

AIR CONDITIONER

Wall mounted type

SERVICE MANUAL

INDOOR



ASHG18KMTE
ASHG24KMTE

OUTDOOR



AOHG18KMTA



AOHG24KMTA

FUJITSU GENERAL LIMITED

Notices:

- Product specifications and design are subject to change without notice for future improvement.
- For further details, please check with our authorized dealer.

Trademarks

FGLair™ is trademark of Fujitsu General Limited in the United States, other countries or both.

Google Play™ is trademark of Google Inc.

App Store® is a service mark of Apple Inc., registered in the U.S. and other countries.

CONTENTS

1. GENERAL INFORMATION

2. TECHNICAL DATA AND PARTS LIST

3. TROUBLESHOOTING

4. CONTROL AND FUNCTIONS

5. FIELD WORKING

1. GENERAL INFORMATION

CONTENTS

1. GENERAL INFORMATION

1. Specifications	01-1
1-1. Indoor unit	01-1
1-2. Outdoor unit.....	01-4
2. Dimensions	01-5
2-1. Indoor unit	01-5
2-2. Outdoor unit.....	01-7

1. Specifications

1-1. Indoor unit

Type				Wall mounted			
				Inverter heat pump			
Model name				ASHG18KMTE	ASHG24KMTE		
Power supply				230 V ~ 50 Hz			
Power supply intake				Outdoor unit			
Available voltage range				198—264 V			
Capacity	Cooling	Rated	kW	5.20	7.10		
			Btu/h	17,700	24,200		
		Min.—Max.	kW	0.90—6.00	0.90—8.30		
	Heating	Rated	Btu/h	3,100—20,500	3,100—28,300		
			kW	6.30	8.00		
		Min.—Max.	kW	0.90—8.70	0.90—10.10		
				Btu/h	3,000—34,400		
Input power	Cooling	Rated	kW	1.39	2.08		
				Min.—Max.	0.09—1.66	0.24—3.15	
	Heating	Rated	kW	1.56	1.91		
				Min.—Max.	0.09—2.86	0.14—3.00	
	Fan	HIGH	MED	W	37.5	61.6	
					22.9	26.7	
13.3					13.3		
8.2					8.2		
Current	Cooling	Rated	A	6.1	9.3		
	Heating			7.0	8.6		
EER	Cooling			kW/kW	3.74	3.41	
COP	Heating			kW/kW	4.04	4.19	
Sensible capacity	Cooling			kW	4.05	5.30	
Power factor	Cooling			%	98	98	
	Heating			%	98	96	
Moisture removal			L/h (pints/h)	1.7 (3.0)	2.7 (4.8)		
Maximum operating current *1	Cooling			A	9.5	13.5	
	Heating			A	13.5	16.0	
Fan	Cooling	Airflow rate	m ³ /h	HIGH	980	1,170	
				MED	810	850	
				LOW	640	640	
				QUIET	510	510	
				HIGH	1,020	1,170	
	Heating	Airflow rate	m ³ /h	MED	850	850	
				LOW	640	640	
				QUIET	510	510	
				Type × Q'ty		Crossflow fan × 1	
				Motor output		W	
Sound pressure level *2	Cooling		dB (A)	HIGH	45	49	
				MED	40	40	
				LOW	35	35	
				QUIET	29	29	
	Heating		dB (A)	HIGH	46	49	
				MED	40	40	
				LOW	35	35	
				QUIET	29	29	
Heat exchanger type	Dimensions (H × W × D)		mm	Main1: 210 × 798 × 26.6, Main2: 135 × 798 × 20 Sub1: 84 × 798 × 13.3, Sub2: 84 × 798 × 13.3			
	Fin pitch			Main1: 1.2, Main2: 1.1 Sub1: 1.4, Sub2: 1.4			
	Rows × Stages			Main1: 2 × 10, Main2: 2 × 8 Sub1: 1 × 4, Sub2: 1 × 4			
	Pipe type			Copper			
	Fin type			Aluminum			
Enclosure	Material		Polystyrene				
	Color		White Approximate color of Munsell N 9.25/				
Dimensions (H × W × D)	Net			mm	280 × 980 × 240		
	Gross				322 × 1,078 × 346		
Weight	Net			kg	13.0		
	Gross				18		
Connection pipe	Size	Liquid	mm (in)	Ø6.35 (Ø1/4)			
		Gas		Ø12.70 (Ø1/2)			
Drain hose	Method		Flare				
	Material		PP + HDPE				
Operation range	Tip diameter		mm	Ø13.8 (I.D.), Ø15.8 to Ø16.7 (O.D.)			
	Cooling			°C	18 to 32		
Remote control	Heating		°C		80 or less		
					16 to 30		
Wireless remote controller (Option: Wired remote controller, Mobile app*3 [FGLair™])							

Type	Wall mounted	
	Inverter heat pump	
Model name	ASHG18KMTE	ASHG24KMTE
<p>NOTES:</p> <ul style="list-style-type: none"> • Specifications are based on the following conditions: <ul style="list-style-type: none"> – Cooling: Indoor temperature of 27 °CDB/19 °CWB, and outdoor temperature of 35 °CDB/24 °CWB. – Heating: Indoor temperature of 20 °CDB/15 °CWB, and outdoor temperature of 7 °CDB/6 °CWB. – Pipe length: 5 m, Height difference: 0 m. (Between outdoor unit and indoor unit.) • Protective function might work when using it outside the operation range. • *1: Maximum operating current is the total current of the indoor unit and the outdoor unit. • *2: Sound pressure level: <ul style="list-style-type: none"> – Measured values in manufacturer's anechoic chamber. – Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here. • *3: Available on Google Play™ store or on App Store®. Optional WLAN adapter is also required. For details, refer to the setting manual. 		

Specifications for ErP Lot10				
Model name		ASHG18KMTE		ASHG24KMTE
Energy efficiency class	Cooling	A ⁺⁺		
	Heating (Average)	A ⁺⁺		A ⁺
Pdesign	Cooling	kW	5.2 (35°C)	7.1 (35°C)
	Heating (Average)		4.8 (-10°C)	7.1 (-10°C)
SEER	Cooling	kWh/kWh	7.77	7.30
SCOP	Heating (Average)		4.60	4.20
Annual energy consumption	QCE	kWh/a	234	340
	QHE (Average)		1,460	2,362
Sound power level	Cooling	HIGH	dB (A)	60
	Heating			61

1-2. Outdoor unit

Type			Inverter heat pump	
Model name			AOHG18KMTA	AOHG24KMTA
Power supply			230 V ~ 50 Hz	
Power supply intake			Outdoor unit	
Available voltage range			198—264 V	
Starting current			A	
Fan	Airflow rate	Cooling	7.0	8.6
		Heating	2,350	3,240
	Type × Q'ty		2,100	2,820
	Motor output		Propeller fan × 1	
Sound pressure level *1			W	49
Sound power level	Cooling	dB (A)	50	54
		Heating	50	52
	Cooling	dB (A)	65	67
		Heating	65	66
Heat exchanger type	Dimensions (H × W × D)		Main1: 588 × 881 × 18.19	Main1: 672 × 881 × 18.19
	Fin pitch		Main2: 672 × 851 × 18.19	
	Rows × Stages		1.3	
	Pipe type		1 × 28	1 × 32
	Fin type	Type (Material)	Copper tube	
		Surface treatment	Aluminum	
Compressor			PC fin	
Motor output			DC twin rotary	
Refrigerant	Type (Global warming potential)	R32 (675)		
	Charge	g	900	1,060
Refrigerant oil	Type	FW68S		
	Amount	cm ³	350	RmM68AF
Enclosure	Material		Steel sheet	
	Color		Beige	
Dimensions (H × W × D)	Net		Approximate color of Munsell 10YR 7.5/1.0	
	Gross		632 × 799 × 290	716 × 820 × 315
Weight	Net		692 × 940 × 375	776 × 961 × 450
	Gross		36	42
Connection pipe	Size	Liquid	Ø6.35 (Ø1/4)	
		Gas	Ø12.70 (Ø1/2)	
	Method		Flare	
	Pre-charge length		15	
	Max. length		25	30
	Max. height difference		20	25
Operation range	Cooling	°C	-10 to 46	
	Heating		-15 to 24	
Drain hose	Material		PP	
	Size		Ø13.0 (I.D.), Ø16.0 to Ø16.7 (O.D.)	

NOTES:

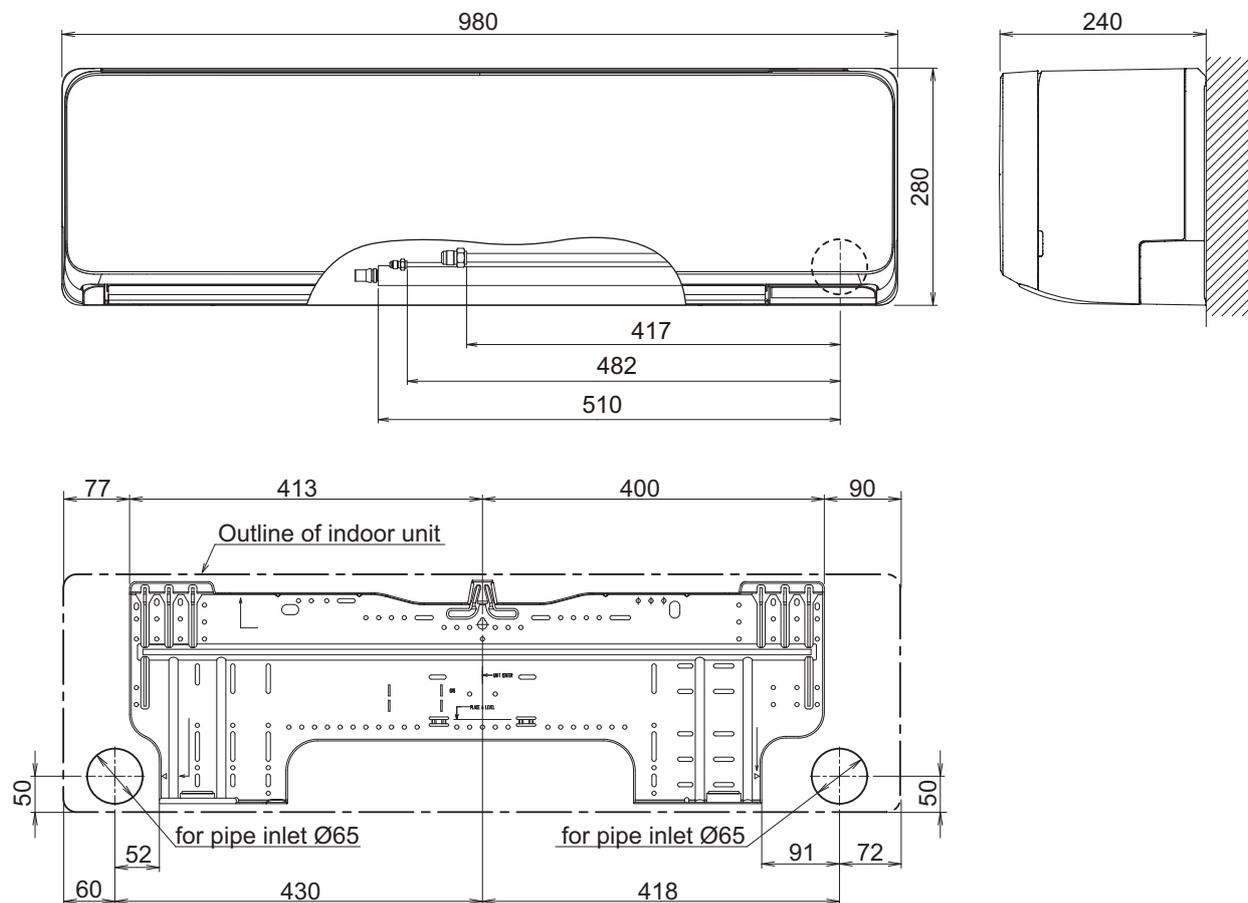
- Specifications are based on the following conditions:
 - Cooling: Indoor temperature of 27 °CDB/19 °CWB, and outdoor temperature of 35 °CDB/24 °CWB.
 - Heating: Indoor temperature of 20 °CDB/15 °CWB, and outdoor temperature of 7 °CDB/6 °CWB.
 - Pipe length: 5 m, Height difference: 0 m.
- Protective function might work when using it outside the operation range.
- *1: Sound pressure level
 - Measured values in manufacturer's anechoic chamber.
 - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

2. Dimensions

2-1. Indoor unit

■ Models: ASHG18KMTE and ASHG24KMTE

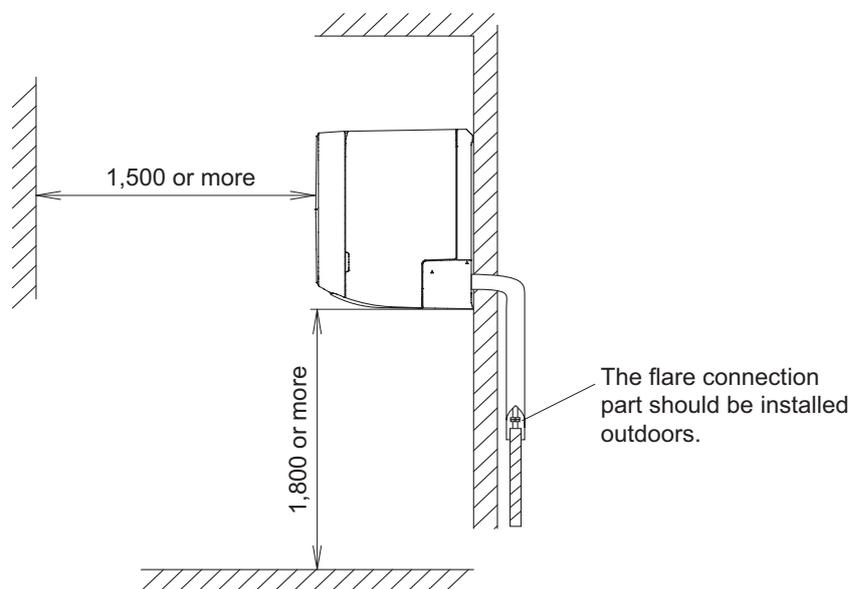
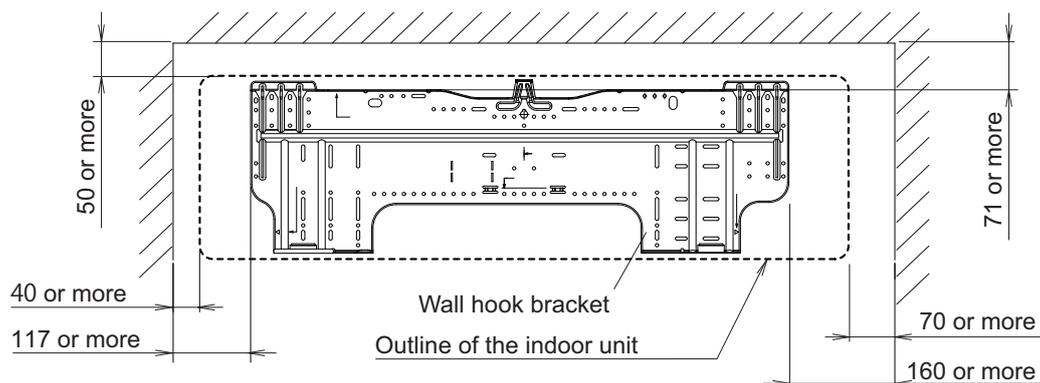
Unit: mm



● Installation space requirement

Provide sufficient installation space for product safety.

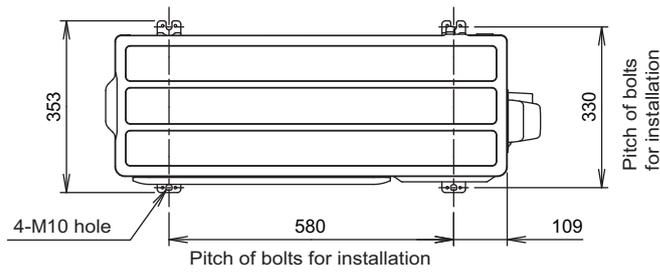
Unit: mm



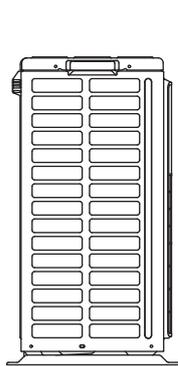
2-2. Outdoor unit

■ Model: AOHG18KMTA

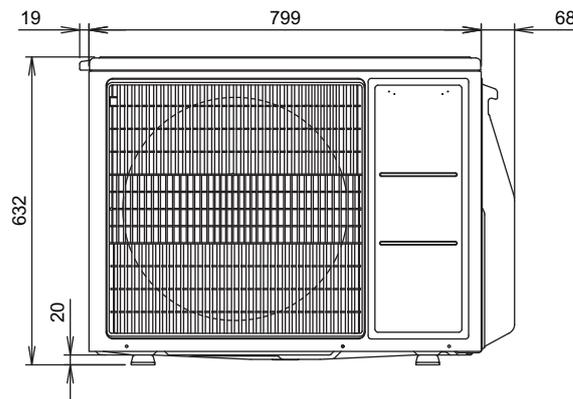
Unit: mm



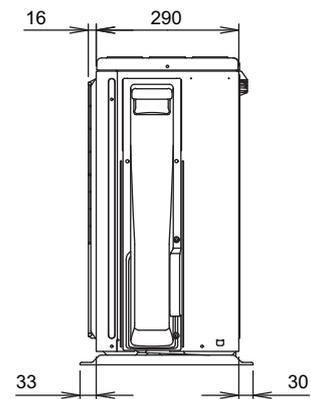
Top view



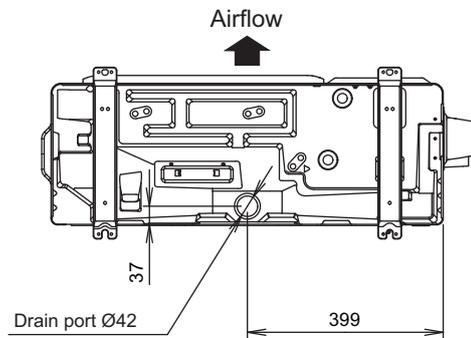
Side view



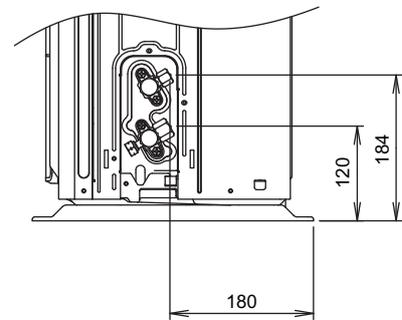
Front view



Side view



Bottom view



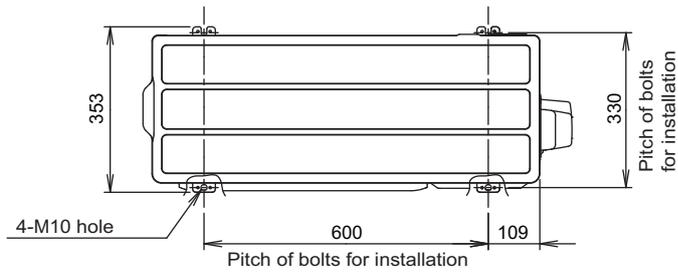
Side view (Valve part)

■ Model: AOHG24KMTA

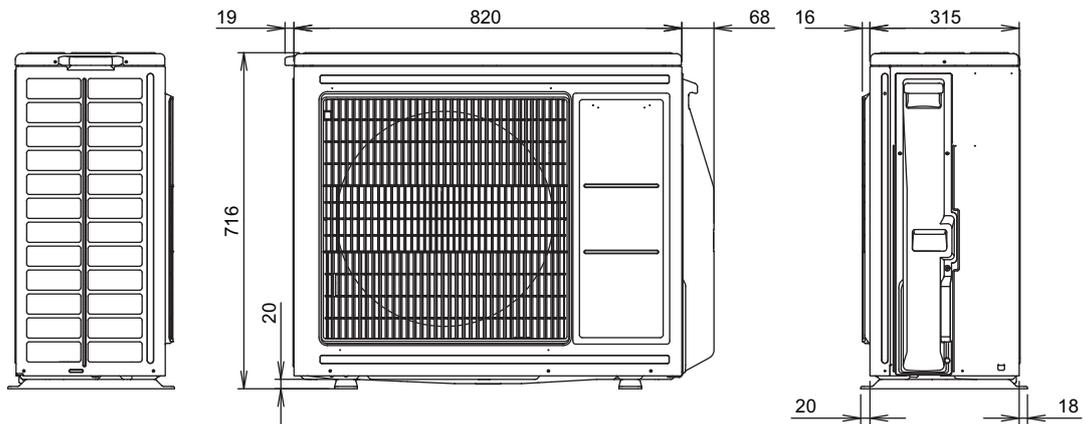
Unit: mm

GENERAL INFORMATION

GENERAL INFORMATION



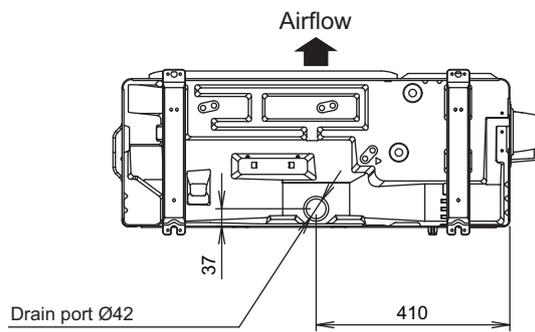
Top view



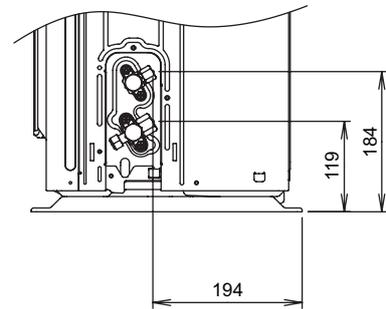
Side view

Front view

Side view



Bottom view



Side view (Valve part)

2. TECHNICAL DATA AND PARTS LIST

CONTENTS

2. TECHNICAL DATA AND PARTS LIST

1. Precautions	02-1
2. Indoor unit parts list	02-2
2-1. Models: ASHG18KMTE and ASHG24KMTE	02-2
3. Outdoor unit parts list	02-6
3-1. Model: AOHG18KMTA	02-6
3-2. Model: AOHG24KMTA	02-10
4. Accessories	02-14
4-1. Indoor unit	02-14
4-2. Outdoor unit.....	02-15
5. Refrigerant system diagrams	02-16
5-1. Model: AOHG18KMTA	02-16
5-2. Model: AOHG24KMTA	02-17
6. Wiring diagrams	02-18
6-1. Indoor unit	02-18
6-2. Outdoor unit.....	02-19
7. PC board diagrams	02-21
7-1. Models: ASHG18KMTE and ASHG24KMTE	02-21
7-2. Model: AOHG18KMTA	02-22
7-3. Model: AOHG24KMTA	02-23

1. Precautions

When you start servicing, pay attention to the following points. For detailed precautions, refer to the installation manual of the products.

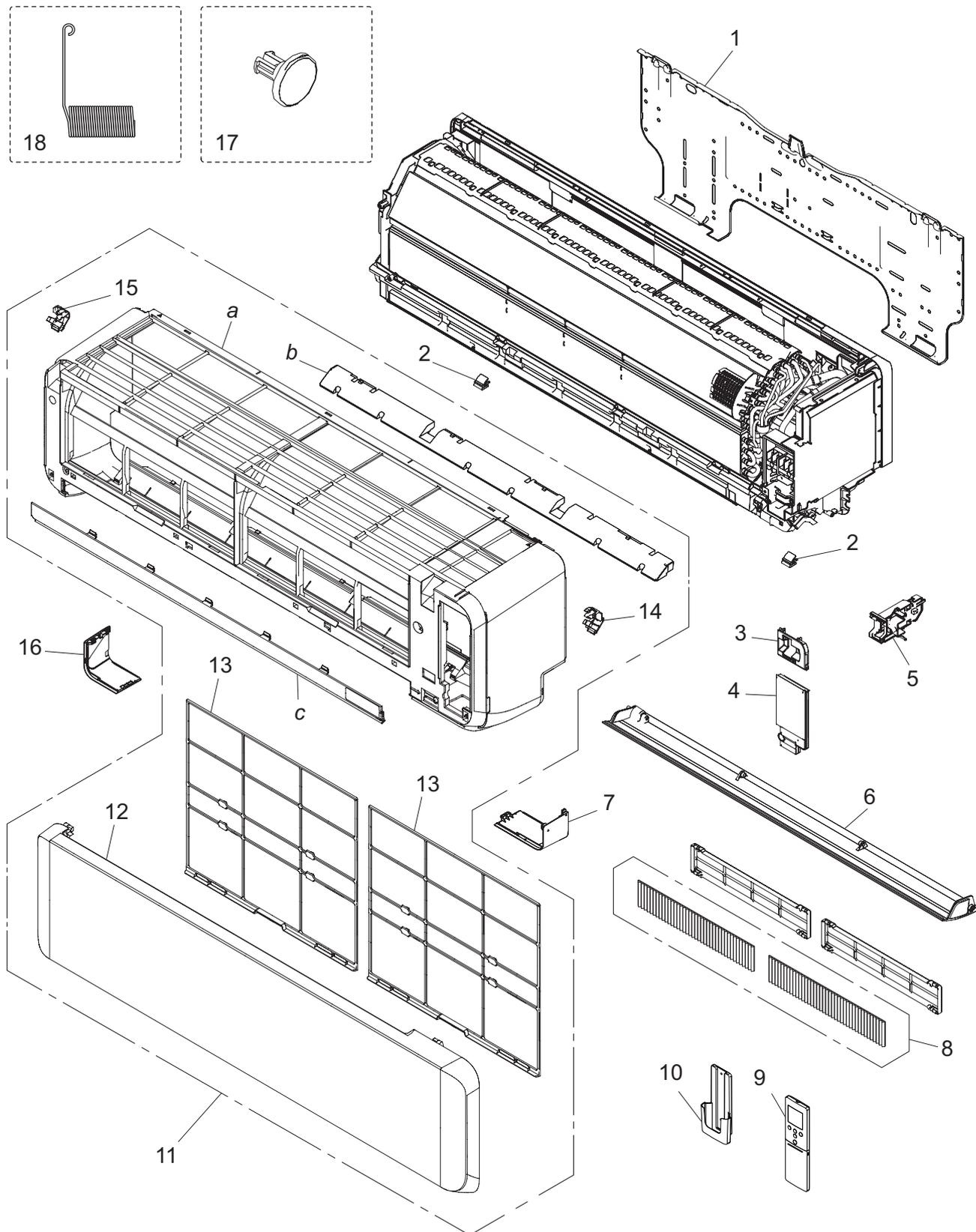
⚠ CAUTION

- Service personnel
 - Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely in accordance with an industry recognized assessment specification.
 - Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.
 - Servicing shall be performed only as recommended by the manufacturer.
 - Work
 - Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized. When repairing the refrigerant system, refer to the precautions written in the installation manual of the products before you start servicing.
 - Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.
 - All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out.
 - Work in confined spaces shall be avoided.
 - The area around the workspace shall be sectioned off.
 - Ensure that the conditions within the area have been made safe by control of flammable material.
 - Electric shock may occur. After turning off the power, always wait 5 minutes before touching electrical components.
 - Do not touch the fins of the heat exchanger. Touching the heat exchanger fins could result in damage to the fins or personal injury such as skin rupture.
 - Do not place any other electrical products or household belongings under the product.
 - Condensation dripping from the product might get them wet, and may cause damage or malfunction to the property.
 - Checking for presence of refrigerant
 - The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres.
 - Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.
-
- Service parts information and design are subject to change without notice for product improvement.
 - For the latest information of the service parts, refer to our Service Portal.
<https://fujitsu-general.force.com/portal/>
 - Precise figure of the service parts listed in this manual may differ from the actual service parts.

2. Indoor unit parts list

2-1. Models: ASHG18KMTE and ASHG24KMTE

■ Exterior parts



TECHNICAL DATA
AND PARTS LIST

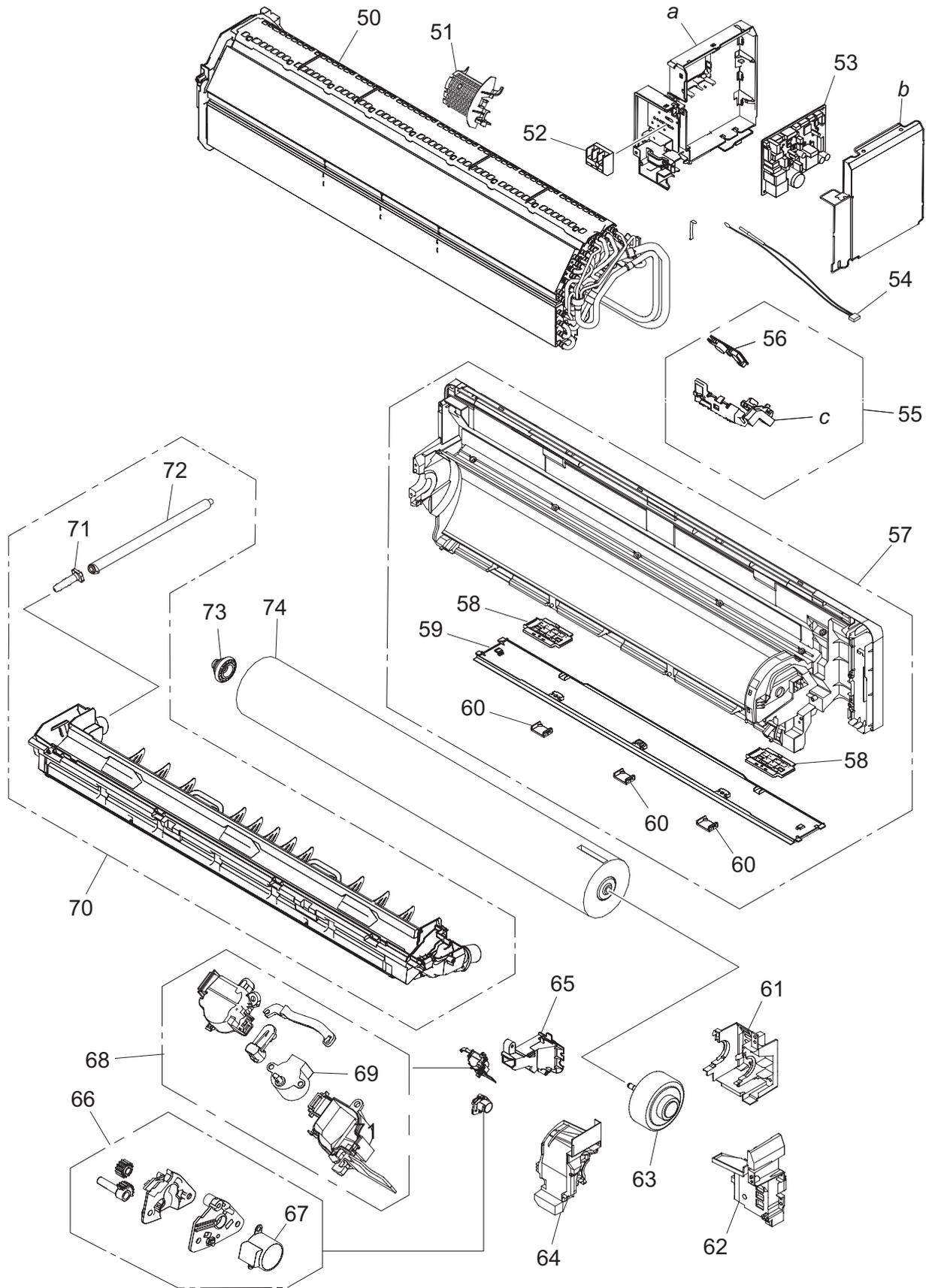
TECHNICAL DATA
AND PARTS LIST

Item no.	Part no.	Part name	Service part
1	9388158013	Bracket panel	◆
2	9387476002	Screw cap	◆
3	9383729027	Wire cover assy B	◆
4	9387597066	Wire cover assy	◆
5	9383765056	WLAN adapter holder assy	◆
6	9387479010	Louver assy (Up/Down)	◆
7	9323342040	Under cover R	◆
8	9317250009	Air cleaning filter assy	◆
9	9332438703	Wireless remote controller	◆
10	9318912005	Remote controller holder	◆
11	9384977137	Front panel total assy	◆
12	9387756111	Intake grille assy	◆
13	9323340008	Air filter	◆
14	9333719009	Grille clamper L	◆
15	9333704005	Grille clamper R	◆
16	9323341043	Under cover L	◆
17	9333608006	Bush	◆
18	9383730030	Louver spring	◆
<i>a</i>	—	Front panel	—
<i>b</i>	—	Panel cover	—
<i>c</i>	—	Front panel B	—

Chassis

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST



Item no.	Part no.	Part name	Service part
50	9383735196	Evaporator total assy	◆
51	9387467000	Room thermistor holder	◆
52	9901013010	Terminal 3P	◆
53	9711732330	Main PCB (18 model)	◆
	9711732354	Main PCB (24 model)	◆
54	9900627041	Thermistor assy	◆
55	9711146052	Display assy	◆
56	9711147011	Indicator PCB	◆
57	9387587159	Base assy	◆
58	9388150000	Pipe bracket A	◆
59	9388155005	Under cover C	◆
60	9388182001	Screw cap	◆
61	9384500007	Motor case sub assy	◆
62	9383565007	Pipe bracket	◆
63	9603631000	DC fan motor	◆
64	9387713015	Motor cover assy	◆
65	9387488012	Cable guide	◆
66	9387714012	Gear case assy	◆
67	9901011016	Stepping motor	◆
68	9383728006	R and L louver SPM assy	◆
69	9901011023	Stepping motor	◆
70	9387590142	Drain pan total assy	◆
71	9316177017	Drain cap	◆
72	9316904002	Drain hose assy	◆
73	9333628004	Bearing D assy	◆
74	9387055054	Crossflow fan assy	◆
—	9901010071	Wire with connector (USB adapter connection)	◆
<i>a</i>	—	Control box	—
<i>b</i>	—	Control cover	—
<i>c</i>	—	Display case	—

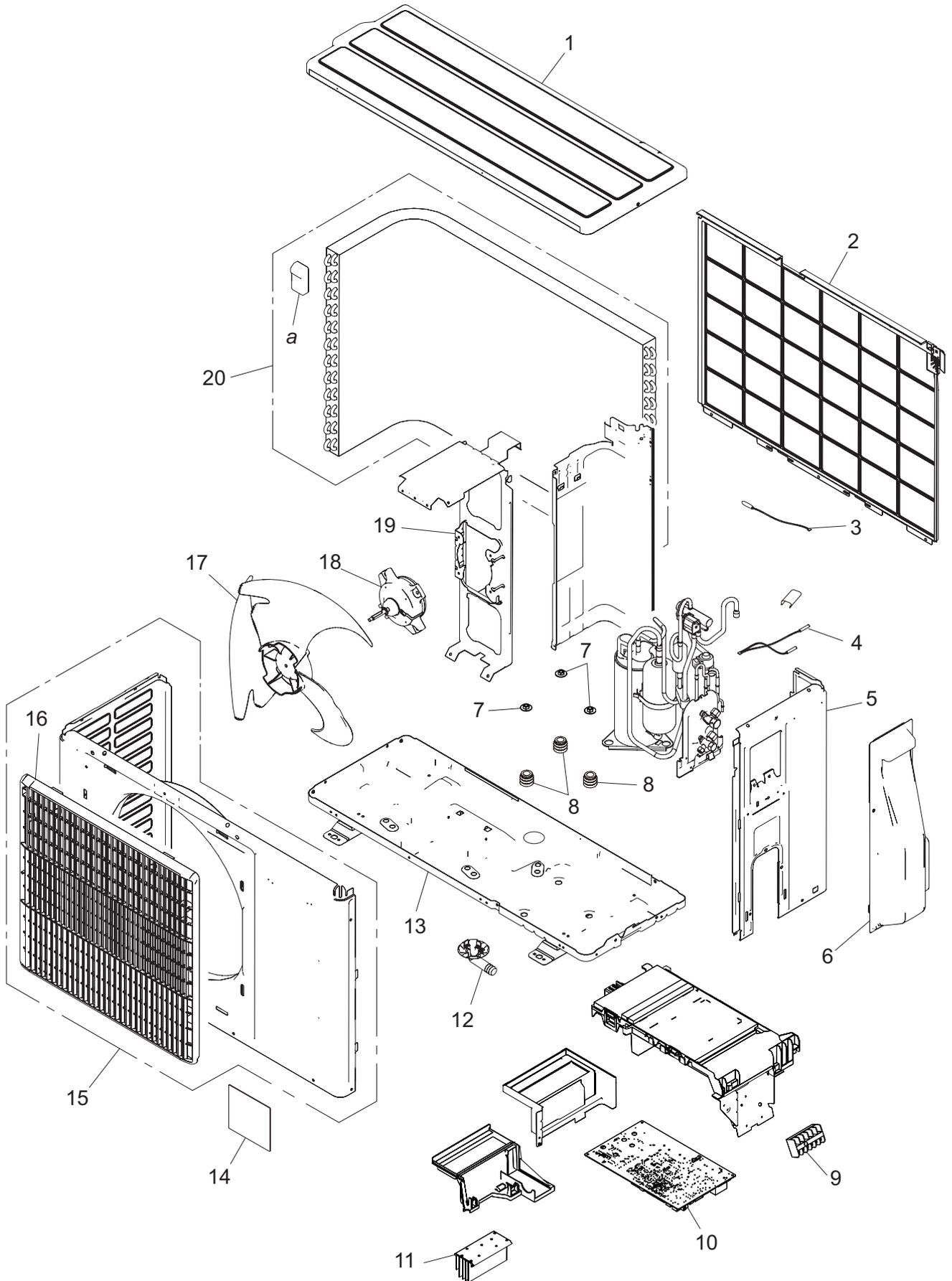
3. Outdoor unit parts list

3-1. Model: AOHG18KMTA

■ Exterior parts and Chassis

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST

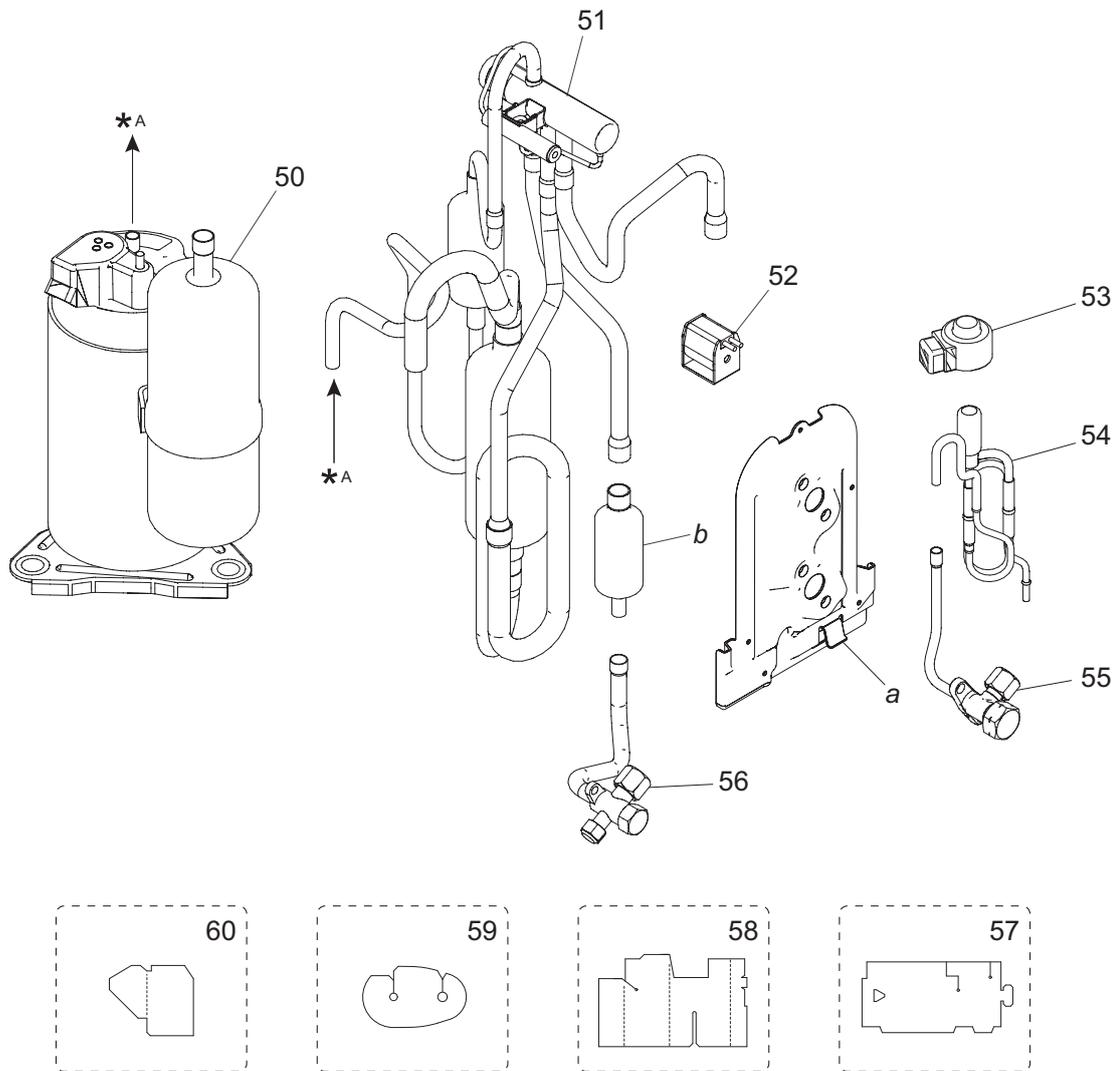


Item no.	Part no.	Part name	Service part
1	9322556028	Top panel assy	◆
2	9322811028	Protective net assy	◆
3	9900565060	Thermistor (Outdoor temp.)	◆
4	9900727079	Thermistor assy	◆
5	9322552099	Cabinet right assy	◆
6	9322570024	Switch cover assy	◆
7	9313437008	Special nut assy	◆
8	9322386007	Rubber cushion	◆
9	9900435028	Terminal (6 pin)	◆
10	9709687703	Main PCB	◆
11	9322420039	Heat sink	◆
12	9322144003	Drain pipe	◆
13	9322314024	Base assy	◆
14	9319157009	Emblem	◆
15	9322555021	Front panel assy	◆
16	9322149008	Blow grille	◆
17	9322150004	Propeller fan	◆
18	9603601003	DC fan motor	◆
19	9322553027	Motor bracket assy	◆
20	9323834026	Heat exchanger unit	◆
a	—	Hair pin cushion	—

Compressor

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST



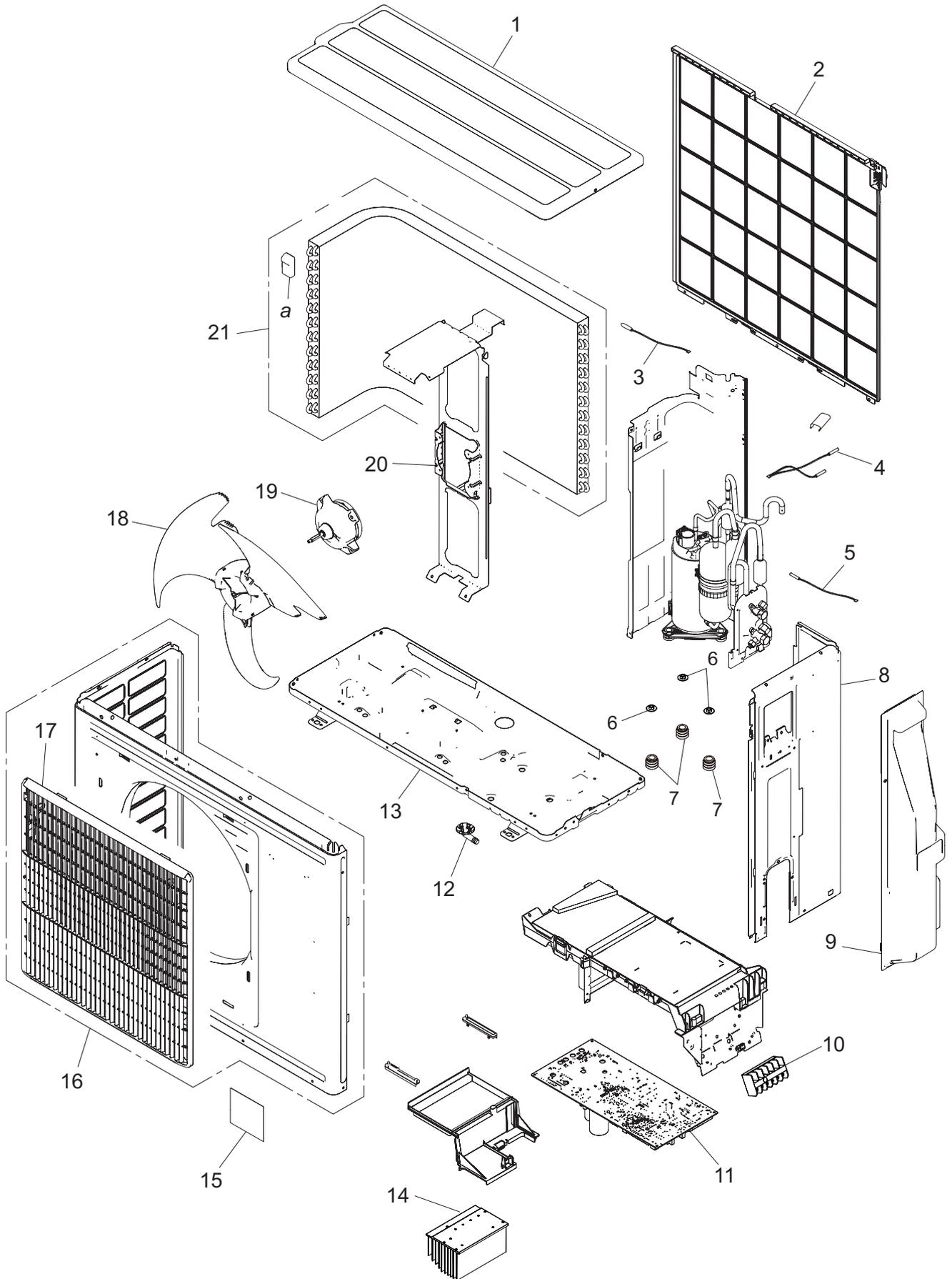
Item no.	Part no.	Part name	Service part
50	9322433008	Compressor assy	◆
51	9322783004	4-way valve assy	◆
52	9970195006	Solenoid	◆
53	9970222016	Expansion valve coil	◆
54	9322463029	Pulse motor valve assy	◆
55	9322474001	2-way valve assy	◆
56	9387831016	3-way valve assy	◆
57	9322500007	Sound insulator B	◆
58	9322847003	Sound insulator F	◆
59	9322501004	Sound insulator H	◆
60	9323045002	Sound insulator V	◆
a	—	Valve bracket	—
b	—	Muffler	—

3-2. Model: AOHG24KMTA

■ Exterior parts and Chassis

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST

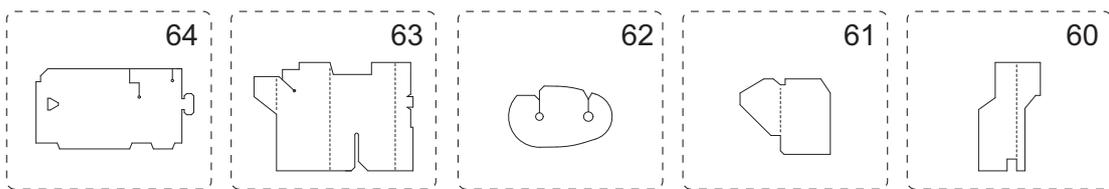
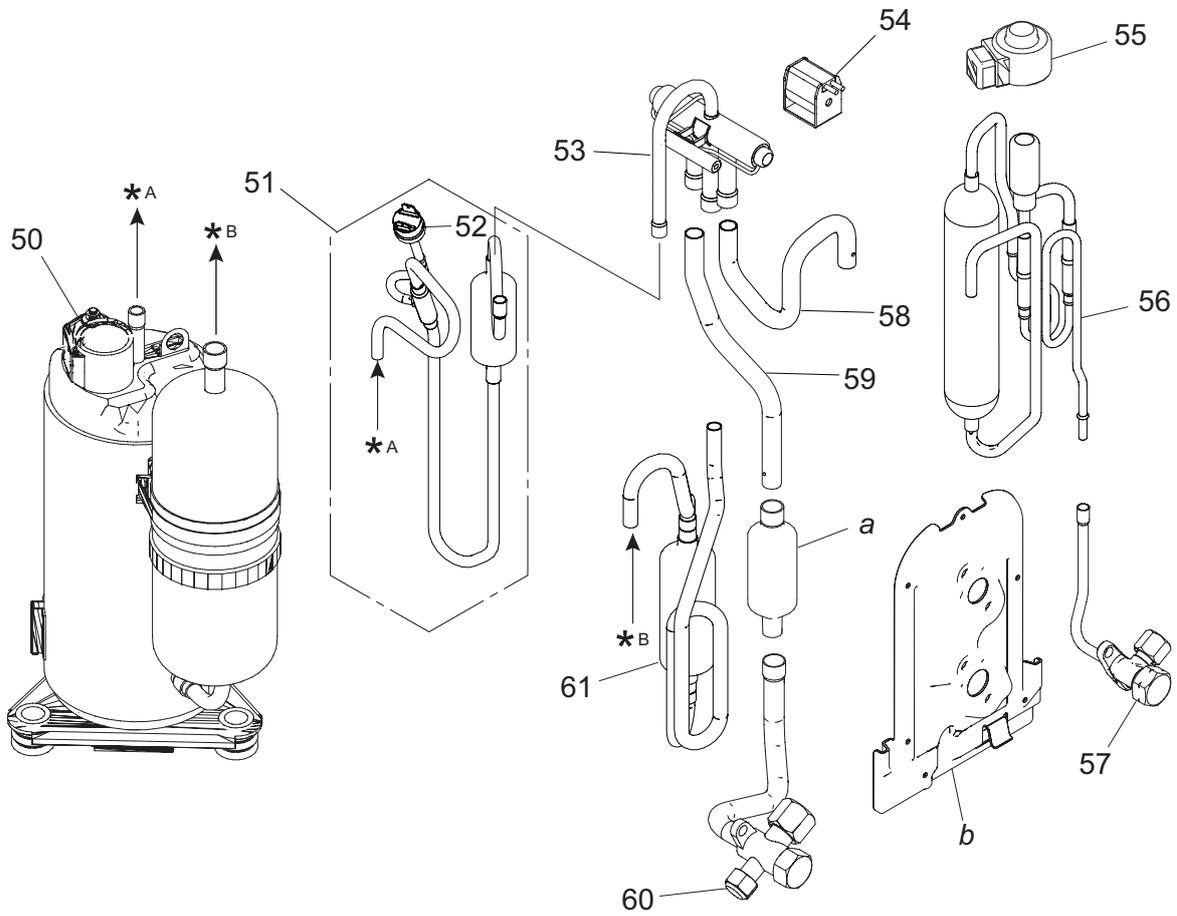


Item no.	Part no.	Part name	Service part
1	9322556073	Top panel assy	◆
2	9322811042	Protective net assy	◆
3	9900565060	Thermistor assy (Outdoor temp.)	◆
4	9900727116	Thermistor assy	◆
5	9900985011	Thermistor (Compressor temp.)	◆
6	9313437008	Special nut assy	◆
7	9322386007	Rubber cushion	◆
8	9322552150	Cabinet right assy	◆
9	9322570031	Switch cover assy	◆
10	9900435028	Terminal (6 pin)	◆
11	9709687710	Main PCB	◆
12	9322144003	Drain pipe	◆
13	9322322029	Base assy	◆
14	9322421043	Heat sink	◆
15	9319157009	Emblem	◆
16	9322555038	Front panel assy	◆
17	9322149008	Blow grille	◆
18	9322150004	Propeller fan	◆
19	9603601003	DC fan motor	◆
20	9322553034	Motor bracket assy	◆
21	9323834118	Heat exchanger unit	◆
a	—	Hair pin cushion	—

Compressor

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST

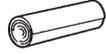
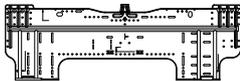
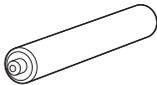
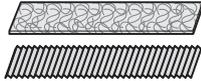


Item no.	Part no.	Part name	Service part
50	9810521002	Compressor assy	◆
51	9383949005	Discharge pipe sub assy	◆
52	9900186029	Pressure switch	◆
53	9970205002	4-way valve	◆
54	9970206009	Solenoid	◆
55	9970222016	Expansion valve coil	◆
56	9322462015	Pulse motor valve assy	◆
57	9322474001	2-way valve assy	◆
58	9322459008	Joint pipe (Condensor)	◆
59	9322461001	Joint pipe (3-way valve)	◆
60	9387831016	3-way valve assy	◆
61	9322791009	Suction pipe assy	◆
60	9322824004	S-insulator K	◆
61	9323045002	S-insulator V	◆
62	9322501004	S-insulator H	◆
63	9322529008	S-insulator F	◆
64	9322503008	S-insulator B	◆
—	9710542015	Wire assy (P20 on main PCB—Pressure switch)	◆
<i>a</i>	—	Muffler	—
<i>b</i>	—	Valve bracket	—

4. Accessories

4-1. Indoor unit

■ Models: ASHG18KMTE and ASHG24KMTE

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Operating manual		1	Cloth tape		1
Operating manual (CD-ROM)		1	Tapping screw (large)		5
Installation manual		1	Tapping screw (small)		2
Remote controller		1	Wall hook bracket		1
Remote controller holder		2	Filter holder		2
Battery		2	Air cleaning filters		1

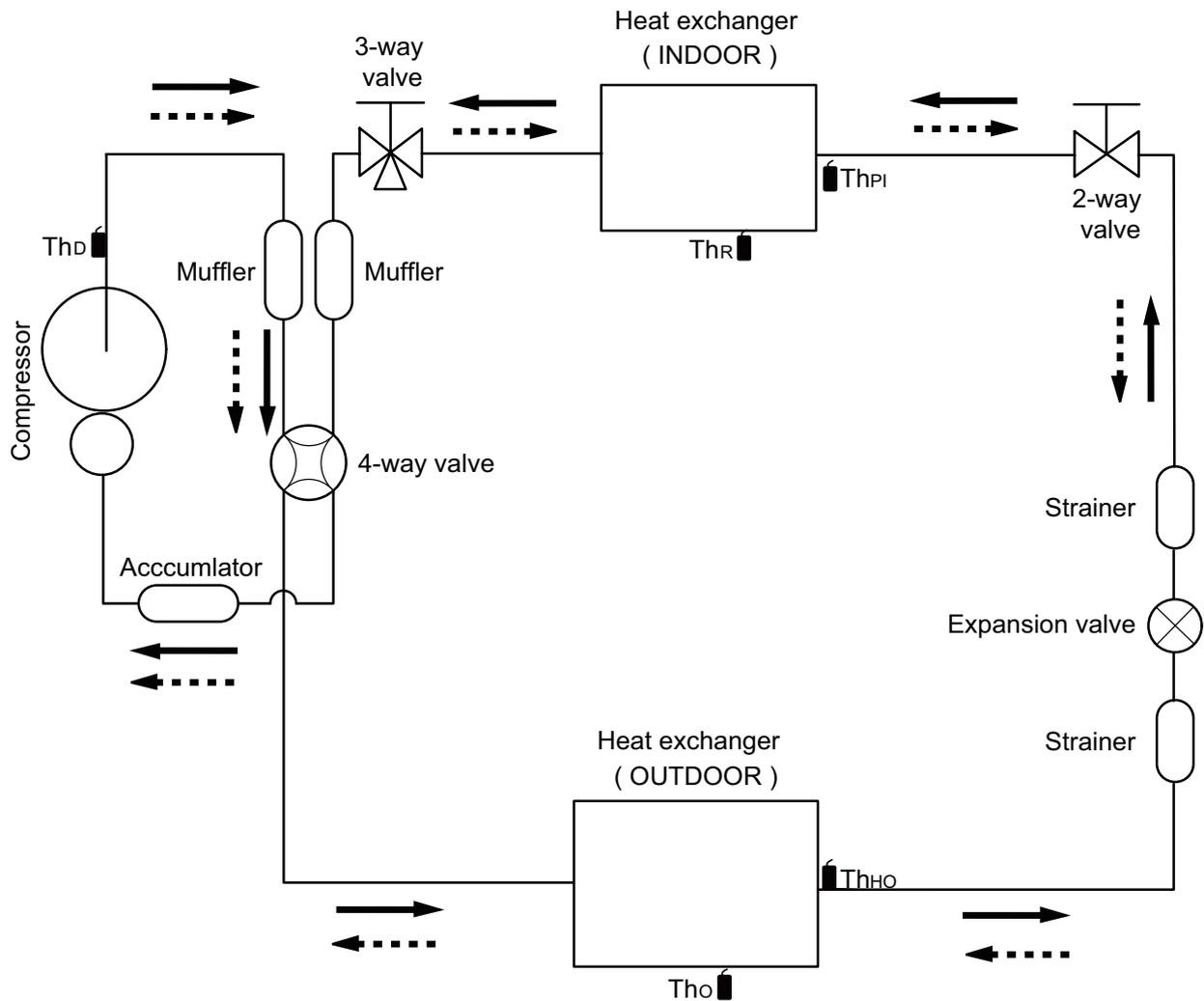
4-2. Outdoor unit

■ Models: AOHG18KMTA and AOHG24KMTA

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Installation manual		1	Drain pipe		1

5. Refrigerant system diagrams

5-1. Model: AOHG18KMTA



 Cooling
 Heating

Th_D  : Thermistor (Discharge temperature)

Th_O  : Thermistor (Outdoor temperature)

Th_{HO}  : Thermistor (Heat exchanger out temperature)

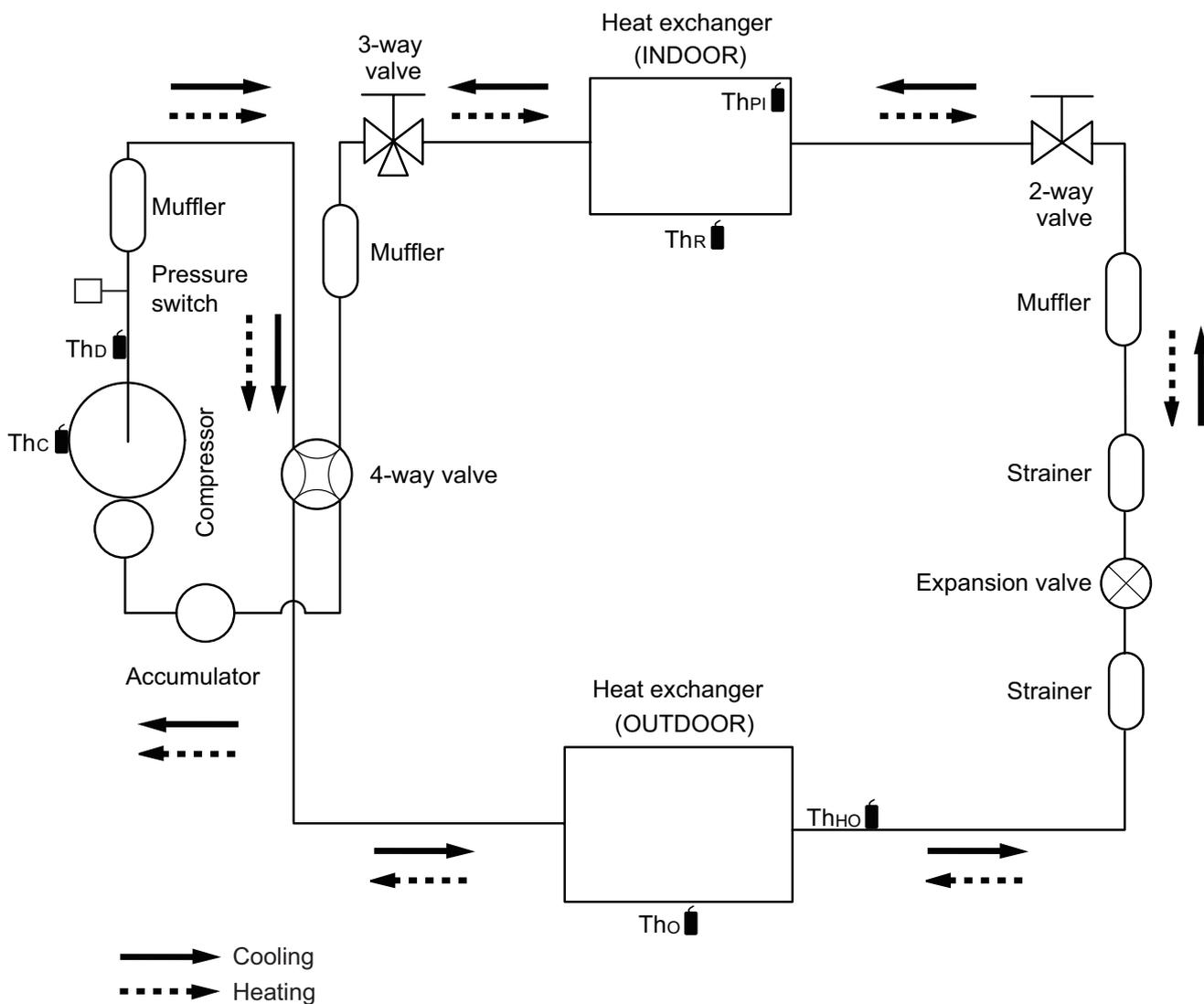
Th_{PI}  : Thermistor (Pipe temperature)

Th_R  : Thermistor (Room temperature)

5-2. Model: AOHG24KMTA

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST



- Thc : Thermistor (Compressor temperature)
- Thd : Thermistor (Discharge temperature)
- Tho : Thermistor (Outdoor temperature)
- ThHo : Thermistor (Heat exchanger out temperature)
- ThPI : Thermistor (Pipe temperature)
- ThR : Thermistor (Room temperature)

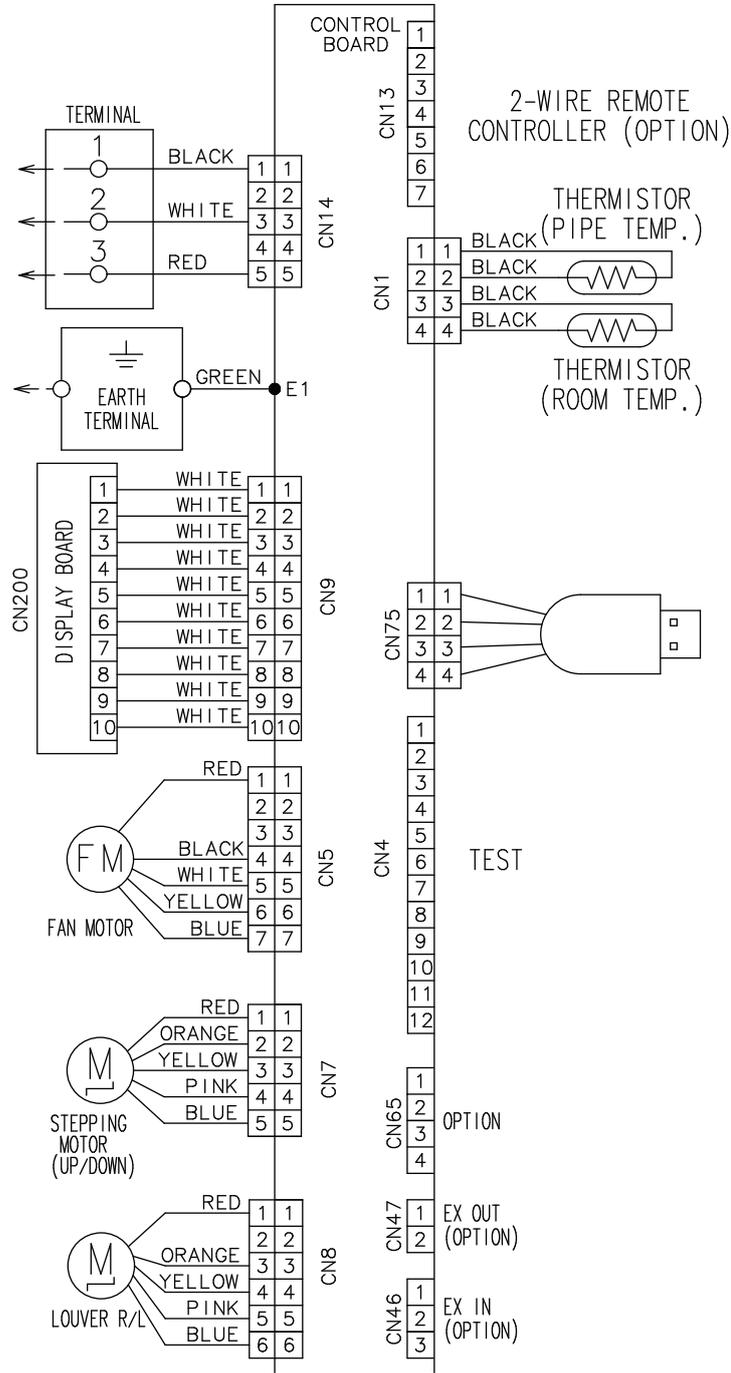
6. Wiring diagrams

6-1. Indoor unit

Models: ASHG18KMTE and ASHG24KMTE

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST

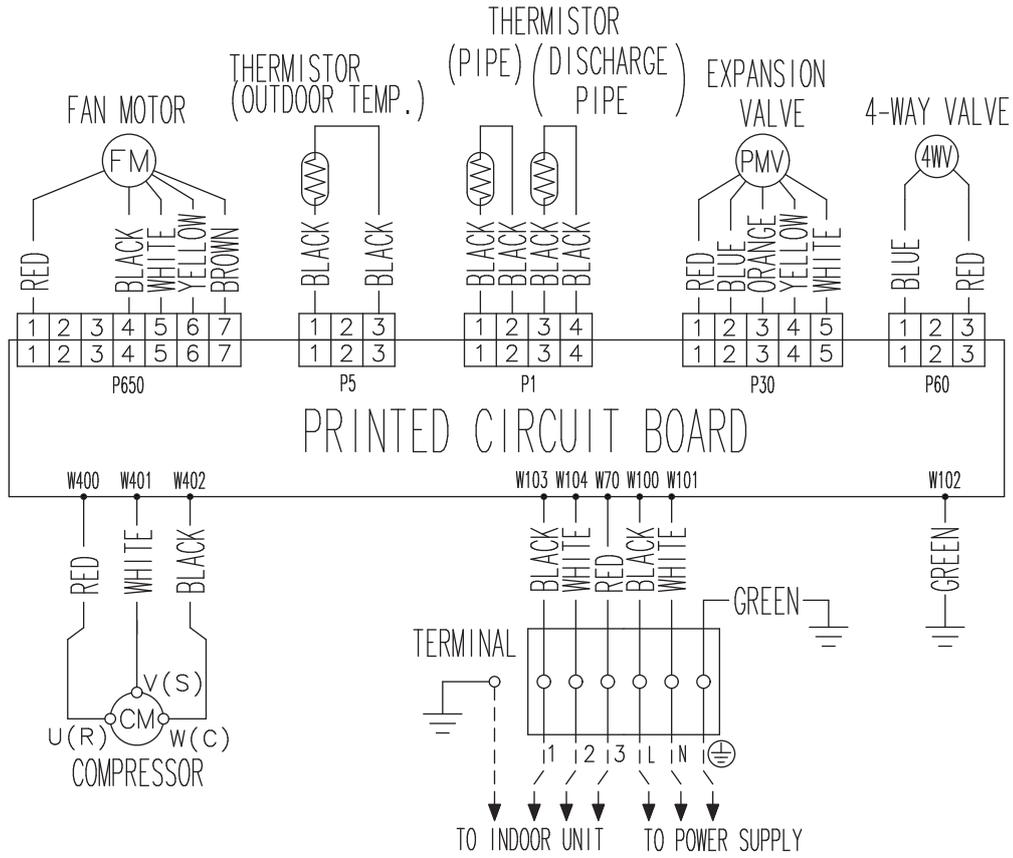


6-2. Outdoor unit

Model: AOHG18KMTA

TECHNICAL DATA
AND PARTS LIST

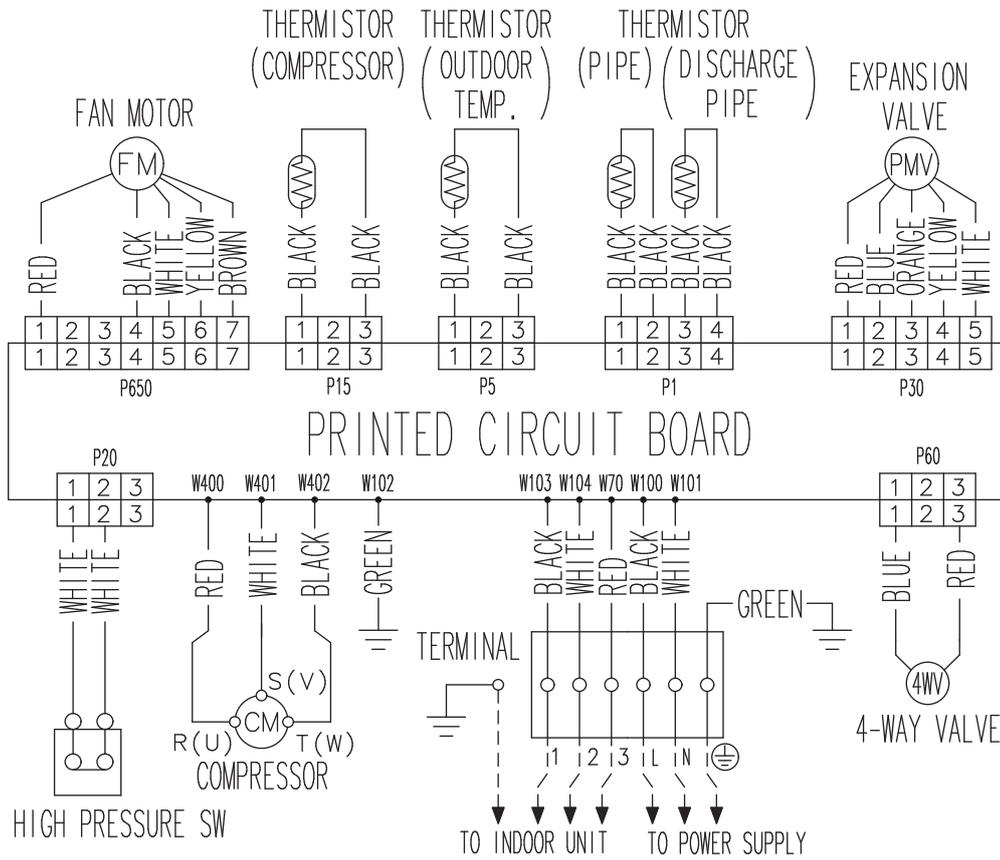
TECHNICAL DATA
AND PARTS LIST



Model: AOHG24KMTA

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST



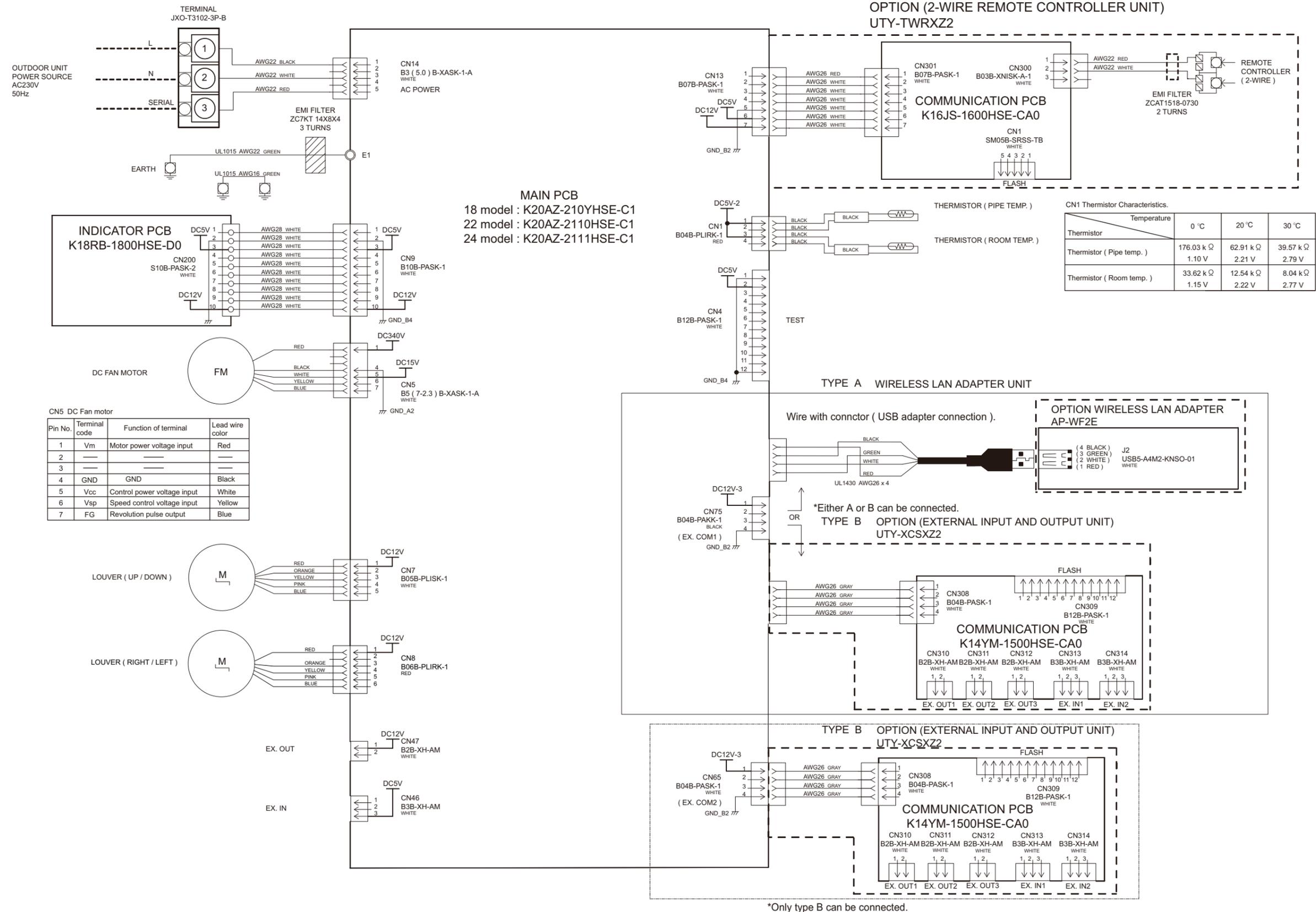
7. PC board diagrams

7-1. Models: ASHG18KMTE and ASHG24KMTE

TECHNICAL DATA AND PARTS LIST

TECHNICAL DATA AND PARTS LIST

CONTROL UNIT
 18 model : EZ-02110HSE
 22 model : EZ-02111HSE
 24 model : EZ-02112HSE

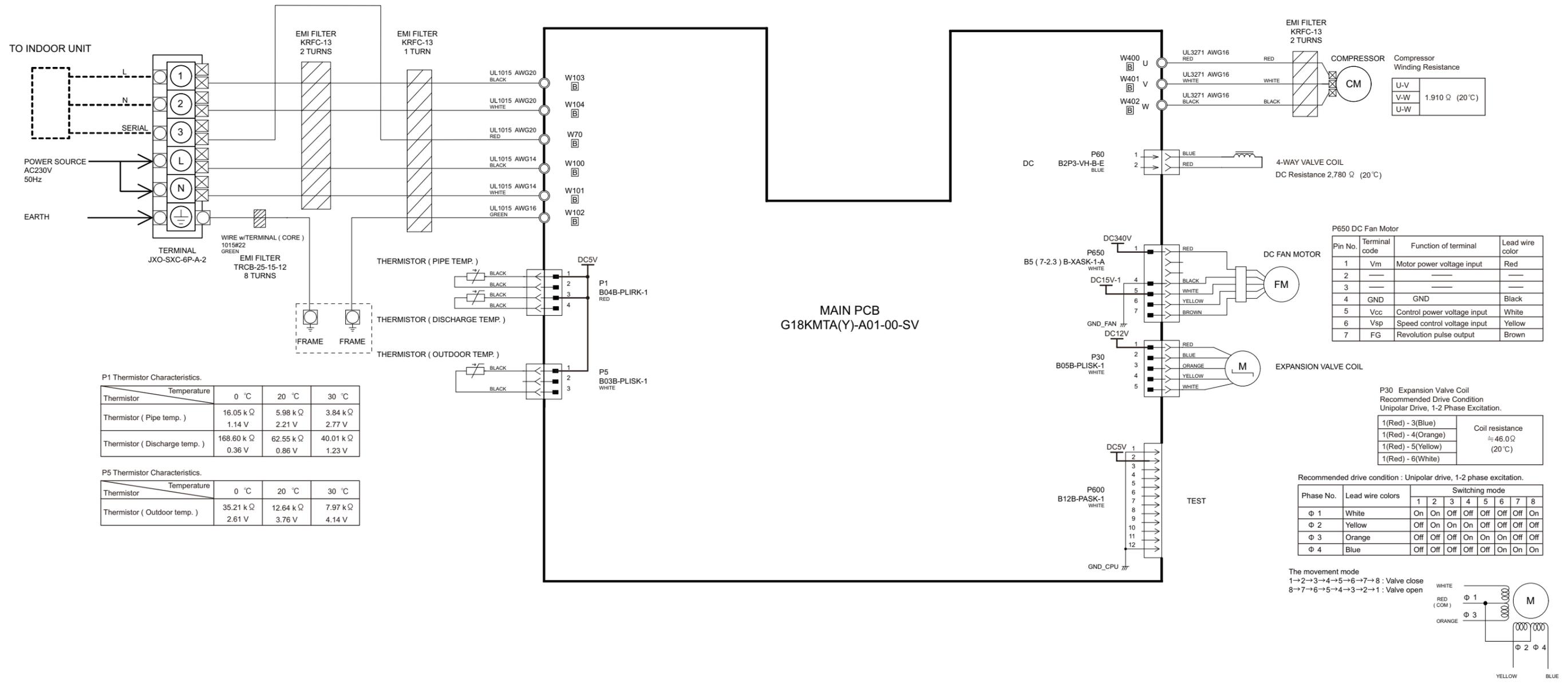


7-2. Model: AOHG18KMTA

INVERTER ASSEMBLY EZ-01926HUE

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST

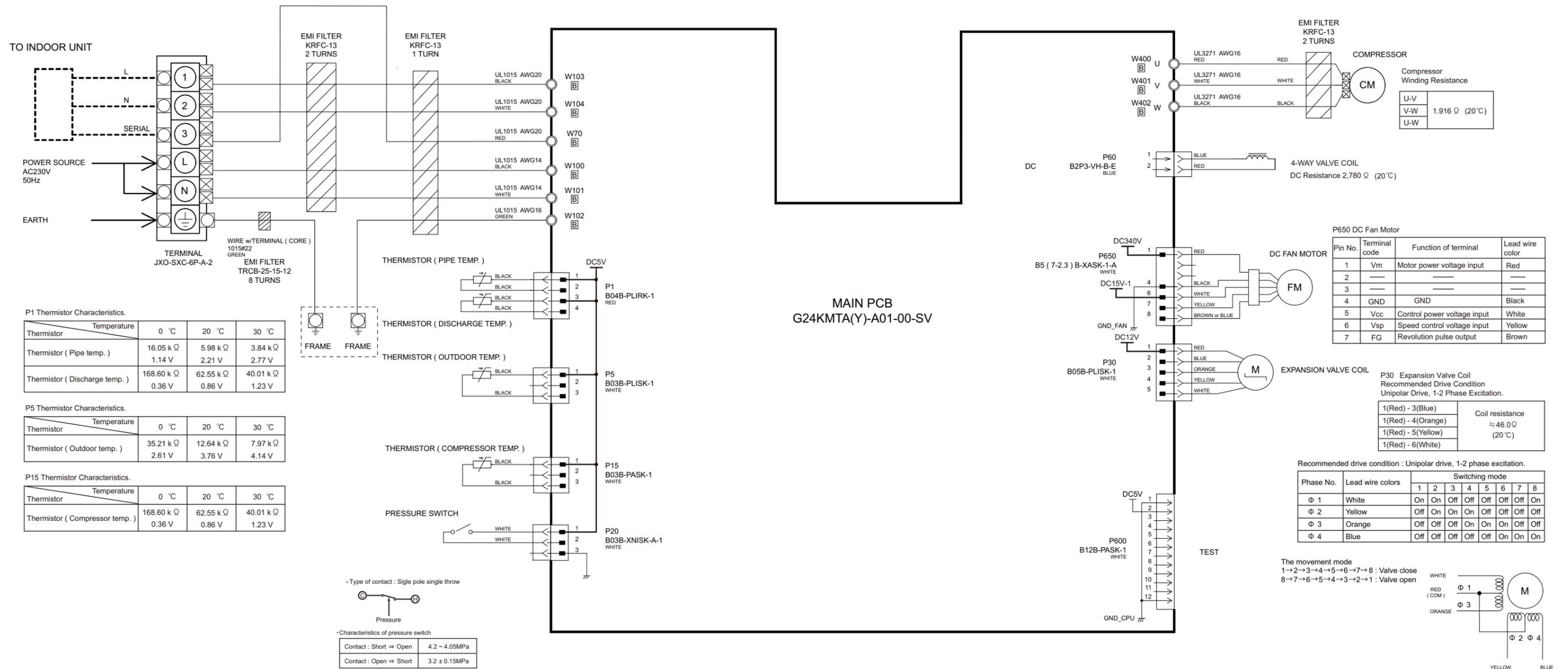


7-3. Model: AOHG24KMTA

INVERTER ASSEMBLY EZ-0192DHUE

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST



3. TROUBLESHOOTING

CONTENTS

3. TROUBLESHOOTING

1. Error code	03-1
1-1. How to check the error memory.....	03-1
1-2. How to erase the error memory	03-1
1-3. Error code table (Indoor unit and wired remote controller).....	03-2
2. Troubleshooting with error code	03-4
2-1. E: 11. Serial communication error (Serial reverse transfer error) (Outdoor unit).....	03-4
2-2. E: 11. Serial communication error (Serial forward transfer error) (Indoor unit)	03-6
2-3. E: 12. Wired remote controller communication error (Indoor unit)	03-8
2-4. E: 18. External communication error (Indoor unit)	03-9
2-5. E: 22. Indoor unit capacity error (Indoor unit)	03-10
2-6. E: 23. Combination error (Outdoor unit).....	03-11
2-7. E: 26. Address setting error in wired remote controller (Indoor unit).....	03-12
2-8. E: 29. Connected unit number error (Indoor unit)	03-13
2-9. E: 32. Indoor unit main PCB error (Indoor unit)	03-14
2-10. E: 33. Indoor unit motor electricity consumption detection error (Indoor unit)	03-15
2-11. E: 35. MANUAL AUTO button error (Indoor unit).....	03-16
2-12. E: 39. Indoor unit power supply error for fan motor (Indoor unit)	03-17
2-13. E: 3A. Indoor unit communication circuit (wired remote controller) error	03-18
2-14. E: 41. Room temperature sensor error (Indoor unit).....	03-19
2-15. E: 42. Indoor unit heat exchanger sensor error (Indoor unit)	03-20
2-16. E: 51. Indoor unit fan motor error (Indoor unit)	03-21
2-17. E: 62. Outdoor unit main PCB error (Outdoor unit).....	03-22
2-18. E: 63. Inverter error (Outdoor unit).....	03-23
2-19. E: 64. PFC circuit error (Outdoor unit)	03-24
2-20. E: 65. Trip terminal L error (Outdoor unit).....	03-25
2-21. E: 71. Discharge thermistor error (Outdoor unit).....	03-26
2-22. E: 72. Compressor thermistor error (Outdoor unit) (For 24model).....	03-27
2-23. E: 73. Outdoor unit heat exchanger liquid outlet thermistor error (Outdoor unit).....	03-28
2-24. E: 74. Outdoor temperature thermistor error (Outdoor unit).....	03-29
2-25. E: 84. Current sensor error (Outdoor unit)	03-30
2-26. E: 86. High pressure switch error (Outdoor unit)	03-31
2-27. E: 94. Trip detection (Outdoor unit)	03-32
2-28. E: 95. Compressor motor control error (Outdoor unit)	03-33
2-29. E: 97. Outdoor unit fan motor error (Outdoor unit).....	03-34
2-30. E: 99. 4-way valve error (Outdoor unit).....	03-35
2-31. E: A1. Discharge temperature error (Outdoor unit).....	03-37
2-32. E: A3. Compressor temperature error (Outdoor unit).....	03-39
3. Troubleshooting without error code.....	03-41
3-1. Indoor unit—No power.....	03-41
3-2. Outdoor unit—No power	03-42
3-3. No operation (Power is on).....	03-43
3-4. No cooling/No heating	03-44

CONTENTS (continued)

3-5. Abnormal noise.....	03-46
3-6. Water leaking.....	03-47
4. Service parts information	03-48
4-1. Compressor.....	03-48
4-2. Inverter compressor.....	03-49
4-3. Outdoor unit Electronic Expansion Valve (EEV).....	03-51
4-4. Indoor unit fan motor	03-53
4-5. Outdoor unit fan motor.....	03-54
5. Thermistor resistance values.....	03-55
5-1. Indoor unit	03-55
5-2. Outdoor unit.....	03-56

1. Error code

When a problem occurs in the system or the connected device, the error content is notified by displaying the code.

NOTE: This function is only available in a system with indoor or IR receiver units equipped with LED lamps to indicate the error content.

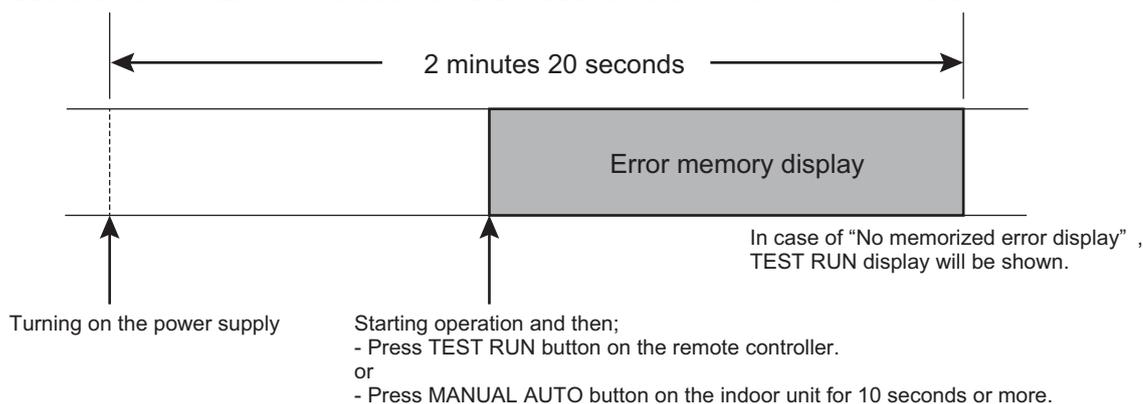
Errors, once displayed, will be automatically stored in the PC board of the indoor unit. Even if the power is disconnected, the memory containing the error history will not be erased.

If another error occurs later, the stored error memory will be updated automatically and replaced with the new one. (Previous error will be erased.)

1-1. How to check the error memory

When an error occurs, the operation lamp (Green) and the timer lamp (Orange) indicate the error content by blinking. To check the error memory, follow the procedures below.

1. Stop the operation of the air conditioner, and then disconnect the power supply.
2. Reconnect the power supply.
3. In one of the following two methods, the memorized error is only displayed during the “3 minutes ST”^{*} state period.
 - Start the operation and then press the TEST RUN button on the remote controller.
 - Press the MANUAL AUTO button on the indoor unit for 10 seconds or more.



*: The “3 minutes ST” period lasts 2 minutes and 20 seconds after turning on the power supply.

1-2. How to erase the error memory

The error memory can be erased in one of the following two methods.

- Manual erase: Pressing the MANUAL AUTO button on the indoor unit while the “Error memory display” is being shown. (Short beep emits for about 3 seconds.)
- Automatic erase: After continuing the normal operation of the air conditioner without error for 2 hours or longer after displaying the error memory as described in [How to check the error memory](#). (Except FAN operation mode.)

1-3. Error code table (Indoor unit and wired remote controller)

The operation, timer, and economy indicators operate according to the error contents.

For confirmation of the error contents, refer the flashing pattern as follows.

Error contents	Indoor unit display			Wired remote controller display
	Operation [I] (Green)	Timer [⌚] (Orange)	Economy [E] (Green)	
E: 11. Serial communication error (Serial reverse transfer error) (Outdoor unit)	1 times	1 times	Continuous	11
E: 11. Serial communication error (Serial forward transfer error) (Indoor unit)	1 times	1 times	Continuous	11
E: 12. Wired remote controller communication error (Indoor unit)	1 times	2 times	Continuous	12
E: 18. External communication error (Indoor unit)	1 times	8 times	Continuous	18
E: 22. Indoor unit capacity error (Indoor unit)	2 times	2 times	Continuous	22
E: 23. Combination error (Outdoor unit)	2 times	3 times	Continuous	23
E: 26. Address setting error in wired remote controller (Indoor unit)	2 times	6 times	Continuous	26
E: 29. Connected unit number error (Indoor unit)	2 times	9 times	Continuous	29
E: 32. Indoor unit main PCB error (Indoor unit)	3 times	2 times	Continuous	32
E: 33. Indoor unit motor electricity consumption detection error (Indoor unit)	3 times	3 times	Continuous	33
E: 35. MANUAL AUTO button error (Indoor unit)	3 times	5 times	Continuous	35
E: 39. Indoor unit power supply error for fan motor (Indoor unit)	3 times	9 times	Continuous	39
E: 3A. Indoor unit communication circuit (wired remote controller) error	3 times	10 times	Continuous	3A
E: 41. Room temperature sensor error (Indoor unit)	4 times	1 times	Continuous	41
E: 42. Indoor unit heat exchanger sensor error (Indoor unit)	4 times	2 times	Continuous	42
E: 51. Indoor unit fan motor error (Indoor unit)	5 times	1 times	Continuous	51
E: 62. Outdoor unit main PCB error (Outdoor unit)	6 times	2 times	Continuous	62
E: 63. Inverter error (Outdoor unit)	6 times	3 times	Continuous	63
E: 64. PFC circuit error (Outdoor unit)	6 times	4 times	Continuous	64
E: 65. Trip terminal L error (Outdoor unit)	6 times	5 times	Continuous	65
E: 71. Discharge thermistor error (Outdoor unit)	7 times	1 times	Continuous	71
E: 72. Compressor thermistor error (Outdoor unit) (For 24model)	7 times	2 times	Continuous	72
E: 73. Outdoor unit heat exchanger liquid outlet thermistor error (Outdoor unit)	7 times	3 times	Continuous	73
E: 74. Outdoor temperature thermistor error (Outdoor unit)	7 times	4 times	Continuous	74
E: 84. Current sensor error (Outdoor unit)	8 times	4 times	Continuous	84
E: 86. High pressure switch error (Outdoor unit)	8 times	6 times	Continuous	86
E: 94. Trip detection (Outdoor unit)	9 times	4 times	Continuous	94
E: 95. Compressor motor control error (Outdoor unit)	9 times	5 times	Continuous	95

Error contents	Indoor unit display			Wired remote controller display
	Operation [I] (Green)	Timer [⏰] (Orange)	Economy [E] (Green)	
E: 97. Outdoor unit fan motor error (Outdoor unit)	9 times	7 times	Continuous	97
E: 99. 4-way valve error (Outdoor unit)	9 times	9 times	Continuous	99
E: A1. Discharge temperature error (Outdoor unit)	10 times	1 times	Continuous	A1
E: A3. Compressor temperature error (Outdoor unit)	10 times	3 times	Continuous	A3

2. Troubleshooting with error code

2-1. E: 11. Serial communication error (Serial reverse transfer error) (Outdoor unit)

Indicator	Indoor unit	Operation indicator	1 time flash
		Timer indicator	1 time flash
		Economy indicator	Continuous flash
		Error code	E: 11
Detective actuator	Outdoor unit	Main PCB	When the indoor unit cannot receive the serial signal from outdoor unit more than 2 minutes after power on, or the indoor unit cannot receive the serial signal more than 15 seconds during normal operation.
		Fan motor	
Forecast of cause		Connection failure	
		External cause	
		Main PCB failure	
		Outdoor unit fan motor failure	

Check point 1. Reset the power and operate

Does error indication show again?

→ If no, go to "Check point 1-2".



Check point 2. Check connection

Check any loose or removed connection line of indoor unit and outdoor unit.

Check connection condition is control unit. (If there is loose connector, open cable or mis-wiring.)

→ If there is an abnormal condition, correct it by referring to the installation manual or the "DESIGN & TECHNICAL MANUAL".



Check point 3. Check the voltage of power supply

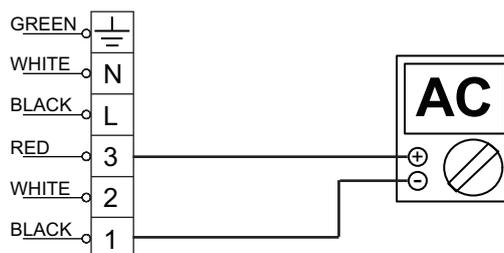
Check the voltage of power supply

Check if AC 207 V (AC 230 V -10%) to AC 253 V (AC 230 V +10%) appears at outdoor unit terminal L—N.



Check point 4. Check serial signal (Reverse transfer signal)

Check serial signal (Reverse transfer signal)



- Check if indicated value swings between AC 90 V and AC 270 V at the outdoor unit terminal 1—3.
- If it is abnormal, check the parts below.
 - Outdoor unit fan motor in "[Service parts information](#)" on page 03-48
- If outdoor fan motor is abnormal, replace outdoor unit fan motor and main PCB.
- If the checked parts are normal, replace the main PCB.



End

Check point 1-2. Check external cause such as noise

- Check the complete insulation of the grounding.
- Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).



End

2-2. E: 11. Serial communication error (Serial forward transfer error) (Indoor unit)

Indicator	Indoor unit	Operation indicator	1 time flash
		Timer indicator	1 time flash
		Economy indicator	Continuous flash
		Error code	E: 11
Detective actuator	Indoor unit	Main PCB	When the indoor unit cannot receive the serial signal from outdoor unit more than 2 minutes after power on, or the indoor unit cannot receive the serial signal more than 15 seconds during normal operation.
		Fan motor	
Forecast of cause		Connection failure	
		External cause	
		Main PCB failure	
		Indoor unit fan motor failure	

Check point 1. Reset the power and operate

Does error indication show again?

→ If no, go to "Check point 1-2".



Check point 2. Check connection

Check any loose or removed connection line of indoor unit and outdoor unit.

Check connection condition is control unit. (If there is loose connector, open cable or mis-wiring.)

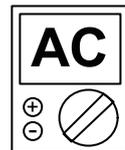
→ If there is an abnormal condition, correct it by referring to the installation manual or the *DESIGN & TECHNICAL MANUAL*.



Check point 3. Check the voltage of power supply

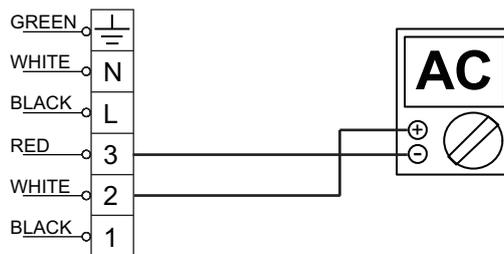
Check the voltage of power supply

Check if AC 207 V (AC 230 V -10%) to AC 253 V (AC 230 V +10%) appears at outdoor unit terminal L—N.



Check point 4. Check serial signal (reverse transfer signal)

Check serial signal (Forward transfer signal)



- Check if indicated value swings between AC 30 V and AC 130 V at outdoor unit terminal 2—3.
- If it is abnormal, replace main PCB.
- If it is abnormal, check indoor unit fan motor. (Indoor unit fan motor in "[Service parts information](#)" on page 03-48)
- If indoor unit fan motor is abnormal, replace indoor unit fan motor and main PCB.



End

Check point 1-2. Check external cause such as noise

- Check the complete insulation of the grounding.
- Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).



End

2-3. E: 12. Wired remote controller communication error (Indoor unit)

Indicator	Indoor unit	Operation indicator	1 time flash
		Timer indicator	2 time flash
		Economy indicator	Continuous flash
		Error code	E: 12
Detective actuator	Indoor unit	Main PCB	When the indoor unit cannot receive the signal from wired remote controller more than following time during normal operation. <ul style="list-style-type: none"> • 3-wire type: 1 minute • 2-wire type: 2.5 minutes
	Wired remote control		
Forecast of cause			Terminal connection abnormal
			Wired remote control failure
			Main PCB failure

Check point 1. Check the connection of terminal

After turning off the power, check & correct the followings.

- Check the connection of terminal between wired remote controller and indoor unit, and check if there is a disconnection of the cable.



Check Point 1-2 : Check Wired remote controller and main PCB

Check voltage at CN13 of main PCB (terminal 1—3). (Power supply to the remote controller)

Upon correcting the removed connector or mis-wiring, reset the power.



- If it is DC 12 V, remote controller is failure. (Main PCB is normal)
 - Replace remote control
- If it is DC 0 V, main PCB is failure. (Check remote controller once again)
 - Replace main PCB



End

Check Point 2 : Wire installation wrong remote controller group setting

- Wrong wire connection in remote controller group (Please refer to the installation manual)
- The number of connecting indoor unit and remote controller in one remote controller group were less than 32 units.



Check Point 2-1 : Check Indoor unit main PCB

- Check if main PCB damage
- Change main PCB and check the error after setting remote controller address



End

2-4. E: 18. External communication error (Indoor unit)

Indicator	Indoor unit	Operation indicator	1 time flash
		Timer indicator	8 time flash
		Economy indicator	Continuous flash
		Error code	E: 18
Detective actuator	Indoor unit	External communication error	After receiving a signal from the external input and output PCB, the same signal has not been received for 15 seconds.
Forecast of cause			Connection failure
			WLAN adapter failure
			Main PCB

Check point 1. Check the connection

- Check any loose or removed connection between the main PCB to the WAN adapter.
-> If there is an abnormal condition, correct it by refer to the installation manual or the "DESIGN & TECHNICAL MANUAL".
- Check the connection condition on the WLAN adapter and the main PCB (If there is loose connector, open cable or mis-wiring.)



Check point 2. Replace the WLAN adapter

If check point 1 do not improve the symptom, change WLAN adapter.



Check point 3. Replace main PCB

If check point 2 do not improve the symptom, change main PCB



End

2-5. E: 22. Indoor unit capacity error (Indoor unit)

Indicator	Indoor unit	Operation indicator	2 time flash
		Timer indicator	2 time flash
		Economy indicator	Continuous flash
		Error code	E: 22
Detective actuator	Indoor unit main PCB	When the total capacity of the indoor units does not match outdoor unit capacity while 3 minutes after power on.	
Forecast of cause		Indoor unit selection is incorrect.	
		Main PCB failure	

Check point 1. Check the total capacity of indoor units

Check the total capacity of the indoor units.

→ If abnormal condition is found, correct it referring to the installation manual or DESIGN & TECHNICAL MANUAL.



Check point 2. Replace main PCB

If check point 1 does not improve the symptom, change main PCB.



End

2-6. E: 23. Combination error (Outdoor unit)

Indicator	Indoor unit	Operation indicator	2 time flash
		Timer indicator	3 time flash
		Economy indicator	Continuous flash
		Error code	E: 23
Detective actuator	Indoor unit	The outdoor unit receives the serial signal of applied refrigerant information from indoor unit.	
Forecast of cause		Incorrect indoor unit is selected.	

Check point 1. Check the type of indoor unit

- Check the type of the connected indoor unit.
-> If there is an abnormal condition, correct it by refer to the installation manual or the "DESIGN & TECHNICAL MANAL".



Check point 2. Replace main PCB

If check point 1 do not improve the symptom, replace main PCB of the outdoor unit.



End

2-7. E: 26. Address setting error in wired remote controller (Indoor unit)

Indicator	Indoor unit	Operation indicator	2 time flash
		Timer indicator	6 time flash
		Economy indicator	Continuous flash
		Error code	E: 26
Detective actuator	Wired remote controller (2-wire)	<ul style="list-style-type: none"> When the address number set by auto setting and manual setting are mixed in one remote controller group 	
	Indoor unit controller PCB	<ul style="list-style-type: none"> When the duplicated address number exists in one remote controller group 	
Forecast of cause			Wrong wiring of remote controller group
			Wrong remote controller address setting
			Indoor unit main PCB failure
			Remote controller failure

Check point 1. Wire installation

- Check the wire connection in the remote controller group (For installation method, refer to installation manual)
-> If there is an abnormal condition, correct it by refer to the installation manual or the "DESIGN & TECHNICAL MANUAL".



Check point 2. Wrong remote controller group setting

- The given address number by auto setting (00) and the manual set number (except 00) are not existing in one remote controller group.
- The remote controller address setting by UI is not existing same address.
- The duplicate address number is not existing in one remote controller group.



Check point 3. Check indoor unit main PCB

- Check if main PCB is damaged.
- Change main PCB and check the error after setting remote controller address.



End

2-8. E: 29. Connected unit number error (Indoor unit)

Indicator	Indoor unit	Operation indicator	2 time flash
		Timer indicator	9 time flash
		Economy indicator	Continuous flash
		Error code	E: 29
Detective actuator	Wired remote controller (2-wire)	When the number of the connected indoor unit exceeds the limitation.	
	Indoor unit main PCB		
Forecast of cause			Wrong wiring of indoor unit or remote controller
			Number of indoor unit or remote controller in remote controller group
			Indoor unit main PCB failure

Check point 1. Wire installation

- Wrong number of connected indoor unit
-> If there is an abnormal condition, correct it by refer to the installation manual or the "DESIGN & TECHNICAL MANUAL".



Check point 2. Check indoor unit main PCB

- Check if main PCB is damaged.
- Change main PCB and check the error after setting remote controller address.



End

2-9. E: 32. Indoor unit main PCB error (Indoor unit)

Indicator	Indoor unit	Operation indicator	3 time flash
		Timer indicator	2 time flash
		Economy indicator	Continuous flash
		Error code	E: 32
Detective actuator	Indoor unit	main PCB	When power is on and there is some below case. 1. When model information of EEPROM is incorrect. 2. When the access to EEPROM failed.
Forecast of cause			External cause
			Defective connection of electric components
			Main PCB failure

Check point 1. Reset power supply and operate

Does error indication show again?

→ If no, go to "Check point 1-2".



Check point 2. Check Indoor unit electric components

- Check all connectors. (loose connector or incorrect wiring)
- Check any shortage or corrosion on PCB.



Check point 3. Replace main PCB

Change main PCB.



End

Check point 1-2. Check external cause such as noise

- Check if the ground connection is proper.
- Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).



End

NOTE: EEPROM

EEPROM (Electrically Erasable and Programmable Read Only Memory) is a non-volatile memory which keeps memorized information even if the power is turned off. It can change the contents electronically. To change the contents, it uses higher voltage than normal, and it cannot change a partial contents. (Rewriting shall be done upon erasing the all contents.) There is a limit in a number of rewriting.

2-10. E: 33. Indoor unit motor electricity consumption detection error (Indoor unit)

Indicator	Indoor unit	Operation indicator	3 time flash
		Timer indicator	3 time flash
		Economy indicator	Continuous flash
		Error code	E: 33
Detective actuator	Indoor unit motor electricity consumption detection		When the voltage value or the current value of the motor go beyond the limits
Forecast of cause			Fan motor failure
			Main PCB failure

Check point 1. Check the rotation of fan

Rotate the fan by hand when the operation is off. (Check if fan is caught, drop off or locked motor)
→ If fan or bearing is abnormal, replace it.



Check point 2. Check ambient temperature around the motor

Check excessively high temperature around the motor. (If there is any surrounding equipment that causes heat.)
→ Upon the temperature coming down, restart operation.



Check point 3. Check indoor unit fan motor

Check indoor unit fan motor. (Refer to indoor unit fan motor in "[Service parts information](#)" on page 03-48.)
→ If indoor unit fan motor is abnormal, replace it.



Check point 4. Replace main PCB

If check point 1-3 does not improve the symptom, change main PCB.



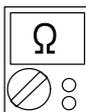
End

2-11. E: 35. MANUAL AUTO button error (Indoor unit)

Indicator	Indoor unit	Operation indicator	3 time flash
		Timer indicator	5 time flash
		Economy indicator	Continuous flash
		Error code	E: 35
Detective actuator	Indoor unit controller PCB	When the MANUAL AUTO button becomes on for consecutive 60 or more seconds.	
	Indicator PCB		
	Manual auto switch		
Forecast of cause		MANUAL AUTO button failure	
		Controller PCB and indicator PCB failure	

Check point 1. Check the MANUAL AUTO button

- Check if MANUAL AUTO button is kept pressed.
- Check On/Off switching operation by using a meter.



If MANUAL AUTO button is disabled (on/off switching), replace it.



Check point 2. Replace main PCB and indicator PCB

If Check Point 1 does not improve the symptom, change main PCB and indicator PCB.



End

2-12. E: 39. Indoor unit power supply error for fan motor (Indoor unit)

Indicator	Indoor unit	Operation indicator	3 time flash
		Timer indicator	9 time flash
		Economy indicator	Continuous flash
		Error code	E: 39
Detective actuator	Indoor unit main PCB	<ul style="list-style-type: none"> When a momentary power cut off When do not start fan motor 	
Forecast of cause		External cause	
		Connector connection failure	
		Main PCB failure	

Check point 1. Check external cause at indoor and outdoor (Voltage drop or Noise)

- Instant drop: Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure: Check if there is a defective contact or leak current in the power supply circuit.
- Noise: Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave)
Check the complete insulation of grounding.



Check point 2. Check connection of Connector

- Check if connector is removed.
- Check erroneous connection.
- Check if cable is open.

→ Upon correcting the removed connector or mis-wiring, reset the power.



Check point 3. Replace main PCB

If check point 1 to 2 do not improve the symptom, change main PCB.



End

2-13. E: 3A. Indoor unit communication circuit (wired remote controller) error

Indicator	Indoor unit	Operation indicator	3 time flash
		Timer indicator	10 time flash
		Economy indicator	Continuous flash
		Error code	E: 3A
Detective actuator	Wired remote controller (2-wire)	Detect the communication error of microcomputer and communication PCB.	
	Indoor unit controller PCB circuit		
Forecast of cause		Communication PCB defective	
		Indoor unit main PCB defective	

Check point 1. Check the connection of terminal

- After turning off the power supply, check and correct the followings
Indoor unit - Check the connection the communication PCB and the main PCB



Check Point 2 : Replace the communication PCB

If the Check point 1 is ok, replace the communication PCB



Check Point 3 : Replace the main PCB

If condition is doesn't change, replace the main PCB



End

2-14. E: 41. Room temperature sensor error (Indoor unit)

Indicator	Indoor unit	Operation indicator	4 time flash
		Timer indicator	1 time flash
		Economy indicator	Continuous flash
		Error code	E: 41
Detective actuator	Indoor unit main PCB	Room temperature thermistor is open or short is detected always.	
	Room temperature thermistor		
Forecast of cause		Connector failure	
		Thermistor failure	
		Main PCB failure	

Check point 1. Check connection of connector

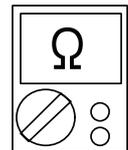
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

-> Reset power when reinstalling due to removed connector or incorrect wiring.



Check point 2. Remove connector and check thermistor resistance value

- For the room thermistor resistance value, refer to "[Thermistor resistance values](#)" on page 03-55.
- If thermistor is either open or shorted, replace it and reset the power.



Check point 3. Check voltage of main PCB

Make sure circuit diagram of each indoor unit and check terminal voltage at thermistor (DC 5.0 V).

NOTE: For details of thermistor connector, refer to "[Wiring diagrams](#)" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-18.



If the voltage does not appear, replace main PCB.



End

2-15. E: 42. Indoor unit heat exchanger sensor error (Indoor unit)

Indicator	Indoor unit	Operation indicator	4 time flash
		Timer indicator	2 time flash
		Economy indicator	Continuous flash
		Error code	E: 42
Detective actuator	Indoor unit main PCB	When heat exchanger temperature thermistor open or short circuit is detected.	
	Heat exchanger temperature thermistor		
Forecast of cause			Connector connection failure
			Thermistor failure
			Main PCB failure

Check point 1. Check connection of connector

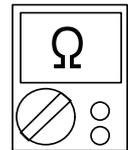
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

-> Reset power when reinstalling due to removed connector or incorrect wiring.



Check point 2. Remove connector and check thermistor resistance value

- For the heat exchanger thermistor resistance value, refer to "[Thermistor resistance values](#)" on page 03-55.
- If thermistor is either open or shorted, replace it and reset the power.



Check point 3. Check voltage of main PCB

Make sure circuit diagram of each indoor unit and check terminal voltage at thermistor (DC 5.0 V).

NOTE: For details of thermistor connector, refer to "[Wiring diagrams](#)" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-18.



If the voltage does not appear, replace main PCB.



End

2-16. E: 51. Indoor unit fan motor error (Indoor unit)

Indicator	Indoor unit	Operation indicator	5 time flash
		Timer indicator	1 time flash
		Economy indicator	Continuous flash
		Error code	E: 51
Detective actuator	Indoor unit	main PCB	When the actual rotation number of the indoor unit fan motor is below 1/3 of the target rotation number continuously for more than 56 seconds.
		Fan motor	
Forecast of cause		Fan rotation failure	
		Fan motor winding open	
		Motor protection by surrounding temperature rise	
		Control PCB failure	
		Indoor unit fan motor failure	

Check point 1. Check rotation of fan

Rotate the fan by hand when operation is off. (Check if fan is caught, dropped off or locked motor)
→ If fan or bearing is abnormal, replace it.



Check point 2. Check ambient temperature around motor

Check excessively high temperature around the motor. (If there is any surrounding equipment that causes heat)
→ Upon the temperature coming down, restart operation.



Check point 3. Check indoor unit fan motor

Check Indoor unit fan motor. (Refer to indoor unit fan motor in "[Service parts information](#)" on page 03-48.)
→ If Indoor unit fan motor is abnormal, replace Indoor unit fan motor.



Check point 4. Replace main PCB

If Check Point 1 to 3 do not improve the symptom, replace main PCB.



End

2-17. E: 62. Outdoor unit main PCB error (Outdoor unit)

Indicator	Indoor unit	Operation indicator	6 time flash
		Timer indicator	2 time flash
		Economy indicator	Continuous flash
		Error code	E: 62
Detective actuator	Outdoor unit	Main PCB	Access to EEPROM failed due to some cause after outdoor unit started.
Forecast of cause			External cause (Noise, temporary open, voltage drop)
			Main PCB failure

Check point 1. Reset power supply and operate

Does error indication show again?

If no, go to "Check point 1-2".



Check point 2. Replace main PCB

Change main PCB.



End

Check point 1-2. Check external cause

- Check if temporary voltage drop was not generated.
- Check if momentary open was not generated.
- Check if ground is connection correctly or there are no related cables near the power line.



End

2-18. E: 63. Inverter error (Outdoor unit)

Indicator	Indoor unit	Operation indicator	6 time flash
		Timer indicator	3 time flash
		Economy indicator	Continuous flash
		Error code	E: 63
Detective actuator	Outdoor unit	Main PCB	Error information received from outdoor unit main PCB
Forecast of cause			External cause
			Power supply to main PCB wiring disconnection or open
			Main PCB failure

Check point 1. Turn the power on again?

Error displayed again?

If no, go to "[Check point 1-2](#)".



Check point 2. Check the wiring

- Connector and wiring connection state check.
- Cable open check.



Check point 3. Replace main PCB

Replace outdoor unit main PCB.



End

Check point 1-2. Check external cause

- Check if temporary voltage drop was not generated.
- Check if momentary open was not generated.
- Check if ground is connection correctly or there are no related cables near the power line.



End

2-19. E: 64. PFC circuit error (Outdoor unit)

Indicator	Indoor unit	Operation indicator	6 time flash
		Timer indicator	4 time flash
		Economy indicator	Continuous flash
		Error code	E: 64
Detective actuator	Outdoor unit	Main PCB	<ul style="list-style-type: none"> When inverter input DC voltage is higher than 420V for over 3 seconds, the compressor stops. If the same operation is repeated 5 times, the compressor stops permanently.
Forecast of cause			External cause
			Connector connection failure
			Main PCB failure

Check point 1. Check external cause at indoor and outdoor (Voltage drop or Noise)

- Instant drop: Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure: Check if there is a defective contact or leak current in the power supply circuit.
- Noise: Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave)
Check the complete insulation of grounding.



Check point 2. Check connection of Connector

- Check if connector is removed.
- Check erroneous connection.
- Check if cable is open.

→ Upon correcting the removed connector or mis-wiring, reset the power.



Check point 3. Replace main PCB

If check point 1 to 2 do not improve the symptom, change main PCB.



End

2-20. E: 65. Trip terminal L error (Outdoor unit)

Indicator	Indoor unit	Operation indicator	6 time flash
		Timer indicator	5 time flash
		Economy indicator	Continuous flash
		Error code	E: 65
Detective actuator	Outdoor unit	Main PCB	When the signal from FO terminal of IPM is "L" (0 V) during the compressor stopping.
Forecast of cause			Main PCB failure

Check point 1. Check main PCB

Replace the outdoor unit main PCB.



End

2-21. E: 71. Discharge thermistor error (Outdoor unit)

Indicator	Indoor unit	Operation indicator	7 time flash
		Timer indicator	1 time flash
		Economy indicator	Continuous flash
		Error code	E: 71
Detective actuator	Outdoor unit main PCB	When discharge pipe temperature thermistor open or short circuit is detected at power on or while running the compressor	
	Discharge pipe temperature thermistor		
Forecast of cause		Connector failure	
		Thermistor failure	
		Main PCB failure	

Check point 1. Check connection of connector

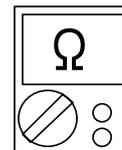
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

→ Reset power when reinstalling due to removed connector or incorrect wiring.



Check point 2. Remove connector and check thermistor resistance value

- For the discharge temperature thermistor resistance value, refer to "[Thermistor resistance values](#)" on page 03-55.
- If thermistor is either open or shorted, replace it and reset the power.



Check point 3. Check voltage of main PCB

Make sure circuit diagram of outdoor unit and check terminal voltage at thermistor (DC 5.0 V).

NOTE: For details of thermistor connector, refer to "[Wiring diagrams](#)" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-18.



If the voltage does not appear, replace main PCB.



End

2-22. E: 72. Compressor thermistor error (Outdoor unit) (For 24model)

Indicator	Indoor unit	Operation indicator	7 time flash
		Timer indicator	2 time flash
		Economy indicator	Continuous flash
		Error code	E: 72
Detective actuator	Outdoor unit main PCB	When compressor temperature thermistor open or short circuit is detected at power on or while running the compressor	
	Compressor temperature thermistor		
Forecast of cause			Connector failure
			Thermistor failure
			Main PCB failure

Check point 1. Check connection of connector

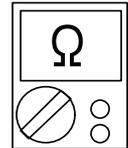
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

→ Reset power when reinstalling due to removed connector or incorrect wiring.



Check point 2. Remove connector and check thermistor resistance value

- For the compressor thermistor resistance value, refer to "[Thermistor resistance values](#)" on page 03-55.
- If thermistor is either open or shorted, replace it and reset the power.



Check point 3. Check voltage of main PCB

Make sure circuit diagram of outdoor unit and check terminal voltage at thermistor (DC 5.0 V).

NOTE: For details of thermistor connector, refer to "[Wiring diagrams](#)" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-18.



If the voltage does not appear, replace main PCB.



End

2-23. E: 73. Outdoor unit heat exchanger liquid outlet thermistor error (Outdoor unit)

Indicator	Indoor unit	Operation indicator	7 time flash
		Timer indicator	3 time flash
		Economy indicator	Continuous flash
		Error code	E: 73
Detective actuator	Outdoor unit main PCB	When heat exchanger temperature thermistor open or short circuit is detected at power on or while running the compressor	
	Heat exchanger temperature thermistor		
Forecast of cause			Connector failure
			Thermistor failure
			Main PCB failure

Check point 1. Check connection of connector

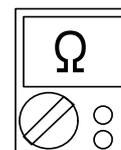
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

→ Reset power when reinstalling due to removed connector or incorrect wiring.



Check point 2. Remove connector and check thermistor resistance value

- For the outdoor unit heat exchanger thermistor resistance value, refer to "[Thermistor resistance values](#)" on page 03-55.
- If thermistor is either open or shorted, replace it and reset the power.



Check point 3. Check voltage of main PCB

Make sure circuit diagram of outdoor unit and check terminal voltage at thermistor (DC 5.0 V).

NOTE: For details of thermistor connector, refer to "[Wiring diagrams](#)" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-18.

If the voltage does not appear, replace main PCB.



End

2-24. E: 74. Outdoor temperature thermistor error (Outdoor unit)

Indicator	Indoor unit	Operation indicator	7 time flash
		Timer indicator	4 time flash
		Economy indicator	Continuous flash
		Error code	E: 74
Detective actuator	Outdoor unit main PCB	When outdoor temperature thermistor open or short circuit is detected at power on or while running the compressor	
	Outdoor temperature thermistor		
Forecast of cause		Connector failure	
		Thermistor failure	
		Main PCB failure	

Check point 1. Check connection of connector

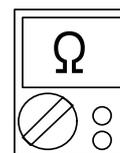
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

-> Reset power when reinstalling due to removed connector or incorrect wiring.



Check point 2. Remove connector and check thermistor resistance value

- For the outdoor temperature thermistor resistance value, refer to "[Thermistor resistance values](#)" on page 03-55.
- If thermistor is either open or shorted, replace it and reset the power.



Check point 3. Check voltage of main PCB

Make sure circuit diagram of outdoor unit and check terminal voltage at thermistor (DC 5.0 V).

NOTE: For details of thermistor connector, refer to "[Wiring diagrams](#)" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-18.



If the voltage does not appear, replace main PCB.



End

2-25. E: 84. Current sensor error (Outdoor unit)

Indicator	Indoor unit	Operation indicator	8 time flash
		Timer indicator	4 time flash
		Economy indicator	Continuous flash
		Error code	E: 84
Detective actuator	Outdoor unit	main PCB	When input current sensor has detected 0 A, while inverter compressor is operating at higher than 56 rps, after 1 minute upon starting the compressor. (Except during the defrost operation)
Forecast of cause			Defective connection of electric components
			External cause
			Main PCB failure

Check point 1. Reset power supply and operate

Does error indication show again?

If no, go to "Check point 1-2".



Check point 2. Check connections of outdoor unit electrical components

- Check if the terminal connection is loose.
- Check if connector is removed.
- Check erroneous connection.
- Check if cable is open.

Upon correcting the removed connector or miswiring, reset the power.



Check point 3. Replace main PCB

If Check point 1, 2 do not improve the symptom, change main PCB.



End

Check point 1-2. Check external cause at Indoor and Outdoor (Voltage drop or Noise)

- Instant drop: Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure: Check if there is a defective contact or leak current in the power supply circuit.
- Noise: Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave)
Check the complete insulation of grounding.



End

2-26. E: 86. High pressure switch error (Outdoor unit)

Indicator	Indoor unit	Operation indicator	8 time flash
		Timer indicator	6 time flash
		Economy indicator	Continuous flash
		Error code	E: 86
Detective actuator	Outdoor unit main PCB	When pressure switch open is detected in 10 seconds after the power is turned on.	
	High pressure switch		
Forecast of cause		High pressure switch connector disconnection or open	
		High pressure switch characteristics failure	
		Main PCB failure	

Check point 1. Check the high pressure switch connection state

- Check connector and wiring connection state.
- Check if cable is open

-> Reset power when reinstalling due to removed connector or incorrect wiring.



Check point 2. Check the high pressure switch characteristics

- Check switch characteristics.
For the characteristics of the high pressure switch, refer to below.



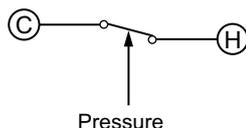
Check point 3. Replace main PCB

Change main PCB and check operation again.



End

- Type of contact



- Characteristics of pressure switch

Pressure switch 1	
Contact: Short → Open	4.2—4.05 MPa
Contact: Open → Short	3.2±0.15 MPa

24 model: P20

2-27. E: 94. Trip detection (Outdoor unit)

Indicator	Indoor unit	Operation indicator	9 time flash
		Timer indicator	4 time flash
		Economy indicator	Continuous flash
		Error code	E: 94
Detective actuator	Outdoor unit	Main PCB	Protection stop by over-current generation after inverter compressor start processing completed generated consecutively 10 times. NOTE: The number of generations is reset when the compressor starts up.
		Compressor	
Forecast of cause		Outdoor unit fan operation defective, foreign matter on heat-exchanger, excessive rise of ambient temperature	
		Main PCB failure	
		Inverter compressor failure (lock, winding short)	

Check point 1. Check the outdoor unit fan operation, heat-exchanger, ambient temperature

- No obstructions in air passages?
- Heat exchange fins clogged
- Outdoor unit fan motor check
- Ambient temperature not raised by the effect of other heat sources?
- Discharged air not sucked in?



Check point 2. Replace main PCB

If Check point 1 do not improve the symptom, change main PCB.



Check point 3. Replace compressor

If Check point 2 do not improve the symptom, change compressor.



End

2-28. E: 95. Compressor motor control error (Outdoor unit)

Indicator	Indoor unit	Operation indicator	9 time flash
		Timer indicator	5 time flash
		Economy indicator	Continuous flash
		Error code	E: 95
Detective actuator	Outdoor unit	Main PCB	<ol style="list-style-type: none"> 1. When running the compressor, if the detected rotor location is out of phase with actual rotor location more than 105°, the compressor stops. 2. After the compressor restarts, if the same operation is repeated within 40 seconds, the compressor stops again. 3. If 1. and 2. repeats 5 times, the compressor stops permanently.
		Compressor	
Forecast of cause		Defective connection of electric components	
		Main PCB failure	
		Compressor failure	

Check point 1. Check Noise from Compressor

Turn on Power and check operation noise.
→ If an abnormal noise show, replace compressor.



Check point 2. Check connection of around the compressor components

For compressor terminal, main PCB

- Check if connector is removed.
- Check erroneous connection.
- Check if cable is open. (Refer to inverter compressor in "[Service parts information](#)" on page 03-48.)

→ Upon correcting the removed connector or mis-wiring, reset the power.



Check point 3. Replace main PCB

If Check point 1, 2 do not improve the symptom, change main PCB.



Check point 4. Replace compressor

If Check point 3 do not improve the symptom, change compressor.



End

2-29. E: 97. Outdoor unit fan motor error (Outdoor unit)

Indicator	Indoor unit	Operation indicator	9 time flash
		Timer indicator	7 time flash
		Economy indicator	Continuous flash
		Error code	E: 97
Detective actuator	Outdoor unit	Main PCB	<ol style="list-style-type: none"> When outdoor fan rotation speed is less than 100 rpm in 20 seconds after fan motor starts, fan motor stops. After fan motor restarts, if the same operation within 60 seconds is repeated 3 times in a row, compressor and fan motor stops. If 1. and 2. repeats 5 times in a row, compressor and fan motor stops permanently.
		Fan motor	
Forecast of cause		Fan rotation failure	
		Motor protection by surrounding temperature rise	
		Main PCB failure	
		Outdoor unit fan motor	

Check point 1. Check rotation of fan

Rotate the fan by hand when operation is off. (Check if fan is caught, dropped off or locked motor)
→ If fan or bearing is abnormal, replace it.



Check point 2. Check ambient temperature around motor

Check excessively high temperature around the motor. (If there is any surrounding equipment that causes heat)
→ Upon the temperature coming down, restart operation.



Check point 3. Check outdoor unit fan motor

Check outdoor unit fan motor. (Refer to outdoor unit fan motor in "[Service parts information](#)" on page 03-48.)
→ If outdoor unit fan motor is abnormal, replace outdoor unit fan motor and main PCB.



Check point 4. Check output voltage of main PCB

Check outdoor unit circuit diagram and the voltage. (Measure at main PCB side connector)

NOTE: For details of wiring diagram, refer to "[Wiring diagrams](#)" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-18.



Read wire	DC voltage
Red—Black	280 V (AC 220 V -10%) to 373 V (AC 240 V +10%)
White—Black	15±1.5 V

-> If the voltage is not correct, replace Main PCB.



End

2-30. E: 99. 4-way valve error (Outdoor unit)

Indicator	Indoor unit	Operation indicator	9 time flash
		Timer indicator	9 time flash
		Economy indicator	Continuous flash
		Error code	E: 99
Detective actuator	Indoor unit	main PCB	When the indoor heat exchanger temperature is compared with the room temperature, and either following condition is detected continuously two times, the compressor stops. Indoor heat exchanger temp. - Room temp. > 10 °C (Cooling or Dry operation) Indoor heat exchanger temp. - Room temp. < -10 °C (Heating operation) If the same operation is repeated 5 times, the compressor stops permanently.
	Heat exchanger temperature thermistor		
	Room temperature thermistor		
	4-way valve		
Forecast of cause			Connector connection failure
			Thermistor failure
			Coil failure
			4-way valve failure
			Main PCB failure

Check point 1. Check connection of connector

- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

→ Upon correcting the removed connector or mis-wiring, reset the power.



Check point 2. Check each thermistor

- Isn't it fallen off the holder?
- Is there a cable pinched?

Check characteristics of room thermistor and indoor unit heat exchanger thermistor.

For the thermistor resistance value, refer to "[Thermistor resistance values](#)" on page 03-55.

→ If defective, replace the thermistor.



Check point 3. Check the solenoid coil and 4-way valve

NOTE: Refer solenoid coil and 4-way valve in "[Service parts information](#)" on page 03-48.

- **Solenoid coil**
Remove P60 from PCB and check the resistance value of coil. Resistance value is 2.780 kΩ (at 20 °C).
→ If it is open or abnormal resistance value, replace solenoid coil.
- **4-way valve**
Check each piping temperature, and the location of the valve by the temperature difference.
If the value location is not proper, replace 4-way valve.

**Check point 4. Replace main PCB**

If Check Point 1 to 3 do not improve the symptom, replace main PCB.



End

2-31. E: A1. Discharge temperature error (Outdoor unit)

Indicator	Indoor unit	Operation indicator	10 time flash
		Timer indicator	1 time flash
		Economy indicator	Continuous flash
		Error code	E: A1
Detective actuator	Outdoor unit main PCB	1. When the discharge temperature becomes higher than 110 °C, the compressor stops.	
	Discharge temperature thermistor	2. After the compressor restarts, if the same operation is repeated, the compressor stops permanently.	
Forecast of cause	Valve is close		
	EEV failure		
	Gas leak, less		
	Discharge thermistor failure		
	Outdoor fan operation failure		
	Outdoor heat exchanger clogged		

Check point 1. Check if valve is open

If the valve is closed, open the valve and check the operation.

NOTE: For cooling operation, check gas valve.
For heating operation, check liquid valve.



Check point 2. Check any of the Electronic Expansion Valve (EEV), capillary tube, or strainer, or all

- Check if EEV open or there is a capillary tube defect.
Refer to outdoor unit Electronic Expansion Valve (EEV) or Capillary tube in "[Service parts information](#)" on page 03-48.
- Check the strainer clogging.

→ If EEV, Capillary tube or Strainer is defective, replace it.



Check point 3. Check if gas leak or less gas

Measure gas pressure, if there is a leak, correct it.

→ If recharging refrigerant, make sure to perform vacuuming and recharge the specified amount.



Check point 4. Check the discharge thermistor

- Isn't it fallen off the holder?
- Is there a cable pinched?

→ Check characteristics of thermistor (Refer to "[E: 71. Discharge thermistor error \(Outdoor unit\)](#)" on page 03-26). If defective, replace the thermistor.



Check point 5. Check the outdoor unit fan and heat exchanger

- Is there anything obstructing the air distribution circuit?
- Is there any clogging of outdoor heat exchanger?
- Is the fan rotating? (Check by hand and if it is locked, replace the motor.)
- Check outdoor fan motor.

→ If the fan motor is defective, replace it.



Check point 6. Replace main PCB

If check point 1 to 5 do not improve the symptom, replace the main PCB.



End

2-32. E: A3. Compressor temperature error (Outdoor unit)

Indicator	Indoor unit	Operation indicator	10 time flash
		Timer indicator	3 time flash
		Economy indicator	Continuous flash
		Error code	E: A3
Detective actuator	Compressor temperature thermistor	Protection stop by compressor temperature ≥ 108 °C during compressor operation generated 2 times within 24 hours.	
Forecast of cause			3-way valve not opened
			EEV defective, strainer clogged
			Outdoor unit operation failure, foreign matter on heat exchanger
			Compressor temperature thermistor failure
		Insufficient refrigerant	

Check point 1. Check if 3-way valve is open

If the 3-way valve is closed, open the 3-way valve and check operation.

NOTE: For cooling operation, check gas side of the 3-way valve.

For heating operation, check liquid side of the 3-way valve.



Check point 2. Check the electronic expansion valve (EEV) and strainer

- Check if EEV open.
Refer to outdoor unit Electronic Expansion Valve (EEV) in "[Service parts information](#)" on page 03-48.
- Check the strainer clogging.



Check point 3. Check the outdoor unit fan and heat exchanger

- Check for foreign object at heat exchanger
- Check if fan can be rotated by hand.
- Check the motor. (Refer to outdoor unit fan motor in "[Service parts information](#)" on page 03-48.)



Check point 4. Check the compressor thermistor

The compressor temperature thermistor characteristics check. (Check by disconnecting thermistor from PCB.)

NOTE: For the characteristics of the thermistor, refer to "[Thermistor resistance values](#)" on page 03-55.



Check point 5. Check the refrigerant amount

Check the refrigerant leakage.



End

3. Troubleshooting without error code

3-1. Indoor unit—No power

Forecast of cause	Power supply failure
	External cause
	Electrical components defective

Check point 1. Check installation condition

- Isn't the breaker down?
- Check loose or removed connection cable.

-> If abnormal condition is found, correct it by referring to the installation manual or the "DESIGN & TECHNICAL MANUAL".



Check point 2. Check external cause at indoor and outdoor (voltage drop or noise)

- Instant drop: Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure: Check if there is a defective contact or leak current in the power supply circuit.
- Noise: Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave)
Check the complete insulation of grounding.

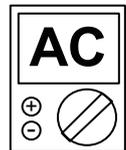


Check point 3. Check electrical components

Check the voltage of power supply.

Check if AC 207 to 253 V appears at outdoor unit terminal L—N.

-> If no, go to "[Check point 1](#)" and "[Check point 2](#)".



- Check fuse in filter PCB.
If fuse is open, check if the wiring between terminal and filter PCB is loose, and replace fuse.
- Check varistor in filter PCB.
If varistor is defective, there is a possibility of an abnormal power supply.
Check the correct power supply and replace varistor.
Upon checking the normal power supply, replace varistor.



End

3-2. Outdoor unit—No power

Forecast of cause	Power supply failure
	External cause
	Electrical components defective

Check point 1. Check installation condition

- Is the circuit breaker on or off?
- Check loose or removed connection cable.

→ If abnormal condition is found, correct it by referring to the installation manual or the "DESIGN & TECHNICAL MANUAL".



Check point 2. Check external cause at indoor and outdoor (voltage drop or noise)

- Instant drop: Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure: Check if there is a defective contact or leak current in the power supply circuit.
- Noise: Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave)
Check the complete insulation of grounding.

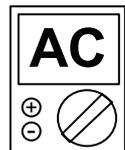


Check point 3. Check electrical components

Check the voltage of power supply.

Check if AC 207 to 253 V appears at outdoor unit terminal L—N

→ If no, go to "[Check point 1](#)" and "[Check point 2](#)".



- Check fuse in main PCB.
If fuse is open, check if the wiring between terminal and main PCB is loose, and replace fuse.
- Check varistor in main PCB.
If varistor is defective, there is a possibility of an abnormal power supply. Check the correct power supply and replace varistor.
→ Upon checking the normal power supply, replace varistor.



Check point 4. Replace main PCB

If check point 1 to 3 do not improve the symptom, change main PCB.



End

3-3. No operation (Power is on)

Forecast of cause	Setting/ Connection failure
	External cause
	Electrical components defective

Check point 1. Check indoor and outdoor installation condition

- Indoor unit:
 - Check incorrect wiring between indoor unit and remote controller.
 - Check if there is an open cable connection.
 - Are these indoor unit, outdoor unit, and remote controller suitable model numbers to connect?
- > If there is some abnormal condition, correct it by referring to the installation manual and “DESIGN & TECHNICAL MANUAL”.



Turn off the power and check correct followings.

- Is there loose or removed communication line of indoor unit and outdoor unit?



Check point 2. Check external cause at indoor and outdoor (Voltage drop or Noise)

- Instant drop: Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure: Check if there is a defective contact or leak current in the power supply circuit.
- Noise: Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave)
Check the complete insulation of grounding.



Check point 3. Check wired remote controller and controller PCB

Check voltage at CN300 (terminal 1—2) of UTY-TWRXZ2 (Communication kit).
(Power supply to remote controller)

- If it is DC 12 V, remote controller is failure. (The controller PCB is normal)
-> Replace remote controller.
- If it is DC 0 V, controller PCB is failure. (Check the remote controller once again)
-> Replace controller PCB.



Check point 4. Replace main PCB

If check point 1 to 3 do not improve the symptom, change main PCB.



End

3-4. No cooling/No heating

Forecast of cause	Indoor unit error
	Outdoor unit error
	Effect by surrounding environment
	Connection pipe/Connection wire failure
	Refrigeration cycle failure

Check point 1. Check Indoor unit

- Does Indoor unit fan run in the HIGH mode?
- Is air filter dirty?
- Is heat exchanger clogged?
- Check if energy save function is operated.



Check point 2. Check outdoor unit operation

- Check if outdoor unit is operating.
- Check any objects that obstruct the air flow route.
- Check if heat exchanger is clogged.
- Is the valve open?



Check point 3. Check site condition

- Is capacity of Indoor unit fitted to the room size?
- Any windows open or direct sunlight?



Check point 4. Check Indoor/ Outdoor installation condition

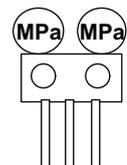
- Check connection pipe (specified pipe length and pipe diameter?)
- Check any loose or removed communication line.

→ If there is an abnormal condition, correct it by referring to the installation manual or the "DESIGN & TECHNICAL MANUAL".



Check point 5. Check Refrigeration cycle

- Check if strainer is clogged (Refer to the figure below).
- Measure gas pressure, and if there is a leakage, correct it.
- Check if EEV open or there is a capillary tube defect.
Refer to outdoor unit Electronic Expansion Valve (EEV) or Capillary tube in "[Service parts information](#)" on page 03-48.
- Check compressor.
Refer to compressor in "[Service parts information](#)" on page 03-48.
Refer to inverter compressor in "[Service parts information](#)" on page 03-48.



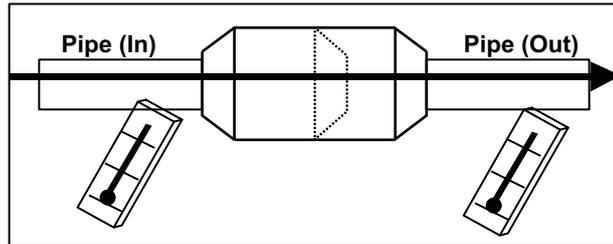
NOTE: When recharging the refrigerant, make sure to perform vacuuming, and recharge the specified amount.



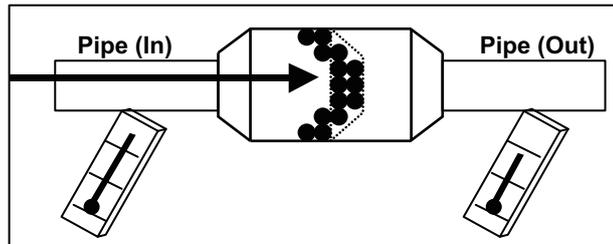
End

NOTES:

- Strainer normally does not have temperature difference between inlet and outlet as shown below.



- If there is a difference like shown below, there is a possibility of inside clogged. In this case, replace the strainer.



3-5. Abnormal noise

Forecast of cause	Abnormal installation (indoor unit/outdoor unit)
	Fan failure (indoor unit/outdoor unit)
	Compressor failure (outdoor)

Diagnosis method when abnormal noise is occurred

Abnormal noise is coming from Indoor unit.
(Check and correct followings)



- Is main unit installed in stable condition?
- Is the installation of air suction grille and front panel normal?



- Is fan broken or deformed?
- Is the screw of fan loose?
- Is there any object which obstruct the fan rotation?



End

Abnormal noise is coming from Outdoor unit.
(Check and correct followings)



- Is main unit installed in stable condition?
- Is fan guard installed normally?



- Is fan broken or deformed?
- Is the screw of fan loose?
- Is there any object which obstruct the fan rotation?



Check if vibration noise by loose bolt or contact noise of piping is happening.



Is compressor locked?

- Check Compressor
Refer to compressor and inverter compressor in "[Service parts information](#)" on page 03-48.



End

3-6. Water leaking

Forecast of cause

Erroneous installation

Drain hose failure

Diagnosis method when water leak occurs

- Is main unit installed in stable condition?
- Is main unit broken or deformed at the time of transportation or maintenance?



- Is drain hose connection loose?
- Is there a trap in drain hose?
- Is drain hose clogged?



Is fan rotating?



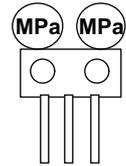
End

Diagnosis method when water is spitting out

Is the filter clogged?



Check gas pressure and correct it if there was a gas leak.

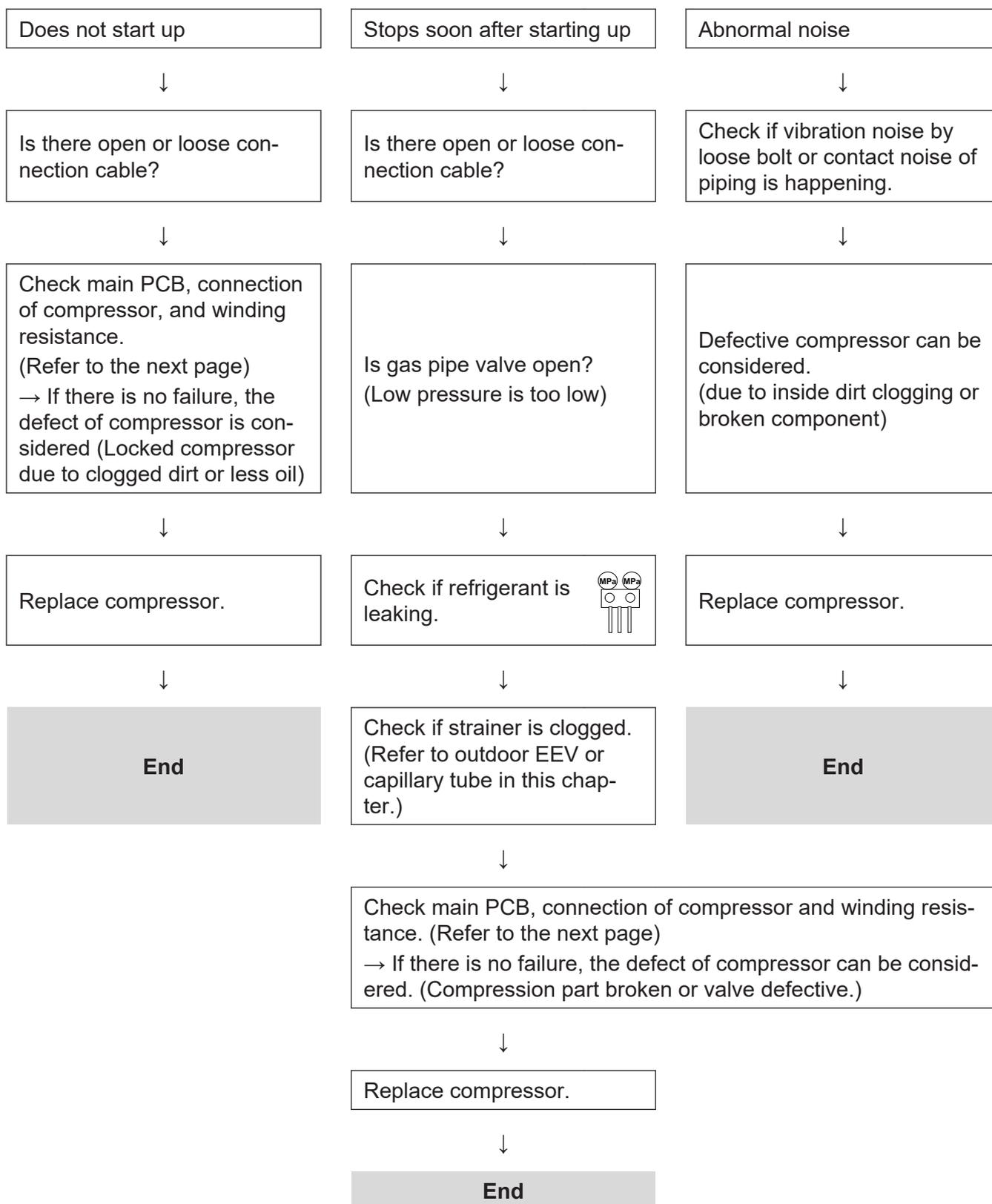


End

4. Service parts information

4-1. Compressor

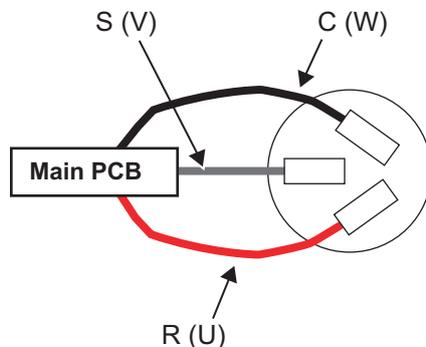
Diagnosis method of compressor (If outdoor unit LED displays error, refer to troubleshooting)



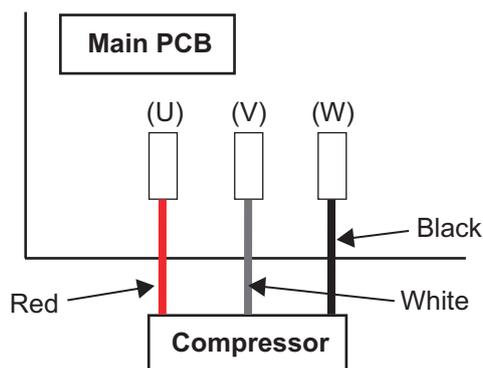
4-2. Inverter compressor

Check point 1. Check the terminal connection.

- Check the following terminal connections of the compressor. (Loosening or incorrect wiring.)
 - **R (U):** Red
 - **S (V):** White
 - **C (W):** Black



- Check the following terminal connections of the Main PCB. (Loosening or incorrect wiring.)
 - **W400 (U):** Red
 - **W401 (V):** White
 - **W402 (W):** Black



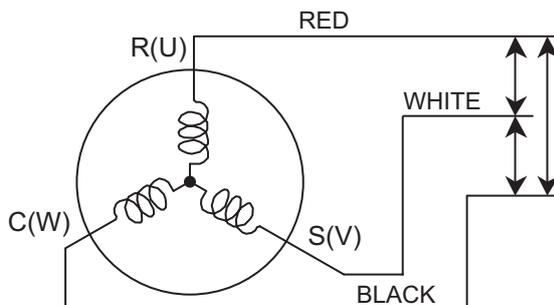
↓

Check point 2. Check the winding resistance.

Check the winding resistance of each terminal.

Resistance value:

- 18 model: 1.910 Ω at 20 °C
- 24 model: 1.916 Ω \pm 8 % at 20 °C



→ If the resistance value is 0 Ω or infinite, replace the compressor.

↓

Check point 3. Replace the Inverter PCB.

If check point 1 to 2 do not improve the symptom, replace the Inverter PCB.

4-3. Outdoor unit Electronic Expansion Valve (EEV)

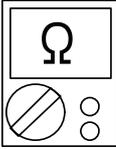
Check point 1. Check connections

Check connection of connector. (Loose connector or open cable)

NOTE: For details of wiring diagram, refer to "Wiring diagrams" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-18.

Check point 2. Check coil of EEV

Remove connector, check each winding resistance of coil.

Read wire	Resistance value
1 (Red)—2 (Blue)	$46 \Omega \pm 3.7 \Omega$ at 20 °C 
1 (Red)—3 (Orange)	
1 (Red)—4 (Yellow)	
1 (Red)—5 (White)	

→ If Resistance value is abnormal, replace EEV.

Check point 3. Check Voltage from main PCB

Remove connector and check voltage (DC 12 V)

→ If it does not appear, replace main PCB.



Check point 4. Check noise at start up

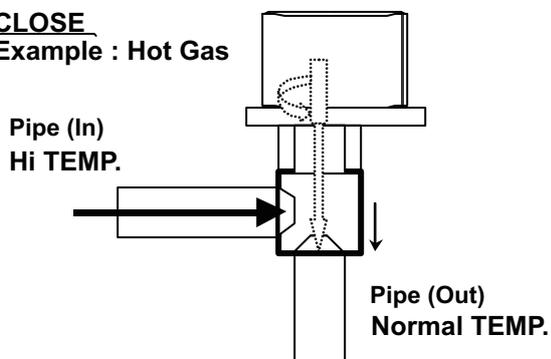
Turn on the power and check the operation noise.

→ If an abnormal noise does not show, replace main PCB.

Check point 5. Check Opening and Closing Operation of Valve

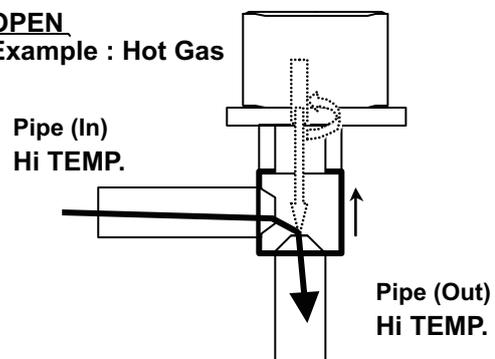
When valve is closed, it has a temp. difference between inlet and outlet

CLOSE
 Example : Hot Gas



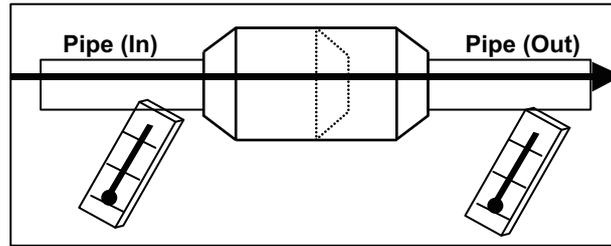
If it is open, it has no temp. difference between inlet and outlet

OPEN
 Example : Hot Gas

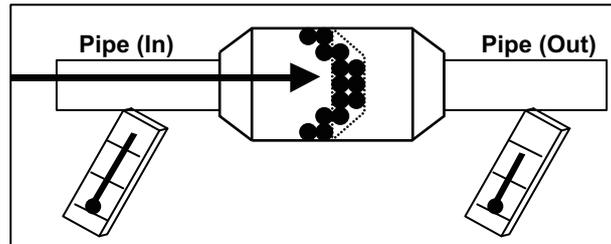


Check point 6. Check strainer

- Strainer normally does not have temperature difference between inlet and outlet as shown below.



- If there is a difference like shown below, there is a possibility of inside clogged. In this case, replace the strainer.



4-4. Indoor unit fan motor

Check point 1. Check rotation of fan

Rotate the fan by hand when operation is off.
 (Check if fan is caught, dropped off or locked motor)
 → If fan or bearing is abnormal, replace it.

Check point 2. Check resistance of indoor fan motor

Refer to below. Circuit-test “Vm” and “GND” terminal

NOTE: Vm: DC voltage, GND: Earth terminal

→ If they are short-circuited (below 300 kΩ), replace indoor fan motor and controller PCB.

Pin number (wire color)	Terminal function (symbol)
1 (Red)	DC voltage (Vm)
2	No function
3	No function
4 (Black)	Earth terminal (GND)
5 (White)	Control voltage (Vcc)
6 (Yellow)	Speed command (Vsp)
7 (Blue)	Feed back (FG)

4-5. Outdoor unit fan motor

Check point 1. Check rotation of fan

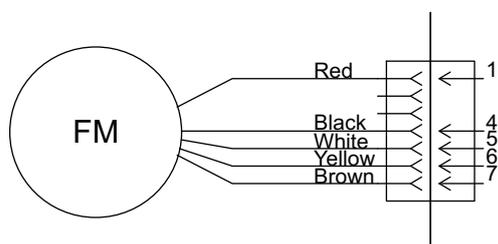
Rotate the fan by hand when operation is off.
 (Check if fan is caught, dropped off or locked motor)
 → If fan or bearing is abnormal, replace it.

Check point 2. Check resistance of outdoor fan motor

Refer to below. Circuit-test “Vm” and “GND” terminal

NOTE: Vm: DC voltage, GND: Earth terminal

→ If they are short-circuited (below 300 kΩ), replace outdoor fan motor and main PCB.



Pin number (wire color)	Terminal function (symbol)
1 (Red)	DC voltage (Vm)
2	No function
3	No function
4 (Black)	Earth terminal (GND)
5 (White)	Control voltage (Vcc)
6 (Yellow)	Speed command (Vsp)
7 (Brown)	Feed back (FG)

5. Thermistor resistance values

5-1. Indoor unit

■ Room temperature thermistor

Temperature (°C)	Resistance (kΩ)	Voltage (V)
-10.0	58.25	0.73
-5.0	44.03	0.93
0.0	33.62	1.15
5.0	25.93	1.39
10.0	20.18	1.66
15.0	15.84	1.94
20.0	12.54	2.22
25.0	10.00	2.50
30.0	8.04	2.77
35.0	6.51	3.03
40.0	5.30	3.27
45.0	4.35	3.49

■ Heat exchanger temperature thermistor

Temperature (°C)	Resistance (kΩ)	Voltage (V)
-30.0	1,131.91	0.21
-25.0	804.52	0.29
-20.0	579.59	0.40
-15.0	422.89	0.53
-10.0	312.27	0.69
-5.0	233.21	0.88
0.0	176.03	1.10
5.0	134.23	1.36
10.0	103.34	1.63
15.0	80.28	1.92
20.0	62.91	2.21
25.0	49.70	2.51
30.0	39.57	2.79
35.0	31.74	3.06
40.0	25.64	3.30
45.0	20.85	3.53
50.0	17.06	3.73
55.0	14.05	3.90
60.0	11.64	4.05
65.0	9.69	4.19

5-2. Outdoor unit

■ Discharge temperature thermistor

Temperature (°C)	Resistance (kΩ)	Voltage (V)
-30.0	1,013.11	0.06
-25.0	729.09	0.09
-20.0	531.56	0.12
-15.0	392.31	0.16
-10.0	292.91	0.21
-5.0	221.09	0.28
0.0	168.60	0.36
5.0	129.84	0.46
10.0	100.91	0.57
15.0	79.12	0.71
20.0	62.55	0.86
25.0	49.84	1.03
30.0	40.01	1.23
35.0	32.35	1.43
40.0	26.34	1.65
45.0	21.58	1.88
50.0	17.79	2.11
55.0	14.75	2.34
60.0	12.30	2.57
65.0	10.32	2.79
70.0	8.69	3.00
75.0	7.36	3.19
80.0	6.27	3.37
85.0	5.36	3.54
90.0	4.60	3.69
95.0	3.96	3.83
100.0	3.43	3.96
105.0	2.98	4.07
110.0	2.60	4.17
115.0	2.27	4.26
120.0	2.00	4.33

■ Compressor temperature thermistor

● Model: AOHG24KMTA

Temperature (°C)	Resistance (kΩ)	Voltage (V)
-30.0	1,013.11	0.06
-25.0	729.09	0.09
-20.0	531.56	0.12
-15.0	392.31	0.16
-10.0	292.91	0.21
-5.0	221.09	0.28
0.0	168.60	0.36
5.0	129.84	0.46
10.0	100.91	0.57
15.0	79.12	0.71
20.0	62.55	0.86
25.0	49.84	1.03
30.0	40.01	1.23
35.0	32.35	1.43
40.0	26.34	1.65
45.0	21.58	1.88
50.0	17.79	2.11
55.0	14.75	2.34
60.0	12.30	2.57
65.0	10.32	2.79
70.0	8.70	3.00
75.0	7.36	3.19
80.0	6.27	3.37
85.0	5.36	3.54
90.0	4.60	3.69
95.0	3.96	3.83
100.0	3.43	3.96
105.0	2.98	4.07
110.0	2.60	4.17
115.0	2.27	4.26
120.0	2.00	4.33

■ Heat exchanger temperature thermistor

Temperature (°C)	Resistance (kΩ)	Voltage (V)
-30.0	95.57	0.24
-25.0	68.89	0.32
-20.0	50.31	0.43
-15.0	37.19	0.57
-10.0	27.81	0.73
-5.0	21.02	0.92
0.0	16.05	1.14
5.0	12.38	1.39
10.0	9.63	1.65
15.0	7.56	1.93
20.0	5.98	2.21
25.0	4.77	2.49
30.0	3.84	2.77
35.0	3.11	3.02
40.0	2.53	3.26
45.0	2.08	3.48
50.0	1.71	3.67
55.0	1.42	3.85
60.0	1.19	4.00
65.0	1.00	4.13
70.0	0.84	4.25
75.0	0.71	4.35
80.0	0.61	4.43

■ Outdoor temperature thermistor

Temperature (°C)	Resistance (kΩ)	Voltage (V)
-30.0	224.33	0.73
-25.0	159.71	0.97
-20.0	115.24	1.25
-15.0	84.21	1.56
-10.0	62.28	1.90
-5.0	46.58	2.26
0.0	35.21	2.61
5.0	26.88	2.94
10.0	20.72	3.25
15.0	16.12	3.52
20.0	12.64	3.76
25.0	10.00	3.97
30.0	7.97	4.14
35.0	6.40	4.28
40.0	5.18	4.41
45.0	4.21	4.51
50.0	3.45	4.59
55.0	2.85	4.65

4. CONTROL AND FUNCTIONS

CONTENTS

4. CONTROL AND FUNCTIONS

1. Rotation number control of compressor.....	04-1
1-1. Cooling operation	04-1
1-2. Heating operation	04-3
1-3. Dry operation	04-3
1-4. Rotation number of compressor at normal start-up	04-4
1-5. Compressor frequency limitation by outdoor temperature	04-5
2. Auto changeover operation.....	04-7
3. Fan control.....	04-9
3-1. Indoor fan control.....	04-9
3-2. Outdoor fan control.....	04-12
4. Louver control	04-14
4-1. Vertical airflow direction louver control	04-14
4-2. Adjust the horizontal louver	04-14
5. Timer operation control	04-15
5-1. Wireless remote control	04-15
5-2. Wired remote control	04-17
6. Defrost operation control	04-20
6-1. Defrost operation in heating operation stopped	04-21
7. Various control.....	04-22
7-1. Auto restart.....	04-22
7-2. MANUAL AUTO operation.....	04-22
7-3. Forced cooling operation	04-23
7-4. 10 °C HEAT operation	04-23
7-5. ECONOMY operation	04-23
7-6. POWERFUL operation	04-24
7-7. Fresh air control.....	04-24
7-8. Compressor preheating	04-24
7-9. External electrical heater control	04-25
7-10. Electronic expansion valve control	04-25
7-11. Prevention to restart for 3 minutes (3 minutes st)	04-25
7-12. 4-way valve control.....	04-26
7-13. Outdoor unit low noise operation	04-26
8. Various protections.....	04-27
8-1. Discharge gas temperature over-rise prevention control	04-27
8-2. Anti-freezing control (cooling and dry mode)	04-27
8-3. Current release control	04-28
8-4. Cooling pressure over-rise protection.....	04-28
8-5. Compressor temperature protection	04-28
8-6. High pressure protection	04-29
8-7. Low outdoor temperature protection.....	04-29

CONTENTS (continued)

8-8. High temperature and high pressure release control (heating mode).....	04-29
---	-------

1. Rotation number control of compressor

1-1. Cooling operation

A sensor (room temperature thermistor) built in the indoor unit body will usually perceive difference or variation between a set temperature and present room temperature, and controls the operation rotation number of the compressor.

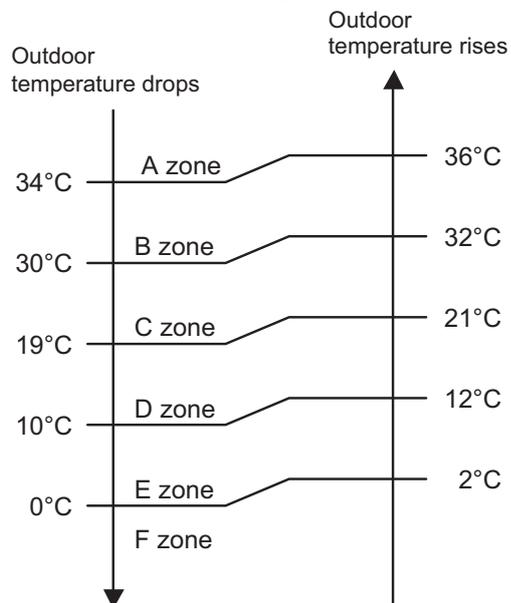
- If the room temperature is 6.0 °C higher than a set temperature, the operation rotation number of compressor will attain to maximum performance.
- If the room temperature is 1.0 °C lower than a set temperature, the compressor will be stopped.
- When the room temperature is within the range of +6.0 °C to - 1.0 °C of the setting temperature, the rotation number of compressor is controlled within the range shown in the table below. However, the maximum rotation number is limited in the range shown in the figure below based on the indoor fan mode and the outdoor temperature.

- **Rotation number range of compressor**

Unit: rps

Model name	Minimum frequency	Maximum frequency
ASHG18KMTE	8	80
ASHG24KMTE	10	111

• Limit of maximum speed based on outdoor temperature



Unit: rps

Model name	Outdoor temperature zone	Indoor unit fan mode			
		HIGH	MED	LOW	QUIET
ASHG18KMTE	A zone	80	50	36	26
	B zone	80	50	36	26
	C zone	80	50	36	26
	D zone	58	42	34	26
	E zone	58	42	34	26
	F zone	58	42	34	26
ASHG24KMTE	A zone	111	46	34	24
	B zone	111	46	34	24
	C zone	111	46	34	24
	D zone	50	39	30	24
	E zone	50	39	30	24
	F zone	50	39	30	24

CONTROL AND FUNCTIONS

CONTROL AND FUNCTIONS

1-2. Heating operation

A sensor (room temperature thermistor) built in indoor unit body will usually perceive difference or variation between setting temperature and present room temperature, and controls operation rotation number of compressor.

- If the room temperature is 6.0 °C lower than a set temperature, the operation rotation number of compressor will attain to maximum performance.
- If the room temperature is 1.0 °C higher than a set temperature, the compressor will be stopped.
- When the room temperature is within the range of +1.0 °C to - 6.0 °C of the setting temperature, the rotation number of compressor is controlled within the range shown below.

- **Rotation number range of compressor**

Unit: rps

Model name	Minimum frequency	Maximum frequency
ASHG18KMTE	8	120
ASHG24KMTE	10	130

1-3. Dry operation

The rotation number of compressor shall change according to the temperature, set temperature, and room temperature variation which the room temperature sensor of the indoor unit has detected as shown in the table below.

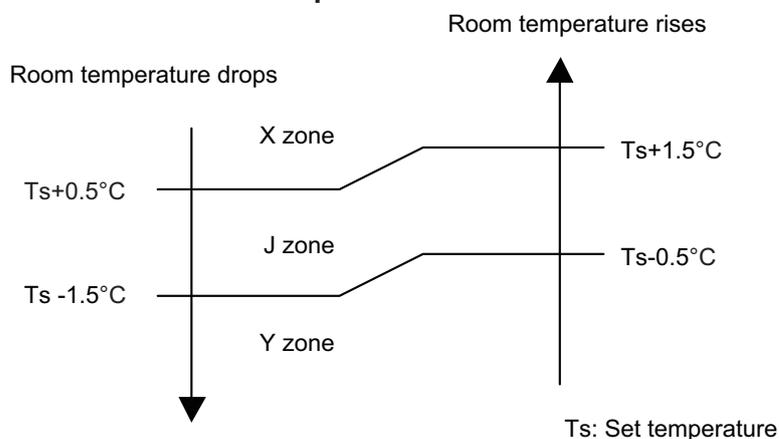
Zone is defined by set temperature and room temperature.

- **Rotation number range of compressor**

Unit: rps

Model name	Outdoor temperature zone	Operating frequency
ASHG18KMTE	X zone	26
	J zone	20
	Y zone	0
ASHG24KMTE	X zone	24
	J zone	18
	Y zone	0

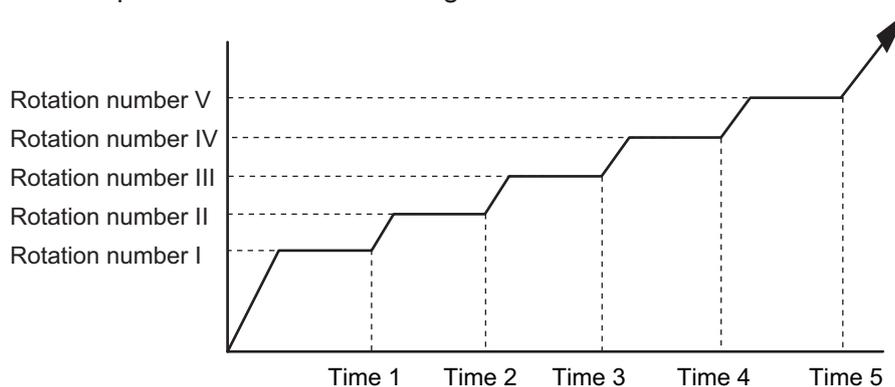
- **Compressor control based on room temperature**



1-4. Rotation number of compressor at normal start-up

■ Model: AOHG18KMTA

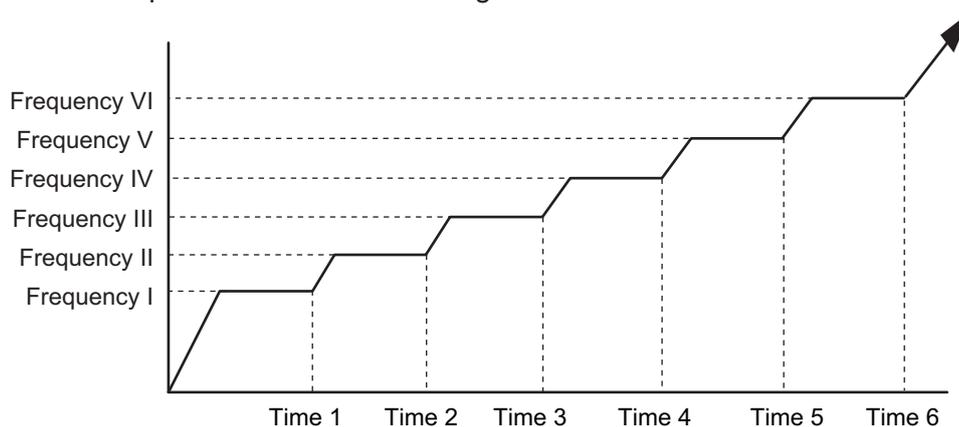
Rotation number of compressor soon after starting is controlled as below.



Rotation number (rps)	I	II	III	IV	V
	32	56	77	90	99
Time (sec)	1	2	3	4	5
	60	240	280	360	400

■ Model: AOHG24KMTA

Rotation number of compressor soon after starting is controlled as below.



Rotation number (rps)	I	II	III	IV	V	VI
	29	52	64	71	89	97
Time (sec)	1	2	3	4	5	6
	60	140	170	200	350	410

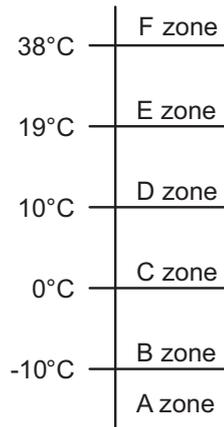
CONTROL AND FUNCTIONS

CONTROL AND FUNCTIONS

1-5. Compressor frequency limitation by outdoor temperature

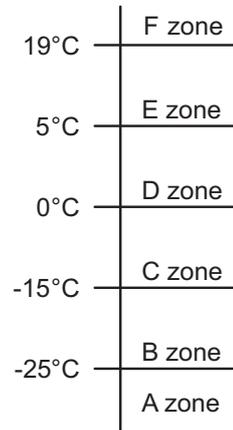
The minimum rotation number of compressor is limited by outdoor temperature as below.

- **Cooling/Dry mode**



Model name	Outdoor temperature zone	Limitation of compressor frequency
AOHG18KMTA	A zone	26 rps
	B zone	26 rps
	C zone	26 rps
	D zone	16 rps
	E zone	12 rps
	F zone	18 rps
AOHG24KMTA	A zone	24 rps
	B zone	24 rps
	C zone	24 rps
	D zone	14 rps
	E zone	14 rps
	F zone	22 rps

- Heating mode



Model name	Outdoor temperature zone	Limitation of compressor frequency
AOHG18KMTA	A zone	25 rps
	B zone	25 rps
	C zone	17 rps
	D zone	10 rps
	E zone	1 rps
	F zone	1 rps
AOHG24KMTA	A zone	31 rps
	B zone	31 rps
	C zone	21 rps
	D zone	13 rps
	E zone	1 rps
	F zone	1 rps

2. Auto changeover operation

When the air conditioner is set to AUTO mode by remote controller, operation starts in the optimum mode from among heating, cooling, dry and monitoring modes. During operation, the optimum mode is automatically switched in accordance with temperature changes. The temperature can be set between 18°C and 30°C in 1.0°C steps.

- When operation starts, indoor fan and outdoor fan are operated for around 1 minute. Room temperature and outdoor temperature are sensed, and the operation mode is selected in accordance with the table below.

Room temperature	Operation mode
$Tr > Ts + 2^{\circ}\text{C}$	Cooling
$Ts + 2^{\circ}\text{C} \geq Tr \geq Ts - 2^{\circ}\text{C}$	Middle zone
$Tr < Ts - 2^{\circ}\text{C}$	Heating

Tr: Room temperature

Ts: Setting temperature

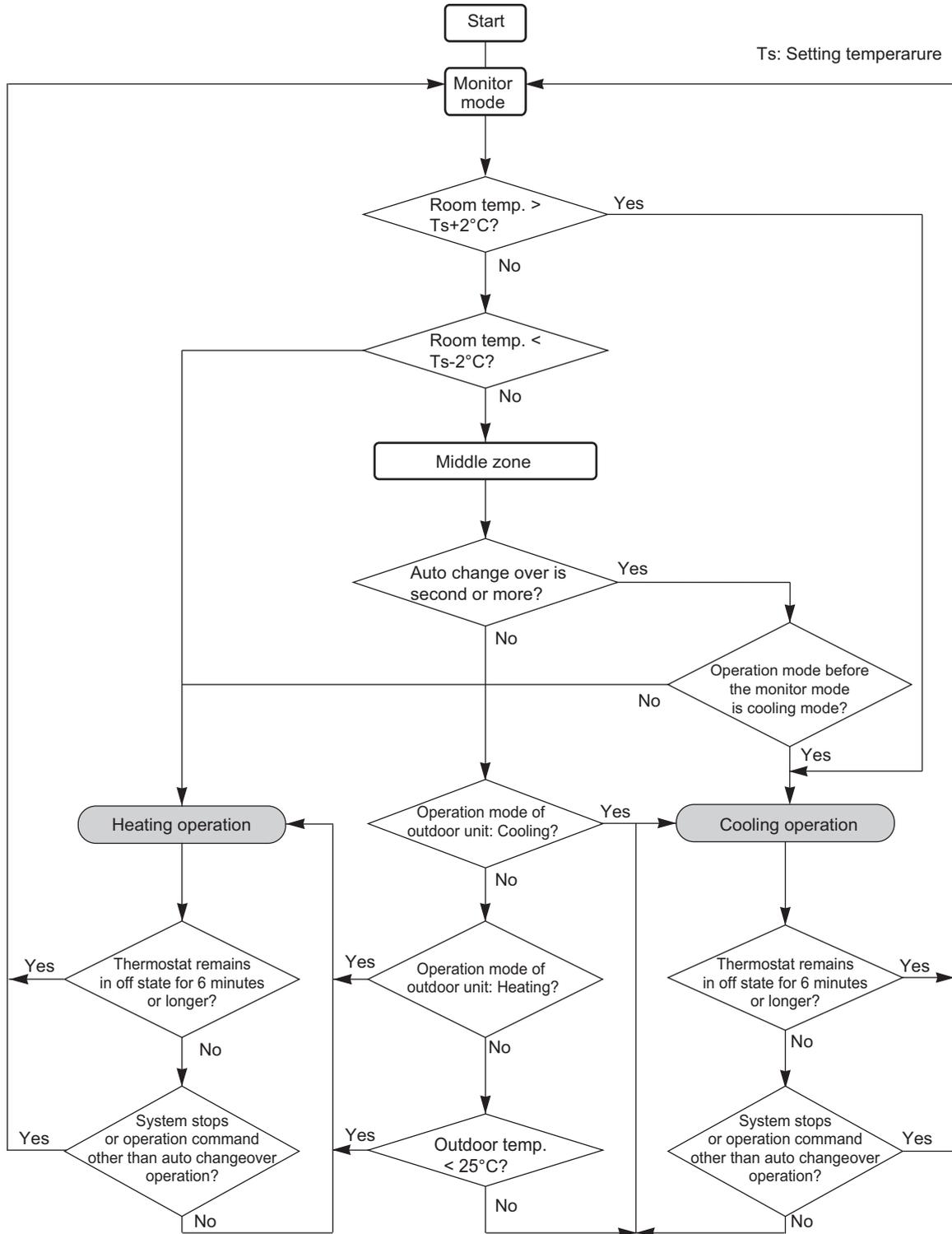
NOTE: When the operation mode is middle zone, indoor unit operation mode is selected as below.

- Same operation mode is selected as outdoor unit.
If outdoor unit is operating in cooling and heating mode, indoor unit will be operated by the same operation mode.
- Selected by outdoor temperature.
If outdoor unit is operating in other than cooling and heating mode, indoor unit will be operated according to the outdoor temperature as below.

Outdoor temp.	Operation mode
25°C or more	Cooling
Less than 25°C	Heating

- When the compressor was stopped for 6 consecutive minutes by temperature control function after the cooling or heating mode was selected as above, operation is switched to monitoring mode and the operation mode selection is done again.
- When the middle zone is selected on the predetermining of the operation mode, the operation mode before the changing to the monitoring mode is selected.

Operation flow chart



CONTROL AND FUNCTIONS

CONTROL AND FUNCTIONS

3. Fan control

Tr: Room temperature

Ts: Setting temperature

3-1. Indoor fan control

■ Fan speed

Indoor fan speed is defined as below.

Operation mode	Fan mode	Speed (rpm)	
		ASHG18KMTE	ASHG24KMTE
Heating	POWERFUL	1,400	1,570
	HIGH	1,300	1,470
	MED+	1,230	1,230
	MED	1,130	1,130
	LOW	900	900
	QUIET	760	760
	Cool air prevention	650	650
Cooling/Fan	S-LOW	520	520
	POWERFUL	1,400	1,570
	HIGH	1,260	1,470
	MED	1,080	1,130
	LOW	900	900
	QUIET	760	760
	Soft quiet	650*1	650*1
S-LOW	520*2	520*2	
Dry		X zone: 760 J zone: 670	X zone: 760 J zone: 670

*1: Fan mode only

*2: Cooling mode only

■ Fan operation

Airflow can be switched in 5 steps such as AUTO, QUIET, LOW, MED, HIGH while indoor unit fan only runs.

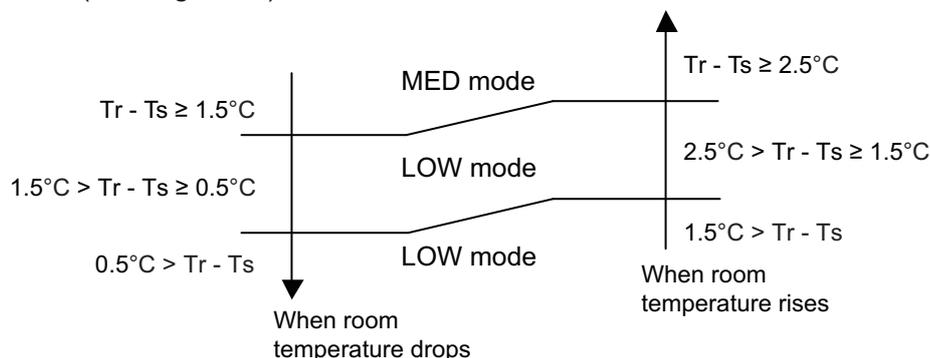
When fan mode is set at AUTO, it operates on MED fan speed.

■ Cooling operation

Switch the airflow AUTO, and indoor fan motor will run according to room temperature, as below.

On the other hand, if switched in HIGH—QUIET, indoor motor will run at a constant airflow of COOL operation modes QUIET, LOW, MED, HIGH as shown in “Fan speed” above.

Airflow change over (Cooling: Auto)



■ Dry operation

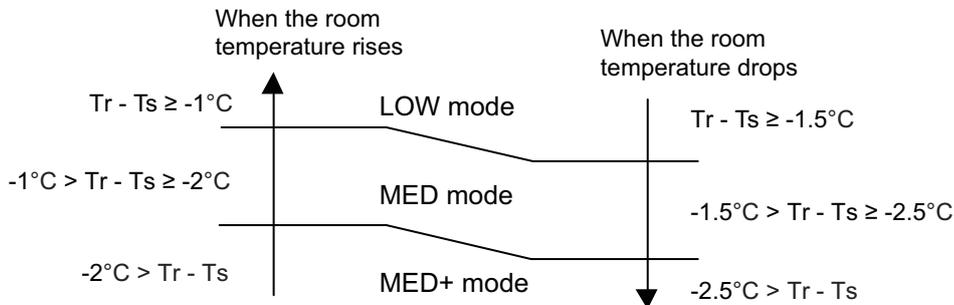
During dry operation, fan speed setting can not be changed as shown in “Fan speed” above.

■ Heating operation

Switch the airflow AUTO, and the indoor fan motor will run according to a room temperature, as below.

On the other hand, if switched in HIGH—QUIET, the indoor motor will run at a constant airflow of HEAT operation modes QUIET, LOW, MED, HIGH as shown in “Fan speed” above.

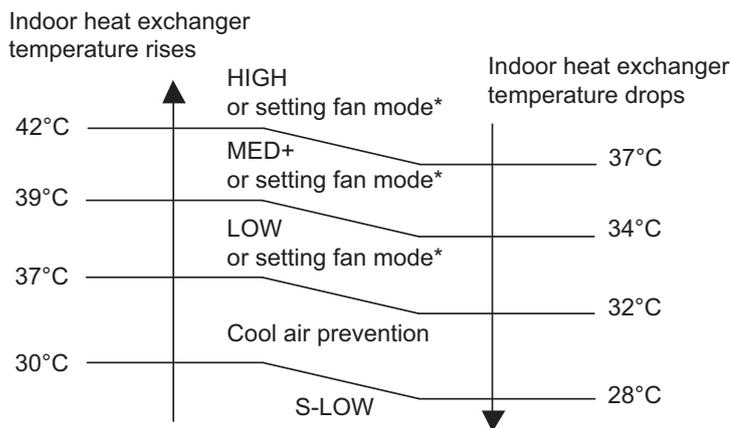
Airflow change over (Heating: Auto)



■ Cool air prevention control (heating mode)

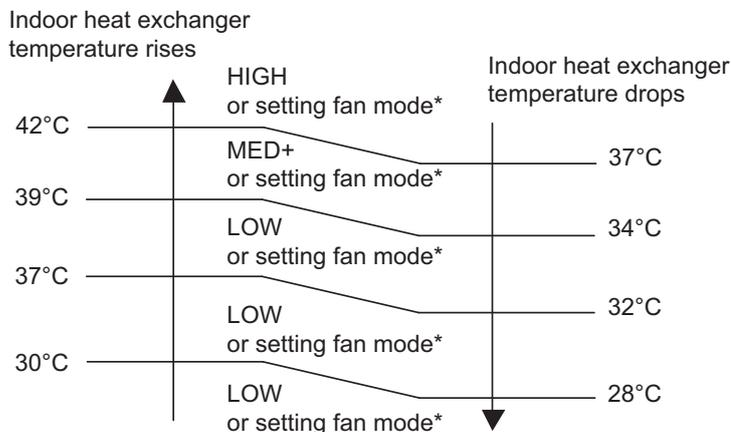
The maximum value of the indoor fan speed is set as shown below, based on the detected temperature by the indoor heat exchanger sensor on heating mode.

• Normal operation



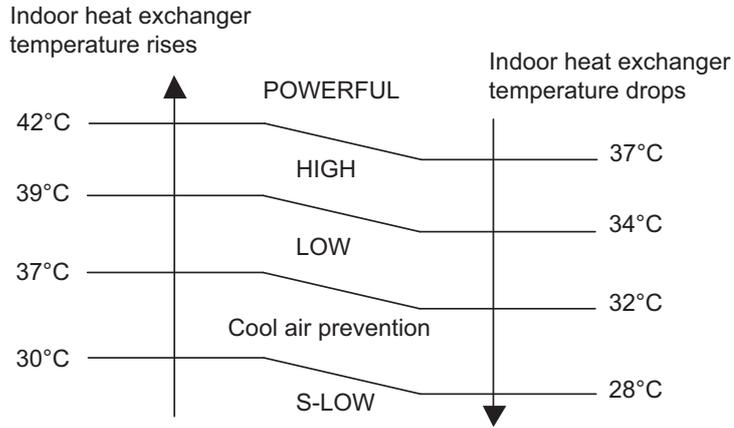
*: Lower speed is selected.

7 minutes later:

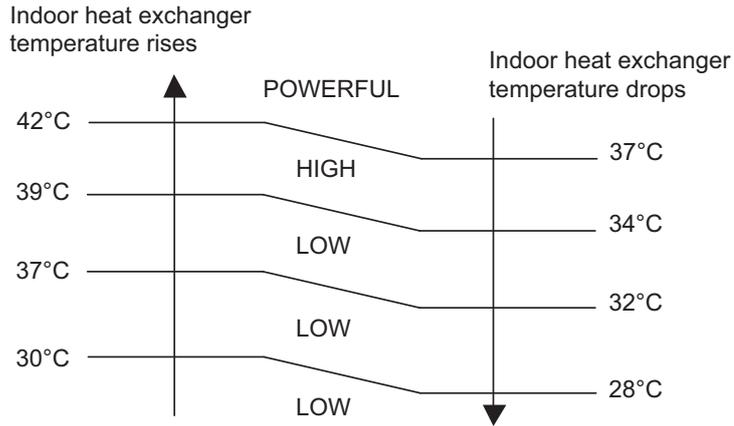


*: Lower speed is selected.

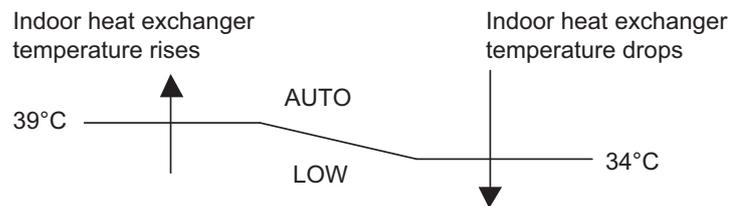
• **Powerful operation**



7 minutes later:

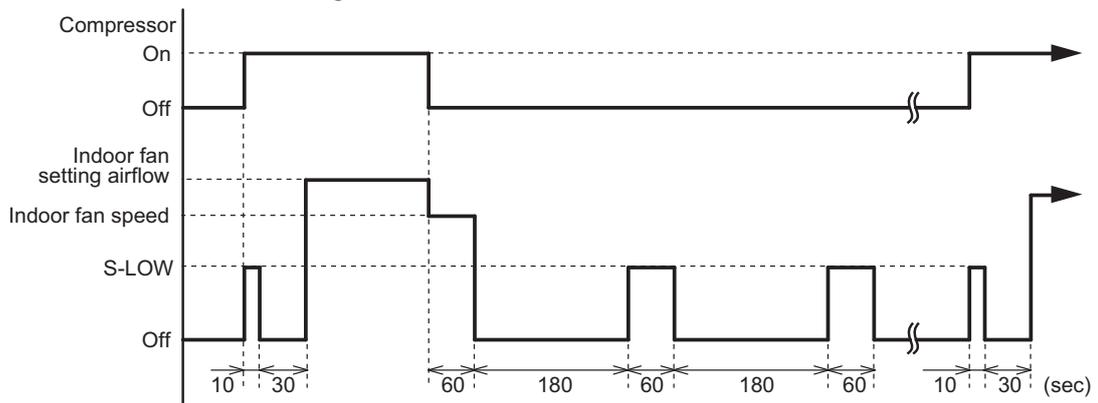


• **10 °C HEAT operation**



■ **Moisture return prevention control (cooling and dry mode)**

Switch the airflow AUTO at cooling mode, and the indoor fan motor will run as shown below.



3-2. Outdoor fan control

■ Outdoor fan motor

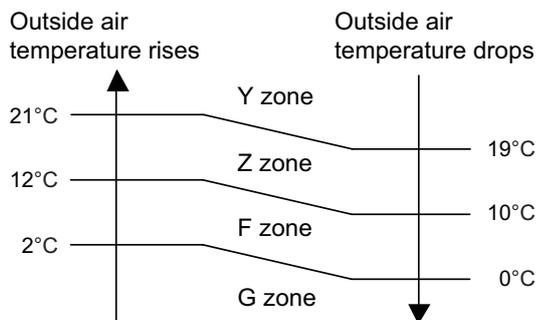
This outdoor unit has a DC fan motor. (Control method is different between AC and DC motors.)

■ Fan speed

● Model: AOHG18KMTA

Fan speed is defined by outdoor temperature and compressor frequency.

• Outside air temperature zone selection



Unit: rpm

Fan step	Cooling	Heating	Dry	Cooling or dry at low outdoor temp.		
	Y zone		Y zone	Z zone	F zone	G zone
S-HIGH2	—	1,100	—	—	—	—
S-HIGH1	1,050	1,100	—	—	—	—
HIGH	1,050	1,100	—	—	—	—
10	—	1,100	—	—	—	—
9	1,050	1,100	1,050	850	320	270
8	1,050	850	1,050	850	320	270
7	940	680	940	770	270	270
6	890	570	890	630	230	210
5	770	500	770	440	200	180
4	630	470	630	320	200	180
3	510	420	510	320	200	180
2	400	420	400	320	200	180
1	400	420	400	320	200	180

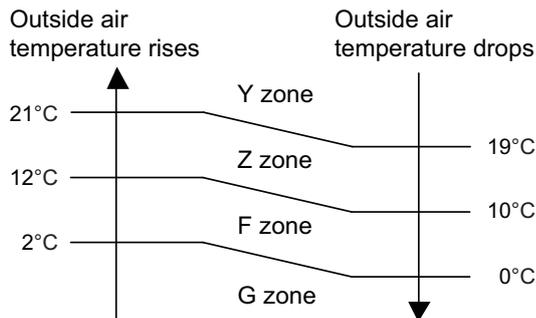
NOTE: After defrost control on the heating mode, the fan speed is kept higher regardless of the compressor frequency.

Fan speed after defrost control: 1,100 rpm

● Model: AOHG24KMTA

Fan speed is defined by outdoor temperature and compressor frequency.

• Outside air temperature zone selection



Unit: rpm

Fan step	Cooling	Heating	Dry	Cooling or dry at low outdoor temp.		
	Y zone		Y zone	Z zone	F zone	G zone
S-HIGH2	—	1,200	—	—	—	—
S-HIGH1	1,180	1,200	—	—	—	—
HIGH	1,180	1,200	—	—	—	—
10	—	1,170	—	—	—	—
9	1,180	1,170	1,180	1,180	1,180	1,180
8	1,140	1,000	1,140	600	320	220
7	900	860	900	600	320	220
6	800	750	800	450	260	200
5	690	700	690	320	230	180
4	610	610	610	320	230	180
3	550	570	550	320	230	180
2	450	510	450	320	230	180
1	400	470	400	320	230	180

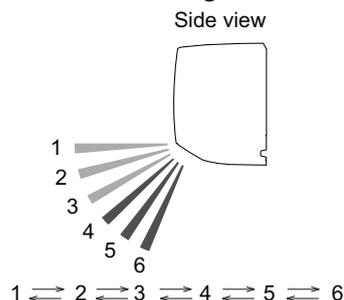
NOTE: After defrost control on the heating mode, the fan speed is kept higher regardless of the compressor frequency.

Fan speed after defrost control: 1,200 rpm

4. Louver control

4-1. Vertical airflow direction louver control

Each time the button is pressed, the air direction range will change as below:



- Remote controller display is not changed.
- Vertical airflow direction is set automatically as shown, in accordance with the type of operation selected.

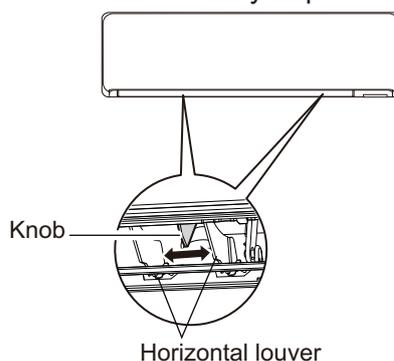
Cooling / Dry mode : Horizontal flow 1

Heating mode : Downward flow 6

- During AUTO operation, for the first a few minutes after beginning operation, airflow will be horizontal 1; the air direction cannot be adjusted during this period. The airflow direction setting will temporarily become 1 when the temperature of the airflow is low at the start of the Heating mode.
- After beginning of AUTO/HEAT mode operated and automatic defrosting operation, the airflow will be horizontal 1. However, the airflow direction cannot be adjusted at beginning AUTO operation mode.

4-2. Adjust the horizontal louver

Move the horizontal louvers to adjust airflow direction you prefer.



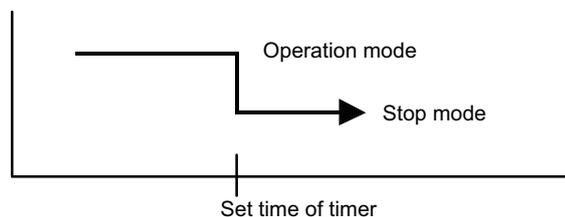
5. Timer operation control

5-1. Wireless remote control

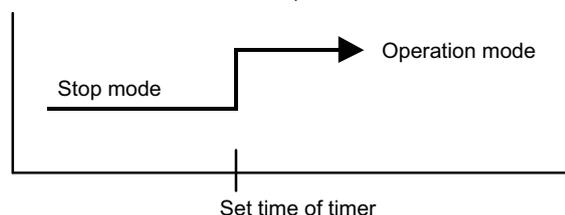
On/Off timer	Program timer	Sleep timer	Weekly timer
○	○	○	○

● On/Off timer

- Off timer: When the clock reaches the set timer, the air conditioner will be turned off.

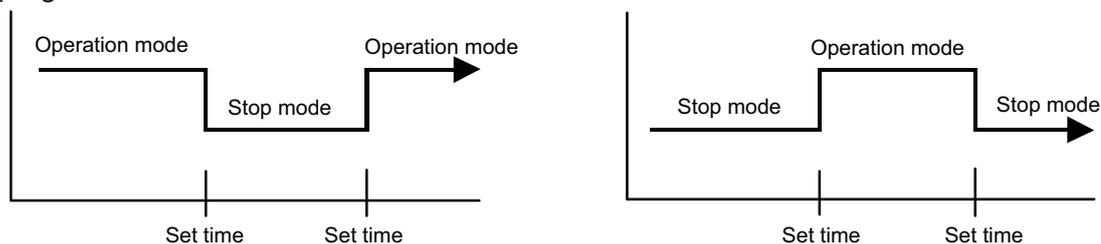


- On timer: When the clock reaches the set timer, the air conditioner will be turned on.



● Program timer

- The program timer allows the off timer and the on timer to be used in combination one time.



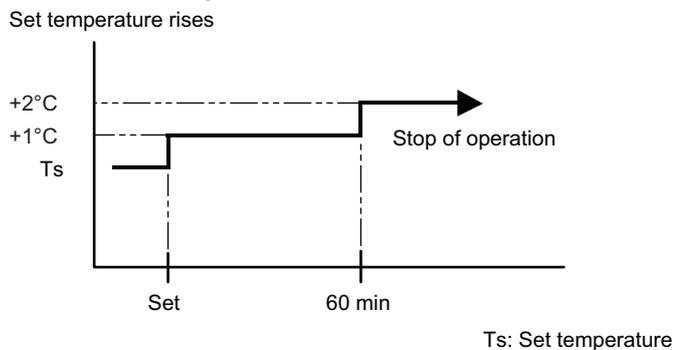
- Operation will start from the timer setting (either off timer and on timer) whichever is closest to the clock current timer setting. The order of operations is indicated by the allow in the remote controller screen.
- Sleep timer operation cannot be combined with on timer operation.

● Sleep timer

If the sleep timer is set, the room temperature is monitored and the operation is stopped automatically. If the operation mode or the set temperature is change after the sleep timer is set, the operation is continued according to the changed setting of the sleep timer from that time on.

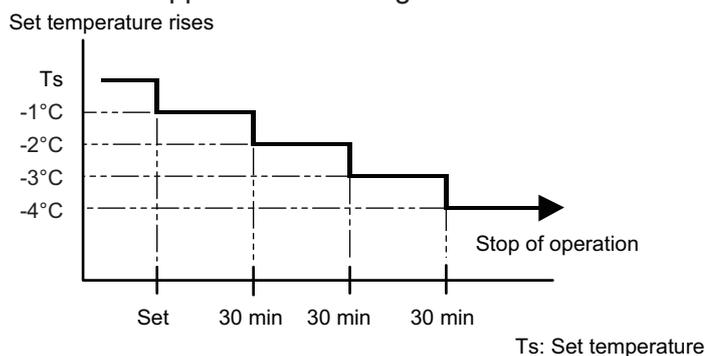
- In the cooling operation mode

When the sleep timer is set, the setting temperature is increased 1°C. It increases the setting temperature another 1°C after 1 hour. After that, the setting temperature is not changed and the operation is stopped at the setting time.



- In the heating operation mode

When the sleep timer is set, the setting temperature is decreased 1°C. It decreases the setting temperature another 1°C every 30 minutes. Upon lowering 4°C, the setting temperature is not changed and the operation is stopped at the setting time.



● Weekly timer

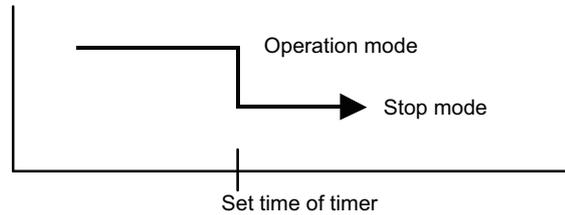
On and off timer can be combined, and up to 4 reservations per day and 28 reservations per week. Before setting the program, set the week and time of the air conditioner at first. If the week and time are not set, the weekly timer will not operate correctly at the setting time.

5-2. Wired remote control

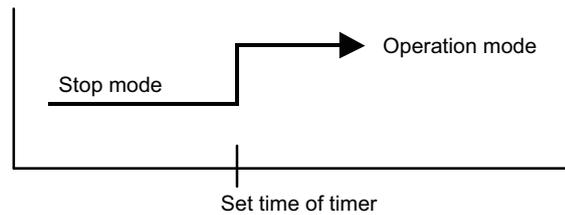
On/Off timer	Program timer	Sleep timer	Weekly timer	Temperature set back timer
○	○	○	○	○

■ On/Off timer

- Off timer: When the clock reaches the set timer, the air conditioner will be turned off.

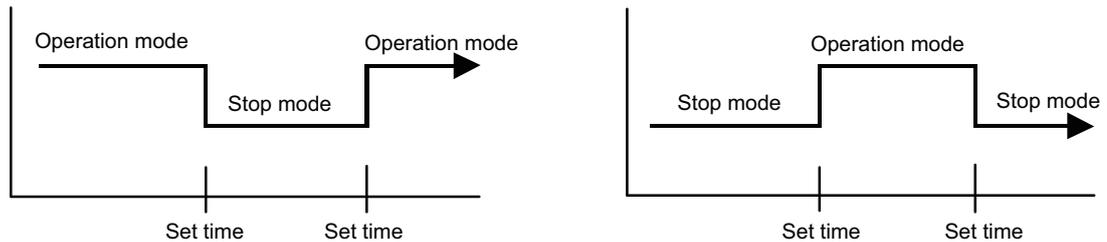


- On timer: When the clock reaches the set timer, the air conditioner will be turned on.



■ Program timer

- The program timer allows the off timer and the on timer to be used in combination one time.



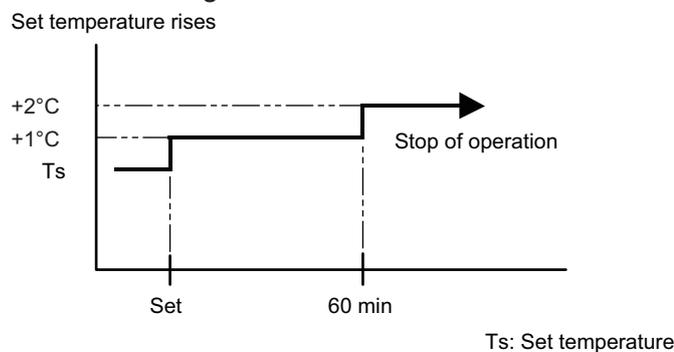
- Operation will start from the timer setting (either off timer and on timer) whichever is closest to the clock current timer setting. The order of operations is indicated by the allow in the remote controller screen.
- Sleep timer operation cannot be combined with on timer operation.

■ Sleep timer

If the sleep timer is set, the room temperature is monitored and the operation is stopped automatically. If the operation mode or the set temperature is change after the sleep timer is set, the operation is continued according to the changed setting of the sleep timer from that time on.

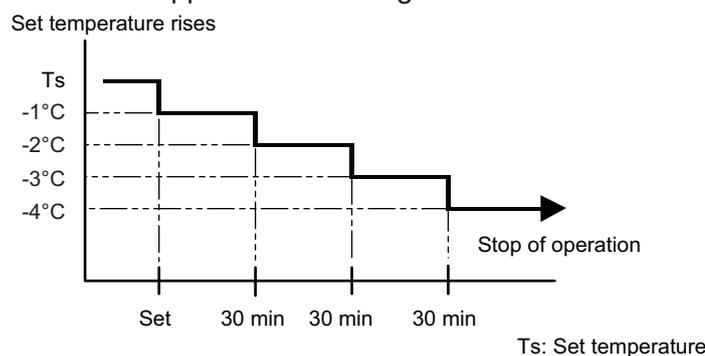
- In the cooling operation mode

When the sleep timer is set, the setting temperature is increased 1°C. It increases the setting temperature another 1°C after 1 hour. After that, the setting temperature is not changed and the operation is stopped at the setting time.



- In the heating operation mode

When the sleep timer is set, the setting temperature is decreased 1°C. It decreases the setting temperature another 1°C every 30 minutes. Upon lowering 4°C, the setting temperature is not changed and the operation is stopped at the setting time.



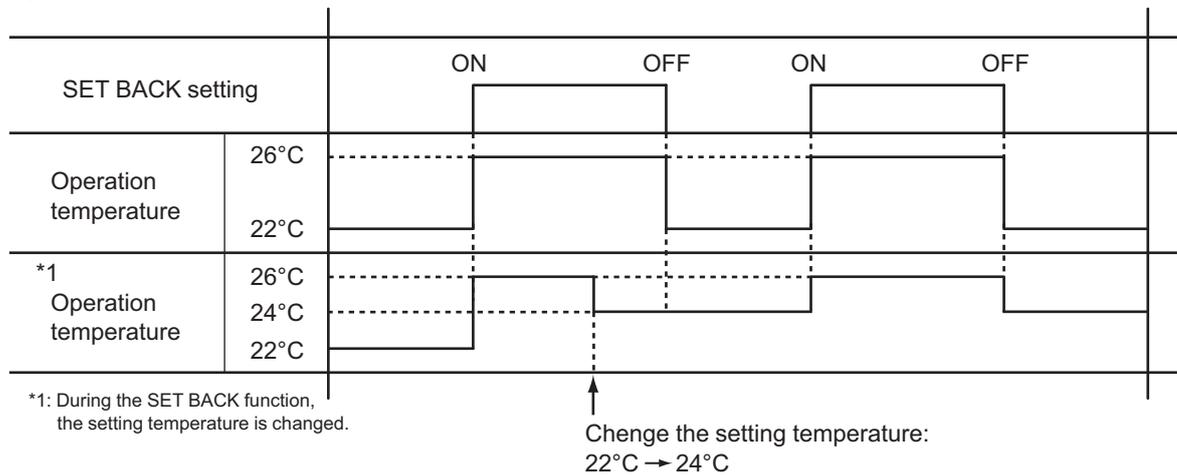
■ Weekly timer

On and off timer can be combined, and up to 4 reservations per day and 28 reservations per week. Before setting the program, set the week and time of the air conditioner at first. If the week and time are not set, the weekly timer will not operate correctly at the setting time.

■ Temperature set back timer

- The SET BACK timer only changes the set temperature for 7 days, it cannot be used to start or stop air conditioner operation.
- The SET BACK timer can be set to operate up to two times per day but only one temperature setting can be used.
- During COOLING/DRY mode, the air conditioner will operate at a minimum of 18°C even if the SET BACK temperature is set to 17°C or lower.

Case of SET BACK timer on the Cooling operation. (Setting temperature :22°C, SET BACK temperature :26°C)



6. Defrost operation control

Tn: Outdoor unit heat exchanger temperature

Ta: Outdoor temperature

Tn10: Temperature at 10 minutes after compressor start

Tnb: Temperature before 5 minutes

• Triggering condition

The defrost operation starts when outdoor unit heat exchanger temperature sensor detects the temperature lower than the values shown below.

– 1st time defrosting after starting operation

Compressor integrating operation time	Less than 17 min.	17 to 57 min.	More than 57 min.
Condition	Does not operate	$T_n \leq -9^\circ\text{C}$ and $T_n - T_a \geq 5$ deg	$T_n \leq -5^\circ\text{C}$

– 2nd time and after

Compressor integrating operation time	Less than 40 min	More than 40 min
Condition	Does not operate	$T_n - T_{n10} < -5$ deg ($T_n \leq -6^\circ\text{C}$) $T_n - T_{nb} < -2$ deg ($T_n \leq -6^\circ\text{C}$) $T_n \leq -17^\circ\text{C}$ ($T_a \geq -10^\circ\text{C}$) $T_n \leq -7^\circ\text{C}$ or $T_n < -20^\circ\text{C}$ ($T_a < -10^\circ\text{C}$)

– Integrating defrost (Constant monitoring)

Compressor integrating operation time	More than 240 min. (For long continuous operation)	More than 213 min. (For long continuous operation)	Less than 10 min.* (For intermittent operation)
Condition	$T_n \leq -3^\circ\text{C}$	$T_n \leq -5^\circ\text{C}$	Count of the compressor off: 40 times

*: If the compressor continuous operation time is less than 10 minutes, the number of the compressor off is counted. If any defrost operated, the compressor off count is cleared.

• Release condition

The defrost operation is released when either one of the conditions below is satisfied.

Outdoor unit heat exchanger temperature (after 1 minute or later since compressor start)	16 °C or more
Compressor operation time	15 minutes

6-1. Defrost operation in heating operation stopped

If the outdoor unit is frosted when stopping the heating operation, it stops after performing the automatic defrosting operation.

In this time, if the indoor unit operation lamp flashes slowly (6 sec on/2 sec off), the outdoor unit allow the heat exchanger to defrost, and then stop.

• Triggering condition

When all of the following conditions are satisfied in heating operation

- Compressor operation integrating time: 30 minutes or more
- Compressor continuous operation time: 10 minutes or more
- Outdoor unit heat exchanger temperature: -4°C or less

• Release condition

The defrost operation is released when either one of the conditions below is satisfied.

Outdoor unit heat exchanger temperature (after 1 minute or later since compressor start)	16 °C or more
Compressor operation time	15 minutes

7. Various control

7-1. Auto restart

When the power was interrupted by a power failure etc. during operation, the operation contents at that time are memorized and when the power is recovered, operation is automatically started with the memorized operation contents.

Operation contents memorized when the power is interrupted
Operation mode
Setting temperature
Fan mode setting
Timer mode and set time (set by wireless remote controller)
Airflow direction setting
Swing
ECONOMY operation
10 °C HEAT operation
Outdoor low noise operation
Remote control setting
WLAN LED setting

7-2. MANUAL AUTO operation

When the wireless remote controller is lost or battery power dissipated, this function will work without the remote controller.

When MANUAL AUTO button is pressed more than 3 seconds and less than 10 seconds, MANUAL AUTO operation starts as shown in the table below. To stop operation, press the MANUAL AUTO button for 3 seconds.

Operation mode	Auto changeover
Fan mode	AUTO
Timer mode	Continuous (no timer setting available)
Setting temperature	24°C
Vertical airflow direction louver setting	Standard
SWING	Off
ECONOMY	Off
Human sensor	Off

7-3. Forced cooling operation

The outdoor unit may not operate depending on the room temperature.

When FORCED COOLING OPERATION button is pressed more than 10 seconds, forced cooling operation starts as shown in the table below.

Operation mode	Cooling
Fan mode	HIGH
Timer mode	Continuous (no timer setting available)
Setting temperature	24°C
Vertical airflow direction louver setting	Standard
Horizontal airflow direction louver setting	According to memory position
SWING	Off
ECONOMY	Off
Human sensor	Off

- During the forced cooling operation, it operates regardless of room temperature sensor.
- Operation LED and timer LED blink at the same time during the forced cooling operation. They blink for 1 second ON and 1 second OFF on both operation LED and timer LED (same as test operation).

By performing one of the following action, test operation will be canceled:

- Pressing the remote controller START/STOP button
- Pressing FORCED COOLING OPERATION button for 3 seconds
- 60 minutes passed after starting forced cooling operation

NOTE: When HEAT operation is selected on the remote controller during forced cooling operation, heating test run will begin in about 3 minutes.

7-4. 10 °C HEAT operation

10 °C HEAT operation performs as below setting when pressing 10 °C HEAT button.

Operation mode	Heating
Setting temperature	10°C
Fan mode	AUTO
LED display	Economy
Defrost operation	Operate as normal

7-5. ECONOMY operation

The ECONOMY operation starts by pressing ECONOMY button on the remote controller.

The ECONOMY operation is almost the same operation as below settings.

Mode	Cooling/Dry	Heating
Target temperature	Setting temperature +1°C	Setting temperature -1°C

7-6. POWERFUL operation

The POWERFUL operation starts by pressing POWERFUL button on the remote controller. The indoor unit and outdoor unit operate at maximum power as shown in the table below.

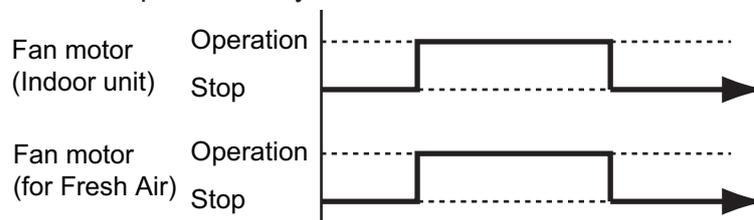
Compressor frequency		Maximum
Fan mode		POWERFUL
Vertical airflow direction louver setting	Cooling	3
	Dry	
	Heating	6

Release condition:

- Cooling/Dry
Room temperature \leq Setting temperature -0.5°C or Operation time has passed 20 minutes.
- Heating
Room temperature \geq Setting temperature $+0.5^{\circ}\text{C}$ or Operation time has passed 20 minutes.

7-7. Fresh air control

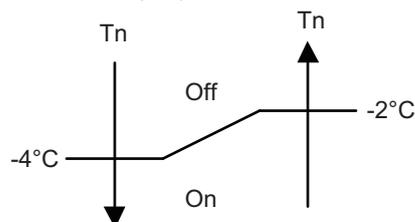
The fan motor for Fresh Air is operated in synchronization with the indoor fan operation as below.



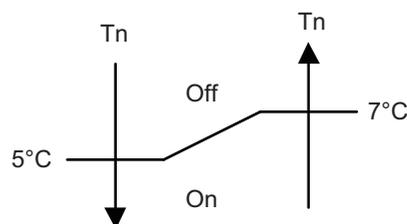
7-8. Compressor preheating

By preheating the compressor, warm airflow is quickly discharged when the operation is started.

- **Triggering condition**
 - 30 minutes after compressor stopped.
 - Outdoor unit heat exchanger temperature (T_n)

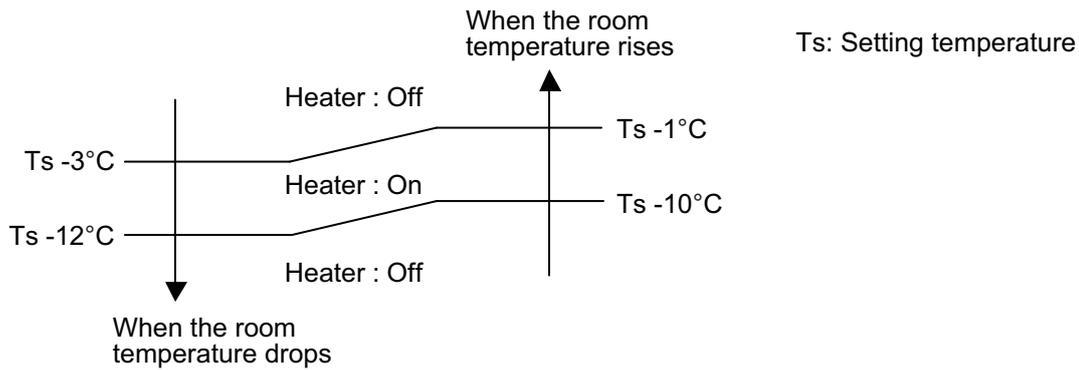


When the jumper wire (JM2) is disconnected:



7-9. External electrical heater control

The external electrical heater is operated as below.



NOTES:

- When the compressor stop, external electric heater is off.
- It operates only in heating mode and when the indoor fan operates. (However, S-LOW is excluded.)

7-10. Electronic expansion valve control

The most proper opening of the electronic expansion valve is calculated and controlled under the present operating condition based on the table below.

Operation mode	Pulse range
Cooling/dry mode	Between 52 and 480 pulses
Heating mode	

NOTE: At the time of supplying the power to the outdoor unit, the initialization of the electronic expansion valve is operated (528 pulses are input to the closing direction).

7-11. Prevention to restart for 3 minutes (3 minutes st)

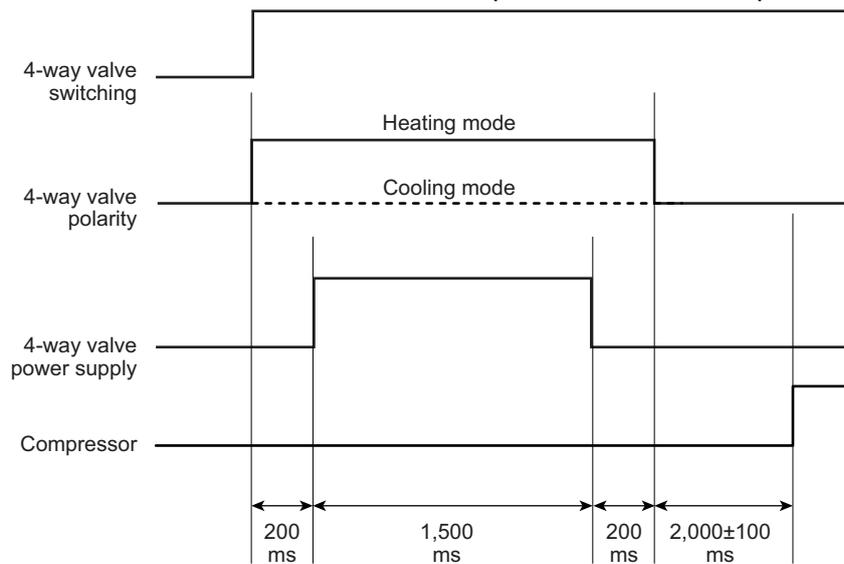
When the compressor fails to start for the number of times below, it does not enter operation status for 3 minutes.

Retry number	50
Retry set number	3

When the compressor fails to start in the retry set number above, the compressor is stopped.

7-12. 4-way valve control

- If heating mode is selected at the compressor start, 4-way valve is energized for heating.
- When the air conditioner is switched between cooling and heating mode, compressor is stopped, and the 4-way valve is switched when the 3 minutes passes and the compressor is started.



7-13. Outdoor unit low noise operation

The outdoor unit low noise operation functions by OUTDOOR UNIT LOW NOISE button on the remote controller.

This operation stops the PFC control, and changes the current value.

Operation mode	Current	
	Trigger condition	Release condition
Cooling/Dry mode	5.0 A	4.5 A
Heating mode		

8. Various protections

8-1. Discharge gas temperature over-rise prevention control

The discharge gas temperature sensor (discharge thermistor: outdoor unit side) detects the discharge gas temperature.

- When the discharge temperature becomes higher than the trigger condition, the rotation number of compressor is decreased as the table below, and it continues to decrease until the discharge temperature becomes lower than the trigger condition.
- When the discharge temperature becomes lower than the release condition, control of compressor rotation number is released.
- When the discharge temperature becomes higher than the compressor protection temperature, the compressor is stopped and the indoor unit LED starts blinking.

Trigger condition	104°C
Rotation number of compressor	-20 rps/120 seconds
Release condition	101°C
Compressor protection temperature	110°C

8-2. Anti-freezing control (cooling and dry mode)

The rotation number of compressor is decrease in cooling and dry mode when the indoor unit heat exchanger temperature sensor detects the temperature lower than the trigger condition.

When the indoor unit heat exchanger temperature reaches release condition, the anti-freezing control is stopped.

Trigger condition	4°C	
Release condition	Outdoor temp. $\geq 10^{\circ}\text{C}^{*1}$	7°C
	Outdoor temp. $\geq 12^{\circ}\text{C}^{*2}$	
	Outdoor temp. $< 10^{\circ}\text{C}^{*1}$	13°C
	Outdoor temp. $< 12^{\circ}\text{C}^{*2}$	

*1: During the outdoor temperature dropping

*2: During the outdoor temperature rising

8-3. Current release control

The rotation number of compressor is controlled so that the outdoor unit input current does not exceeds current limit value set according to the outdoor temperature.

The rotation number of compressor returns according to the operation mode, when the current becomes lower than the release value.

■ Model: AOHG18KMTA

Operation mode	Outdoor temp. (Ta)	Trigger condition	Release condition
Cooling	$50^{\circ}\text{C} \leq \text{Ta}$	4.5 A	4.0 A
	$46^{\circ}\text{C} \leq \text{Ta} < 50^{\circ}\text{C}$	4.5 A	4.0 A
	$40^{\circ}\text{C} \leq \text{Ta} < 46^{\circ}\text{C}$	6.0 A	5.5 A
	$12^{\circ}\text{C} \leq \text{Ta} < 40^{\circ}\text{C}$	9.0 A	8.5 A
	$2^{\circ}\text{C} \leq \text{Ta} < 12^{\circ}\text{C}$	9.0 A	8.5 A
	$\text{Ta} < 2^{\circ}\text{C}$	9.0 A	8.5 A
Heating	$17^{\circ}\text{C} \leq \text{Ta}$	7.0 A	6.5 A
	$12^{\circ}\text{C} \leq \text{Ta} < 17^{\circ}\text{C}$	9.0 A	8.5 A
	$5^{\circ}\text{C} \leq \text{Ta} < 12^{\circ}\text{C}$	11.0 A	10.5 A
	$\text{Ta} < 5^{\circ}\text{C}$	13.0 A	12.5 A

■ Model: AOHG24KMTA

Operation mode	Outdoor temp. (Ta)	Trigger condition	Release condition
Cooling	$50^{\circ}\text{C} \leq \text{Ta}$	7.0 A	6.5 A
	$46^{\circ}\text{C} \leq \text{Ta} < 50^{\circ}\text{C}$	7.0 A	6.5 A
	$40^{\circ}\text{C} \leq \text{Ta} < 46^{\circ}\text{C}$	9.5 A	9.0 A
	$12^{\circ}\text{C} \leq \text{Ta} < 40^{\circ}\text{C}$	12.5 A	12.0 A
	$2^{\circ}\text{C} \leq \text{Ta} < 12^{\circ}\text{C}$	12.5 A	12.0 A
	$\text{Ta} < 2^{\circ}\text{C}$	12.5 A	12.0 A
Heating	$17^{\circ}\text{C} \leq \text{Ta}$	10.5 A	10.0 A
	$12^{\circ}\text{C} \leq \text{Ta} < 17^{\circ}\text{C}$	13.0 A	12.5 A
	$5^{\circ}\text{C} \leq \text{Ta} < 12^{\circ}\text{C}$	14.5 A	14.0 A
	$\text{Ta} < 5^{\circ}\text{C}$	15.5 A	15.0 A

8-4. Cooling pressure over-rise protection

When the outdoor unit heat exchanger temperature reaches trigger condition below, the compressor is stopped and trouble display is performed.

Trigger condition	65°C
-------------------	------

8-5. Compressor temperature protection

When the compressor temperature sensor detects higher than the trigger condition below, the compressor is stopped. When the compressor temperature sensor detects the release condition, the protection is released.

Trigger condition	108°C
Release condition	80°C (3 minutes after compressor stop)

8-6. High pressure protection

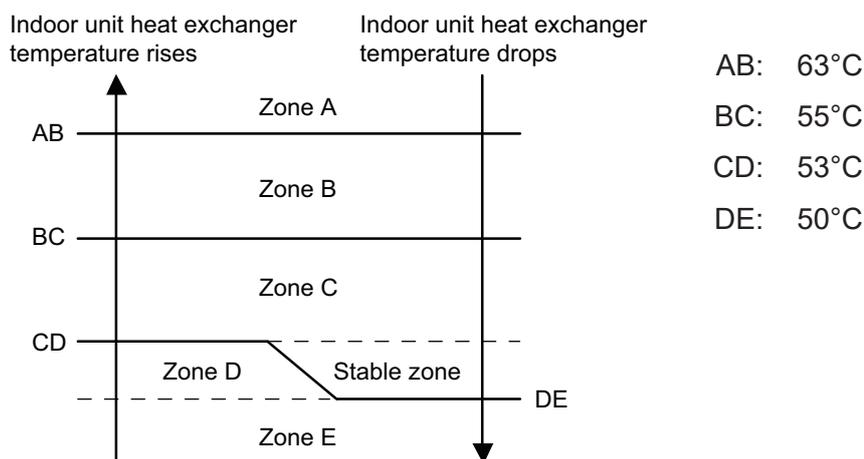
Trigger condition	Pressure switch: Off (Open: Higher than 4.2 MPa) Compressor stop
Release condition	Pressure switch: On (Close: Lower than 3.2 MPa) (3 minutes after compressor stop) Compressor restart

8-7. Low outdoor temperature protection

When the outdoor temperature sensor detects lower than the trigger condition below, the compressor is stopped.

Operation mode	Cooling/Dry
Trigger condition	-15°C
Release condition	-10°C

8-8. High temperature and high pressure release control (heating mode)



Zone	Operation	
Zone A	Compressor is stopped.	
Zone B	The rotation number of compressor is decreased.	-25 rps/120 sec.
Zone C		-3 rps/60 sec.
Zone D	The protection is released and the operation is returned to normal mode.	
Zone E		

5. FILED WORKING

CONTENTS

5. FILED WORKING

1. Function settings	05-1
1-1. Function settings by using remote controller	05-1
1-2. Custom code setting for wireless remote controller	05-7
2. External input and output	05-8
2-1. External input.....	05-9
2-2. External output	05-12
2-3. Setting of external input and output	05-14
2-4. Details of control input function.....	05-15
2-5. Details of control output function	05-19

1. Function settings

To adjust the functions of this product according to the installation environment, various types of function settings are available.

NOTE: Incorrect settings can cause a product malfunction.

1-1. Function settings by using remote controller

Some function settings can be changed on the remote controller. After confirming the setting procedure and the content of each function setting, select appropriate functions for your installation environment.

■ Setting procedure by using wireless remote controller

The function number and the associated setting value are displayed on the LCD of the remote controller. Follow the instructions written in the local setup procedure supplied with the remote controller, and select appropriate setting according to the installation environment.

Before connecting the power supply of the indoor unit, reconfirm following items:

- Cover for the electrical enclosure on the outdoor unit is in place.
- There is no wiring mistake.
- Piping air tight test and vacuuming have been performed firmly.
- All the necessary wiring work for outdoor unit has been finished.

After reconfirming the items listed above, connect the power supply of the indoor unit.

NOTES:

- Settings will not be changed if invalid numbers or setting values are selected.
- When optional wired remote controller is used, refer to the installation manual enclosed with the remote controller.

Entering function setting mode:

While pressing the POWERFUL button and TEMP. (^) button simultaneously, press the RESET button to enter the function setting mode.

Selecting the function number and setting value:

1. Press the TEMP. (^) (v) buttons to select the function number. To switch between the left and right digits, press the 10 °C HEAT button.
2. Press the POWERFUL button to proceed to value setting. To return the function number selection, press the POWERFUL button again.
3. Press the TEMP. (^) (v) buttons to select the setting value. To switch between the left and right digits, press the 10 °C HEAT button.
4. Press the MODE button once. Confirm that you hear the beep sound.
5. Press the START/STOP button to fix the function setting. Confirm that you hear the beep sound.
6. Press the RESET button to end the function setting mode.
7. After completing the function setting, be sure to disconnect the power supply and then reconnect it.

Function number
Setting value



⚠ CAUTION

After disconnecting the power supply, wait 30 seconds or more before reconnecting it. The function setting will not become active unless the power supply is disconnected and then reconnected.

NOTES:

- The air conditioner custom code is set to \overline{F} prior to shipment.
- If you do not know the air conditioner custom code setting, try each of the custom codes ($\overline{F} \rightarrow \overline{b}$ $\rightarrow \overline{c} \rightarrow \overline{d}$) until you find the code that operates the air conditioner.

■ Contents of function setting

Each function setting listed in this section is adjustable in accordance with the installation environment.

NOTE: Setting will not be changed if invalid numbers or setting values are selected.

● Function setting list

	Function no.	Functions
1)	11	Filter sign
2)	30/31	Room temperature control for indoor unit sensor
3)	35/36	Room temperature control for wired remote controller sensor
4)	40	Auto restart
5)	42	Room temperature sensor switching
6)	44	Remote controller custom code
7)	46	External input control
8)	48	Room temperature sensor switching (Aux.)
9)	49	Indoor unit fan control for energy saving for cooling
10)	60	Switching functions for external output terminal

1) Filter sign

Select appropriate intervals for displaying the filter sign on the indoor unit according to the estimated amount of dust in the air of the room.

If the indication is not required, select "No indication" (03).

Function number	Setting value	Setting description	Factory setting
11	00	Standard (400 hours)	
	01	Long interval (1,000 hours)	
	02	Short interval (200 hours)	
	03	No indication	◆

2) Room temperature control for indoor unit sensor

Depending on the installed environment, correction of the room temperature sensor may be required. Select the appropriate control setting according to the installed environment.

The temperature of the room temperature sensor is corrected as follows:

Corrected temp. = Temp. of the room temp. sensor - Correction temp. value

Example of correction:

When the temperature of the room temp. sensor is 26°C and the setting value is "03" (-1.0°C), corrected temp. will be 27°C (26°C - [-1.0°C]).

The temperature correction values show the difference from the Standard setting "00" (manufacturer's recommended value).

Function number		Setting value	Setting description	Factory setting	
30 (For cooling)	31 (For heating)	00	Standard setting	◆	
		01	No correction 0.0 °C		
		02	-0.5 °C	More cooling Less heating	
		03	-1.0 °C		
		04	-1.5 °C		
		05	-2.0 °C		
		06	-2.5 °C		
		07	-3.0 °C		
		08	-3.5 °C		
		09	-4.0 °C		
		10	+0.5 °C	Less cooling More heating	
		11	+1.0 °C		
		12	+1.5 °C		
		13	+2.0 °C		
		14	+2.5 °C		
		15	+3.0 °C		
		16	+3.5 °C		
17	+4.0 °C				

3) Room temperature control for wired remote controller sensor

Depending on the installed environment, correction of the wire remote temperature sensor may be required. Select the appropriate control setting according to the installed environment.

To change this setting, set Function 42 to Both "01".

Ensure that the Thermo Sensor icon is displayed on the remote controller screen.

Function number		Setting value	Setting description	Factory setting	
35 (For cooling)	36 (For heating)	00	Standard setting	◆	
		01	No correction 0.0°C		
		02	-0.5 °C	More cooling Less heating	
		03	-1.0 °C		
		04	-1.5 °C		
		05	-2.0 °C		
		06	-2.5 °C		
		07	-3.0 °C		
		08	-3.5 °C		
		09	-4.0 °C		
		10	+0.5 °C	Less cooling More heating	
		11	+1.0 °C		
		12	+1.5 °C		
		13	+2.0 °C		
		14	+2.5 °C		
		15	+3.0 °C		
		16	+3.5 °C		
17	+4.0 °C				

4) Auto restart

Enables or disables automatic restart after a power interruption.

Function number	Setting value	Setting description	Factory setting
40	00	Enable	◆
	01	Disable	

NOTE: Auto restart is an emergency function such as for power outage etc. Do not attempt to use this function in normal operation. Be sure to operate the unit by remote controller or external device.

5) Room temperature sensor switching

(Only for wired remote controller)

When using the wired remote controller temperature sensor, change the setting to "Both" (01).

Function number	Setting value	Setting description	Factory setting
42	00	Indoor unit	◆
	01	Both	

00: Sensor on the indoor unit is active.

01: Sensors on both indoor unit and wired remote controller are active.

NOTE: Remote controller sensor must be turned on by using the remote controller.

6) Remote controller custom code

(Only for wireless remote controller)

The indoor unit custom code can be changed. Select the appropriate custom code.

Function number	Setting value	Setting description	Factory setting
44	00	A	◆
	01	B	
	02	C	
	03	D	

7) External input control

"Operation/Stop" mode or "Forced stop" mode can be selected.

Function number	Setting value	Setting description	Factory setting
46	00	Operation/Stop mode 1 (R.C. enabled)	◆
	01	(Setting prohibited)	
	02	Forced stop mode	
	03	Operation/Stop mode 2 (R.C. disabled)	

8) Room temperature sensor switching (Aux.)

To use the temperature sensor on the wired remote controller only, change the setting to "Wired remote controller" (01).

This function will only work if the function setting 42 is set at "Both" (01).

When the setting value is set to "Both" (00), more suitable control of the room temperature is possible by setting function setting 30 and 31 too.

Function number	Setting value	Setting description	Factory setting
48	00	Both	◆
	01	Wired remote controller	

9) Indoor unit fan control for energy saving for cooling

Enables or disables the power-saving function by controlling the indoor unit fan rotation when the outdoor unit is stopped during cooling operation.

Function number	Setting value	Setting description	Factory setting
49	00	Disable	
	01	Enable	
	02	Remote controller	◆

00: When the outdoor unit is stopped, the indoor unit fan operates continuously following the setting on the remote controller.

01: When the outdoor unit is stopped, the indoor unit fan operates intermittently at a very low speed.

02: Enable or disable this function by remote controller setting.

NOTE: Set to "00" or "01" when connecting a remote controller that cannot set the Fan control for energy saving function or connecting a network converter. To confirm if the remote controller has this setting, refer to the operating manual of each remote controller.

10) Switching functions for external output terminal

Functions of the external output terminal can be switched. For details, refer to “External input and output”.

Function number	Setting value	Setting description	Factory setting
60	00	Operation status	◆
	01—08	(Setting prohibited)	
	09	Error status	
	10	Indoor unit fan operation status	
	11	(Setting prohibited)	

1-2. Custom code setting for wireless remote controller

To interconnect the air conditioner and the wireless remote controller, assignment of the custom code for the wireless remote controller is required.

NOTE: Air conditioner cannot receive a signal if the air conditioner has not been set for the custom code.

When 2 or more air conditioners are installed in a room, and the remote controller is operating an air conditioner other than the one you wish to set, change the custom code of the remote controller to operate only the air conditioner you wish to set. (4 selections possible.)

Confirm the setting of the remote controller custom code and the function setting. If these do not match, the remote controller cannot be used to operate for the air conditioner.

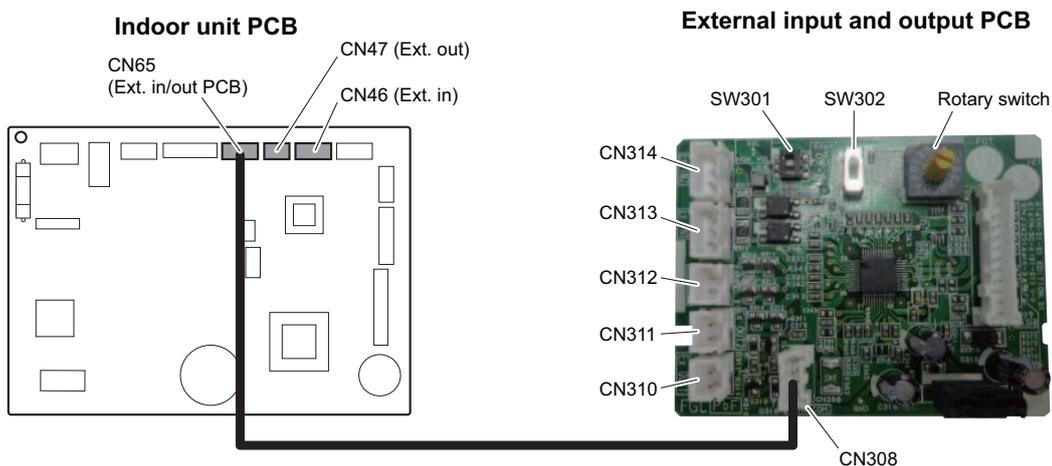
1. Press the START/STOP button until only the clock is displayed on the remote controller display.
2. Press the MODE button for at least 5 seconds to display the current custom code. (Initially set to A .)
3. Press the TEMP. (\wedge) (\vee) buttons to change the custom code between $\text{A} \rightarrow \text{B} \rightarrow \text{C} \rightarrow \text{D}$. Match the code on the display to the air conditioner custom code. (Initially set to A .)
4. Press the MODE button again to return to the clock display. The custom code will be changed.



NOTES:

- If no button is pressed within 30 seconds after the custom code is displayed, the system returns to the original clock indicator. In this case, start again from step 1.
- The air conditioner custom code is set to A prior to shipment. To change the custom code, contact your retailer.
- If you do not know the assigned code for the air conditioner, try each of the custom code ($\text{A} \rightarrow \text{B} \rightarrow \text{C} \rightarrow \text{D}$) until you find the code which operates the air conditioner.

2. External input and output



Connecting point		Input/Output	Function	Input select	Input signal
Indoor unit	CN46	Input	Operation/Stop Forced stop	Dry contact	Edge
	CN47	Output	Operation status	—	—
			Error status		
		Indoor unit fan operation status			
External input and output PCB (UTY-XCSXZ2)	CN313	Input	Operation/Stop	Dry contact/Apply voltage	Edge/Pulse
	CN314		Forced stop		Edge
	CN313		Forced thermostat off		
	CN310 CN311 CN312	Output	Operation status	—	—
			Error status		
Indoor unit fan operation status					

NOTE: For details of the switching function, refer to "[Setting of external input and output](#)" on page 05-14.

FIELD WORKING

FIELD WORKING

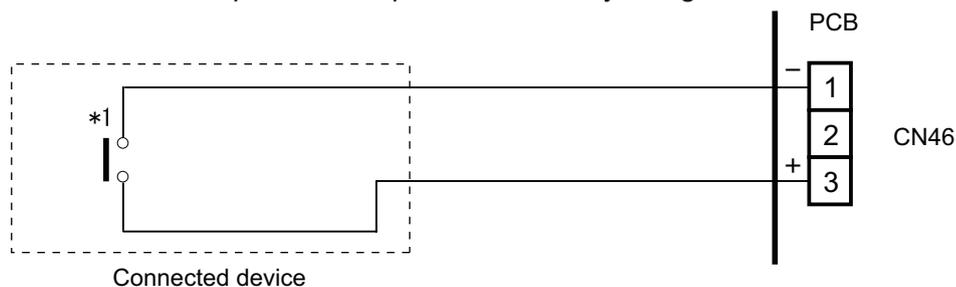
2-1. External input

With using external input function, some functions on this product can be controlled from an external device.

- "Operation/Stop" mode or "Forced stop" mode can be selected with function setting of indoor unit.
- A twisted pair cable should be used. Maximum length of cable is 150 m.
- Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.
- The wire connection should be separate from the power cable line.

■ Indoor unit

Indoor unit functions such as Operation/Stop can be done by using indoor unit connectors.



*1: The switch can be used on the following condition: DC 12 V to 24 V, 1 mA to 15 mA.

External input and output PCB

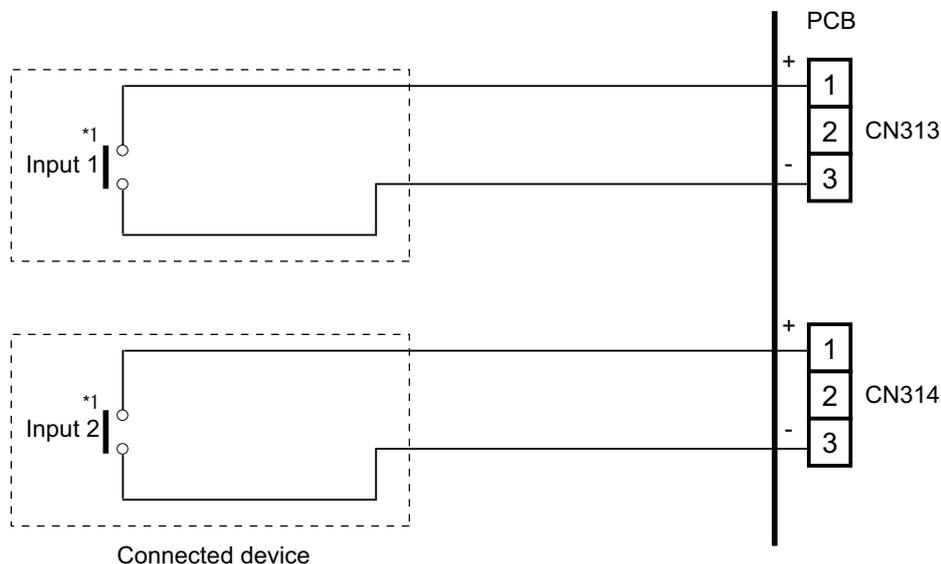
The indoor unit Operation/Stop can be set by using the input connector on the PCB.

Input select

Use either one of these types of connectors according to the application. (Both types of connectors cannot be used simultaneously.)

– Dry contact

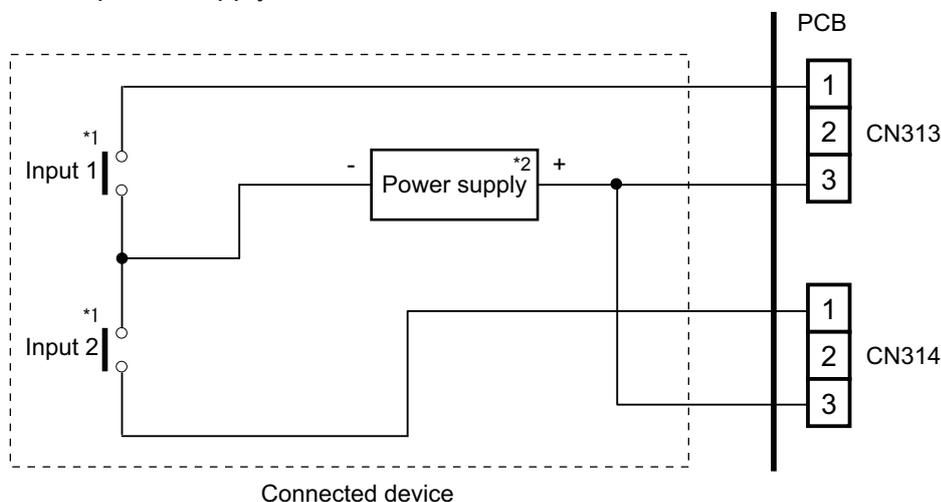
In case of internal power supply, set the slide switch of SW301 to "NON VOL" side.



*1: The switches can be used on the following condition: DC 12 V to 24 V, 1 mA to 15 mA.

– Apply voltage

In case of external power supply, set the slide switch of SW301 to "VOL" side.



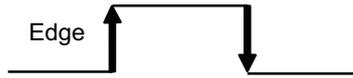
*1: The switches can be used on the following condition: DC 12 V to 24 V, 1 mA to 15 mA.

*2: Make the power supply DC 12 V to 24 V, 10 mA or more.

■ Input signal type

- **Indoor unit**

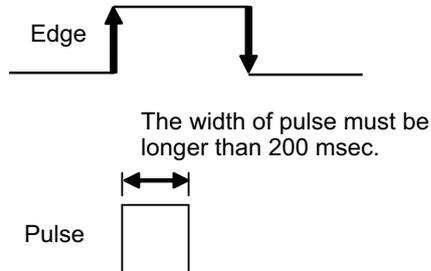
Input signal type is only "Edge".



- **External input and output PCB**

The input signal type can be selected.

Signal type (edge or pulse) can be switched by the DIP switch 2 (SW302) on the External input and output PCB.



NOTE: The input signal supports the following switch type:

- Edge: Alternate type switch
- Pulse: Momentary type switch

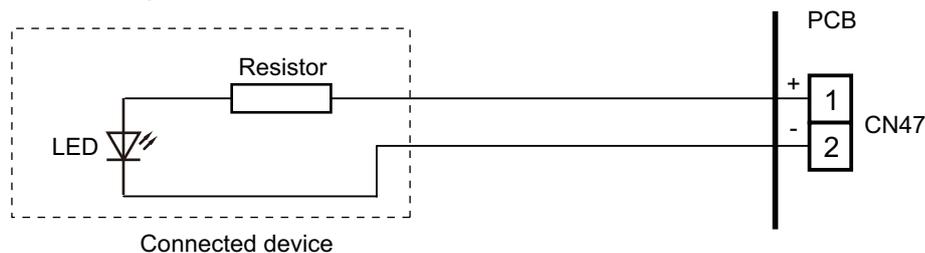
2-2. External output

Use an external output cable with appropriate external dimension, depending on the number of cables to be installed.

Indoor unit

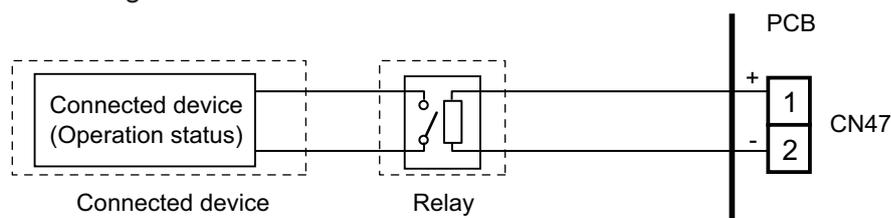
- A twisted pair cable should be used. Maximum length of cable is 25 m.
- Output voltage: High DC 12 V \pm 2 V, Low 0 V.
- Permissible current: 50 mA
- For details, refer to "[Setting of external input and output](#)" on page 05-14.
- **When indicator, etc. are connected directly**

Example: Function setting number 60 is set to "00"



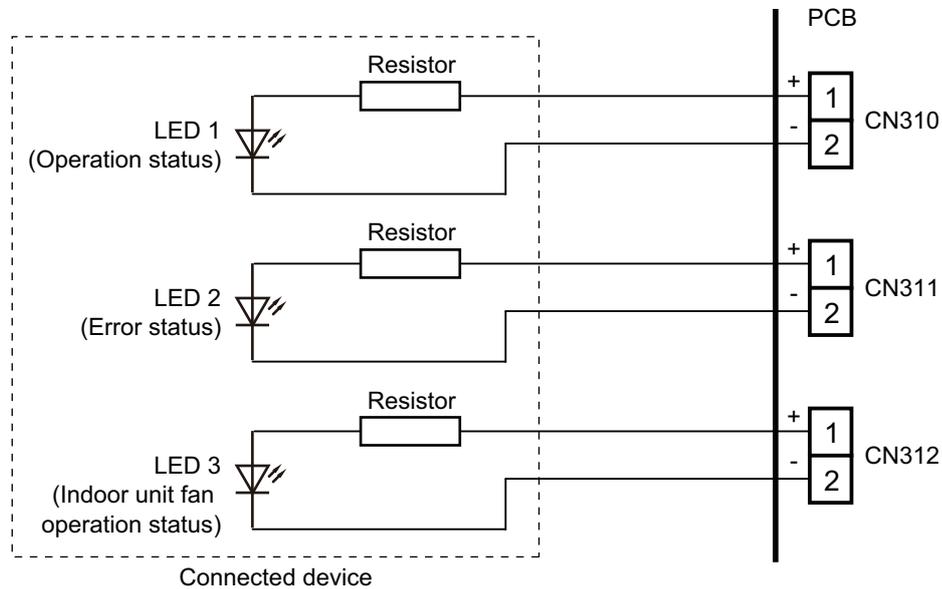
- **When connecting with a device equipped with a power supply**

Example: Function setting number 60 is set to "00"

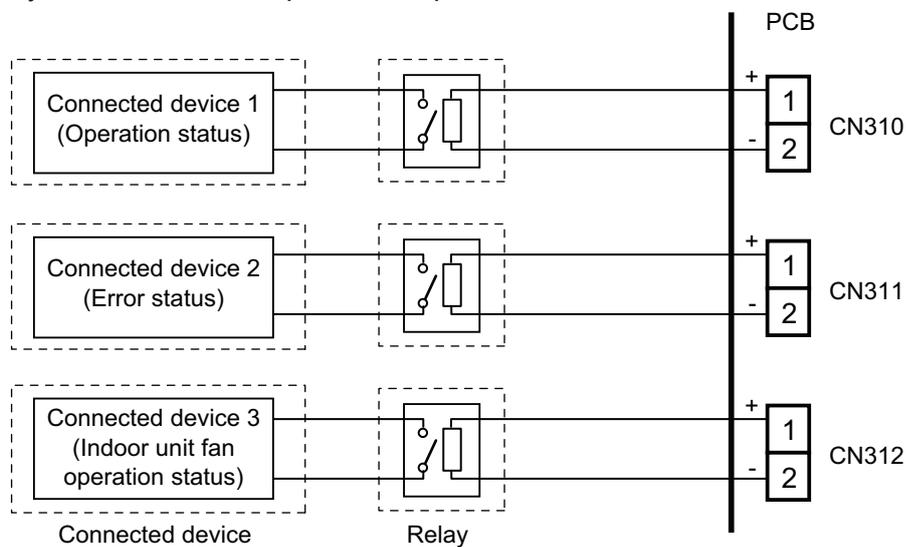


External input and output PCB

- A twisted pair cable should be used. Maximum length of cable is 25 m.
- Output voltage: High DC 12 V±2 V, Low 0 V.
- Permissible current: 50 mA
- For details, refer to "[Setting of external input and output](#)" on page 05-14.
- **When indicator or other components are connected directly:**
Example: Rotary SW on External input and output PCB is set to "1".



- **When connecting with a device equipped with a power supply:**
Example: Rotary SW on External input and output PCB is set to "1".



2-3. Setting of external input and output

- Indoor unit

Input		
Connection point	Function setting number 46	Function
CN46	00	Operation/Stop mode 1 (R.C. enabled)
	01	(Setting prohibited)
	02	Forced stop mode
	03	Operation/Stop mode 2 (R.C. disabled)

Output		
Connection point	Function setting number 60	Function
CN47	00	Operation status
	01 to 08	(Setting prohibited)
	09	Error status
	10	Indoor unit fan operation status
	11	(Setting prohibited)

- External input and output PCB

Switch setting		Input		Output		
Rotary switch	SW302	CN313	CN314	CN310	CN311	CN312
1	Edge	Operation/Stop	Not available	Operation status	Error status	Indoor unit fan status
	Pulse	Operation	Stop			
2	Edge*	Forced thermostat off	Not available	Error status	Indoor unit fan operation status	Not available
3 to 9, A		(Setting prohibited)				
B		Forced thermostat off	Not available	Operation status	Indoor unit fan operation status	Not available
C		Forced thermostat off	Not available	Operation status	Error status	Not available
D		(Setting prohibited)				

NOTES:

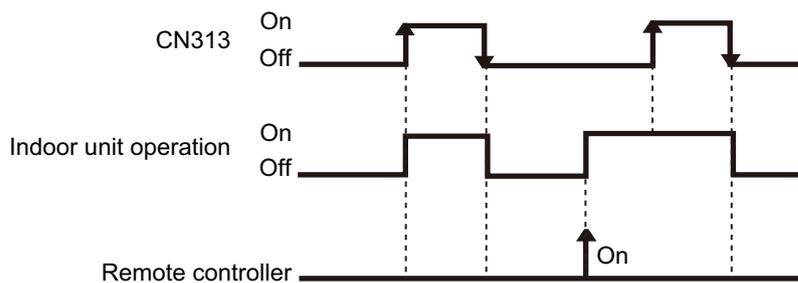
- When the rotary switch is selected to "1", the operation of the connector input of the indoor unit and the External input and output PCB input are the same. The operation content depends on the setting of function setting number 46.
- *: The external input other than "Operation/Stop" is available only when the SW302 is set to "Edge".

2-4. Details of control input function

■ Operation/Stop mode 1

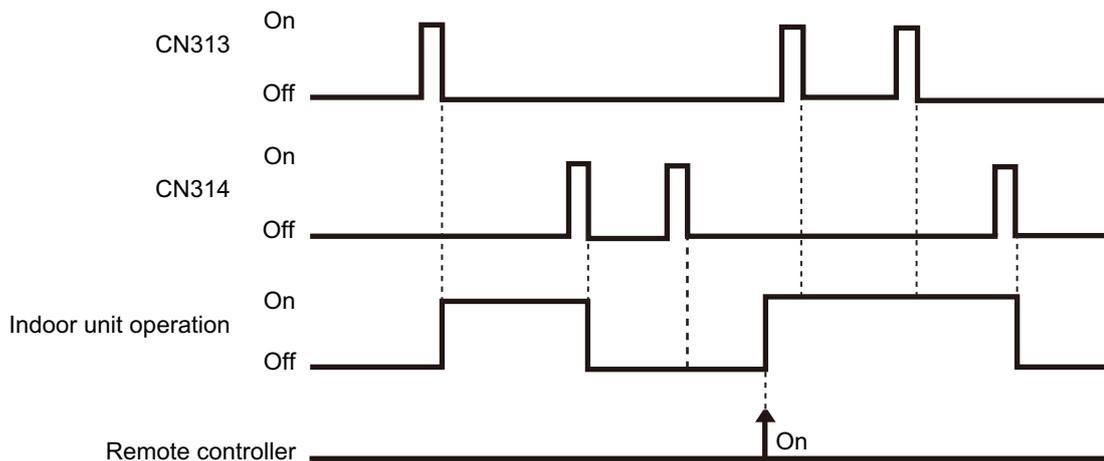
- In the case of "Edge" input

Function setting	External input and output PCB		External input	Input signal	Command	
	Rotary switch	SW302				
46-00	—		Input of indoor unit	CN46	Off → On	Operation
	—		Input of indoor unit	CN46	On → Off	Stop
	1	Edge	External input and output PCB	CN313	Off → On	Operation
					On → Off	Stop



- In the case of "Pulse" input

Function setting	External input and output PCB		External input	Input signal	Command
	Rotary switch	SW302			
46-00	1	Pulse	External input and output PCB	CN313	Operation
				CN314	Stop



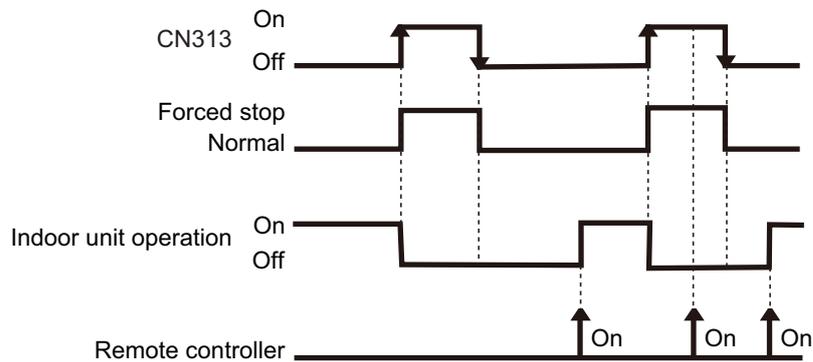
NOTES:

- The last command has priority.
- The indoor units within the same remote controller group operates in the same mode.

■ Forced stop

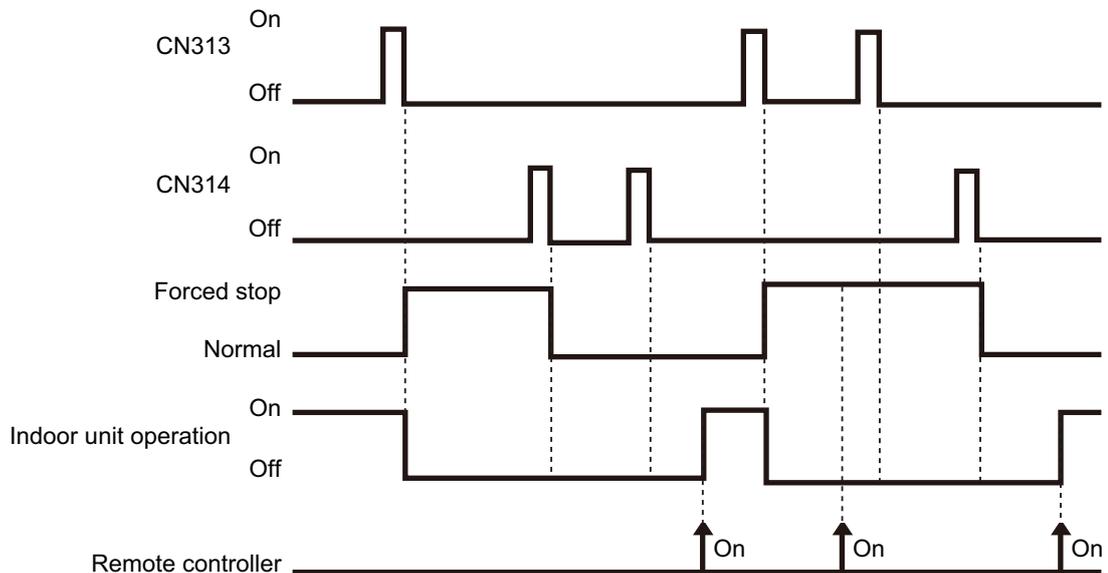
- In the case of "Edge" input

Function setting	External input and output PCB		External input		Input signal	Command
	Rotary switch	SW302				
46-02	—		Input of indoor unit	CN46	Off → On	Forced stop (R.C. disabled)
					On → Off	Normal (R.C. enabled)
	1	Edge	External input and output PCB	CN313	Off → On	Forced stop (R.C. disabled)
					On → Off	Normal (R.C. enabled)



- In the case of "Pulse" input

Function setting	External input and output PCB		External input		Input signal	Command
	Rotary switch	SW302				
46-02	1	Pulse	External input and output PCB	CN313	Pulse	Forced stop (R.C. disabled)
				CN314		Normal (R.C. enabled)



FIELD WORKING

FIELD WORKING

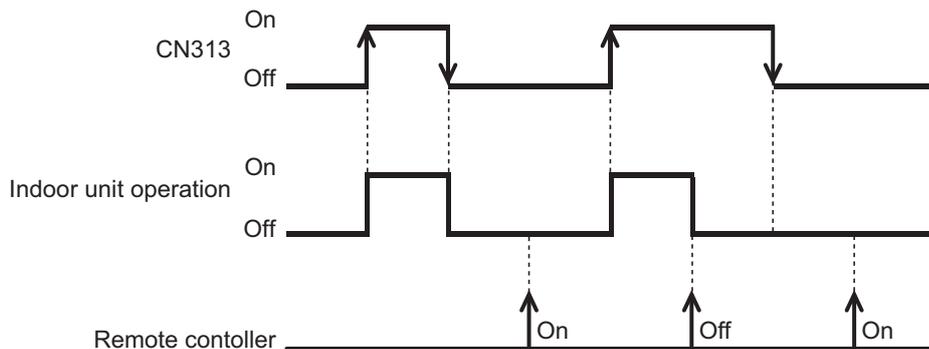
NOTES:

- When the forced stop is triggered, indoor unit stops and Operation/Stop operation by the remote controller is restricted.
- When forced stop function is used with forming a remote controller group, connect the same equipment to each indoor unit within the group.

■ Operation/Stop mode 2

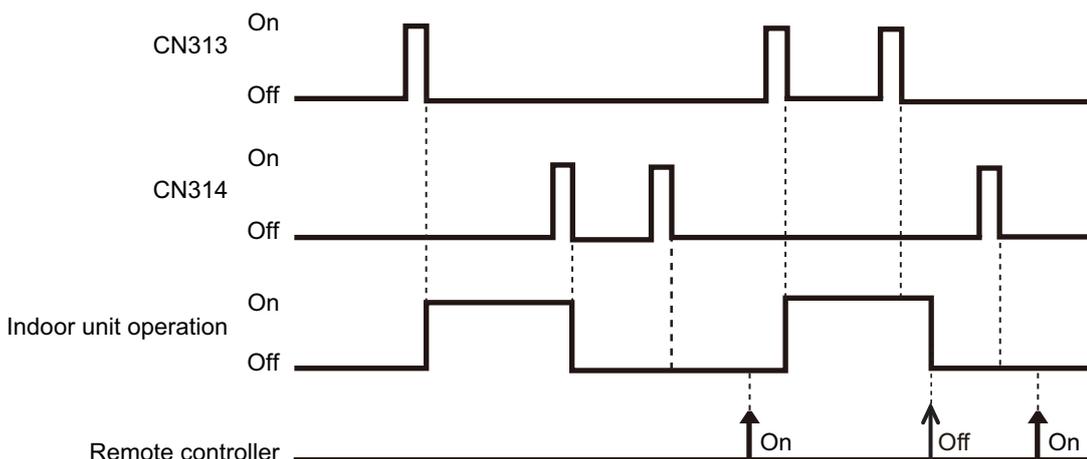
- In the case of “Edge” input

Function setting	External input and output PCB		External input		Input signal	Command
	Rotary switch	SW302				
46-03	—		Input of indoor unit	CN46	Off → On	Operation (R.C. enabled)
					On → Off	Stop (R.C. disabled)
	1	Edge	External input and output PCB	CN313	Off → On	Operation (R.C. enabled)
					On → Off	Stop (R.C. disabled)



- In the case of “Pulse” input

Function setting	External input and output PCB		External input		Input signal	Command
	Rotary switch	SW302				
46-03	1	Pulse	External input and output PCB	CN313	Pulse	Operation (R.C. enabled)
				CN314		Stop (R.C. disabled)



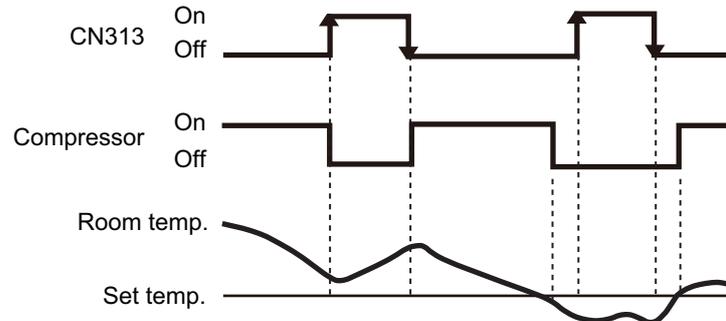
FIELD WORKING

FIELD WORKING

NOTE: When “Operation/Stop” mode 2 function is used with forming a remote controller group, connect the same equipment to each indoor unit within the group.

■ Forced thermostat off

External input and output PCB	External input		Input signal	Command
Rotary switch				
2, B, C	External input and output PCB	CN313	Off → On	Thermostat off
			On → Off	Normal operation

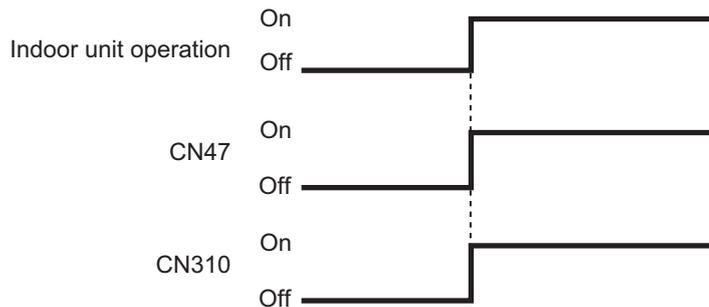


2-5. Details of control output function

■ Operation status

Function setting	External input and output PCB	External output		Output signal	Status
	Rotary switch				
60-00	1, 2	Output of indoor unit	CN47	Off → On	Operation
				On → Off	Stop
—	1, B, C	External input and output PCB	CN310	Off → On	Operation
				On → Off	Stop

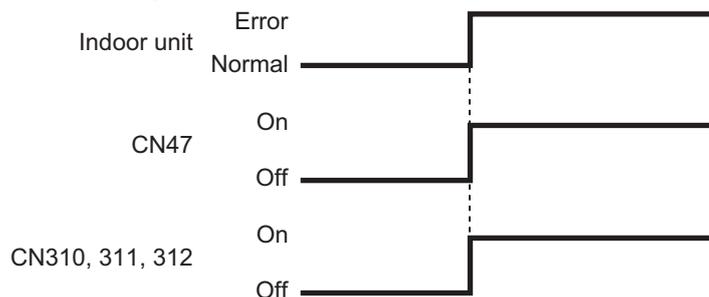
The output is low when the unit is stopped.



■ Error status

Function setting	External input and output PCB	External output		Output signal	Status
	Rotary switch				
60-09	—	Output of indoor unit	CN47	Off → On	Error
				On → Off	Normal
—	2	External input and output PCB	CN310	Off → On	Error
				On → Off	Normal
—	1, C	External input and output PCB	CN311	Off → On	Error
				On → Off	Normal

The output is on when an error is generated for the indoor unit.



■ Indoor unit fan operation status

Function setting	External input and output PCB	External output		Output signal	Status
	Rotary switch				
60-10	C	Output of indoor unit	CN47	Off → On	Fan run
				On → Off	Fan stop
—	2, B	External input and output PCB	CN311	Off → On	Fan run
				On → Off	Fan stop
—	1	External input and output PCB	CN312	Off → On	Fan run
				On → Off	Fan stop

Output signal	Condition
On	The indoor unit fan is operating.
Off	The fan is stopped or during cold air prevention. During thermostat off when in dry mode operation.

