

TITAN SERIES

SERVICE MANUAL

50/60Hz R410A Full DC
Inverter
Top Discharge

MY2024

CATALOGUE

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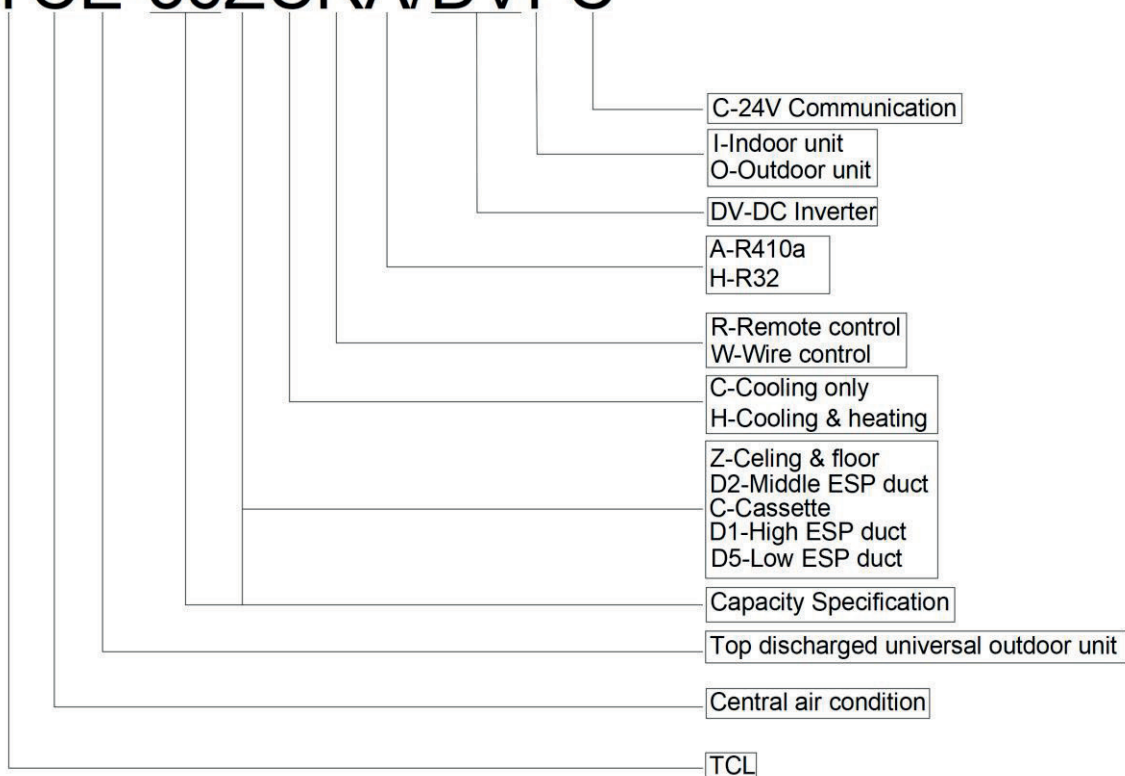
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※The specifications, designs, and information in this book are subject to change without notice for product improvement.

Part 1 General Information

1. Nomenclature

TCE-36ZCRA/DVI-C



2. Model Names of Indoor/Outdoor Units

2.1 Indoor units

Cooling only				
Indoor units type	Indoor units model	Capacity (Btu/h)	Capacity(k)	Power supply
Ceiling & Floor	TCE-36ZCRA/DV2I-C	36000	10551	220V 50/60Hz 1Ph
	TCE-55ZCRA/DV2I-C	55000	16120	220V 50/60Hz 1Ph

Cooling only				
Indoor units type	Indoor units model	Capacity (Btu/h)	Capacity(k)	Power supply
Cassette	TCE-36CCRA/DV2I-C	36000	10551	220V 50/60Hz 1Ph
	TCE-55CCRA/DV2I-C	55000	16120	220V 50/60Hz 1Ph

2.2 Outdoor units

Cooling only				
Outdoor units type	Outdoor units model	Power supply	Compressor mode	Compressor brand
Outdoor unit	TCE-36CA/DV2O-C	220V/60Hz/1Ph	KTM240D43UMT	GMCC
	TCE-55CA/DV2O-C	220V/60Hz/1Ph	GTH420SKPC8DQ	HIGHLY

3. External Appearance

3.1 Indoor Units

Ceiling & Floor type



Cassette



3.2 Outdoor Units



4. Features

This new series has below outstanding improvements and features.

1. Frequency conversion control, high efficiency and energy saving.
2. Elegant appearance.
3. Seasonal comprehensive energy efficiency up to SEER16.
4. Compact body with more competitive loading capacity.
5. Reliable and well-known compressors.
6. RS485(12V) & 24V control start-up, safety.
7. Electronic expansion valve to achieve accurate flow closure.
8. Easy to install the unit.

Part 2 Indoor Unit

1. Features

1.1 Ceiling & Floor

- 1) New design, more modern and elegant appearance.

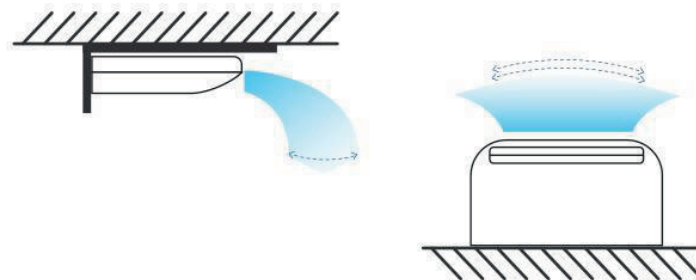


Display middle design
(optional)

- 2) Convenient installation.

--The ceiling type can be easily installed into a corner of the ceiling even if the ceiling is very narrow
--It is especially useful when installation of an air conditioner in the center of the ceiling is impossible due to a structure such as one lighting.

- 3) vertical direction auto swing and wide-angle air flow.



- 4) Three level fan speed, more humanism design, meets different air-supply requirement.

- 5) Dual Direction of Drainage

--Condensing water can be drained either from left or from right.





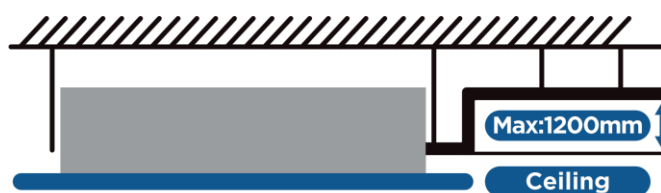
- 6) Standard for wireless controller; option for wired controller

1.2 Cassette

- 1) New design which is more suitable for room decoration.



- 2) The condensing water can be lifted up to 750mm, which is convenient for installation.



- 3) Filters can be removed easily for cleaning and maintenance.



- 4) Quiet operation by using optimized 3D indoor fan.



5) Standard for wireless controller; option for wired controller.



2. Specifications

2.1 Ceiling & Floor

CEILING FLOOR TYPE				
Model name	Ceiling Floor Indoor		TCE-36ZCRA/DV2I-C	TCE-55ZCRA/DV2I-C
Power supply		V/Ph/Hz	208~230V/60Hz/1ph	208~230V/60Hz/1ph
Cooling	Capacity	Btu/h	36000	54000
	Capacity	W	10548	15822
	Input	W	4200	6500
	Rated current	A	19.0	29.5
	SEER		16	18
Indoor coil	Number of row		3	3
	Fin spacing	mm	1.5	1.5
	Fin material		Hydrophilic & Louver Fin	Hydrophilic & Louver Fin
	Tube outside diameter	mm	φ7	φ7
	Tube material		Innergroover tube type	Innergroover tube type
	Coil length x height x width	mm	940*294*38.1	1300×294×37.8
	Number of circuit		7	10
Indoor fan motor	Brand		Lifeng	Lifeng
	Model		RD(AL)132HA	RD40HU
	Motor type		DC motor	DC motor
	Input	W	166	200
	Running current	A	0.8	0.9
	Capacitor	uF	/	/
	Speed (Hi/Me/Lo)	rpm	1400/1200/1100	1350/1260/1170
Indoor air flow (Hi/Me/Lo)		m ³ /h	1650/1380/1120	2180/2070/1900
Indoor noise level (Hi/Me/Lo)		dB(A)	51/46/44	54/52/50
Indoor dimension	Unit (WxHxD)	mm	1275x235x675	1635x235x675
	Packing (WxHxD)	mm	1350x305x748	1710×305×748
Indoor weight	Net	kg	30	38
	Gross	kg	35	43
Refrigerant	Type		R410a	R410a
Refrigerant pipe	Liquid side	mm	9.52	9.52
	Gas side	mm	15.88	19.05
Drainage water pipe diameter		mm	OD25	OD25
Operation temperature range		°C	16~31	16~31
Operation Control			Remote controller	Remote controller

Notes:

- Tests are based on standard AHRI 210/240.
- Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room

2.2 Cassette

CASSETTE TYPE				
Model name	Q8 Cassette Indoor		TCE-36CCRA/DV2I-C	TCE-55CCRA/DV2I-C
Power supply		V//Hz/Ph	208~230V/60Hz/1ph	208~230V/60Hz/1ph
Cooling	Capacity	Btu/h	36000	55000
	Capacity	W	10548	16115
	Input	W	4200	6500
	Rated current	A	19.0	29.5
	SEER		18	18
Indoor coil	Number of row		2	3
	Fin spacing	mm	1.2	1.3
	Fin material		Hydrophilic & Louver Fin	Hydrophilic & Louver Fin
	Tube outside diameter	mm	φ5	φ5
	Tube material		Innergroover tube type	Innergroover tube type
	Coil length x height x width	mm	2050×254×23.2	2050×254×34.8
	Number of circuit		12	12
Indoor fan motor	Brand		Kaibang	Lifeng
	Model		ZWR60-E51	RD100HD1
	Motor type		DC motor	DC motor
	Input	W	135	160
	Running current	A	0.6	0.7
	Capacitor	uF	/	/
	Speed (Hi/Me/Lo)	rpm	730/670/620	860/800/720
Indoor air flow (Hi/Me/Lo)		m ³ /h	1740/1600/1460	2000/1840/1740
Indoor noise level (Hi/Me/Lo)		dB(A)	50/48/46	52/49/46
Indoor dimension	Unit (WxHxD)	mm	840x290x840	840x290x840
	Packing (WxHxD)	mm	935x350x935	935x350x935
Indoor weight	Net	kg	26	28
	Gross	kg	31	33
Panel	Unit (WxHxD)	mm	950×45×950	950×45×950
	Packing (WxHxD)	mm	1035×90×1035	1035×90×1035
	Net/Gross	kg	6.0/9.0	6.0/9.0
Refrigerant	Type		R410a	R410a
Refrigerant pipe	Liquid side	mm	9.52	9.52
	Gas side	mm	15.88	19.05
Drainage water pipe diameter		mm	OD25	OD25
Operation temperature range		°C	16~31	16~31
Operation Control			Remote controller	Remote controller

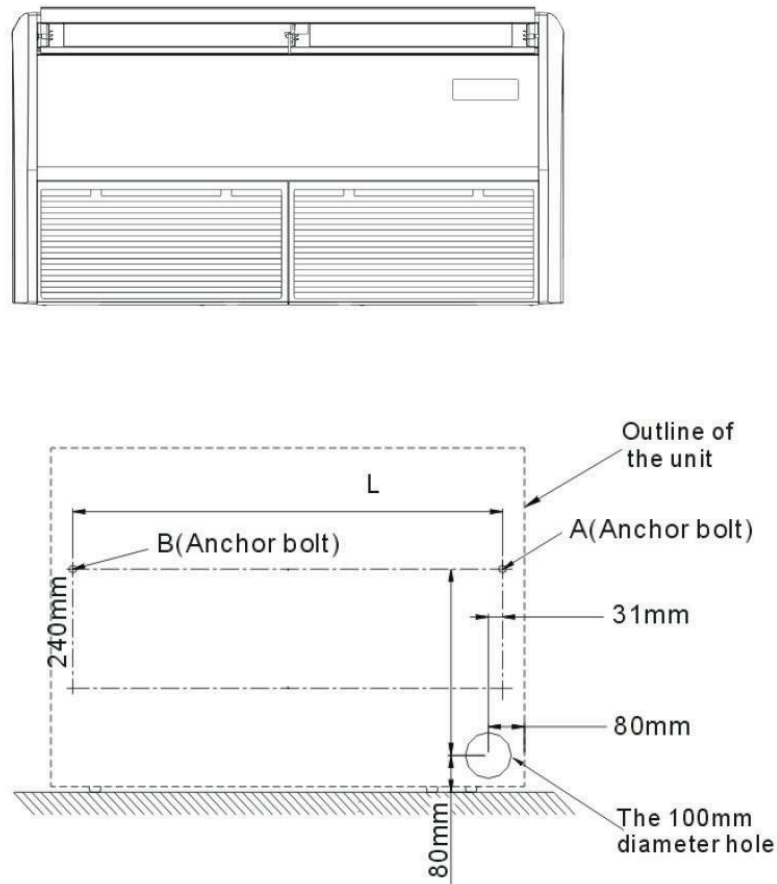
Notes:

- Tests are based on standard AHRI 210/240.
- Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room;

3. Dimensions

3.1 Ceiling & Floor

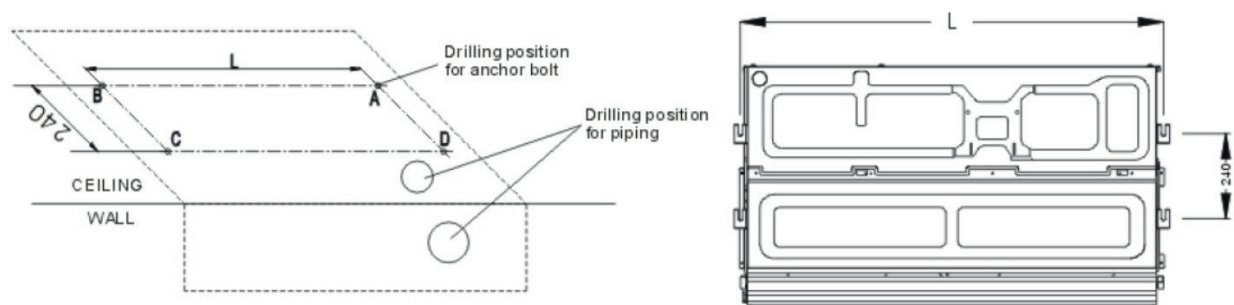
a. Floor console installation



NOTE:

Cooling Capacity Dimension	18000 Btu/hr	24000 Btu/hr	36000 Btu/hr	48000 Btu/hr
L	980mm	980mm	1200mm	1560mm

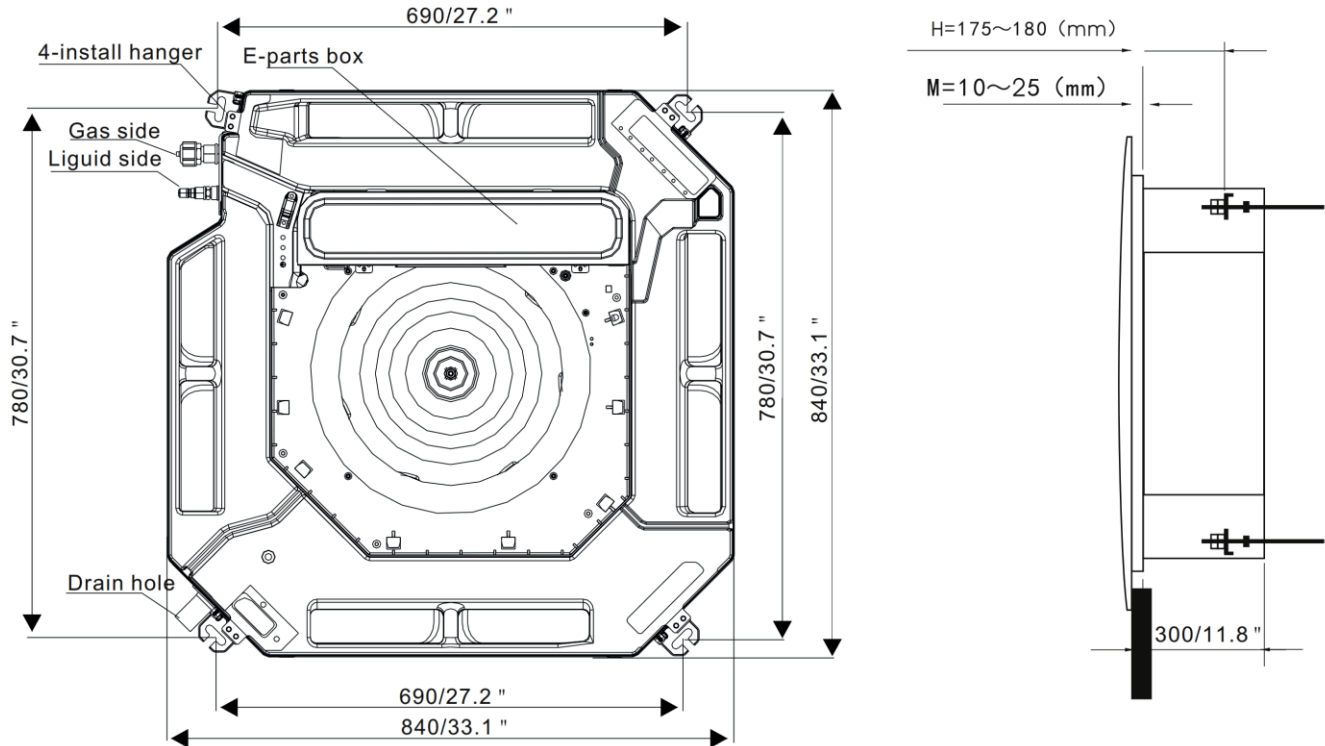
b. Ceiling installation



Cooling Capacity Dimension	36000Btu/h	55000Btu/h
L	1200mm	1560mm

3.2 Cassette

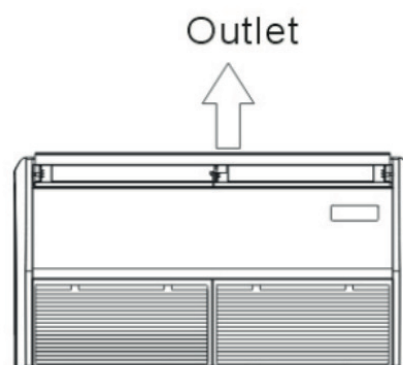
a. 36000Btu/h, 55000Btu/h



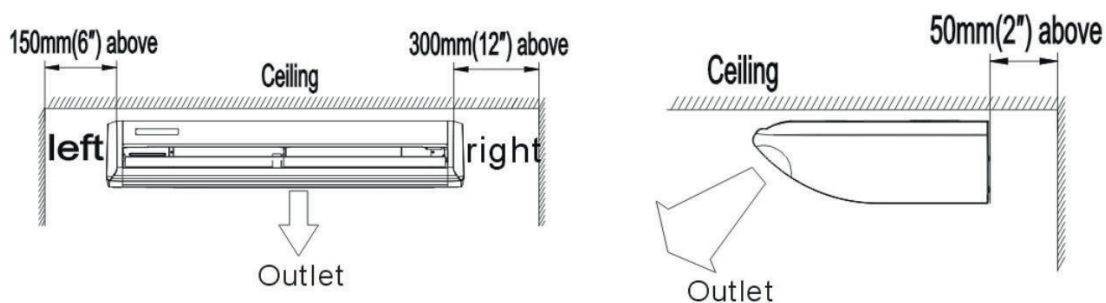
4. Service Space

4.1 Ceiling & Floor

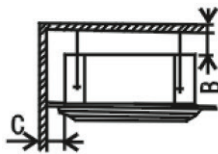
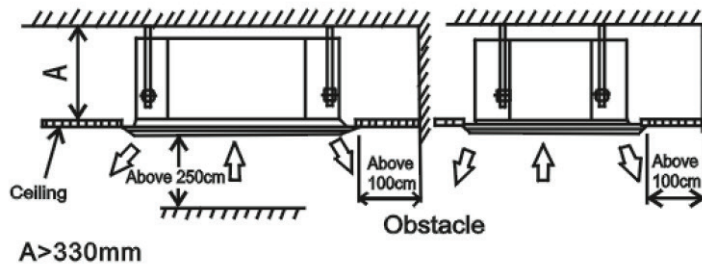
a. Floor console



b. Under ceiling



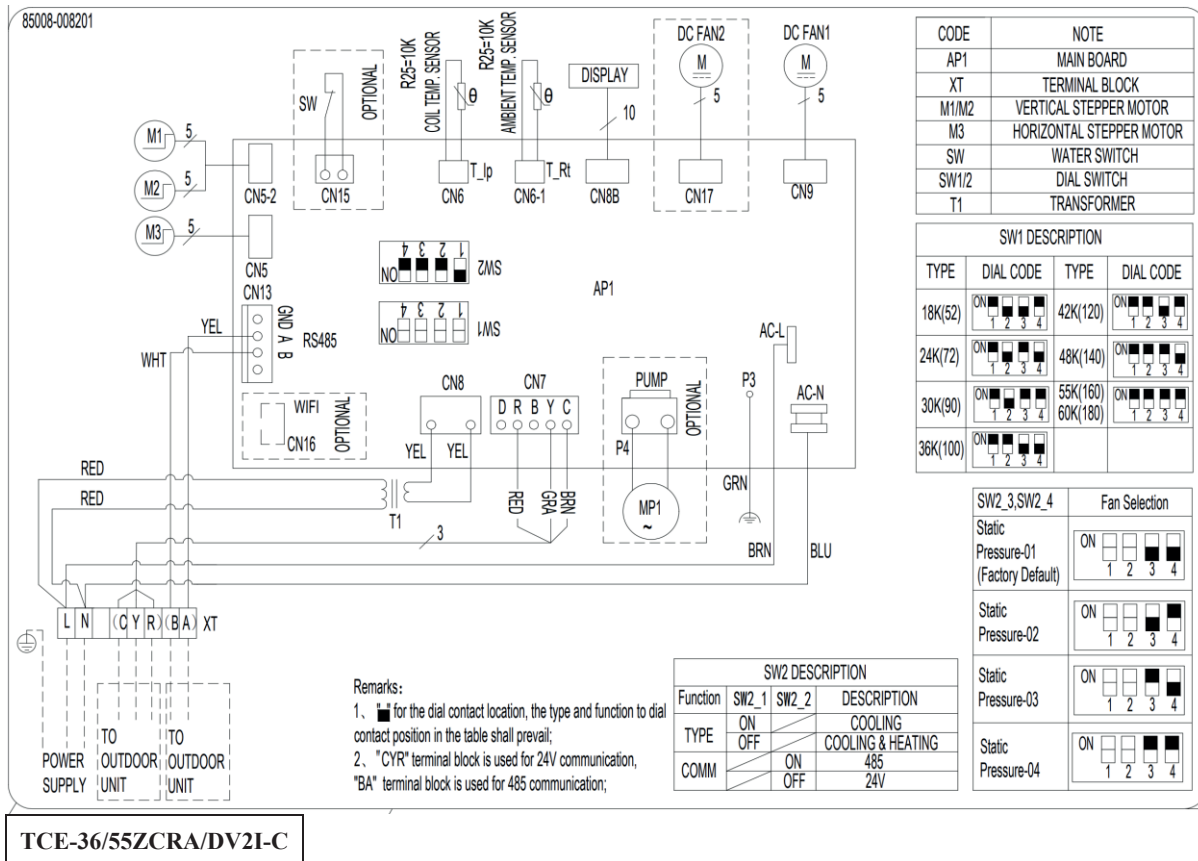
4.2 Cassette



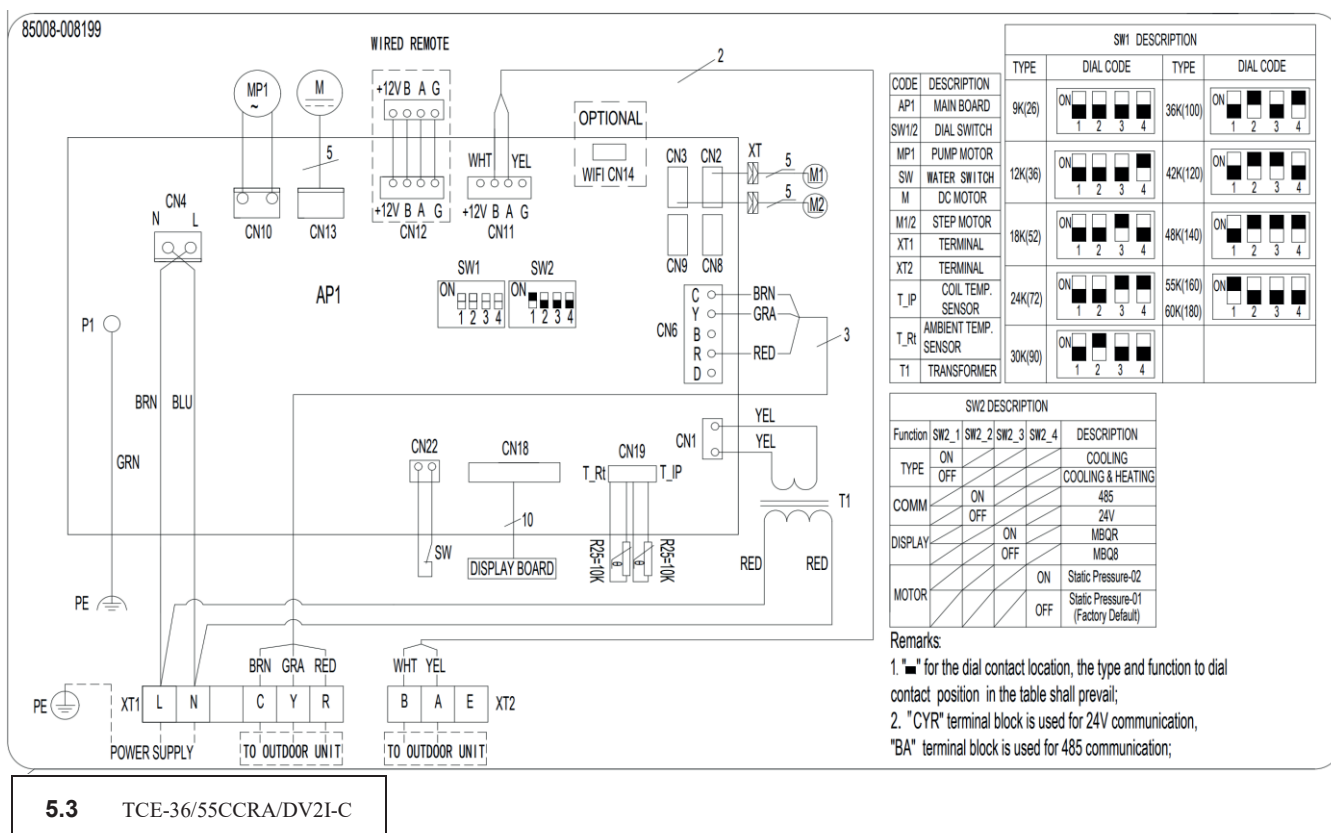
Wall material	Flammable material	Fire-proof material or other nonflammable materials other than metal	Fire-proof structure
Up(B)	Above 5cm	Above 5cm	Above 5cm
Sides(C)	Above 100cm	Above 100cm	—

5. Wiring Diagrams

5.1 Ceiling & floor



5.2 Cassette



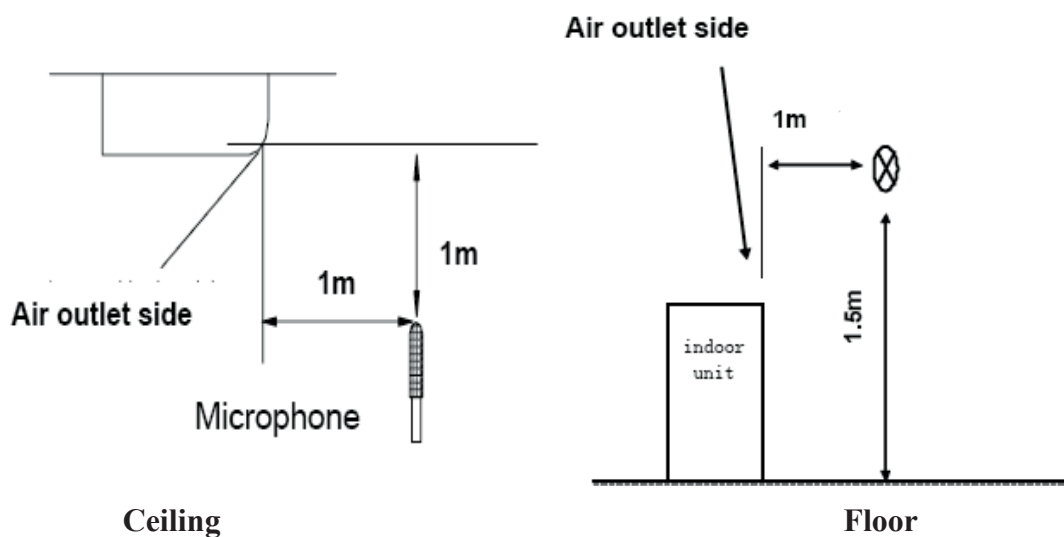
6. Electric Characteristics

Ceiling & floor	Indoor Units				Indoor Fan Motor
Model	Hz	Voltage	Min.	Max.	KW
TCE-36ZCRA/DV2I-C	50/60	220-230V	185V	242V	0.166
TCE-55ZCRA/DV2I-C	50/60	220-230V	185V	242V	0.100×2

Cassette	Indoor Units				Indoor Fan Motor
Model	Hz	Voltage	KW	Max.	kW
TCE-36CCRA/DV2I-C	50/60	220-230V	185V	242V	0.135
TCE-55CCRA/DV2I-C	50/60	220-230V	185V	242V	0.160

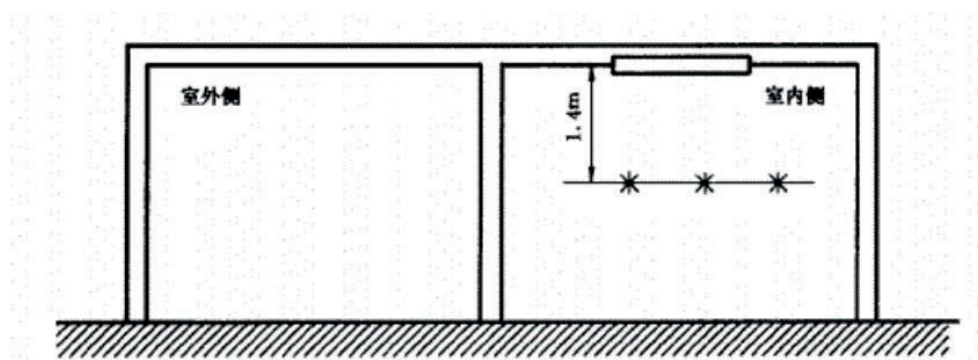
7.Sound Levels

a) Ceiling & floor



Ceiling&floor	Noise level dB(A)		
Model	H	M	L
TCE-36ZCRA/DV2I-C	51	46	44
TCE-55ZCRA/DV2I-C	54	52	50

b) cassette



Cassette	Noise level dB(A)		
Model	H	M	L
TCE-36CCRA/DV2I-C	50	48	46
TCE-55CCRA/DV2I-C	52	49	46

8. The Specification of Wiring

8.1 Ceiling & Floor

Model		TCE-36ZCRA/DV2I-C	
Indoor power supply		V/Ph/Hz	220~240/1/(50/60)
Outdoor power supply		V/Ph/Hz	220~240/1/(50/60)
Connection wiring	Outdoor Power Supply		Power supply individually for indoor and outdoor
	Power wiring for indoor unit	mm ²	3×0.75
	Power wiring for outdoor unit	mm ²	3×4.00
	signal wire	mm ²	3×0.75

Model		TCE-55ZCRA/DV2I-C	
Indoor power supply		V/Ph/Hz	220~240/1/(50/60)
Outdoor power supply		V/Ph/Hz	220~240/1/(50/60)
Connection wiring	Outdoor Power Supply		Power supply individually for indoor and outdoor
	Power wiring for indoor unit	mm ²	3×0.75
	Power wiring for outdoor unit	mm ²	3×6.00
	signal wire	mm ²	3×0.75

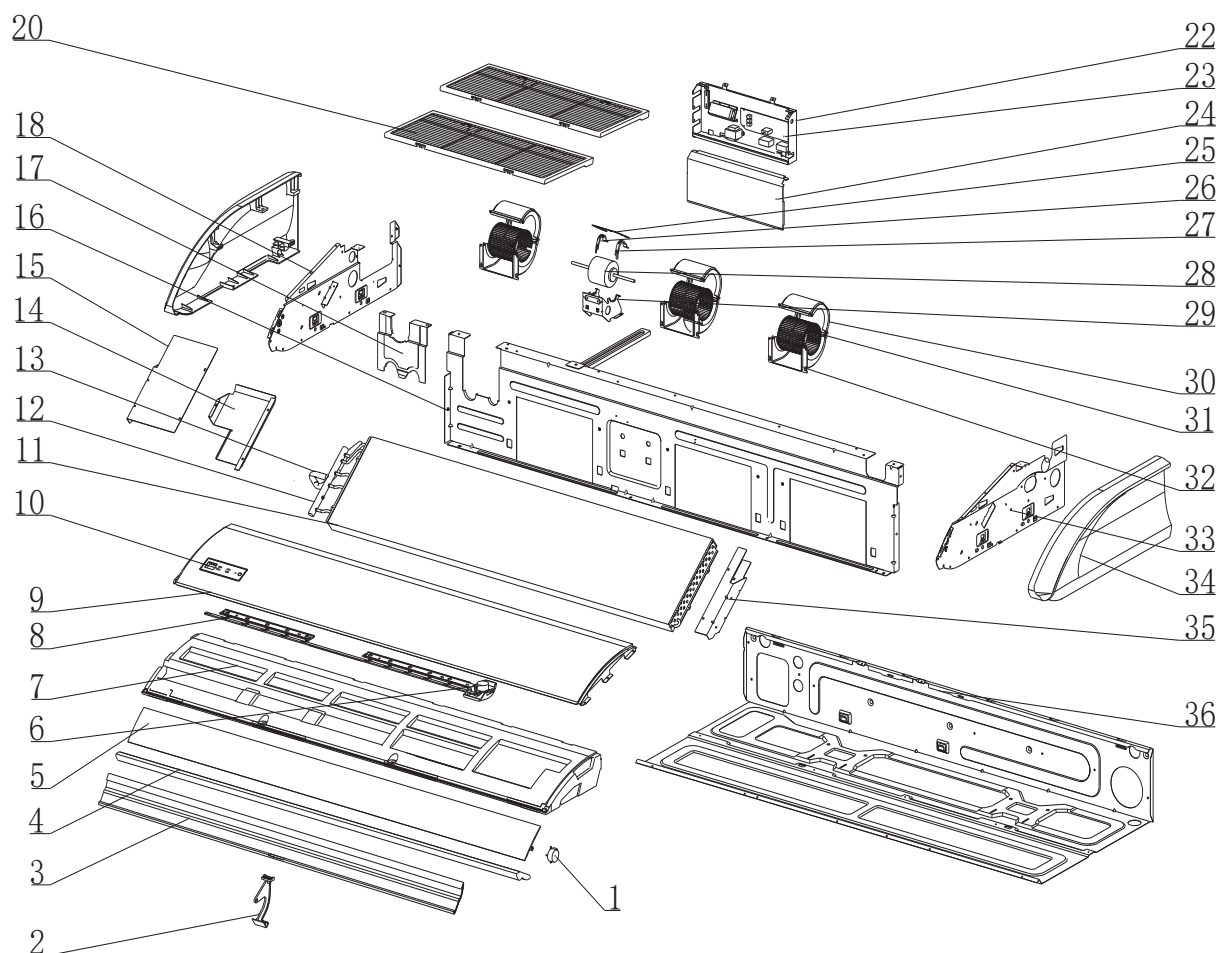
8.2 Cassette

Model		TCE-36CCRA/DV2I-C	
Indoor power supply		V/Ph/Hz	220~240/1/(50/60)
Outdoor power supply		V/Ph/Hz	220~240/1/(50/60)
Connection wiring	Outdoor Power Supply		Power supply individually for indoor and outdoor
	Power wiring for indoor unit	mm ²	3×0.75
	Power wiring for outdoor unit	mm ²	3×4.00
	signal wire	mm ²	3×0.75

Model		TCE-55CCRA/DV2I-C	
Indoor power supply		V/Ph/Hz	220~240/1/(50/60)
Outdoor power supply		V/Ph/Hz	220~240/1/(50/60)
Connection wiring	Outdoor Power Supply		Power supply individually for indoor and outdoor
	Power wiring for indoor unit	mm ²	3×0.75
	Power wiring for outdoor unit	mm ²	3×6.00
	signal wire	mm ²	3×0.75

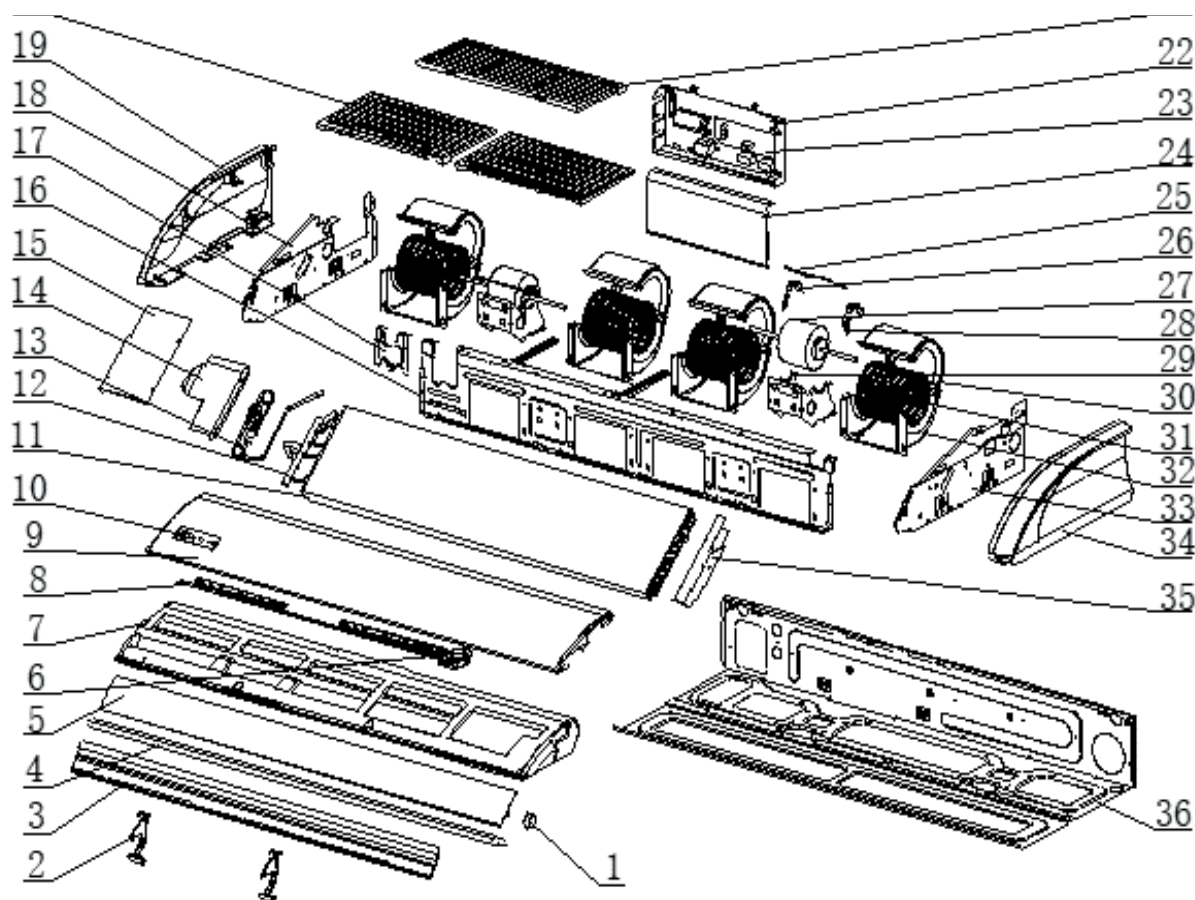
4. Explosive view

a. Ceiling&floor



TCE-36ZCRA/DV2I-C			
NO.	New Code	Part name	Q'ty
1	25001-000240	Stepper motor	1
2	45008-000217	Air guide bar bracket	2
3	45008-000179	Air outlet floor	1
4	45008-000162	Air vent foam	1
5	45008-000146	Wind deflectors	1
6	25001-000123	Stepper motor	1
7	45011-000053	Water tray assembly	1
8	45801-000022	Blade assembly	1
9	45013-000162	Front panel	1
10	45801-000019	Display the light box	1
11	95003-000807	Evaporator assembly	1
12	95016-001421	Output tube assembly	1
13	95016-001173	Input tube assembly	1
14	45801-000046	Evaporator lower right cover assembly	1
15	45801-000074	Evaporator upper right cover assembly	1

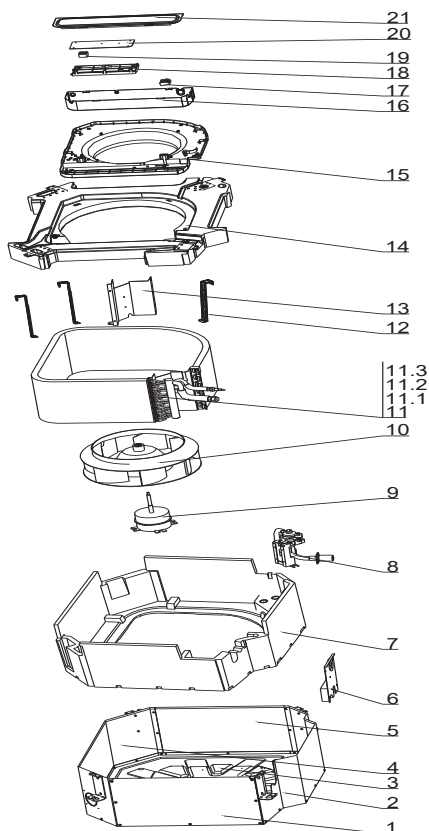
16	45014-003318	Middle partition assembly	1
17	45014-003522	Valve plate	1
18	45003-000202	Right plate assembly	1
19	45014-002001	Block on the right	1
20	45014-003013	Grille assembly	2
22	45006-001403	Electric control box assembly	1
22.1	25009-000209	transformer	1
22.2	25004-000026	Thermistor	1
22.3	25004-000128	Thermistor	1
22.4	35005-000168	Terminal block 8-position terminal block L/N/space/(C/Y/R)/(B/A)	1
23	35004-001760	Indoor control panel	1
24	45006-000354	Electronic control box cover	1
25	45005-000255	Motor limit card	2
26	45005-000196	The motor bearing is right snapped	2
27	25001-000430	Dual shaft motor	2
28	45005-000232	Motor bearing left snap	2
29	45005-000396	Motor mount	2
30	45008-000195	Volute on the wind wheel	4
31	45009-000015	Centrifugal fan	4
32	45008-000153	Volute under the wind wheel	4
33	45003-000092	Left plate assembly	1
34	45003-000044	Left block	1
35	45801-000033	The evaporator left seals the cover assembly	1
36	45004-000206	Chassis components	1


TCE-55ZCRA/DV2I-C

NO.	New Code	Part name	Q'ty
1	25001-000240	Stepper motor	1
2	45008-000217	Air guide bar bracket	2
3	45008-000229	Air outlet floor	1
4	45008-000125	Air vent foam components	1
5	45008-000284	Wind deflectors	1
6	25001-000123	Stepper motor	1
7	45011-000087	Water tray assembly	1
8	45801-000062	Blade assembly	1
9	45013-000127	Front panel	1
10	35010-000074	Displays the components	1
11	95003-000463	Evaporator assembly	1
12	95016-000544	Output tube assembly	1
13	95016-000577	Input tube assembly	1
14	45801-000046	Evaporator lower right cover assembly	1
15	45801-000074	Evaporator upper right cover assembly	1
16	45014-002009	Middle partition assembly	1
17	45014-003522	Valve plate	1
18	45003-000202	Right plate assembly	1
19	45014-002001	Block on the right	1
20	45014-002551	Grille assembly	2
21	45014-003013	Grille assembly	1

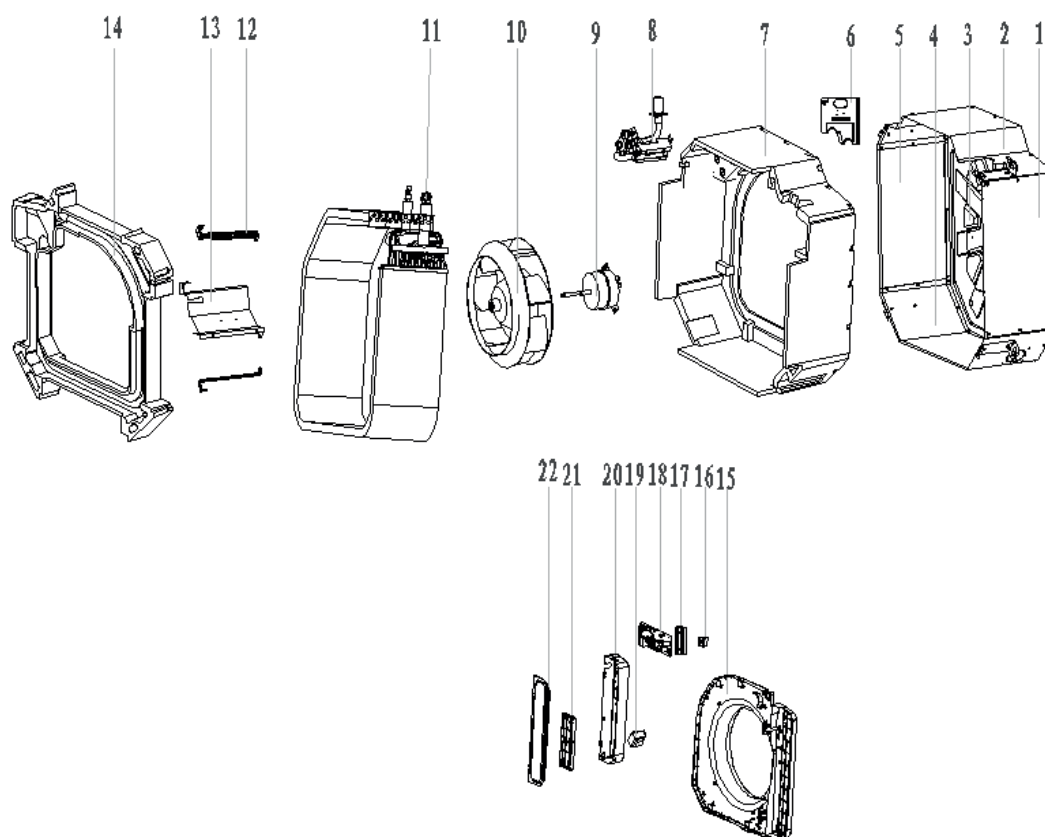
22	45006-001403	Electric control box assembly	1
23	35004-001760	Indoor control panel	1
24	45006-000354	Electronic control box cover	1
25	45005-000512	Motor limit card	2
26	45005-000196	The motor bearing is right snapped	1
27	25001-000196	Dual shaft motor	2
28	45005-000232	Motor bearing left snap	2
29	45005-000511	Motor mount	2
30	45008-000195	Volute on the wind wheel	2
31	45009-000015	Centrifugal fan	2
32	45008-000153	Volute under the wind wheel	4
33	45003-000092	Left plate assembly	4
34	45003-000044	Left block	4
35	45801-000033	Evaporator left cover assembly	1
36	45004-000015	Chassis components	1

b. Cassette



TCE-36CCRA/DV2I-C			
NO.	New Code	Part name	Q'ty
1	45901-000102	5P left and right side hoarding assembly	1
2	45901-000092	5P front panel assembly	1
3	45004-000537	5P chassis assembly	1
4	45901-000095	5P tailwall assembly	1
5	45901-000102	5P left and right side hoarding assembly	1
6	45901-000035	Outlet seal plate components	1
7	45004-000326	Base foam part	1
8	45014-003541	Water pump parts	1
9	25001-000429	Centrifugal fan motor	1
10	45009-000053	Centrifugal fan	1
11	95003-004349	Evaporator components	1
11.1	95003-004348	Evaporator assembly	1
11.2	95016-001419	Evaporator input tube assembly	1
11.3	95016-001420	Evaporator output tube assembly	1
12	45014-004163	Evaporator fixing hook	3
13	45010-000072	Evaporator fixing plate	1
14	45011-000120	Water tray parts	1
15	45008-000369	Deflector	1

16	45006-000399	Electric control box	1
17	35005-000167	Terminal blocks	1
18	45901-000112	Electronic control motherboard mounting box	1
19	35005-000074	Terminal blocks	1
20	35004-001723	Indoor control panel	1
21	35001-000374	Electronic control box cover	1
16.1	25009-000209	transformer	1



TCE-55CCRA/DV2I-C			
NO.	New Code	Part name	Q'ty
1	45901-000102	5P left and right hoarding assembly	1
2	45901-000092	5P front panel assembly	1
3	45004-000390	Chassis components	1
4	45901-000095	5P tailwall assembly	1
5	45901-000102	5P left and right hoarding assembly	1
6	45901-000035	Outlet seal plate components	1
7	45004-000326	Base foam part	1
8	45014-003541	Water pump parts	1
9	25001-000337	Motor	1
10	45009-000053	Centrifugal fan	1
11	95003-004342	Evaporator module	1
12	45014-004720	Evaporator fixing hook	3
13	45010-000247	Evaporator fixing plate parts	1
14	45011-000120	Water tray parts	1
15	45008-000369	Deflector	1
16	35005-000074	Terminal blocks	1
17	35005-000167	Terminal blocks	1
18	35004-001723	Ceiling machine indoor control panel	1
19	25009-000209	transformer	1
20	45006-000399	Electric control box	1
21	45901-000112	Electronic control motherboard mounting box	1

22	35001-000374	Electronic control box cover	1
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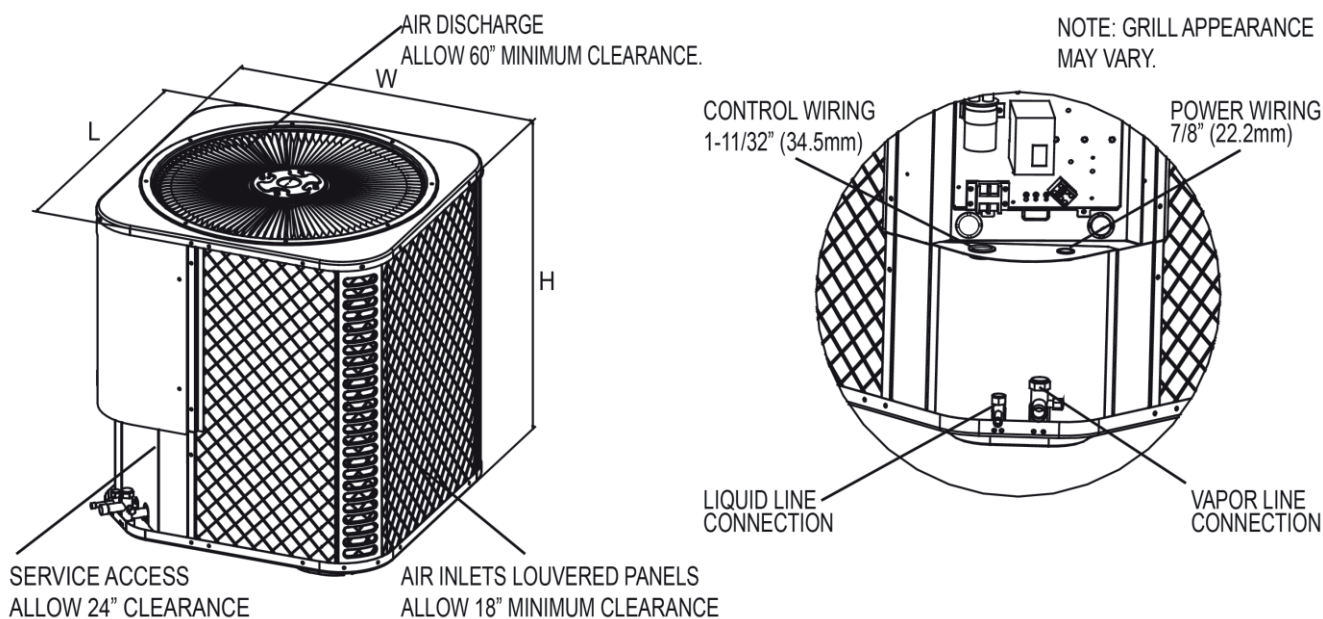
Part 3 Outdoor Unit

1. Specifications

UNIVERSAL OUTDOOR UNIT				
Model name		Universal Outdoor Unit	TCE-36CA/DV20-C	TCE-55CA/DV20-C
Power supply		V/Ph/Hz	208~230V/60Hz/1ph	208~230V/60Hz/1ph
Max. input consumption		W	4400	6700
Max. current		A	20	30.5
Starting current		A	/	/
Max Operating Pressure(MPa)	Discharge	MPa	4.2	4.2
	Suction	MPa	1.5	1.5
Compressor	Brand		GMCC	HIGHLY
	Model		KTM240D43UMT	GTH420SKPC8DQ
	Type		Rotary	Rotary
	Capacity	W	7740	11800
	Input	W	2065	3580
	Rated current(RLA)	A	9.4	15.8
	Locked rotor Amp(LRA)	A	/	/
	Thermal protector		/	/
	Capacitor	mF	/	/
	Refrigerant oil	ml	620	1050
Outdoor coil	Number of row		2	2
	Fin spacing	mm	1.2	1.2
	Fin material		Louver or Corrugated Fin	Louver or Corrugated Fin
	Tube outside diameter	mm	φ5	φ5
	Tube material		Innergroover tube type	Innergroover tube type
	Coil length x height x width	mm	2187×585×23.2	2187×800×23.2
	Number of circuit		4	10
Outdoor motor	Motor type		DC motor	DC motor
	Brand		BROADOCEAN	BROADOCEAN
	Model		ZW511D000018L	ZW511D000018L
	Capacitor	mF	/	/
	Speed	rpm	1000	1050
Outdoor air flow		m ³ /h	5500	7000
Outdoor noise level		dB(A)	61	62
Outdoor dimension	Unit (WxHxD)	mm	740×633×740	740×843×740
	Packing (WxHxD)	mm	769×656×769	769×865×769
Outdoor weight	Net	kg	52	66
	Gross	kg	57	71
Refrigerant	Type		R410a	R410a
	Charge	g	2300	3000
Throttle type			electronic expansion valve	electronic expansion valve
Refrigerant pipe	Liquid side	mm	9.52	9.52

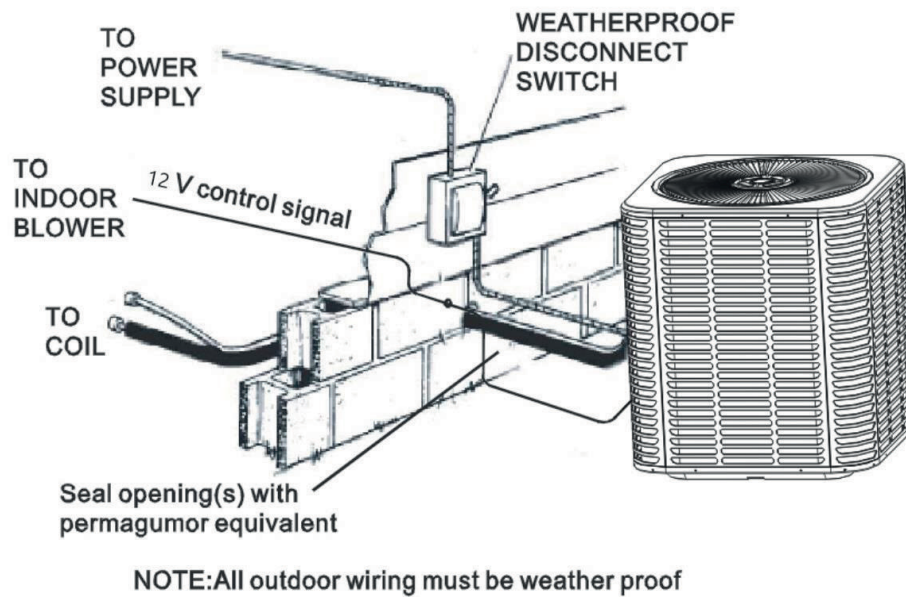
	Gas side	mm	15.88	19.05
	Max. refrigerant pipe length	m	25	30
	Max. difference in level	m	15	20
Ambient temperature range	Cooling	°C	5~48	5~48
	Heating	°C	/	/

2. Dimensions



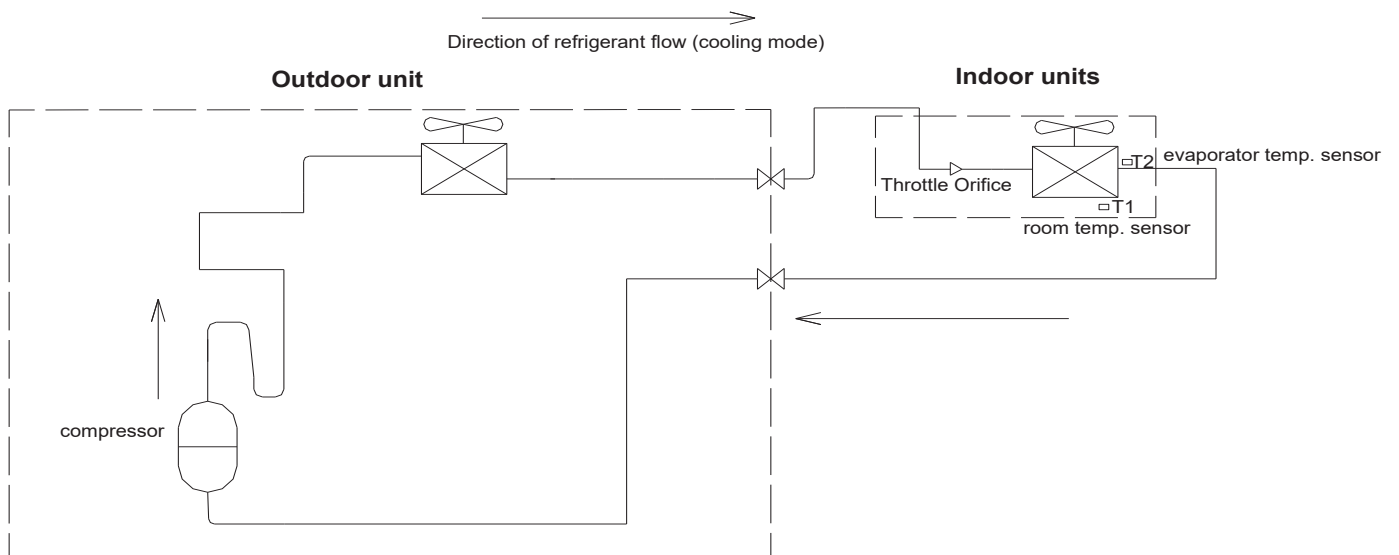
Unit Model (Btu/h)	Dimensions (Inches)			Refrigerant Connection Service Valve Size	
	"H" in [mm]	"W" in [mm]	"L" in [mm]	Liquid in	Vapor in
36000	24-23/25(633)	29-1/8(740)	29-1/8(740)	3/8	5/8
55000	33-3/16(843)	29-1/8(740)	29-1/8(740)	3/8	3/4

3. Service Space

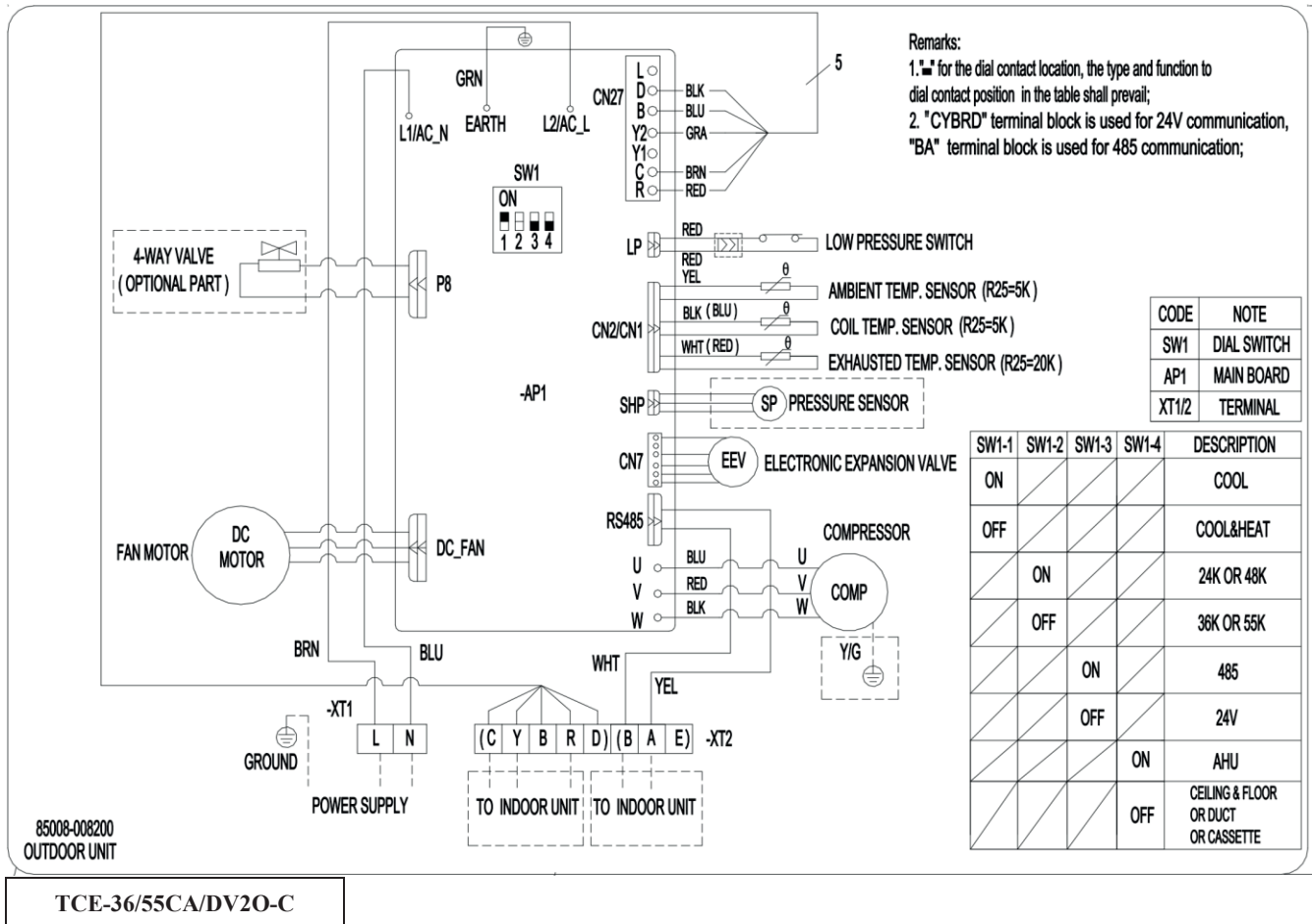


4. Piping Diagrams

TCE-36CA/DV20-C TCE-55CA/DV20-C



Wiring Diagrams

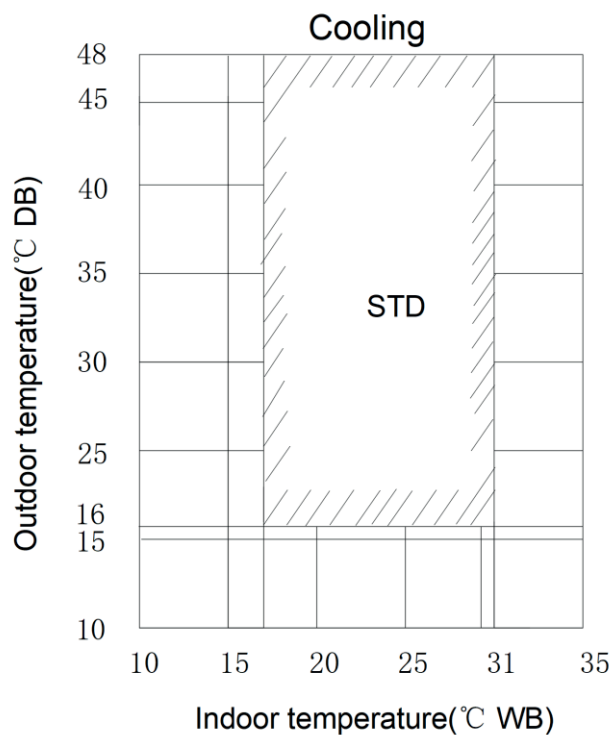


5. Electric Characteristics

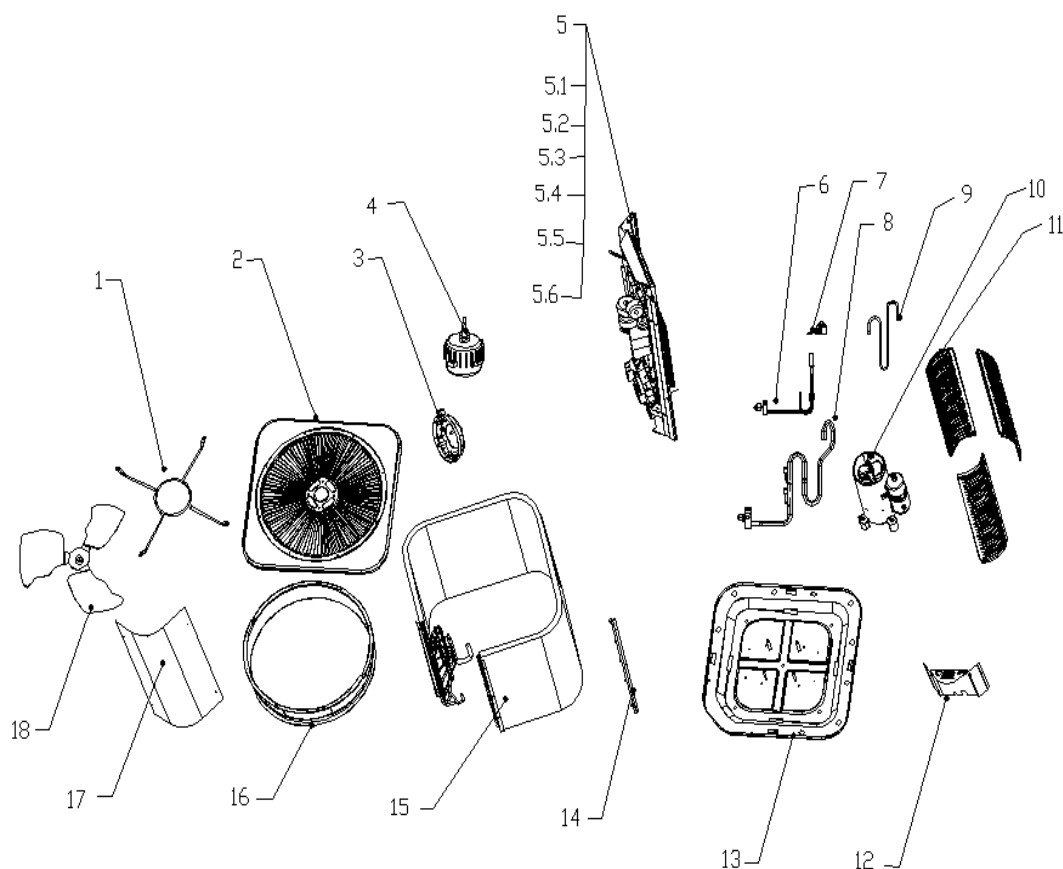
Model	Outdoor Units				Outdoor Fan Motor
	Hz	Voltage	Min.	Max.	kW
TCE-36CA/DV2O-C	50/60	220-230V	185V	242V	195
TCE-55CA/DV2O-C	50/60	220-230V	185V	242V	195

6. Operation Limits

Operation mode	Outdoor temperature(°C)	Room temperature(°C)
Cooling operation	5~48	5~48
Heating operation	/	/

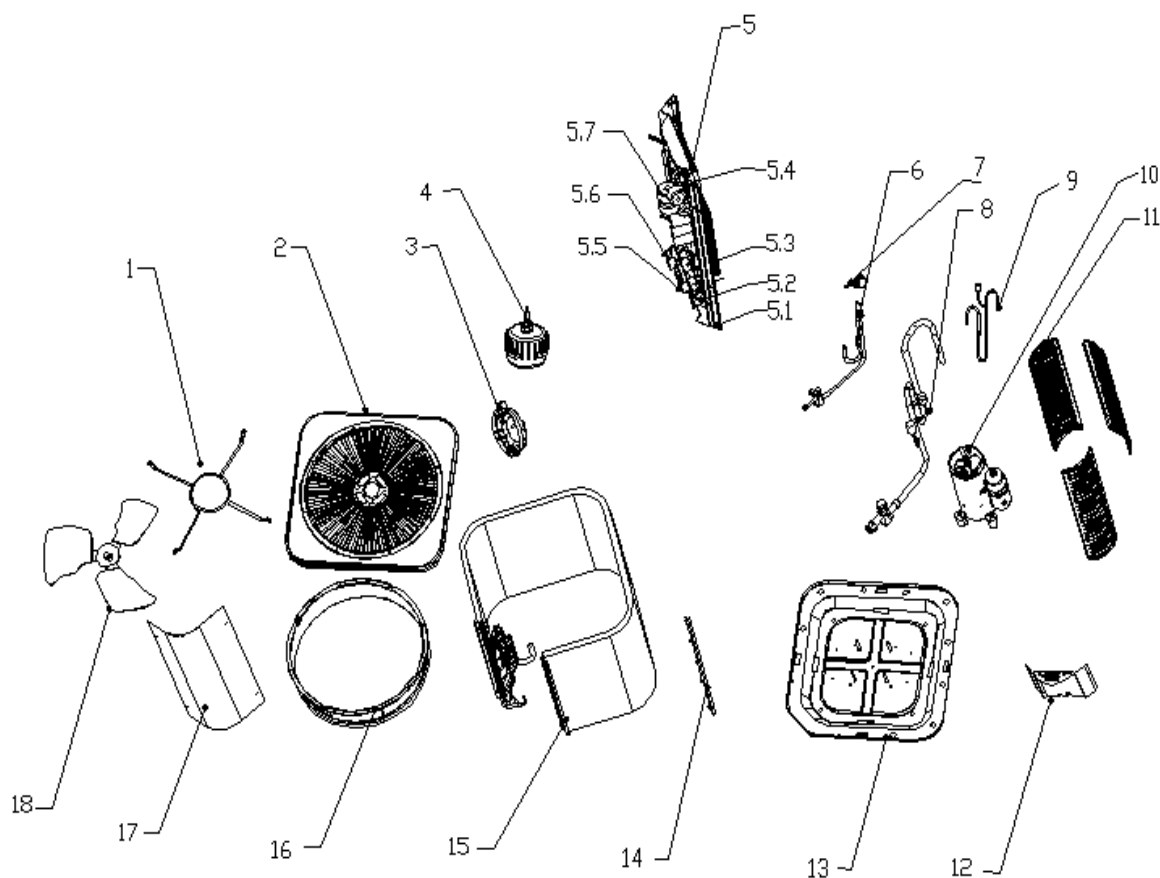


7. Explosive view



TCE-36CA/DV20-C				
NO.	New Code	Part name	Q'ty	NO.
1	45801-000032	Support frame	1	
2	45007-000044	Top cover	1	
3	45005-000272	Motor support assembly	1	
4	25001-000428	Brushless DC motor	1	
5	35001-000742	Electric control box parts	1	
5.1	42001-000039	Wire clips	1	
5.2	35005-000075	Terminal blocks	1	
5.3	35001-000731	Electronic control components	1	
5.4	35005-000166	Terminal blocks	1	
5.5	42001-000039	Wire clips	1	
5.6	43301-000042	Electrical mounting plate (upper panel) assembly	1	
5.7	25004-000256	Temperature sensor	1	
6	95015-001969	Electronic expansion valve assembly	1	
7	25009-000121	Electronic expansion valve coil	1	
8	95015-001970	Return pipe assembly	1	
9	95015-001934	Exhaust pipe assembly	1	
10	95017-000031	Compressors	1	
11	45801-000023	Support column	3	
12	43301-000041	Lower side panel	1	
13	41202-000347	Chassis components	1	
14	43301-000039	Right attach plate	1	

15	95003-004344	Condenser components	1	
16	45008-000276	Deflector	1	
17	43301-000040	Electronically controlled cover	1	
18	45009-000057	Axial blades	1	



TCE-55CA/DV20-C			
No	New Code	Part name	Q'ty
1	45801-000032	Support frame	1
2	45007-000044	Top cover	1
3	45005-000272	Motor support assembly	1
4	25001-000428	Brushless DC motor	1
5	35001-000743	Electric control box parts	1
5.1	43301-000043	Electronically controlled mounting plate (upper panel) assembly	1
5.2	46701-000077	Bracket (terminal block)	1
5.3	11901-100088	Radiator	1
5.4	45006-001384	Electric control box	1
5.5	35005-000075	Terminal blocks	1
5.6	35005-000166	Terminal blocks	1
5.7	35001-000727	Frequency conversion module board	1
6	95015-001941	Electronic expansion valve assembly	1
7	25009-000121	Electronic expansion valve coil	1
8	95015-001968	Low pressure valve assembly	1
9	95015-001938	Exhaust pipe assembly	1
10	95017-000205	Compressor	1
11	45801-000035	Support column	3
12	45003-000361	Lower side panel	1
13	45004-000560	Chassis components	1

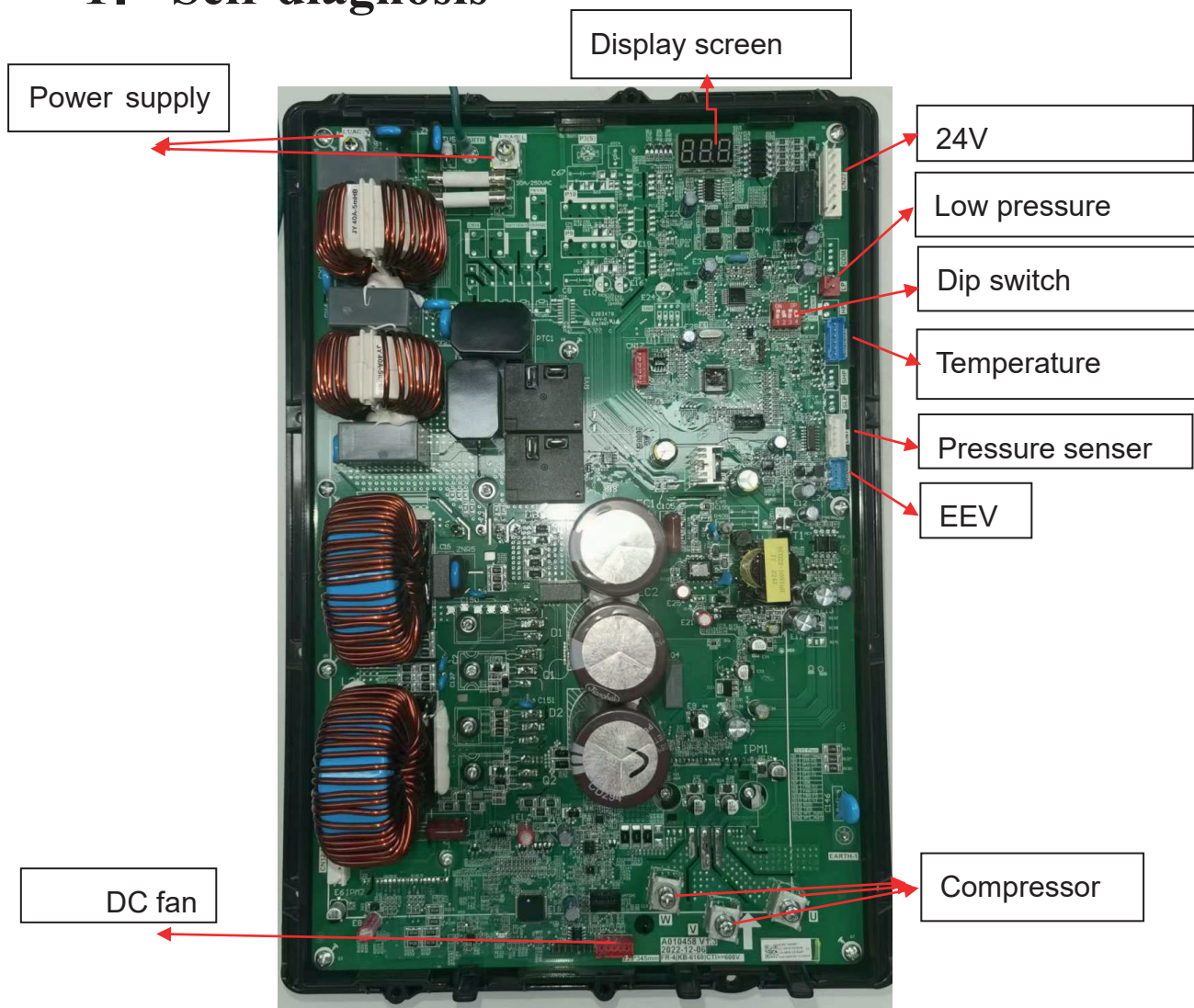
14	46101-000351	Right attach plate	1
15	95003-004338	Condenser components	1
16	45008-000276	Deflector	1
17	45006-001480	Electronically controlled cover	1
18	45009-000057	Axial blades	1

Part 4 Troubleshooting

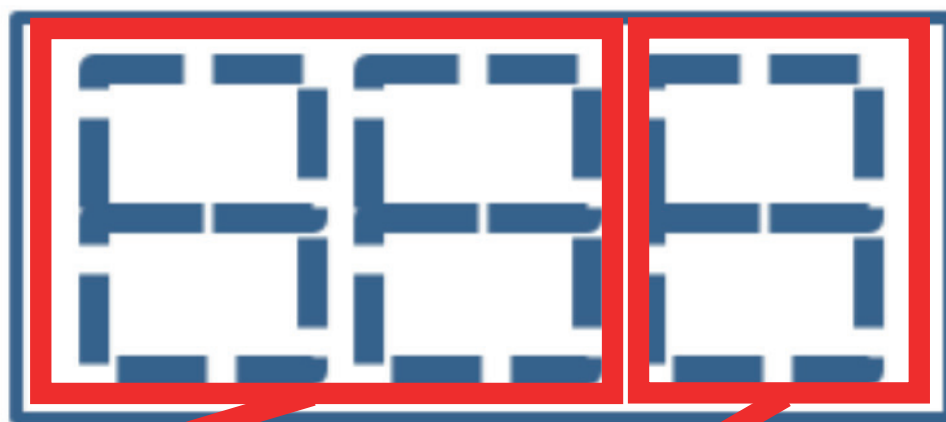
1. Self-diagnosis

Part 4 Troubleshooting

1. Self-diagnosis



Display screen



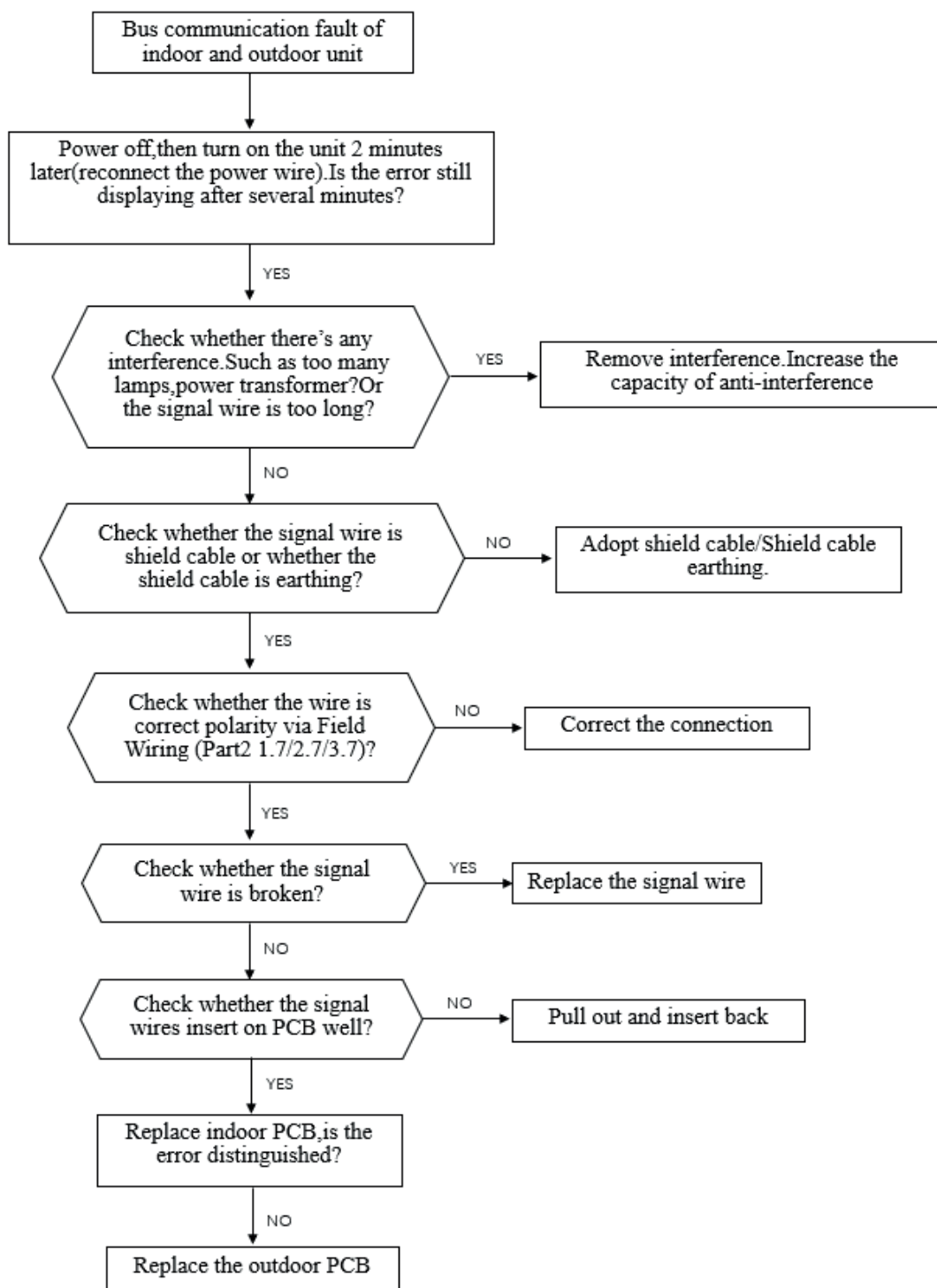
LED 1/2	The definition of failure or protection	LED 3	Code specification
E0	The indoor and outdoor communication is faulty	0	The power-on signal is not received, and the machine is stopped.
E1	The indoor ambient temperature sensor is faulty	1	Power signal received, Ready to start.
E2	The indoor coil temperature sensor is faulty	2	Cooling operation
E3	The outdoor coil temperature sensor is faulty	3	Heating operation
E4	Abnormal system failure (fluorine deficiency)	4	Return oil run
E5	Model misconfiguration	5	Defrosting run
E6	The indoor PG/ DC fan is faulty	6	Forced defrosting run
E7	The outdoor ambient temperature sensor is faulty	7	Force start cooling operation
E8	The outdoor exhaust temperature sensor is faulty	8	Force start heating operation
E9	The outdoor IPM module is faulty or the compressor driver is faulty	9	Test mode run
EA	The outdoor current sensor is faulty	A	Fault or protection outage status (displayed only when Class I faults and protection occur)
Eb	The communication between the main control board and the display is faulty		
EC	The communication between outdoor modules is faulty		
EE	The outdoor EEPROM is faulty		
EF	The outdoor DC fan is faulty		
EH	The outdoor suction sensor is faulty		
EP	The roof of the outdoor compressor housing is faulty		
EU	The outdoor voltage sensor is faulty		

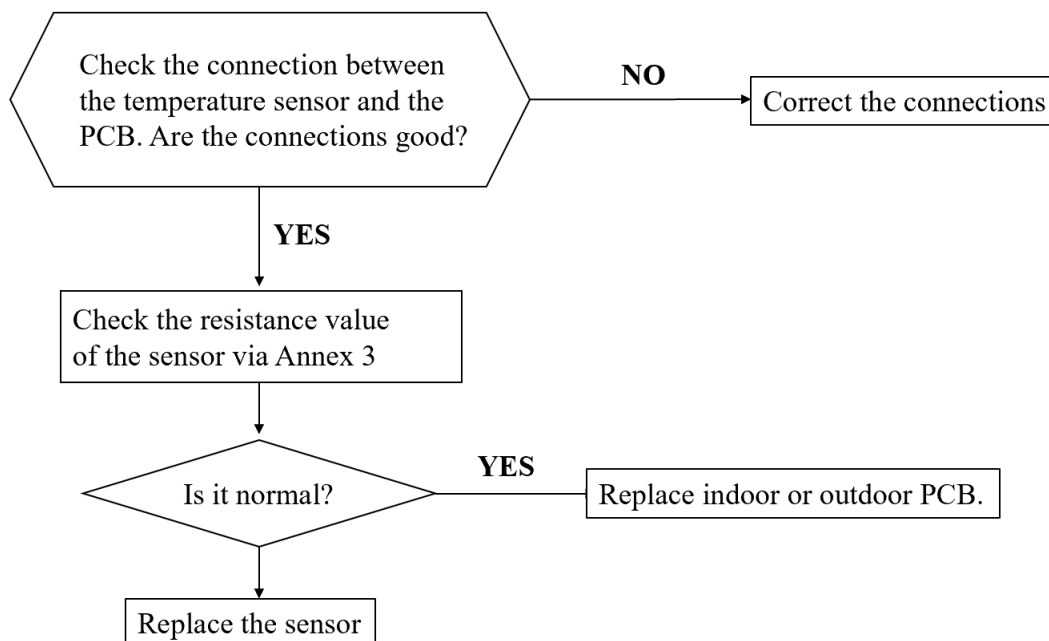
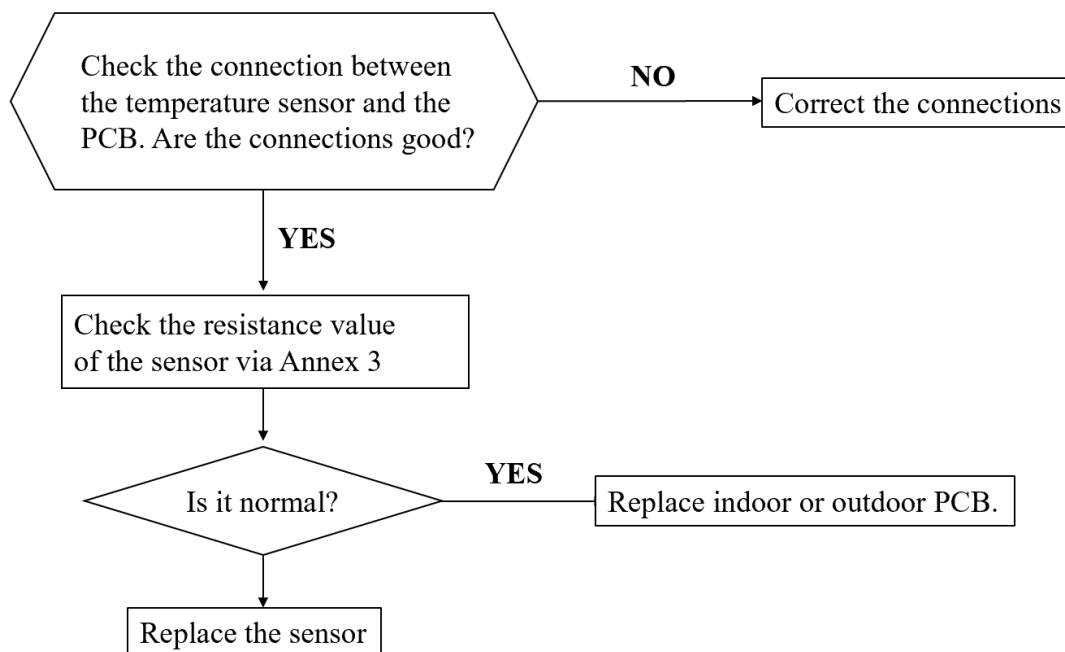
Ej	The outdoor middle coil temperature sensor is faulty
En	The temperature sensor of the outdoor gas pipe is faulty
Ey	The outdoor liquid pipe temperature sensor is faulty
P0	IPM module protection
P1	Over and under voltage protection
P2	Overcurrent protection
P3	Other protection
P4	Protection against excessive outdoor exhaust temperature
P5	Refrigeration protection against overcooling
P6	Refrigeration protection against overheating
P7	Heat protection against overheating
P8	The outdoor temperature is too high or too low
P9	Compressor drive protection (abnormal load)
PA	The ejector board communication is faulty or the mode conflicts
F0	The infrared human sensing sensor is faulty
F1	Power module failure
F2	Exhaust temperature sensing packet fail-safe
F3	The outer tube temperature sensing packet fails protection
F4	Refrigerant circulation abnormal protection
F5	PFC protection
F6	Compressor lack/reverse phase protection
F7	Module temperature protection
F8	The four-way valve reversing is abnormal
F9	The circuit of the module temperature sensing packet is faulty
FA	The compressor phase current detection is faulty
Fb	Cooling and heating overload protection limit frequency reduction
FC	Overpower protection limit/frequency reduction
FE	Module current (compressor phase current) protection limit/frequency reduction
FF	Module temperature protection limit/frequency reduction
FH	Drive protection limit/frequency reduction
FP	Anti-condensation protection limit/frequency reduction
FU	Anti-freeze protection limit/frequency reduction

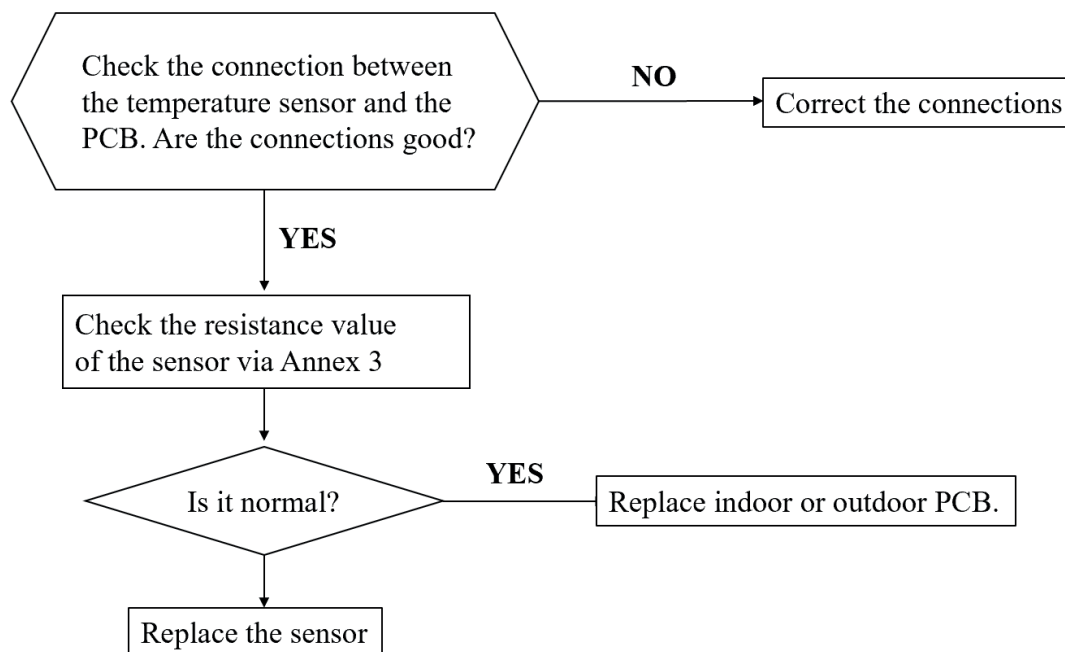
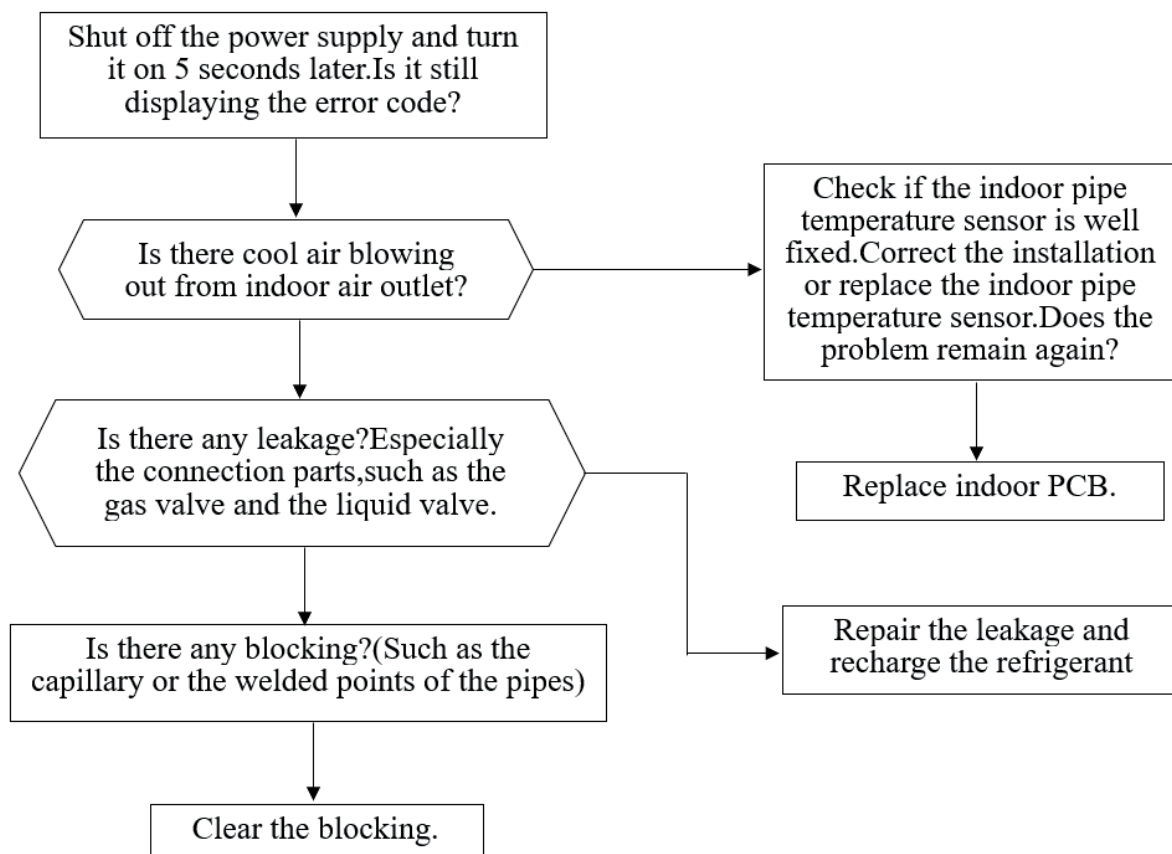
Fj	Exhaust protection limit/frequency reduction
Fn	External AC current protection limit/frequency reduction
Fy	Fluorine deficiency protection
H1	The high-pressure pressure switch is faulty
H2	The low pressure switch is faulty
H3	The high pressure sensor is faulty
H4	The low pressure sensor is faulty

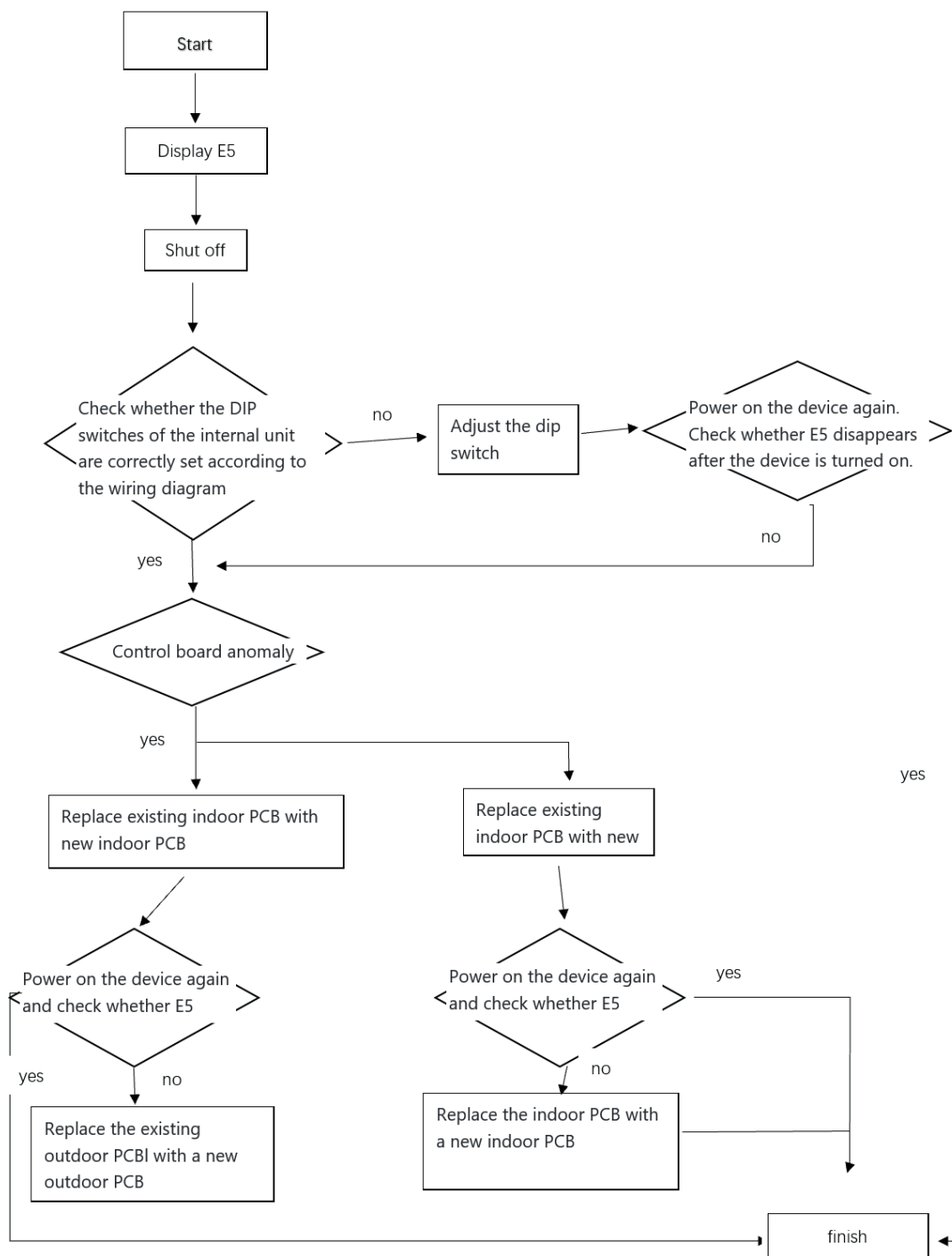
2. Solving steps for typical malfunction

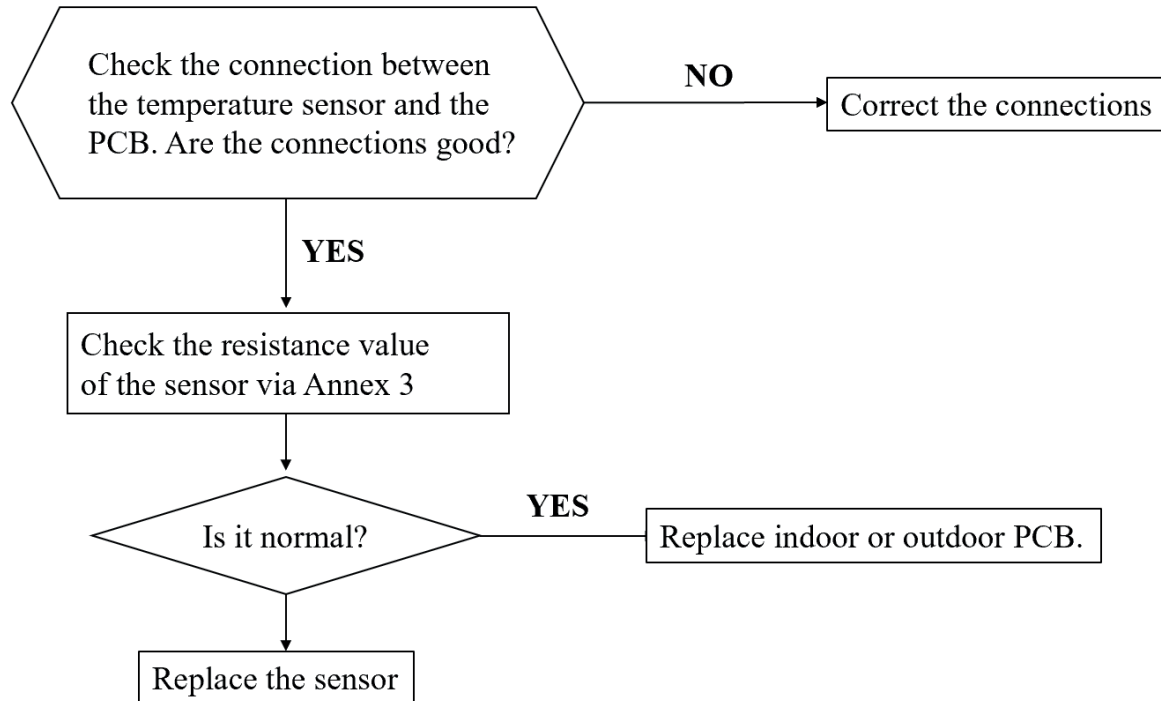
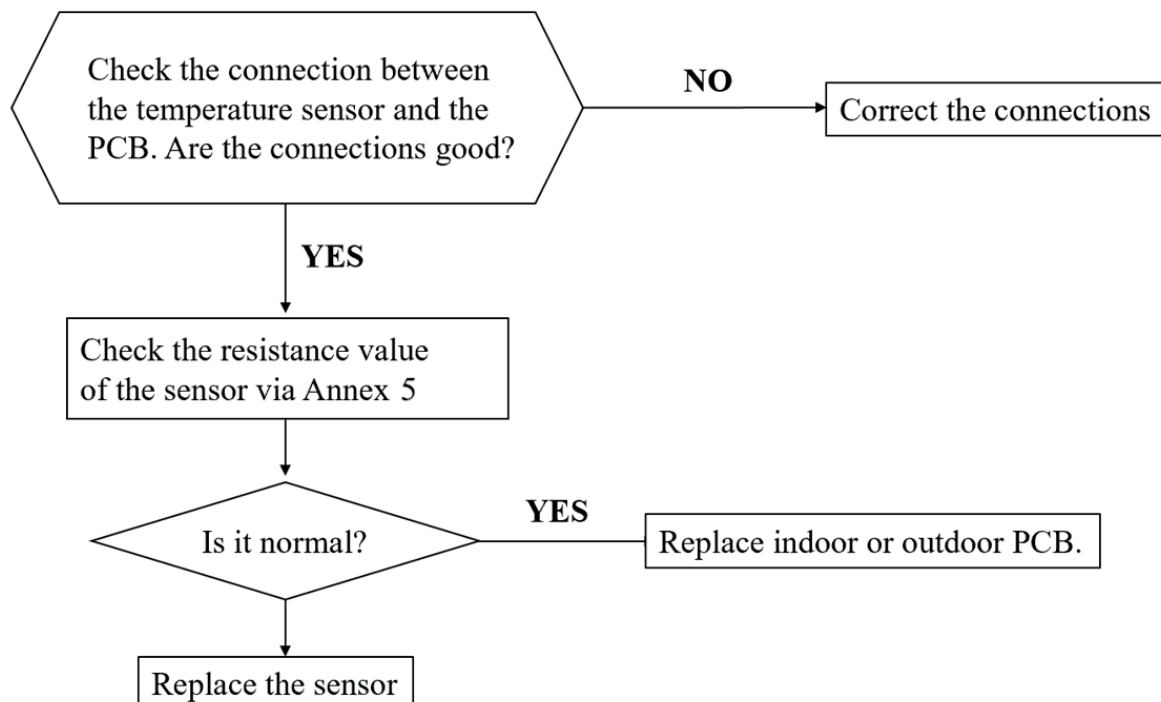
E0:Bus communication fault of indoor and outdoor unit



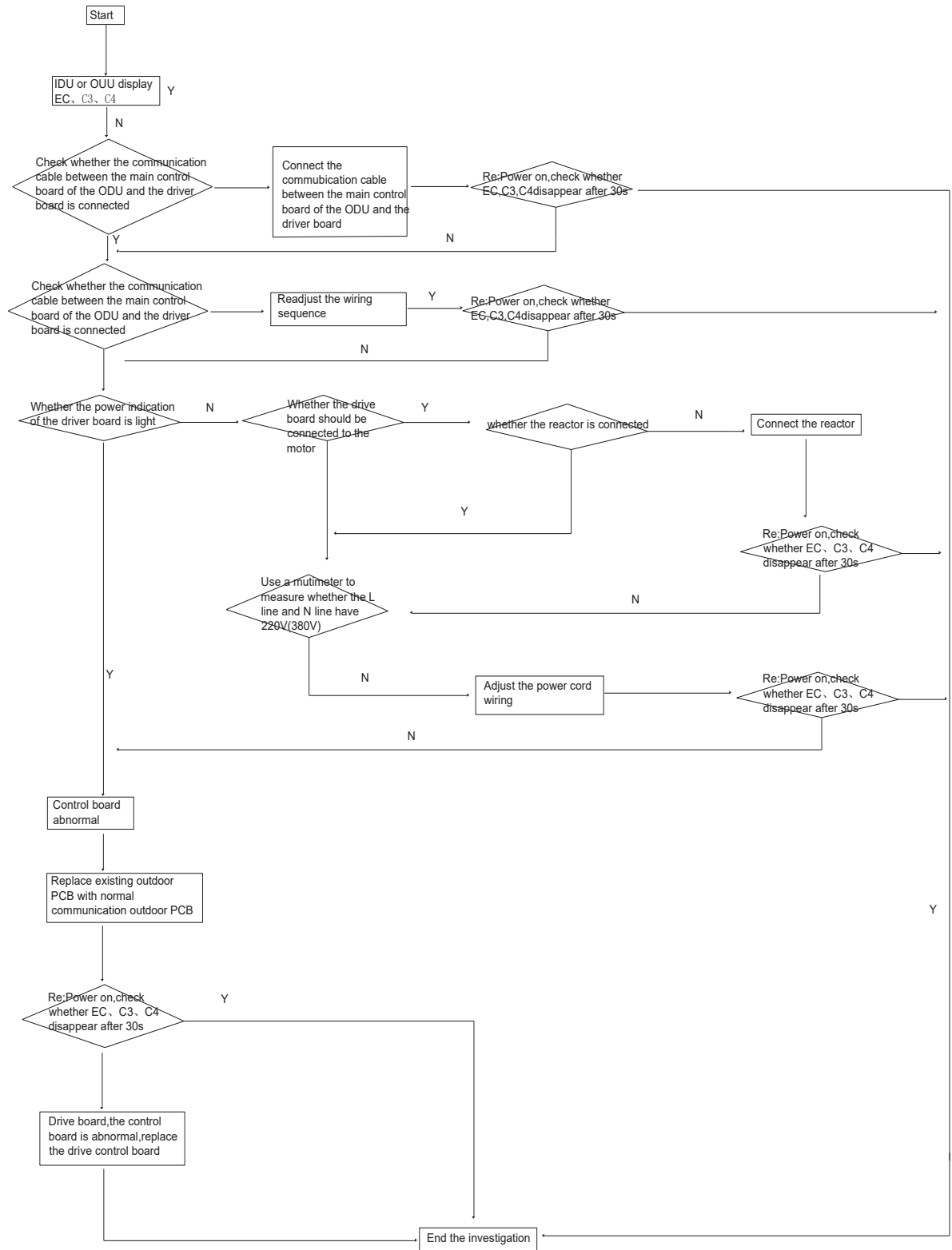
E1:Indoor temperature sensor failure**E2:Evaporator temperature sensor failure**

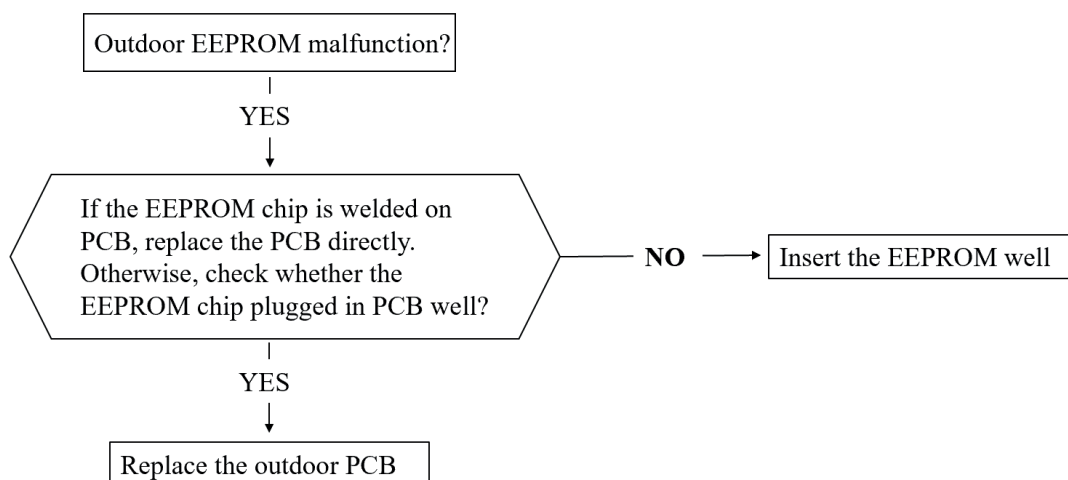
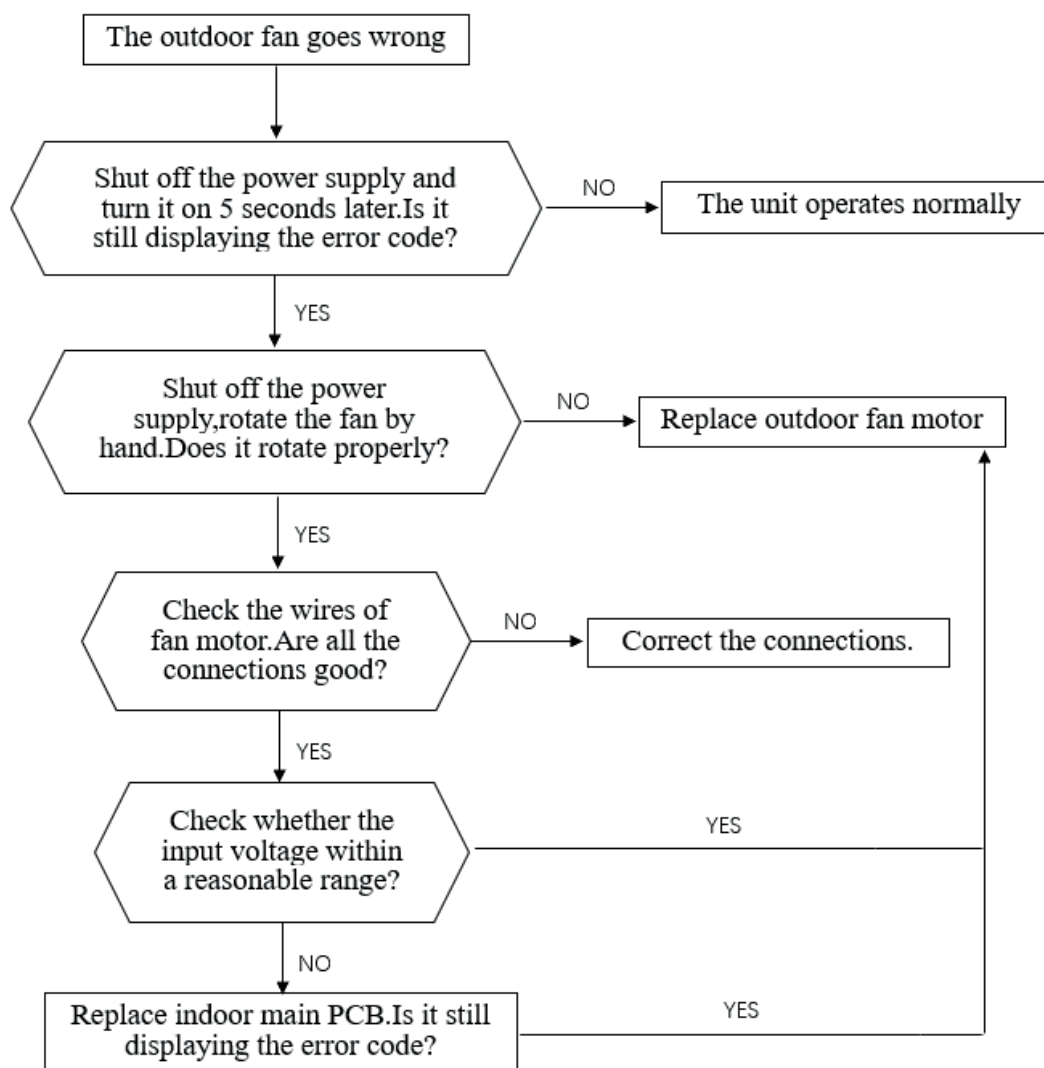
E3:Condenser temperature sensor failure (cooling & heating)**E4:Lack of refrigerant protection**

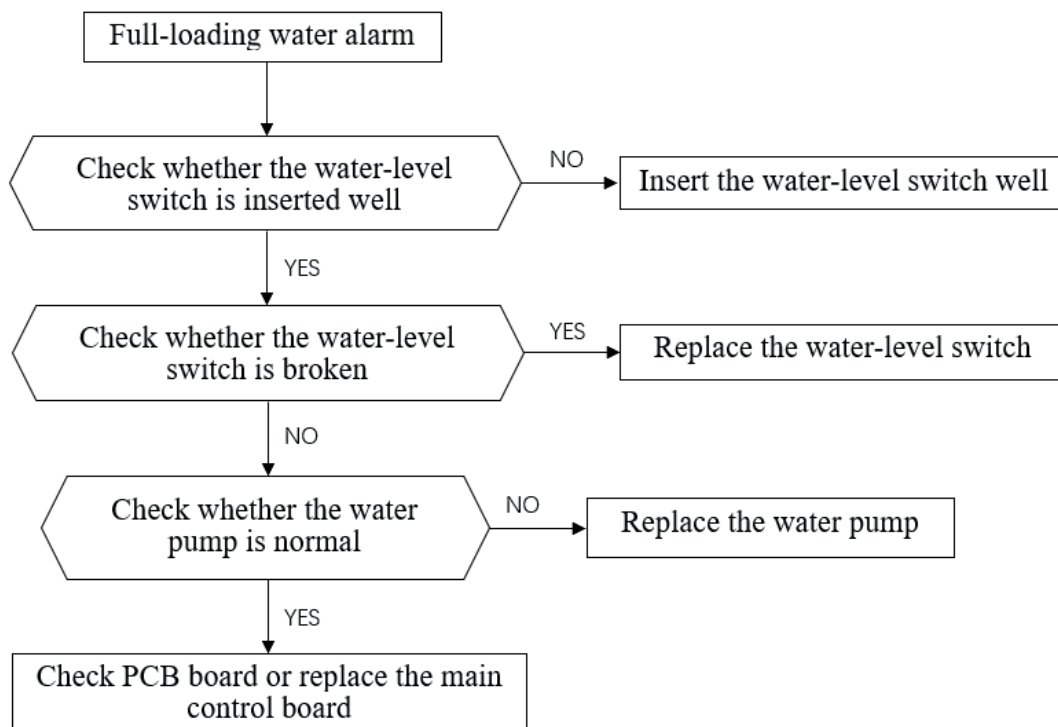
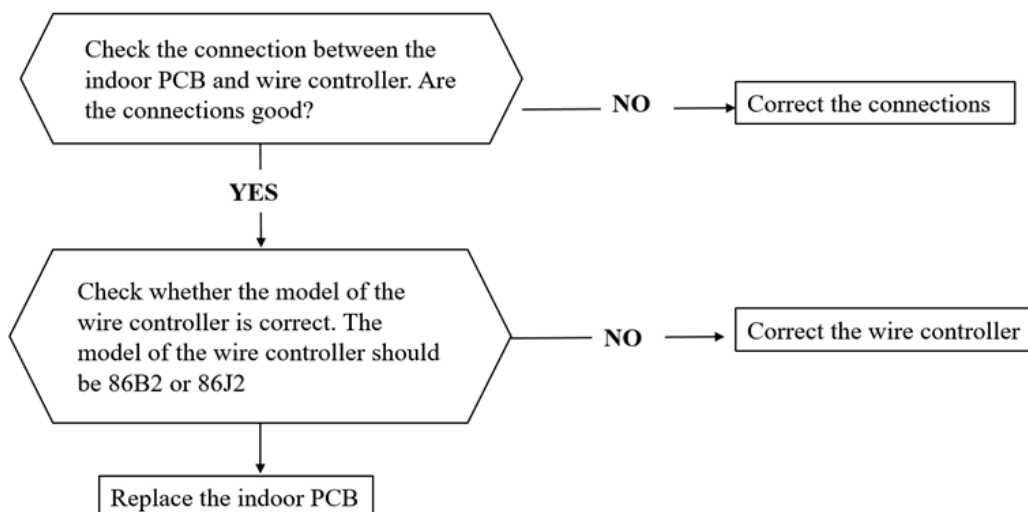
E5 The model configuration processing goes wrong.

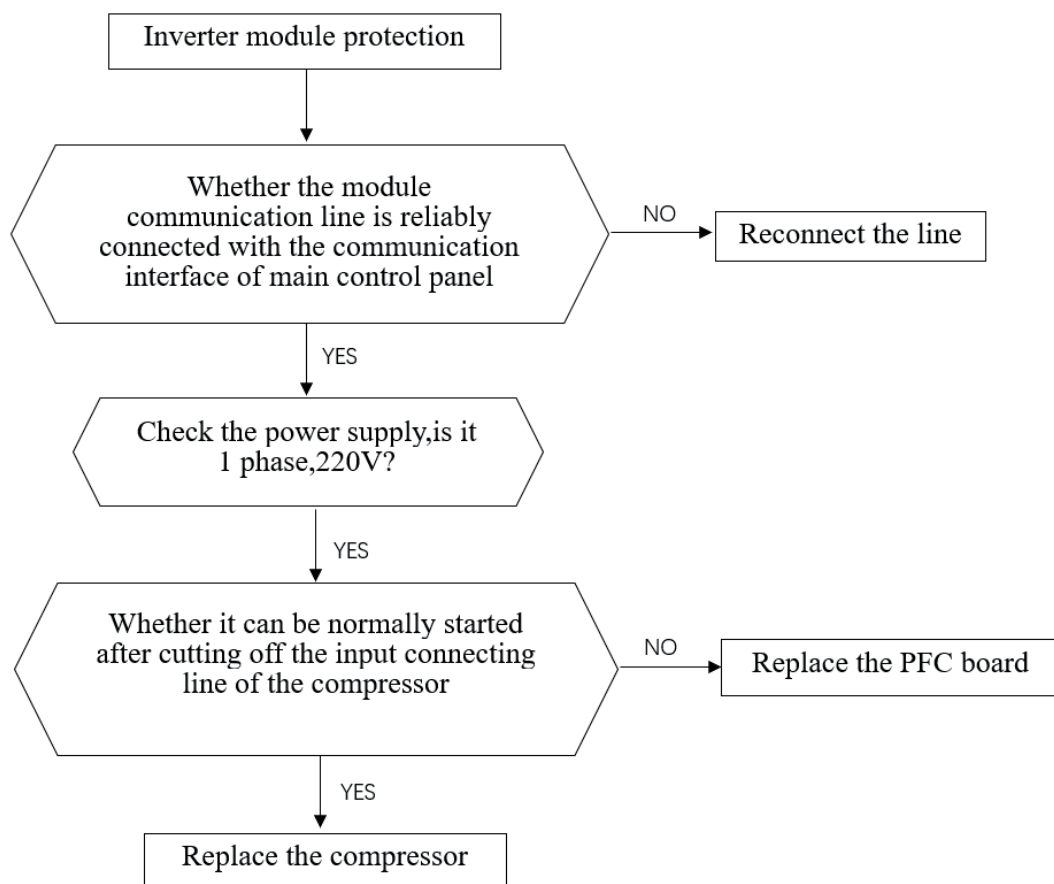
E7:Outdoor temperature sensor failure**E8:Compressor discharge temperature sensor failure**

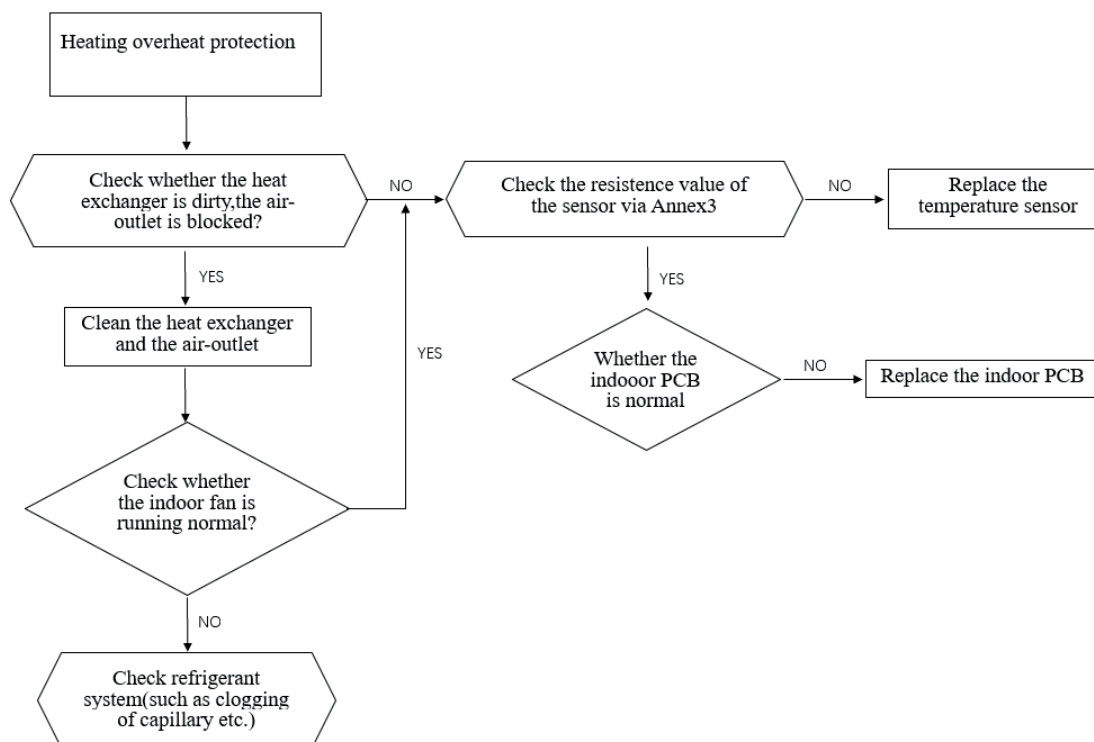
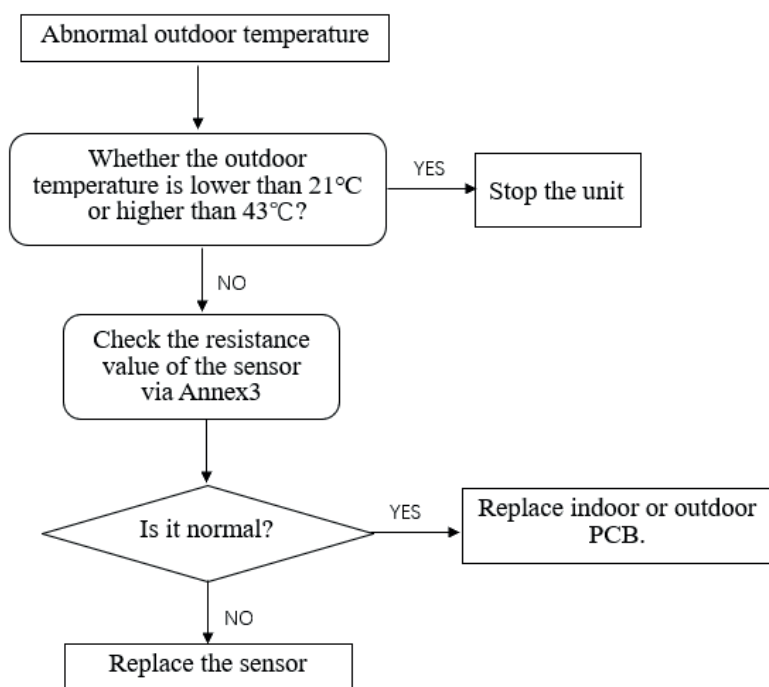
EC: Outdoor main control and drive communication failure

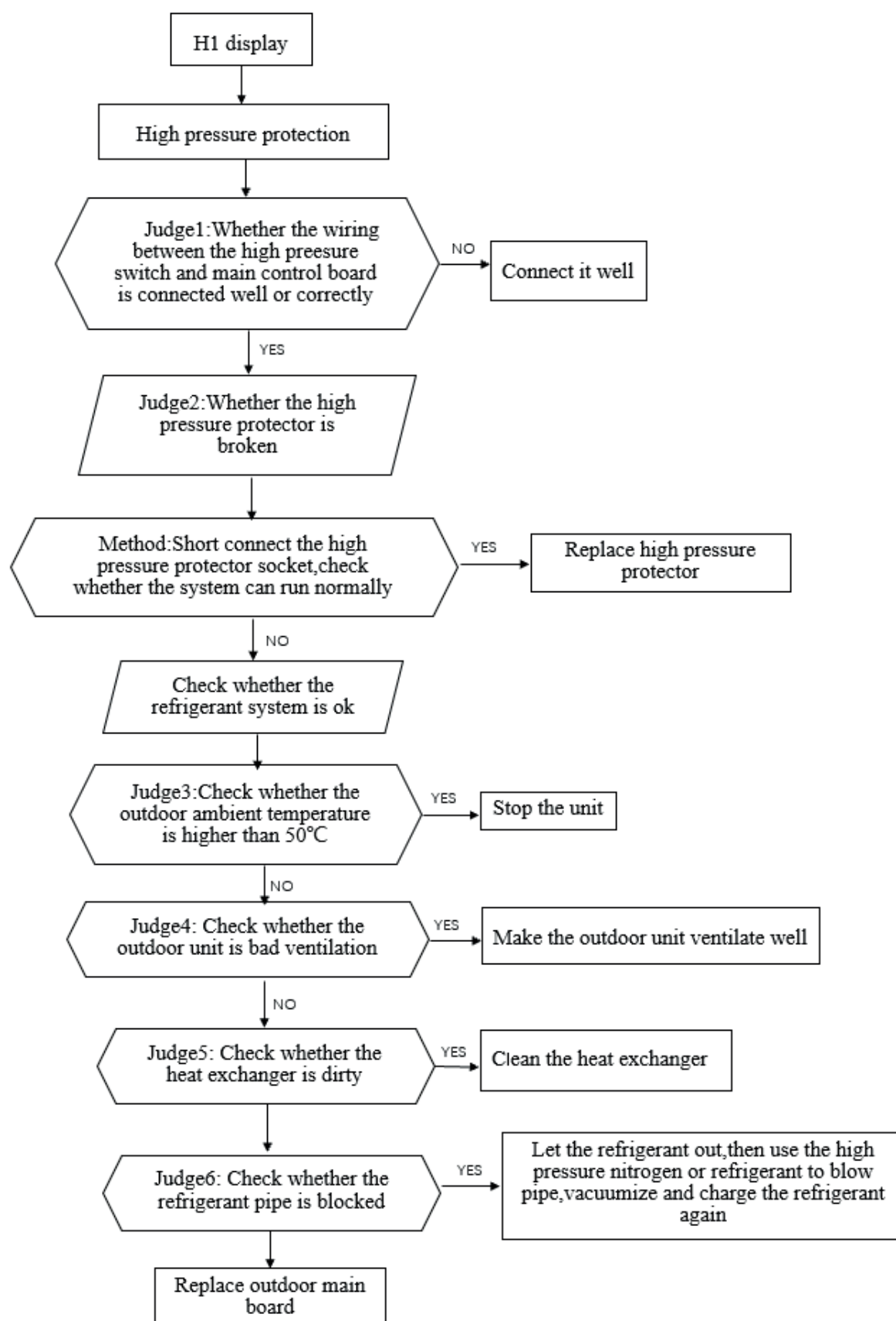


EE: The EEPROM of outdoor main control board goes wrong**EF: The outdoor fan goes wrong.(DC motor)**

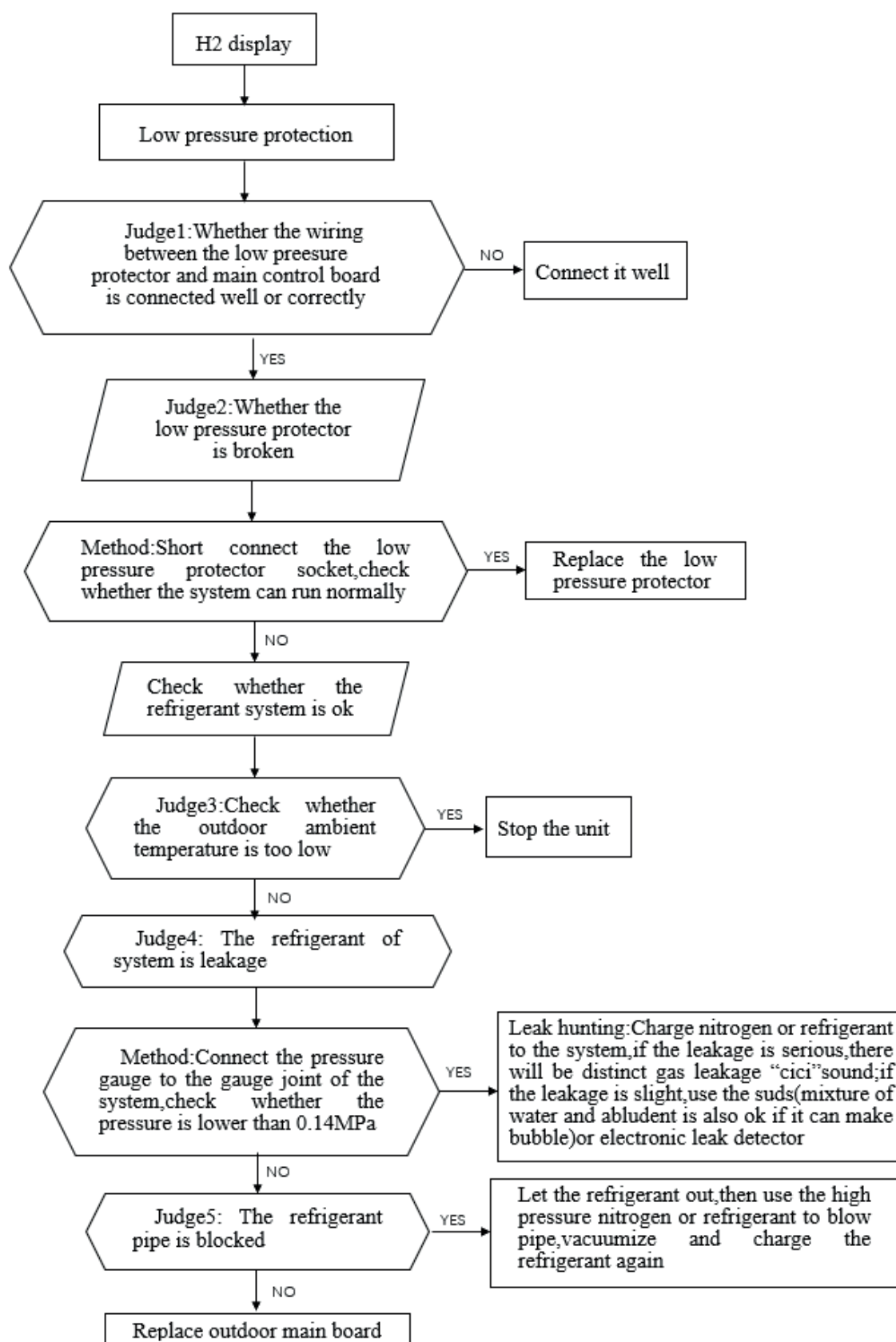
d3:Full-loading water alarm**C5:Bad communication between indoor PCB & wire controller (Wire controller display)**

P0:Inverter module protection

P7: Heating overheat protection**P8: Outdoor high/low-temperature protection**

H1: High pressure switch protection

H2: Low pressure switch protection



Part 5 Installation

1. Precaution on Installation

1). Measure the necessary length of the connecting pipe, and make it by the following way.

a. Connect the indoor unit at first, then the outdoor unit.

Bend the tubing in proper way. Do not harm them.

Specially Notice the pipe length/height/dimension of each capacity.

Maximum pipe length

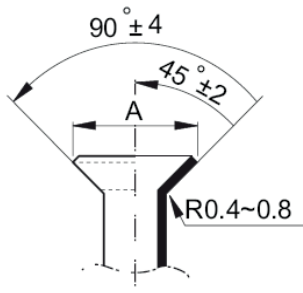
Model	Max. Length	Max. Elevation
36,000Btu/h	25m	15m
60,000Btu/h	30m	20m

Piping sizes

Model	Liquid(mm)	Gas(mm)
36,000 Btu/h	9.52	15.88
60,000 Btu/h	9.52	19.05

CAUTIONS

- Daub the surfaces of the flare pipe and the joint nuts with frozen oil, and wrench it for 3~4 rounds.
- With hands before fasten the flare nuts.
- Be sure to use two wrenches simultaneously when you connect or disconnect the pipes.

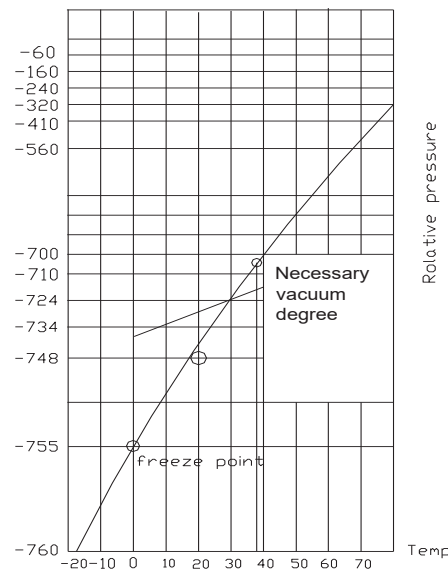
Pipe gauge	Tightening torque	Flare dimension A		Flare shape
		Min(mm)	Max(mm)	
Φ6.4	15~16N.m (153~163 kgf.cm)	8.3	8.7	
Φ9.5	25~26N.m (255~265kgf.cm)	12.0	12.4	
Φ12.7	35~36N.m (357~367kgf.cm)	15.4	15.8	
Φ15.9	45~47N.m (459~480 kgf.cm)	18.6	19.1	
Φ19.1	65~67N.m (663~684kgf.cm)	22.9	23.3	
Φ22.2	69~70N.m (703~714kgf.cm)	26.0	26.5	

b. The stop value of the outdoor unit should be closed absolutely (as original state). Every time you connect it, first loosen the nuts at the part of stop value, then connect the flare pipe immediately (in 5 minutes). If the nuts have been loosened for a long time, dusts and other impurities may enter the pipe system and may cause malfunction later. So please expel the air out of the pipe with refrigerant before connection.

-
- c. Expel the air after connecting the refrigerant pipe with the indoor unit and the outdoor unit. Then fasten the nuts at the repair-points.
 - 2) Locate the Pipe
 - a. Drill a hole in the wall (suitable just for the size of the wall conduit), then set on the fittings such as the wall conduit and its cover.
 - b. Bind the connecting pipe and the cables together tightly with binding tapes. Do not let air in, which will cause water leakage by condensation.
 - c. Pass the bound connecting pipe through the wall conduit from outside. Be careful of the pipe allocation to do no damage to the tubing.
 - 3) Connect the pipes.
 - 4) Then, open the stem of stop valves of the outdoor unit to make the refrigerant pipe connecting the indoor unit with the outdoor unit in fluent flow.
 - 5) Be sure of no leakage by checking it with leak detector or soap water.
 - 6) Cover the joint of the connecting pipe to the indoor unit with the soundproof / insulating sheath (fittings), and bind it well with the tapes to prevent leakage.

2. Vacuum Dry and Leakage Checking

1) Vacuum Dry: use vacuum pump to change the moisture (liquid) into steam (gas) in the pipe and discharge it out of the pipe to make the pipe dry. Under one atmospheric pressure, the boiling point of water(steam temperature) is 100°C. Use vacuum pump to make the pressure in the pipe near vacuum state, the boiling point of water falls relatively. When it falls under outdoor temperature, the moisture in the pipe will be vaporized.

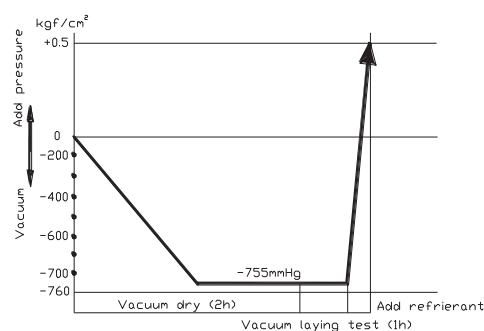


2) Vacuum dry procedure

There are two methods of vacuum dry due to different construction environment: common vacuum dry, special vacuum dry.

①. Common vacuum dry procedure

- Vacuum dry (for the first time) ---connect the all-purpose detector to the inlet of liquid pipe and gas pipe, and run the vacuum pump more than two hours (the vacuum pump should be below -755mmHg)
- If the pump can't achieve below -755mmHg after pumping 2 hours, moisture or leakage point will still exist in the pipe. At this time, it should be pumped 1 hour more.
- If the pump can't achieve -755mmHg after pumping 3 hours, please check if there are some leakage points.
- Vacuum placement test: place 1 hour when it achieves -755mmHg, pass if the vacuum watch shows no rising. If it rises, it shows there's moisture or leakage point.
- Vacuuming from liquid pipe and gas pipe at the same time.
- Sketch map of common vacuum dry procedure.



②. Special vacuum dry procedure

- This vacuum dry method is used in the following conditions:
- There's moisture when flushing the refrigerant pipe.
- Rainwater may enter into the pipe.
- Vacuum dry for the first time 2h pumping

③. Vacuum destroy for the second time Fill nitrogen to 0.5Kgf/cm²

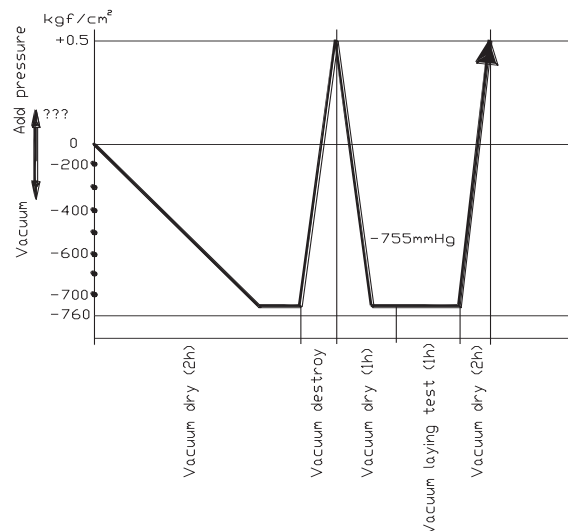
Because nitrogen is for drying gas, it has vacuum drying effect during vacuum destroy. But if the moisture is too much, this method can't dry thoroughly. So, please pay more attention to prevent water entering and forming condensation water.

④. Vacuum dry for the second time 1h pumping

Determinant: Pass if achieving below -755mmHg. If -755mmHg can't be achieved in 2h, repeat procedure ③ and ④.

⑤. Vacuum placing test 1h

⑥. Sketch map of special vacuum dry procedure



3. Additional Refrigerant Charge

Caution

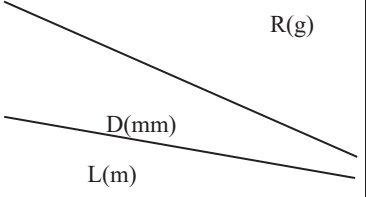
- a) Refrigerant cannot be charged until field wiring has been completed.
- b) Refrigerant may only be charged after performing the leak test and the vacuum pumping.
- c) When charging a system, care shall be taken that its maximum permissible charge is never exceeded, in view of the danger of liquid hammer.
- d) Charging with an unsuitable substance may cause explosions and accidents, so always ensure that

the appropriate refrigerant is charged.

- e) Refrigerant containers shall be opened slowly.
- f) Always use protective gloves and protect your eyes when charging refrigerant.

The outdoor unit is factory charged with refrigerant. Calculate the added refrigerant according to the diameter and the length of the liquid side pipe of the outdoor unit/indoor unit.

For 24, 36, 48, 60kBtu/h (indoor unit throttle)

	$\varnothing 6.4$	$\Phi 9.52$	$\Phi 12.7$
Less than 5m (One-way)	—	—	—
Added Refrigerant When Over 5m(One-way)	$22\text{g/m} \times (L-7.5)$	$54\text{g/m} \times (L-7.5)$	$110\text{g/m} \times (L-7.5)$

Remark:

R (g): Additional refrigerant to be charged

L (m): The length of the refrigerant pipe (one-way)

D (mm): Liquid side piping diameter

4. Water Drainage

4.1 Gradient and Supporting

- Keep the drainpipe sloping downwards at a gradient of at least 1/50. Keep the drainpipe as short as possible and eliminate the air bubble.
- The horizontal drainpipe should be short. When the pipe is too long, a prop stand must be installed to keep the gradient of 1/50 and prevent bending. Refer to the following table for the specification of the prop stand.

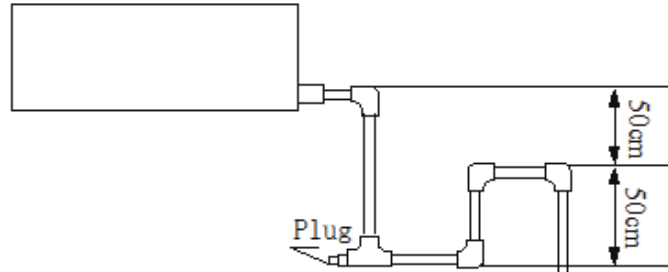
	Diameter	Distance between the prop stands
Hard PVC pipe	25~40mm	1~1.5m

3). Precautions

- The diameter of drainpipe should meet the drainage requirement at least.
- the drainpipe should be heat-insulated to prevent atomization.
- Drainpipe should be installed before installing indoor unit. After powering on, there is some water in water-receiver plate. Please check if the drain pump can operate correctly.
- All connection should be firm.
- Wipe color on PVC pipe to note connection.
- Climbing, horizontal and bending conditions are prohibited.
- The dimension of drainpipe can't less than the connecting dimension of indoor drainpipe.
- Heat-insulation should be done well to prevent condensation.
- Indoor units with different drainage type can't share one convergent drainpipe.

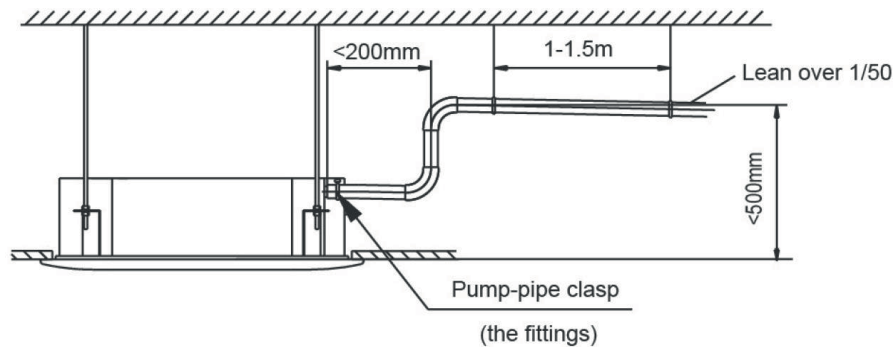
4.2 Drainpipe Trap

- 1). If the pressure at the connection of the drainpipe is negative, it needs to design drainpipe trap.
- 2). Every indoor unit needs one drainpipe trap.
- 3). A plug should be designed to do cleaning.

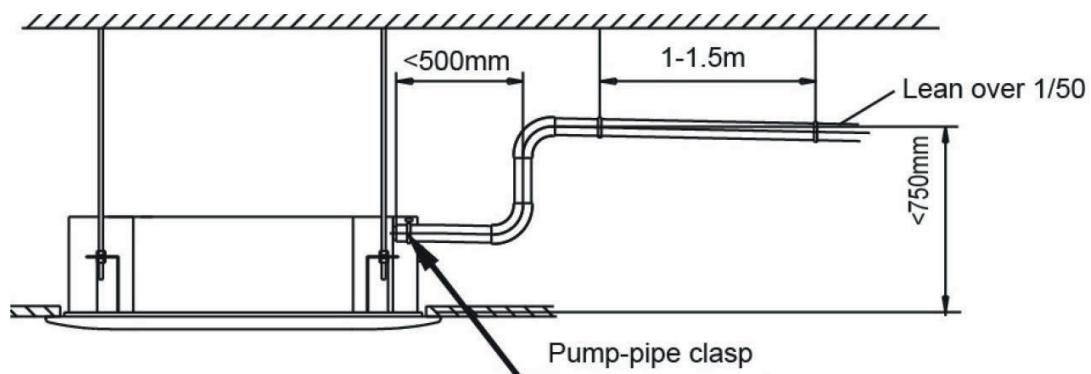


4.3 Upwards drainage (drain pump)

For Eight-way cassette(compact)



For Eight-way cassette



4.4 Convergent drainage

- 1). The number of indoor units should be as small as possible to prevent the traverse main pipe overlong.
- 2). Indoor unit with drain pump and indoor unit without drain pump should be in different drainage system.



Number of connecting indoor units → Calculate drainage volume → Select the diameter

Calculate allowed volume = Total cooling capacity of indoor units (HP) × 2 (l/ hr)

	Allowed volume(lean 1/50) (l/ hr)	I.D. (mm)	Thick
Hard PVC	$\infty < 14$	$\phi 25$	3.0
Hard PVC	$14 < \infty < 88$	$\phi 30$	3.5
Hard PVC	$88 < \infty < 334$	$\phi 40$	4.0
Hard PVC	$175 < \infty < 334$	$\phi 50$	4.5
Hard PVC	$334 < \infty$	$\phi 80$	6.0

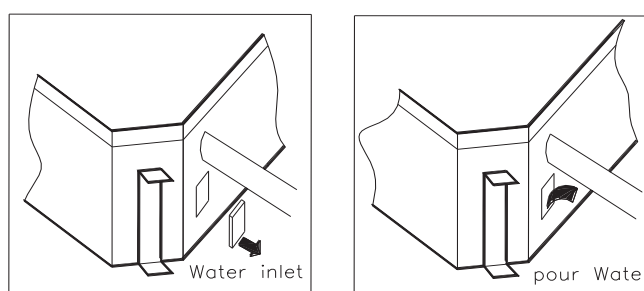
4.5 Drainage test

1). Drainage without drain pump

After finishing drainpipe installation, pour some water into the water receiver plate to check if the water flows smoothly.

2). Drainage with drain pump

① Poke the Water Level Switch, remove the cover, use water pipe to pour 2000ml water into the water receipt plate through the water inlet.



② Turn on the power to Cooling operation. Check the pump's operation and switch on the Water Level Switch. Check the pump's sound and look into the transparent hard pipe in the outlet at the same time to check if the water can discharge normally.

③ Stop the air conditioner running, turn off the power, and put back the cover.

- Stop the air conditioner. After 3 minutes, check if it has abnormality. If the collocation of drainpipes is illogical, the water will flow back overfull, which will cause the alarm lamp flashes, even overflow from the water receipt plate.
- Keep on pouring water until it gives an alarm signal for high water level, check if the pump drains water at once. If the water level can't fall below the alarmed water level after 3 minutes, the air conditioner will stop. Turn off the power and drain the remained water, and then turn on the air conditioner.

Note: the drain stuff in the main water receipt plate is for maintenance. Stuff up the drain stuff to prevent water leakage.

5. Insulation Work

5.1 Insulation material and thickness

1). Insulation material

Insulation material should adopt the material which is able to endure the pipe's temperature: no less than 70°C in the high-pressure side, no less than 120°C in the low-pressure side (For the cooling type machine, no requirements at the low-pressure side.)

Example: Heat pump type----Heat-resistant Polyethylene foam (withstand above 120°C)

Cooling only type---- Polyethylene foam (withstand above 100°C)

2). Thickness choice for insulation material

Insulation material thickness is as follows:

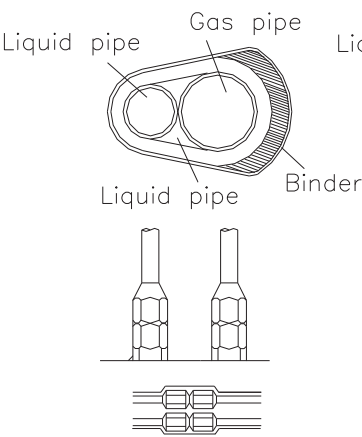
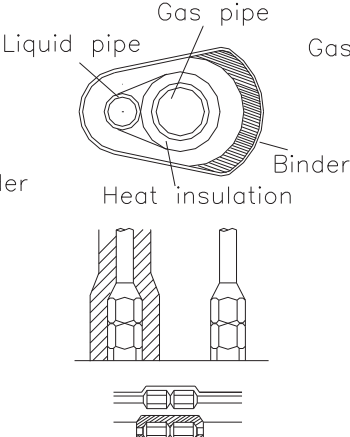
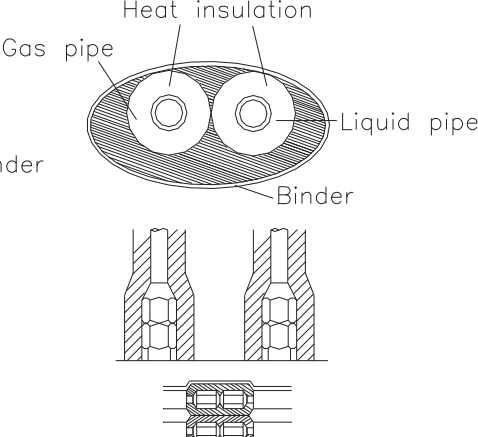
	Pipe diameter (mm)	Adiabatic material thickness
Refrigerant pipe	Φ6.4—Φ25.4	10mm
	Φ28.6—Φ38.1	15mm
Drainage pipe	Inner diameter Φ20—Φ32	6mm

5.2 Refrigerant pipe insulation

1). Work Procedure

- ① Before laying the pipes, the non-jointing parts and non-connection parts should be heat insulated.
- ② When the gas proof test is eligible, the jointing area, expanding area and the flange area should be heat insulated

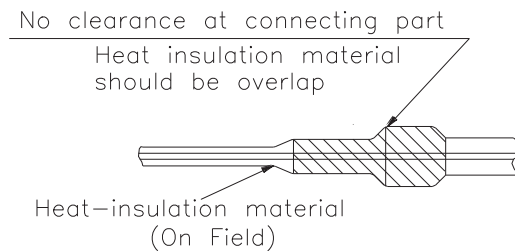
2). Insulation for non-jointing parts and non-connection parts

wrong	right	
Gas pipe and liquid pipe should not be put together to insulate	Insulate the gas pipe (cooling only)	Insulate the gas pipe and liquid pipe
		

For construction convenience, before laying pipes, use insulation material to insulate the pipes to be deal with, at the same time, at two ends of the pipe, remain some length not to be insulated, in order to be welded and check the leakage after laying the pipes.

3). Insulate for the jointing area, expanding area and the flange area

- ① Insulate for the jointing area, expanding area and the flange area should be done after checking leakage of the pipes
- ② Make sure there's no clearance in the joining part of the accessorial insulation material and local preparative insulation material.



5.3 Drainage pipe insulation

- 1) The connection part should be insulated, or else water will be condensing at the non-insulation part.

5.4 Note

- 1) The jointing area, expanding area and the flange area should be heat insulated after passing the pressure test.
- 2) The gas and liquid pipe should be heat insulated individually; the connecting part should be heat insulated individually.
- 3) Use the attached heat-insulation material to insulate the pipe connections (pipes' tie-in ,expand nut) of the indoor unit.

6. Wiring

Please refer to the Wiring Diagram.

7. Test Operation

(1) The test operation must be carried out after the entire installation has been completed.

(2) Please confirm the following points before the test operation.

- The indoor unit and outdoor unit are installed properly.
- Tubing and wiring are correctly completed.
- The refrigerant pipe system is leakage-checked.
- The drainage is unimpeded.
- The ground wiring is connected correctly.
- The length of the tubing and the added stow capacity of the refrigerant have been recorded.
- The power voltage fits the rated voltage of the air conditioner.
- There is no obstacle at the outlet and inlet of the outdoor and indoor units.
- The gas-side and liquid-side stop valves are both opened.
- The air conditioner is pre-heated by turning on the power.

(3) According to the user's requirement, install the remote controller when the remote controller's signal can reach the indoor unit smoothly.

(4) Test operation

Set the air conditioner under the mode of "COOLING" with the remote controller, and check the following points.

Indoor unit

- Whether the switch on the remote controller works well.
- Whether the buttons on the remote controller works well.
- Whether the air flow louver moves normally.
- Whether the room temperature is adjusted well.
- Whether the indicator lights normally.
- Whether the temporary buttons works well.
- Whether the drainage is normal.
- Whether there is vibration or abnormal noise during operation.

Outdoor unit

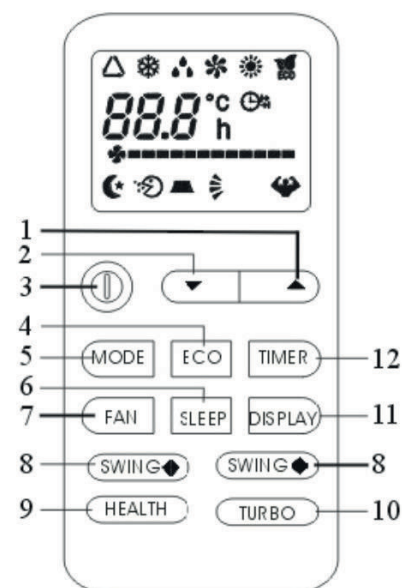
- Whether there is vibration or abnormal noise during operation.
- Whether the generated wind, noise, or condensed of by the air conditioner have influenced your neighborhood.
- Whether any of the refrigerant is leaked.

Part 6 Controller

1. Wireless Remote Controller

1.1 GYKG-52e

No.	Button	Function
1	▲ (TEMP UP)	Increase the temperature or time by 1 unit
2	▼ (TEMP DN)	Decrease the temperature or time by 1 unit
3	ON/OFF	To switch the conditioner on and off.
4	ECO	In cooling mode, press this button, the temperature will increase 2°C on the base of setting temperature In heating mode, press this button, the temperature will decrease 2°C on the base of setting temperature
5	MODE	To select the mode of operation
6	SLEEP	To activate the function "SLEEP"
7	FAN	To select the fan speed of auto/low/mid/high
8	SWING	To activate or deactivate of the movement of the "DEFLECTORS" .
9	HEALTHY	To switch - on /off HEALTHY function. It is a button which controls the ionizer or plasma generator only for inverter type.
10	TURBO	In cooling mode, press this button, the unit will give the maximum cooling temperature with 16°C In heating mode, press this button, the unit will give the maximum heating temperature with 31°C
11	DISPLAY	To switch on/off the LED display (if present)
12	TIMER	To set automatic switching-on/off



- ⚠ The outlook and some function of remote control may vary according to the model.
- ⚠ The shape and position of buttons and indicators may vary according to the model, but their function is the same.
- ⚠ The unit confirms the correct reception of each press button with a beep.

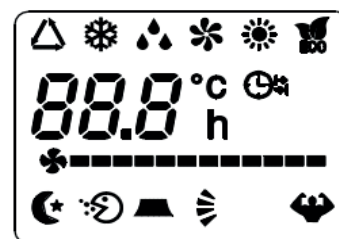
1.2 General Function for wireless remote controller:

Model and Specification

Rated voltage	3.0V(2pieces of LR03 7# batteries)
Min voltage for sending signal of CPU	2.4V
Effective receiving distance	8m~11m
Operation condition	-5~60°C

1.3 Remote control display

No.	Symbols	Meaning
1	△	FEEL mode indicator
2	❄️	COOLING indicator
3	💧	DEHUMIDIFYING indicator
4	✿	FAN ONLY OPERATION indicator
5	☀️	HEATING indicator
6	🕒	TIMER OFF indicator
7	🕒	TIMER ON indicator
8	✿ -	AUTO FAN indicator
9	✿ ---	LOW FAN SPEED indicator
10	✿ -----	MIDDLE FAN SPEED indicator
11	✿ -----	HIGH FAN SPEED indicator
12	🌙	SLEEP indicator
13	👑	SUPER indicator
14	🌿	HEALTHY indicator
15	ECO	ECO indicator
16	🔋	BATTERY indicator
17	🔋	BATTERY indicator
18	88.8	CLOCK indicator



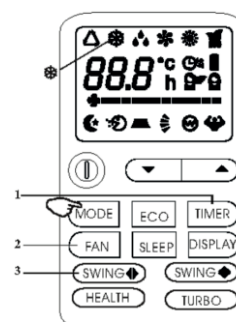
COOLING MODE

The cooling function allows the air conditioner to cool the room and at the same time reduces the humidity in the air.

To activate the cooling function (COOL), press the MODE button until the symbol appears on the display.

The cooling cycle is activated by setting the keys ▲ or ▼ at a temperature lower than that of the room.

To optimize the functioning of the conditioner, adjust the temperature (1), the speed (2) and the direction of the air flow (3) by pressing the keys indicated.



HEATING MODE(If the unit has heating function)

The heating function allows the air conditioner to produce hot air.

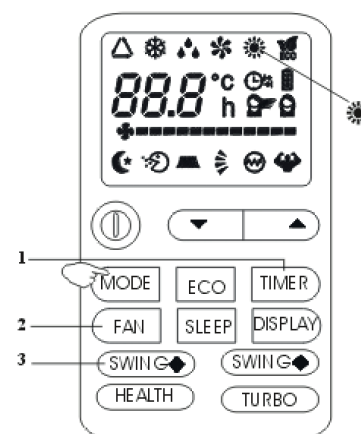
To activate the heating function (HEAT), press the MODE button until the symbol appears on the display.

With the keys ▲ or ▼ set a temperature higher than that of the room.

To optimize the functioning of the conditioner, adjust the temperature (1), the speed (2) and the direction of the air flow (3) by pressing the keys indicated

⚠ The appliance is fitted with a Hot Start function, which delays appliance to startup in a few seconds to ensure an immediate output of hot air.

⚠ In HEATING operation, the appliance can automatically activate a defrost cycle, which is essential to free the condenser from an excessive deposit of frost. This procedure usually lasts for 2-10 minutes during defrosting, fans stop operation. After defrosting, it returns to HEATING mode automatically.

**FAN MODE**

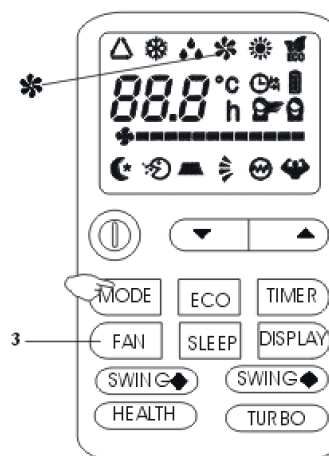
The conditioner works in only ventilation.

To set the FAN mode, Press MODE until appears in the display.

With pressing FAN button, the speed changes in the following sequence: LOW/ MEDIUM/HIGH /AUTO in FAN mode.

The remote control also stores the speed that was set in the previous mode of operation.

In FEEL mode (automatic) the air conditioner automatically chooses the fan speed and the mode of operation (COOLING or HEATING).

**TIMER MODE----TIMER ON**

To set the automatic switching on of the air conditioner.

To program the time start, the appliance should be off.

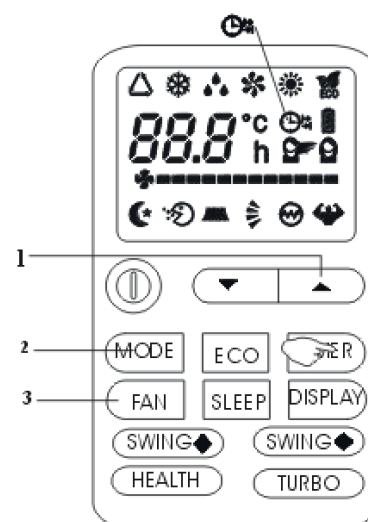
Press TIMER, Set the temperature with pressing the key ▲ or ▼, Press TIMER Again, set the time with pressing the key ▲ or ▼, Press the key more times till on the display you can read the time which passes between the programming and the timed start.

IMPORTANT!

Before proceeding with the timed start: program the working mode with the key MODE (2) and the fan speed with the key FAN (3). Switch the conditioner off (with the key ON/OFF).

Note: To cancel the stetted function, press the TIMER button again.

Note: IN case of power off, it is necessary to set TIMER ON again.



TIMER MODE----TIMER OFF

To set the automatic switching-off of the air conditioner.

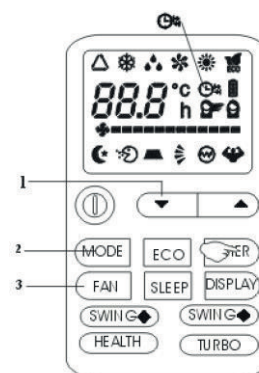
The timed stop is programmed with the appliance on.

Press TIMER, Set the time pressing the key ▲ or ▼, Press the key more times till on the display you can read the time which passes between the programming and the timed stop.

Note: To cancel the stetted function, press the TIMER button again.

Note: IN case of power off, it is necessary to set TIMER OFF again.

Note: While the time was right settled, the TIMER function of this remote (clock function) can set by half hours.



DRY MODE

This function reduces the humidity of the air to make the room more comfortable.

To set the DRY mode, Press MODE until appears in the display. An automatic function of alternating cooling cycles and air fan is activated.

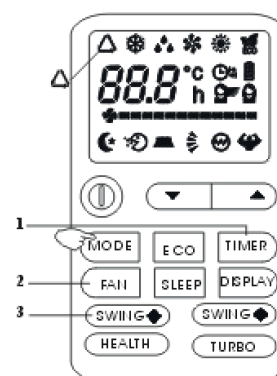


FEEL MODE

To activate the FEEL (automatic) mode of operation, press the MODE button on the remote control until the symbol appears in the display.

In the FEEL mode the fan speed and the temperature are set automatically according to the room temperature (tested by the probe which is incorporated in the indoor unit) to ensure user comfort.

Ambient temp	Operation mode	Auto temp.
< 20°C	HEATING (FOR HEAT PUMP TYPE) FAN (FOR COOL ONLY TYPE)	23°C
20°C~26°C	DRY	18°C
> 26°C	COOL	23°C



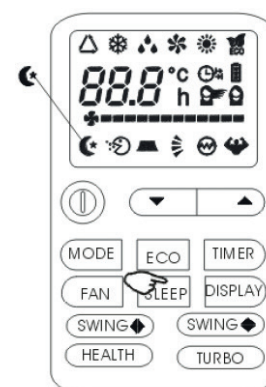
To optimize the working of the conditioner, adjust the temperature(only±2°C)(1), the speed (2) and the direction of the air flow (3) by pressing the buttons indicated .

SLEEP MODE

To activate the SLEEP mode of operation, press the SLEEP button on the remote control until the symbol (AUTOQUIET) appears in the display.

The function “SLEEP” automatically adjusts the temperature to make the room more comfortable during the night sleep. In cooling or dry mode, the set temperature will automatically raise by 1 °C every 60 minutes, to achieve a total rise of 2 °C during the first 2 hours of work.

In heating mode the set temperature is gradually decreased by 2 °C during the first 2 hours of work.



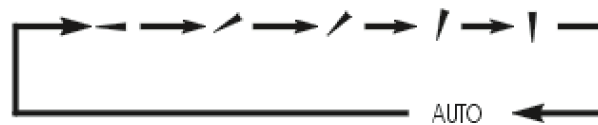
After 10 hours running in sleep mode the air conditioner is switched off automatically.

■ Air flow direction adjustment procedure

Adjust air flow direction

- Up/down direction can be adjusted by using the AIRFLOW button on the remote controller.

This button, each time pressed, changes the mode in the following sequence:



- Push the LOUVER button, changes the mode to swing louver.
Push the button, to stop swing.

Note:

- When the room temperature controller(thermostat)trips in the heating mode or when the defrosting operation is conducted, the blow flap changes automatically to the horizontal position.
- When the heating operation has just started and the room temperature is still low,it may take a little time before the flap moves to the above sway operation angle.
- The flap may stop at the tilted down-blow position during the"Sway operation"in the heating mode.

■ About TIMER operation

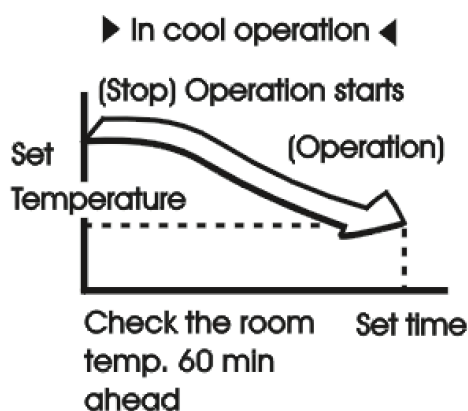
About Amenity reservation

Amenity reservation function is provided to start the operation a little earlier so that the room temperature is near the optimum temperature at the timer ON time in case of starting the operation by TIMER ON/OFF.

■ Mechanism

Checking of the room temperature starts 60 minutes ahead of the timer ON time. Depending on the temperature at that time, operation starts 5 to 60 minutes ahead of the timer ON time.

■ Amenity reservation is the function only for COOL and HEAT operation mode (including AUTO). It does not actuate in DRY mode.



About SLEEP Operation

When the SLEEP operation is selected, the room temperature is automatically controlled with elapsed time so that the room isn't too cool during cooling or too warm during heating.

■ During cooling and dry: Present temperature is raised 1°C in an hour (when the timer is set), and 2°C raise in two hours. Then the temperature doesn't change ever.

■ During heating: Present temperature is lowered 1°C in an hour (when the timer is set), and 2°C lower in two hours. Then the temperature doesn't change ever.

■ About FAN SPEED

Capacity of the air conditioner can be selected by your choice. During heating or cooling.

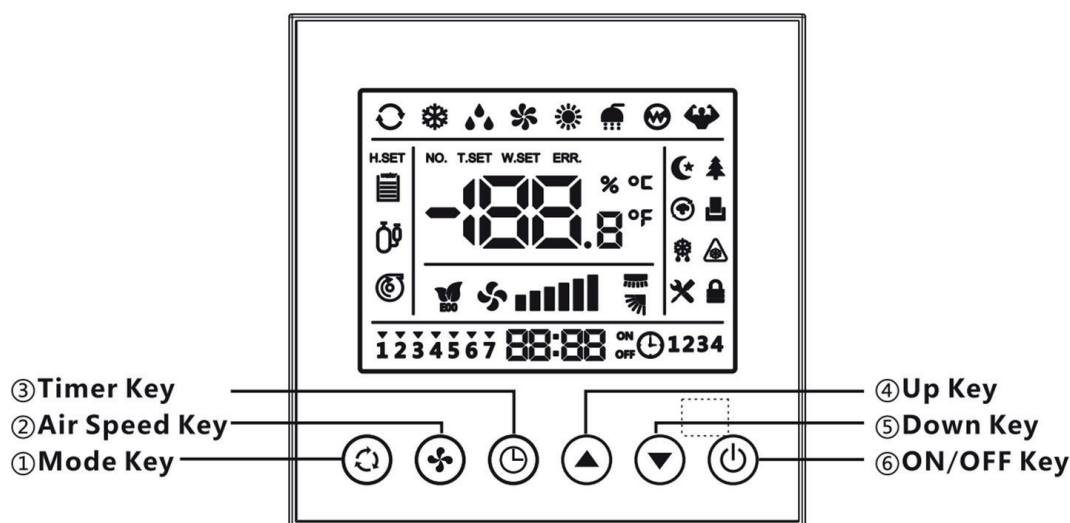
Operation capacity by your choice	FAN SPEED
Set automatically by microcomputer	AUTO
Powerful operation with high capacity	HI
Standard operation	MED
Energy-saving operation	LO

■ About power-off memory function

■ When the air conditioner disconnects the power suddenly, restart it, the air conditioner operates at the mode it did before power suddenly failed.

2. Wired remote controller

2.1 An Introduction to Wire Controller



Description of Icons or Symbols

	Sleep		Fresh		Door Card		Defrost
	Anti-freeze		Set		Child Lock		Economic
	Up/Down Swing		Left/Right Swing		Degree centigrade		Water Pump Sign
	Electric		Error		Water Level		Fahrenheit
	Current Water		Ambient Temperature		Set Temperature		Compressor Sign
	Timer ON		Timer OFF		Strong air speed		

Remark: If an icon goes on, it means “ON”; if such icon goes off, it means “OFF”.

Dial Setting

Definition	SW1-1	SW1-2	Description
Reserve	ON	-	/
	OFF	-	/
Reserve	-	ON	/
	-	OFF	/

2.2 Initial Power-on

2.2.1. It is necessary to initially power the wire controller on for self-check wherein all the icons or symbols go on for 3 seconds. During such period, all the key ad remote controller operations are invalid.

2.2.2. The wire controller is without the power-down memory function by default. If a user needs to use the power-down memory function, such user can see the detailed parameters corresponding to “P1” in Section 2.7.2 --- Parameter Setting.

2.3 Key Description

2.3.1 [ON/OFF] Key

2.3.1.1. Press the [ON/OFF] key once to start the controller; press the [ON/OFF] key once again to stop the controller.

2.3.1.2. Liquid Crystal Self-check:

Press the [ON/OFF] key to power the controller on for 5 seconds and then release such key; the controller enters self-check at the moment. The controller executes the liquid crystal self-check in the following sequence:

After the buzzer short sounds once, the following outputs successively motion (wherein the liquid crystal successively goes on from left to right and then go off.) After that, the controller exits from the self-check.

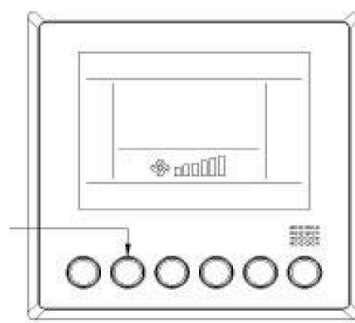
Notes: 1. The controller exits from the self-check status after it is powered off in the self-check status.

2. All the keys are invalid during the self-check.

2.3.2. [Mode] Key

2.3.2.1. Mode Switch

On the startup interface, press the [Mode] key once when the selected mode icon normally goes on and other icons go off. The switch sequence is as shown in the right picture.

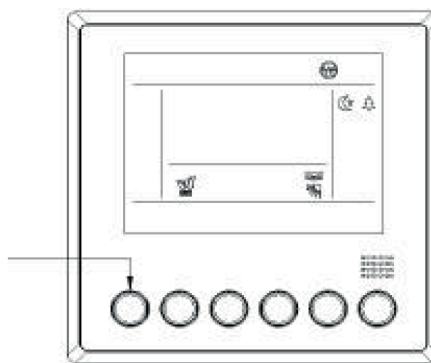


The refrigeration machine is without the “Heat” icon.

Automatic Mode: The controller with the power-down memory function can be powered on again after being powered down, re-judge the temperature and then re-execute the automatic mode; if the power-down memory function is not started, the controller will enter the standby mode.

2.3.2.2. Function Setting

On the startup interface, long press the [Mode] key for over 5 seconds to enter the function setting interface; short press the [Mode] key when the selected function icon twinkles with the frequency of 1Hz and other icons act as per the actual status (if the status is ON, the icons normally go on; otherwise, the icons go off.)



2.3.3. [▲]/[▼] Key

2.3.3.1 On the startup interface, press the [▲]/[▼] key once to set the temperature increase or decrease by 0.5°C ;

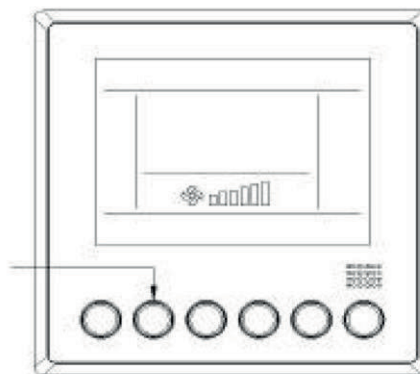
2.3.3.2 Forced Defrosting

On the startup interface, set the wire controller to be in the heating mode and at the temperature of 16°C, and then finish the following 6 keys of operations within 5 seconds:

“[▲]→[▼]→[▲]→[▼]→[▲]→[▼]”. At the moment, the system successfully enters the forced defrosting and then the buzzer long beeps once.

2.3.4 [Air Speed] Key

On the startup interface, press the [Air Speed] key once, the selected air speed icon normally goes on and other icons go off wherein the air speed switches in the cyclic sequence of low air speed → intermediate air speed → high air speed



- When the wire controller is initially powered on, its default air speed is low and the icon of low air speed is displayed.
- When being in the dehumidifying mode, the wire controller does not respond to any operation of the [Air Speed] key wherein the air speed cannot be adjusted, the default air speed is low and the icon of low air speed normally goes on.
- When the wire controller is at the time of automatic air, the air speed icon is successively displayed in the dynamic and cyclic sequence of low air speed → intermediate air speed → high air speed → low air speed.

- If the air speed is of individual backup, the wire controller will display the last set air speed of the corresponding mode when it enters the same mode next time.

2.3.5 [Timer] Key

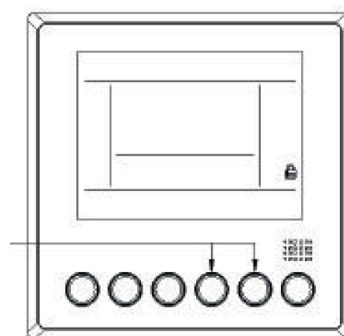
2.3.5.1 Continuously press the [Timer] key for over 5 seconds to enter the clock setting interface (See Chapter 2.5--- Clock Setting for details).

2.3.5.2 Press the [Timer] key once to enter the timer setting interface (See Chapter 2.6---Timer Setting for details).

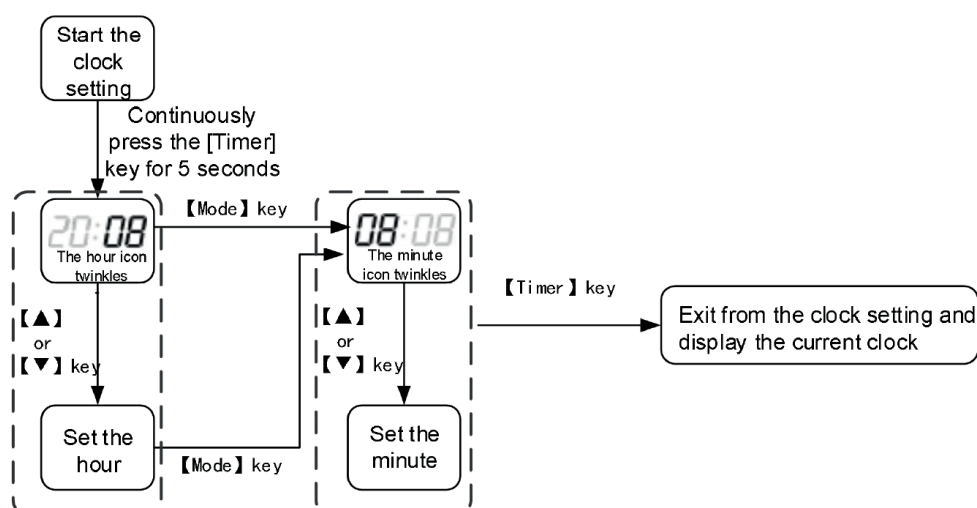
2.4. Auxiliary Functions

2.4.1. Child Lock

1. On the startup or shutdown interface, simultaneously press the [▲] and [▼] keys for over 5 seconds to enable the child lock when the child lock icon normally goes on.
2. When the child lock is valid, the operations of other keys are invalid but the icons twinkle with the frequency of 1Hz.



2.5. Clock Setting

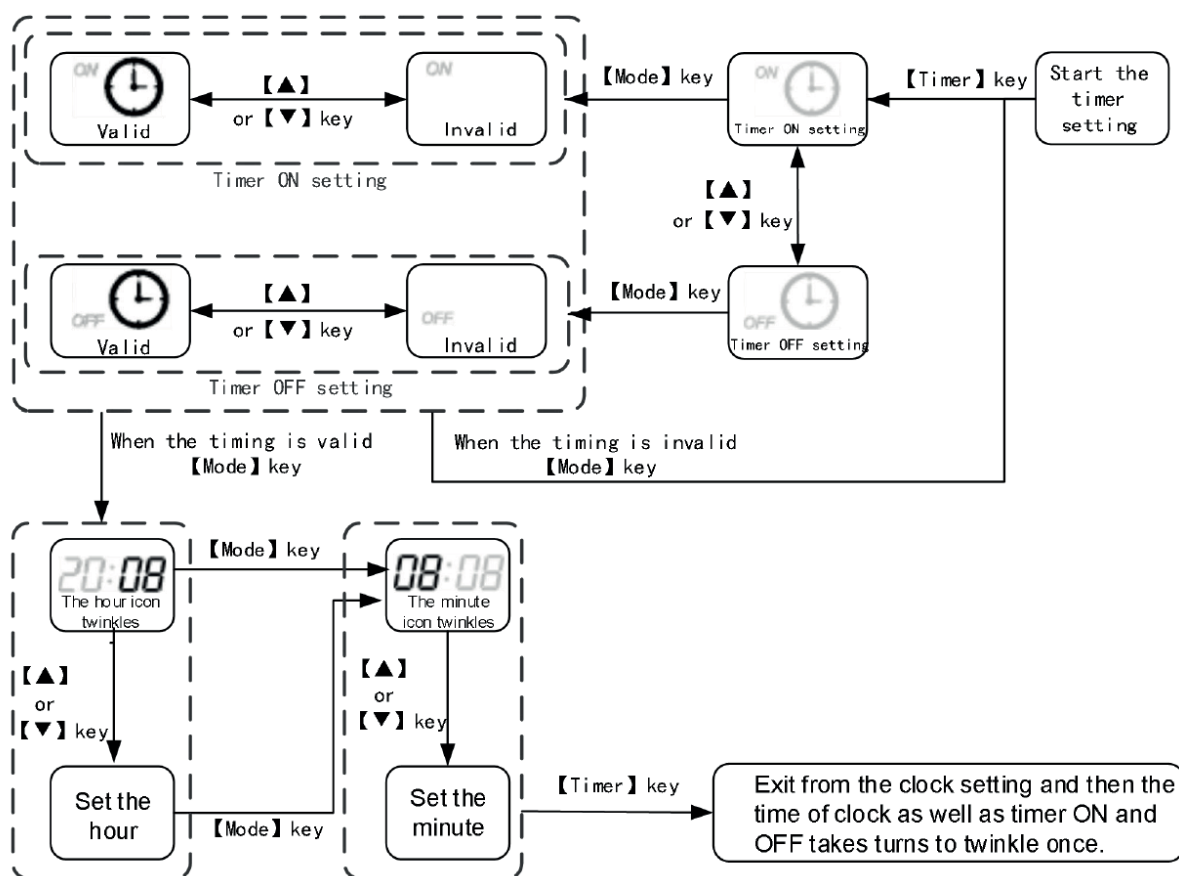


Set the period by pressing the [Timer] key and then exit from the clock setting with such setting saved;

Set the period by pressing the [ON/OFF] or [Mode] key and then exit from the clock setting with such setting not saved;

Set the status and if there are no key operations for 15 consecutive seconds, exit from the clock setting with such setting not saved.

2.6. Timer Setting



Set the period by pressing the [Timer] key and then exit from the clock setting with such setting saved;

Set the period by pressing the [ON/OFF] or [Mode] key and then exit from the clock setting with such setting not saved;

Set the status and if there are no key operations for 15 consecutive seconds, exit from the clock setting with such setting not saved.

2.7 Parameter Query/Setting

2.7.1 Parameter Query

- Continuously press the “[Mode]+[▲]” combination keys for 5 seconds to automatically enter the parameter query interface when the “Time Area-Hour” icon twinkles and displays the “Parameter Code” and “Temperature Area” displays the current “Parameter Value” corresponding to such “Parameter Code”.
- When the parameter code twinkles, press the [▲] or [▼] key to switch the parameter code.

Parameter Code	Area Display	Parameter Name	Value to Query	Area Display	Display Range
01	Time Area-Hour	Indoor ambient temperature (°C)	Current value	Temperature Display Area	-30~150
02	Time Area-Hour	Temperature in the middle of evaporator of the indoor unit (°C)	Current value	Temperature Display Area	-30~150
03	Time Area-Hour	Temperature at the outlet of evaporator of the indoor unit (°C)	Current value	Temperature Display Area	-30~150
E1	Time Area-Hour	Historical Error 1	Err+**	Temperature Display Area	
E2	Time Area-Hour	Historical Error 2	Err+**	Temperature Display Area	
E3	Time Area-Hour	Historical Error 3	Err+**	Temperature Display Area	
E4	Time Area-Hour	Historical Error 4	Err+**	Temperature Display Area	
E5	Time Area-Hour	Historical Error 5	Err+**	Temperature Display Area	

2.7.2 Parameter Setting

- Continuously press the “[Mode]+[▼]” combination keys for 5 seconds to automatically enter the parameter setting interface when the “Time Area-Hour” icon twinkles and displays the “Parameter Code” and “Temperature Area” displays the current “Parameter Value” corresponding to such “Parameter Code”.
- When the parameter code twinkles, press the [▲] or [▼] key to switch the “Parameter Code”; press the [Mode] key to stop the “Parameter Code” from twinkling and enters the “Parameter Value” changing interface when the “Parameter Value” twinkles.
- When the parameter value twinkles, press the [▲] or [▼] key to change the “Parameter Value”; press the [Mode] key to save the “Parameter Value” and return to the “Parameter Code” twinkling interface.

Parameter Code			Query the Current Parameter		Query Range
Parameter Code	Area Display	Parameter Name	Value to Query	Area Display	
P1	Time Area-Hour	Power-down Memory Mode	Off	Temperature Display Area	On: Resume the pre-outage status after being powered on in case of outage
			On		
P2	Time Area-Hour	Temperature Unit Conversion	°C	Temperature Display Area	
			°F		

2.8. 86J1\86J2 wire controller installation guideline

1. Open the wire controller packaging, check the model and the code at back surface.
2. Flip the wire controller, press the button at the bottom to separate the back plate from the front panel.
3. Pass the cable through the back panel and use 2 screws to fix it on the wall.
4. Connect the cable and the PCB board.
5. Align the front and back panel and press firmly.

