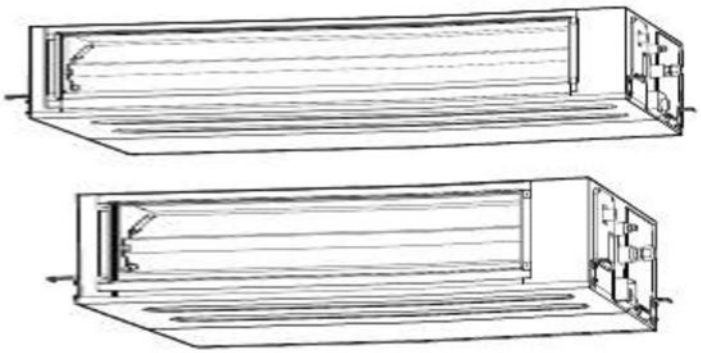
atlantic

EN

Servicehandleiding

SHOGUN INBOUW UNITS
KML serie

Binnenunit:	Buitenunit:
ARXG 36 KMLA	AOYG 36 KRTA
ARXG 45 KMLA	AOYG 45 KRTA



Voor gebruik door de professional.
Te bewaren door de gebruiker voor toekomstig gebruik.

FUJITSU

REFRIGERANT R32
INVERTER

AIR CONDITIONER

Duct type

SERVICE MANUAL

INDOOR		
	ARXG36KMLA ARXG45KMLA	
OUTDOOR		
	AOYG36KRTA	AOYG45KRTA

FUJITSU GENERAL LIMITED

SR_AR014EF_05
2021.06.15

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

REFRIGERANT R32
INVERTER

1. GENERAL INFORMATION

2021.05.21
SR_CH01_AR014EF_03

CONTENTS

1. GENERAL INFORMATION

GENERAL INFORMATION

1. Specifications

1-1. Indoor unit

Type					Inverter heat pump	
Model name					ARXG36KMLA	ARXG45KMLA
Power supply					3N 400 V ~ 50 Hz	
Power supply intake					Outdoor unit	
Available voltage range					342—457 V	
Capacity	Cooling	Rated		kW	9.5	12.1
				Btu/h	32,400	41,300
		Min.—Max.		kW	2.8—11.2	4.0—13.0
				Btu/h	9,600—38,200	13,600—44,300
	Heating	Rated		kW	10.8	13.5
				Btu/h	36,900	46,100
		Min.—Max.		kW	2.7—12.7	4.2—15.2
				Btu/h	9,200—43,300	14,300—51,800
Input power	Cooling	Rated		kW	2.97	4.22
		Max.			4.29	5.03
	Heating	Rated			2.88	3.84
		Max.			4.66	4.79
Current	Cooling	Rated		A	5.7	7.7
	Heating				5.6	7.1
Power factor	Cooling			%	75.4	79.6
	Heating				75.1	78.2
EER		Cooling		kW/kW	3.20	2.87
COP		Heating			3.75	3.52
Moisture removal				L/h (pints/h)	3.0 (5.3)	4.0 (7.0)
Maximum operating current *1		Cooling		A	10.5	14.0
		Heating			10.5	14.0
Fan	Airflow rate	Cooling	HIGH	m^3/h	1,900	2,100
			MED		1,620	1,750
			LOW		1,270	1,350
			QUIET		980	1,070
		Heating	HIGH		2,100	
			MED		1,620	1,750
			LOW		1,270	1,350
			QUIET		980	1,070
	Type × Q'ty				Sirocco × 2	
	Motor output			W	197	
Static pressure range				Pa	30 to 150	
Sound pressure level *2		Cooling	HIGH	dB (A)	39	42
			MED		35	38
			LOW		30	32
			QUIET		26	28
		Heating	HIGH		42	42
			MED		35	38
			LOW		30	32
			QUIET		26	28
Sound power level		Cooling	HIGH	dB (A)	65	68
		Heating			70	70
Heat exchanger type		Dimensions (H × W × D)		mm	294 × 1,000 × 39.9	294 × 1,000 × 53.2
		Fin pitch			1.40	
		Rows × Stages			3 × 14	4 × 14
		Pipe type			Copper	
		Fin type			Aluminum	
Enclosure		Material			Steel sheet	
		Color			—	
Dimensions (H × W × D)	Net			mm	270 × 1,135 × 700	
	Gross				300 × 1,320 × 790	
Weight	Net			kg	38	39
	Gross				45	47
Connection pipe	Size	Liquid		mm (in)	Ø9.52 (3/8)	
		Gas			Ø15.88 (5/8)	
	Method				Flare	
Drain port	Material				Steel	
	Tip diameter			mm	Ø35.7 (I.D.), Ø38.1 (O.D.)	
Operation range		Cooling		°C	18 to 32	
				%RH	80 or less	
		Heating		°C	16 to 30	
Remote control (Option)					Wired remote controller, Wireless remote controller, Mobile app*3 (FGLair™)	

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.
  - Standard static pressure; 36 type: 47 Pa, 45 type: 60 Pa
  - 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:
  - 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.
- This data is based on EN 14511 standard.

GENERAL INFORMATION

Specifications for ErP Lot10			
Model name			**ARXG36KMLA**
Energy efficiency class	Cooling		A^{++}
	Heating (Average)		A^{+}
Pdesign	Cooling	kW	9.5 (35°C)
	Heating (Average)		8.7 (-10°C)
SEER	Cooling	kWh/kWh	6.10
SCOP	Heating (Average)		4.00
Annual energy consumption	QCE	kWh/a	545
	QHE (Average)		3,044

GENERAL INFORMATION

1-2. Outdoor unit

Type				Inverter heat pump
Model name				**AOYG36KRTA**
Power supply				3N 400 V ~ 50 Hz
Power supply intake				Outdoor unit
Available voltage range				342—457 V
Starting current			A	5.7
Fan	Airflow rate	Cooling	m^3/h	3,750
		Heating		3,750
	Type × Q'ty			Propeller × 1
	Motor output		W	100
Sound pressure level *1		Cooling	dB (A)	55
		Heating		55
Sound power level		Cooling	dB (A)	70
		Heating		70
Heat exchanger type		Dimensions (H × W × D)	mm	Main1: 756 × 905 × 18.20 Main2: 756 × 905 × 18.20
		Fin pitch		Main1: 1.45 Main2: 1.45
		Rows × Stages		Main1: 1 × 36 Main2: 1 × 36
		Pipe type		Copper
		Fin	Type (Material)	Aluminum
			Surface treatment	Blue fin
Compressor	Type			DC twin rotary
	Motor output		W	1,500
Refrigerant		Type (Global warming potential)		R32 (675)
		Factory charge	g	1,900
Refrigerant oil		Type		FW68D
		Amount	cm^3	600
Enclosure		Material		Steel sheet
		Color		Beige Approximate color of Munsell 10YR 7.5/1.0
Dimensions (H × W × D)	Net		mm	788 × 940 × 320
	Gross			966 × 1,027 × 445
Weight	Net		kg	53
	Gross			62
Connection pipe	Size	Liquid	mm (in)	Ø 9.52 (3/8)
		Gas		Ø 15.88 (5/8)
	Method			Flare
	Pre-charge length		m	30
	Max. length			50
	Max. height difference			30
Operation range		Cooling	°C	-15 to 46
		Heating		-15 to 24
Drain hose		Material		LDPE
		Tip diameter	mm	Ø 13.0 (I. D.), Ø 16.0 to Ø 16.7 (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: 5.0 m, Height difference: 0 m. (Between outdoor unit and indoor unit.)
- 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.
- This data is based on EN 14511 standard.

GENERAL INFORMATION

Type				Inverter heat pump
Model name				**AOYG45KRTA**
Power supply				3N 400 V ~ 50 Hz
Power supply intake				Outdoor unit
Available voltage range				342—457 V
Starting current			A	7.7
Fan	Airflow rate	Cooling	m^3/h	4,450
		Heating		4,450
	Type × Q'ty			Propeller × 1
	Motor output		W	120
Sound pressure level *1		Cooling	dB (A)	57
		Heating		57
Sound power level		Cooling	dB (A)	71
		Heating		71
Heat exchanger type		Dimensions (H × W × D)	mm	Main1: 966 × 905 × 18.20 Main2: 966 × 905 × 18.20 Sub: 966 × 543 × 18.20
		Fin pitch		Main1: 1.45 Main2: 1.45 Sub: 1.45
		Rows × Stages		Main1: 1 × 46 Main2: 1 × 46 Sub: 1 × 46
		Pipe type		Copper
		Fin	Type (Material)	Aluminum
			Surface treatment	Blue fin
Compressor	Type			DC twin rotary
	Motor output		W	2,180
Refrigerant		Type (Global warming potential)		R32 (675)
		Factory charge	g	2,700
Refrigerant oil		Type		RmM68AF
		Amount	cm^3	800
Enclosure		Material		Steel sheet
		Color		Beige Approximate color of Munsell 10YR 7.5/1.0
Dimensions (H × W × D)	Net		mm	998 × 940 × 320
	Gross			1,176 × 1,027 × 445
Weight	Net		kg	67
	Gross			77
Connection pipe	Size	Liquid	mm (in)	Ø 9.52 (3/8)
		Gas		Ø 15.88 (5/8)
	Method			Flare
	Pre-charge length		m	30
	Max. length			50
	Max. height difference			30
Operation range		Cooling	°C	-15 to 46
		Heating		-15 to 24
Drain hose		Material		LDPE
		Tip diameter	mm	Ø 13.0 (I. D.), Ø 16.0 to Ø 16.8 (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: 5.0 m, Height difference: 0 m. (Between outdoor unit and indoor unit.)
- 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.
- This data is based on EN 14511 standard.

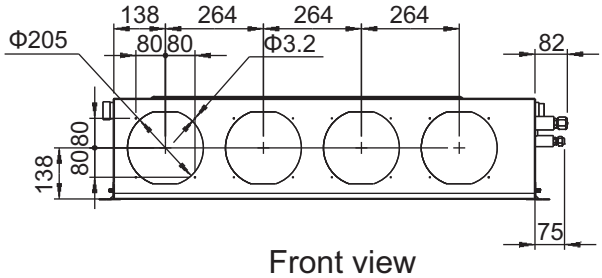
GENERAL INFORMATION

2. Dimensions

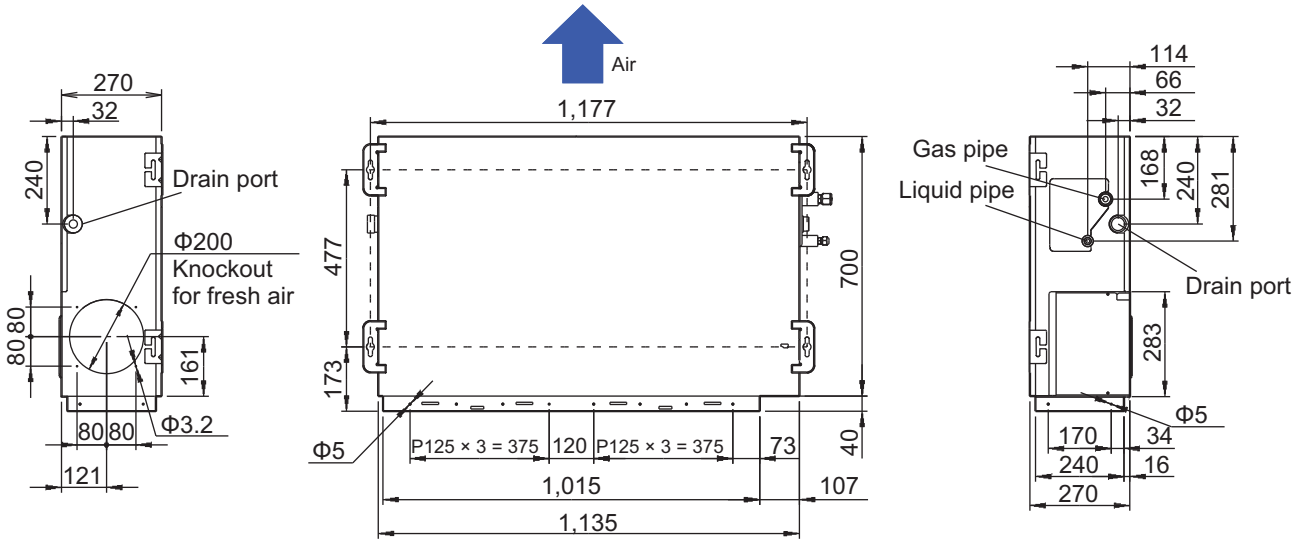
2-1. Indoor unit

■ Models: ARXG36KMLA and ARXG45KMLA

Unit: mm



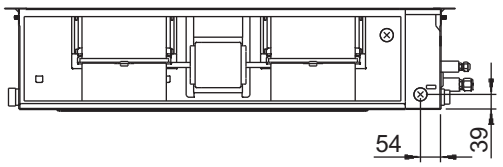
Front view



Side view (L)

Top view

Side view (R)



Rear view

GENERAL INFORMATION

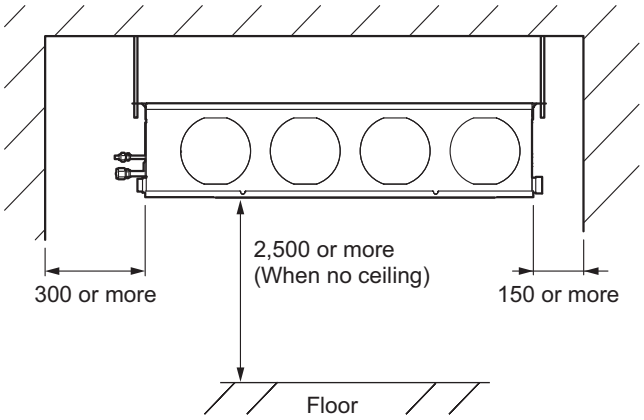
■ Installation space requirement

Provide sufficient installation space for product safety.

NOTE: The detailed component shape depends on the model.

● Models: ARXG36KMLA and ARXG45KMLA

Unit: mm

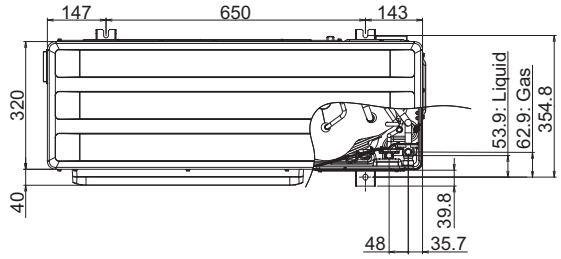


GENERAL INFORMATION

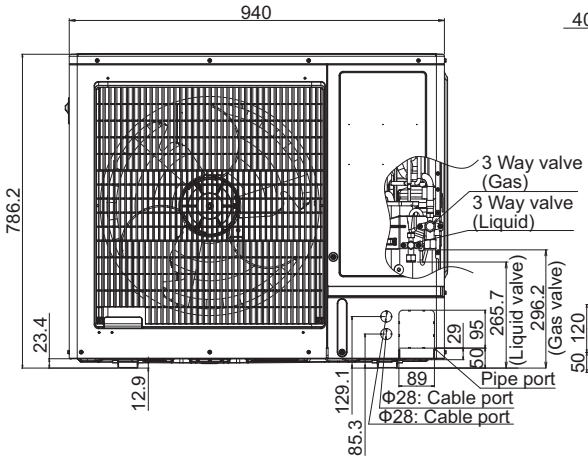
2-2. Outdoor unit

■ Model: AOYG36KRTA

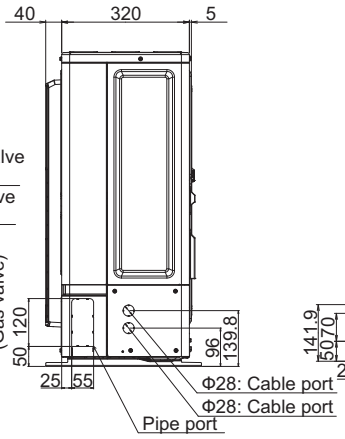
Unit: mm



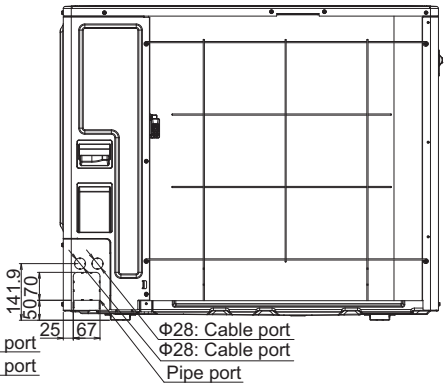
Top view



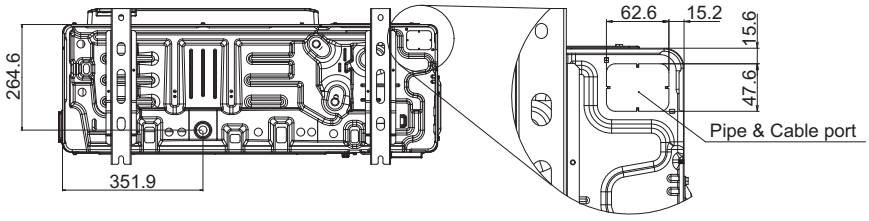
Front view



Side view



Rear view

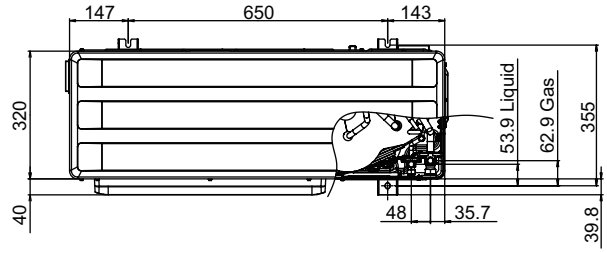


Bottom view

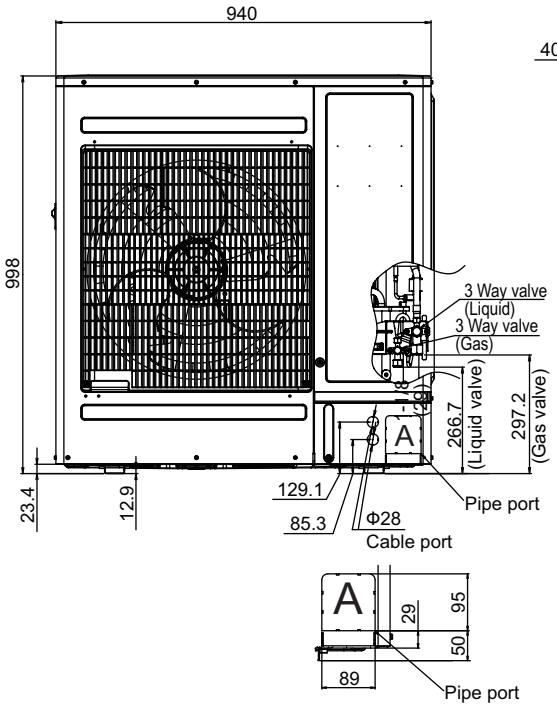
GENERAL INFORMATION

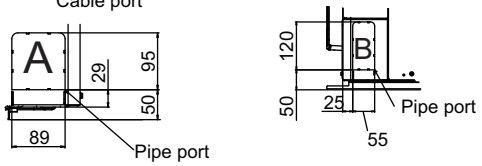
■ Model: AOYG45KRTA

Unit: mm

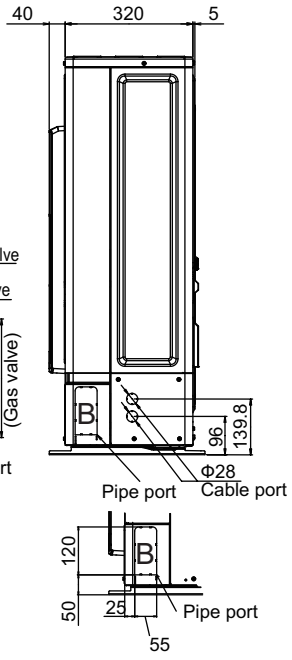


Top view

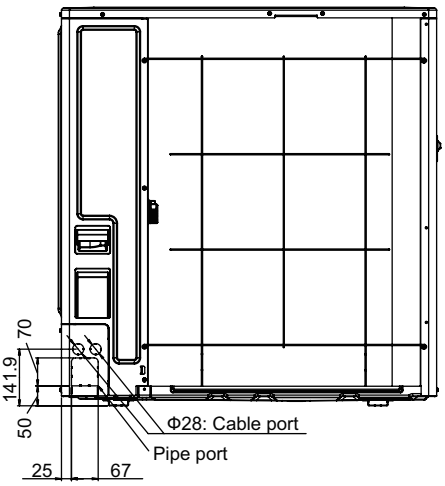




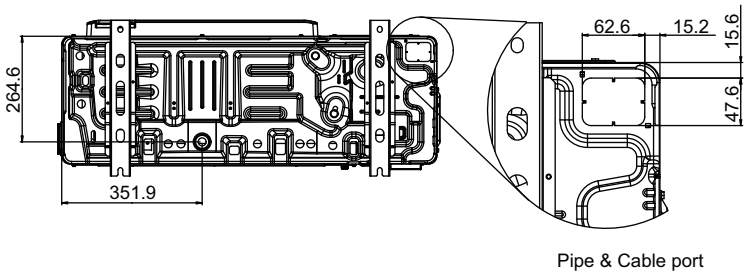
Front view



Side view



Rear view



Bottom view

REFRIGERANT R32
INVERTER

2. TECHNICAL DATA AND PARTS LIST

2021.06.15
SR_CH02_AR014EF_05

CONTENTS

2. TECHNICAL DATA AND PARTS LIST

TECHNICAL DATA AND PARTS LIST

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.

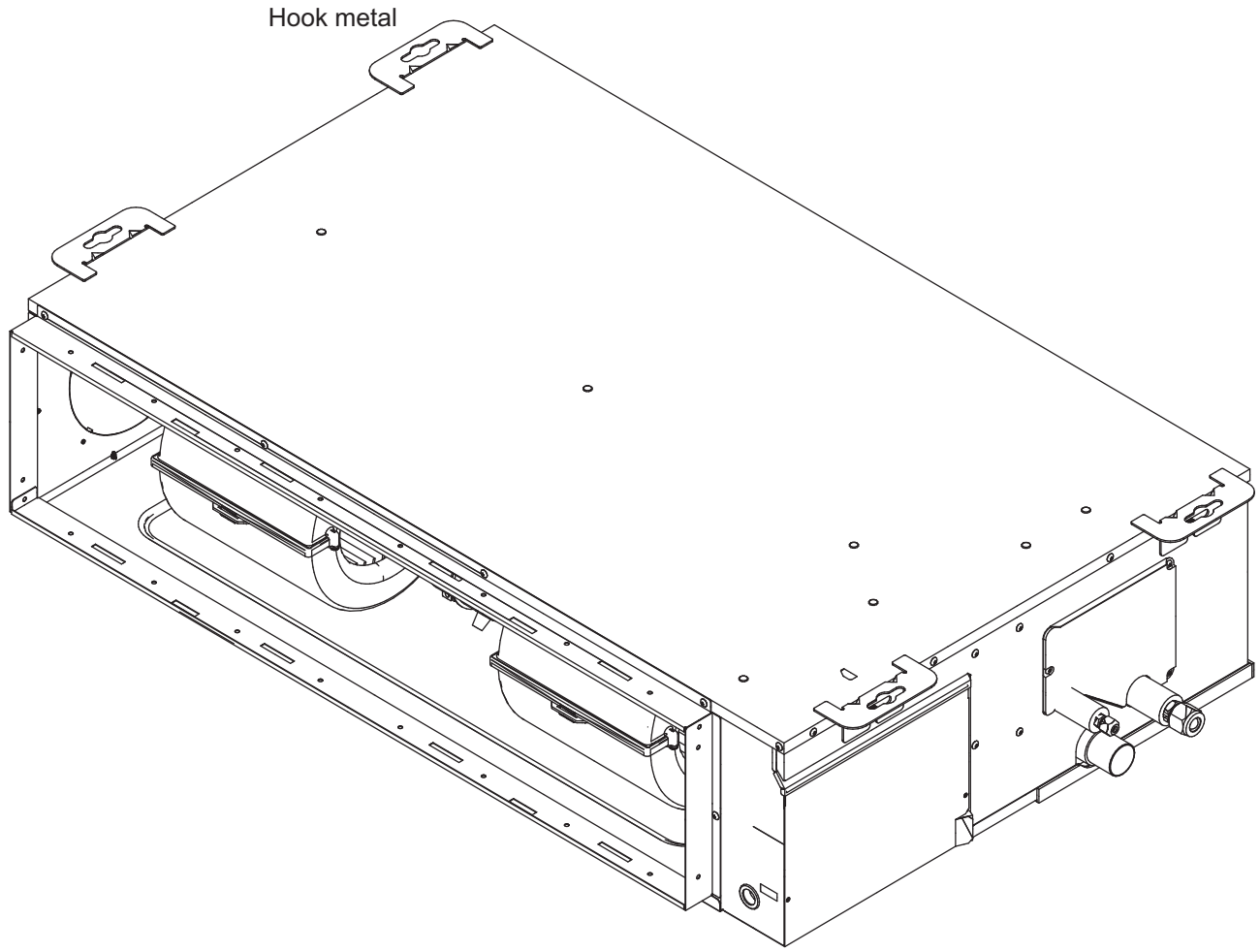
- Service parts information and design are subject to change without notice for product improvement.
- For the latest information of the service parts, refer to our Service Portal.
  https://fujitsu-general.force.com/portal/
- Precise figure of the service parts listed in this manual may differ from the actual service parts.

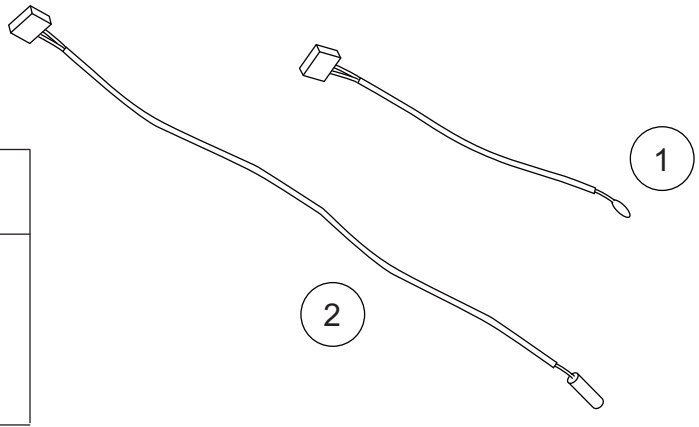
TECHNICAL DATA AND PARTS LIST

2. Indoor unit parts list

2-1. Models: ARXG36KMLA and ARXG45KMLA

■ Thermistors

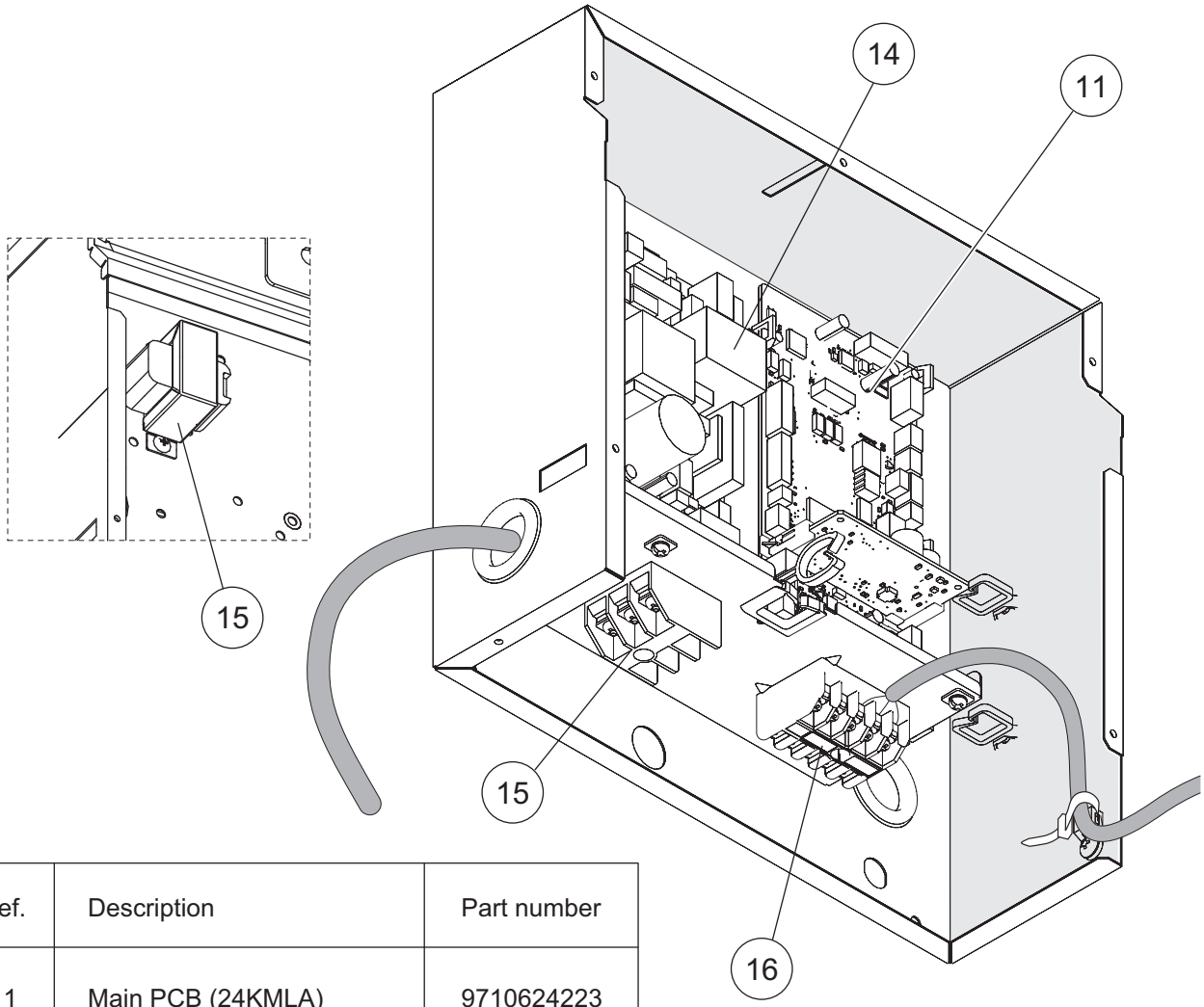




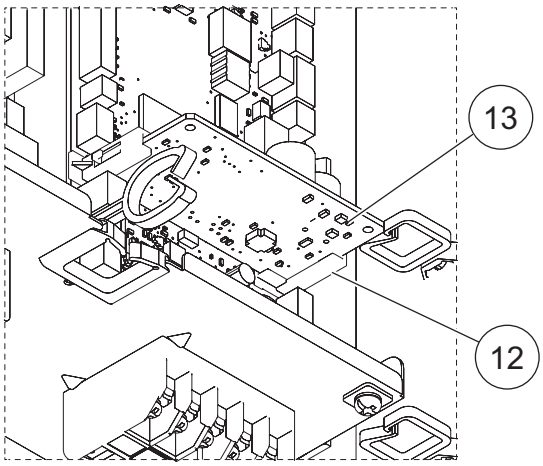
Ref.	Description	Part number
1	Room thermistor	9900826048
2	Pipe thermistor	9900942045

TECHNICAL DATA AND PARTS LIST

■ Main PC board

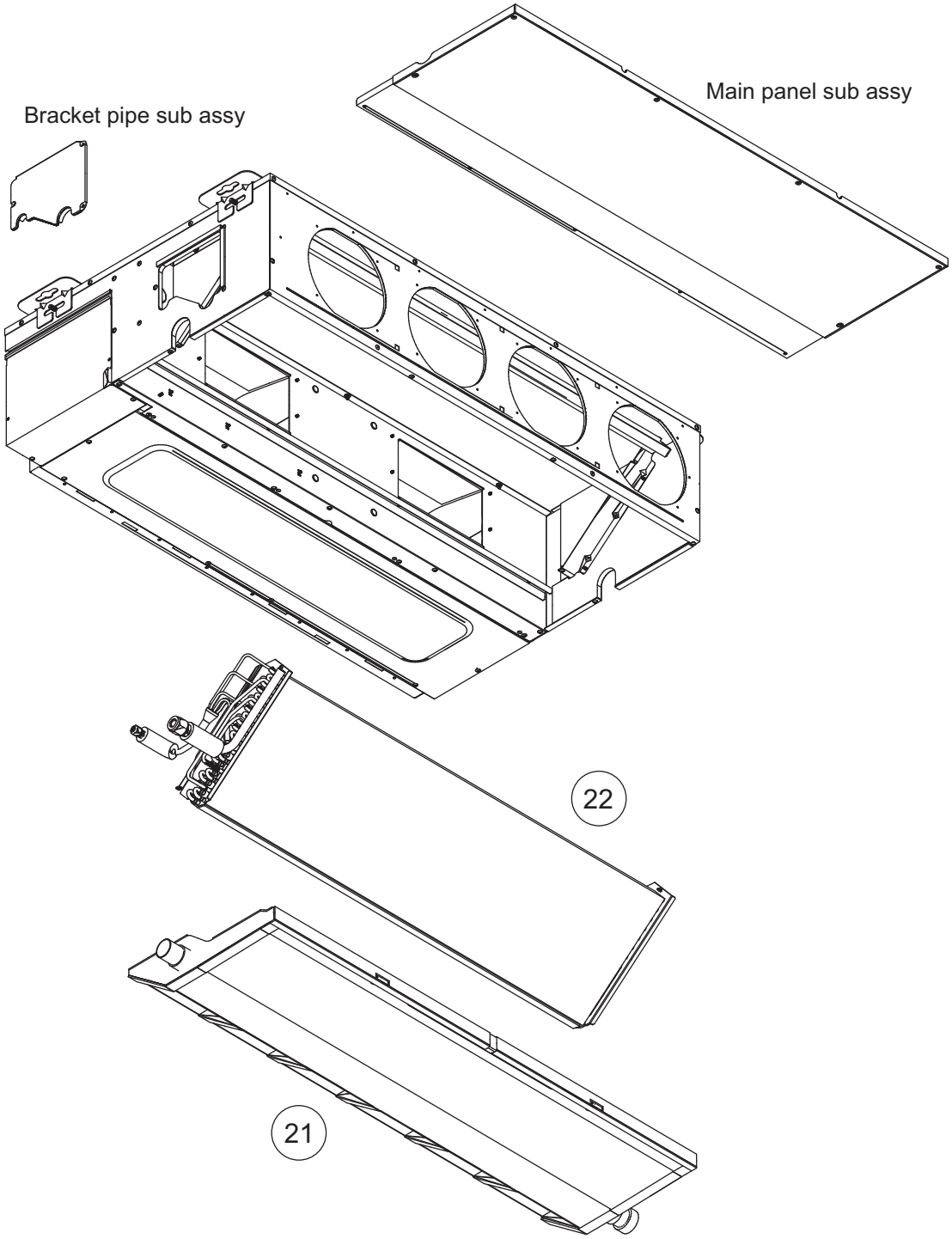


Ref.	Description	Part number
11	Main PCB (24KMLA)	9710624223
11	Main PCB (30KMLA)	9710624230
11	Main PCB (36KMLA)	9710624247
11	Main PCB (45KMLA)	9710624254
12	Holder	0600063023
13	Communication PCB	9710019005
14	Power supply PCB	9710661013
15	Terminal 3P	9306489045
16	Terminal 5P	9900896003
17	Reactor assy	9707457049



TECHNICAL DATA AND PARTS LIST

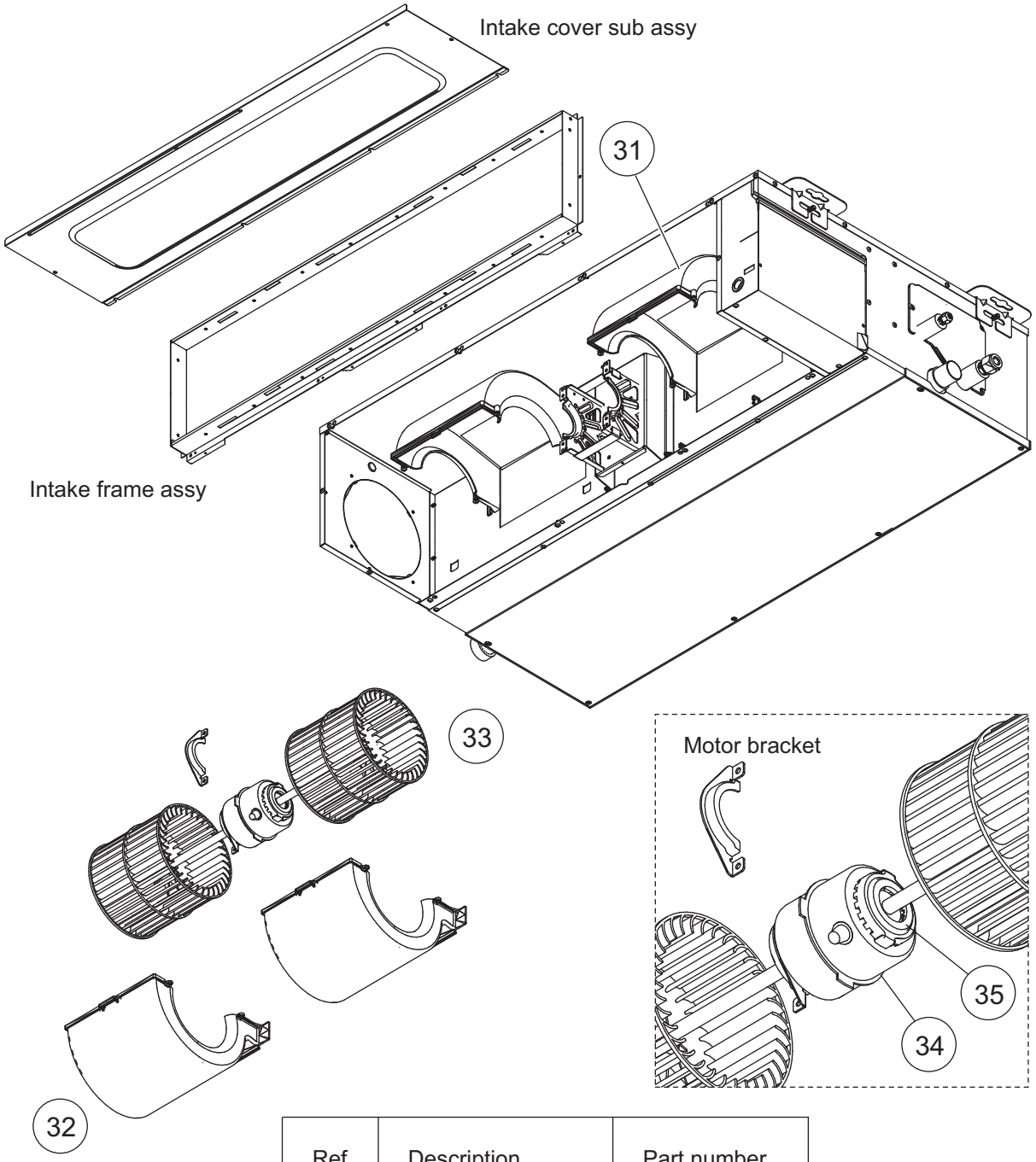
■ Evaporator



Ref.	Description	Part number
21	Drain pan sub assy	9374513017
22	Evaporator Total Assy (24KMLA)	9374517978
22	Evaporator Total Assy (30, 36KMLA)	9383816048
22	Evaporator Total Assy (45KMLA)	9383816031

TECHNICAL DATA AND PARTS LIST

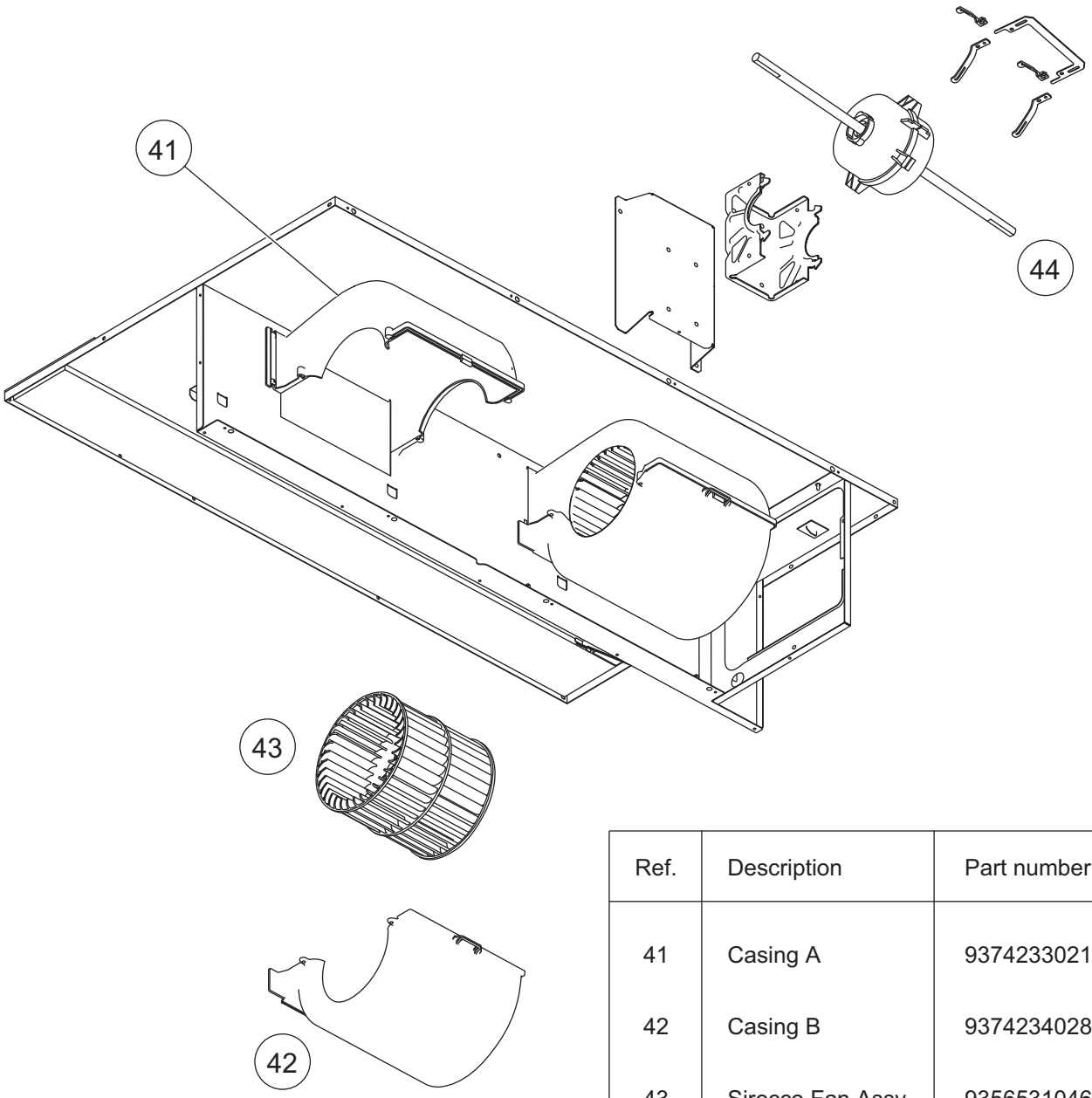
■ Casing and fan



Ref.	Description	Part number
31	Casing A	9374233021
32	Casing B	9374234028
33	Sirocco fan assy	9356531060
34	Fan motor assy	9380718031
35	Rubber	9385102002

TECHNICAL DATA AND PARTS LIST

■ Casing and fan



Ref.	Description	Part number
41	Casing A	9374233021
42	Casing B	9374234028
43	Sirocco Fan Assy	9356531046
44	Fan Motor	9603213015

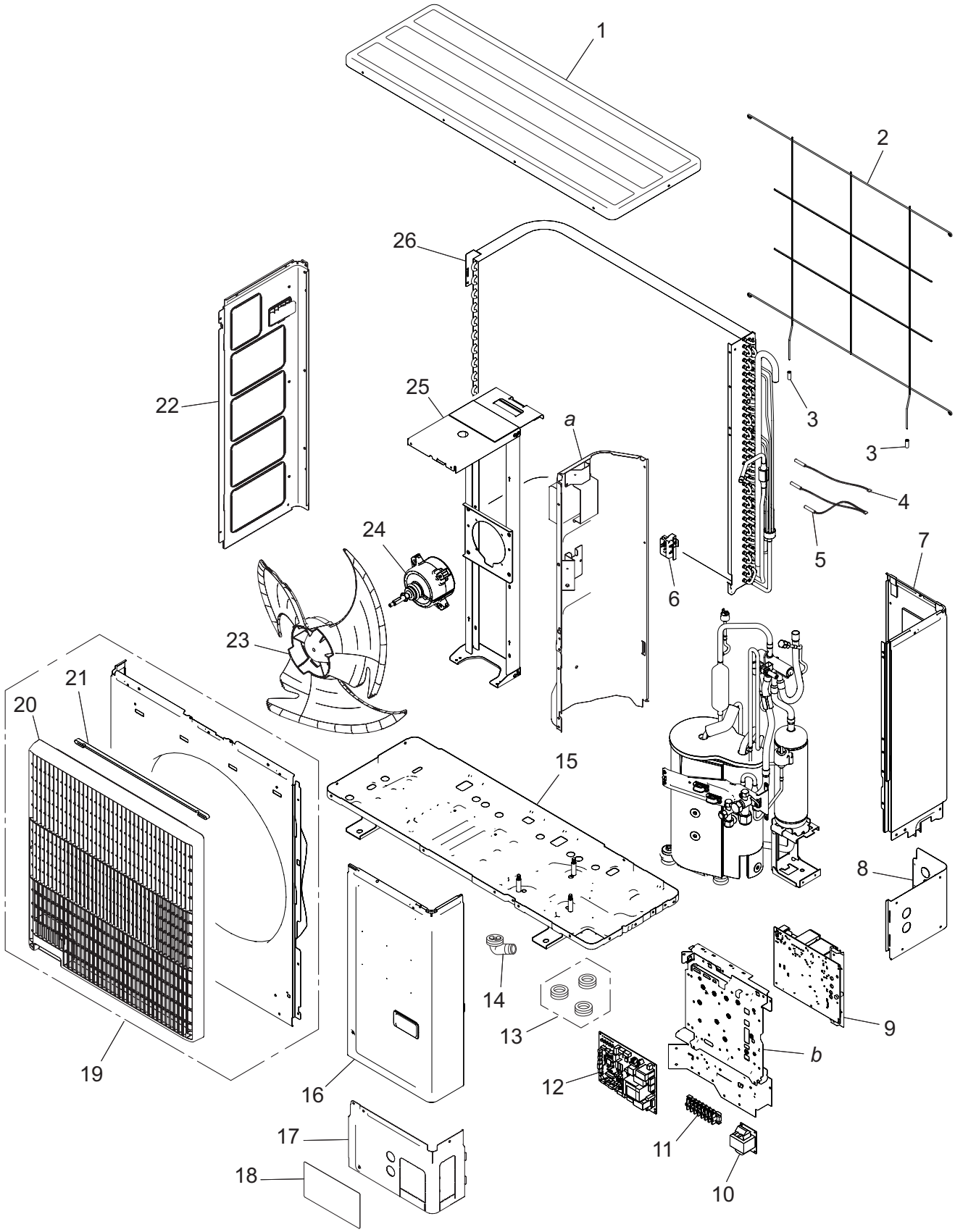
TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA AND PARTS LIST

3. Outdoor unit parts list

3-1. Model: AOYG36KRTA

■ Exterior parts and chassis

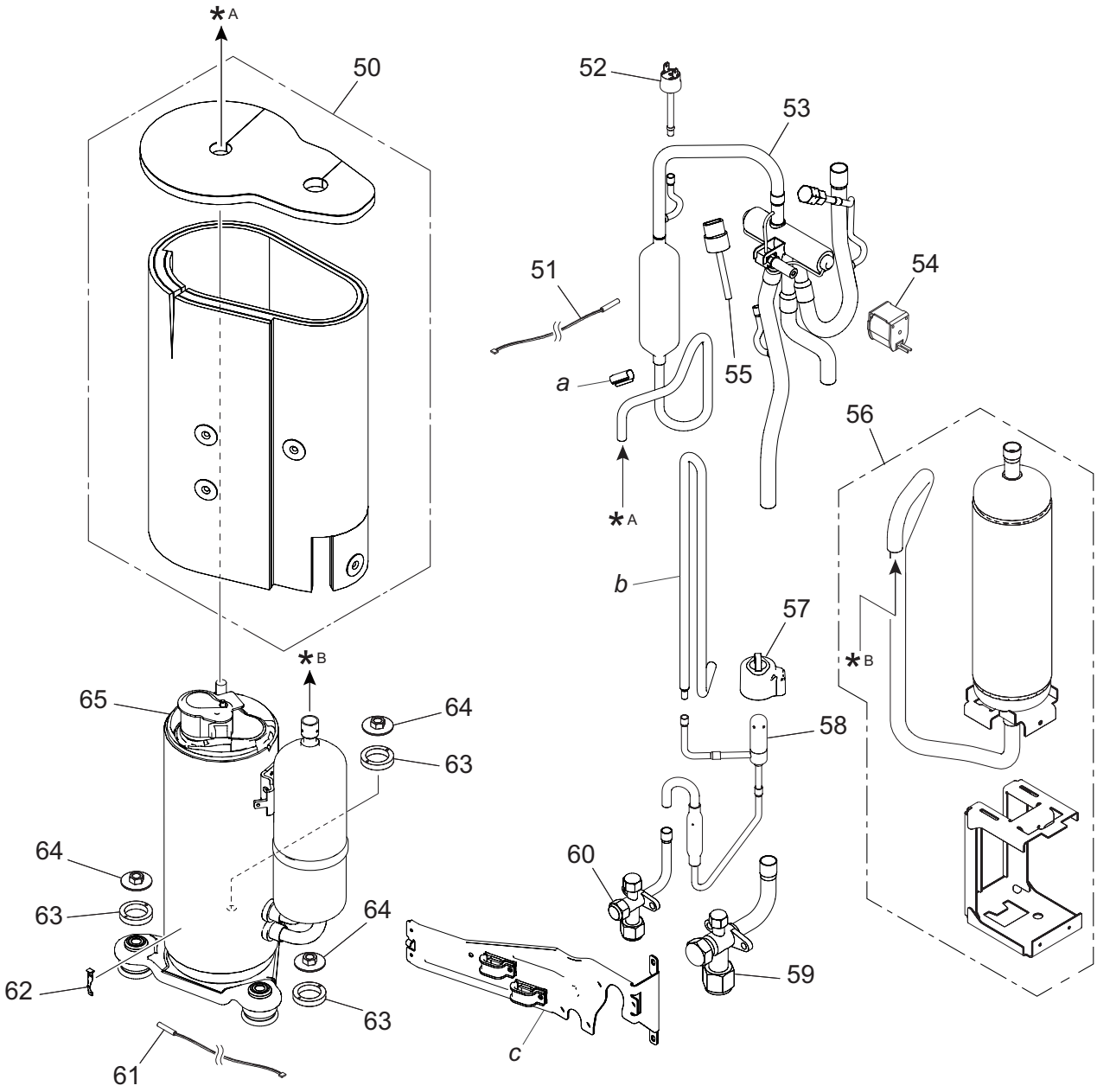


TECHNICAL DATA AND PARTS LIST

Item no.	Part no.	Part name	Service part
1	9383880001	Top panel assy	♦
2	9383779008	Protective net	♦
3	9375361013	Net rubber	♦
4	9900984038	Thermistor (Heat exchanger)	♦
5	9900727154	Thermistor assy	♦
6	9383607004	Thermo holder	♦
7	9383874000	Right panel sub assy	♦
8	9383879005	Rear pipe cover	♦
9	9709684139	Inverter PCB	♦
10	9900634025	Reactor assy	♦
11	9901053016	Terminal	♦
12	9711431318	Main PCB (Service)	♦
13	313166024302	Drain cap	♦
14	9303029015	Drain assy	♦
15	9350255009	Base assy (Service)	♦
16	9383876004	Service panel sub assy	♦
17	9383878008	Front pipe cover	♦
18	9351355005	Emblem rear	♦
19	9383863004	Front panel assy	♦
20	9383604003	Blow grille	♦
21	9383689000	Blow grille insulation	♦
22	9383882005	Left panel sub assy	♦
23	9383336003	Propeller fan	♦
24	9603732011	Brushless motor	♦
25	9383862007	Motor bracket assy	♦
26	9374420612	Condenser sub assy	♦
a	—	Separate wall assy	—
b	—	Control box unit	—

TECHNICAL DATA AND PARTS LIST

■ Compressor



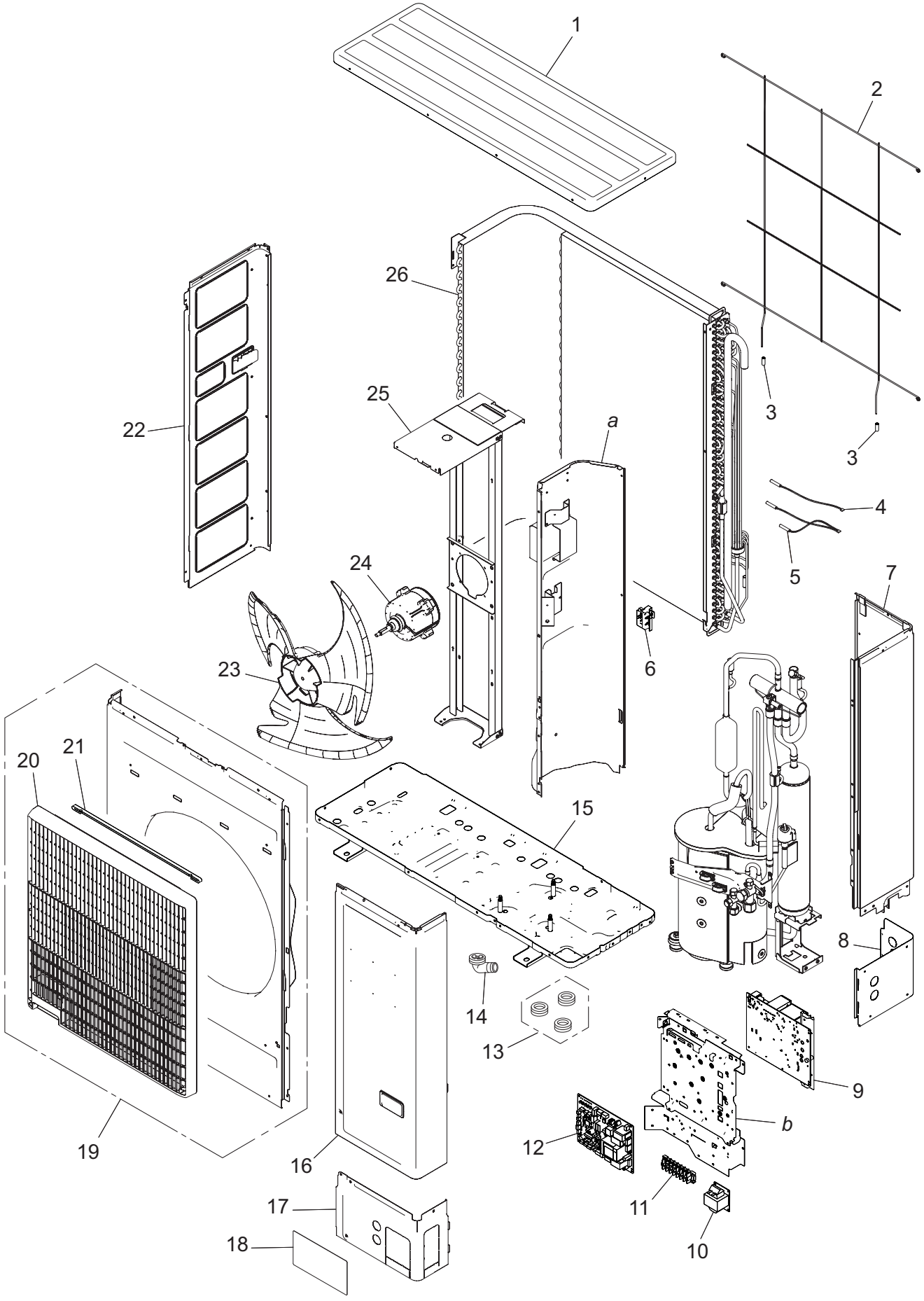
TECHNICAL DATA AND PARTS LIST

Item no.	Part no.	Part name	Service part
50	9383858000	Sound insulation unit	♦
51	9900565091	Thermistor (Outdoor temp.)	♦
52	9900186029	Pressure switch	♦
53	9374425631	4-way valve assy	♦
54	9970194016	Solenoid	♦
55	9970158018	Sensor	♦
56	9384848017	Accumulator assy (service)	♦
57	9970209000	Expansion valve coil	♦
58	9370947328	Expansion valve assy	♦
59	9379079013	3-way valve assy	♦
60	9377958037	3-way valve assy	♦
61	9900985035	Thermistor (Compressor)	♦
62	9810028006	Thermistor stopper	♦
63	9379179072	Rubber washer E	♦
64	9377973016	Special nut	♦
65	9383821011	Compressor assy	♦
a	—	Thermostat holder	—
b	—	Joint pipe D	—
c	—	Wiring fixation unit	—

TECHNICAL DATA AND PARTS LIST

3-2. Model: AOYG45KRTA

■ Exterior parts and chassis

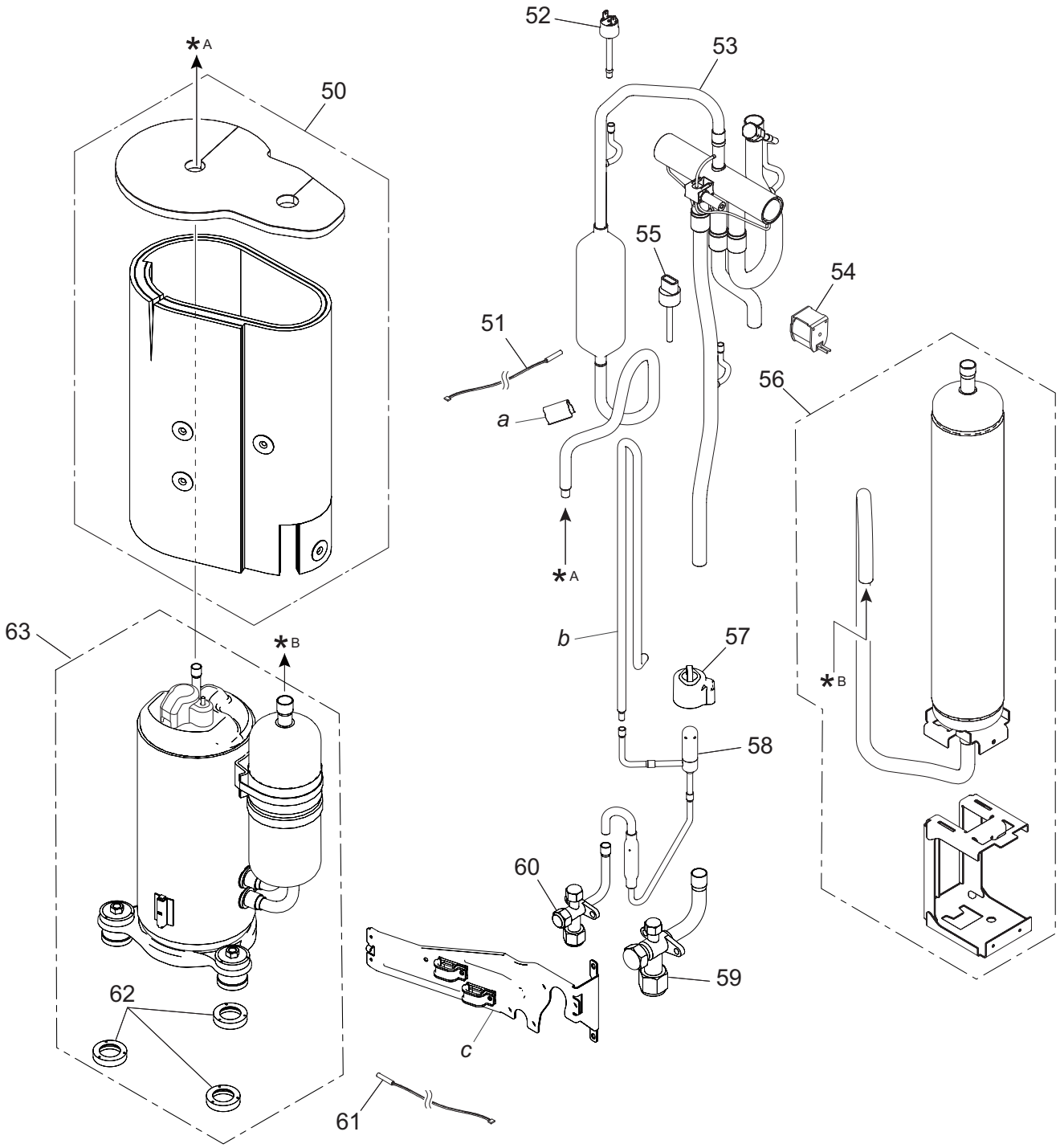


TECHNICAL DATA AND PARTS LIST

Item no.	Part no.	Part name	Service part
1	9383880001	Top panel assy	♦
2	9381013005	Protective net	♦
3	9375361013	Net rubber	♦
4	9900984038	Thermistor (Heat exchanger)	♦
5	9900727154	Thermistor assy	♦
6	9383607004	Thermo holder	♦
7	9383874017	Right panel sub assy	♦
8	9383879005	Rear pipe cover	♦
9	9709684146	Inverter PCB	♦
10	9900634025	Reactor assy	♦
11	9901053016	Terminal	♦
12	9711431325	Main PCB (Service) (for 45 model)	♦
	9711431356	Main PCB (Service) (for 54 model)	♦
13	313166024302	Drain cap	♦
14	9303029015	Drain assy	♦
15	9350255009	Base assy (Service)	♦
16	9383876011	Service panel sub assy	♦
17	9383878008	Front pipe cover	♦
18	9351355005	Emblem rear	♦
19	9383863011	Front panel assy	♦
20	9383604003	Blow grille	♦
21	9383689000	Blow grille insulation	♦
22	9383882012	Left panel sub assy	♦
23	9383336003	Propeller fan	♦
24	9603733018	Brushless motor	♦
25	9383862014	Motor bracket assy	♦
26	9374420605	Condenser sub assy	♦
a	—	Separate wall assy	—
b	—	Control box unit	—

TECHNICAL DATA AND PARTS LIST

■ Compressor



TECHNICAL DATA AND PARTS LIST

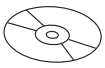
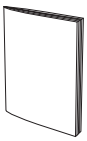
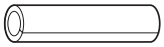
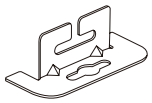
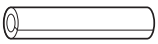
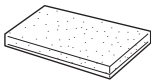
Item no.	Part no.	Part name	Service part
50	9383858017	Sound insulation unit	♦
51	9900565091	Thermistor (Outdoor temp.)	♦
52	9900186029	Pressure switch	♦
53	9374425624	4-way valve assy	♦
54	9970194016	Solenoid	♦
55	9970158018	Sensor	♦
56	9384848000	Accumulator assy (Service)	♦
57	9970209000	Expansion valve coil	♦
58	9370947311	Expansion valve assy	♦
59	9379079013	3-way valve assy	♦
60	9377958037	3-way valve assy	♦
61	9900985028	Thermistor (Compressor)	♦
62	9379179089	Rubber washer F	♦
63	9383851131	Compressor unit	♦
a	—	Thermistor spring	—
b	—	Joint pipe D	—
c	—	Wiring fixation unit	—

TECHNICAL DATA AND PARTS LIST

4. Accessories

4-1. Indoor unit

■ Models: ARXG36KMLA and ARXG45KMLA

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Operating manual		1	Cable tie (medium)		1
Operating manual (CD-ROM)		1	Cable tie (small)		1
Installation manual		1	Coupler heat insulation (large)		1
Hanger		4	Coupler heat insulation (small)		1
Drain hose insulation		1	M10 nut A (with flange)		4
Cable tie (large)		1	M10 nut B (with spring lock washer)		4

4-2. Outdoor unit

■ Models: AOYG36KRTA and AOYG45KRTA

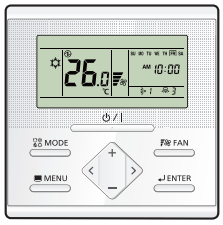
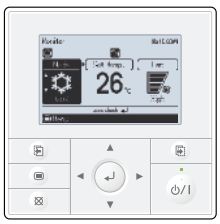
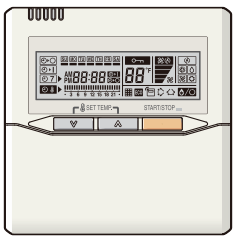
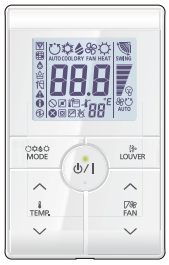
Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Installation manual		1	Drain cap		3
Drain pipe		1	One-touch bush		2

TECHNICAL DATA AND PARTS LIST

5. Optional parts

5-1. Indoor unit

■ Controllers

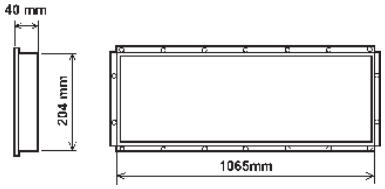
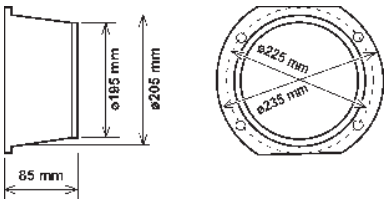
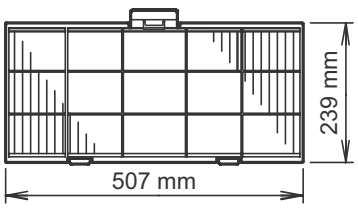
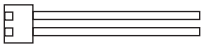
Exterior	Part name	Model name	Summary
	Wired remote controller	UTY-RNRYZ*	Easy finger touch operation with LCD panel. Backlit LCD enables easy operation in a dark room. Wire type: Non-polar 2-wire
	Wired remote controller	UTY-RLRY	High visibility and easy operation. Room temperature can be accurately controlled using the built-in thermo sensor. Wire type: Non-polar 2-wire
	Wired remote controller	UTY-RVNYM	Large and full-dot liquid crystal screen, wide and large keys easy to press, user-intuitive arrow key. Wire type: Polar 3-wire
	Wired remote controller	UTY-RNNYM	Room temperature can be controlled by detecting the temperature accurately with built-in thermo sensor. Wire type: Polar 3-wire
	Simple remote controller	UTY-RSRY	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, temperature setting, and operation mode. Wire type: Non-polar 2-wire
	Simple remote controller	UTY-RHRY	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, and temperature setting. Wire type: Non-polar 2-wire

TECHNICAL DATA AND PARTS LIST

Exterior	Part name	Model name	Summary
	Simple remote controller	UTY-RSNYM	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, temperature setting, and operation mode. Wire type: Polar 3-wire
	IR receiver kit with wireless remote controller	UTY-LBTYM	Unit control is performed by wireless remote controller.

NOTE: Available functions may differ by the remote controller. For details, refer to the operation manual.

■ Others

Exterior	Part name	Model name	Summary
	Remote sensor unit	UTY-XSZX	Thermo-sensor for sensing the temperature of arbitrary place in the room.
	Square flange	UTD-SF045T	Both the Square flange and the Round flange can be selected.
	Round flange	UTD-RF204	Round flange is used when the fresh-air duct is installed.
	Long-life filter	UTD-LF25NA	Long-life filter can be mounted to the indoor unit.
	Drain pump unit	UTZ-PX1NBA	Optional drain lift up mechanism allows more flexible installation.
	External connect kit	UTY-XWZXZG	Use to connect with various peripheral devices and air conditioner PCB. For control output port.

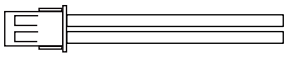
TECHNICAL DATA AND PARTS LIST

Exterior	Part name	Model name	Summary
	Wireless LAN adapter	UTY-TFSXZ1	Remotely manage an air conditioning system using mobile devices such as smartphones and tablets. For connection indoor unit with UART interface.
	Modbus converter	UTY-VMSX	For connection between indoor unit with UART interface and a Modbus open network.
	KNX converter	UTY-VKSX	For connection between indoor unit with UART interface and a KNX open network.
	External switch controller	UTY-TERX	Air conditioner switching can be controlled by connecting other external sensor switches.

NOTE: Combined use of following optional parts and Wireless LAN adapter (UTY-TFSXZ1) is not allowed.

- Modbus converter
- KNX converter

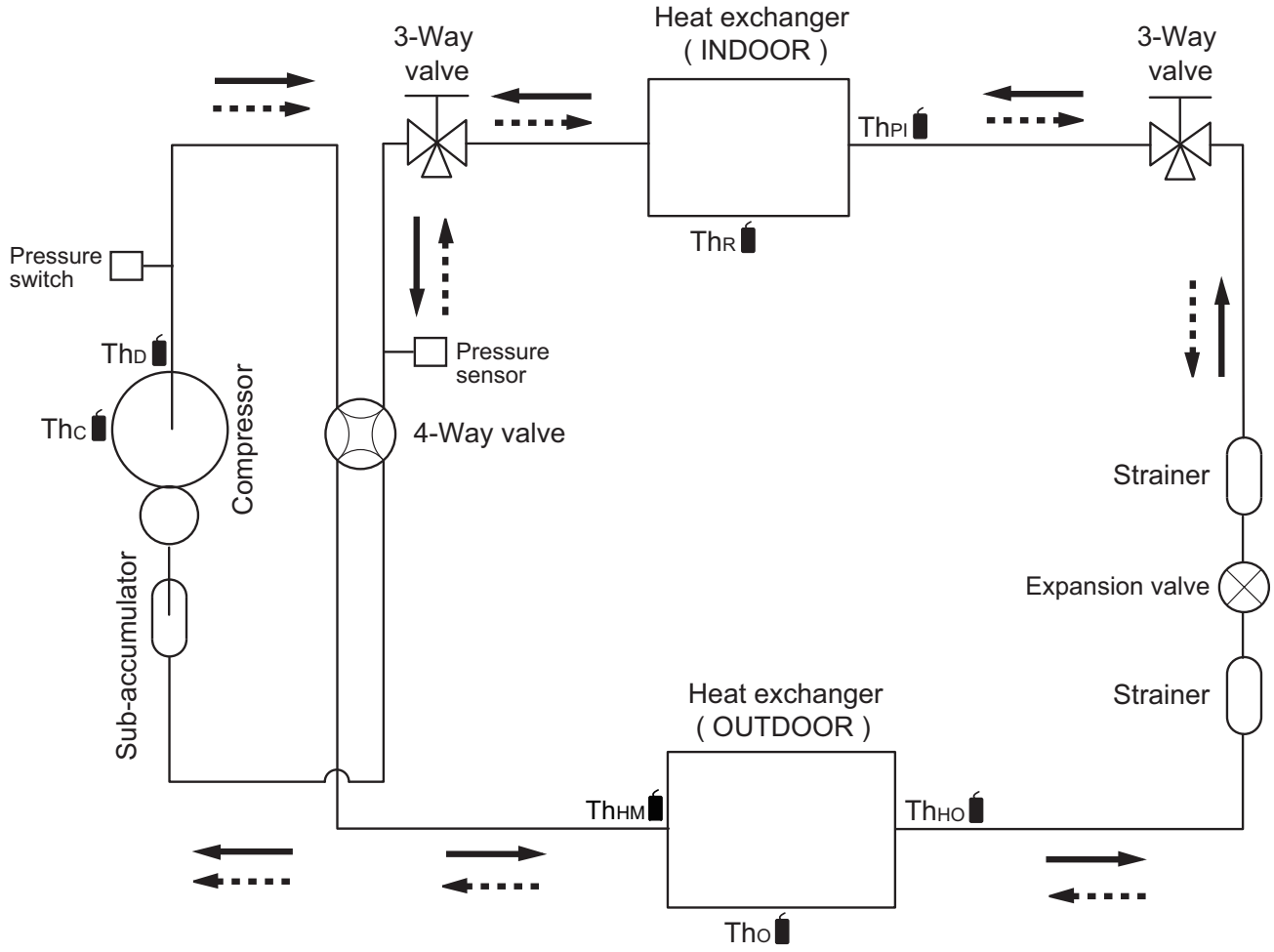
5-2. Outdoor unit

Exterior	Part name	Model name	Summary
	External connect kit	UTY-XWZXZ3	Use to operate the external input and output functions of outdoor unit.

TECHNICAL DATA AND PARTS LIST

6. Refrigerant system diagrams

6-1. Models: AOYG36KRTA and AOYG45KRTA



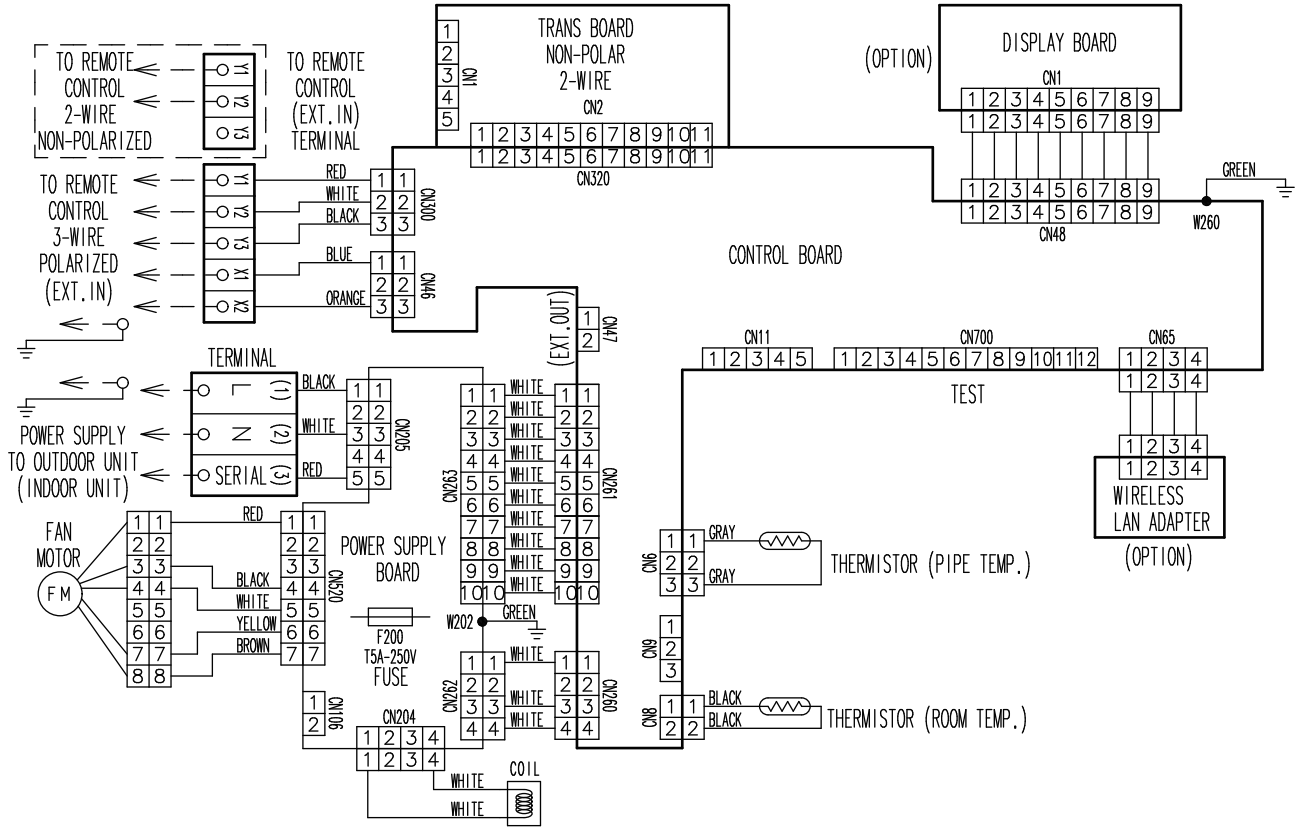
: Cooling
: Heating

ThC : Thermistor (Compressor temperature)
ThD : Thermistor (Discharge temperature)
ThHM : Thermistor (Heat Exchanger Med temperature)
ThO : Thermistor (Outdoor temperature)
ThHO : Thermistor (Heat Exchanger Out temperature)
ThR : Thermistor (Room temperature)
ThPI : Thermistor (Pipe temperature)

7. Wiring diagrams

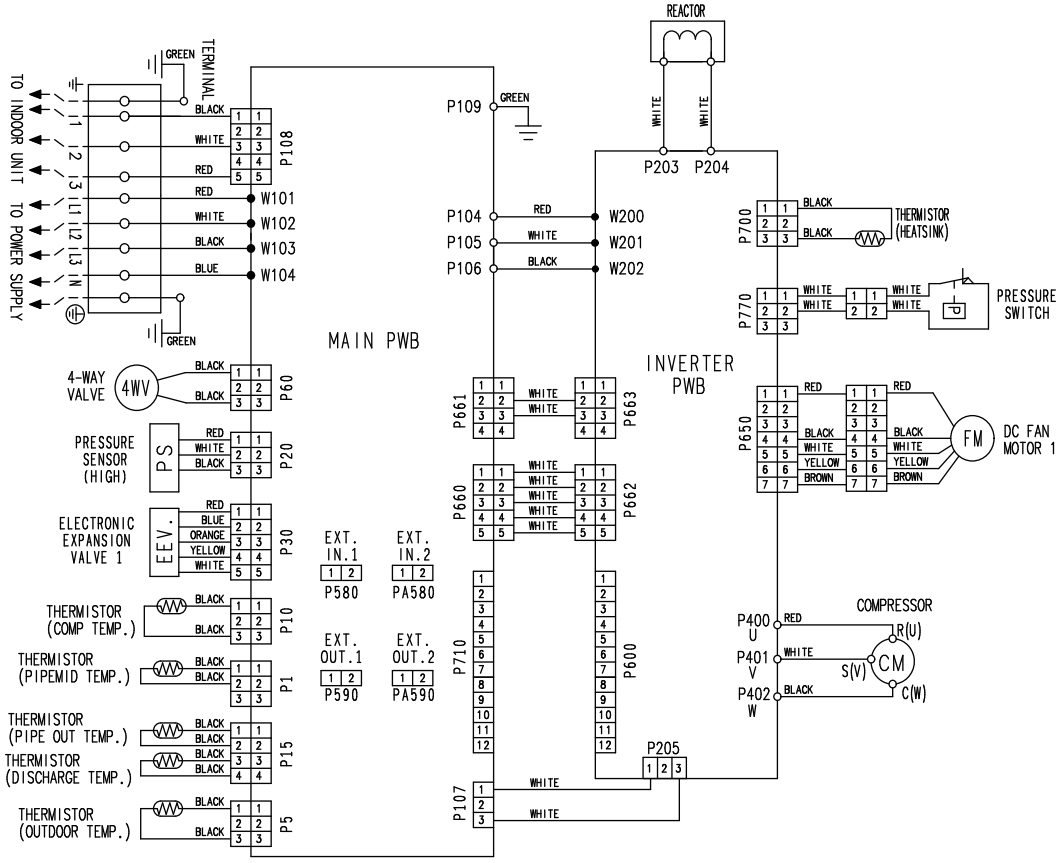
7-1. Indoor unit

■ Models: ARXG36KMLA and ARXG45KMLA

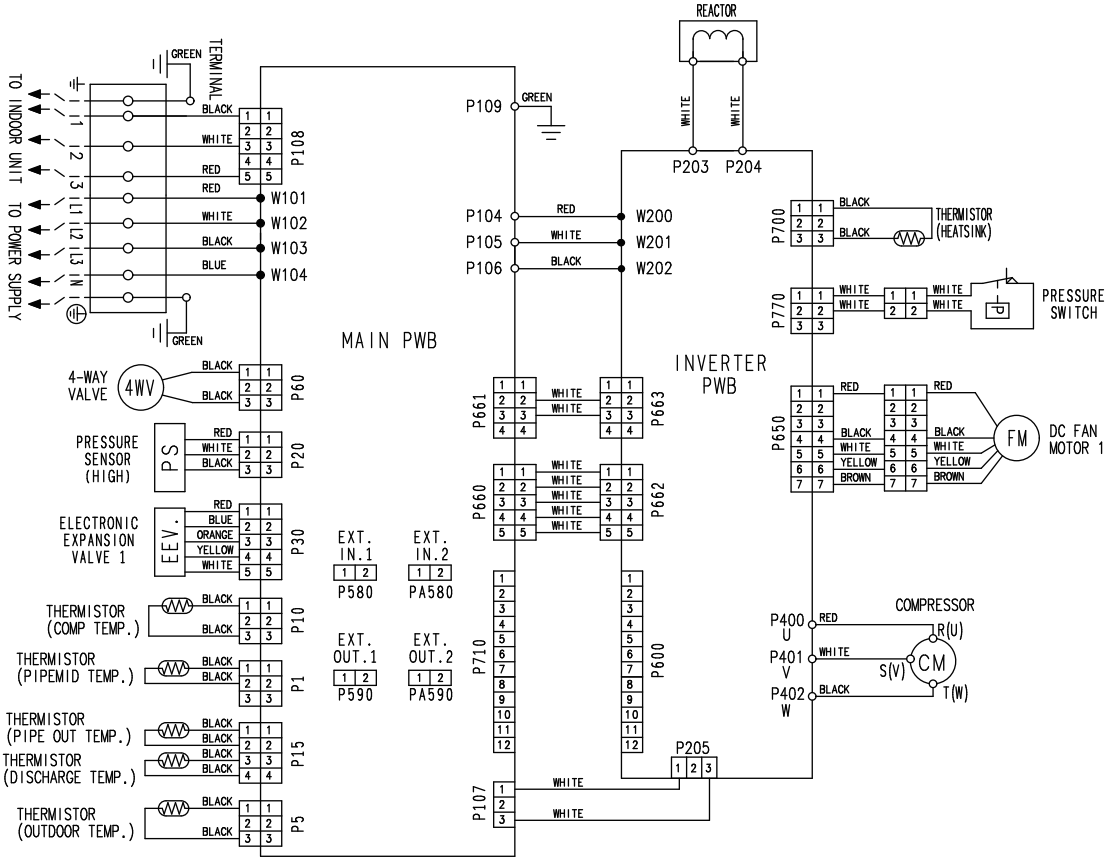


7-2. Outdoor unit

■ Model: AOYG36KRTA



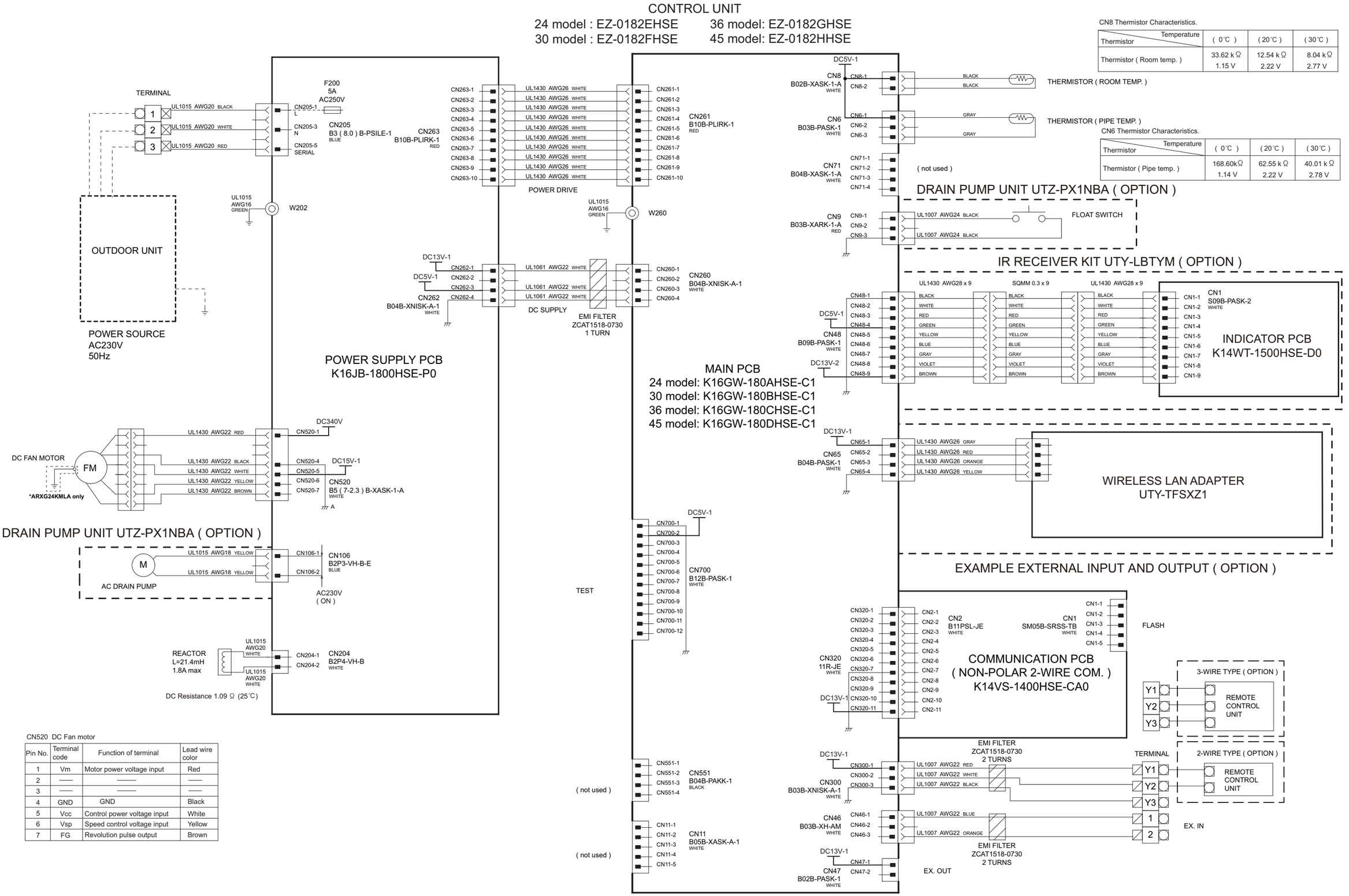
■ Model: AOYG45KRTA



8. PC board diagrams

8-1. Models: ARXG36KMLA and ARXG45KMLA

TECHNICAL DATA AND PARTS LIST



CN8 Thermistor Characteristics.

Thermistor \ Temperature	(0℃)	(20℃)	(30℃)
Thermistor (Room temp.)	33.62 kΩ 1.15 V	12.54 kΩ 2.22 V	8.04 kΩ 2.77 V

CN6 Thermistor Characteristics.

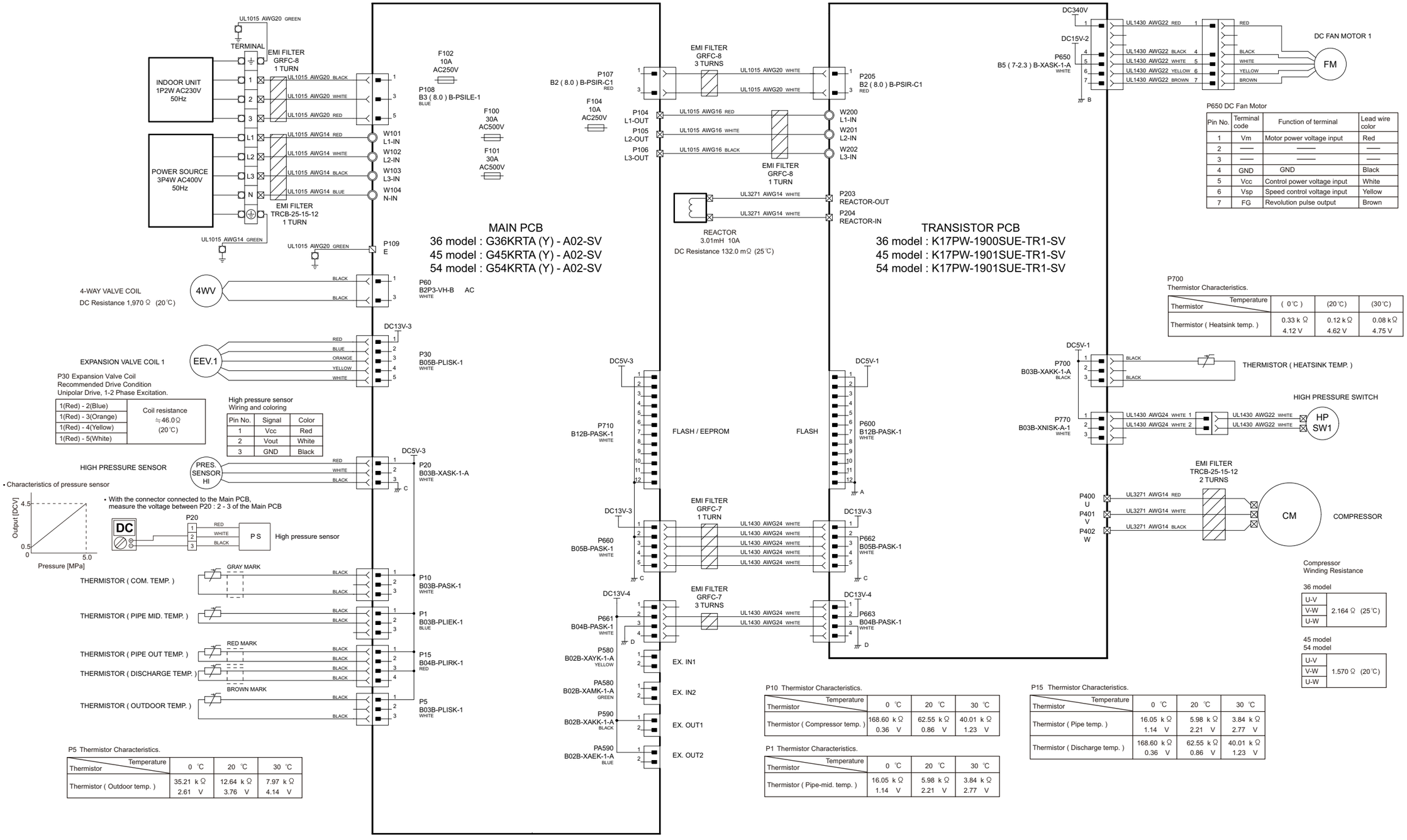
Thermistor \ Temperature	(0℃)	(20℃)	(30℃)
Thermistor (Pipe temp.)	168.60kΩ 1.14 V	62.55 kΩ 2.22 V	40.01 kΩ 2.78 V

CN520 DC Fan motor

Pin No.	Terminal code	Function of terminal	Lead wire color
1	Vm	Motor power voltage input	Red
2	——	——	——
3	——	——	——
4	GND	GND	Black
5	Vcc	Control power voltage input	White
6	Vsp	Speed control voltage input	Yellow
7	FG	Revolution pulse output	Brown

8-2. Models: AOYG36KRTA and AOYG45KRTA

INVERTER ASSEMBLY
36 model : EZ-0190HUE
45 model : EZ-0191HUE
54 model : EZ-0191HUE



3. TROUBLESHOOTING

CONTENTS

3. TROUBLESHOOTING

CONTENTS (continued)

TROUBLESHOOTING

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.

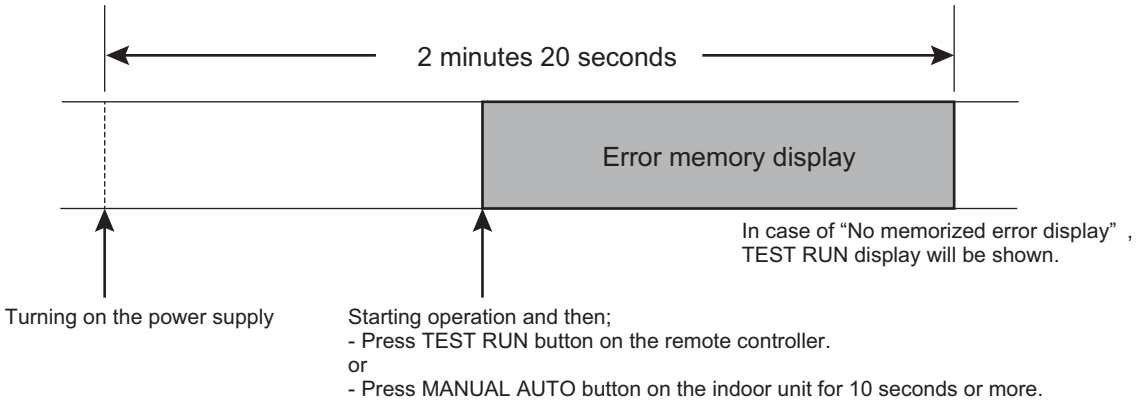
Errors, once displayed, will be automatically stored in the PC board of the indoor unit. Even if the power is disconnected, the memory containing the error history will not be erased.

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 (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	Wired remote controller display
E: 11. Serial communication error (Serial reverse transfer error) (Outdoor unit)	11
E: 11. Serial communication error (Serial forward transfer error) (Indoor unit)	11
E: 12. Wired remote controller communication error (Indoor unit)	12
E: 15. Automatic air flow adjustment error (Indoor unit)	15
E: 18. External communication error (Indoor unit)	18
E: 23. Combination error (Outdoor unit)	23
E: 32. Indoor unit main PCB error (Indoor unit)	32
E: 33. Indoor unit motor electricity consumption detection error (Indoor unit)	33
E: 35. MANUAL AUTO button error (Indoor unit)	35
E: 39. Indoor unit power supply error for fan motor (Indoor unit)	39
E: 3A. Indoor unit communication circuit (wired remote controller) error	3A
E: 41. Room temperature sensor error (Indoor unit)	41
E: 42. Indoor unit heat exchanger sensor error (Indoor unit)	42
E: 51. Indoor unit fan motor error (Indoor unit)	51
E: 53. Drain pump error (Indoor unit)	53
E: 62. Outdoor unit main PCB error (Outdoor unit)	62
E: 63. Inverter error (Outdoor unit)	63
E: 64. PFC circuit error (Outdoor unit)	64
E: 65. Trip terminal L error (Outdoor unit)	65
E: 71. Discharge thermistor error (Outdoor unit)	71
E: 72. Compressor thermistor error (Outdoor unit)	72
E: 73. Heat exchanger (Middle/Outlet) temperature thermistor error (Outdoor unit)	73
E: 74. Outdoor temperature thermistor error (Outdoor unit)	74
E: 77. Heat sink thermistor error (Outdoor unit)	77
E: 84. Current sensor error (Outdoor unit)	84
E: 86. Pressure sensor error (Outdoor unit)	86
E: 94. Trip detection (Outdoor unit)	94
E: 95. Compressor motor control error (Outdoor unit)	95
E: 97. Outdoor unit fan motor error (Outdoor unit)	97
E: 99. 4-way valve error (Outdoor unit)	99
E: A1. Discharge temperature error (Outdoor unit)	A1
E: A3. Compressor temperature error (Outdoor unit)	A3
E: AC. Heat sink temperature error (Outdoor unit)	AC

TROUBLESHOOTING

1-4. Error code table (Outdoor unit: for 36/45 model only)

The operation status is determined by the lighting up and blinking of the LED lamp.
After check that ERROR LED lamp blinks, press the ENTER button once.

NOTE: For the positions of LED lamp and buttons, refer to "Function settings for outdoor unit" in Chapter 5. FIELD WORKING on page 05-8.

Error contents	POWER/ MODE	ERROR	PUMP DOWN	LOW NOISE		PEAK CUT		
			L1	L2	L3	L4	L5	L6
E: 11. Serial communication error (Serial forward transfer error) (Indoor unit)	■ 2	●	■ 1	■ 1	○	○	●	●
E: 11. Serial communication error (Serial forward transfer error) (Indoor unit)	■ 2	●	■ 1	■ 1	○	●	○	○
E: 12. Wired remote controller communication error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 15. Automatic air flow adjustment error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 18. External communication error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 23. Combination error (Outdoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 32. Indoor unit main PCB error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 33. Indoor unit motor electricity consumption detection error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 35. MANUAL AUTO button error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 39. Indoor unit power supply error for fan motor (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 3A. Indoor unit communication circuit (wired remote controller) error	■ 2	●	■ 5	■ 15	○	○	○	●
E: 41. Room temperature sensor error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 42. Indoor unit heat exchanger sensor error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 51. Indoor unit fan motor error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 53. Drain pump error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 62. Outdoor unit main PCB error (Outdoor unit)	■ 2	●	■ 6	■ 2	○	○	○	●
E: 63. Inverter error (Outdoor unit)	■ 2	●	■ 6	■ 3	○	○	○	●
E: 65. Trip terminal L error (Outdoor unit)	■ 2	●	■ 6	■ 5	○	○	●	●
E: 71. Discharge thermistor error (Outdoor unit)	■ 2	●	■ 7	■ 1	○	○	○	●
E: 72. Compressor thermistor error (Outdoor unit)	■ 2	●	■ 7	■ 2	○	○	○	●
E: 73. Heat exchanger (Middle/Outlet) temperature thermistor error (Outdoor unit)	■ 2	●	■ 7	■ 3	○	○	●	○
E: 74. Outdoor temperature thermistor error (Outdoor unit)	■ 2	●	■ 7	■ 4	○	○	○	●
E: 77. Heat sink thermistor error (Outdoor unit)	■ 2	●	■ 7	■ 7	○	○	○	●

TROUBLESHOOTING

Error contents	POWER/ MODE	ERROR	PUMP DOWN	LOW NOISE		PEAK CUT		
			L1	L2	L3	L4	L5	L6
E: 84. Current sensor error (Outdoor unit)	■ 2	●	■ 8	■ 4	○	○	○	●
E: 86. Pressure sensor error (Outdoor unit)	■ 2	●	■ 8	■ 6	○	●	●	○
E: 94. Trip detection (Outdoor unit)	■ 2	●	■ 9	■ 4	○	○	○	●
E: 95. Compressor motor control error (Outdoor unit)	■ 2	●	■ 9	■ 5	○	○	○	●
E: 97. Outdoor unit fan motor error (Outdoor unit)	■ 2	●	■ 9	■ 7	○	○	●	●
E: 99. 4-way valve error (Outdoor unit)	■ 2	●	■ 9	■ 9	○	○	○	●
E: A1. Discharge temperature error (Outdoor unit)	■ 2	●	■ 10	■ 1	○	○	○	●
E: A3. Compressor temperature error (Outdoor unit)	■ 2	●	■ 10	■ 3	○	○	○	●
E: AC. Heat sink temperature error (Outdoor unit)	■ 2	●	■ 10	■ 12	○	○	●	●

● : Light on ○ : Light off ■ (n) : n Times blinking

2. Troubleshooting with error code

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

TROUBLESHOOTING

Indicator	Wired remote controller	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".

↓

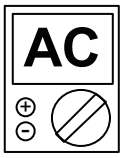
Check point 2. Check connection

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”.

↓

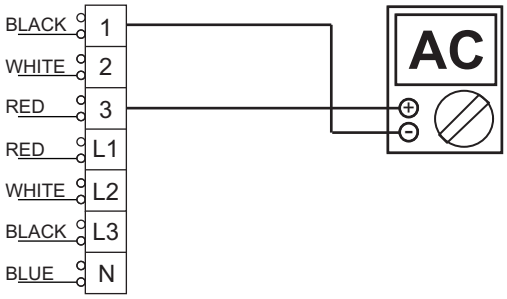
Check point 3. Check the voltage of power supply

Check the voltage of power supply
Check if AC 198 V (AC 220 V -10%) to AC 264 V (AC 240 V +10%) appears at outdoor unit terminal L - N.



↓

TROUBLESHOOTING

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 03-50 • 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	Wired remote controller	Error code	E: 11
Detective actuator	Indoor unit	Main PCB	When the outdoor unit cannot receive the serial signal from indoor unit more than 10 seconds.
Forecast of cause			Connection failure
			External cause
			Main PCB failure

TROUBLESHOOTING

Check point 1. Reset the power and operate

Does error indication show again?
→ If no, go to "Check point 1-2".

↓

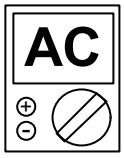
Check point 2. Check connection

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”.

↓

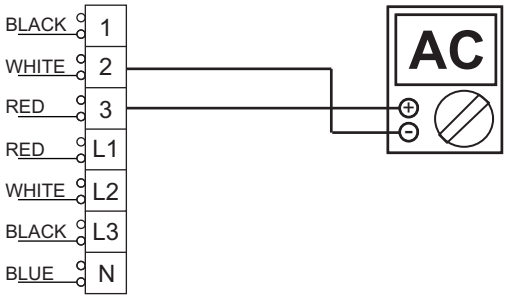
Check point 3. Check the voltage of power supply

Check the voltage of power supply
Check if AC 198 V (AC 220 V -10%) to AC 264 V (AC 240 V +10%) appears at outdoor unit terminal L - N.



↓

TROUBLESHOOTING

Check point 4. Check serial signal (Forward 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.

↓

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)

TROUBLESHOOTING

Indicator	Wired remote controller	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. • 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 2 : Check Wired remote controller and main PCB

Check voltage at CN300 of main PCB (terminal 1—3, terminal 1—2). (Power supply to the remote controller)

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

- If it is DC 13 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

2-4. E: 15. Automatic air flow adjustment error (Indoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 15
Detective actuator	Indoor unit	Main PCB	• On automatic airflow adjustment operation, when the fan speed other than 0rpm is detected at the 0rpm operation. • On automatic airflow adjustment operation, when the fan speed is not reach the target speed, after 2 minutes from the fan started. • On automatic airflow adjustment operation operation, when the 750 W of input power is detected.
Forecast of cause			Fan rotation failure
			Fan motor winding open
			Indoor unit main PCB

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 03-50.)
→ 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

2-5. E: 18. External communication error (Indoor unit)

Indicator	Wired remote controller	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
			External input and output PCB failure
			Main PCB

TROUBLESHOOTING

Check point 1. Check the connection

- Check any loose or removed connection between the main PCB to the external input and output PCB.
  -> 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 external input and output PCB and the main PCB (If there is loose connector, open cable or mis-wiring.)

↓

Check point 2. Replace the external input and output PCB

If check point 1 do not improve the symptom, change external input and output PCB.

↓

Check point 3. Replace main PCB

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

↓

End

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

Indicator	Wired remote controller	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

TROUBLESHOOTING

2-7. E: 32. Indoor unit main PCB error (Indoor unit)

Indicator	Wired remote controller	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

TROUBLESHOOTING

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 (Electronically 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.

2-8. E: 33. Indoor unit motor electricity consumption detection error (Indoor unit)

Indicator	Wired remote controller	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

TROUBLESHOOTING

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 03-50.)
→ 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.

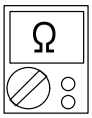
↓

End

2-9. E: 35. MANUAL AUTO button error (Indoor unit)

Indicator	Wired remote controller	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

TROUBLESHOOTING

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

2-10. E: 39. Indoor unit power supply error for fan motor (Indoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 39
Detective actuator	Indoor unit main PCB		• 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

2-11. E: 3A. Indoor unit communication circuit (wired remote controller) error

Indicator	Wired remote controller	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

TROUBLESHOOTING

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

2-12. E: 41. Room temperature sensor error (Indoor unit)

Indicator	Wired remote controller	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

TROUBLESHOOTING

Check point 1. Check connection of connector

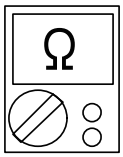
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

-> 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 03-60.
- 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 02-21.

If the voltage does not appear, replace main PCB.

↓

End

2-13. E: 42. Indoor unit heat exchanger sensor error (Indoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	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

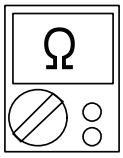
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

-> 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 03-60.
- 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 02-21.

If the voltage does not appear, replace main PCB.

↓

End

2-14. E: 51. Indoor unit fan motor error (Indoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 51
Detective actuator	Indoor unit	main PCB	When the condition that actual frequency of indoor fan is below 1/3 of target frequency is continued 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 03-50.)
→ 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

2-15. E: 53. Drain pump error (Indoor unit)

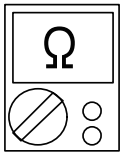
Indicator	Wired remote controller	Error code	E: 53
Detective actuator	Indoor unit main PCB		When Float switch is ON for more than 3 minutes.
	Float switch		
Forecast of cause			Float switch failure
			Shorted connector/wire failure
			Main PCB failure
			Drain pump failure
			Hose clogging

TROUBLESHOOTING

Check point 1. Check float switch

- Check operation of float switch. (any blocking by dust, etc.)
- Remove float switch and check ON/OFF switching operation by using a meter.

-> If float switch is abnormal, replace it.



↓

Check point 2. Check connector and wire

Check loose contact of CN9 and shorted wire (pinched wire).
-> Replace float switch if the wire is abnormal

↓

Check point 3. Check drain hose

Check drain hose.
-> If there is hose clogging. Please clear the clog.

↓

Check point 4. Replace drain pump

If check point 1 to 3 do not improve the symptom, replace drain pump.

↓

Check point 5. Replace main PCB

If check point 4 do not improve the symptom, replace main PCB.

↓

End

2-16. E: 62. Outdoor unit main PCB error (Outdoor unit)

Indicator	Wired remote controller	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

2-17. E: 63. Inverter error (Outdoor unit)

Indicator	Wired remote controller	Error code	E: 63
Detective actuator	Outdoor unit	Inverter PCB	Error information received from inverter PCB
Forecast of cause			External cause
			Power supply to inverter PCB wiring disconnection or open
			Inverter PCB failure

TROUBLESHOOTING

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 (power supply to inverter PCB)

- Connector and wiring connection state check
- Cable open check

↓

Check point 3. Replace inverter PCB

Replace inverter 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: 64. PFC circuit error (Outdoor unit)

Indicator	Wired remote controller	Error code	E: 64
Detective actuator	Outdoor unit	Main PCB	• When inverter input DC voltage is higher than 420 V 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

TROUBLESHOOTING

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

2-19. E: 65. Trip terminal L error (Outdoor unit)

Indicator	Wired remote controller	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

TROUBLESHOOTING

2-20. E: 71. Discharge thermistor error (Outdoor unit)

Indicator	Wired remote controller	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

TROUBLESHOOTING

Check point 1. Check connection of connector

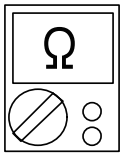
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

→ 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 03-60.
- 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 02-21.

If the voltage does not appear, replace main PCB.

↓

End

2-21. E: 72. Compressor thermistor error (Outdoor unit)

Indicator	Wired remote controller	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

TROUBLESHOOTING

Check point 1. Check connection of connector

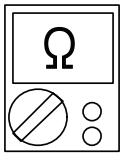
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

→ 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 03-60.
- 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 02-21.

If the voltage does not appear, replace main PCB.

↓

End

2-22. E: 73. Heat exchanger (Middle/Outlet) temperature thermistor error (Outdoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 73
Detective actuator	Heat exchanger liquid temperature thermistor		• Heat exchanger liquid temperature thermistor short or open detected • Heat exchanger middle temperature thermistor short or open detected
	Heat exchanger middle temperature thermistor		
Forecast of cause			Connector failure
			Thermistor failure
			Main PCB failure

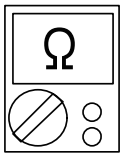
Check Point 1 : Check the connector connection and cable open

- Connector connection state check
- Cable open check

↓

Check Point 2 : Check the thermistor

- For the outdoor unit heat exchanger thermistor resistance value, refer to "Thermistor resistance values" on page 03-60.
- 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 02-21.

If the voltage does not appear, replace main PCB.

↓

End

2-23. E: 74. Outdoor temperature thermistor error (Outdoor unit)

Indicator	Wired remote controller	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

TROUBLESHOOTING

Check point 1. Check connection of connector

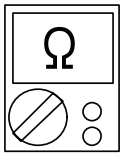
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

-> 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 03-60.
- 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 02-21.

If the voltage does not appear, replace main PCB.

↓

End

2-24. E: 77. Heat sink thermistor error (Outdoor unit)

Indicator	Wired remote controller	Error code	E: 77
Detective actuator	Heat sink temperature thermistor		Heat sink temperature thermistor short or open detected
Forecast of cause			Connector failure
			Thermistor failure
			Inverter PCB failure

TROUBLESHOOTING

Check point 1. Check connection of connector

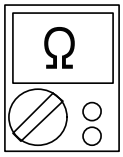
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

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

↓

Check point 2. Remove connector and check thermistor resistance value

- For the Heat sink thermistor resistance value, refer to "Thermistor resistance values" on page 03-60.
- If thermistor is either open or shorted, replace it and reset the power.



↓

Check point 3. Check voltage of inverter 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 02-21.

If the voltage does not appear, replace inverter PCB.

↓

End

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

Indicator	Wired remote controller	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 50 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 mis-wiring, 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. Pressure sensor error (Outdoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 86
Detective actuator	Outdoor unit main PCB		30 seconds or more after power-on, when pressure sensor detection value detects the condition below continuously for 30 seconds or more. Ps ≤ 0 or Ps ≥ 5 [MPa]
	High pressure switch		
Forecast of cause			Connector connection failure
			Pressure sensor failure
			Main PCB failure

Check point 1. Check connection of the pressure sensor

- 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 mis-wiring, reset the power.

↓

Check point 2. Check output voltage of main PCB

Make sure circuit diagram of outdoor unit and check terminal voltage at thermistor (DC 5.0 V ± 5%).

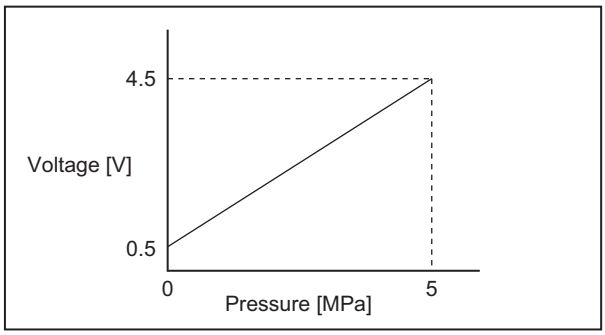
NOTE: For details of thermistor connector, refer to "Wiring diagrams" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-21.

If the voltage is not correct, replace main PCB.

↓

Check point 3. Check output voltage of pressure sensor

Make sure circuit diagram of outdoor unit and check terminal voltage. Voltage is refer to the following graph.



If the voltage is not correct, replace pressure sensor.

↓

End

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

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 94
Detective actuator	Outdoor unit	Inverter 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.
		Main PCB	
		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)
			Inverter PCB

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 inverter PCB

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

↓

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

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

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 95
Detective actuator	Outdoor unit	Main PCB	"Protection stop by "overcurrent generation at inverter compressor starting" restart" generated consecutively 10 times x 3 sets (total 30 times)
		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 03-50.)

→ 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)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 97
Detective actuator	Outdoor unit	Main PCB Fan motor	1. When outdoor fan rotation speed is less than 100 rpm in 20 seconds after fan motor starts, fan motor stops. 2. After fan motor restarts, if the same operation within 60 seconds is repeated 3 times in a row, compressor and fan motor stops. 3. If 1. and 2. repeats 5 times in a row, compressor and fan motor stops permanently.
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 03-50.)
→ 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 02-21.

Read wire	DC voltage
Red—Black	360 V (DC 340 V -10%) to 374 V (DC 340 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)

TROUBLESHOOTING

Indicator	Wired remote controller	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			Air filter clogged
			Connector connection failure
			Thermistor failure
			Coil failure
			4-way valve failure
			Main PCB failure

Check point 1. Check air filter condition

Check air filter dirty.
→ If the air filter dirty, clean up the air filter.

↓

Check point 2. 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 3. 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 03-60.
→ If defective, replace the thermistor.

↓

Check point 4. Check the solenoid coil and 4-way valve
NOTE: Refer solenoid coil and 4-way valve in "Service parts information" on page 03-50. • **Solenoid coil** Remove P60 from PCB and check the resistance value of coil. Resistance value is 1.97 kΩ. → 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 5. Replace main PCB
If Check Point 1 to 4 do not improve the symptom, replace main PCB.

↓

End

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

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: A1
Detective actuator	Outdoor unit main PCB		Protection stop by discharge temperature ≥ 110 °C during compressor operation generated 2 times within 24 hours.
	Discharge temperature thermistor		
Forecast of cause			3-way valve not opened
			EEV or capillary tube defective, strainer clogged
			Outdoor unit operation failure, foreign matter on heat exchanger
			Discharge temperature thermistor failure
			Insufficient refrigerant
			Main PCB failure

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 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 Electrronic Expansion Valve (EEV) or Capillary tube in "Service parts information" on page 03-50.
- 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 03-50.)

↓

Check point 4. Check the discharge thermistor

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

NOTE: For the characteristics of the thermistor, refer to "Thermistor resistance values" on page 03-60.

↓

Check point 5. Check the refrigerant amount
Check the refrigerant leakage.

↓

Check point 6. Replace main PCB
If check point 1 to 5 do not improve the symptom, replace the main PCB.

↓

End

TROUBLESHOOTING

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

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: A3
Detective actuator	Outdoor unit main PCB		Protection stop by compressor temperature ≥ 108 °C during compressor operation generated 2 times within 24 hours.
	Compressor temperature thermistor		
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
			Main PCB failure

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 03-50.
- 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 03-50.)

↓

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 03-60.

↓

Check point 5. Check the refrigerant amount
Check the refrigerant leakage.

↓

Check point 6. Replace main PCB
If check point 1 to 5 do not improve the symptom, replace the main PCB.

↓

End

TROUBLESHOOTING

2-33. E: AC. Heat sink temperature error (Outdoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: AC
Detective actuator	Outdoor unit inverter PCB		Protection stop by heat sink temperature ≥ 80 °C during heat sink operation generated 2 times within 24 hours.
	Heat sink temperature thermistor		
Forecast of cause			Foreign matter on heat sink, heat sink dirty
			Foreign matter on heat exchanger, excessive ambient temperature rise
			Heat sink temp. thermistor defective

Check point 1. Check the heat sink state

Heat sink foreign matter, soiling check

↓

Check point 2. Check the foreign matter and ambient temperature of heat exchanger

- Heat exchange foreign matter check
- Ambient temperature not raised by effect of other heat sources?
- Discharged air not sucked in?

↓

Check point 3. Check the heat sink temperature thermistor

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

NOTE: For the characteristics of the thermistor, refer to "Thermistor resistance values" on page 03-60.

↓

Check point 4. Replace inverter PCB

Replace inverter PCB

↓

End

3. Troubleshooting without error code

3-1. Indoor unit—No power

Forecast of cause	Power supply failure
	External cause
	Electrical components defective

TROUBLESHOOTING

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".

↓

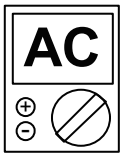
Check point 2. Check external cause at indoor and outdoor (voltage drop or noise)

- 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 198 to 264 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

TROUBLESHOOTING

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”.

↓

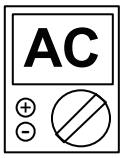
Check point 2. Check external cause at indoor and outdoor (voltage drop or noise)

- 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 198 to 264 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 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

TROUBLESHOOTING

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—3) of main PCB.
(Power supply to remote controller)

- If it is DC 13V, 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

TROUBLESHOOTING

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

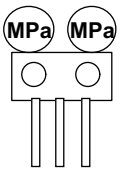
- Check connection pipe (specified pipe length and pipe diameter?)
- Check any loose or removed communication line.

→ 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 Electrronic Expansion Valve (EEV) or Capillary tube in "Service parts information" on page 03-50.
- Check compressor.
  Refer to compressor in "Service parts information" on page 03-50.
  Refer to inverter compressor in "Service parts information" on page 03-50.



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

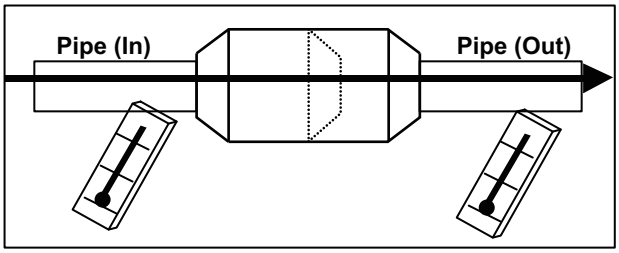
↓

End

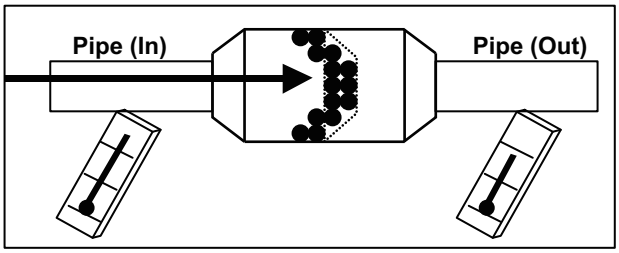
TROUBLESHOOTING

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)

TROUBLESHOOTING

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 03-50.

↓

End

3-6. Water leaking

Forecast of cause	Erroneous installation
	Drain hose failure

TROUBLESHOOTING

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?

↓

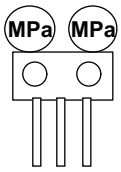
End

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

TROUBLESHOOTING

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

Does not start up	Stops soon after starting up	Abnormal noise
↓	↓	↓
Is there open or loose connection cable?	Is there open or loose connection cable?	Check if vibration noise by loose bolt or contact noise of piping is happening.
↓	↓	↓
Check main PCB, connection of compressor, and winding resistance. (Refer to the next page) → If there is no failure, the defect of compressor is considered (Locked compressor due to clogged dirt or less oil)	Is gas pipe valve open? (Low pressure is too low)	Defective compressor can be considered. (due to inside dirt clogging or broken component)
↓	↓	↓
Replace compressor.	Check if refrigerant is leaking. 	Replace compressor.
↓	↓	↓
End	Check if strainer is clogged. (Refer to outdoor EEV or capillary tube in this chapter.)	**End**
	↓	
	Check main PCB, connection of compressor and winding resistance. (Refer to the next page) → If there is no failure, the defect of compressor can be considered. (Compression part broken or valve defective.)	
	↓	
	Replace compressor.	
	↓	
	End	

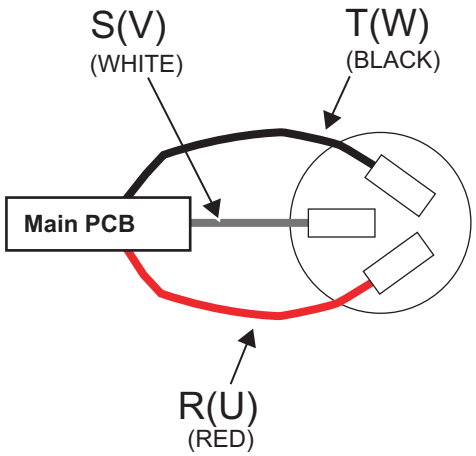
TROUBLESHOOTING

4-2. Inverter compressor

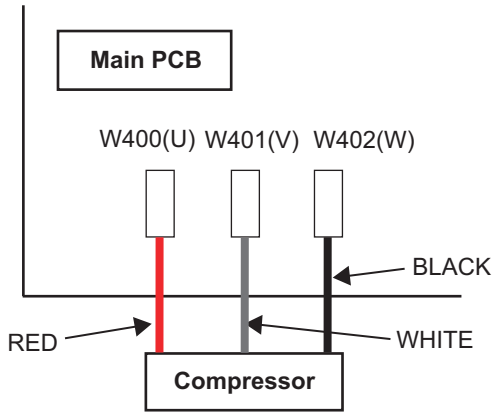
■ Model: AOYG36KRTA

Check point 1. Check connection

- Check terminal connection of compressor (loose or incorrect wiring)



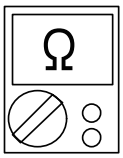
- Check terminal connection of main PCB (loose or incorrect wiring)

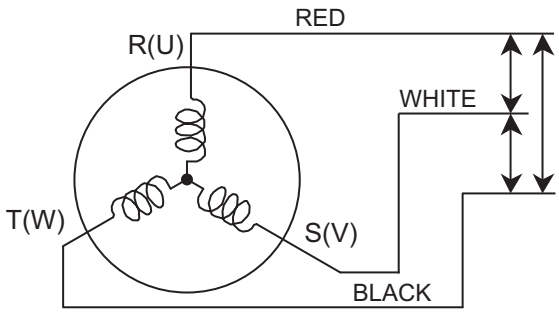


↓

Check point 2. Check winding resistance

Check winding resistance of each terminal.
Resistance value: 2.164 Ω at 25 °C





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

↓

Check point 3. Replace inverter PCB

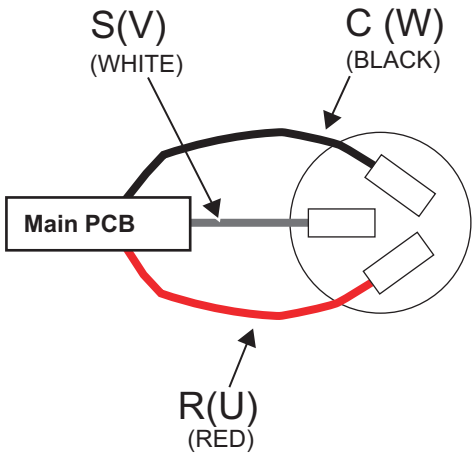
If check point 1 to 2 do not improve the symptom, replace main PCB.

■ Model: AOYG45KRTA

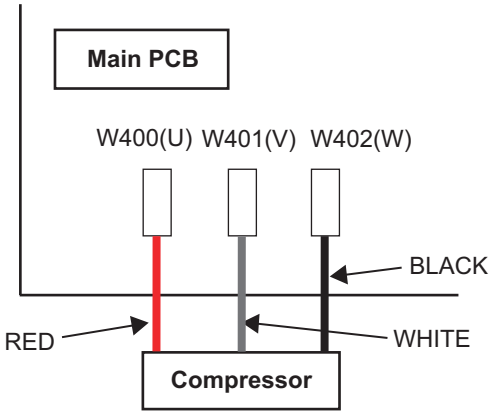
TROUBLESHOOTING

Check point 1. Check connection

- Check terminal connection of compressor (loose or incorrect wiring)



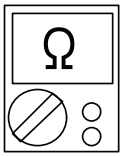
- Check terminal connection of main PCB (loose or incorrect wiring)

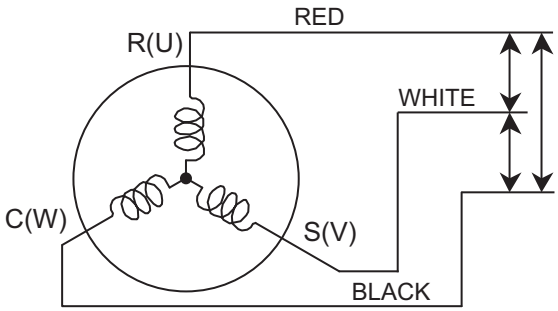


↓

Check point 2. Check winding resistance

Check winding resistance of each terminal.
Resistance value: 1.570 Ω at 20 °C





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

↓

Check point 3. Replace inverter PCB
If check point 1 to 2 do not improve the symptom, replace main PCB.

TROUBLESHOOTING

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

■ Models: AOYG36KRTA and AOYG45KRTA

TROUBLESHOOTING

Check point 1. Check connections

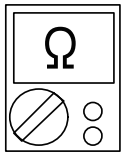
Check connection of connector. (Loose connector or open cable)

NOTE: For details of wiring diagram, refer to "Wiring diagrams" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-21.

Check point 2. Check coil of EEV

Remove connector, check each winding resistance of coil.

Read wire	Resistance value
1(Red) - 2(Blue)	46 Ω ± 3 Ω 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

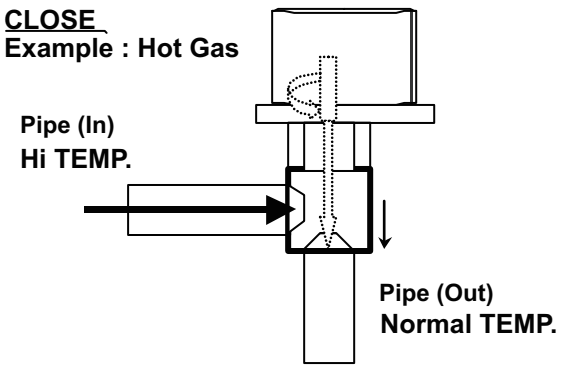
Remove connector and check voltage (DC 12 V)
→ If it does not appear, replace main PCB.

Check point 4. Check noise at start up

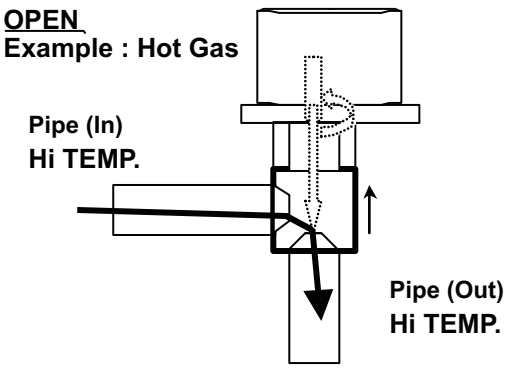
Turn on the power and check the operation noise.
→ If an abnormal noise does not show, replace main PCB.

Check point 5. Check Opening and Closing Operation of Valve

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



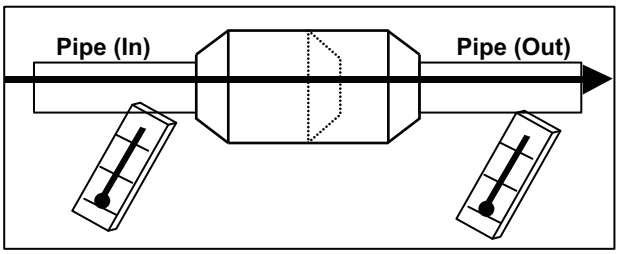
If it is open, it has no temp. difference between inlet and outlet



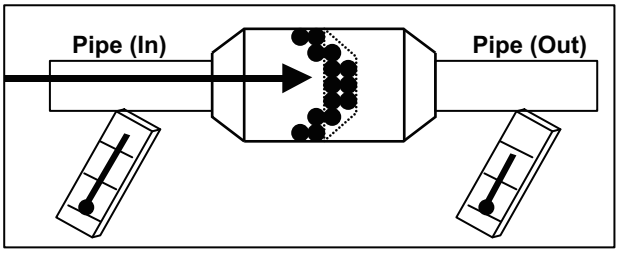
TROUBLESHOOTING

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

■ Models: ARXG36KMLA and ARXG45KMLA

⚠ WARNING

When you approach this part, please cut off the power supply and wait for a while until DC voltage has been discharged.

TROUBLESHOOTING

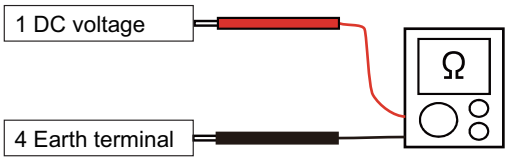
Check point 1. Check rotation of fan

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 (Brown)	Feed back (FG)



4-5. Outdoor unit fan motor

■ Models: AOYG36KRTA and AOYG45KRTA

TROUBLESHOOTING

Check point 1. Check rotation of fan

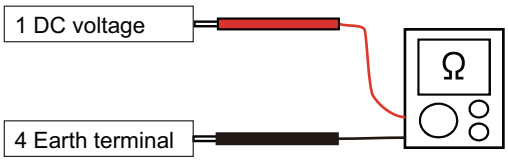
Rotate the fan by hand when operation is off.
(Check if fan is caught, dropped off or locked motor)
→ If fan or bearing is abnormal, replace it.

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 controller PCB.

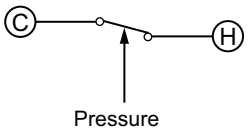
Pin number (wire color)	Terminal function (symbol)
1 (Red)	DC voltage (Vm)
2	No function
3	No function
4 (Black)	Earth terminal (GND)
5 (White)	Control voltage (Vcc)
6 (Yellow)	Speed command (Vsp)
7 (Brown)	Feed back (FG)



4-6. Pressure switch

■ Models: AOYG36KRTA and AOYG45KRTA

- 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

36/45 model: P770

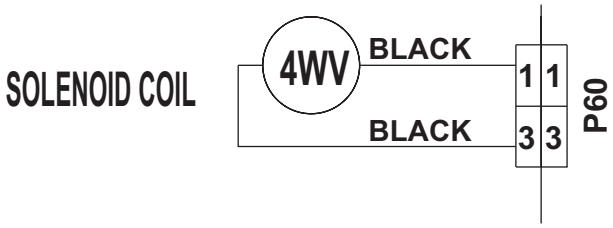
TROUBLESHOOTING

4-7. 4-way valve coil (solenoid coil)/4-way valve

■ Models: AOYG36KRTA and AOYG45KRTA

Check point 1. Check connection

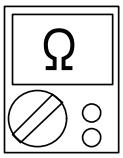
- Check the connection of connector P60.

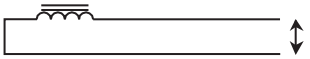


↓

Check Point 2 : Check solenoid coil

Remove P60 from PCB and check the resistance value of coil.
Resistance Value ≈ 1.97 kΩ





→ If it is Open or abnormal resistance value, replace solenoid coil.

↓

Check Point 3: Check operation of 4 way valve

Check each piping temperature, and confirm the location of the valve by the temperature difference

Heating Operation

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	1,013.09	0.24
-25.0	729.08	0.32
-20.0	531.55	0.43
-15.0	382.31	0.56
-10.0	312.27	0.69
-5.0	292.90	0.73
0.0	168.60	1.14
5.0	129.84	1.39
10.0	100.91	1.65
15.0	79.12	1.93
20.0	62.55	2.22
25.0	49.84	2.50
30.0	40.01	2.78
35.0	32.35	3.03
40.0	26.34	3.27
45.0	21.58	3.49
50.0	17.79	3.69
55.0	14.75	3.86
60.0	12.30	4.01
65.0	10.32	4.14

TROUBLESHOOTING

5-2. Outdoor unit

■ Heatsink thermistor

Temperature (°C)	Resistance (kΩ)	Voltage (V)
-30.0	94.26	0.08
-25.0	67.95	0.11
-20.0	49.62	0.15
-15.0	36.68	0.20
-10.0	27.42	0.26
-5.0	20.73	0.34
0.0	15.83	0.43
5.0	12.21	0.55
10.0	9.50	0.68
15.0	7.46	0.84
20.0	5.90	1.01
25.0	4.71	1.21
30.0	3.78	1.42
35.0	3.06	1.64
40.0	2.50	1.88
45.0	2.05	2.11
50.0	1.69	2.35
55.0	1.40	2.58
60.0	1.17	2.81
65.0	0.98	3.02
70.0	0.83	3.22
75.0	0.70	3.41
80.0	0.60	3.58
85.0	0.51	3.73
90.0	0.44	3.87
95.0	0.38	3.99
100.0	0.33	4.10

TROUBLESHOOTING

TROUBLESHOOTING

■ 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	8.70	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

TROUBLESHOOTING

■ Heat exchanger temperature thermistor

Temperature (°C)	Resistance (kΩ)	Voltage (V)
-30.0	95.58	0.24
-25.0	68.90	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	3.68
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

TROUBLESHOOTING

5. FIELD WORKING

CONTENTS

5. FIELD WORKING

1. Function settings for indoor unit

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 on indoor unit

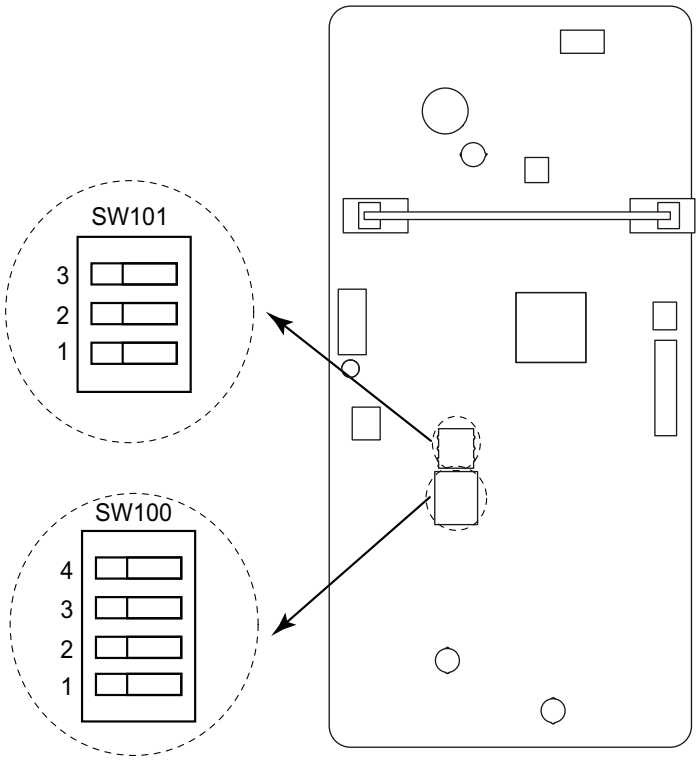
By using some components on the PCB, you can change the function settings.

Related components on the PCB and the applicable settings:

Component			Setting content
DIP switch	SW100	1	Remote controller address setting
		2	
		3	
		4	
	SW101	1	Setting change prohibited
		2	Setting change prohibited
		3	Fan delay setting

■ Component location

Components on the indoor unit main PCB used for the function settings are located as shown in the following figure.

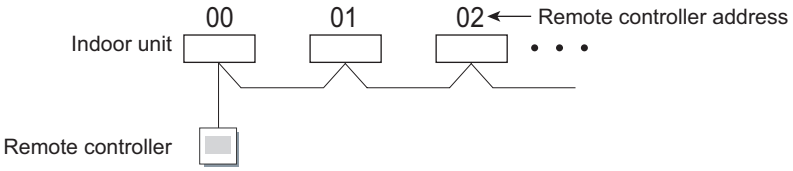


FIELD WORKING

■ DIP switch setting

- **SW100: Remote controller address setting**
  When operating a number of indoor units by using a wired remote controller, DIP switch setting for assigning unit number to each indoor unit is required.
  The slide switches are normally set to make the unit number 00.

Remote controller address	Switch number				Factory setting
	1	2	3	4	
00	OFF	OFF	OFF	OFF	♦
01	ON	OFF	OFF	OFF	
02	OFF	ON	OFF	OFF	
03	ON	ON	OFF	OFF	
04	OFF	OFF	ON	OFF	
05	ON	OFF	ON	OFF	
06	OFF	ON	ON	OFF	
07	ON	ON	ON	OFF	
08	OFF	OFF	OFF	ON	
09	ON	OFF	OFF	ON	
10	OFF	ON	OFF	ON	
11	ON	ON	OFF	ON	
12	OFF	OFF	ON	ON	
13	ON	OFF	ON	ON	
14	OFF	ON	ON	ON	
15	ON	ON	ON	ON	



- **SW101-Switch 1: Setting change prohibited**

- **SW101-Switch 2: Setting change prohibited**

- **SW101-Switch 3: Fan delay setting**
  When the indoor unit is stopped while operating in conjunction with auxiliary heater, the indoor unit fan operation will continue for 1 minute.

Switch 3	Fan delay	Factory setting
ON	Enabled	
OFF	Disabled	♦

FIELD WORKING

1-2. 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 remote controller

Remote controller is not attached for this product. For details of the installing remote controller, refer to following information.

- Overview information: Operating manual of the remote controller
- Setting procedure: Installation manual of the remote controller

■ 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)	21	Static pressure
3)	30/31	Room temperature control for indoor unit sensor
4)	35/36	Room temperature control for wired remote controller sensor
5)	40	Auto restart
6)	42	Room temperature sensor switching
7)	44	Remote controller custom code
8)	46	External input control
9)	48	Room temperature sensor switching (Aux.)
10)	49	Indoor unit fan control for energy saving for cooling
11)	51	Primary and secondary settings
12)	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 (2,500 hours)	
	01	Long interval (4,400 hours)	
	02	Short interval (1,250 hours)	
	03	No indication	♦

2) Static pressure

Select the appropriate static pressure according to the installation conditions.

Function number	Setting value	Setting description	Factory setting
21	00	Normal	♦
	01	High static pressure 1	
	02	High static pressure 2	
	03	High static pressure 3	

3) 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		

FIELD WORKING

4) 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		

FIELD WORKING

5) 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.

6) 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.

7) 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	

8) 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	♦
	01	(Setting prohibited)	
	02	Forced stop mode	
	03	Operation/Stop mode 2	

9) 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.

FIELD WORKING

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

10) 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.

NOTES:

- As the factory setting, this setting is initially activated.
- 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.

11) Primary and secondary settings

Set the indoor unit that is connected to the outdoor unit using a transmission cable as the primary.

Function number	Setting value	Setting description	Factory setting
51	00	Primary	♦
	01	Secondary	

12) 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	External heater	

FIELD WORKING

2. Function settings for outdoor unit

Perform appropriate function setting locally according to the installation environment.

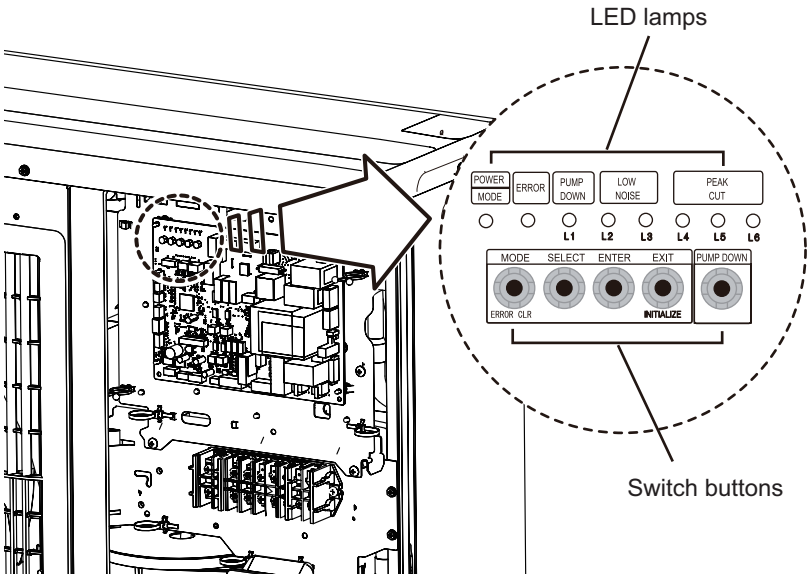
NOTE: Incorrect settings can cause a product malfunction.

⚠ CAUTION

- Before setting up the switch buttons, discharge the static electricity from your body.
- Never touch the terminals or the patterns on the parts that are mounted on the PCB.

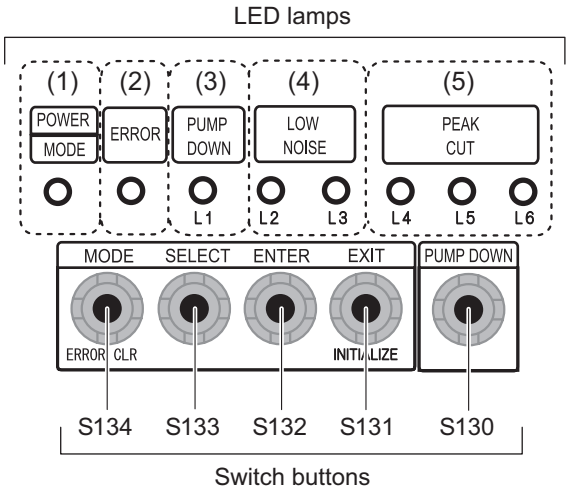
2-1. Control PCB and switch buttons location

Control PCB of the outdoor unit is located as shown in the following figure.



FIELD WORKING

■ Switch buttons and the functions



LED lamp			Function or operation method
(1)	POWER/MODE	Green	Lights on while power on. Local setting in outdoor unit or error code is displayed with blink.
(2)	ERROR	Red	Blinks during error operation.
(3)	PUMP DOWN (L1)	Orange	Lights on during pump down operation.
(4)	LOW NOISE MODE (L2 and L3)	Orange	Lights on during “Low noise mode” when local setting is activated. (Lighting pattern of L2 and L3 indicates low noise level.)
(5)	PEAK CUT MODE (L4, L5, and L6)	Orange	Lights on during “Peak cut mode” when local setting is activated. (Lighting pattern of L4, L5, and L6 indicates peak cut level.)

Switch button		Function or operation method
S134	MODE	Switches between “Local setting” and “Error code display”.
S133	SELECT	Switches between the individual “Local settings” and the “Error code displays”.
S132	ENTER	Switches between the individual “Local settings” and the “Error code displays”.
S131	EXIT	Returns to “Operation status display”.
S130	PUMP DOWN	Starts the pump down operation.

FIELD WORKING

2-2. Local setting procedure

NOTE: Before performing the function setting, be sure to stop the operation of the air conditioner.

■ Low noise mode

1. Press the MODE switch button (S134) for 3 seconds or more to switch to “Local setting mode”.
2. After confirming the LED lamp of POWER/MODE blinks 9 times, press the ENTER switch button (S132).

POWER / MODE	ERROR	PUMP DOWN (L1)	LOW NOISE (L2)	LOW NOISE (L3)	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
Blinks (9 times)	○	○	○	○	○	○	○

Sign “ ○ ”: Lights off

3. Press the SELECT switch button (S133), and adjust the LED lamp as shown below. Then the LED lamp indicates the current setting.

	LOW NOISE (L2)	LOW NOISE (L3)
LOW NOISE MODE	○	Blink

4. Press the ENTER switch button (S132).

	LOW NOISE (L2)	LOW NOISE (L3)
LOW NOISE MOD E	○	●

Sign “ ● ”: Lights on

5. Press the SELECT switch button (S133), and adjust the LED lamps as shown below.

	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
MODE 1: Low	○	○	Blink
MODE 2: Lower	○	Blink	○

6. Press the ENTER switch button (S132) and fix it.

	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
MODE 1: Low	○	○	●
MODE 2: Lower	○	●	○

7. To return to “Operating status display (Normal operation)”, press the EXIT switch button (S131).

In case of missing how many times you pressed the SELECT and ENTER switch buttons:

1. To return to “Operation status display (Normal operation)”, press the EXIT switch button once.
2. Restart from the beginning of setting procedure.

NOTE: In case of missing how many times you pressed the SELECT and ENTER switch buttons, you must redo the setting procedure. Return to “Operation status display (Normal operation)” by pressing the EXIT switch button once, and restart from the beginning of the setting procedure.

FIELD WORKING

■ Peak cut mode

1. Press the MODE switch button (S134) for 3 seconds or more to switch to “Local setting mode”.
2. After confirming the LED lamp of POWER/MODE blinks 9 times, press the ENTER switch button (S132).

POWER / MODE	ERROR	PUMP DOWN (L1)	LOW NOISE (L2)	LOW NOISE (L3)	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
Blinks (9 times)	○	○	○	○	○	○	○

Sign “ ○ ”: Lights off

3. Press the SELECT switch button (S133), and adjust the LED lamp as shown below. Then the LED lamp indicates the current setting.

	LOW NOISE (L2)	LOW NOISE (L3)
PEAK CUT MOD E	Blink	○

4. Press the ENTER switch button (S132).

	LOW NOISE (L2)	LOW NOISE (L3)
PEAK CUT MODE	●	○

Sign “ ● ”: Lights on

5. Press the SELECT switch button (S133), and adjust the LED lamps as shown below.

	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
0 % of rated input ratio	○	○	Blink
50 % of rated input ratio	○	Blink	○
75 % of rated input ratio	○	Blink	Blink
100 % of rated input ratio	Blink	○	○

6. Press the ENTER switch button (S132) and fix it.

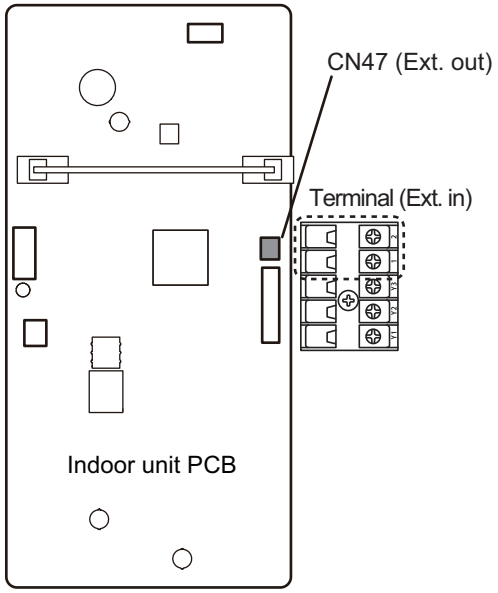
	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
0 % of rated input ratio	○	○	●
50 % of rated input ratio	○	●	○
75 % of rated input ratio	○	●	●
100 % of rated input ratio	●	○	○

7. To return to “Operating status display (Normal operation)”, press the EXIT switch button (S131).

NOTE: When pressed number is lost during setting, you must redo the setting procedure. Return to “Operation status display (Normal operation)” by pressing the EXIT switch button once, and restart from the beginning of the setting procedure.

FIELD WORKING

3. External input and output for indoor unit



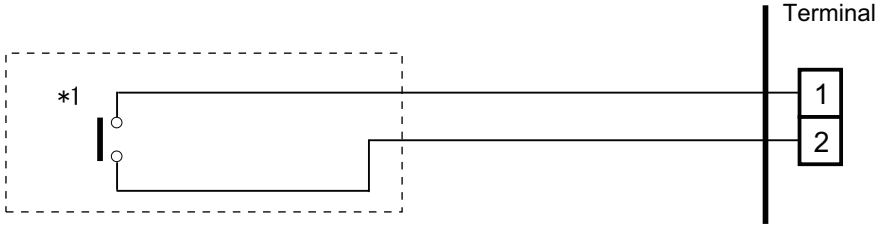
External input and output		Connector	Input select	Input signal	External connect kit (Optional parts)
External input	Operation/Stop Forced stop	Terminal	Dry contact	Edge	—
External output	Operation status	CN47	—	—	UTY-XWZXZG
	Error status				
	Indoor unit fan operation status				
	External heater output				

FIELD WORKING

3-1. External input

- “Operation/Stop” mode or "Forced stop" mode can be selected with function setting of indoor unit.
- A twisted pair cable (22AWG) should be used. Maximum length of cable is 150 m.
- The wire connection should be separate from the power cable line.

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



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

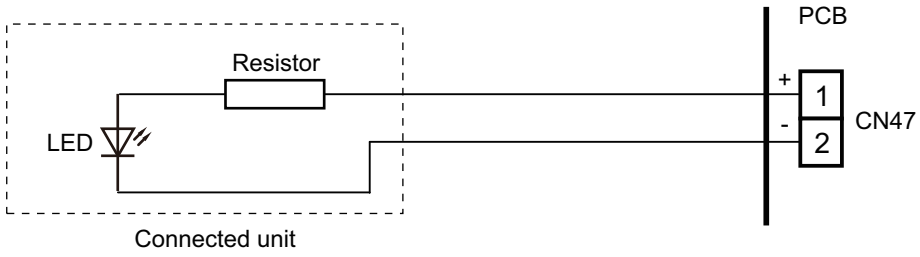
3-2. External output

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

- A twisted pair cable (22AWG) 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 "Combination of external input and output" on page 05-14.

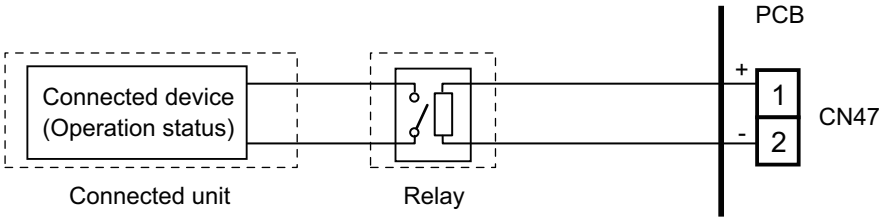
● When indicator, etc. are connected directly

Example: Function setting 60 is set to "00"



● When connecting with a device equipped with a power supply

Example: Function setting 60 is set to "00"



FIELD WORKING

3-3. Combination of external input and output

By combining the function setting of the indoor unit, you can select various combinations of functions.

Combination examples of external input and output are as follows:

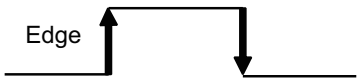
Mode	Function setting	External input	External output
		Terminal	CN47
0	60—00	Operation/Stop	
1—8	60—01 to 60—08	(Setting prohibited)	
9	60—09	Operation/Stop	Error status
10	60—10	Operation/Stop	Indoor unit fan operation status
11	60—11	Operation/Stop	External heater output

NOTE: Input of Operation/Stop depends on the setting of function setting 46.

- 00: Operation/Stop mode 1 (R.C. enabled)
- 01: (Setting prohibited)
- 02: Forced stop
- 03: Operation/Stop mode 2 (R.C. disabled)

■ Input signal type

- Indoor unit
  Input signal type is only "Edge".



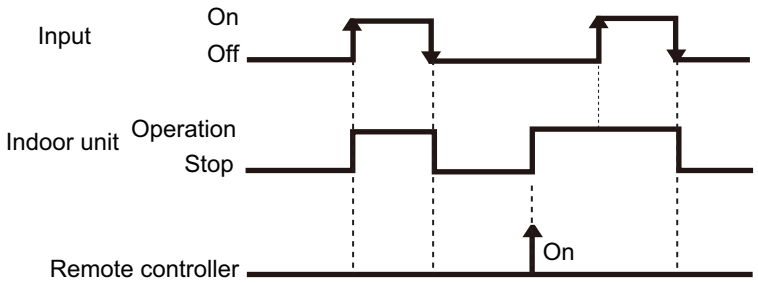
FIELD WORKING

3-4. Details of function

■ Control input function

- **When function setting is "Operation/Stop" mode 1**

Function setting	External input	Input signal	Command
46—00	Terminal	Off → On	Operation
		On → Off	Stop

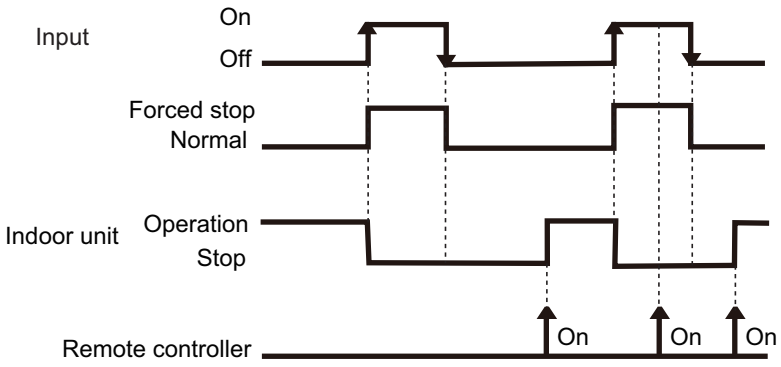


NOTES:

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

- **When function setting is "Forced stop" mode**

Function setting	External input	Input signal	Command
46—02	Terminal	Off → On	Forced stop
		On → Off	Normal



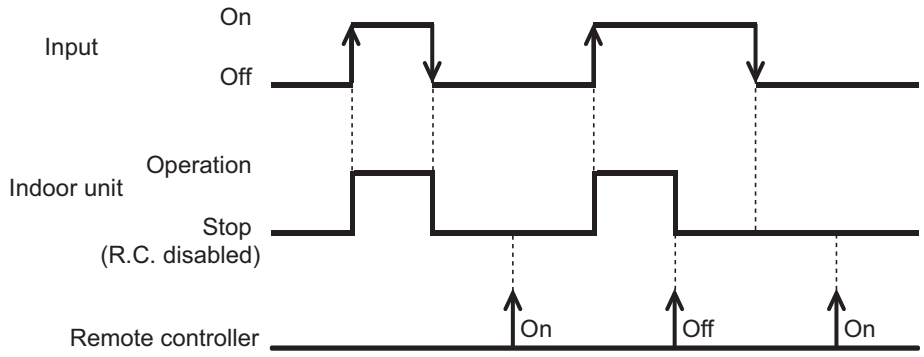
NOTES:

- 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.

FIELD WORKING

- **When function setting is "Operation/Stop" mode 2**

Function setting	External input	Input signal	Command
46—03	Terminal	Off → On	Operation
		On → Off	Stop (R.C. disabled)

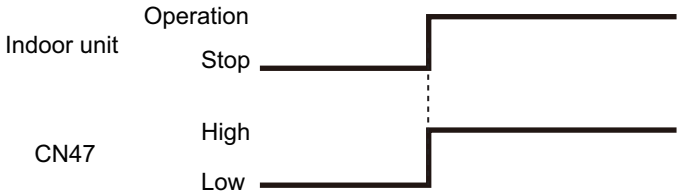


NOTE: When "Operation/Stop" mode 2 function is used with forming a remote controller group, connect the same equipment to each indoor unit within the group.

■ Control output function

Function setting	External output	Output signal	Command
60—00	CN47	Low → High	Operation
		High → Low	Stop

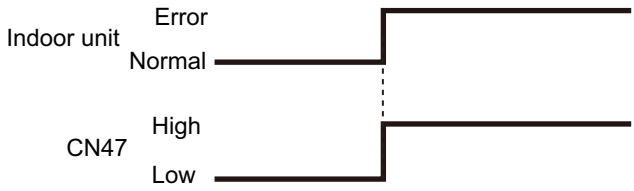
The output is low when the unit is stopped.



■ Error status

Function setting	External output	Output signal	Command
60—09	CN47	Low → High	Error
		High → Low	Normal

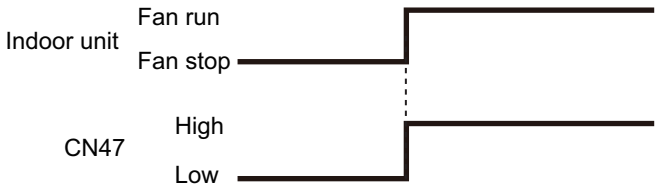
The output is ON when an error is generated for the indoor unit.



■ Indoor unit fan operation status

Function setting	External output	Output signal	Command
60—10	CN47	Low → High	Fan run
		High → Low	Fan stop

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



■ External heater output

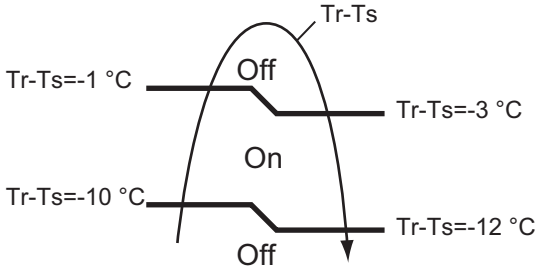
Function setting	External output	Output signal	Command
60—11	CN47	Low → High	Heater on
		High → Low	Heater off

Output signal	Condition
Low → High	Heater turns on as shown in diagram of heating temperature
Off → On	
High → Low	Heater turns off as shown in diagram of heating temperature • Other than Heating mode • Error occurred • Forced thermo off • Fan stop protection
On → Off	

Specifications of the signal output performance are as shown as follows:

Example When set temperature (Ts) is set at 22 °C;

- And room temperature (Tr) increase above 12 °C, signal output is on.
- And Tr increase above 21 °C, signal output is off.
- And Tr decrease below 19 °C, signal output is on.
- And Tr decrease below 10 °C, signal output is off.



The output also turns off in defrost operation.

4. External input and output for outdoor unit

With using external input and output functions, this product can be operated inter-connectedly with an external device.

Connector	Input	Output	Remarks
P580	Low noise mode	—	See external input/output settings for details.
PA580	Peak cut mode	—	
P590	—	Error status	
PA590	—	Compressor status	

4-1. External input

With using external input function, on/off status of “Low noise mode” and “Peak cut mode” can be specified by the external signal.

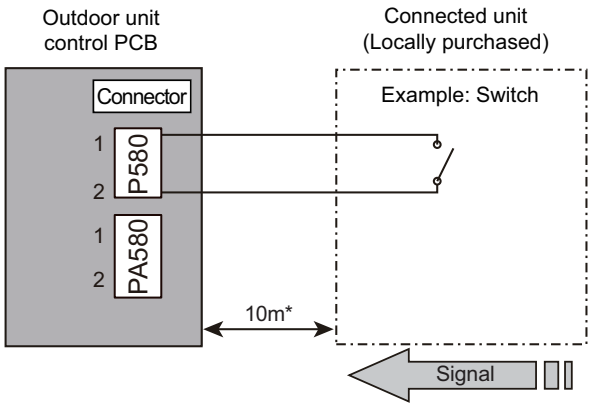
■ Low noise mode

In following condition, the operating noise of the outdoor unit reduces comparing from the one in normal operating condition:

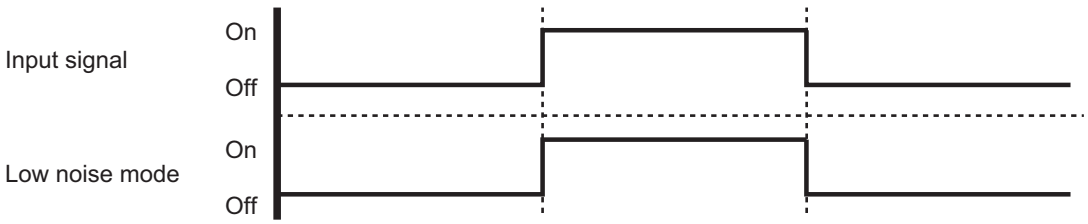
The air conditioner is set to the “Low noise mode” when closing the contact input of a commercial timer or on/off switch to a connector on the control PCB of the outdoor unit.

NOTE: Product performance may drop depending on some conditions such as the outdoor temperature.

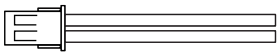
- **Circuit diagram example**



- Contact capacity: DC 24 V or more, 10 mA or more.
- *: Make the distance from the PCB to the connected unit within 10 m.
- Construct a circuit as shown in this figure with using optional parts mentioned below.
- Input signal: On in “Low noise mode”
- Input signal: Off in normal operation
- To set the level of “Low noise mode”, refer to "Low noise mode" on page 05-10.



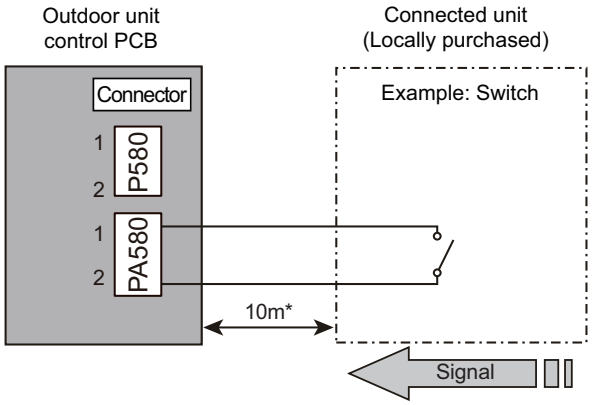
- **Optional part**

Part name	Model name	Exterior
External connect kit	UTY-XWZXZ3	External input wire 

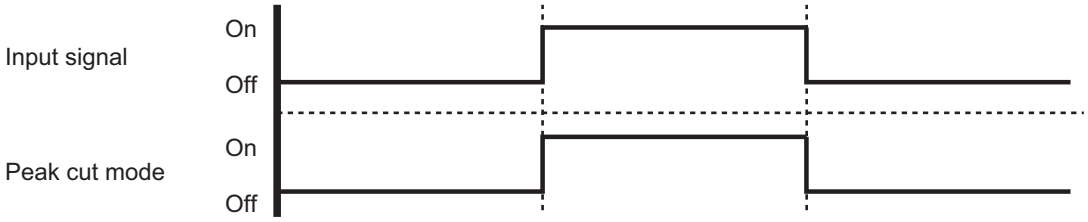
■ Peak cut mode

By performing following on-site work, operation that suppresses the current value can be enabled:
The air conditioner is set to the “Peak cut mode” when closing the contact input of a commercial timer or on/off switch to a connector on the control PCB of the outdoor unit.

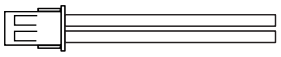
- **Circuit diagram example**



- Contact capacity: DC 24 V or more, 10 mA or more.
- *: Make the distance from the PCB to the connected unit within 10 m.
- Construct a circuit as shown in this figure with using optional parts mentioned below.
- Input signal: On in “Peak cut mode”
- Input signal: Off in normal operation
- To set the level of “Peak cut mode”, refer to "Peak cut mode" on page 05-11.



- **Optional part**

Part name	Model name	Exterior
External connect kit	UTY-XWZXZ3	External input wire 

FIELD WORKING

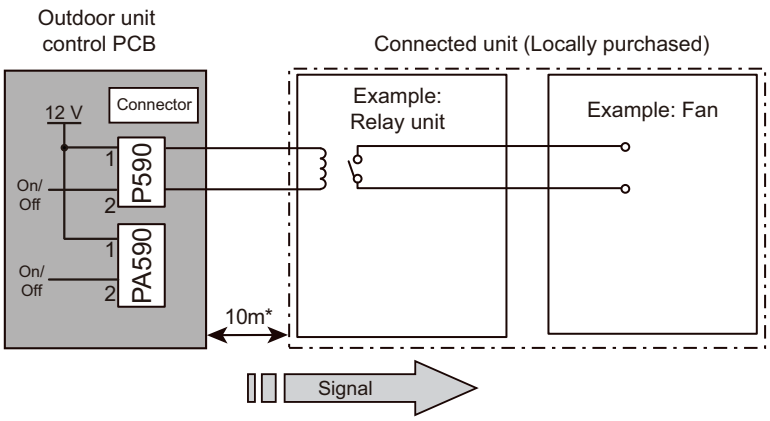
4-2. External output

With using external output function, some status signals are transmitted to the control PCB, and the related LED lamp indicates the status of this product.

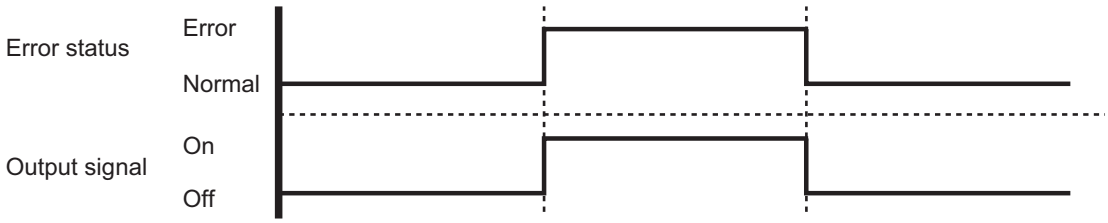
■ Error status output

Signal on air conditioner error status is generated when a malfunction occurs.

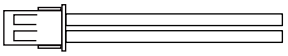
- **Circuit diagram example**



- Output voltage (Vcc): DC 12 V 50 mA or less
- *: Make the distance from the PCB to the connected unit within 10 m.



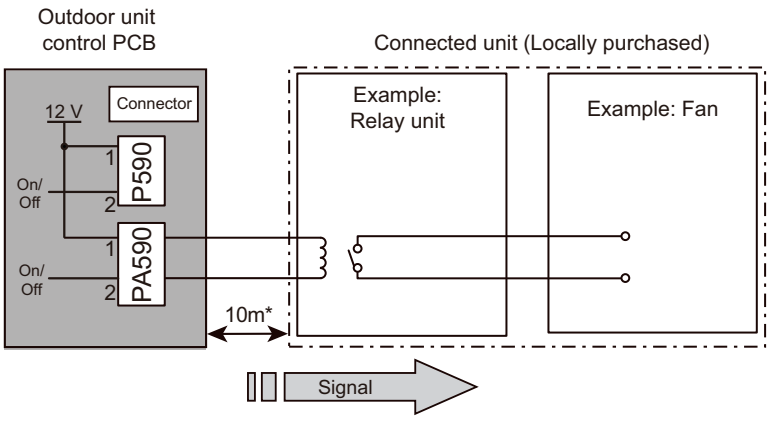
- **Optional part**

Part name	Model name	Exterior
External connect kit	UTY-XWZXZ3	External output wire 

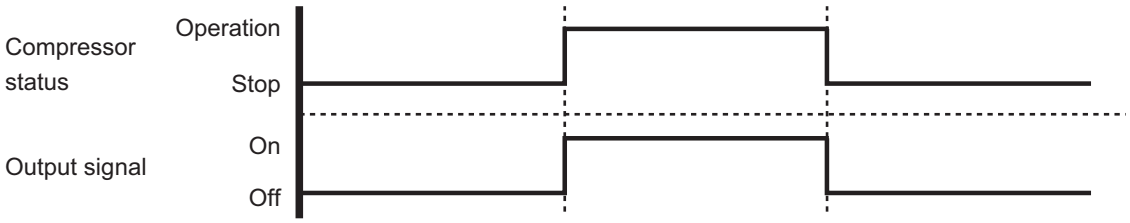
■ Compressor status output

Signal on compressor operation status is generated when the compressor is running.

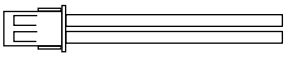
- **Circuit diagram example**



- Output voltage (Vcc): DC 12 V 50 mA or less
- *: Make the distance from the PCB to the connected unit within 10 m.



- **Optional part**

Part name	Model name	Exterior
External connect kit	UTY-XWZXZ3	External output wire 

FIELD WORKING