SW04 on the same board for 2 seconds or more. ------ Start

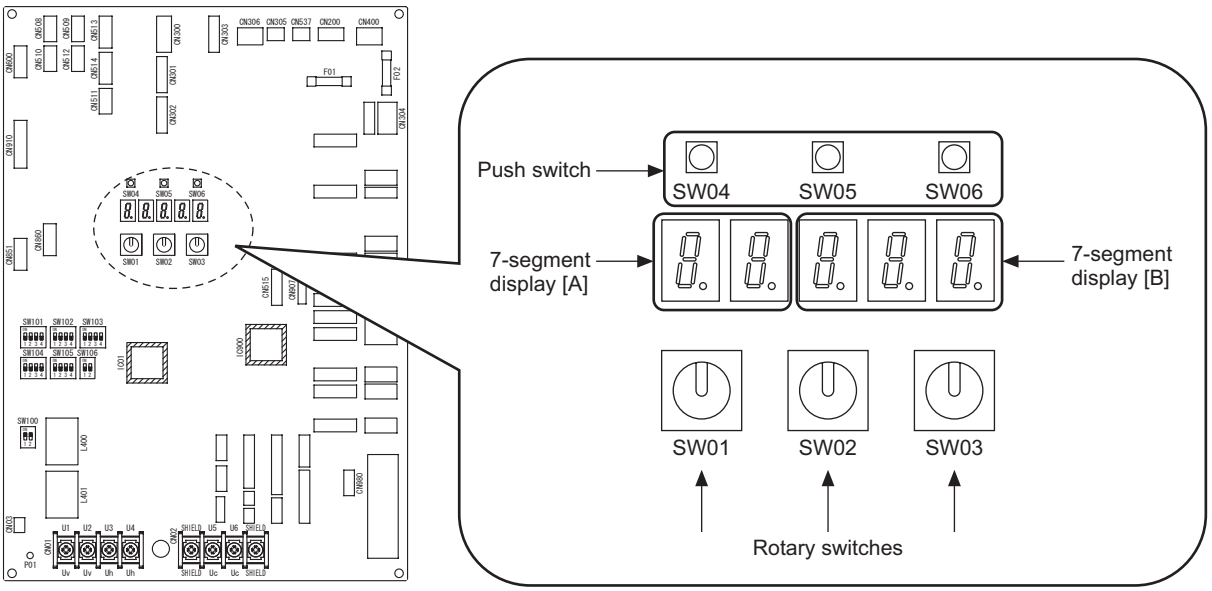
[4] The indoor unit to be started operates. ------ Operation check

(If the discharge temperature does not change though COOL or HEAT has been set up from the remote controller, misconnection is considered.)

[5] Press the push-switch SW05 on the interface P.C. board of the header unit for 2 seconds or more. ------ Stop

[6] After test operation, return the rotary switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [1/1/1]. ------ End

Interface P.C. board



(5) Individual start/stop (ON/OFF) individual test operation function

This function is provided to start/stop (ON/OFF) individually each indoor unit connected to the same system by using switches on the interface board of the header unit.

Set SW01 [16] and set SW02, SW03 to indoor address No. (1 to 128) to be started (Refer to the following table*) - only the setup indoor unit starts operation.

(In the rotary switches of the indoor unit which operates in a group by the remote controller, the follower unit cannot be individually started or stopped. In this case, [- -] is displayed on 7-segment display [B] on the interface P.C. board of the header unit.)

<Operation procedure>

Power ON

Be sure to turn on power at the indoor side before power-ON of outdoor unit.

If a check code is already displayed with SW01/SW02/SW03 being [1/1/1], return the status to normal one according to troubleshooting and then execute a test operation.

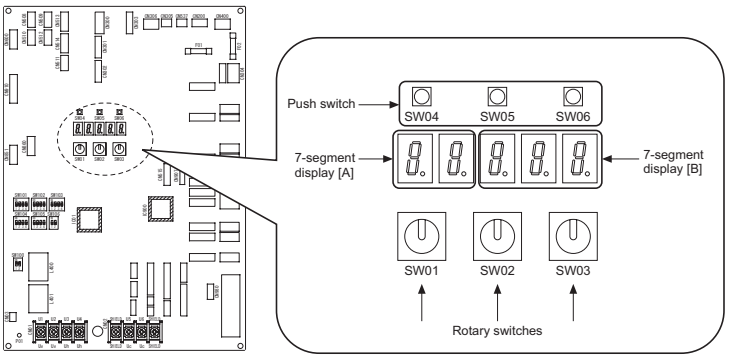
Set up the operation mode of the remote controller. (If it is not set up, the operation continues with the current mode.)

The unit which is not given with priority by heating priority control, cooling priority control, and selection of cooling or heating mode is not operated. In this case, "operation ready" or "operation mode controlled" is displayed on the remote controller.

Match the rotary switches on the interface P.C. board of the header unit to the following table*.

(7-segment display)
[A] [ ] ↑ Address display of corresponding indoor unit
[B] [ ] ↑ [00] is displayed for 5 seconds after operation-ON.

Interface P.C. board



Press the push-switch SW04 on the same board for 2 seconds or more.
(If pressed continuously for 10 seconds or more, the operation changes to the individual test operation.)

(7-segment display)
[A] [ ] ↑ Address display of corresponding indoor unit
[B] [ ] ↑ [11] is displayed for 5 seconds after operation-ON. (For individual test operation, [FF] is displayed.)

Start

The indoor unit to be started operates.

Operation check

If the discharge temperature does not change though COOL or HEAT has been set up from the remote controller, misconnection is considered.

Press the push-switch SW05 on the interface P.C. board of the header unit for 2 seconds or more.

(7-segment display)
[A] [ ] ↑ Address display of corresponding indoor unit
[B] [ ] ↑ [00] is displayed for 5 seconds after operation-ON.

After test operation, return the display select switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [1/1/1].

End

*

SW01	SW02	SW03	Indoor unit address	
16	1 to 16	1	1 to 16	Set number of SW02
16	1 to 16	2	17 to 32	Set number of SW02 + 16
16	1 to 16	3	33 to 48	Set number of SW02 + 32
16	1 to 16	4	49 to 64	Set number of SW02 + 48
16	1 to 16	5	65 to 80	Set number of SW02 + 64
16	1 to 16	6	81 to 96	Set number of SW02 + 80
16	1 to 16	7	97 to 112	Set number of SW02 + 96
16	1 to 16	8	113 to 128	Set number of SW02 + 112

NOTE) The individual test operation returns to the normal operation after 60 minutes.

9-3-3. Check Code Clearing Function

(1)Clearing from the main remote controller

<RBC-AMT32E>

▼ Check code clearing in outdoor unit

Check code of the outdoor unit currently detected is cleared by the unit of one refrigerant circuit system to which the indoor units operated by the remote controller is connected. (Check code of the indoor unit is not cleared.)
For clearing check codes, the service monitor function of the remote controller is used.

<Method>

1 **Change the mode to service monitor mode by pushing CL + TEST buttons simultaneously for 4 seconds or more.**

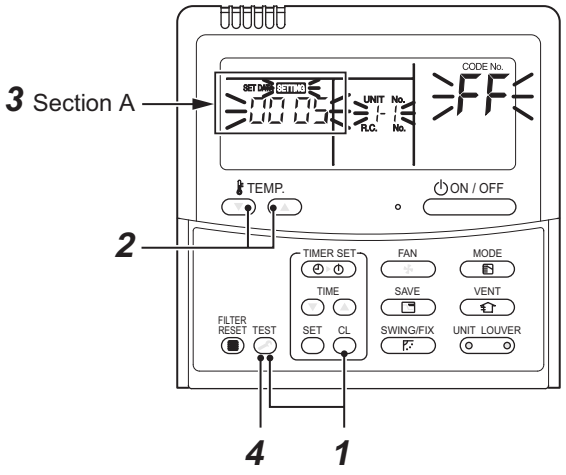
2 **Using TEMP. buttons, set CODE No. to "FF".**

3 **The display in Section A in the following figure is counted with interval of 5 seconds as "0005" → "0004" → "0003" → "0002" → "0001" → "0000".**

When the count arrives "0000", the check code is cleared.

* However, counting from "0005" is repeated on the display.

4 **When TEST button is pushed, the status returns to the normal status.**



▼ Check code clearing in indoor unit

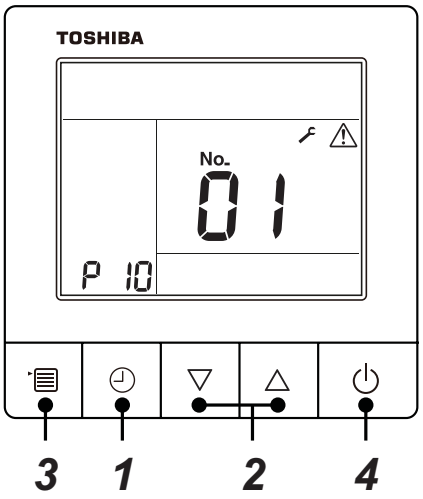
Check code in the indoor unit is cleared by ON / OFF button on the remote controller.
(Only check code of the indoor unit connected with operating remote controller is cleared.)

<RBC-ASCU11-C>

▼ Clearing a check code of the outdoor unit
There is no such function in the remote controller.

▼ Clearing a check code of the indoor unit

◆ In case of RBC-ASCU11-C



1 **Push the [OFF timer] button for over 10 seconds.**

2 **Each time the [▽ or △] button is pushed, the recorded troubleshooting history is displayed in sequence.**

3 **Push the [menu] button for over 10 seconds, doing so deletes the entire troubleshooting history of the indoor unit.**

4 **After you have finished checking, push the [ON/OFF] button to return to normal mode.**

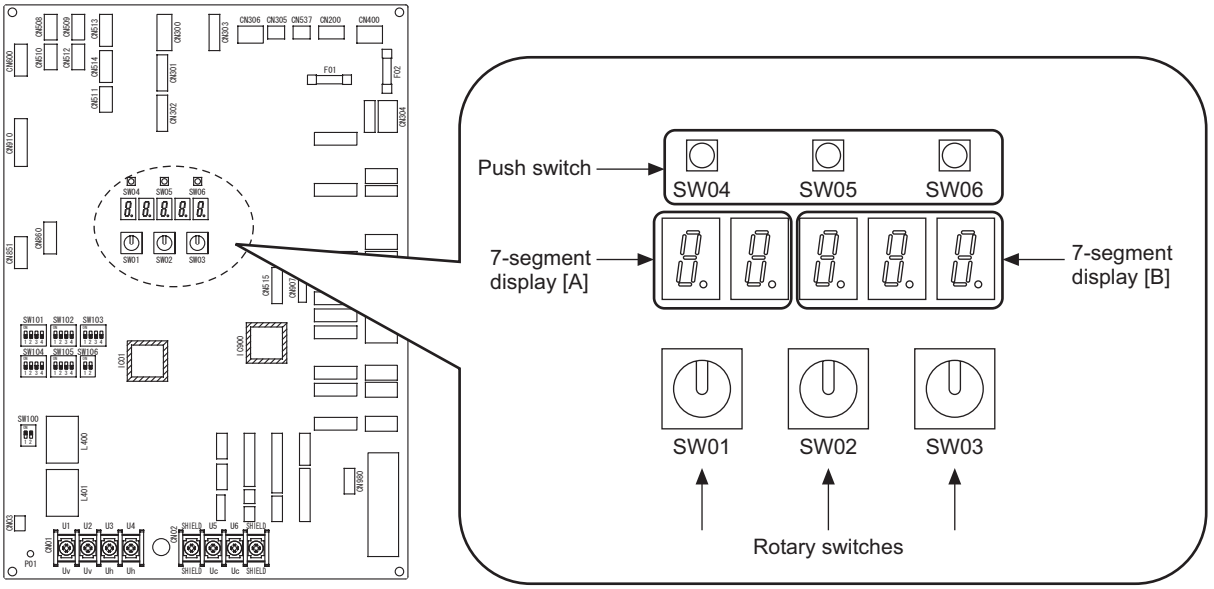
(2) Clearing check code by using switches on the interface board of the header unit

Using the switches on the interface P.C. board of the header unit, this function is to clear the currently detected check code for each refrigerant circuit system without resetting the power supply.

Check codes in both outdoor and indoor units are once cleared, and check code detection is performed again.

[1]	Set the rotary switches on the interface P.C. board of the header unit as follows. Set SW01/SW02/SW03 to [2/16/1]	7-segment display [A] [B] [E r] [ ]
[2]	Press the push-switch SW04 on the same board for 5 seconds or more.	
[3]	[C L] is displayed in 7-segment display [B] on the board (for 5 seconds), and check code is completely cleared.	7-segment display [A] [B] [E r] [C L]

Interface P.C. board



(3) Clearing check code by resetting power

This function is provided to clear check code in a system by resetting the power of all the outdoor and the indoor units. As same as the clearing method by the interface P.C. board, check codes of both the outdoor and the indoor units are once cleared, and check code detection is performed again.

<Method>

(1) Be sure to reset power of both the outdoor and the indoor units.

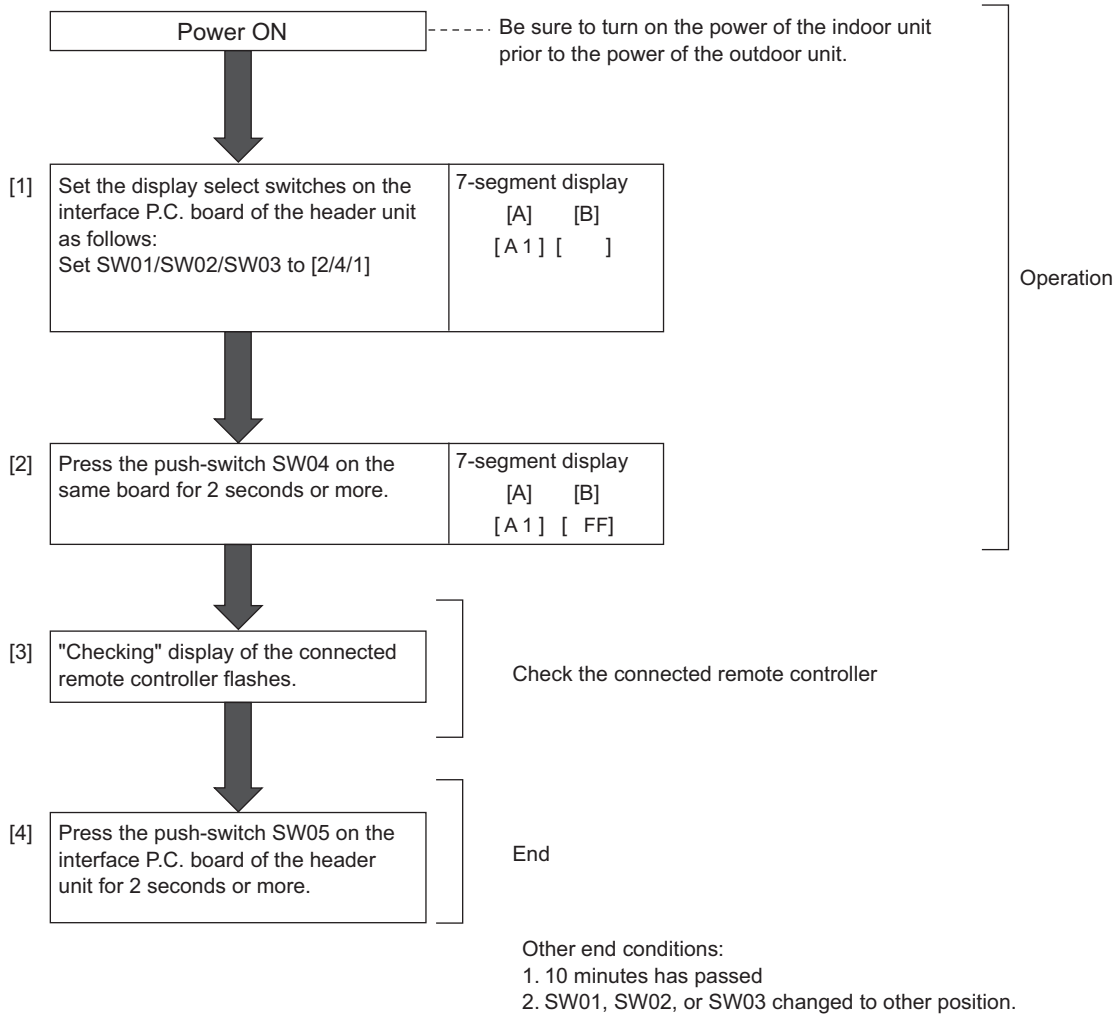
(2) Turn on the power of the indoor unit prior to the power of the outdoor unit.
(If the power is turned on in reverse order, a check code [E19] (No. of header unit trouble) is output.)

NOTE) After power reset, it requires usually 3 minutes to power-on due to the initial communication of the system. In some cases, it requires max. 10 minutes.

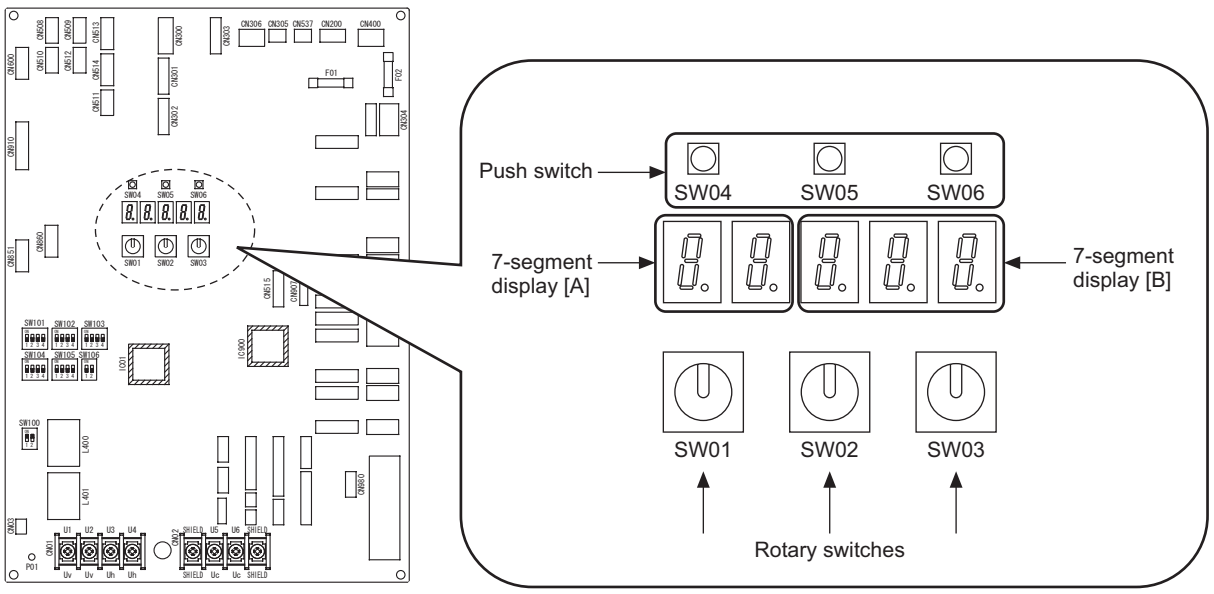
9-3-4. Remote Controller Distinction Function

This function is provided to distinguish the remote controller connected to the indoor unit from the outdoor unit for a refrigerant circuit system by using switches on the interface P.C. board of the header unit.

<Distinction procedure>



Interface P.C. board



9-9-5. Pulse Motor Valve (PMV) Forced Open/Close Function in Indoor Unit

This function is provided to open or close forcedly PMV for 2 minutes in all the indoor units by the switch operation on the interface P.C. board of the header unit.

This function is also used to open PMV fully when turning off the power and executing an operation.

<Operation>

[Open fully]

Set the switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/3/1], and press SW04 for 2 seconds or more.
(Display appears on 7-segment display for 2 minutes as follows.) [P] [FF]

[Close fully]

Set the switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/3/1], and press SW05 for 2 seconds or more.
(Display appears on 7-segment display for one minute as follows.) [P] [00]

[Clear]

After 2 minutes (1 minutes for “Close fully”) after setting up, the opening automatically returns to the normal opening.

9-9-6. Pulse Motor Valve (PMV) Forced Open/Close Function and Solenoid valve Forced ON Function in Outdoor Unit

The solenoid valves provided to outdoor units can be forced ON (open) by switching operations at the interface P.C. board of the outdoor unit.
Also, the pulse motor valves (PMV1, PMV2, PMV3, PMV4) of the outdoor unit can be forced to full-open, half open, and full-closed for two minutes.
Use this function to check for valve or PMV malfunctioning, clogging, and so forth.

[Control start method]

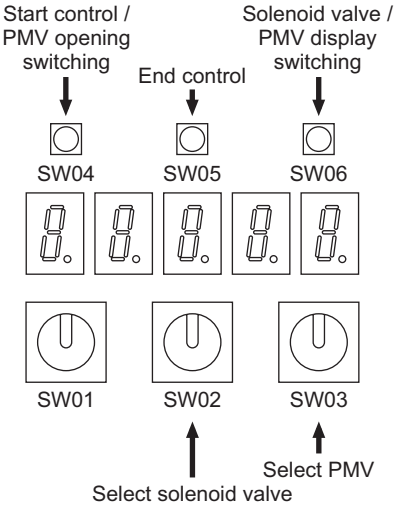
(1) Set the rotary switches [SW01/SW02/SW03] on the interface P.C. board of the outdoor unit to [2/1/3]. When [H.r] is displayed, press the push switch [SW04] for one second or longer, which changes the display to [H. r – – –], and this control is started.

[Method to switch solenoid valve/PMV display]

(1) Solenoid valve display is made immediately after starting control. The 7-segment display is [H. r – – –].

(2) Pressing the push switch [SW06] switches the display to [P. ∗], which is PMV display. Each time the push switch [SW06] is pressed, the display changes between solenoid valve display and pulse motor valve (PMV) display.

[H. r – – –] Solenoid valve display ⟷ [P. ∗ ∗ ∗ ∗] PMV display
(long-press SW06 for 1 second)



(3) Follow the method below for solenoid valve and PMV operations.
* Take care, as operations of each of the solenoid valve and PMV are enabled, regardless of which is displayed.

[Method of operating solenoid valve (forced ON)]

(1) Set the rotary switch [SW02] to 2, and five seconds later SV41 will come ON. [H.r 41] will be displayed in the 7-segment display in the solenoid valve display screen.

(2) Any desired solenoid valve can be forced ON by changing the setting No. of the rotary switch [SW02]. The following table shows the forced-ON/normal control patterns for each solenoid valve.

Rotary switch			7-segment display (solenoid valve display)	Operation patterns of solenoid valve/heater (✓ : Forced ON, – : normal control)				
SW01	SW02	SW03		SV41	SV42	SV3D	SV3F	Compressor 1, 2 case heater
2	1	# Used in PMV operations	[H.r – – –]	–	–	–	–	✓
	2		[H.r 4 1]	✓	–	–	–	✓
	3		[H.r 4 2]	–	✓	–	–	✓
	4		[H.r 3 D]	–	–	✓	–	✓
	5		[H.r 3 F]	–	–	–	✓	✓
	6		[H.r 3 –]	–	–	✓	✓	✓
	7 ~ 15		[H.r – – –]	–	–	–	–	✓
	16		[H.r A L L]	✓	✓	✓	✓	✓

* The 7-segment display will show [H.r—] for outdoor unit models that do not have solenoid valves.

[Method of operating pulse motor valve (PMV) (forced open/close)]

(1) Use the rotary switch [SW03] to select the PMV to operate.
When [P#.] is displayed in the PMV display, PMV# is operating according to normal control.
(#: selected PMV No.)

(2) Pressing the push switch [SW04] for one second sets the selected PMV# to full-open.
The PMV display will be [P# . F o].
Each time the push switch [SW04] is pressed again for one second, the opening changes in the order of full-open [P# . F o] → half-open [P# . C o] → full-closed [P# . F c] → normal control [P# .] → full-open [P# . F o] → ... , and so on.

(3) The PMV opening returns to normal control after two minutes elapses from changing the opening.

(Operation method example) Operation of PMV 1

Rotary switch			Push switch	7-segment display (pulse motor valve (PMV) display)	Opening	
SW01	SW02	SW03	SW04 (Change PMV opening)			
2	* Used in solenoid valve selection	3	Long-press 1 second → [P1.] → Long-press 1 second → [P1.F o] → Long-press 1 second → [P1.C o] → Long-press 1 second → [P1.F c] → Long-press 1 second → [P1.]	[P1.]	PMV1 Normal control	2 minutes elapsed
				[P1.F o]	PMV1 Full-open	2 minutes elapsed
				[P1.C o]	PMV1 Half-open	2 minutes elapsed
				[P1.F c]	PMV1 Full-closed	

(4) To operate a different PMV, select with the rotary switch [SW03], and operate the opening with the push switch [SW04].
Even when [SW03] is switched, the PMV opening operated immediately before remains effective, so up to four PMV openings can be operated in parallel.

Rotary switch			Push switch	7-segment display (pulse motor valve (PMV) display)	Opening
SW01	SW02	SW03	SW04		
2	* Used in solenoid valve selection	3	Long-press 1 second to change opening	[P1.]	PMV1 Normal control
				[P1.F o]	PMV1 Full-open
				[P1.C o]	PMV1 Half-open
				[P1.F c]	PMV1 Full-closed
		4	Long-press 1 second to change opening	[P2.]	PMV2 Normal control
				[P2.F o]	PMV2 Full-open
				[P2.C o]	PMV2 Half-open
				[P2.F c]	PMV2 Full-closed
		5	Long-press 1 second to change opening	[P3.]	PMV3 Normal control
				[P3.F o]	PMV3 Full-open
				[P3.C o]	PMV3 Half-open
				[P3.F c]	PMV3 Full-closed
		6	Long-press 1 second to change opening	[P4.]	PMV4 Normal control
				[P4.F o]	PMV4 Full-open
				[P4.C o]	PMV4 Half-open
				[P4.F c]	PMV4 Full-closed

[Cancelation method]

To cancel (end) control of this function, perform one of the following methods.
The solenoid valve and pulse motor valve (PMV) will return to normal control.

- Press the push switch [SW05] for one second or longer.
- Set the rotary switch [SW01] to other than [2].

9-9-7. Fan Operation Check in Outdoor Unit

This function is provided to check the fan operation of the outdoor unit by using switches on the interface P.C. board in the outdoor unit. The fan speed can be controlled by setting of the switches. Use this function to check the operation or abnormal sound in the fan system. And, use this function while the system is stopped.

NOTE) Do not use this function during operation of the compressor. It may damage the compressor.
Two fans move synchronously in two fan model (MMY-MUP14A1* to MUP2401*).

[Operation]

(1) Set the switches SW01/SW02/SW03 on the interface P.C. board of the outdoor unit to [2/1/4].
(2) When [F. d] is displayed in 7-segment display [A], keep pressing the switch SW04 for 2 seconds or more.
(3) When [63] is displayed in 7-segment display [B], the fan starts operation. (Max. mode operation)
(4) After that, by changing the setup number of the switches SW02 and SW03, 7-segment display [B] and the fan mode are changed.
(Mode output pattern of the fan is as follows.)

SW02	SW03	7-segment display [B]	Fan mode
1	4	[63]	63
2		[62]	62
3		[61]	61
4		[60]	60
5		[59]	59
6		[58]	58
7		[57]	57
8		[56]	56
9		[55]	55
10		[54]	54
11		[53]	53
12		[52]	52
13		[51]	51
14		[50]	50
15		[49]	49
16		[48]	48
1	5	[47]	47
2		[46]	46
3		[45]	45
4		[44]	44
5		[43]	43
6		[42]	42
7		[41]	41
8		[40]	40
9		[39]	39
10		[38]	38
11		[37]	37
12		[36]	36
13		[35]	35
14		[34]	34
15		[33]	33
16		[32]	32

SW02	SW03	7-segment display [B]	Fan mode
1	6	[31]	31
2		[30]	30
3		[29]	29
4		[28]	28
5		[27]	27
6		[26]	26
7		[25]	25
8		[24]	24
9		[23]	23
10		[22]	22
11		[21]	21
12		[20]	20
13		[19]	19
14		[18]	18
15		[17]	17
16		[16]	16
1	7	[15]	15
2		[14]	14
3		[13]	13
4		[12]	12
5		[11]	11
6		[10]	10
7		[9]	9
8		[8]	8
9		[7]	7
10		[6]	6
11		[5]	5
12		[4]	4
13		[3]	3
14		[2]	2
15		[1]	1
16		[0]	0

[Clear]

This function is cleared by one of the following operations.
(1) When SW01 setting number was changed to other number.
(2) Press-switch SW05 was pressed for 2 seconds or more.

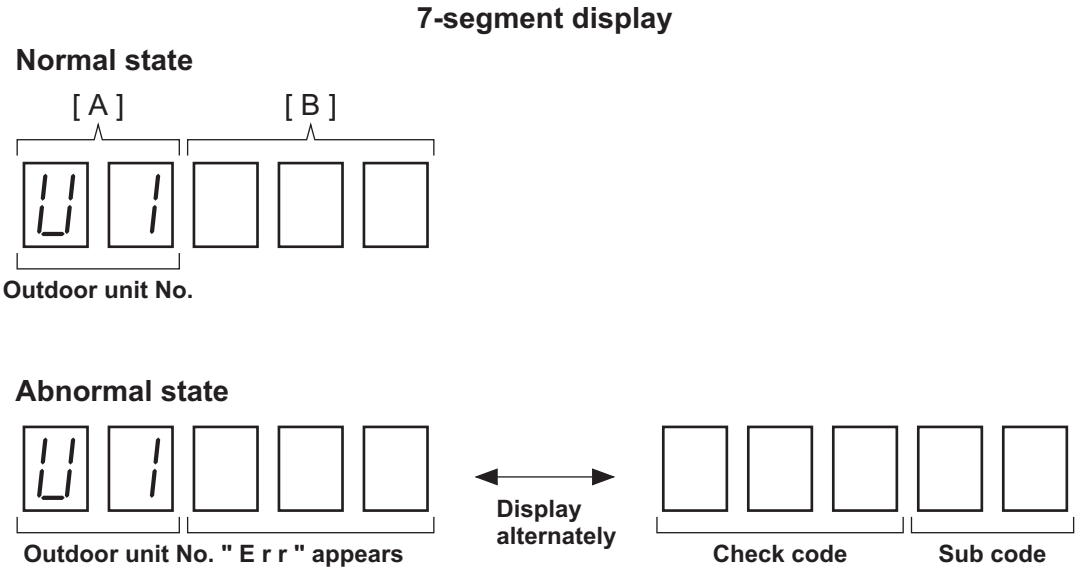
9-9-8. Abnormal Outdoor Unit Discrimination Method By Fan Operating Function

This function is provided to forcedly operate the fan of the outdoor unit in which a check code occurred or the fan of the normal outdoor unit by the switch operation on the interface P.C. board in the header unit.
To specify which one of the follower units connected to the system had problem, use this function for the system stop due to a follower unit problem (Check code [E28]).

[Operation]

<In case to operate the fan in the failed outdoor unit only>

(1) Check that the switches SW01/SW02/SW03 on the interface P.C. board in the header unit are set to [1/1/1].



(2) Press the push-switch SW04 for 2 seconds or more.
(3) [E 1] is displayed on 7-segment display [A].
(4) The fan of the outdoor unit in which problem occurred starts operation within approx. 10 seconds after [E 1] was displayed.

<In case to operate the fans in all the normal outdoor units>

(1) Check that the switches SW01/SW02/SW03 on the interface P.C. board in the header unit are set to [1/1/1].
(2) Press the push-switches SW04 and SW05 at the same time for 2 seconds or more.
(3) [E 0] is displayed on 7-segment display [A].
(4) The fans of all the normal outdoor units start operation with the Max. fan speed within approx. 10 seconds after [E 0] was displayed.

[Release]

Press the push-switch SW05 on the interface P.C. board in the header unit for 2 seconds or more.
The outdoor fan which was operated stops.
* Check that [U. 1] is displayed on 7-segment display [A], and then finish the work.

9-9-9. Manual Adjustment Function of Outside Temperature (TO) Sensor

This function is provided to fix TO sensor value manually by the switch operation on the interface P.C. board in the outdoor unit. When the unit stops abnormally due to TO sensor failure, etc, an emergent operation is available by setting up the value manually to position near the current outside temperature.

[Operation]

(1) Set the rotary switches on the interface P.C. board to numbers as follows:
- SW01/SW02/SW03 to [2/1/15]
- 7-segment display: [t o]

(2) Keep pressing the push-switch SW04 on the interface P.C. board for 1 second or more. The mode changes to the TO sensor value fix manual mode.

(3) Pressing the push-switch SW04 increases the setting temperature and pressing the SW05 decreases the setting temperature. Set the temperature to any values.

[Clear]

Return SW01/SW02/SW03 on the interface P.C. board in the outdoor unit to [1/1/1].

NOTE) If operated with TO sensor fixed by this function, the system control operation of the air conditioner may not be based on the specification of the product. Therefore an emergent operation should be restricted to a day or so.
When the outside temperature is 45ºC or more, set to 45ºC (SW02=”9")

<Service support function list>

SW01	SW02	SW03	7-segment display [A]	Function contents
2	1	1	[J . C]	Refrigerant circuit and control communication line check function (Cooling operation)
	2		[J . H]	Refrigerant circuit and control communication line check function (Heating operation)
	3		[P .]	Indoor PMV forced full open function
	4		[A . 1]	Indoor remote controller discriminating function
	5		[C .]	Cooling test operation function
	6		[H .]	Heating test operation function
	7		[C . H]	Indoor collective start/stop (ON/OFF) function
	9		[F .]	Fan test operation function
	11		[r . d]	Outdoor refrigerant recovery operation function (Reclaim function)
	16		[E . r]	Check code clear function

2	1~16	3	[H . r]	Solenoid valve forced open/close function
2	1~16	4~7	[F . d]	Fan forced operation function
2	1~16	15	[t . o]	Outside temperature sensor manual adjustment function

16	1 to 16	1	[01] to [16]	Indoor No. 1 to 16	Set number of SW02
		2	[17] to [32]	Indoor No. 17 to 32	Set number of SW02 + 16
		3	[33] to [48]	Indoor No. 33 to 48	Set number of SW02 + 32
		4	[49] to [64]	Indoor No. 49 to 64	Set number of SW02 + 48
		5	[65] to [80]	Indoor No. 65 to 80	Set number of SW02 + 64
		6	[81] to [96]	Indoor No. 81 to 96	Set number of SW02 + 80
		7	[97] to [112]	Indoor No. 97 to 112	Set number of SW02 + 96
		8	[113] to [128]	Indoor No. 113 to 128	Set number of SW02 + 112

SW01	SW02	SW03	7-segment display [A/B]	Function contents
1	1	1	[U 1] [E28]	Follower unit check code / Corresponding unit fan operation function

9-9-10. Refrigerant leakage detection

The refrigerant leakage can be confirmed by using the switches on Interface P.C.board of the outdoor unit.
If there is a leak, the location must be found in order to recover the refrigerant.
After that, implement appropriate countermeasure and refill the refrigerant to its standard volume.
Refrigerant leaks can be detected by comparing the Actual opening of PMV with the Calculated opening of

PMV* during the operation.
* Calculated opening of PMV: calculated from the initial value(C.i/H.i), the pressure sensor value (C.i/H.i), the compressor's , and the opening of PMV. The initial values are automatically saved when the specified

conditions are met.
(A leak can be detected only when C.i/H.i = 1)

[Operation]

(1) Confirming the refrigerant leakage
Set SW01 to 03 as shown in the following table to confirm whether the leaks are being detected.
(It also can be confirmed by remote control monitor function. Refer to 7-7-12. Monitor function of remote controller switch.)

(2) Clearing the initial value
If the system is changed (e.g. indoor units are increased/replaced, outdoor units are moved, or refrigerant is

SW01	SW02	SW03	Display detail		
2	13	14	Refrigerant leakage detection	A	[L. d]
				B	Normal: [… … 0] Possibility of leakage: [… … 1] Clear the data: […C.L] (Only Display for 5 seconds)

refilled/increased) it is necessary to clear the initial value that had been saved.
Make sure that the compressor has stopped, and then press and hold SW04 for at least 5 seconds.

SW01	SW02	SW03	Display detail		
2	14	14	Cooling initial value	A	[C. i]
				B	Incomplete: [… … 0] Completed: [… … 1]
2	15	14	Heating initial value	A	[H. i]
				B	Incomplete: [… … 0] Completed: [… … 1]

(3) Checking the record of the initial value
Set SW01 to 03 as shown in the following table to confirm the record of the initial value.

[Clear]

Return SW01/SW02/SW03 on the Interface P.C.board in the outdoor unit to [1/1/1] .

NOTE)

(a) During the operation, the slow leaks can be detected.
However, if the air-conditioner cannot cooling down / cannot warming up / make an unusual stop, the slow leaks might not be detectable. The fast leaks always cannot be detected.

(b) Poor refrigerant circulation may be detected as a refrigerant leaks.
(e.g. plugged strainers / capillaries, malfunction / clogging of the PMV / 2-way valve / 4-way valve)

(c) Due to the outside temperature, the initial value may not be recorded, or it may be impossible to determine the leakage.

(d) The initial value cannot be saved until the accumulated operating time has reached at least 20 hours.

(e) The initial value cannot be saved if the indoor unit's operating ratio is low.

(f) If the following indoor units are connected, leakage determination is not possible.
• Air to air heat exchanger with DX coil unit

9-9-11. Monitor Function of Remote Controller Switch

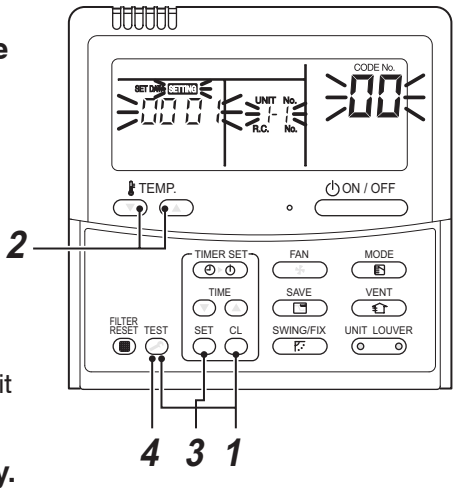
Switching to the service monitor mode

<Content>

The sensor temperature or operation status of the remote controller, indoor unit, or the outdoor unit can be known by switching to the service monitor mode from the remote controller.

[Procedure]

<RBC-AMT32E>



1 **Push TEST + CL buttons simultaneously for 4 seconds or more to call up the service monitor mode.**

The service monitor goes on, and temperature of the CODE No. 00 is firstly displayed.

2 **Push the temperature setup TEMP. buttons to select the CODE No. to be monitored.**

For displayed codes, refer to the table next page.

3 **Push SET button to determine the item to be monitored.**

Then monitor the sensor temperature or operation status of indoor unit and the outdoor unit in the corresponding refrigerant line.

4 **Pushing TEST button returns the display to the normal display.**

<RBC-ASCU11-C>

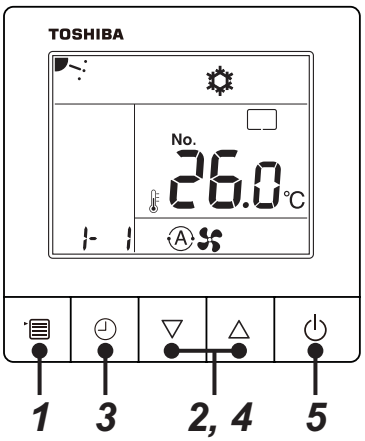
1 **Push the [menu] button for over 10 seconds.**

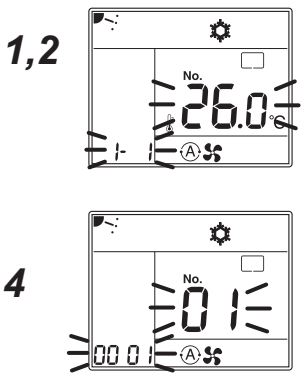
2 **Every pushing [▽] [△] buttons, the indoor unit numbers in group control are displayed successively.**

3 **Push the [OFF timer] button to confirm the selected indoor unit.**

4 **Every pushing [▽] [△] buttons, CODE No. of the item is changed successively.**

5 **After you have finished checking, push the [ON/OFF] button to return to normal mode.**





	Code No.	Data name	Display format	Unit	Remote controller display example
Indoor unit data *2	00	Room temperature (Use to control)	X1	°C	[0024]=24°C
	01	Room temperature (Remote controller)	X1	°C	
	02	Indoor suction air temperature (TA)	X1	°C	
	03	Indoor coil temperature (TCJ)	X1	°C	
	04	Indoor coil temperature (TC2)	X1	°C	
	05	Indoor coil temperature (TC1)	X1	°C	
	06	Indoor discharge air temperature (TF) *1	X1	°C	
	07	Indoor fan motor number of revolutions	X10	rpm	[0100]=1000rpm
	08	Indoor PMV opening	X1/10	pls	[0150]=1500pls
	F3	Filter sign time	X1	h	[2500]=2500h
	F9	Suction exchanger (TSA) *1 temperature of air to air heat	X1	°C	[0024]=24°C
	FA	Outside air temperature (TOA) *1	X1	°C	
System data	0A	No. of connected indoor units	X1	units	[0048]=48 units
	0B	Total horsepower of connected indoor units	X10	HP	[0415]=41.5HP
	0C	No. of connected outdoor units	X1	units	[0003]=3 units
	0D	Total horsepower of outdoor units	X10	HP	[0420]=42HP

	Code No.					Data name	Display format	Unit	Remote controller display example
	U1	U2	U3	U4	U5				
Outdoor unit individual data 1 *3	10	20	30	40	50	High-pressure sensor detection pressure(Pd)	X100	Mpa	[0123]=1.23MPa
	11	21	31	41	51	Low-pressure sensor detection pressure (Ps)	X100	Mpa	
	12	22	32	42	52	Compressor 1 discharge temperature (TD1)	X1	°C	[0024]=24°C
	13	23	33	43	53	Compressor 2 discharge temperature (TD2)	X1	°C	
	14	24	34	44	54	Suction temperature (TS1)	X1	°C	
	15	25	35	45	55	Suction temperature (TS3)	X1	°C	
	16	26	36	46	56	Outdoor heat exchanger temperature (TE1)	X1	°C	
	17	27	37	47	57	Outdoor sub-heat exchanger temperature (TE2)	X1	°C	
	18	28	38	48	58	Outdoor sub-heat exchanger temperature (TE3)	X1	°C	
	19	29	39	49	59	Outside ambient temperature (TO)	X1	°C	
	1A	2A	3A	4A	5A	Temperature at liquid side (TL1)	X1	°C	
	1B	2B	3B	4B	5B	Suction temperature (TS2)	X1	°C	
	1C	2C	3C	4C	5C	Suction temperature (TS3)	X1	°C	
	1D	2D	3D	4D	5D	Outdoor coil temperature (TG1)	X1	°C	
	1E	2E	3E	4E	5E	Outdoor coil temperature (TG2)	X1	°C	
	1F	2F	3F	4F	5F	Outdoor coil temperature (TG3)	X1	°C	

	Code No.					Data name	Display format	Unit	Remote controller display example
	U1	U2	U3	U4	U5				
Outdoor unit individual data 2 *4	60	70	80	90	A0	Compressor oil temperature 1 (TK1)	X1	°C	[0024]=24°C
	61	71	81	91	A1	Compressor oil temperature 2 (TK2)	X1	°C	
	62	72	82	92	A2	PMV 1 opening	X1	pls	[0500]=500pls
	63	73	83	93	A3	PMV 2 opening	X1	pls	
	64	74	84	94	A4	PMV 3 opening	X1	pls	
	65	75	85	95	A5	PMV 4 opening	X1	pls	
	66	76	86	96	A6	Compressor 1 current (I1)	X10	A	[0135]=13.5A
	67	77	87	97	A7	Compressor 2 current (I2)	X10	A	
	68	78	88	98	A8	Compressor 1 revolutions	X10	rps	[0642]=64.2rps
	69	79	89	99	A9	Compressor 2 revolutions	X10	rps	
	6A	7A	8A	9A	AA	Outdoor fan mode	X1	mode	[0058]=58 mode
	6B	7B	8B	9B	AB	Inverter of Compressor 1 heat sink temperature (TH1)	X1	°C	[0024]=24°C
	6C	7C	8C	9C	AC	Inverter of Compressor 2 heat sink temperature (TH2)	X1	°C	
	6D	7D	8D	9D	AD	Inverter of outdoor fan 1 heat sink temperature (TH Fan1)	X1	°C	
	6E	7E	8E	9E	AE	Inverter of outdoor fan 2 heat sink temperature (TH Fan2)	X1	°C	
	6F	7F	8F	9F	AF	Outdoor unit horsepower	X1	HP	[0016]=16HP

	Code No.	Data name	Display format	Unit	Remote controller display example
Outdoor unit individual data 3 *5	B0	Heating/cooling recovery control	0 : Normal 1 : Recovery controlled		[0010]=Heating recovery control [0001]=Cooling recovery control
	B5	Instantaneous electric power	X1/10	W	[0090]=900W
	B6	Integrated electric power consumption	X1/100	Wh	[0090]=9000Wh
	B8	Termination resistance setting indoor unit address display	9999 : No setting 1～ : Setting address		[9999]=Case where no terminating resistance is set to any of the indoor units [0048]=Termination resistance setting Indoor unit address 48
	B9	Communications protocol	0 : TCC-LINK 1 : TU2C-LINK		[0000]=TCC-LINK [0001]=TU2C-LINK
	BA	Uv line communication speed	0 : 9600 bps 1 : 19200 bps		[0000]=9600bps [0001]=19200bps
	BB	Demand control	0 : Normally 1 : Demand control		[0000]=Normally [0001]=Demand control

*1 Only a part of indoor unit types is installed with the discharge air temperature sensor. This temperature is not displayed for other types.
*2 When the units are connected to a group, data of the header indoor unit only can be displayed.
*3 The first digit of code No. indicates the outdoor unit number.
*4 The upper digit of code No. -5 indicates the outdoor unit number.
1＊, 6＊ ... U1 outdoor unit (Header unit)
2＊, 7＊ ... U2 outdoor unit (Follower unit 1)
3＊, 8＊ ... U3 outdoor unit (Follower unit 2)
4＊, 9＊ ... U4 outdoor unit (Follower unit 3)
5＊, A＊ ... U5 outdoor unit (Follower unit 4)
*5 Only the Code No. "B＊" of U1 outdoor unit (Header unit) is displayed.

10. 7-Segment Display Function

10-1. Display of System Information (Displayed on Header Outdoor Unit Only)

SW01	SW02	SW03	Display detail		
1	1	3	–	–	
	2		System capacity	A	[…8]~[120]:8 to 120 HP
				B	[HP]
	3		No. of outdoor units	A	[…1]~[…5]:1 to 5
				B	[…P]
	4		No. of indoor units connected / No. of units with cooling thermostat ON	(1) [... ... ... 0] ~ [... ... 128] : 0 ~ 128 (Number of connected units) (2) [C ... ... 0] ~ [C ... 128] : 0 ~ 128 (Number of cooling thermostat ON) *Switch the display of (1) and (2) with SW04	
	5		No. of indoor units connected / No. of units with heating thermostat ON	(1) [... ... ... 0] ~ [... ... 128] : 0 ~ 128 (Number of connected units) (2) [H ... ... 0] ~ [H ... 128] : 0 ~ 128 (Number of heating thermostat ON) *Switch the display of (1) and (2) with SW04	
	6		Amount of compressor command correction	A	Value displayed in hexadecimal format
				B	
	7		Release control	A	Normal: [r. …], During release control: [r.1]
				B	–
	8		Oil equalization control	Normal: [oiL-0]	
				During oil equalization control: [oiL-1]	
	9		Oil equalization request	A	Displayed through LED segment lighting pattern
				B	Display section A Display section B A F G B E D Dp U1 U2 U3 U4 U5 Outdoor unit No. "A" Light on : Header . Oil equalization demand "F" Light on : Header . Oil equalization demand "C" Light on : Follower . Oil equalization demand
	10		Refrigerant/oil recovery operation	A	Oil recovery in cooling: [C1], Normal: [C …]
				B	Refrigerant recovery in heating: [H1], Normal: [H …]
	11		Automatic addressing	A	[Ad]
				B	During automatic addressing: [… FF], Normal: [… … …]
	12		Power peak-cut	A	[dU]
					Normal: [… … …], During 50-90% capacity operation: [_50-_90] While control is based on BUS line input: [E50-E90]
	13		Optional control (P.C. board input)	Displays optional control status	A: – / B: –
				Operation mode selection: During priority heating (normal)	A: h.*. / B: *.*.*
				Priority cooling	A: c.*. / B: *.*.*
				Heating only	A: H.*. / B: *.*.*
				Cooling only	A: C.* / B: *.*.*
				Priority given to No. of indoor units in operation	A: n.*. / B: *.*.*
				Priority given to specific indoor unit	A: U.*. / B: *.*.*
				External master ON/OFF: Normal	A: *..... / B: *.*.*
				Start input	A: *.1. / B: *.*.*
				Stop input	A: *.0. / B: *.*.*
				Night operation: Normal	A: *.*. / B: ....*.*
				Start input	A: *.*. / B: 1.*.*
				Snowfall operation: Normal	A: *.*. / B: *.....*
				Start input	A: *.*. / B: *.1.*
	14		Optional control (BUS line input)	Same as above	
	15		–		–
	16		–	A	–
				B	–
		15	No. of HWM (Hot water module) recorded on the I/F P.C.board	A	[ho]
				B	[...0] to [...2] = 0 to 2

10-2. Display of Outdoor Unit Information (Displayed on Each Outdoor Unit)

SW01	SW02	SW03	Display detail				
1	1	1	Check code data	A	Outdoor unit No.: [U1] to [U5]		
				B	If there is no check code, [U. ∗. − − −] is displayed. If there is check code, [U. ∗. err] ⇔ [OOO]. [△△] ([OOO] : Check code, [△△] : Sub-code) . . . (The display switches alternately) (∗: Outdoor unit No.)		
			<SW04> push SW function: Fan operation at outdoor unit with trouble. 7-segment display section A: [E.1] <SW04 + SW05> push SW function: Fan operation at outdoor unit without trouble. 7-segment display section A: [E.0] <SW05> push SW function: Fan operation function check mode is cancelled.				
	2		–	A	–		
				B	–		
	3		Operation mode	A	Stop [… …] Normal cooling: [… C], Normal heating: [… H], Normal defrosting: [… J]		
				B	–		
	4		Outdoor unit HP capacity	A	8HP: [… 8], 10HP: [… 10], 12HP: [… 12], 14HP: [14], 16HP: [16], 18HP: [18], 20HP: [20], 22HP: [22], 24HP: [24]		
				B	[…HP]		
	5		Compressor operation command*Operation data of each compressor is displayed in turn in 2 second intervals.				
			Normal: Compressor speed (rps) is displayed in decimal format. 7-segment display (A/B): [C 1. ... ...] ⇒ [... ∗ ∗ ∗, ∗] ⇒ [C 2. ... ...] ⇒ [... ∗ ∗ ∗, ∗]				
			<SW04> push SW function: Switches to display of operating current (decimal value). 7-segment display (A/B): [i 1. … … …] ⇒ [… ∗ ∗ ∗, ∗] ⇒ [i 2. … … …] ⇒ [… ∗ ∗ ∗, ∗] ⇒ … Pressing of <SW05> restores normal display.				
	6		Outdoor fan mode	A	[FP]		
				B	Mode 0 to 63: [… 0] to [63]		
	7		Compressor backup	A	[C.b.]		
				B	Displays compressor backup setting status Normal: [… … …] Compressor No. 1 backup: [1 … …] Compressor No. 2 backup: [… 1 …]		
	8		–	A	–		
				B	–		
	9		Control valve output data	Displays control output status of solenoid valve		A	B
				4-way valve: ON		H. 1	... ...
				4-way valve: OFF		H. 0	... ...
	10			—		—	—
	11			SV3D: OFF		3. 1	0 0 0
				SV3D: OFF		3. 0	1 0 0
				SV3D: OFF		3. 0	0 1 0
				SV3D: ON		3. 0	0 0 1
	12			SV41: ON / SV42: OFF		4. ...	1 0 0
				SV41: OFF / SV42: ON		4. ...	0 1 0
	14		PMV1//PMV2PMV3 opening	Displays opening data in decimal format. "Switch display of PMV1, PMV2, and PMV3 by pressing <SW04>"	PMV1	∗ ∗	∗ ∗ .P
					PMV2	... ∗	∗ ∗ .P
					PMV3	... ∗	∗ ∗ .P
	15		PMV4 opening	Displays opening data in decimal format.	PMV4	… ∗	∗ ∗. P
	16		Oil level judgment status				
			Normal	A	[o L.]		
				B	Initial display: [… … …], Oil level judgment result: [#.∗.$] Displayed letters #, ∗ and $ represent judgment results for compressor Nos. 1 and 2, respectively (“0” for normal and “1” or “2” for low level).		
			<SW04> push SW function: Displays low level confirmed judgment result of each compressor.				
			*Pressing of <SW05> restores normal display.	A	[L d.]		
				B	Compressor No. 1 low level being confirmed: [L … …] Compressor No. 2 low level being confirmed: [… L …]		
			<SW15> push SW function : for 2 seconds, change display to low level judgement timer				
			*Pressing of <SW05> restores normal display	A	[T …,]		
				B	Low level judgment timer : [120] (i.e. : 120 minutes)		

10-3. Display of Outdoor Cycle Data (Displayed at Each Outdoor Unit)

SW01	SW02	SW03	Display detail				
1	1	2	Pd pressure data	Pd pressure (MPaG) is displayed in decimal format. (MPaG: Approx. 10 times magnitude of kg/cm^{2}G)		A	B
						P d.	∗. ∗ ∗
	2		Ps pressure data	Ps pressure (MPaG) is displayed in decimal format.		P s.	∗. ∗ ∗
	3		PL pressure conversion data	Converted PL pressure (MPaG) is displayed in decimal format.		P L.	∗. ∗ ∗
	4		TD1 sensor data	Temperature sensor reading (°C) is displayed in decimal format. • Letter symbol and data are displayed alternately, for 1 second and display for 3 seconds, respectively. • Data is displayed in [∗]. • Data with negative value is displayed as [– ∗].	Letter symbol	t d	1 ... ...
					Data	∗	∗. ∗ ∗
	5		TD2 sensor data		Letter symbol	t d	2 ... ...
					Data	∗	∗. ∗ ∗
	7		TS1 sensor data		Letter symbol	t S	1 ... ...
					Data	∗	∗. ∗ ∗
	9		TS3 sensor data		Letter symbol	t S	3 ... ...
					Data	∗	∗. ∗ ∗
	10		TE1 sensor data		Letter symbol	t E	1 ... ...
					Data	∗	∗. ∗ ∗
	11		TE2 sensor data		Letter symbol	t E	2 ... ...
					Data	∗	∗. ∗ ∗
	12		TE3 sensor data		Letter symbol	t E	3 ... ...
					Data	∗	∗. ∗ ∗
	13		TL1 sensor data		Letter symbol	t L	1 ... ...
					Data	∗	∗. ∗ ∗
	14		TL2 sensor data		Letter symbol	t L	2 ... ...
					Data	∗	∗. ∗ ∗
	15		TL3 sensor data		Letter symbol	t L	3 ... ...
					Data	∗	∗. ∗ ∗
	16		TO sensor data		Letter symbol	t o	... ...
					Data	∗	∗. ∗ ∗

SW01	SW02	SW03	Display detail				
1	1	5	TK1 sensor data	Temperature sensor reading (°C) is displayed in decimal format.	Letter symbol	F 1	... ...
					Data	∗	∗. ∗ ∗
	2		TK2 sensor data		Letter symbol	F 2	... ...
					Data	∗	∗. ∗ ∗
	6		TG1 sensor data		Letter symbol	t G	1 ... ...
					Data	∗	∗. ∗ ∗
	7		TG2 sensor data		Letter symbol	t G	2 ... ...
					Data	∗	∗. ∗ ∗
	8		TG3 sensor data		Letter symbol	tG	3 ... ...
					Data	∗	∗. ∗ ∗
	9		TK1_Pre data		Letter symbol	F1	PrE
					Data	∗	∗. ∗ ∗
	10		TK2_Pre data		Letter symbol	F2	PrE
					Data	∗	∗. ∗ ∗

10-4. Display of Outdoor Cycle Data (Displayed at Header Unit)

* This method is used when displaying follower unit information on the 7-segment display of the header unit.

SW01	SW02	SW03	Display detail		
3	1	1~4	Trouble data	A	[U.∗], ∗SW03 setting No. + 1 (Outdoor unit No. U2 to U5)
				B	Check code is displayed (latest one only). If there is no check code: [– – –].
	2		—	A	—
				B	—
	3		Outdoor unit HP capacity	A	[U.∗], ∗SW03 setting No. + 1 (Outdoor unit No. U2 to U5)
				B	8HP: [… 8], 10HP: [… 10], 12HP: [… 12], 14HP: [14], 16HP: [16], 18HP: [18], 20HP: [20], 22HP: [22], 24HP: [24]
	4		Compressor operation command	A	[U.∗], ∗SW03 setting No. + 1 (Outdoor unit No. U2 to U5)
				B	Indicates which compressor is ON. ∗ Any unconnected compressors is represented by "–". B When compressor No. 1 is ON 1 0 When compressor No. 2 is ON 0 1
	5		Fan operation mode	A	[U.∗], ∗SW03 setting No. + 1 (Outdoor unit No. U2 to U5)
				B	At rest: [F … 0], In mode 63: [F 6 3]
	6		Release signal	A	[U.∗], ∗SW03 setting No. + 1 (Outdoor unit No. U2 to U5)
				B	Normal: [r … …], Upon receiving release signal: [r … 1]
	7		Oil level judgment	A	[U.∗], ∗SW03 setting No. + 1 (Outdoor unit No. U2 to U5)
				B	Normal: [… … …], Low level: [… … L]
	8		Compressor 1 operating current	A	[U.∗], ∗SW03 setting No. + 1 (Outdoor unit No. U2 to U5)
				B	[∗∗.∗], ∗∗.∗ is value of operating current in decimal format.
	9		Compressor 2 operating current	A	[U.∗], ∗SW03 setting No. + 1 (Outdoor unit No. U2 to U5)
				B	[∗∗.∗], ∗∗.∗ is value of operating current in decimal format.

Note: Follower unit is selected by setting SW03.

SW03	7-segment display section A
1	U2
2	U3
3	U4
4	U5

10-5. Display of Indoor Unit Information (Displayed on Header Unit Only)

SW01	SW02	SW03	Display detail		
4	1~16	1~8	Indoor check code	B	No check code : [- - -]
			Indoor BUS communication signal receiving status	B	Upon receiving signal : [... ... 1], Other times : [..... ...]
5			Indoor HP capacity	B	... 0.3, ...0.4, ...0.5, ...0.6 ... 0.8, ...1.0, ...1.2, ...1.7, ...2.0 ... 2.5, ...3.0, ...3.2, ...4.0, ...5.0 ... 6.0, ...8.0, ...10.0, ...16.0, ...20.0
			Indoor request command (S code, operation mode)	B	[#.... *] # represents mode : COOL : [C. ... *], HEAT : [H … F] FAN : [F. ... *], OFF : [S … *] * represents S code : [#. … 0] to [#. … F]
6			Indoor PMV opening data	B	Displayed in decimal format
7			Indoor temperature sensor data1	B	Switch temperature display of TA, TCJ, TC1 and TC2 with SW06
8			Indoor temperature sensor data2	B	Switch temperature display of TF, TA2 and TA3 with SW06
9	1	1	Outdoor DN code setting		Outdoor DN code setting

Note: Indoor address No. is selected by setting SW02 and SW03 and displayed on 7-segment display, section A.

SW02	SW03	Indoor address	7-segment display section A
1 ~ 16	1	SW02 setting number	[01] ~ [16]
1 ~ 16	2	SW02 setting number +16	[17] ~ [32]
1 ~ 16	3	SW02 setting number +32	[33] ~ [48]
1 ~ 16	4	SW02 setting number +48	[49] ~ [64]
1 ~ 16	5	SW02 setting number +64	[65] ~ [80]
1 ~ 16	6	SW02 setting number +80	[81] ~ [96]
1 ~ 16	7	SW02 setting number +96	[97] ~ [112]
1 ~ 16	8	SW02 setting number +112	[113] ~ [128]

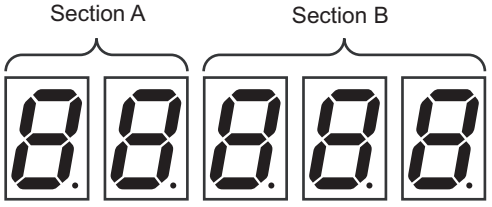
10-6. Display of Outdoor EEPROM Writing Check Code (Displayed on Header Unit Only)

* The latest check code written in the EEPROM of each outdoor unit is displayed.
  (This function is used to check the trouble code after the resetting of the power supply.)

To display the check code, push SW04 and hold for at least 5 seconds after setting SW01 to 03 as shown in the table below.

SW01	SW02	SW03	Indoor address	7-segment display section A	
1	1	16	Latest check code of header unit (U1)	E. 1.	***
	2		Latest check code of follower unit No. 1 (U2)	E. 2.	***
	3		Latest check code of follower unit No. 2 (U3)	E. 3.	***
	4		Latest check code of follower unit No. 3 (U4)	E. 4.	***
	5		Latest check code of follower unit No. 4 (U5)	E. 5.	***

• 7-Segment Display



Set SW01/SW02/SW03 to [1/1/16] and push SW04 and hold for at least 5 seconds. The latest check code of the header unit (U1) will be displayed.

If the setting of SW02 is changed, the latest check code of a follow unit (U2-U5) will be displayed.

11. Oil Level Judgment Display

The current compressor oil level judgment results can be accessed by setting the switches provided on the interface P.C. board of an outdoor unit.

Perform the checks in accordance with the procedure described below.

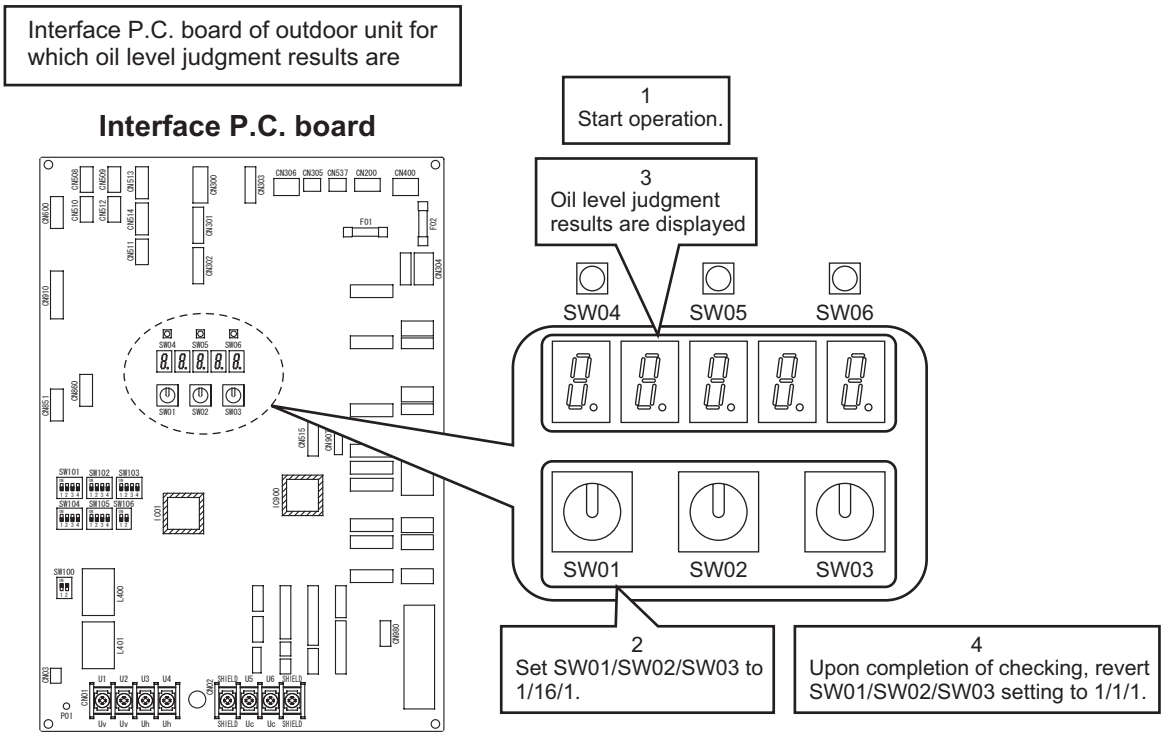
1 Operation Procedure

(1) Start the operation.

(2) Set the switches provided on the interface P.C. board of the outdoor unit for which oil level judgment results are required as follows: SW01/SW02/SW03 = 1/16/1

(3) The oil level judgment result will be displayed on the 7-segment display. 7-segment display: [oL] [# * ...]
The letters #, and * are digits that represent judgment results for compressor Nos. 1 and 2, respectively.
(See the table below for the interpretation of the judgment results.)

(4) When checking is completed, revert the SW01/SW02/SW03 setting to [1/1/1].



2 Oil Level Judgment Results

Displayed digit	Judgment result	Description
0	Normal	The amount of oil in the compressor is sufficient.
1 2	Low level	The amount of oil in the compressor is insufficient. (Both “1” and “2” stand for insufficiency.) If this result persists, the system will turn itself off in a protective shutdown.

Display example

7-segment display [oL] [0 0 ...] Oil level is normal for compressors 1 and 2.
[oL] [2 2 ...] Oil level is low for compressors 1 and 2.
[oL] [0 2 ...] Oil level is low for compressor 2 and normal for compressors 1.

Judgment result for compressor 2
Judgment result for compressor 1

12. SMMS-u Outdoor Interface P.C. Board Function Setting Change Table

1. Switch/Function Setting Change

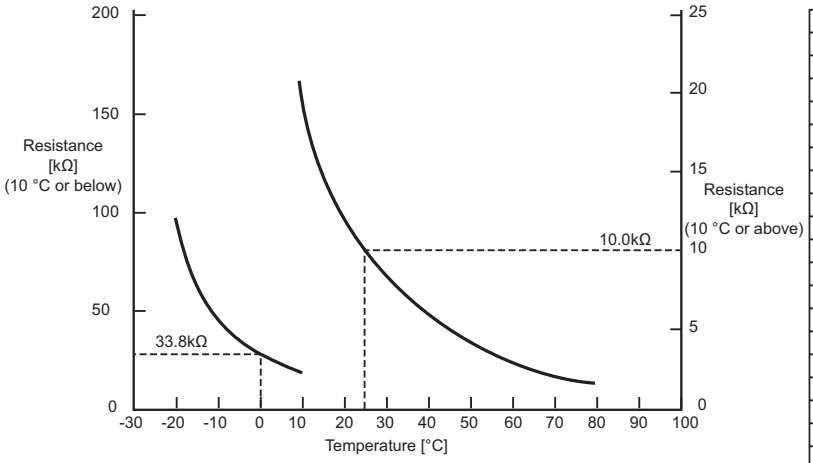
SW No.		Change contents			
SW100	DIP SW 2 bit	bit1	Uh communication termination resistance for central control	OFF: No termination resistance	ON: With termination resistance
		bit2	Uv communication termination resistance between indoor and outdoor units	OFF: No termination resistance	ON: With termination resistance
SW101	DIP SW 4 bit	bit1	Setup of header outdoor unit	OFF: Follower outdoor unit	ON: Header outdoor unit
		bit2	Line address setup	* Used by combining with SW102 (4 bit)	
		bit3			
		bit4			
SW102	DIP SW 4 bit	bit1	Line address setup	* Used by combining with SW101 (3 bit)	
		bit2			
		bit3			
		bit4			
SW103	DIP SW 4 bit	bit1	Compressor 1 backup	OFF: Normal	ON: Compressor 1 Backup when compressor 1 was in trouble
		bit2	Compressor 2 backup	OFF: Normal	ON: Compressor 2 Backup when compressor 2 was in trouble
				* All bit1 and 2 are ON : Setup of outdoor unit backup	
		■ In case of header outdoor unit			
		Bit3	Trouble judgment for over-capacity of indoor unit connection	OFF: Trouble judgement (Normal) ON: None (When outdoor unit backup set)	
		bit4	Trouble judgment for No. of connected indoor units	OFF: None	ON: Trouble judgement
SW104	DIP SW 4 bit	bit1			
		bit2			
		bit3			
		bit4			
SW105	DIP SW 4 bit	bit1	Corresponds to 2-core wire	OFF: Normal (3-core wire <Successive MAKE signal> or 4-core wire <Pulse signal>) ON: 2-core wire <Successive MAKE signal : Use only ON input terminal>	
		bit2	Demand control (Expansion change)	OFF: Normal demand (1 type)	ON: Intermediate demand (3 types)
		bit3			
		bit4			
SW106	DIP SW 4 bit	bit1	Change of EEPROM data backup function	OFF: Normal	ON: No data backup
		bit2	Communication setup reset	OFF: Normal	ON: Reset of communication setup and communication termination resistance between indoor units

13. Sensor Characteristics

Outdoor Unit

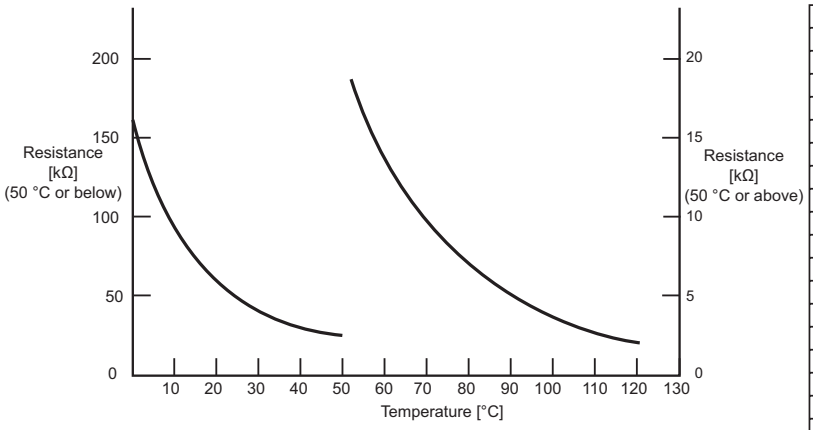
▼ Temperature sensor characteristics

Outdoor TS1, TS3, TE1, TE2, TE3, TL1, TL2, TL3 and TO sensors



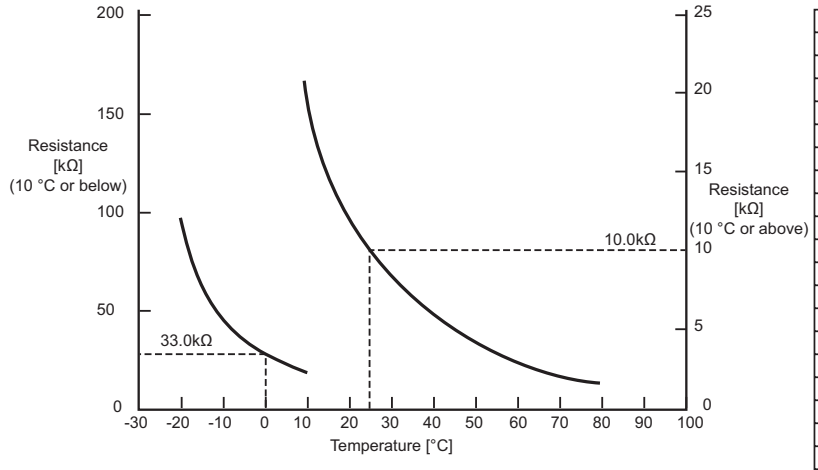
Temperature [°C]	Resistance [kΩ]
-20	101.7
-15	76.3
-10	57.7
-5	44.0
0	33.8
5	26.1
10	20.4
15	16.0
20	13.0
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.8
60	2.3
65	1.9
70	1.6
75	1.4
80	1.1

Outdoor TD1, TD2, TK1 and TK2 sensors



Temperature [°C]	Resistance [kΩ]
0	162.2
5	125.8
10	98.3
15	77.5
20	61.5
25	49.1
30	39.5
35	32.0
40	26.1
45	21.4
50	17.6
55	14.6
60	12.1
65	10.2
70	8.5
75	7.2
80	6.1
85	5.2
90	4.5
95	3.8
100	3.3
105	2.9
110	2.5
115	2.2
120	1.9

Outdoor TG1, TG2 and TG3 sensors



Temperature [°C]	Resistance [kΩ]
-20	98.9
-15	74.1
-10	56.1
-5	42.8
0	33.0
5	25.6
10	20.0
15	15.8
20	12.5
25	10.0
30	8.0
35	6.5
40	5.3
45	4.4
50	3.6
55	3.0
60	2.5
65	2.1
70	1.7
75	1.5
80	1.3

Outdoor Unit

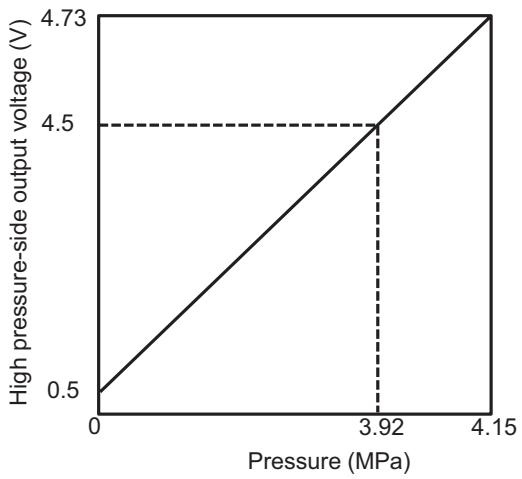
▼ Pressure sensor characteristics

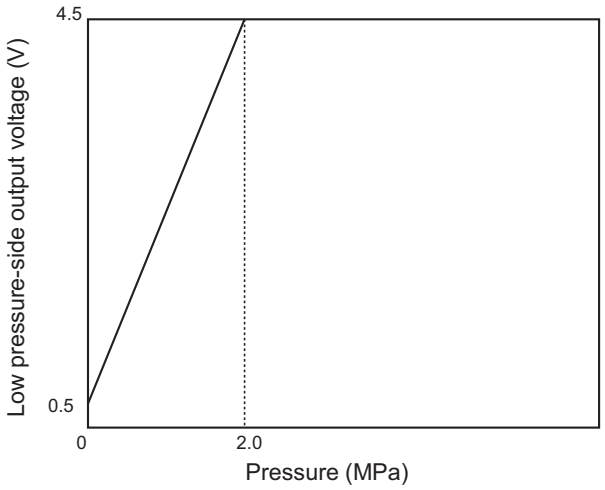
• Input/output wiring summary

Pin No.	High pressure side (PD)		Low pressure side (PS)	
	Input/output name	Lead wire color	Input/output name	Lead wire color
1	OUTPUT	White	—	—
2	—	—	OUTPUT	White
3	GND	Black	GND	Black
4	+5V	Red	+5V	Red

• Output voltage vs. pressure

High pressure side (PD)	Low pressure side (PS)
0.5~4.5V 0~3.92MPa	0.5~4.5V 0~2.0MPa

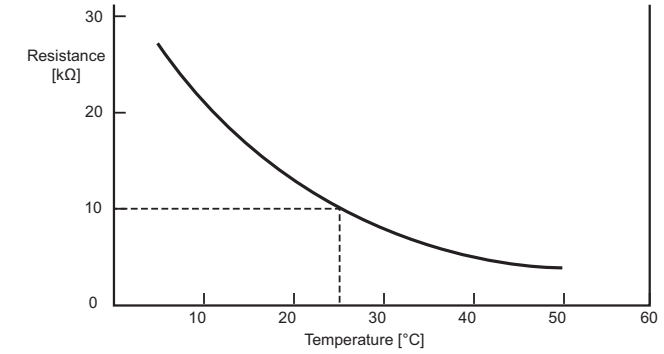




Indoor Unit

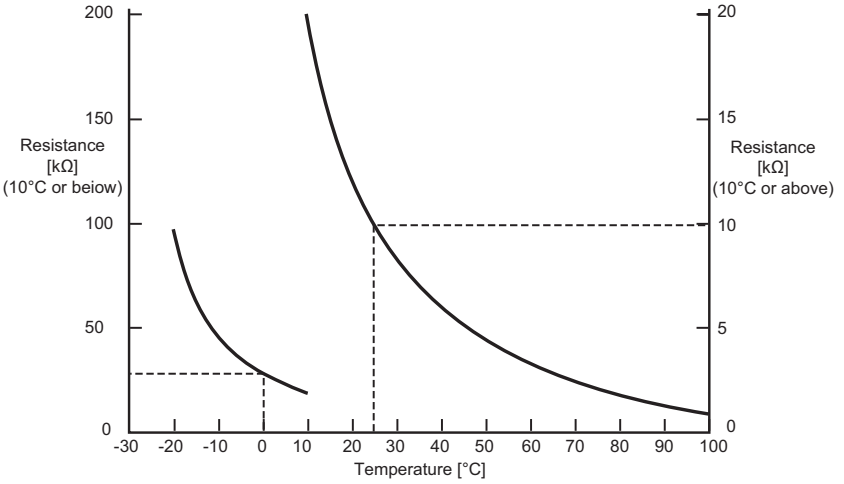
▼ Temperature sensor characteristics

Indoor TA(TSA), TRA,TF(TFA) sensor



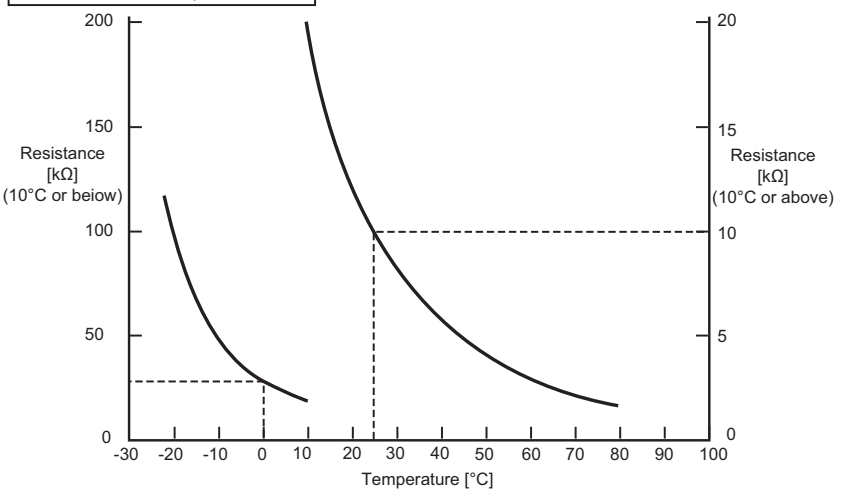
Temperature [°C]	Resistance [kΩ]
0	33.8
5	26.1
10	20.4
15	16.0
20	12.6
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.8
60	2.3

Indoor TC1 sensor



Temperature [°C]	Resistance [kΩ]
-20	98.3
-15	73.7
-10	55.8
-5	42.6
0	32.8
5	25.5
10	20.0
15	15.7
20	12.5
25	10.0
30	8.1
35	6.5
40	5.3
45	4.4
50	3.6
55	3.0
60	2.5
65	2.1
70	1.7
75	1.5
80	1.2
85	1.1
90	0.9
95	0.8
100	0.7

Indoor TC2 and TCJ, TOA sensor



Temperature [°C]	Resistance [kΩ]
-20	102.9
-15	76.6
-10	57.7
-5	44.0
0	38.8
5	26.1
10	20.4
15	16.0
20	12.6
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.8
60	2.3
65	1.9
70	1.6
75	1.4
80	1.2

14. Pressure Sensor Output Check

Outdoor Unit

▼ Pd sensor characteristics

0 to 4.15 MPa (0.5 to 4.73V output for 0 to 4.15 MPa)
Voltage readings across pins 2 and 3 of CN501 on indoor unit main P.C. board (with negative-side probe of multimeter placed on pin 3)

VOLT	Pd (MPa)	Pd (kg/cm^2)	VOLT	Pd (MPa)	Pd (kg/cm^2)
0.61	0.10	1.1	2.54	2.00	20.4
0.70	0.20	2.0	2.79	2.25	22.9
0.80	0.30	3.0	3.05	2.50	25.5
0.90	0.39	4.0	3.30	2.75	28.0
1.00	0.49	5.0	3.56	3.00	30.5
1.25	0.74	7.5	3.81	3.25	33.1
1.52	1.00	10.2	4.08	3.51	35.8
1.78	1.25	12.8	4.32	3.74	38.2
2.03	1.50	15.3	4.59	4.01	40.9
2.29	1.75	17.9	4.73	4.15	42.3

Outdoor Unit

▼ PS sensor characteristics

0 to 2.0 MPa (0.5 to 5V output for 0 to 2.0 MPa)
Voltage readings across pins 2 and 3 of CN500 on indoor unit main P.C. board (with negative-side probe of multimeter placed on pin 3)

VOLT	Ps (MPa)	Ps (kg/cm^2)	VOLT	Ps (MPa)	Ps (kg/cm^2)
0.59	0.05	0.5	2.49	1.00	10.2
0.69	0.10	1.0	2.70	1.10	11.2
0.89	0.20	2.0	2.90	2.90	12.2
1.10	0.30	3.1	3.09	3.09	13.2
1.30	0.40	4.1	3.29	3.29	14.2
1.49	0.50	5.1	3.50	3.50	15.3
1.69	0.60	6.1	3.70	3.70	16.3
1.90	0.70	7.2	4.09	4.09	18.3
2.10	0.80	8.2	4.50	4.50	20.4
2.29	0.90	9.2	4.89	4.89	22.4

15. Check the additional amount of refrigerant.

Checklist 2

Calculate total additional amount refrigerant from the compensation amount of refrigerant according to total outdoor unit horsepower (A), the additional amount of refrigerant by the pipe diameter on the liquid side and the pipe length (B),the compensation amount of refrigerant according to indoor unit horsepower (C), and the total compensation amount of refrigerant according to the system diversity (D)

Additional amount of refrigerant = Compensation amount of refrigerant according to total outdoor unit horsepower (A) + Actual liquid pipe length × Additional amount of refrigerant per 1 m of liquid pipe (B) + Compensation amount of refrigerant according to indoor unit horsepower (C) + Compensation amount of refrigerant according to the system diversity (D)

First, refer to following table below, calculate the the compensation amount of refrigerant according to total outdoor unit horsepower (A)

<Compensation amount of refrigerant according to total outdoor unit horsepower (A)>

Total outdoor unit HP	Combination HP					Compensation by total outdoor unit HP (kg)
8	8	-	-	-	-	1.5 kg
10	10	-	-	-	-	1.7 kg
12	12	-	-	-	-	2.3 kg
14	14	-	-	-	-	2.3 kg
14A	14A	-	-	-	-	0.8 kg
16	16	-	-	-	-	1.0 kg
18	18	-	-	-	-	2.0 kg
20	20	-	-	-	-	4.0 kg
22	22	-	-	-	-	5.0 kg
24	24	-	-	-	-	5.5 kg
26	14	12	-	-	-	4.6 kg
28	14	14	-	-	-	4.6 kg
30	18	12	-	-	-	4.3 kg
32	20	12	-	-	-	6.3 kg
34	20	14	-	-	-	6.3 kg
36	24	12	-	-	-	7.8 kg
38	24	14	-	-	-	7.8 kg
40	20	20	-	-	-	8.0 kg
42	24	18	-	-	-	7.5 kg
44	24	20	-	-	-	9.5 kg
46	24	22	-	-	-	10.5 kg
48	24	24	-	-	-	11.0 kg
50	24	14	12	-	-	10.1 kg
52	24	14	14	-	-	10.1 kg
54	20	20	14	-	-	10.3 kg
56	24	20	12	-	-	11.8 kg
58	24	20	14	-	-	11.8 kg
60	24	24	12	-	-	13.3 kg
62	24	24	14	-	-	13.3 kg

Total outdoor unit HP	Combination HP					Compensation by total outdoor unit HP (kg)
64	24	20	20	-	-	13.5 kg
66	24	22	20	-	-	14.5 kg
68	24	24	20	-	-	15.0 kg
70	24	24	22	-	-	16.0 kg
72	24	24	24	-	-	16.5 kg
74	24	24	14	12	-	15.6 kg
76	24	24	14	14	-	15.6 kg
78	24	20	20	14	-	15.8 kg
80	24	24	20	12	-	17.3 kg
82	24	24	20	14	-	17.3 kg
84	24	24	24	12	-	18.8 kg
86	24	24	24	14	-	18.8 kg
88	24	24	20	20	-	19.0 kg
90	24	24	22	20	-	20.0 kg
92	24	24	24	20	-	20.5 kg
94	24	24	24	22	-	21.5 kg
96	24	24	24	24	-	22.0 kg
98	24	24	24	14	12	21.1 kg
100	24	24	24	14	14	21.1 kg
102	24	24	20	20	14	21.3 kg
104	24	24	24	20	12	22.8 kg
106	24	24	24	20	14	22.8 kg
108	24	24	24	24	12	24.3 kg
110	24	24	24	24	14	24.3 kg
112	24	24	24	20	20	24.5 kg
114	24	24	24	22	20	25.5 kg
116	24	24	24	24	20	26.0 kg
118	24	24	24	24	22	27.0 kg
120	24	24	24	24	24	27.5 kg

Next, enter the total length for each liquid pipe diameter in the following table, and then calculate the additional amount of refrigerant by pipe length.

<Additional amount of refrigerant by pipe length (B)>

Pipe diameter on the liquid side mm	Standard amount of refrigerant kg/m
6.4	0.025 ×
9.5	0.055 ×
12.7	0.105 ×
15.9	0.160 ×
19.0	0.250 ×
22.2	0.350 ×
25.4	0.470 ×

Then refer to following table below, calculate corrective amount of refrigerant according to indoor unit horsepower (C).

<Corrective amount of refrigerant according to indoor unit horsepower (C)>

<According to indoor unit horsepower>

Indoor unit capacity rank	Capacity code (Equivalent to HP) HP	Corrective amount of refrigerant kg
005	0.6	0.2 ×
007	0.8	
008	0.9	
009	1	
010	1.1	
012	1.25	
014	1.5	
015	1.7	0.4 ×
017	1.85	
018	2	
020	2.25	
024	2.5	
027	3	
030	3.2	
036	4	0.6 ×
048	5	
056	6	
072	8	1.0 ×
096	10	

<According to indoor unit horsepower for Hot Water Module (HWM)>

Indoor Unit Capacity HP	Corrective amount of refrigerant kg	Number of connected indoor units Number	Corrective amount of refrigerant on each indoor unit horsepower kg
2.5	0.2		= kg
4			= kg
5			= kg
8	0.4		= kg

<According to indoor unit horsepower for Fresh Air Intake)>

Corrective amount of refrigerant: 0 kg

<According to indoor unit horsepower for High Efficiency 4-Way Cassette (MMU-UP∗∗∗∗H∗)>

Indoor Unit Capacity HP	Corrective amount of refrigerant kg	Number of connected indoor units Number	Corrective amount of refrigerant on each indoor unit horsepower kg
1.7	0.6		= kg
2			= kg
2.5			= kg
3			= kg
3.2			= kg
4			= kg
5			= kg
6			= kg

Next, refer to the following table below, calculate the corrective amount of refrigerant according to system diversity (D)

Corrective amount of refrigerant varies according to the system diversity (D)

Diversity D(%)	Corrective amount of refrigerant (kg)
50% ≤ D < 60%	-2.5
60% ≤ D < 70%	-2.0
70% ≤ D < 80%	-1.5
80% ≤ D < 90%	-1.0
90% ≤ D < 95%	-0.5
95% ≤ D	0

Lastly, add the corrective amount of refrigerant according to system diversity (D), the corrective amount of refrigerant according to indoor unit horsepower(C) and the additional amount of refrigerant by the pipe diameter on liquid side and the pipe length (B) to the compensation amount of refrigerant according to total outdoor unit horsepower (A)

This is the final additional amount of refrigerant.

If a minus sign is indicated as the result, the additional amount of refrigerant is zero (0) kg, do not reduce the refrigerant.

Compensation amount of refrigerant according to total outdoor unit horsepower (A)	kg
Additional amount of refrigerant by pipe length (B)	kg
Corrective amount of refrigerant according to indoor unit horsepower (C)	kg
Corrective amount of refrigerant according to system diversity (D)	kg
Total additional amount of refrigerant	kg

16. Wave Tool Advance for SMMS-u Series

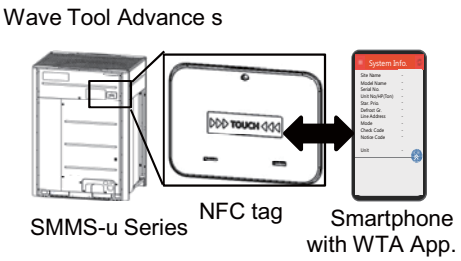
16-1. Before the Use of Wave Tool Advance

Wave Tool Advance (WTA) uses an application software for the Android OS smartphone.
If you install Wave Tool Advance application (WTA App.), you can use system capacity, test operation, test operation result and simple report.
Please check the information about compatible air conditioning equipment and smartphone from the following URL titled in blue as “Objective product list” and “Smartphone model & OS Version”.
If you use Wave Tool Advance Application (WTA App.), please move to following URL.
Please read and understand license agreement, if you agree to license agreement, please click “Agree” .
And download the smartphone application software and USER GUIDE.
Be sure to read the USER GUIDE before the use of this application.

https://www.toshiba-carrier.co.jp/global/appli/smms_wave_tool_advance/index.htm

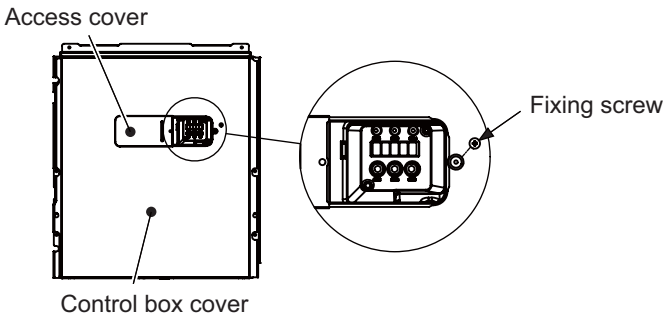
16-2. About Wave Tool Advance

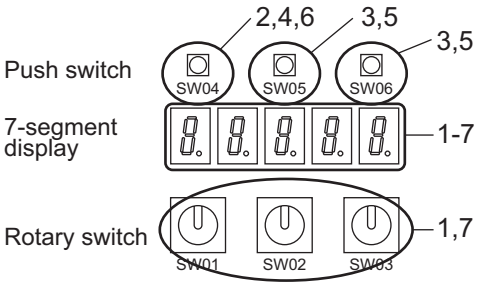
- This application uses the NFC(Near Field Communication) function of smartphone.
- If it is used, make sure that the NFC antenna on the smartphone is aligned with the “TOUCH “mark on the NFC tag.
- Refer to the USER GUIDE of the Wave Tool Advance for the details.



16-3. Valid/Prohibition/Permission setting for Test operation from WTA App.

- WTA App test operation function enables setting within 48 hours elapsed from the outdoor unit Power ON. If Power ON time is over 48 hours, we cannot use WTA App test operation. (Other WTA App function can be used.)
- You should decide whether to make use of this test operation function at its own responsibility and also be sure to confirm notices in the Operating Manual before performing the test operation.
- If you want to prohibit the test operation from WTA App,, perform the following steps.
  * High voltage parts exist in the electrical control box. If you set switch setting, set it from the access door cover of the electrical control box cover to avoid electric shock.
    After finishing steps, slide the access cover to the position before and fix it with the screw.
- Refer to following table for setting change of the test operation function to be effective after 48hours.





■ Relationship with Power ON time and Test operation function.

	Status	7-segment display at O.DN Code No.05
Validness	Until 48 hours elapsed from the outdoor unit Power ON, WTA App can start a test operation. After 48 hours, it cannot.	d.␣␣␣0
Prohibition	Regardless of the elapsed time, WTA App cannot start a test operation.	d.␣␣␣1
Permission	Regardless of the elapsed time, WTA App can start a test operation.	d.␣␣␣2

■ For example; How to prohibit Test operation from WTA (If you need)

Steps	Items	Rotary switch			Push SW			7-segment display
		SW01	SW02	SW03	SW04	SW05	SW06	
1	Change rotary switch position for Outdoor DN code setting	9	1	1	—	—	—	dn.SEt
2	Push SW04 for activate DN code	9	1	1	Push	—	—	dn.001
3	Change DN code Number to "dn.005" with SW05 or SW06	9	1	1	—	Push	Push	dn.005
4	Change data value display with SW04 *"d.␣␣␣0" shows validness of TEST operation by NFC App in case of the outdoor unit Power ON within 48h.	9	1	1	Push	—	—	d.␣␣␣0
5	Change value to "d.␣␣␣1" with SW05 or SW06 *"d.␣␣␣1" shows prohibition of TEST operation by NFC App,.	9	1	1	—	Push	Push	d.␣␣␣0
6	Push SW04 more than 2sec. 7-seg display will change from flashing to lighting.	9	1	1	Push more than 2 sec	—	—	Flashing> d.␣␣␣1 Lighting
7	Return to default Rotary switch position.	1	1	1	—	—	—	U * ---
8	Turn ON/OFF ourdoor unit main power supplies. Keep turn off time 60 seconds or more.							

* Do it again if the 7-segment display is different from the above.
* The functions other than the test operation of this Application can work normally even if the test operation function are prohibited.

16-4. Confirmation for NFC tag Communication

When you cannot read out the information of the NFC tag with your smartphone, preform the following step.

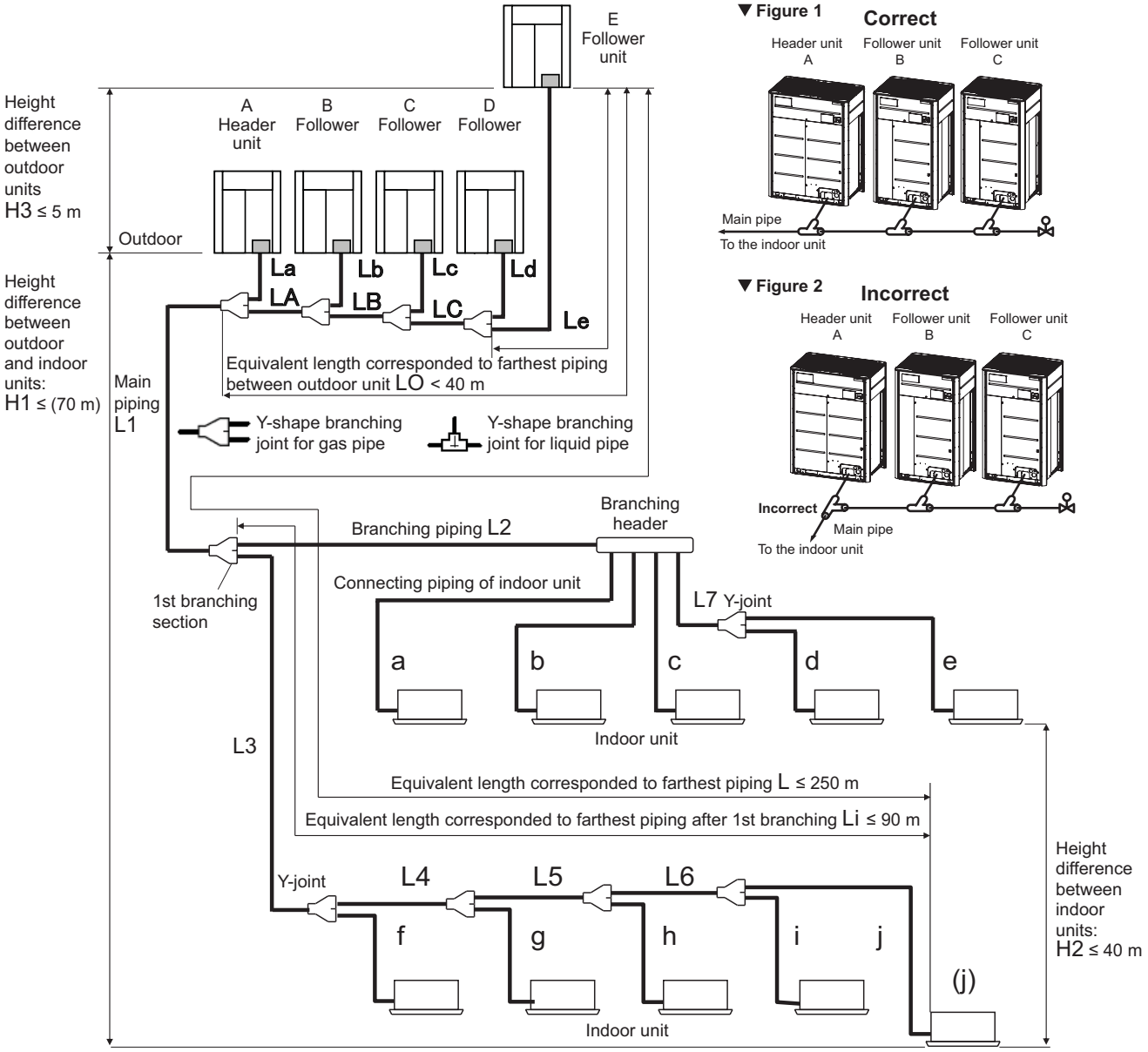
Step	Rotary switch			Push switch			7-segment display	Check result
	SW01	SW02	SW03	SW04	SW05	SW06		
1	2	16	14	—	—	—	nFc.	Normal
							nFc.Er	NFC tag wiring trouble Check NFC tag wiring
2	1	1	1				U ∗ ---	(Return to Rotary switch)

If above check is no problem, refer to User Guide of Wave Tool Advance.

Trademark
QR code is a trademark or registered trademark of DENSO WAVE INCORPORATED.
Android is a trademark or registered of Google LLC.

Appendix- 1

Allowable length of refrigerant pipes and allowable height difference between units



▼ Figure 1 **Correct**

▼ Figure 2 **Incorrect**

◆ System restriction

Outdoor unit combination	Up to 5 units		
Total capacity of outdoor units	Up to 120 HP		
Indoor unit connection	Up to 128 units		
Total capacity of indoor units (varies depending on the height difference between indoor units.)	H2 ≤ 15 m	Single	200% of outdoor units' capacity
		Combination	150% of outdoor units' capacity
	H2 > 15 m		105% of outdoor units' capacity

◆ Cautions for installation

- Set the outdoor unit first connected to the bridging pipe to the indoor units as the header unit.
- Install the outdoor units in order of their capacity codes: A (header unit) e" B e" C e" D e" E
- When connecting gas pipes to indoor units, use Y-shaped branching joints to keep pipes level.
- When piping to outdoor units using Outdoor unit connection piping kits, intersect the pipes to the outdoor unit and those to indoor units at a right angle as shown in figure 1. Do not connect them as in figure 2.

◆ Allowable length and allowable height difference of refrigerant piping

<table>
<tr><th colspan="3">Item</th><th>Allowable value</th><th>Piping section</th></tr>
<tr><td rowspan="11">Piping length</td><td rowspan="2">Total extension of pipe (Liquid pipe, real length)</td><td>Single outdoor unit system</td><td>500 m</td><td rowspan="2">LA + LB + LC + La + Lb + Lc + Ld + Le + L1 + L2 + L3 + L4 + L5 + L6 + L7 + a + b + c + d + e + f + g + h + i + j</td></tr>
<tr><td>Multiple outdoor unit system</td><td>1200 m (*6)</td></tr>
<tr><td rowspan="2">Farthest piping Length L (*1)</td><td>Equivalent length</td><td>250 m</td><td rowspan="2">LA + LB + LC + Le + L1 + L3 + L4 + L5 + L6 + j</td></tr>
<tr><td>Real length</td><td>210 m</td></tr>
<tr><td rowspan="2">Max. equivalent length of main piping</td><td>Equivalent length</td><td>120 m (*3)</td><td rowspan="2">L1</td></tr>
<tr><td>Real length</td><td>100 m (*3)</td></tr>
<tr><td colspan="2">Equivalent length of farthest piping from 1st branching Li (*1)</td><td>90 m (*2)</td><td>L3 + L4 + L5 + L6 + j</td></tr>
<tr><td colspan="2">Equivalent length of farthest piping between outdoor units LO</td><td>40 m</td><td>LA + LB + LC + Le (LA + LB + LC + Ld)</td></tr>
<tr><td colspan="2">Max. equivalent length of outdoor unit connecting piping</td><td>10 m</td><td>La, Lb, Lc, Ld, Le</td></tr>
<tr><td colspan="2">Max. real length of indoor unit connecting piping</td><td>30 m</td><td>a, b, c, d, e, f, g, h, i, j</td></tr>
<tr><td colspan="2">Max. equivalent length between branches</td><td>50 m</td><td>L2, L3, L4, L5, L6, L7</td></tr>
<tr><td rowspan="4">Difference in height</td><td rowspan="2">Height between indoor and outdoor units H1</td><td>Upper outdoor unit</td><td>70 m (*4,*7)</td><td>–</td></tr>
<tr><td>Lower outdoor unit</td><td>40 m (*5, *8)</td><td>–</td></tr>
<tr><td colspan="2">Height between indoor units H2</td><td>40 m</td><td>–</td></tr>
<tr><td colspan="2">Height between outdoor units H3</td><td>5 m</td><td>–</td></tr>
</table>

*1: (E) is outdoor unit furthest from the 1st branch and (j) is the indoor unit furthest from the 1st branch.

*2: If the height difference between indoor and outdoor unit (H1) exceeds 3 m, the piping length is 65 m or less.

*3: If the max. combined outdoor unit capacity is 54HP or more, then max. equivalent length is 70 m or less (real length is 50 m or less).

*4: If the height difference between indoor units (H2) exceeds 3 m, the difference in height is 50 m or less.

*5: If the height difference between indoor units (H2) exceeds 3 m, the difference in height is 30 m or less.

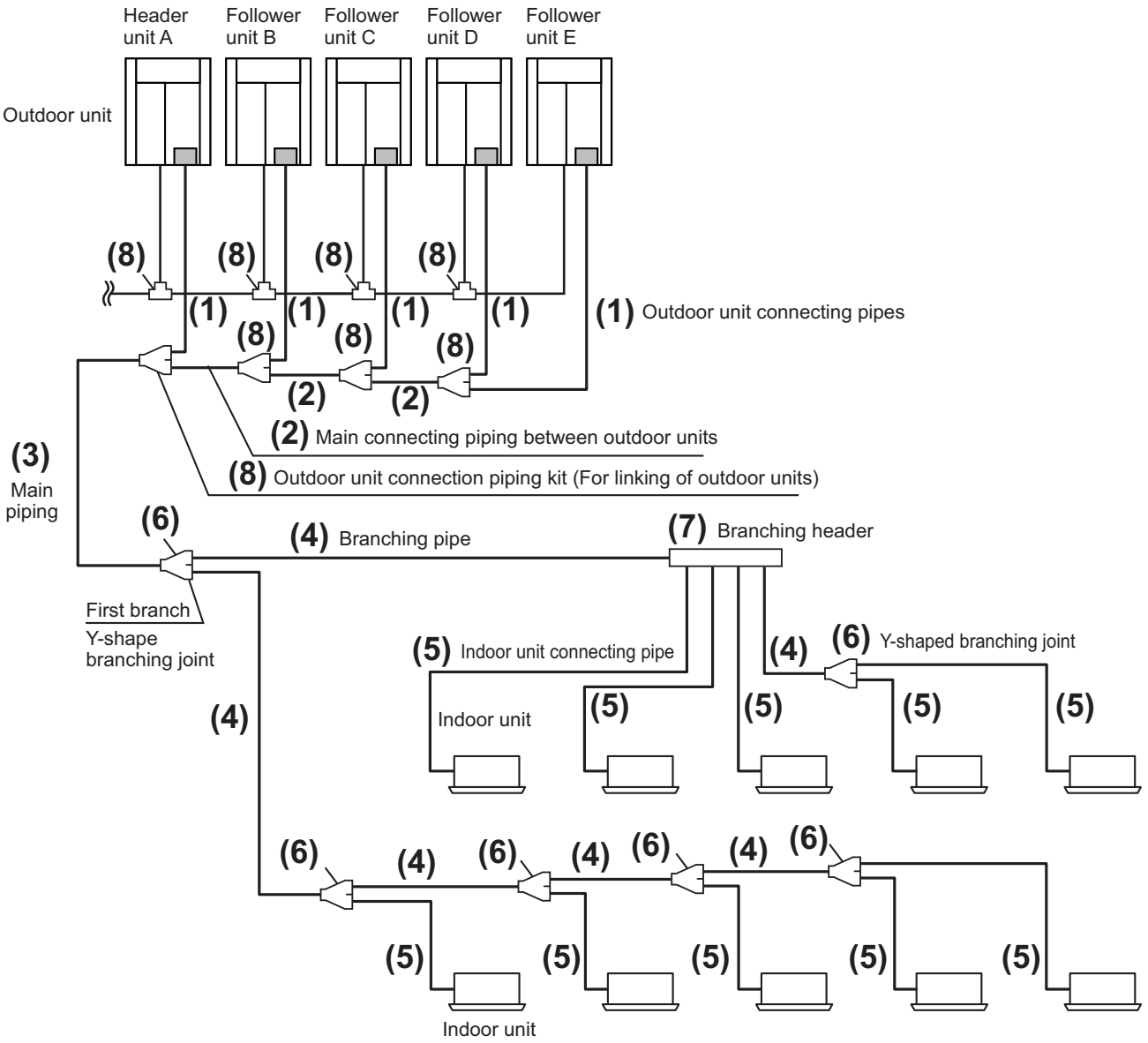
*6: Total charging refrigerant is 140 kg or less.

*7: Extension up to 110 m is possible with conditions below :

- Independent outdoor unit system
- Capacity of combined indoor units : 105% or less
- Liquid side has been increased one size from the standard size.
- The height difference between indoor units(H2) is 3 m or less.

*8: Extension up to 110 m is possible with conditions below :

- System combining two or more outdoor units
- Capacity of combined indoor units : 105% or less
- Minimum capacity of connecting indoor unit is more than 3HP
- The height difference between indoor units(H2) is 3 m or less.


Header unit A
Follower unit B
Follower unit C
Follower unit D
Follower unit E
Outdoor unit
(8)
(1)
(1) Outdoor unit connecting pipes
(2)
(2) Main connecting piping between outdoor units
(8) Outdoor unit connection piping kit (For linking of outdoor units)
(3) Main piping
(6)
(4) Branching pipe
(7) Branching header
First branch Y-shape branching joint
(5) Indoor unit connecting pipe
(6) Y-shaped branching joint
(4)
(5)
Indoor unit
Indoor unit

<table>
<tr><th>No.</th><th>Piping parts</th><th>Name</th><th>Selection of pipe size</th><th>Remarks</th></tr>
<tr><td>(1)</td><td>Outdoor unit
↓
Outdoor unit connection piping kit</td><td>Outdoor unit connecting pipe</td><td>Connecting pipe size of outdoor unit
<table><tr><th>Type</th><th>Gas side</th><th>Liquid side</th></tr><tr><td>MMY-MUP080</td><td>19.1</td><td>12.7</td></tr><tr><td>MMY-MUP100</td><td>22.2</td><td>12.7</td></tr><tr><td>MMY-MUP120</td><td>28.6</td><td>12.7</td></tr><tr><td>MMY-MUP140</td><td>28.6</td><td>15.9</td></tr><tr><td>MMY-MUP160</td><td>28.6</td><td>15.9</td></tr><tr><td>MMY-MUP180</td><td>28.6</td><td>15.9</td></tr><tr><td>MMY-MUP200</td><td>28.6</td><td>15.9</td></tr><tr><td>MMY-MUP220</td><td>28.6</td><td>19.1</td></tr><tr><td>MMY-MUP240</td><td>34.9</td><td>19.1</td></tr></table></td><td>Same as connecting pipe size of the outdoor unit.</td></tr>
<tr><td>(2)</td><td>Between Outdoor unit connection piping kit</td><td>Main connecting piping between outdoor units</td><td>Pipe size for connecting piping between outdoor units
<table><tr><th>Total capacity codes of the total outdoor units at the downstream side
Equivalent to capacity (HP)</th><th>Gas side</th><th>Liquid side</th></tr><tr><td>16 to 20</td><td>28.6</td><td>15.9</td></tr><tr><td>22</td><td>28.6</td><td>19.1</td></tr><tr><td>24</td><td>34.9</td><td>19.1</td></tr><tr><td>26 to 34</td><td>34.9</td><td>19.1</td></tr><tr><td>36 to 60</td><td>41.3</td><td>22.2</td></tr><tr><td>62 to 74</td><td>44.5</td><td>22.2</td></tr><tr><td>76 or more</td><td>54.0</td><td>22.2</td></tr></table></td><td>Pipe size differs based on the total capacity code value of outdoor units.</td></tr>
<tr><td>(3)</td><td>Outdoor unit connection piping kit of header unit
↓
First branching section

Outdoor unit
↓
First branching section</td><td>Main piping</td><td>Size of main piping
<table><tr><th rowspan="2">Total capacity codes of all outdoor units
Equivalent to capacity (HP)</th><th rowspan="2">Gas side</th><th colspan="3">Liquid side</th></tr><tr><th>Standard Pipe</th><th>Refrigerant saving pipe size</th><th>Allowable Length</th></tr><tr><td>8</td><td>19.1</td><td>12.7</td><td>9.5</td><td>30 m</td></tr><tr><td>10</td><td>22.2</td><td>12.7</td><td>9.5</td><td>30 m</td></tr><tr><td>12</td><td>28.6</td><td>12.7</td><td>-</td><td>-</td></tr><tr><td>14 to 18</td><td>28.6</td><td>15.9</td><td>12.7</td><td>50 m</td></tr><tr><td>20</td><td>28.6</td><td>15.9</td><td>-</td><td>-</td></tr><tr><td>22</td><td>28.6</td><td>19.1</td><td>15.9</td><td>80 m</td></tr><tr><td>24 to 26</td><td>34.9</td><td>19.1</td><td>15.9</td><td>80 m</td></tr><tr><td>28 to 34</td><td>34.9</td><td>19.1</td><td>-</td><td>-</td></tr><tr><td>36 to 42</td><td>41.3 *3</td><td>22.2</td><td>19.1</td><td>80 m</td></tr><tr><td>44 to 52</td><td>41.3 *3</td><td>22.2</td><td>19.1</td><td>50 m</td></tr><tr><td>54</td><td>41.3</td><td>22.2</td><td>19.1</td><td>50 m</td></tr><tr><td>56 to 60</td><td>41.3</td><td>22.2</td><td>-</td><td>-</td></tr><tr><td>62 to 74</td><td>44.5</td><td>22.2</td><td>-</td><td>-</td></tr><tr><td>76 to 92</td><td>54.0</td><td>22.2</td><td>-</td><td>-</td></tr><tr><td>94 or more</td><td>54.0</td><td>22.2 *1*2</td><td>-</td><td>-</td></tr></table></td><td>Pipe size differs based on the total capacity code value of outdoor units.

If the allowable length has the allowable value or less, the refrigerant saving pipe size can be selected.</td></tr>
</table>

*1 Maximum length for the main piping is 30 m.

*2 If the length for main piping is extended up to 70 m, change the liquid side piping size to Ø25.4 (one size up).

*3 It is possible to change pipe size from Ø41.8 to Ø38.1, if it is available at size.

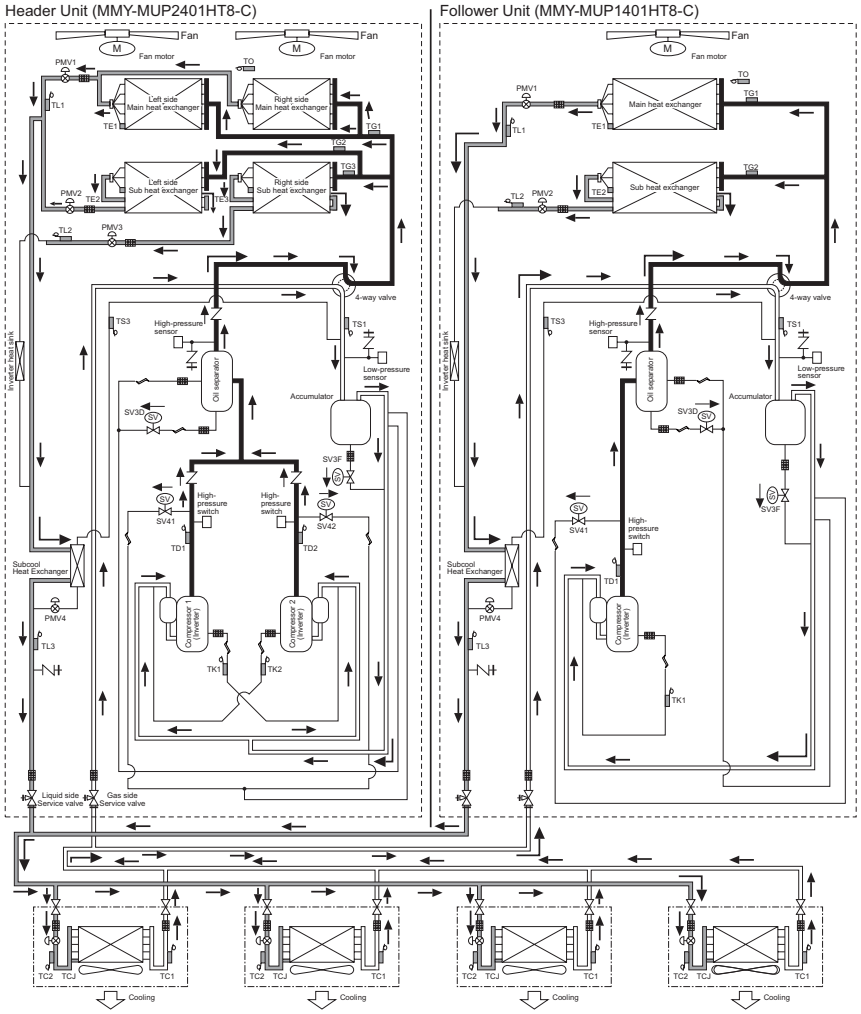
<table>
<tr><th>No.</th><th>Piping parts</th><th>Name</th><th>Selection of pipe size</th><th>Remarks</th></tr>
<tr><td>(4)</td><td>Branching section
↓
Branching section</td><td>Branching pipe</td><td>Pipe size between branching sections
<table>
<tr><th colspan="3">Total capacity codes of indoor units at downstream side</th></tr>
<tr><th>Equivalent to capacity (HP)</th><th>Gas side</th><th>Liquid side</th></tr>
<tr><td>Below 2.4</td><td>12.7</td><td>9.5</td></tr>
<tr><td>2.4 to below 6.4</td><td>15.9</td><td>9.5</td></tr>
<tr><td>6.4 to below 12.2</td><td>22.2</td><td>12.7</td></tr>
<tr><td>12.2 to below 20.2</td><td>28.6</td><td>15.9</td></tr>
<tr><td>20.2 to below 22.4</td><td>28.6</td><td>19.1</td></tr>
<tr><td>22.4 to below 25.2</td><td>34.9</td><td>19.1</td></tr>
<tr><td>25.2 to below 35.2</td><td>34.9</td><td>19.1</td></tr>
<tr><td>35.2 to below 61.2</td><td>41.3</td><td>22.2</td></tr>
<tr><td>61.2 to below 75.2</td><td>44.5</td><td>22.2</td></tr>
<tr><td>75.2 or more</td><td>54.0</td><td>22.2*1</td></tr>
</table>
*1 If the liquid side piping size of main piping is increased to Dia. 25.4 (one size up), the liquid side piping size also has to change to Dia. 25.4.</td><td>Pipe size differs based on the total capacity code value of indoor units at the downstream side.
If the total capacity code value of indoor units exceeds that of the outdoor units, apply the capacity code of the outdoor units.</td></tr>
<tr><td>(5)</td><td>Branching section
↓
Indoor unit</td><td>Indoor unit connecting pipe</td><td>Connecting pipe size of indoor unit
<table>
<tr><th colspan="2">Capacity rank</th><th>Gas side</th><th>Liquid side</th></tr>
<tr><td rowspan="2">003 to 012 type</td><td>15 m or less real length</td><td>9.5</td><td>6.4</td></tr>
<tr><td>Real length exceeds 15 m</td><td>12.7</td><td>6.4</td></tr>
<tr><td colspan="2">014 to 018 type</td><td>12.7</td><td>6.4</td></tr>
<tr><td colspan="2">020 to 056 type</td><td>15.9</td><td>9.5</td></tr>
<tr><td colspan="2">072 to 096 type</td><td>22.2</td><td>12.7</td></tr>
<tr><td colspan="2">112 type</td><td>28.6</td><td>12.7</td></tr>
<tr><td colspan="2">128 type</td><td>28.6</td><td>15.9</td></tr>
</table></td><td></td></tr>
<tr><td>(6)</td><td>Branching section</td><td>Y-shaped branching joint</td><td>Selection of branching section (Y-shaped branching joint)
<table>
<tr><th rowspan="2"></th><th>Total capacity code of indoor</th><th rowspan="2">Model name</th></tr>
<tr><th>Equivalent to capacity (HP)</th></tr>
<tr><td rowspan="5">Y-shape branching joint</td><td>Below 6.4</td><td>RBM-BY55E</td></tr>
<tr><td>6.4 to below 14.2</td><td>RBM-BY105E</td></tr>
<tr><td>14.2 to below 25.2</td><td>RBM-BY205E</td></tr>
<tr><td>25.2 to below 61.2</td><td>RBM-BY305E</td></tr>
<tr><td>61.2 or more</td><td>RBM-BY405E</td></tr>
</table></td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Piping parts</th><th>Name</th><th>Selection of pipe size</th><th>Remarks</th></tr>
<tr><td>(7)</td><td>Branching section</td><td>Branching header</td><td colspan="2">Selection of branching section (Branching header)
<table>
<tr><td rowspan="2"></td><td colspan="2">Total capacity code of indoor units</td><td rowspan="2">Model name</td></tr>
<tr><td colspan="2">Equivalent to capacity (HP)</td></tr>
<tr><td rowspan="5">*2
Branching header</td><td rowspan="2">For 4 branches</td><td>Below 14.2</td><td>RBM-HY1043E</td></tr>
<tr><td>14.2 to below 25.2</td><td>RBM-HY2043E</td></tr>
<tr><td rowspan="3">For 8 branches</td><td>Below 14.2</td><td>RBM-HY1083E</td></tr>
<tr><td>14.2 to below 25.2</td><td></td></tr>
<tr><td>61.2 or more</td><td>RBM-HY2083E</td></tr>
</table>
*2: Up to a total of 6.0 maximum equivalent to HP capacity codes is connectable to one line after branching of header. When the total capacity codes of all outdoor units are 12 to below 26 (equivalent to HP) and you use a branching header for the ?rst branching section, use a RBM-HY2043E or RBM-HY2083E regardless of the total capacity codes of outdoor units at downstream side. In addition, you cannot use a branching header for the ?rst branching section when the total capacity codes of all outdoor units are over 26 (equivalent to HP).</td></tr>
<tr><td>(8)</td><td>Branching section</td><td>Outdoor unit connection piping kit (For linking of outdoor units)</td><td colspan="2">Outdoor unit connection piping kit (For linking of outdoor units)
<table>
<tr><td rowspan="2"></td><td>Total capacity code of outdoor units*3</td><td rowspan="2">Model name</td></tr>
<tr><td rowspan="4">Outdoor unit connection piping kit (For linking of outdoor units)</td><td>Equivalent to capacity (HP)</td></tr>
<tr><td>Below 26</td><td>RBM-BT14E</td></tr>
<tr><td>26 to below 62</td><td>RBM-BT24E</td></tr>
<tr><td>62 or more</td><td>RBM-BT34E</td></tr>
</table>
*3: Upstream side when regarding the main piping as the start point</td></tr>
</table>

Appendex- 2

Combined Refrigerant Piping System Schematic Diagrams

Refrigerant Flow (Cooling)

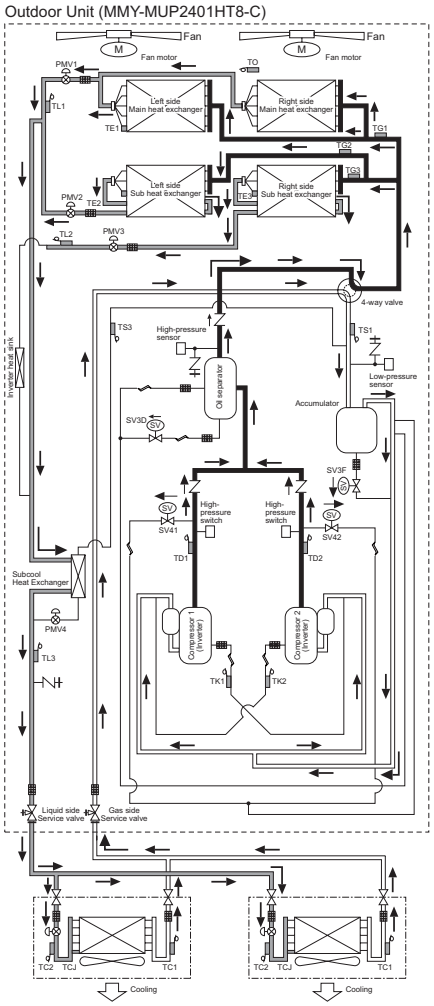


Outdoor Unit			
4-way valve	OFF	SV3D	Control
PMV1	Control	SV3F	Control
PMV2	Control	SV4(n)	Control
PMV3	Control	Outdoor fan	Control
PMV4	Control		

High-pressure gas refrigerant
Condensate liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Low-pressure circuit (Refrigerant recover line)

(38 HP system described in the example of (24 HP + 14 HP))

Refrigerant Flow (Single Defrost)



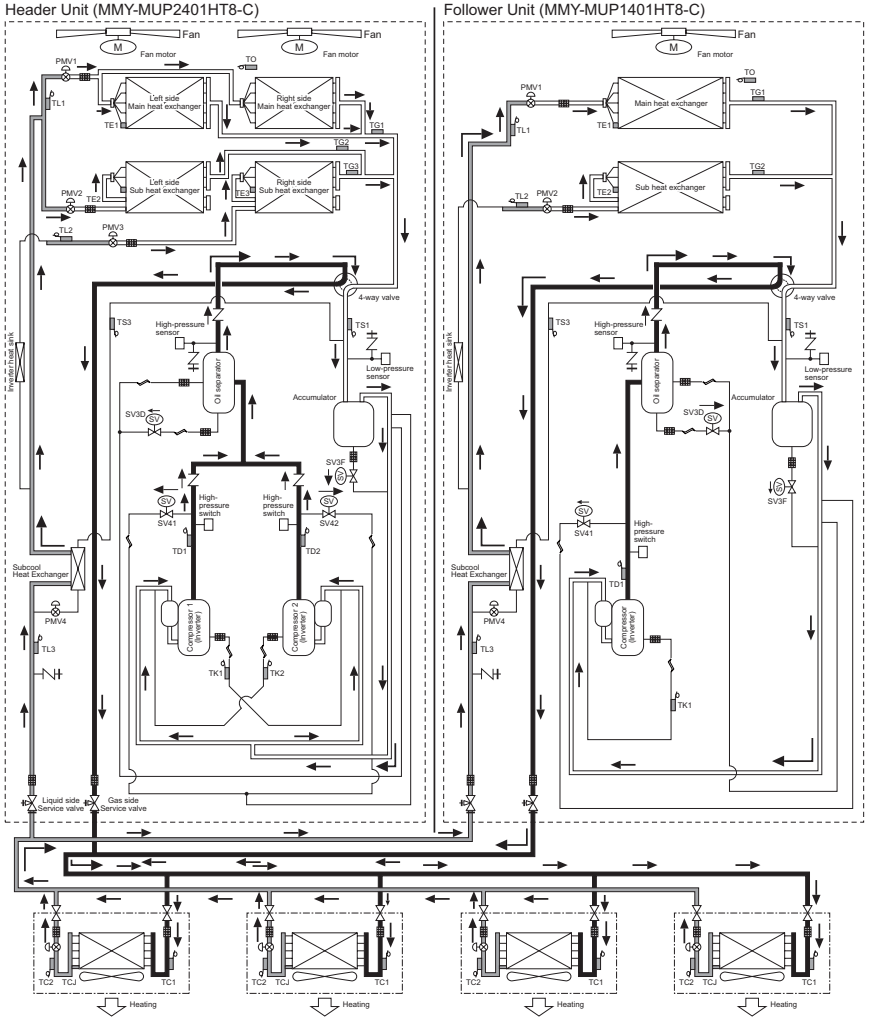
Outdoor Unit			
4-way valve	OFF	SV3D	Control
PMV1	Control	SV3F	Control
PMV2	Control	SV4(n)	Control
PMV3	Control	Outdoor fan	Control
PMV4	Control		

High-pressure gas refrigerant
Condensate liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Low-pressure circuit (Refrigerant recover line)

Refrigerant Flow (Heating)

Header Unit (MMY-MUP2401HT8-C)

Follower Unit (MMY-MUP1401HT8-C)



Outdoor Unit			
4-way valve	ON	SV3D	Control
PMV1	Control	SV3F	Control
PMV2	Control	SV4(n)	Control
PMV3	Control	Outdoor fan	Control
PMV4	Control		

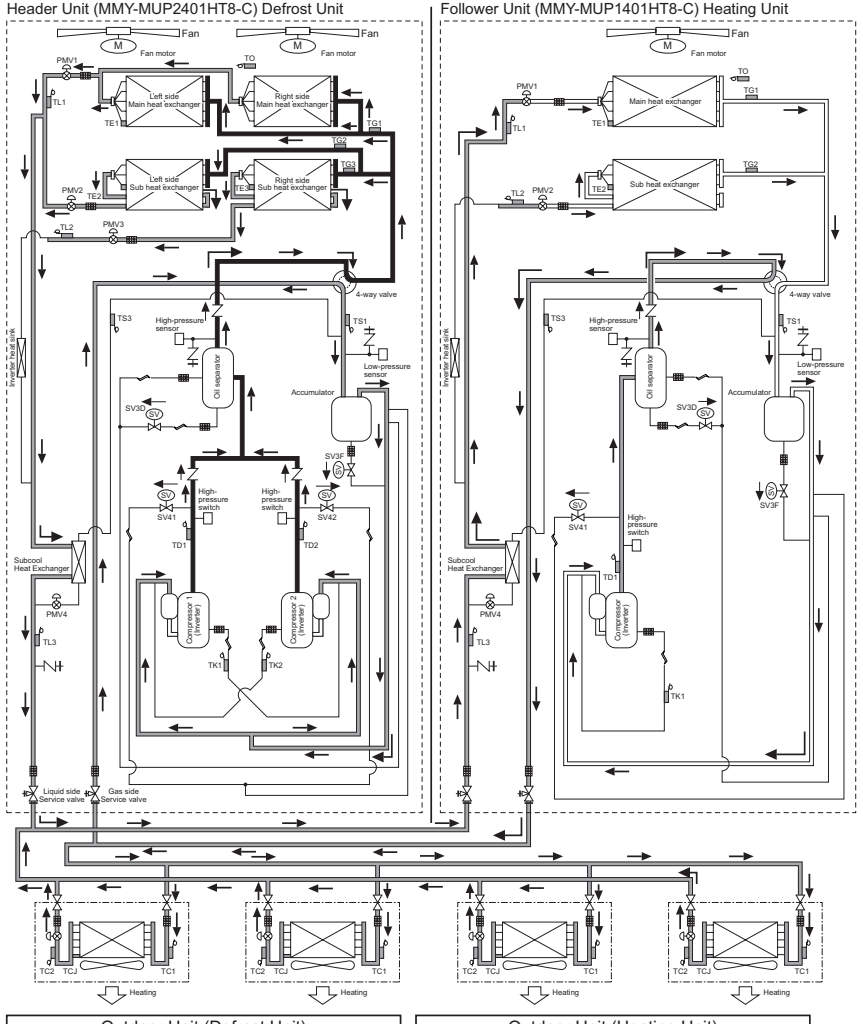
High-pressure gas refrigerant
Condensate liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Low-pressure circuit (Refrigerant recover line)

(38 HP system described in the example of (24 HP + 14 HP))

Refrigerant Flow (Individual Defrost)

Header Unit (MMY-MUP2401HT8-C) Defrost Unit

Follower Unit (MMY-MUP1401HT8-C) Heating Unit



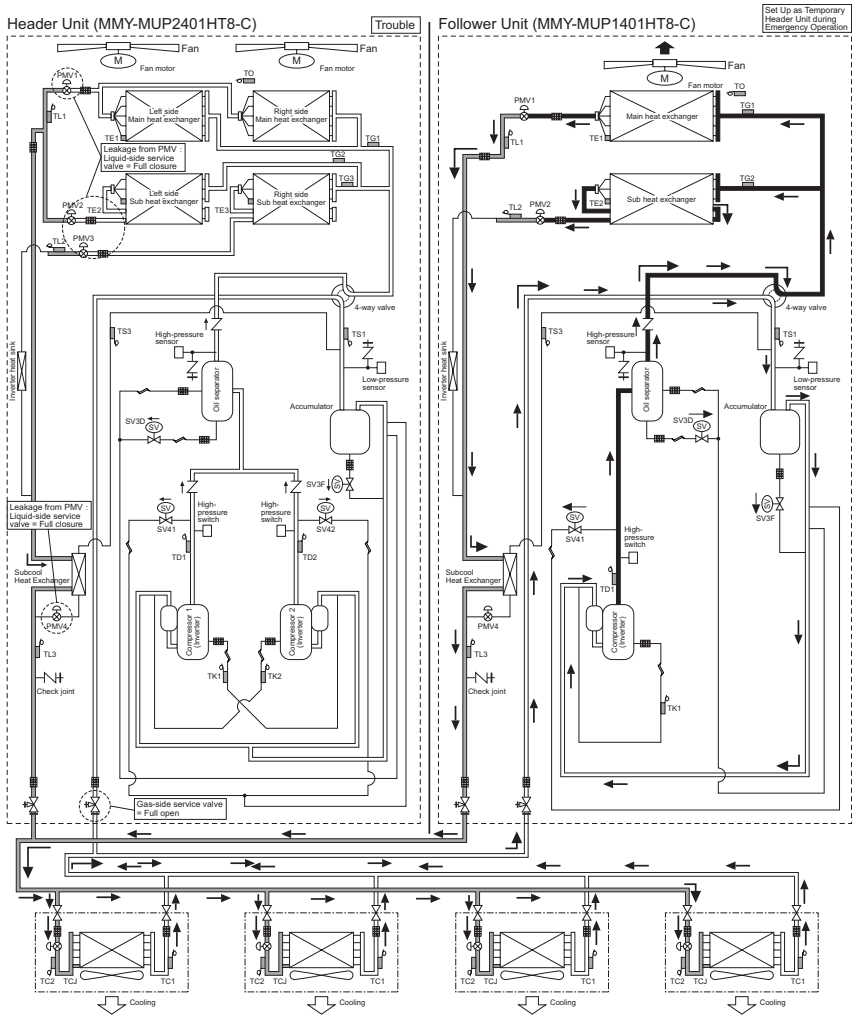
Outdoor Unit (Defrost Unit)			
4-way valve	OFF	SV3D	Control
PMV1	Control	SV3F	Control
PMV2	Control	SV4(n)	Control
PMV3	Control	Outdoor fan	Control
PMV4	Control		

Outdoor Unit (Heating Unit)			
4-way valve	ON	SV3D	Control
PMV1	Control	SV3F	Control
PMV2	Control	SV4(n)	Control
PMV3	Control	Outdoor fan	Control
PMV4	Control		

High-pressure gas refrigerant
Condensate liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Low-pressure circuit (Refrigerant recover line)

(38 HP system described in the example of (24 HP + 14 HP))

(1) Refrigerant Flow (Automatic emergency cooling)



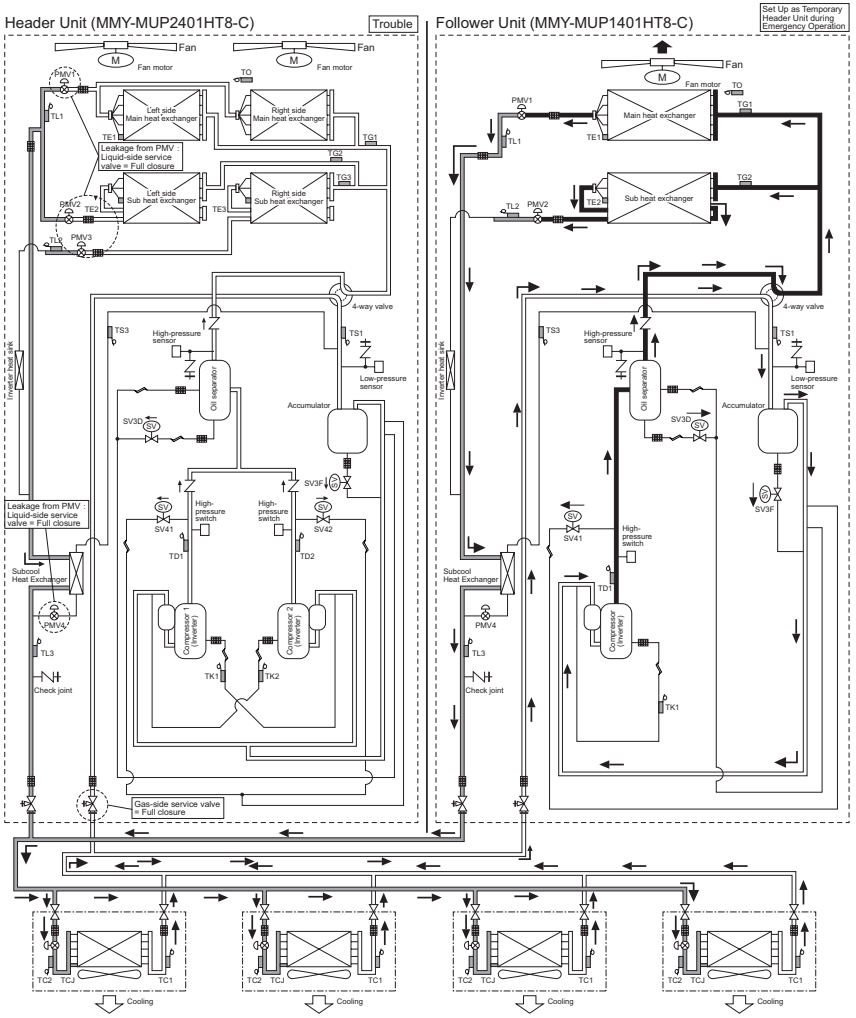
Trouble header outdoor unit			
4-way valve	OFF	SV3D	OFF
PMV1	CLOSE	SV3F	OFF
PMV2	CLOSE	SV4(n)	OFF
PMV3	CLOSE	Outdoor fan	OFF
PMV4	CLOSE		

Temporal header outdoor unit			
4-way valve	OFF	SV3D	Control
PMV1	Control	SV3F	Control
PMV2	Control	SV4(n)	Control
PMV3	Control	Outdoor fan	Control
PMV4	Control		

High-pressure gas refrigerant
Condensate liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Low-pressure circuit (Refrigerant recover line)

(38 HP system described in the example of (24 HP + 14 HP))

(2) Refrigerant Flow (Manual emergency cooling)



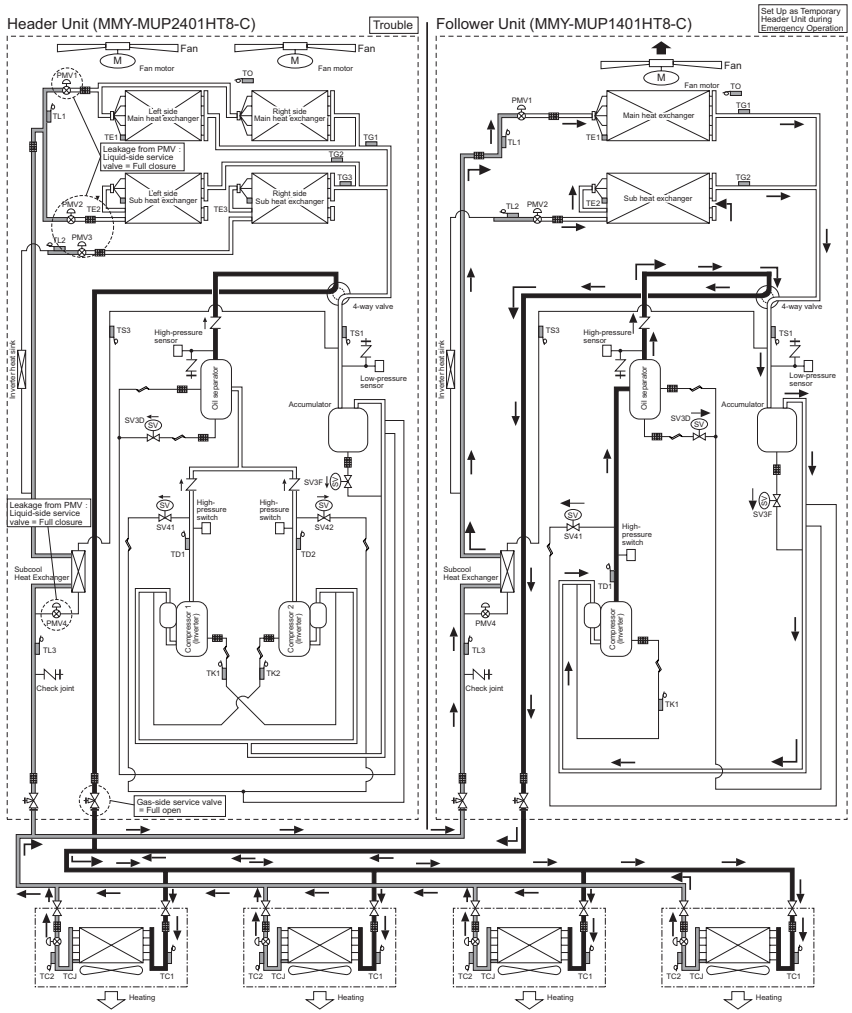
Trouble header outdoor unit			
4-way valve	OFF	SV3D	OFF
PMV1	CLOSE	SV3F	OFF
PMV2	CLOSE	SV4(n)	OFF
PMV3	CLOSE	Outdoor fan	OFF
PMV4	CLOSE		

Temporal header outdoor unit			
4-way valve	OFF	SV3D	Control
PMV1	Control	SV3F	Control
PMV2	Control	SV4(n)	Control
PMV3	Control	Outdoor fan	Control
PMV4	Control		

High-pressure gas refrigerant
Condensate liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Low-pressure circuit (Refrigerant recover line)

(38 HP system described in the example of (24 HP + 14 HP))

(1) Refrigerant Flow (Automatic emergency heating)



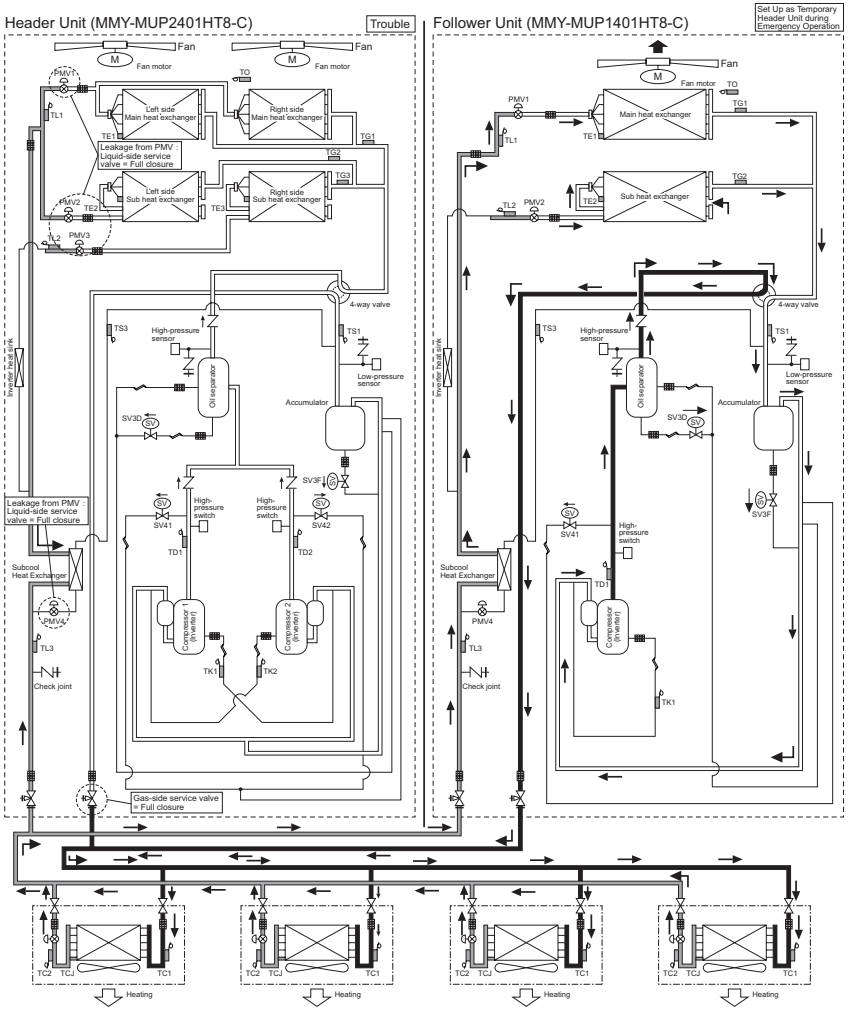
Trouble header outdoor unit			
4-way valve	OFF	SV3D	OFF
PMV1	CLOSE	SV3F	OFF
PMV2	CLOSE	SV4(n)	OFF
PMV3	CLOSE	Outdoor fan	OFF
PMV4	CLOSE		

Temporal header outdoor unit			
4-way valve	OFF	SV3D	Control
PMV1	Control	SV3F	Control
PMV2	Control	SV4(n)	Control
PMV3	Control	Outdoor fan	Control
PMV4	Control		

High-pressure gas refrigerant
Condensate liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Low-pressure circuit (Refrigerant recover line)

(38 HP system described in the example of (24 HP + 14 HP))

(2) Refrigerant Flow (Manual emergency heating)



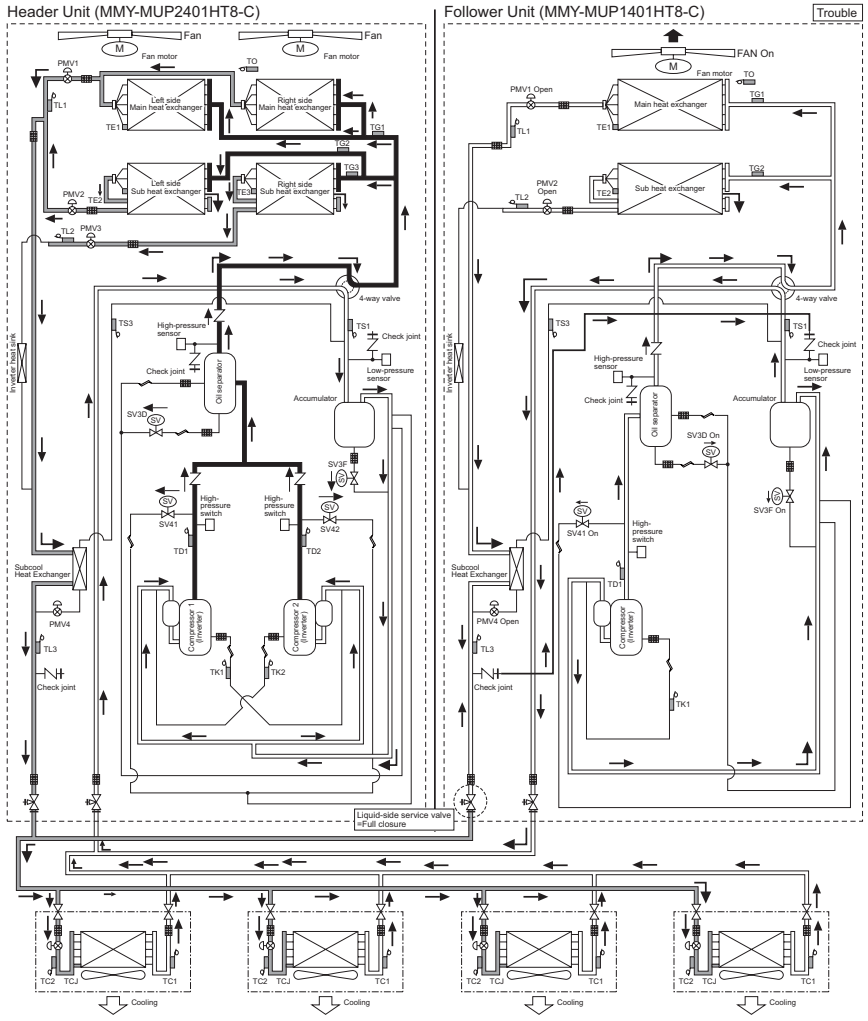
Trouble header outdoor unit			
4-way valve	OFF	SV3D	OFF
PMV1	CLOSE	SV3F	OFF
PMV2	CLOSE	SV4(n)	OFF
PMV3	CLOSE	Outdoor fan	OFF
PMV4	CLOSE		

Temporal header outdoor unit			
4-way valve	OFF	SV3D	Control
PMV1	Control	SV3F	Control
PMV2	Control	SV4(n)	Control
PMV3	Control	Outdoor fan	Control
PMV4	Control		

High-pressure gas refrigerant
Condensate liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Low-pressure circuit (Refrigerant recover line)

(38 HP system described in the example of (24 HP + 14 HP))

4-6. Refrigerant Flow (Reclaim)



Outdoor Unit			
4-way valve	OFF	SV3D	Control
PMV1	Control	SV3F	Control
PMV2	Control	SV4(n)	Control
PMV3	Control	Outdoor fan	Control
PMV4	Control		

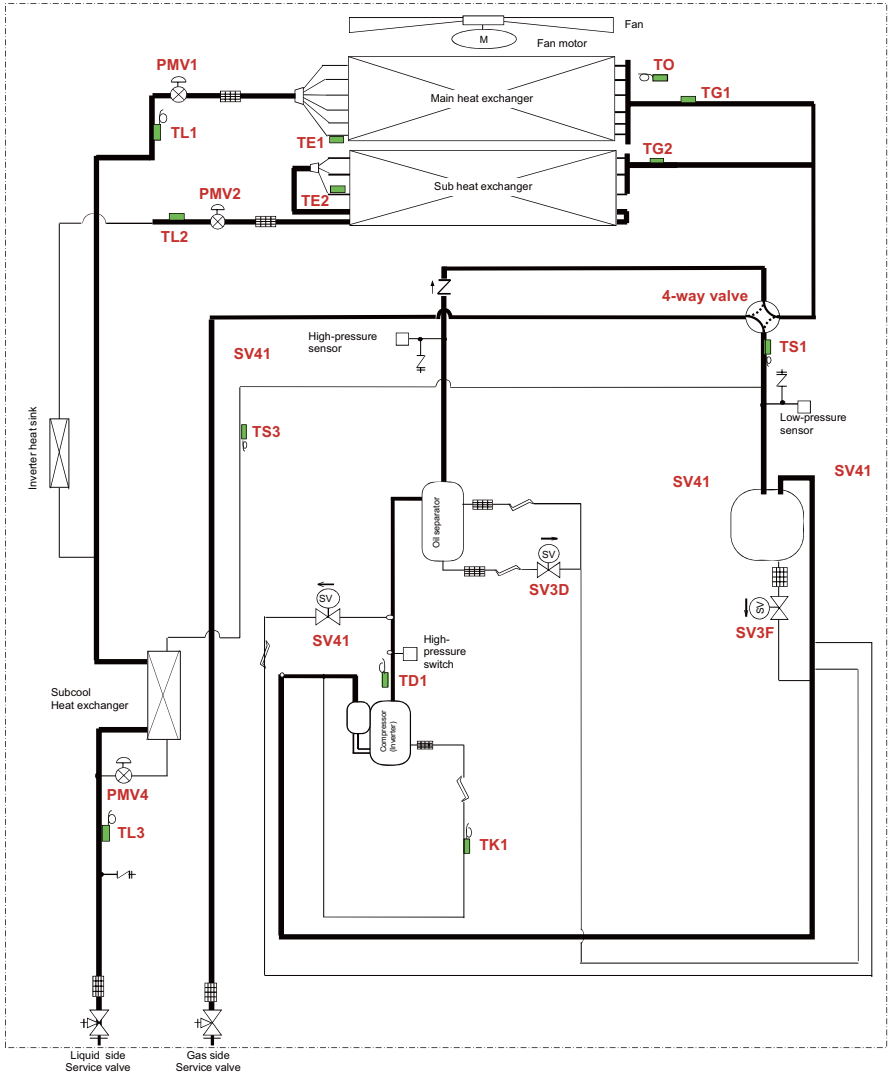
High-pressure gas refrigerant
Condensate liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Low-pressure circuit (Refrigerant recover line)

(38 HP system described in the example of (24 HP + 14 HP))

Appendex- 3

Refrigerant Piping SCHEMATIC Drawing

Outdoor unit 8, 10, 12, 14HP
Model: MMY-MUP0801∗, MUP1001∗, MUP1201∗, MUP1401∗

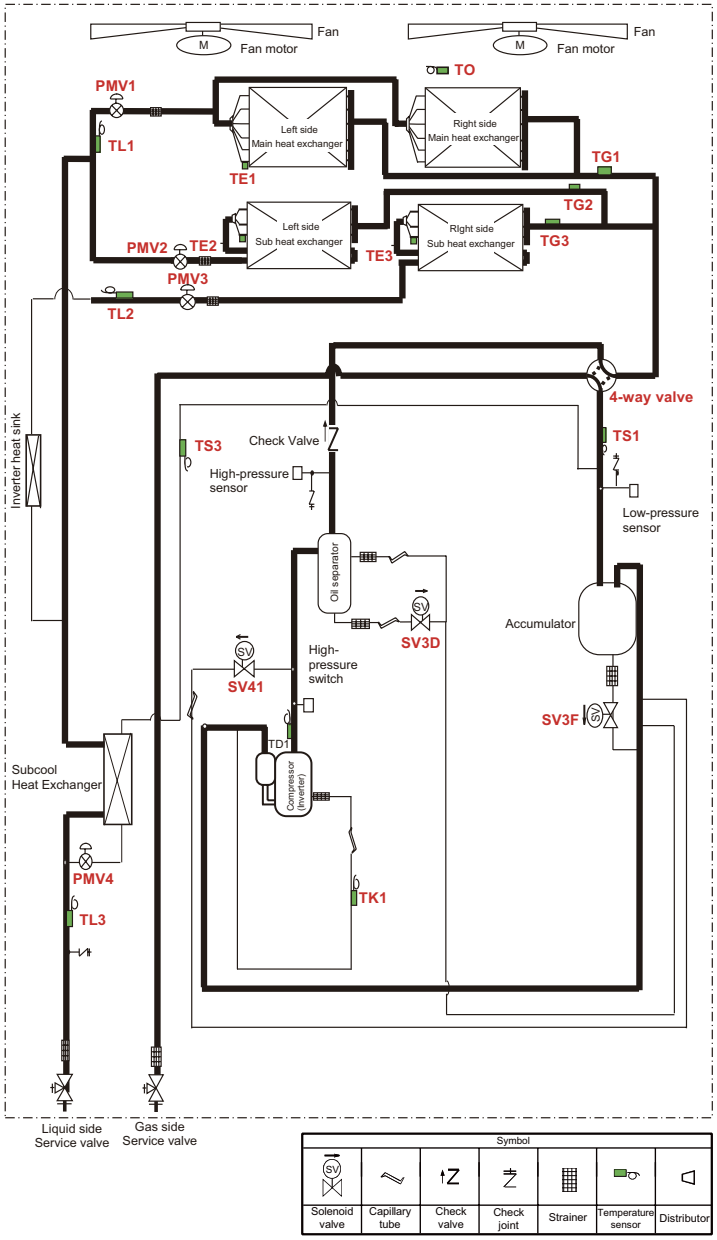


Symbol						
Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Temperature sensor	Distributor

Functional Part Name

	SV3D	(Connector CN324 : WHI) 1) Reserves oil in the oil separator during OFF time. 2) Returns oil reserved in the oil separator to the compressor during ON time.
	SV3F	(Connector CN324: WHI) 1) Supplies oil in the accumulator to the compressor 2) Shuts off the liquid refrigerant from the accumulator when the compressor dilution
	SV41 SV42	(SV41 • • • Connector CN324 : WHI , SV42 • • • Connector CN327 : BLK) 1) High/Low pressure balance Prevention of subcool oil backflow when compressor stop, start-up compensation when starting up the compressor, reducing refrigerant noise when starting up heating operation 2) High pressure release function 3) Low pressure release function 4) Keeps the compressor reliability when Hot Gas Bypass system (prevent dilution with oil) 5) Releases capacity (Refrigerant mass bypass function in minimum cooling operation)
4-Way valve		(Connector CN317 : ORN) 1) Cooling/Heating change 2) Reverses Defrost
Pulse Motor Valve	PMV1	(Connector CN300 : WHI) 1) Controls superheat and subcool of the main heat exchanger 2) Stored liquid refrigerant reduction control in low ambient cooling operation (recovers stored liquid refrigerant in the main heat exchanger)
	PMV2 PMV3	(PMV2 • • • Connector CN301 : WHI , PMV3 • • • Connector CN302 : BLU) 1) Controls superheat and subcool of the sub heat exchanger 2) Maintains discharge pressure in low ambient cooling operation
	PMV4	(Connector CN303 : RED) 1) Controls superheat and subcool of the sub-cooling heat exchanger 2) Liquid bypass function for discharge temperature releases (cooling bypass function)
Oil Separator		1) Prevention for rapid decreasing oil (Decreases oil flowing to the cycle) 2) Reserve function of excess oil
Temperature Sensor	TD1 TD2	(TD1 • • • Connector CN502 : WHI , TD2 • • • Connector CN380 : BLK) 1) Protection of compressor discharge temperature 2) Used for discharge temperature release
	TG1 TG2 TG3	(TG1 • • • Connector CN381 : WHI , TG2 • • • Connector CN381 : WHI , TG3 • • • Connector CN384 : BLU) 1) Controls superheat of PMV in heating operation
	TE1	(Connector CN381 : WHI) 1) Controls the main heat exchanger defrost in heating operation 2) Controls outdoor fan in heating operation
	TE2 TE3	(TE2 • • • Connector CN381 : WHI , TE3 • • • Connector CN384 : BLU) 1) Controls the main heat exchanger defrost in heating operation 2) Controls outdoor fan in heating operation
	TL1	(Connector CN378 : WHI) 1) Detects the main heat exchanger subcool in cooling operation 2) Use as main complement switching during cooling operation
	TL2	(Connector CN378 : WHI) 1) Detects subcool of the sub-cooling heat exchanger in cooling operation 2) Use as main complement switching in cooling operation [3 way variable heat exchanger]
	TL3	(Connector CN378 : WHI) 1) Controls subcool of the sub-cooling heat exchanger
	TS1	(Connector CN378 : WHI) 1) Controls PMV superheat in heating operation
	TS3	(Connector CN378 : WHI) 1) Controls subcool of the sub-cooling heat exchanger
	TO	(Connector CN507 : YEL) 1) Detects outside temperature
	TK1 TK2	(TK1 • • • Connector CN502 : WHI , TK2 • • • Connector CN380 : BLK) 1) Judges oil level of the compressor
Pressure Sensor	High pressure sensor	(Connector CN501 : RED) 1) Detects high pressure 2) Controls the fan in low ambient cooling operation 3) Detects subcool of indoor units in heating operation
	Low pressure sensor	(Connector CN500 : WHI) 1) Detects low pressure 2) Controls superheat in heating operation
Heater	Compressor case heater	(Comp1 • • • Connector CN331 : WHI , Comp2 • • • Connector CN332 : BLU) 1) Prevents liquid refrigerant accumulation in the compressor

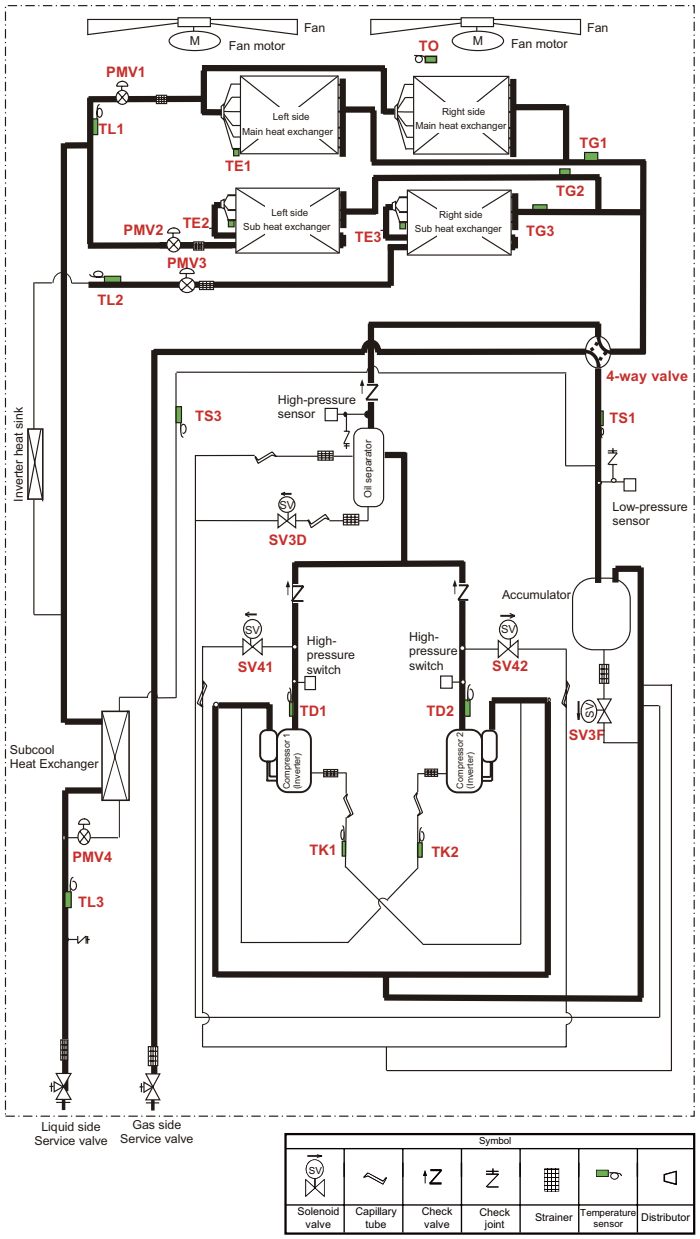
Outdoor unit 14A, 16, 18, 20HP
Model: MMY-MUP14A1∗, MUP1601∗, MUP1801∗, MUP2001∗



Functional Part Name

	SV3D	(Connector CN324 : WHI) 1) Reserves oil in the oil separator during OFF time. 2) Returns oil reserved in the oil separator to the compressor during ON time.
	SV3F	(Connector CN324: WHI) 1) Supplies oil in the accumulator to the compressor 2) Shuts off the liquid refrigerant from the accumulator when the compressor dilution
	SV41 SV42	(SV41 • • • Connector CN324 : WHI , SV42 • • • Connector CN327 : BLK) 1) High/Low pressure balance Prevention of subcool oil backflow when compressor stop, start-up compensation when starting up the compressor, reducing refrigerant noise when starting up heating operation 2) High pressure release function 3) Low pressure release function 4) Keeps the compressor reliability when Hot Gas Bypass system (prevent dilution with oil) 5) Releases capacity (Refrigerant mass bypass function in minimum cooling operation)
4-Way valve		(Connector CN317 : ORN) 1) Cooling/Heating change 2) Reverses Defrost
Pulse Motor Valve	PMV1	(Connector CN300 : WHI) 1) Controls superheat and subcool of the main heat exchanger 2) Stored liquid refrigerant reduction control in low ambient cooling operation (recovers stored liquid refrigerant in the main heat exchanger)
	PMV2 PMV3	(PMV2 • • • Connector CN301 : WHI , PMV3 • • • Connector CN302 : BLU) 1) Controls superheat and subcool of the sub heat exchanger 2) Maintains discharge pressure in low ambient cooling operation
	PMV4	(Connector CN303 : RED) 1) Controls superheat and subcool of the sub-cooling heat exchanger 2) Liquid bypass function for discharge temperature releases (cooling bypass function)
Oil Separator		1) Prevention for rapid decreasing oil (Decreases oil flowing to the cycle) 2) Reserve function of excess oil
Temperature Sensor	TD1 TD2	(TD1 • • • Connector CN502 : WHI , TD2 • • • Connector CN380 : BLK) 1) Protection of compressor discharge temperature 2) Used for discharge temperature release
	TG1 TG2 TG3	(TG1 • • • Connector CN381 : WHI , TG2 • • • Connector CN381 : WHI , TG3 • • • Connector CN384 : BLU) 1) Controls superheat of PMV in heating operation
	TE1	(Connector CN381 : WHI) 1) Controls the main heat exchanger defrost in heating operation 2) Controls outdoor fan in heating operation
	TE2 TE3	(TE2 • • • Connector CN381 : WHI , TE3 • • • Connector CN384 : BLU) 1) Controls the main heat exchanger defrost in heating operation 2) Controls outdoor fan in heating operation
	TL1	(Connector CN378 : WHI) 1) Detects the main heat exchanger subcool in cooling operation 2) Use as main complement switching during cooling operation
	TL2	(Connector CN378 : WHI) 1) Detects subcool of the sub-cooling heat exchanger in cooling operation 2) Use as main complement switching in cooling operation [3 way variable heat exchanger]
	TL3	(Connector CN378 : WHI) 1) Controls subcool of the sub-cooling heat exchanger
	TS1	(Connector CN378 : WHI) 1) Controls PMV superheat in heating operation
	TS3	(Connector CN378 : WHI) 1) Controls subcool of the sub-cooling heat exchanger
	TO	(Connector CN507 : YEL) 1) Detects outside temperature
	TK1 TK2	(TK1 • • • Connector CN502 : WHI , TK2 • • • Connector CN380 : BLK) 1) Judges oil level of the compressor
Pressure Sensor	High pressure sensor	(Connector CN501 : RED) 1) Detects high pressure 2) Controls the fan in low ambient cooling operation 3) Detects subcool of indoor units in heating operation
	Low pressure sensor	(Connector CN500 : WHI) 1) Detects low pressure 2) Controls superheat in heating operation
Heater	Compressor case heater	(Comp1 • • • Connector CN331 : WHI , Comp2 • • • Connector CN332 : BLU) 1) Prevents liquid refrigerant accumulation in the compressor

Outdoor unit 22, 24HP
Model: MMY-MUP2201∗, MUP2401∗



Functional Part Name

	SV3D	(Connector CN324 : WHI) 1) Reserves oil in the oil separator during OFF time. 2) Returns oil reserved in the oil separator to the compressor during ON time.
	SV3F	(Connector CN324: WHI) 1) Supplies oil in the accumulator to the compressor 2) Shuts off the liquid refrigerant from the accumulator when the compressor dilution
	SV41 SV42	(SV41 • • • Connector CN324 : WHI , SV42 • • • Connector CN327 : BLK) 1) High/Low pressure balance Prevention of subcool oil backflow when compressor stop, start-up compensation when starting up the compressor, reducing refrigerant noise when starting up heating operation 2) High pressure release function 3) Low pressure release function 4) Keeps the compressor reliability when Hot Gas Bypass system (prevent dilution with oil) 5) Releases capacity (Refrigerant mass bypass function in minimum cooling operation)
4-Way valve		(Connector CN317 : ORN) 1) Cooling/Heating change 2) Reverses Defrost
Pulse Motor Valve	PMV1	(Connector CN300 : WHI) 1) Controls superheat and subcool of the main heat exchanger 2) Stored liquid refrigerant reduction control in low ambient cooling operation (recovers stored liquid refrigerant in the main heat exchanger)
	PMV2 PMV3	(PMV2 • • • Connector CN301 : WHI , PMV3 • • • Connector CN302 : BLU) 1) Controls superheat and subcool of the sub heat exchanger 2) Maintains discharge pressure in low ambient cooling operation
	PMV4	(Connector CN303 : RED) 1) Controls superheat and subcool of the sub-cooling heat exchanger 2) Liquid bypass function for discharge temperature releases (cooling bypass function)
Oil Separator		1) Prevention for rapid decreasing oil (Decreases oil flowing to the cycle) 2) Reserve function of excess oil
Temperature Sensor	TD1 TD2	(TD1 • • • Connector CN502 : WHI , TD2 • • • Connector CN380 : BLK) 1) Protection of compressor discharge temperature 2) Used for discharge temperature release
	TG1 TG2 TG3	(TG1 • • • Connector CN381 : WHI , TG2 • • • Connector CN381 : WHI , TG3 • • • Connector CN384 : BLU) 1) Controls superheat of PMV in heating operation
	TE1	(Connector CN381 : WHI) 1) Controls the main heat exchanger defrost in heating operation 2) Controls outdoor fan in heating operation
	TE2 TE3	(TE2 • • • Connector CN381 : WHI , TE3 • • • Connector CN384 : BLU) 1) Controls the main heat exchanger defrost in heating operation 2) Controls outdoor fan in heating operation
	TL1	(Connector CN378 : WHI) 1) Detects the main heat exchanger subcool in cooling operation 2) Use as main complement switching during cooling operation
	TL2	(Connector CN378 : WHI) 1) Detects subcool of the sub-cooling heat exchanger in cooling operation 2) Use as main complement switching in cooling operation [3 way variable heat exchanger]
	TL3	(Connector CN378 : WHI) 1) Controls subcool of the sub-cooling heat exchanger
	TS1	(Connector CN378 : WHI) 1) Controls PMV superheat in heating operation
	TS3	(Connector CN378 : WHI) 1) Controls subcool of the sub-cooling heat exchanger
	TO	(Connector CN507 : YEL) 1) Detects outside temperature
	TK1 TK2	(TK1 • • • Connector CN502 : WHI , TK2 • • • Connector CN380 : BLK) 1) Judges oil level of the compressor
Pressure Sensor	High pressure sensor	(Connector CN501 : RED) 1) Detects high pressure 2) Controls the fan in low ambient cooling operation 3) Detects subcool of indoor units in heating operation
	Low pressure sensor	(Connector CN500 : WHI) 1) Detects low pressure 2) Controls superheat in heating operation
Heater	Compressor case heater	(Comp1 • • • Connector CN331 : WHI , Comp2 • • • Connector CN332 : BLU) 1) Prevents liquid refrigerant accumulation in the compressor

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