

ICHE Series

16 SEER Units

Technical Manual

208~230V/1/60Hz



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1. Safety Precautions

Read Safety Precautions Before Installation

Incorrect installation due to ignoring instructions can cause serious damage or injury.

The seriousness of potential damage or injuries is classified as either a WARNING or CAUTION.



Warning

This symbol indicates that ignoring instructions may cause death or serious injury.



Caution

This symbol indicates that ignoring instructions may cause moderate injury to your or damage to your appliance or other property.



Warning

I. Installation Warnings

- This air conditioner is a comfortable unit. Don't use it in some special places for machine rooms, precise instruments, foods, plants, animals, artworks, etc.
- The installation shall be done by the distributor or the professional staff. The installation staff must have related professional knowledge. Misoperation in the self-installation will result in fire, electric shock, injury, water leak, etc.
- If the air conditioner needs to be moved or reinstalled, please inform the distributor or the professional staff to operate. Incorrect installation will result in fire, electric shock, injury, water leak, etc.
- The users are not permitted to rebuild or repair the air conditioner by their own. Incorrect repair will result in fire, electric shock, injury, water leak, etc. please inform the distributor or the professional staff to repair.

II. Electrical Warnings

- The power supply capacity and wire diameter shall be selected according to the design manual. Generally, the power line of the air conditioner is thicker than that of the motor.
- When connecting the power supply, comply with the regulations specified by the local power company. According to the law, the ground wire must be connected. The misconnection of the ground wire will result in electric shock.
- To prevent misoperation of the air-conditioner, don't interlace or wind the power line (208-230V/60Hz/1N) with the connecting wires (low-voltage wires) of the indoor and outdoor units.



Caution

- Make sure the water drainage ditch is useable.
- Make sure the current leakage protection switch is equipped. If not, an electric shock will take place.
- Make sure the foundation and hoisting air firm and reliable. If not, it will result in a falling accident.
- Make sure all cables are correctly connected. The misconnection of the cables will result in the damage of electrical components.
- Pre-installation exposure to water or other moistures will result in short circuit of its electrical components. Don't store it in any damp cellar expose it to rain or water.
- In case of the refrigerant leaks during installation, the room must be ventilated at once. If the leaked refrigerant is exposed flame, some toxic gases will be generated.
- After installation, make sure the refrigerant is not leaked.
- A lighting protection device must be equipped according to national laws and regulations against the lighting strike.

2 Specifications

2.1 Model Names of Indoor/Outdoor Units

2.1.1 Nomenclature

Indoor Units

Floor Ceiling - Model Name	Dimension(W×H×D) (mm)	Power supply
IEFC618K2A-GWG053	1050*675*235	208V /1N/60Hz
IEFC624K2A-GWG071		
IEFC636K2A-GWG105	1300*675*235	
IEFC648K2A-GWG140	1670*675*235	
IEFC660K2A-GWG160		
Round Way Cassette Model name	Dimension(W×H×D) (mm)	Power supply
IECR618K2A-GWG053	840×230×840	208V /1N/60Hz
IECR624K2A-GWG071		
IECR636K2A-GWG105		
IECR648K2A-GWG140	840×285×840	
IECR660K2A-GWG160		
Ducted Fan Coil Model name	Dimension(W×H×D) (mm)	Power supply
ØŠÚÍ FÌ SGØËÖÔÖÉÍ H	1190×260×643	208V /1N/60Hz
ØT ÚÍ G SGØËÖÔÖÉÍ F		
ØT ÚÍ H SGØËÖÔÖÉÍ	1425×260×643	
ØPÚÍ I Ì SGØËÖÔÖÉÍ €	1325*300*830	
ØPÚÍ Î €SGØËÖÔÖÉÍ €		
Air Handler Model name	Dimension(W×H×D) (mm)	Power supply
IEUA618K2A-GNG053	460×774×520	208V /1N/60Hz
IEUA624K2A-GNG071		
IEUA636K2A-GNG105	510×1170×560	
IEUA648K2A-GNG140	560×1340×610	
IEUA660K2A-GNG160		

Outdoor Unit

Model name	Dimension (W×H×D) (mm)	Power supply (V/PH/HZ)
ICHE618K2A-GMG053	935*383*702	208V /1N/60Hz
ICHE624K2A-GMG071		
ICHE636K2A-GMG105	1032*445*810	
ICHE648K2A-GMG140	1100*528*870	
ICHE660K2A-GMG160		

2.2 External Appearance

2.2.1 Indoor Unit

Floor-ceiling



Round-way cassette



Duct



AHU



2.2.2 Outdoor Unit



3 Product Features

3.1 Operation features

- Long Piping & Cost Effective
- Low noise operation, as low as 54dB(A)
- 24V communication protocol, it's much safer than others and easier to connect to IDU.

3.2 Performance features

- High efficiency AC fan motors.
- Wide operation temperature range: Cooling: 16°C-46°C; Heating: -7°C-30°C
- R410A environment friendly refrigerant.
- Continuous Cooling Transformation Inner-grooved tube has high thermometric conductivity.

3.3 Reliability features

- Concealed stop valve design.
- Painted galvanized steel cabinet.
- High pressure ratio compressor.
- Service window to check the operation states.
- Refrigerant cooling PCB to increase the PCB life.

3.4 Safety features

- **Compressor three-minute delay start**
 - The compressor starts with a maximum delay of 30 seconds when the unit is started for the first time, and a maximum of 3 minutes when the subsequent unit restarts.
 - The outdoor fan motor and compressor start at the same time, but after the compressor stops, the outdoor fan motor will stop after a delay of 30 seconds.
- **Automatic shutoff based on discharge temperature**

If the compressor discharge temperature exceeds 115°C for 5 seconds, and T5 discharge temperature overheat protection occurs 20 times within 100 minutes, the compressor will stop to work. After the discharge temperature is down to 90°C, the unit restart.

- **Inverter module protection**

The inverter module has an automatic shutoff mechanism based on the unit's current, voltage, and temperature. If automatic shutoff is initiated, the corresponding error code is displayed on the outdoor unit and the unit stops operation.

- **Compressor preheating**
 - Preheating is automatically activated when ambient temperature (T4) and discharge temperature (T5) is lower than 1°C and the compressor stop.
 - When T4 or T5 is higher than 3°C, or the T4 and T5 temperature sensor are failed at the same time, or compressor runs, the unit will exit compressor preheating.

- A small current is introduced into the compressor from the terminal, so that the compressor can achieve a preheating effect due to the heating of the coil when the compressor is not rotating.
- **Sensor redundancy and automatic shutoff**
 - If one temperature sensor malfunctions, the air conditioner continues operation and displays the corresponding error code, allowing for emergency use.
 - When more than one temperature sensor is malfunctioning, the air conditioner ceases operation.

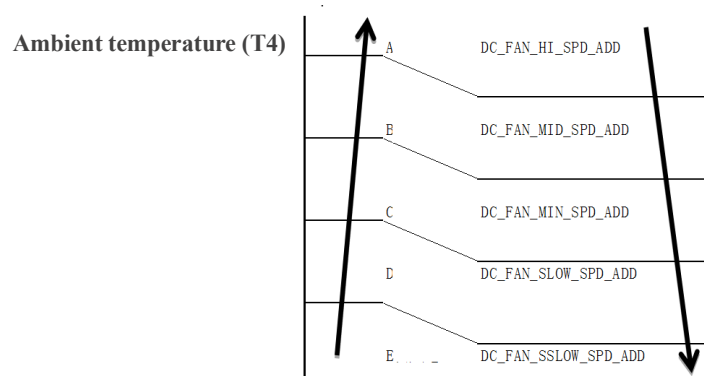
3.5 Basic functions

3.5.1 Abbreviation

Abbreviation	Element
T1	IDU room temperature
T2	IDU evaporator coil temperature
T3	ODU condenser coil temperature
T4	ODU ambient temperature
T5/TP	Discharge temperature
Ts	Setting temperature

3.5.2 Cooling mode

- **Compressor frequency control**
 - The start and running frequency depends on the temperature difference between room and setting temperature.
 - The running frequency will be limited by ambient temperature, indoor fan speed and outdoor unit current.
- **Compressor start and stop protection**
 - In order to prevent the compressor from starting and stopping frequently, wait for 6 minutes after the compressor is stopped, and then respond to the start signal after 6 minutes.
- **Outdoor fan motor control**
 - The outdoor unit fan speed changing is according ambient temperature (T4). For different model outdoor unit, the fan speeds are different.



- **Indoor fan motor control**

- The indoor fan motor will always run until ten seconds of shutdown. The purpose of delay stop is to prevent mildew.
- You can set turbo/high/middle/low/auto fan speed. The fan speed in auto fan mode is according to the temperature difference between room and setting temperature.

3.5.3 Heating mode

- **Compressor frequency control**

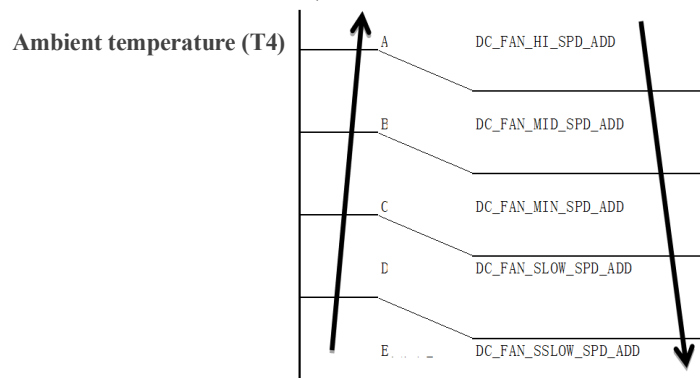
- The start and running frequency depends on the temperature difference between room and setting temperature.
- The running frequency will be limited by ambient temperature, indoor fan speed and outdoor unit current.

- **Compressor start and stop protection**

- In order to prevent the compressor from starting and stopping frequently, after the compressor stops, it will wait for 3.5 minutes, and then respond to the start signal after 3.5 minutes.
- Please note that: The four-way valve will switch after receiving the heating signal, but the four-way valve will not power off when the heating is in standby.

- **Outdoor fan motor control**

The outdoor unit fan speed changing is according ambient temperature (T4). For different model outdoor unit, the fan speeds are different.



- **Indoor fan motor control**

- Can set turbo/high/middle/low/auto fan speed. The fan speed in auto fan mode is according to the temperature difference between room and setting temperature.

- **Defrosting mode**

- The unit enters defrosting mode according to T3, the running time of compressor.
- In defrosting mode, the compressor continues to run, the indoor and outdoor motor will stop, the 4-way valve is OFF, and the “ dF” symbol is displayed in indoor unit.
- If any one of the following conditions is satisfied, defrosting ends and the machine switches to normal heating mode:
 - a. T3 maintained above 18°C for 120 seconds.
 - b. Unit runs for 10 minutes consecutively in defrosting mode.
- After defrosting mode, the unit may enter anti-cold-wind protection.

3.5.4 Forced operation function

- Press the **forced** button, the unit switches forced mode in the following order: forced auto mode → forced cooling mode → OFF → forced auto mode.
- Action method: running at 19 gear frequency (56HZ) and high fan speed.
- Exit method: short press force button/stop exit/power down exit/automatically switch to normal operation after 60min.
- The sign of mandatory mode is "dH", press this button, dH and pressure flash alternately.
- HPS bad judgment will be shield during the forced operation of the system.

3.5.5 Electric memory function

If the unit is cut out of power during the operation, when it is powered up again, the unit will run as previous setting. Or user turn on the unit manually, the unit will run as previous setting.

3.5.6 Wired controller (Optional)

- Connect with wired controller, can set the ON/OFF, running mode, temperature, fan speed, swing, turbo, sleep mode and timer.
- If there is error, error code will also be showed in wired controller.

4 Specification

4.1 Floor-ceiling

Model			18K	24K	36K	48K	60K	
			IEFC618K2A-GWG053	IEFC624K2A-GWG071	IEFC636K2A-GWG105	IEFC648K2A-GWG140	IEFC660K2A-GWG160	
Indoor power supply		V/Ph/Hz	230V /1/60	230V /1/60	230V /1/60	230V /1/60	230V /1/60	
Cooling	Capacity (IDU&ODU)	BTU	18000	24000	36000	48000	55000	
	Input (IDU&ODU)	W	1550	2350	3100	5325	5650	
	Rated current (IDU&ODU)	A	7.0	9.4	15.3	24.2	24.8	
	EER (IDU&ODU)	BTU/W	11.6	10.2	11.6	9.0	9.7	
	SEER (IDU&ODU)	BTU/W	16.0	16.0	16.0	16.0	16.0	
Heating	Capacity (IDU&ODU)	BTU	19000	24000	35000	48000	55000	
		W	5569	7034	10258	14068	16120	
	Input (IDU&ODU)	W	1600	2300	3200	5200	5300	
	Rated current (IDU&ODU)	A	7.1	10.2	15.3	23.1	22.2	
	COP (IDU&ODU)	W/W	3.5	3.1	3.2	2.7	3.0	
Input (IDU)		W	160	160	240	320	320	
Rated current (IDU)		A	0.7	0.7	1.0	1.5	1.5	
Max. power input (IDU)		W	195	195	290	360	480	
Max. current input (IDU)		A	0.8	0.8	1.2	1.8	1.9	
Indoor fan motor	Model		YSK110-59LD-4P17	YSK110-59LD-4P17	YSK110-180LD-4P2	YSK110-59LD-4P17	BR-KF-160LD/R1Y-LDBC.ZZ	
	Brand		Weiling	Weiling	Weiling	Weiling	Yongan	
	Power output	W	83	83	180	83	85	
	Capacitor	μF	3	3	5	3	5	
	Speed	r/min	1310/1139/1016	1310/1139/1016	1330/1230/1130	1310/1139/1016	1560/1430/1300	
	Insulation class			B	B	B	B	
Indoor coil	Number of rows		3	3	3	3	4	
	Tube pitch(a)xrow pitch(b)	mm	21*13.37	21*13.37	25*21.67	21*13.37	21*13.37	
	Fin spacing	mm	1.4	1.4	1.4	1.4	1.4	
	Fin type			Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic
	Tube outside dia. and type	mm		φ7	φ7	φ9.52	φ7	φ7
				inner grooved copper	inner grooved copper	inner grooved copper	inner grooved copper	inner grooved copper
	Coil length*height*width		mm	680*252*70	680*252*70	948*250*70	1318*252*70	1408*252*70
Number of circuits			4	4	6	5	6	
Indoor air flow(High speed)		m ³ /h	1200	1200	1800	2000	2750	
Indoor noise level		dB(A)	34/41	35/41	37/43	51/56	51-56	
Indoor unit	Dimension(W×H×D)	mm	1050*675*235	1050*675*235	1300*675*235	1670*675*235	1670*675*235	
	Packing(W×H×D)	mm	1130*765*330	1130*765*330	1380*765*325	1750*765*325	1750*770*325	
	Gross/Net weight	kg	31/26.5	31/26.5	38/33	46/40	49/43	
Max pressure		MPa	4.0	4.0	4.0	4	4.0	
Refrigerant type			R410A	R410A	R410A	R410A	R410A	
Refrigerant piping	Liquid side/Gas side	mm	φ9.52/φ15.88	φ9.52/φ15.88	φ9.52/φ19.05	φ9.52/φ19.05	φ9.52/φ19.05	
Drainage pipe		mm	DN25	DN25	DN25	DN25	DN25	
Standard controller			Remote controller & Wired controller & 24V Thermostat					
Operation temp		°C	16~32	16~32	16~32	16~32	16~32	

4.2 Round-way cassette

Model			18K	24K	36K	48K	60K
			IECR618K2A-GWG053	IECR624K2A-GWG071	IECR636K2A-GWG105	IECR648K2A-GWG140	IECR660K2A-GWG160
Indoor power supply		V/Ph/Hz	230V /1/60	230V /1/60	230V /1/60	230V /1/60	230V /1/60
Cooling	Capacity (IDU&ODU)	BTU	18000	24000	36000	48000	52000
	Input (IDU&ODU)	W	1505	2330.7	3493.9	5232.9	5560.3
	Rated current (IDU&ODU)	A	8.18	10.3	18.34	27.59	29.64
	EER (IDU&ODU)	BTU/W	11.96	10.30	10.30	9.17	9.35
	SEER (IDU&ODU)	BTU/W	16	16	16	16	16
Heating	Capacity (IDU&ODU)	BTU	19000	24000	34000	52000	55000
	Input (IDU&ODU)	W	1626	2247.2	3213.4	4522.3	5958.4
	Rated current (IDU&ODU)	A	7.26	9.94	14.14	19.91	26.13
	COP (IDU&ODU)	W/W	3.63	3	3	3	2.82
Input (IDU)		W	140	140.0	230.0	280.0	280
Rated current(IDU)		A	0.6	1	1	1	1.4
Max. power input (IDU&ODU)		W	2000	3000.0	4200	5560	6200
Max. current input (IDU&ODU)		A	10.5	15.5	22.0	31.0	32.0
Indoor fan motor	Model		YDK-45Q-8P2	YDK-45Q-8P2	YDK-100-8P2	YDK-100-8P2	YDK-100-8P2
	Brand		KB	KB	KB	KB	KB
	Power output	W	45	45	100	100	100
	Capacitor	μF	2.5	2.5	5	5	5
	Speed	r/min	700/600/490	700/600/490	730/650/550	730/650/550	730/650/550
	Insulation class		B	B	B	B	B
Indoor coil	Number of rows		2	2	2	3	3
	Tube pitch(a) x row pitch(b)	mm	21*13.37	21*13.37	21*13.37	21*13.37	21*13.37
	Fin spacing	mm	1.45	1.45	1.45	1.6	1.6
	Fin type		Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic
	Tube outside dia. and type	mm	Φ7	Φ7	Φ7	Φ7	Φ7
			inner grooved copper	inner grooved copper	inner grooved copper	inner grooved copper	inner grooved copper
	Coil length x height x width	mm	2000*168*26.74	2000*168*26.74	2000*252*26.74	2000*252*40.11	2000*252*40.11
Number of circuits		8	8	12	6	6	
Indoor air flow(High speed)		m ³ /h	1200	1200	1800	1800	1800
Indoor noise level		dB(A)	45~52	45~52	44~54	46~55	46~55
Indoor unit	Dimension (W×H×D)	Body(mm)	840×230×840	840×230×840	840×285×840	840×285×840	840×285×840
		Panel(mm)	950×50×950	950×50×950	950×50×950	950×50×950	950×50×950
	Packing (W×H×D)	Body(mm)	920×265×920	920×265×920	920×310×920	920×310×920	920×310×920
		Panel(mm)	1030×105×1030	1030×105×1030	1030×105×1030	1030×105×1030	1030×105×1030
	Gross/Net weight	Body(kg)	32/28	32/28	33.5/29	35.5/31	35.5/31
		Panel(kg)	9.5/6.5	9.5/6.5	9.5/6.5	9.5/6.5	9.5/6.5
Max pressure	MPa	4.0	4.0	4.0	4.0	4.0	
Refrigerant type			R410A	R410A	R410A	R410A	R410A
Refrigerant piping	Liquid side/Gas side	mm	φ9.52/φ15.88	φ9.52/φ15.88	φ9.52/φ19.05	φ9.52/φ19.05	φ9.52/φ19.05
Drainage pipe		mm	DN25	DN25	DN25	DN25	DN25
Standard controller			Remote controller & Wired controller & 24V Thermostat				
Operation temp		°C	16-32	16-32	16-32	16-32	16-32

4.3 Duct

Model			18K	24K	36K	48K	60K	
			IELP618K2A-GCG053	IEIMP624K2A-GCG071	IEIMP636K2A-GCG105	IEHP648K2A-GCG140	IEHP660K2A-GCG160	
Indoor power supply		V/Ph/Hz	230V /1/60	230V /1/60	230V /1/60	230V /1/60	230V /1/60	
Cooling	Capacity (IDU&ODU)	BTU	18000	24000	36000	48000	55000	
	Input (IDU&ODU)	W	1600	2450	3750	5550	5900	
	Rated current (IDU&ODU)	A	7.1	10.9	16.6	24.6	26.2	
	EER (IDU&ODU)	BTU/W	11.3	9.8	9.6	8.6	9.3	
Heating	Capacity (IDU&ODU)	BTU	19000	24000	35000	52000	55000	
	Input (IDU&ODU)	W	1600	2450	3450	5500	5300	
	Rated current (IDU&ODU)	A	7.1	10.9	15.3	24.4	23.5	
	COP (IDU&ODU)	W/W	3.5	2.9	3.0	2.8	3.0	
Input (IDU)		W	210	265	340	510	510	
Rated current(IDU)		A	0.9	1.2	1.6	2.2	2.2	
Max. power input (IDU&ODU)		W	1920	2940	4500	6400	6400	
Max. current input (IDU&ODU)		A	10.0	16.0	23.0	34.0	34.0	
Indoor fan motor	Model		YSK110-90F-4P2H105-1	YSK120-150F-4P2H105	YSK110-180LD-4P2	YSK139-250F-4P3	YSK139-250F-4P3	
	Brand		KANGBAO /XINJUN	KANGBAO /XINJUN	XINJUN/Welling /YONGAN	KANGBAO	KANGBAO	
	Power output	W	90	150	180	250	250	
	Capacitor	μF	5	6	5	12	12	
	Speed	r/min	1160/1000/900/870	1300/1150/1080/1030	1360/1290/1200/1100	1120/1000/900/800	1120/1000/900/800	
	Insulation class			B	B	B	B	
Indoor coil	Number of rows		3	3	3	3	4	
	Tube pitch(a) x row pitch(b)	mm	22*19.05	22*19.05	22*19.05	22*19.05	22*19.05	
	Fin spacing	mm	1.7	1.7	1.7	1.5	1.5	
	Fin type			Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic	
	Tube outside dia. and type	mm		φ7.94	φ7.94	φ7.94	φ7.94	φ7.94
				inner grooved copper	inner grooved copper	inner grooved copper	inner grooved copper	inner grooved copper
	Coil length x height x width			900*264*57.15	900*264*57.15	1136*264*57.15	1030*396*57.15	1030*396*76.2
Number of circuits			6	6	6	8	8	
Standard static pressure		Pa	25	25	37	50	50	
Indoor air flow(High speed)		m ³ /h	1370	1560	2200	2500	2500	
Pressure range		Pa	0~100	0~100	0~160	0~200	0~200	
Indoor noise level		dB(A)	41~52	46~55	47~56	46~53	46~53	
Indoor unit	Dimension(W×H×D)	mm	1190×260×643	1190×260×643	1425×260×643	1325*300*830	1325*300*830	
	Packing(W×H×D)	mm	1255×325×720	1255×325×720	1490×325×720	1395*380*920	1395*380*920	
	Gross/Net weight	kg	36/32	36/32	50/46	55/48	56/49	
Max pressure		MPa	4.0	4.0	4.0	4.0	4.0	
Refrigerant type			R410A	R410A	R410A	R410A	R410A	
Refrigerant piping	Liquid side/Gas side	mm	φ9.52/φ15.88	φ9.52/φ15.88	φ9.52/φ19.05	φ9.52/φ19.05	φ9.52/φ19.05	
Drainage pipe		mm	DN25	DN25	DN25	DN25	DN25	
Standard controller			24V Thermostat					
Operation temp		°C	16~32	16~32	16~32	16~32	16~32	

4.4 AHU

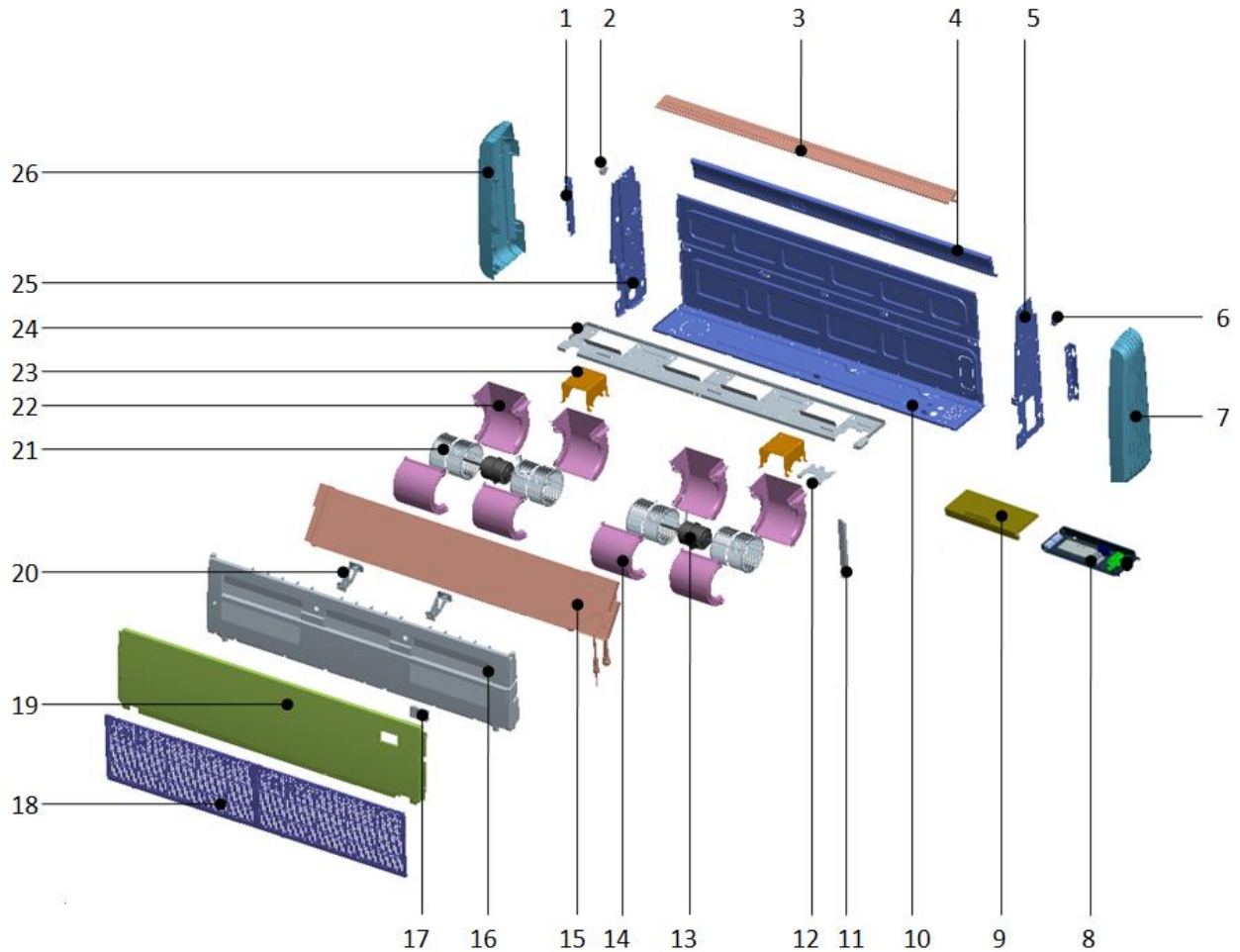
Model			18K	24K	36K	48K	60K
			IEUA618K2A-GNG053	IEUA624K2A-GNG071	IEUA636K2A-GNG105	IEUA648K2A-GNG140	IEUA660K2A-GNG160
Indoor power supply		V/Ph/Hz	230V /1/60	230V /1/60	230V /1/60	230V /1/60	230V /1/60
Cooling	Capacity (IDU&ODU)	BTU	18000	24000	36000	48000	55000
	Input (IDU&ODU)	W	1600	2420	3600	5750	5900
	Rated current (IDU&ODU)	A	7.1	10.7	16.0	25.5	26.2
	EER (IDU&ODU)	BTU/W	11.3	9.9	10.0	8.3	9.3
Heating	Capacity (IDU&ODU)	BTU	19000	24000	35000	50000	55000
	Input (IDU&ODU)	W	1600	2250	3200	5100	5100
	Rated current (IDU&ODU)	A	7.1	10.0	14.2	22.6	22.6
	COP (IDU&ODU)	W/W	3.5	3.1	3.2	2.9	3.2
Input (IDU)		W	225	225	305	545	545
Rated current(IDU)		A	1.0	1.0	1.3	2.4	2.4
Max. power input (IDU&ODU)		W	1920	2904	4320	6400	6400
Max. current input (IDU&ODU)		A	10.0	16.0	23.0	34.0	34.0
Indoor fan motor	Model		YDK130-6X	YDK130-6X	YDK139-220F-6P2	YDK139-300F-6P2	YDK139-300F-6P2
	Brand		KANGBAO	KANGBAO	KANGBAO	KANGBAO	KANGBAO
	Power output	W	130	130	220	300	300
	Capacitor	μF	6	6	10	12	12
	Speed	r/min	910/780	910/780	770/730/690	920/870/820	920/870/820
	Insulation class		B	B	B	B	B
Indoor coil	Number of rows		3+3	3+3	4+4	5+5	5+5
	Tube pitch(a)xrow pitch(b)	mm	21*13.37	21*13.37	21*13.37	21*13.37	21*13.37
	Fin spacing	mm	1.5	1.5	1.5	1.5	1.5
	Fin type		Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic
	Tube outside dia. and type	mm	φ7	φ7	φ7	φ7	φ7
			inner grooved copper	inner grooved copper	inner grooved copper	inner grooved copper	inner grooved copper
	Coil lengthxheightxwidth		mm	413*336*40.11	413*336*40.11	443*420*53.48	507*546*66.85
Number of circuits			6	6	8	12	12
Standard static pressure		Pa	25	25	37	50	50
Indoor air flow(High speed)		m³/h	1420	1420	2100	2850	2850
Pressure Range		Pa	0~100	0~100	0~160	0~200	0~200
Indoor noise level		dB(A)	57	57	48~57	50~58	50~58
Indoor unit	Dimension(W×H×D)	mm	460×774×520	460×774×520	510×1170×560	560×1340×610	560×1340×610
	Packing(W×H×D)	mm	520*834*565	520*834*565	580*1210*650	640*1390*710	640*1390*710
Gross/Net weight		kg	39/37	39/37	65/60	84/78	84/78
Max pressure		MPa	4.0	4.0	4.0	4.0	4.0
Refrigerant type			R410A	R410A	R410A	R410A	R410A
Refrigerant piping	Liquid side/Gas side	mm	φ12.7/φ15.88	φ12.7/φ15.88	φ9.52/φ19.05	φ9.52/φ22	φ9.52/φ22
Drainage pipe		mm	DN25	DN25	DN25	DN25	DN25
Standard controller			24V Thermostat				
Operation temp		°C	16~32	16~32	16~32	16~32	16~32

4.5 Outdoor unit

Model		18K	24K	36K	48K	60K	
		ICHE618K2A-GMG053	ICHE624K2A-GMG071	ICHE636K2A-GMG105	ICHE648K2A-GMG140	ICHE660K2A-GMG160	
Outdoor power supply		V/Ph/Hz	230V /1/60	230V /1/60	230V /1/60	230V /1/60	230V /1/60
Compressor	Model		SNB140FULMC	SNB200FGMMC	ATM240D57UMT	MNB40FEQMC	MNB40FEQMC
	Type		DC/Twin-rotary	DC/Twin-rotary	DC/Twin-rotary	DC/Twin-rotary	DC/Twin-rotary
	Brand		Mitsubishi	Mitsubishi	GMCC	Mitsubishi	Mitsubishi
	Frequency range	rps	10-130	10-120	10-120	10-120	10-120
	Capacity	W	4360	6175	7235	12900	12900
	Input	W	1300	1960	1945	3960	3960
	Rated Current (RLA)	A	4.4	6.7	8.5	14.8	14.8
Refrigerant oil	ml	350	400	670	1100	1100	
Outdoor fan motor	Model		YDK-75-6P2	YDK-75-6P2	YDK-105-6P2-1	YDK-230-6P2-2	YDK-230-6P2-2
	Brand		lvzhi	lvzhi	SINJUN	KB	KB
	Power output	W	75	75	105	230	230
	Power input	W	152	152	197	370	370
	Speed	r/min	890/620	890/620	880/680	880/600	880/600
Insulation class			B	B	B	B	B
Outdoor coil	Number of rows		2	3	3	2	3
	Tube pitch(a)×rowpitch(b)	mm	21*13.37	21*13.37	21*13.37	21*19.4	21*19.4
	Fin spacing	mm	1.5	1.4	1.5	1.55	1.55
	Fin type		Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic
	Tube outside dia. and type	mm	7	7	7	7	7
			inner grooved copper	inner grooved copper	inner grooved copper	inner grooved copper	inner grooved copper
	Coil length×width×height	mm	790*651*26.74	784*651*40.11	1000*756*40.11	1145*798*38.8	1145*798*58.2
Number of circuits		4	7	6	11	11	
Outdoor air flow(High speed)		m ³ /h	3300	3300	4200	5500	6000
Outdoor noise level(High speed)		dB(A)	54	54	56	57	57
Outdoor unit	Dimension(W×D×H)	mm	935*383*702	935*383*702	1032*445*810	1100*528*870	1100*528*870
	Packing(W×D×H)	mm	975*495*875	975*495*875	1075*495*875	1140*540*965	1140*540*965
	Gross/Net weight	kg	45.5/42	49/45.5	65/60	85/75	90/80
Refrigerant type/quantity		g	1800	2000	3000	3300	3600
Throttle part			Cooling: EXV Heating:EXV	Cooling: EXV Heating:EXV	Cooling: EXV Heating:EXV+ PISTON	Cooling: EXV Heating:EXV+ PISTON	Cooling: EXV Heating:EXV+ PISTON
Design pressure		MPa	4.0	4.0	4.0	4.0	4.0
Max. pressure		MPa	4.5	4.5	4.5	4.5	4.5
Refrigerant piping	Liquid side/Gas side	mm	φ9.52/φ15.88	φ9.52/φ15.88	φ9.52/φ19.05	φ9.52/φ19.05	φ9.52/φ19.05
	Max. pipe length	m	30	30	30	30	30
	Max. high drop	m	10	10	10	10	10
Ambient temp (ODU)	Cooling	°C	16~46	16~46	16~46	16~46	16~46
	Heating	°C	-7~30	-7~30	-7~30	-7~30	-7~30

5.Exploded View

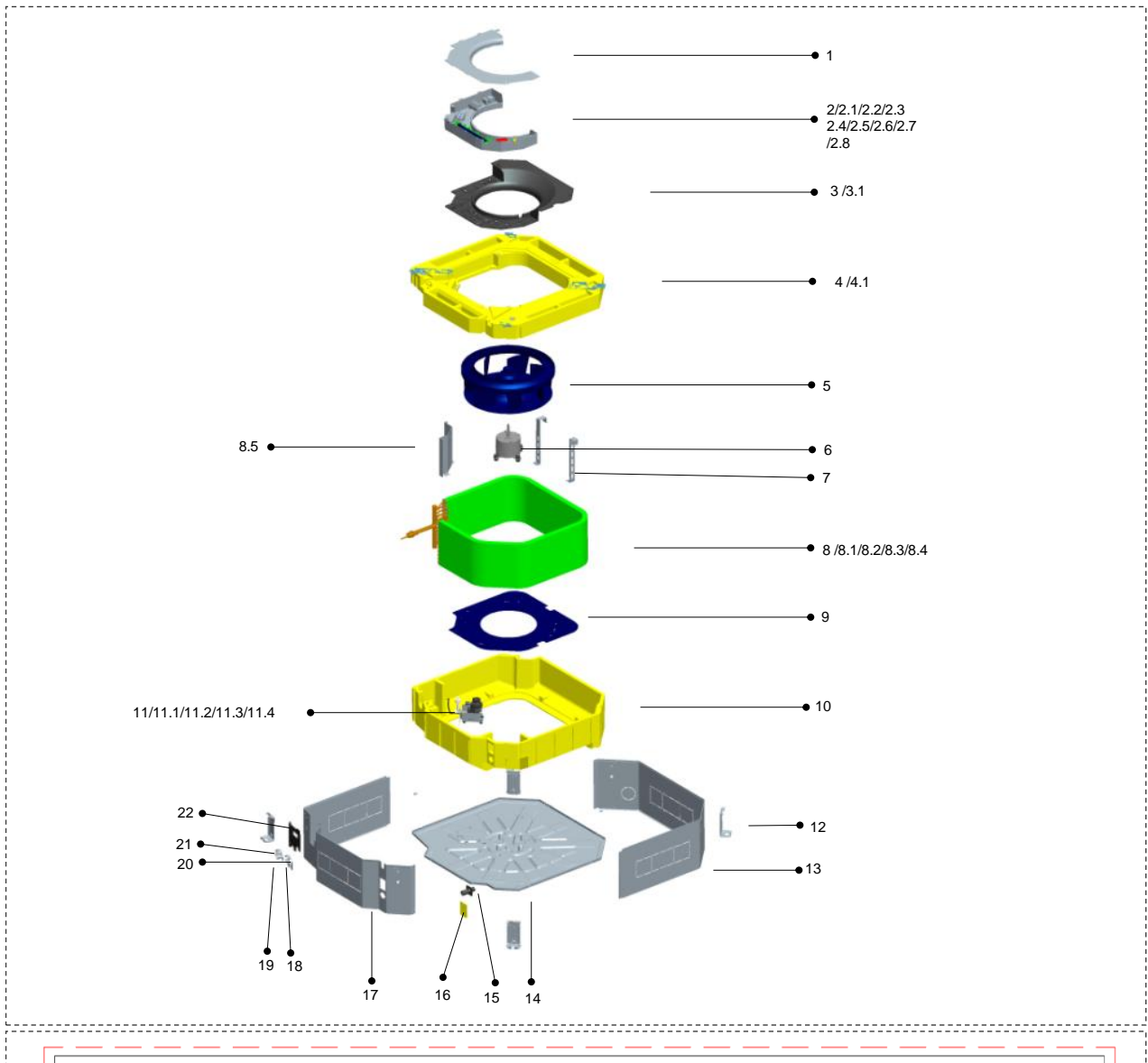
5.1 Floor-ceiling



No.	Part Name	Qty	No.	Part Name	Qty
1	Right mounting plate of evaporator	1	15.5	Evaporator right lower mounting plate	1
2	Horizontal step motor	1	15.6	Evaporator left lower mounting plate	1
3	Wind guide assembly	1	16	Water tray assy	1
4	Rear cover with cotton	1	16.4	Horizontal swing leaf active rod	1
5	Right side board assembly	1	16.5	Horizontal swing leaf connecting rod 1	1
6	Horizontal step motor	1	16.6	Horizontal swing leaf connecting rod 2	1
7	Right cover	1	16.7	Wind guide blade	1
8	Indoor PCB assembly	1	16.8	Vertical stepper motor	1

8.1	E-part box	1	17	Display panel assembly	1
8.2	Indoor PCB	1	17. 2	Show mask	1
8.3	Terminal	1	17. 3	Display board mounting box	1
8.4	Transformer	1	18	Back style assembly	2
8.5	Blade fan capacitor	2	18. 1	Back style	2
9	Electric box cover	1	18. 2	Filter	2
10	Chassis assembly	1	18. 3	Grille buckle	6
11	Support bar	1	18. 4	Grille screw cover	6
12	Pipe plate	1	19	Top cover assy	1
13	Indoor fan motor	2	20	Wind guide bracket	2
14	Upper volute	4	21	Centrifugal fan blade	4
15	Evaporator assy	1	22	Lower volute	4
15. 1	Evaporator assembly	1	23	Motor bracket	2
15. 2	Evaporator return header assembly	1	24	Middle beam welding assembly	1
15. 3	Evaporator splitter capillary assembly	1	25	Left side board assembly	1
15. 4	Evaporator left mounting plate	1	26	Left cover	1

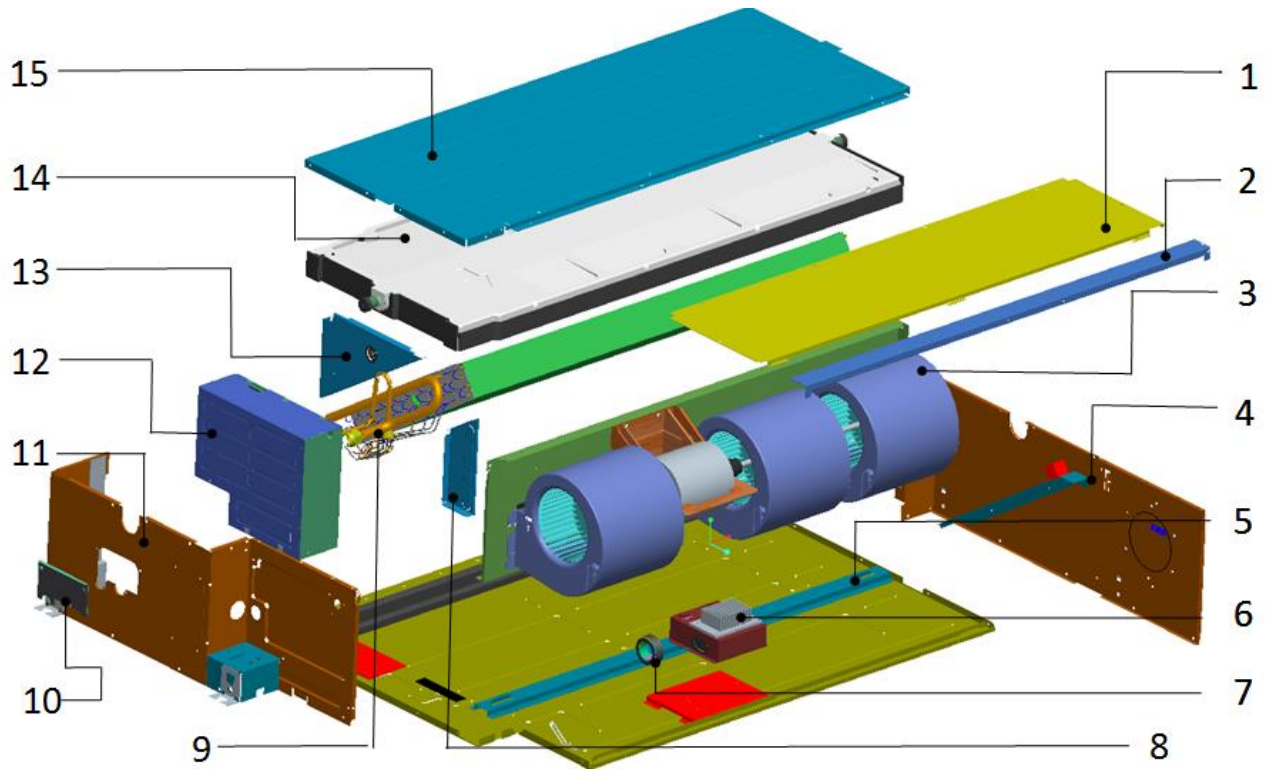
5.2 Four-way cassette



No .	Part Name	Quantity	No .	Part Name	Quantity
1	E-parts box cover	1	8.4 .3	collecting pipe welding assy	1
2	Eletric control components for indoor unit	1	8.4 .4	Current divider capillary assy	1
2.1	Fan motor capacitor	1	8.5	Main fixing board	1
2.2	Terminal	1	9	Upper foam components	1
2.3	Terminal	1	10	water pump support	1

2.4	E-parts board for indoor unit	1	10.1	Water pump	1
2.5	Temperature sensor	1	10.2	Liquid-level sensor	1
2.6	Temperature sensor	1	10.3	Underlay for water pump support	3
2.7	Welded chasis for E-parts box	1	11	Hanger	4
3	Wind inlet guide assy	1	12	Rear brattice	1
3.1	Wind inlet guide	1	13	Chassis assy	1
4	Water pan components	1	14	Discharge pipe assembly	1
5	Centrifugal fan	1	15	Maintenance board component	1
6	Fan motor for indoor unit	1	16	Front brattice	1
7	Auxiliary fixing board for evaporator	1	17	Lower pipe clamp	1
8	Evaporator components	1	18	Lower pipe clamp(ϕ 35)	1
8.1	Insulating pipe	1	19	Upper pipe clamp	1
8.2	Insulating pipe	1	20	Upper pipe clamp(ϕ 35)	1
8.4	Evaporator welding assy	1	21	Valve panel assembly	1
8.4.1	Instalation tube for probe	1	22	Wire out board	1
8.4.2	Evaporator	1	23	Wire out board cover	1

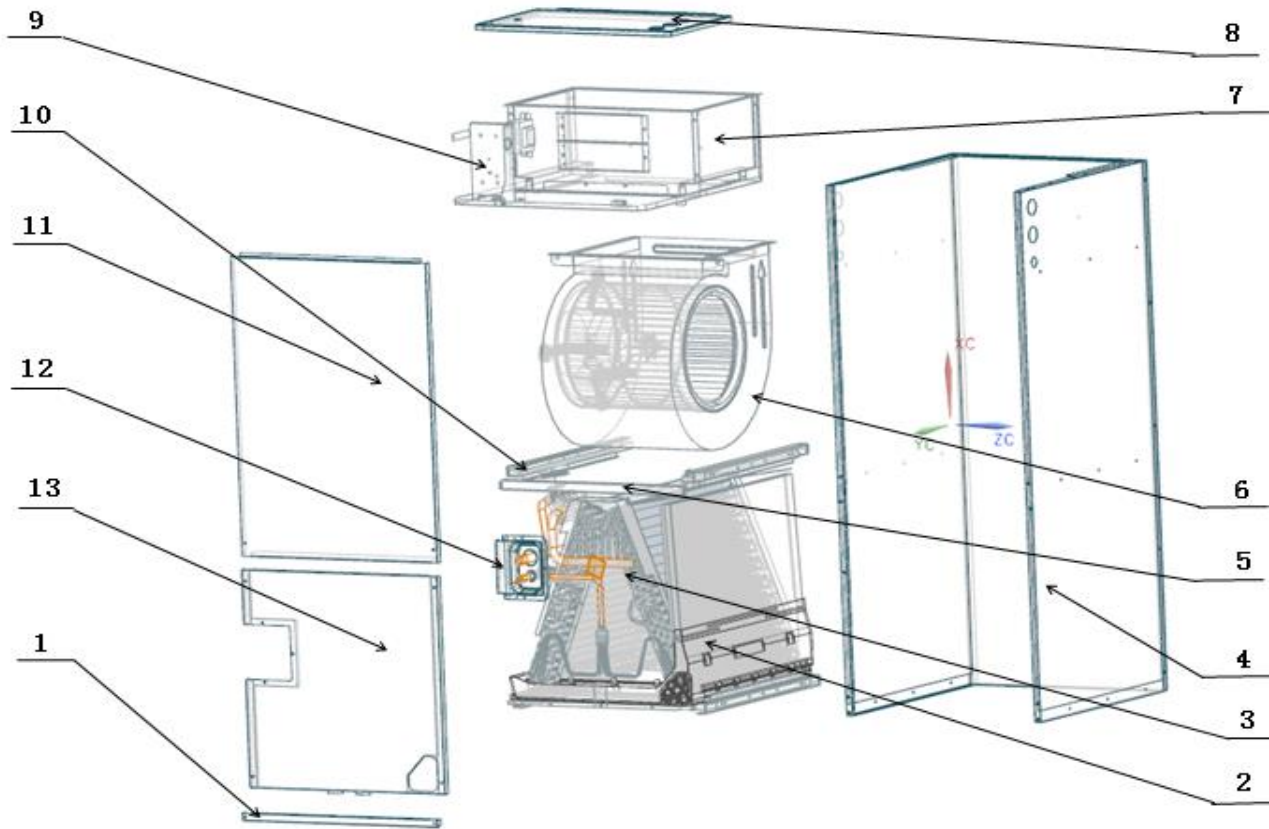
5.3 Duct



No .	Part Name	Qty	No.	Part Name	Qty
1	Sponge patch for air return plate	1	7	Magnetic ring with buckle	1
2	Sponge patch for air return fixed plate	1	8	Evaporator connection plate 2	1
3	Fan motor component	1	9	Evaporator parts	1
3.1	Fan motor fixing plate welding assembly	1	9.1	Evaporator welding saay	1
3.2	Motor bracket	1	9.2	Air header Assembly	1
3.3	Motor shaft sleeve upper left gland	1	10	Sponge component for outlet pipe cover	1
3.4	Motor shaft sleeve left lower gland	1	11	Sponge component on the left side panel	1
3.5	Motor shaft sleeve upper right gland	1	11.1	Hanger	2
3.6	Motor shaft sleeve upper lower gland	1	12	Electronic control components	1
3.7	Motor bracket connecting plate	1	12.1	Electric control box welding components	1
3.8	Wind wheel volute	3	12.2	Electric control box cover	1

3.9	Shaft support plate	1	12. 3	RC DUCT INDOOR MAIN BOARD	1
3.1 0	Bearing seat	1	12. 4	Terminal	1
3.1 1	Bearing seat fixing plate	1	12. 5	5K resistance wire	1
3.1 2	Bearing seat support plate	1	12. 6	Crimping button	1
3.1 3	Connecting shaft	1	12. 7	Electric wire for connection	1
3.1 4	Coupling	1	12. 8	Fan motor capacitor	1
3.1 5	Double shaft fan motor (AC)	1	12. 9	Transformer	1
4	Right side panel sponge component	1	12. 10	Connection wire group	1
4.1	Hanger	2	13	Evaporator connecting plate 1 cotton sticking assy	1
5	Top cover patch component	1	14	Drain tray sticking cotton assembly	1
6	Fan motor module components	1	15	Chassis sticking sponge component	1

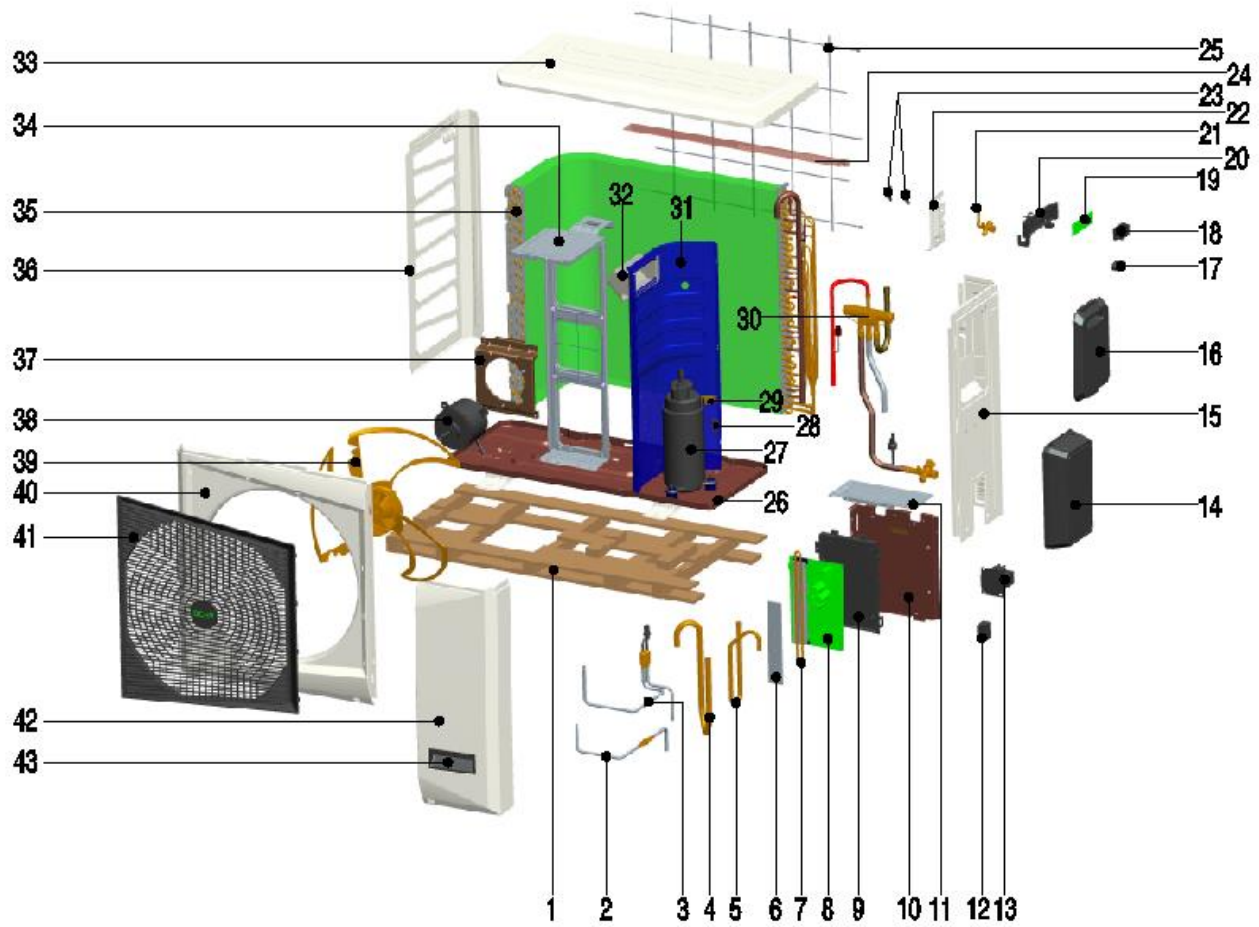
5.4 AHU



No.	Part Name	Qty	No.	Part Name	Qty
1	Filter Cover plate	1	6.1	Right Volute Wind Wheel	1
2	Water pan components	1	6.2	Indoor Motor	1
2.1	Water pan# 1	1	7	Fan Motor Fixing plate assembly	1
2.2	Water pan# 2	1	7.1	Fan Motor Fixing plate	1
2.3	Water pan fixed block	1	7.2	Wind Wheel Fixed Block	2
2.4	Water pan brace	2	7.3	Fixed plate on air duct	1
3	Evaporator component	1	7.4	Stator	2
3.1	Air header Assembly	1	7.5	air duct left stationary plate	1
3.2	Inlet pipe Assembly	1	7.6	air duct right stationary plate	1
3.7	Evaporator Baffle	2	8		1
3.8	Evaporator Water Baffle #1	2	9	ELectronic Control Components	1

3.9	Evaporator Water Baffle #2	1	9.1	ELectronic Control Mounting Plate	1
3.10	Evaporator Water Baffle #3	1	9.2	Main Board	1
3.11	Evaporator Fixing Plate #1	1	9.3	Transformer	1
3.12	Evaporator Fixing Plate #2	1	9.4	5K Resistance line group	1
3.13	Evaporator Junction Plate	1	9.5	Cable set	1
4	Chassis assembly	1	9.6	Fan capacitor	1
4.1	Chassis floor	1	9.7	Capacitor clip	1
4.2	Left side plate of chassis	1	10	Water pan supporter assembly	4
4.3	Right side plate of chassis	1	11	Upper side plate assembly	1
4.4	Fiberglass sponge	1	12	Pipe Cover plate assembly	1
4.5	Fiberglass sponge	2	13	Lower side plate assembly	1
5	Supporter	2			

5.5 Outdoor Unit



No.	Part Name	Qty	No.	Part Name	Qty
1	Wooden bottom bracket	1	28	Damping block	1
2	Throttle valve assembly (one-way)	1	29	Fixed block	1
3	Electronic expansion valve assembly	1	30	4-way valve assy	1
4	Air-return pipe	1	31	Middle partition part	1
5	Air-exhaust pipe	1	32	Waterproof cover	1
6	Radiator cover	1	33	Top cover assy	1
7	Refrigerant pipe	1	34	Motor bracket assembly	1
8	PCB board	1	35	Condenser component	1
9	Main control board mounting base	1	36	Left side panel	1

10	Electric control mounting board assembly	1	37	Motor mounting plate	1
11	Cover plate of electronic control box	1	38	Outdoor fan motor	1
12	Fan motor capacitor	1	39	Axial-flow fan blade	1
13	Reactor	1	40	Front panel	1
14	Stop valve cover	1	41	Air-outlet net cover	1
15	Right rear plate	1	42	Right front plate	1
16	Large handle	1	43	Small handle	1
17	Harness fixing buckle	1	44	Sensor clip	1
18	Terminal	1	45	Temperature sensor(T4)	1
19	Display panel of communication	1	46	Temperature sensor(T3)	1
20	Communication panel mounting base	1	47	Temperature sensor(Tp)	1
21	Stop valve	1	48	Communication wire	1
22	Mounting plate of stop valve	1	49	EL communication cable group	1
23	Seat plate sealing cover	2	50	Short-cut wire of pressure switch	1
24	Rear side plate	1	51	Compressor cable group	1
25	Rear wire netting	1	52	Communication cable of indoor/outdoor units	1
26	Chassis parts	1	53	4-way valve core	1
27	Inverter compressor	1	54	Electronic expansion valve coil	1

6 Pipe length and drop height

Refer to the table below for specifications on the total length and lift of piping.

Capacity (Btu/h)	Total piping length (m)	Piping Lift (m)
18K&60K	30	10

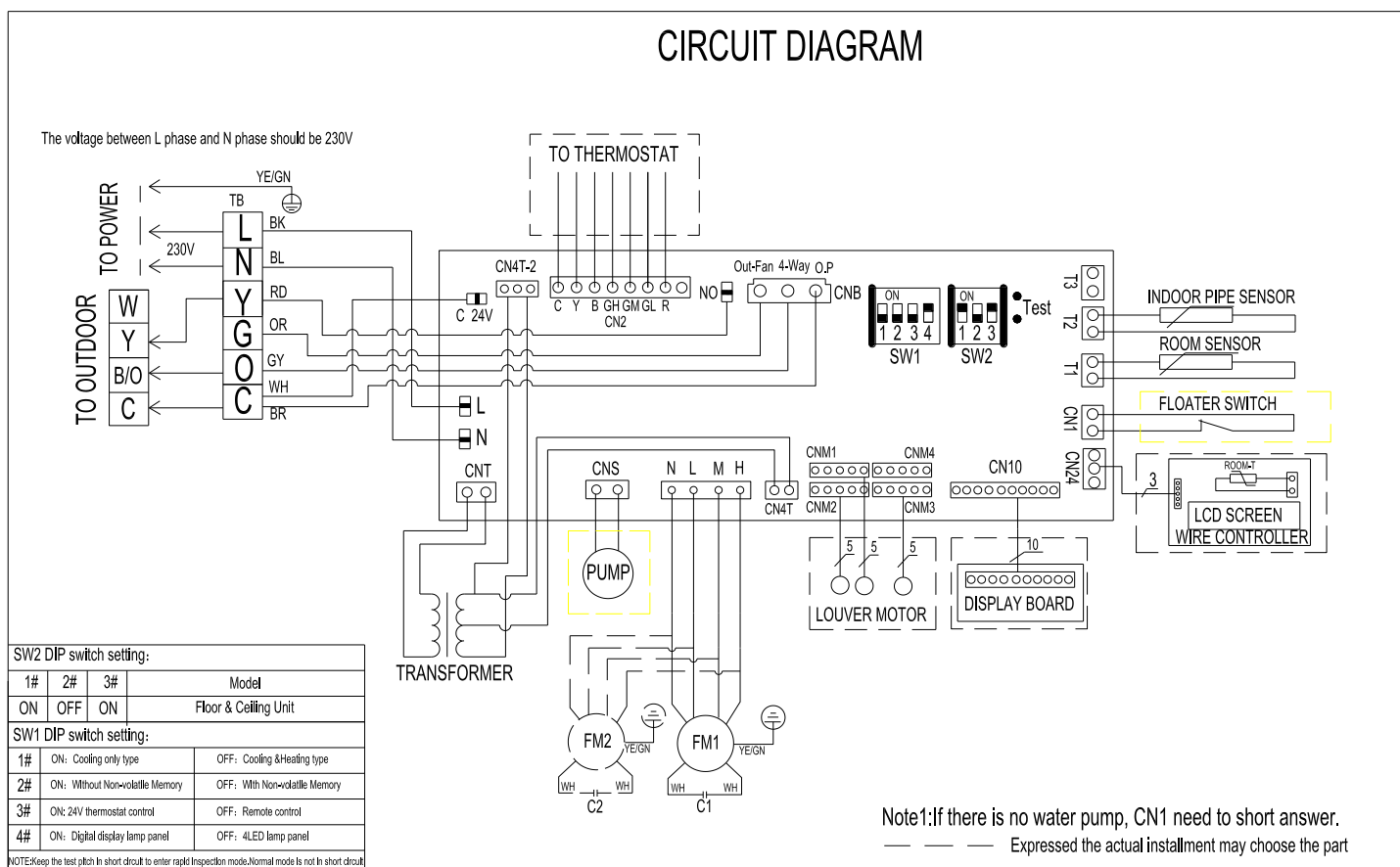
7 Electrical wiring diagram

7.1 Indoor Unit

7.1.1 Floor-ceiling

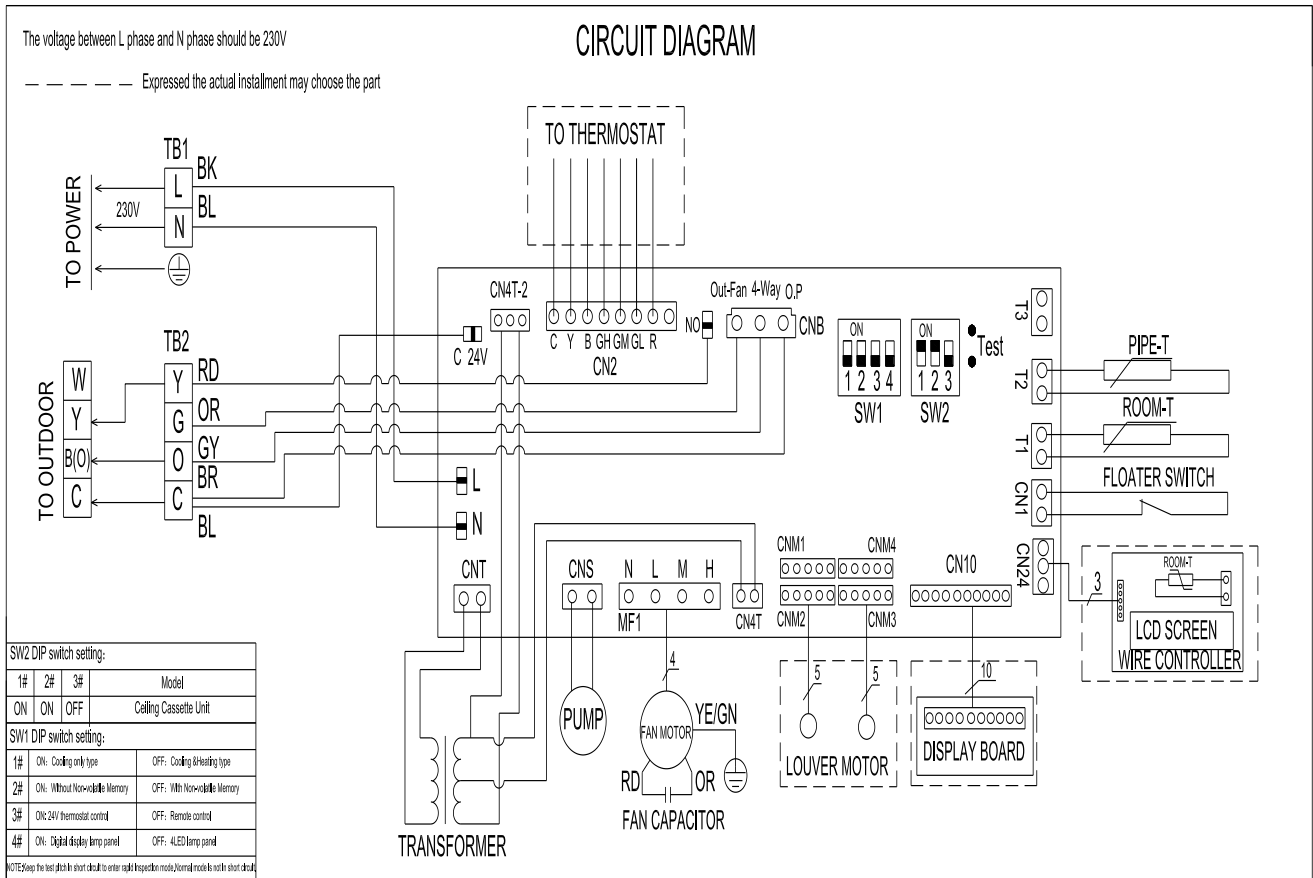
18K&60K

CIRCUIT DIAGRAM



7.1.2 Round-way cassette

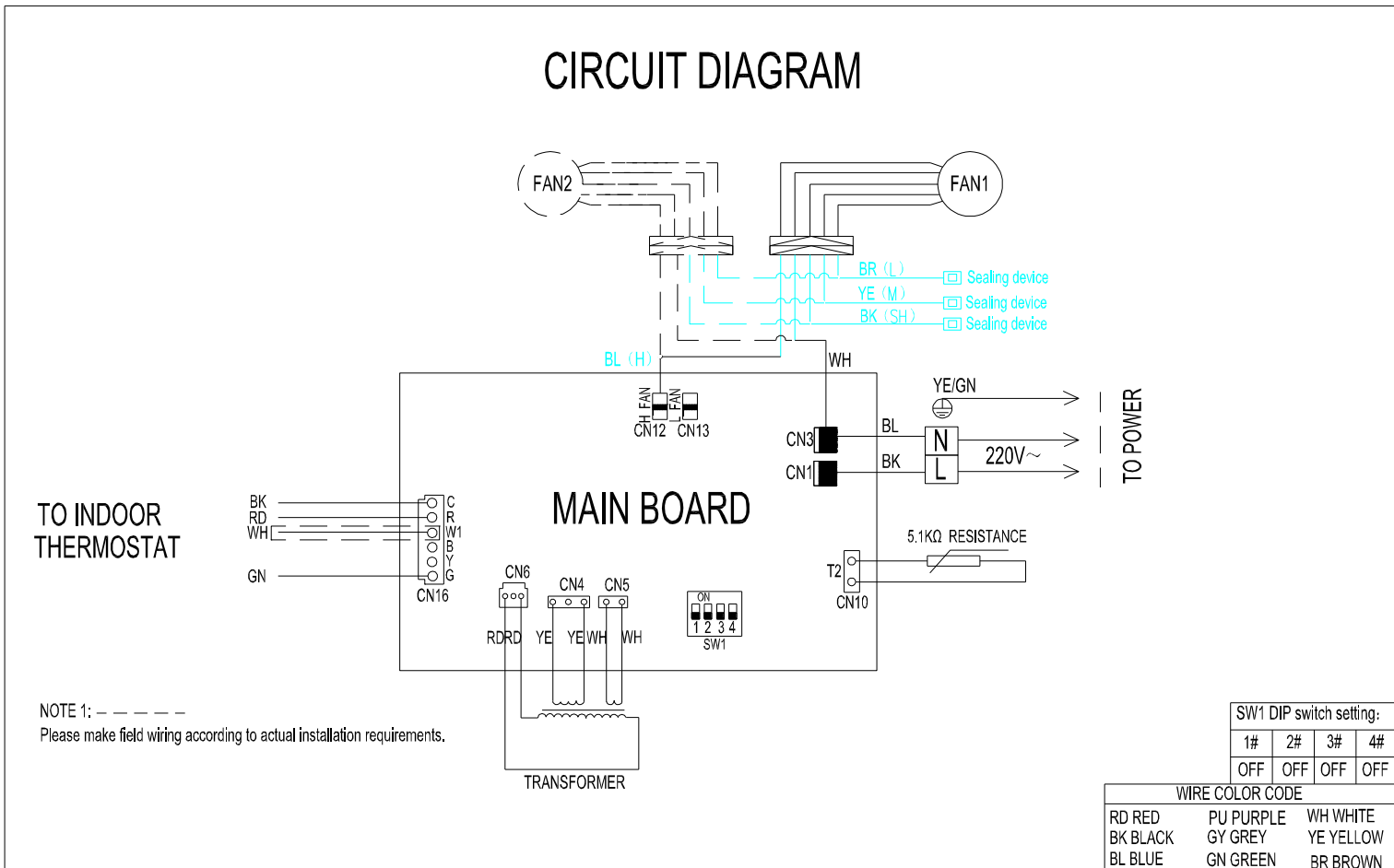
18K&60K



7.1.3 Duct

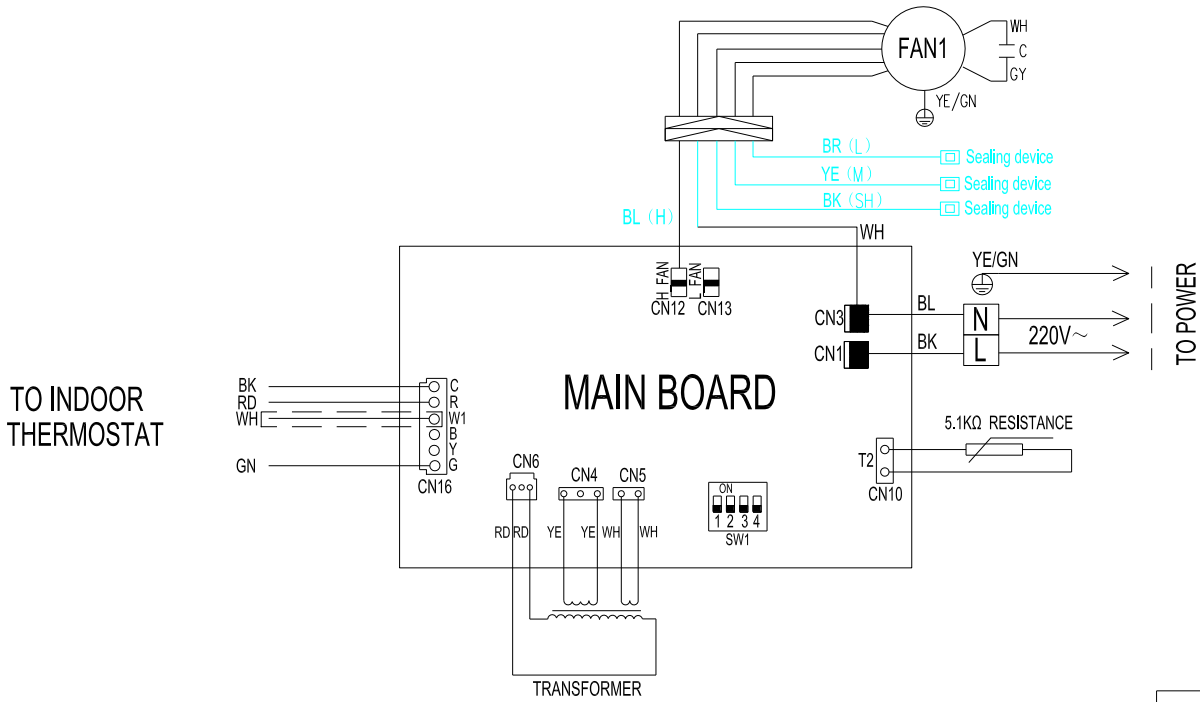
18K/24K/36K

CIRCUIT DIAGRAM



48K/60K

CIRCUIT DIAGRAM



TO INDOOR
THERMOSTAT

TO POWER

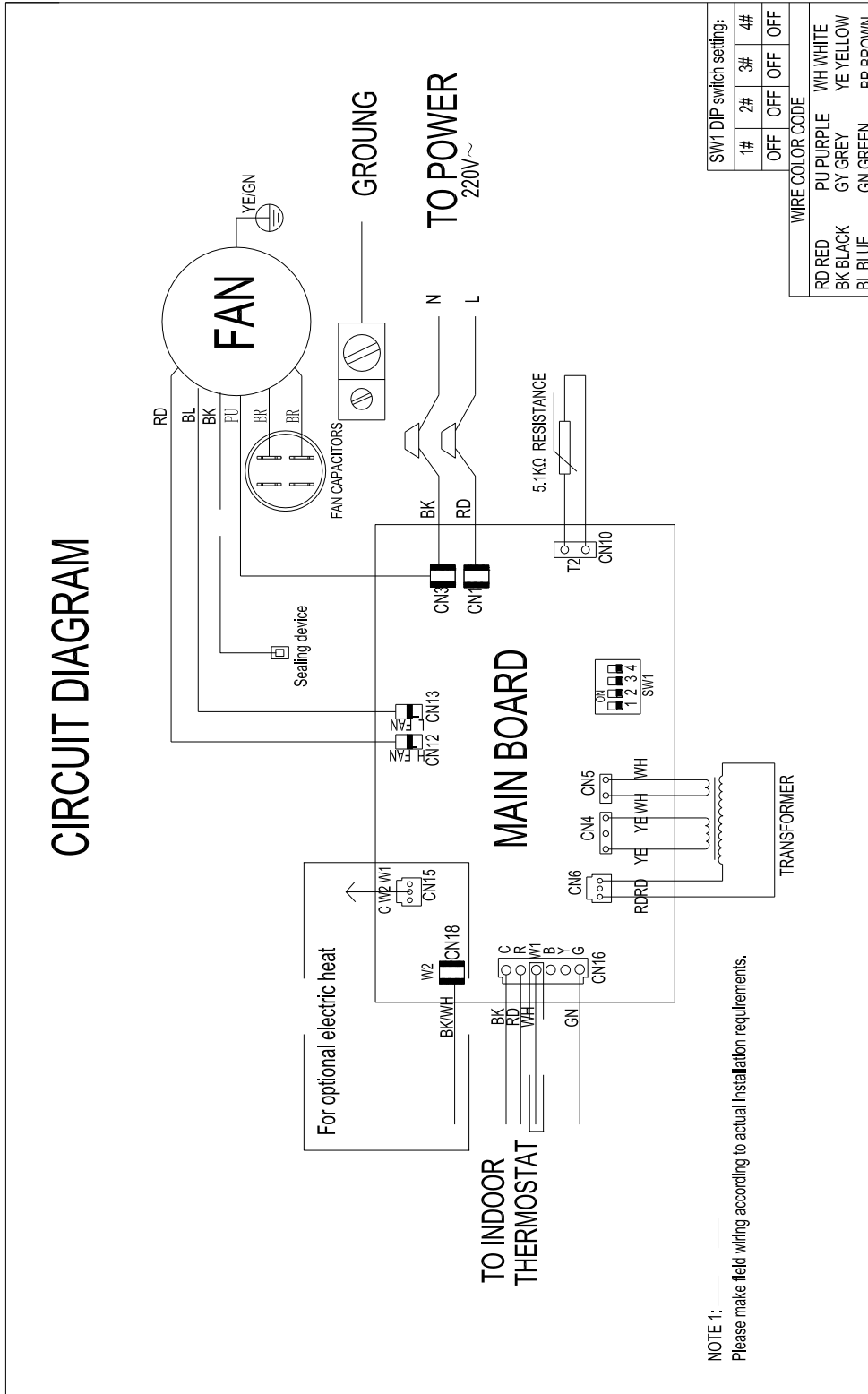
SW1 DIP switch setting:			
1#	2#	3#	4#
OFF	OFF	OFF	OFF

WIRE COLOR CODE		
RD RED	PU PURPLE	WH WHITE
BK BLACK	GY GREY	YE YELLOW
BL BLUE	GN GREEN	BR BROWN

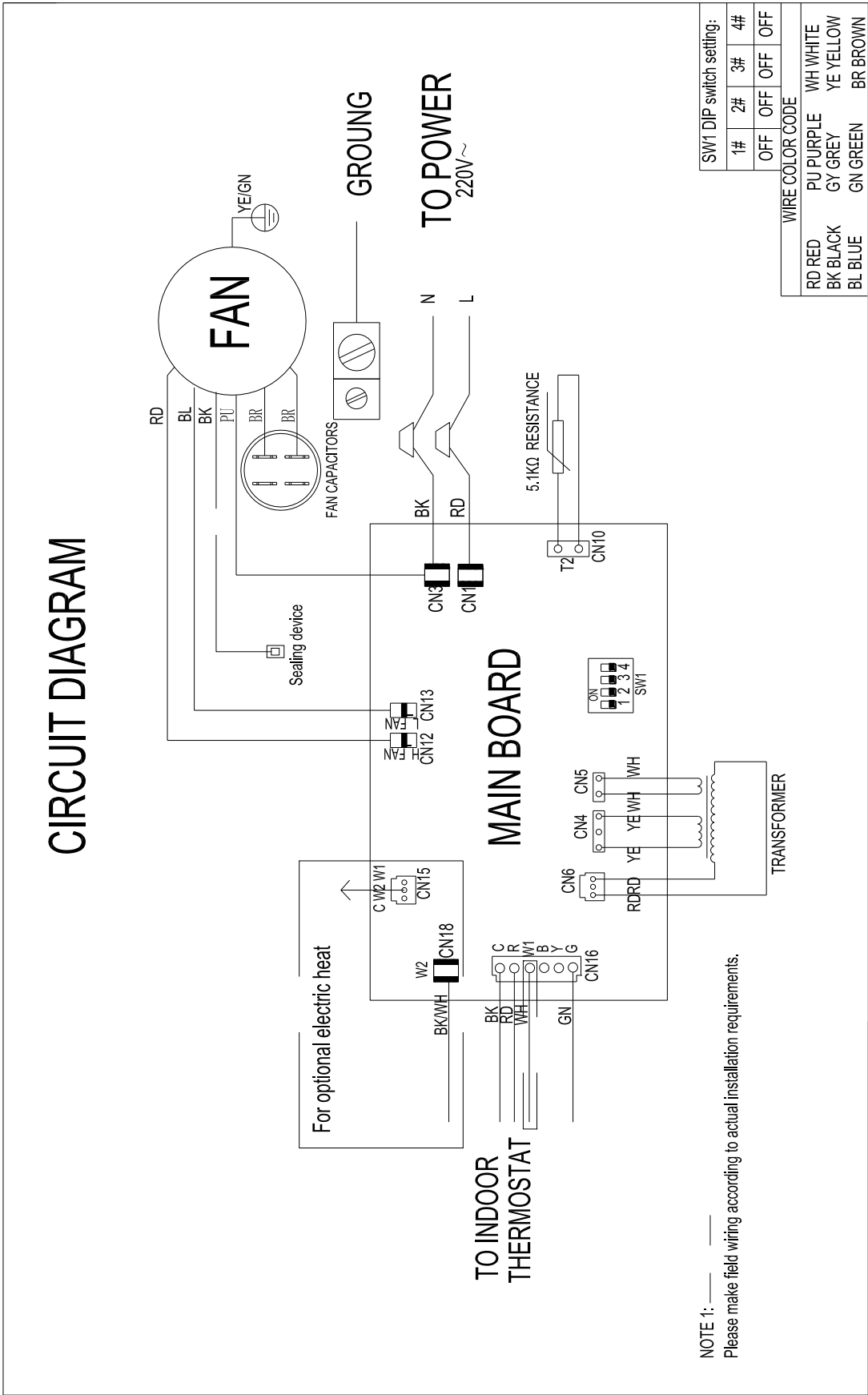
NOTE 1: - - - - -
Please make field wiring according to actual installation requirements.

7.1.4 AHU

18K/24K



CIRCUIT DIAGRAM

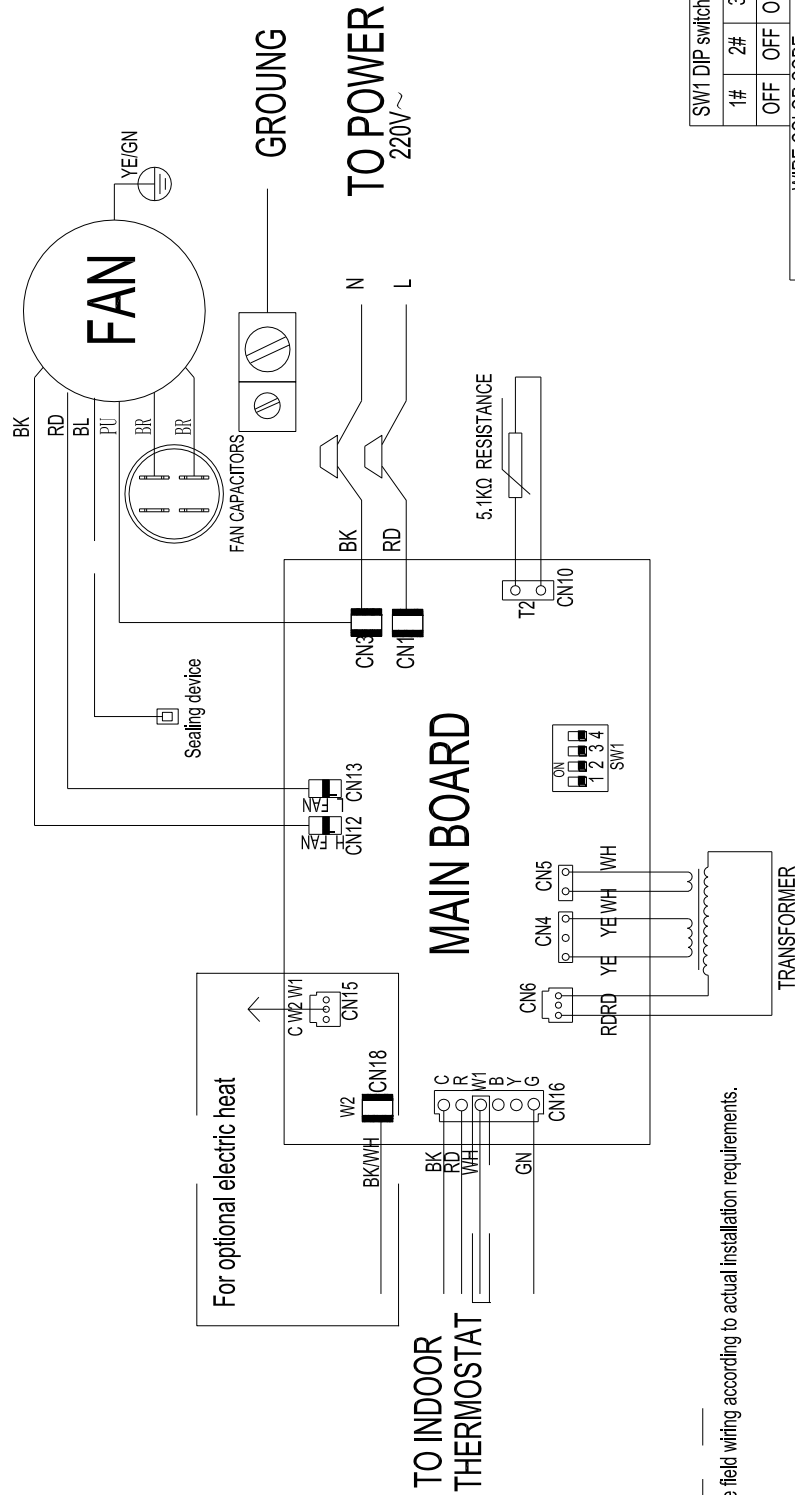


NOTE 1: _____
Please make field wiring according to actual installation requirements.

SW1 DIP switch setting:			
1#	2#	3#	4#
OFF	OFF	OFF	OFF

WIRE COLOR CODE			
RD RED	PU PURPLE	WH WHITE	WH WHITE
BK BLACK	GY GREY	YE YELLOW	YE YELLOW
BL BLUE	GN GREEN	BR BROWN	BR BROWN

CIRCUIT DIAGRAM

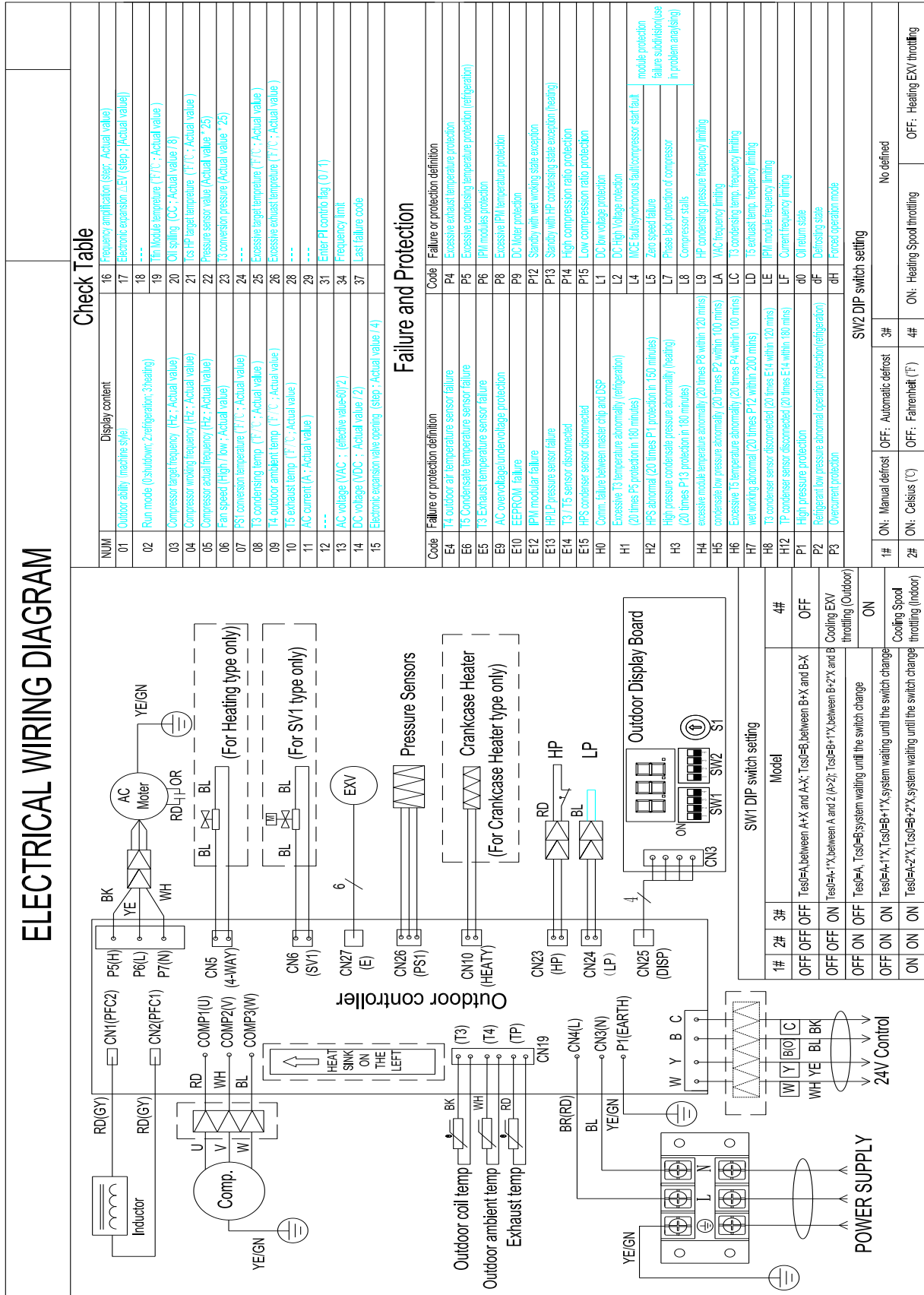


NOTE 1: _____
Please make field wiring according to actual installation requirements.

SW1 DIP switch setting:			
1#	2#	3#	4#
OFF	OFF	OFF	OFF

WIRE COLOR CODE			
RD RED	PU PURPLE	WH WHITE	
BK BLACK	GY GREY	YE YELLOW	
BL BLUE	GN GREEN	BR BROWN	

7.2 Outdoor unit (18&60K)



8 Installation, maintenance and disassembly

8.1 Outdoor unit installation

8.1.1 Selection of installation position

- Enough space for installation and maintenance.
- No barrier at the air inlet and the air outlet and away from strong wind.
- Dry and ventilated.
- The flat supporting surface is able to bear the weight of the outdoor unit. The outdoor unit shall be horizontally installed, without any noise or vibration.
- Neighbors shall not be influenced by running noise and exhaust gas.
- Without inflammable gas leak;
- Convenient for installation of connecting pipe and electrical connection.

8.1.2 Dimensional drawing of outdoor unit (Unit: mm)

1) Fig. 8-1 is applicable for models of ICHE648(60)K2A-GMG140(160)

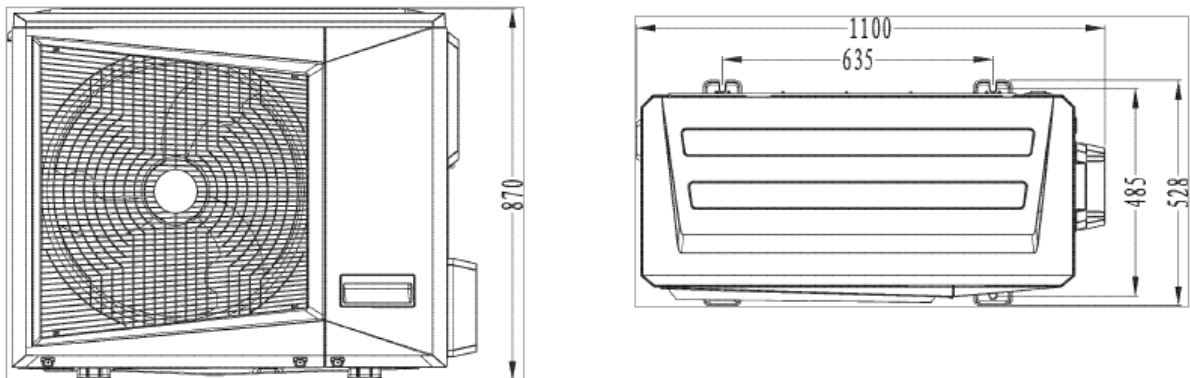
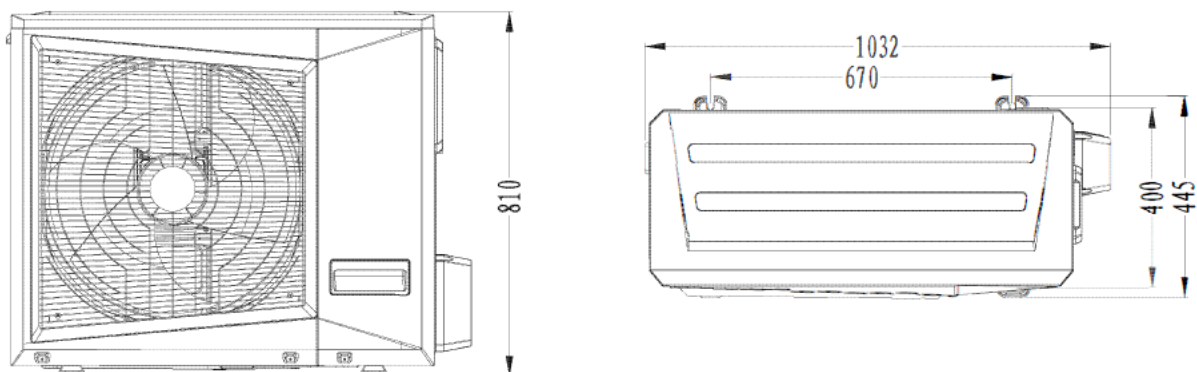
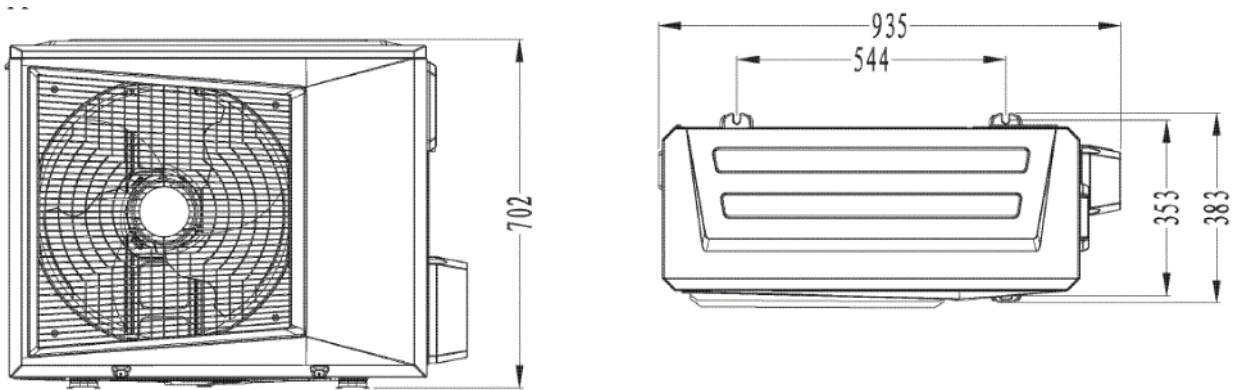


Fig 8-1 Dimension of outdoor unit

2) Fig. 8-2 is applicable for models of ICHE636K2A-GMG105



3) Fig. 8-3 is applicable for models of ICHE624(18)K2A-GMG053(71)



8.1.3 hoisting of outdoor unit

- Don't remove any package upon hoisting. Two ropes (more than 8cm) shall be used to hoist the well-packaged machine stably and safely. If there is no package or the packaging material is broken, use some backing plates or packaging materials to protect the machine
- The outdoor unit shall be carried and hoisted vertically, within an inclination of less than 15 degrees. Care should be taken to safety during carrying and hoisting the machine.
- The gravity of the machine is not in the center, so be careful to hoist the machine.
- Don't hold the suction inlet of the housing, or it will be deformed

8.1.4 Installation and maintenance space of outdoor unit

(1) Provide a firm and adequate foundation to:

- Prevent the outdoor unit from being sunken.
- Prevent the outdoor unit from abnormal noise.

(2) Foundations types

- Steel structure
- Concrete structure(Common practice is shown in the fig. below) (Unit: inch)

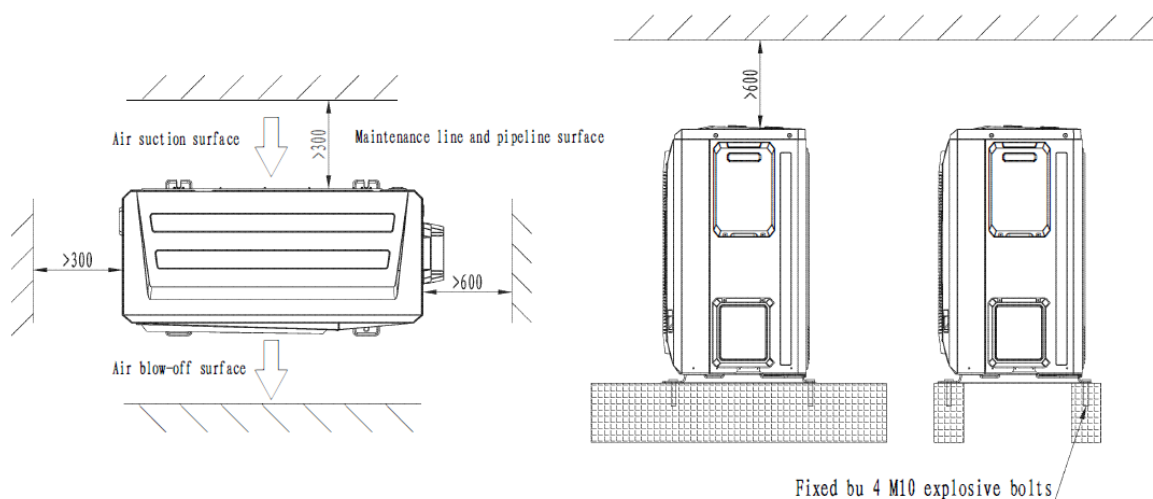


Fig 8-2 Space schematic diagram I for installation and maintenance of outdoor unit

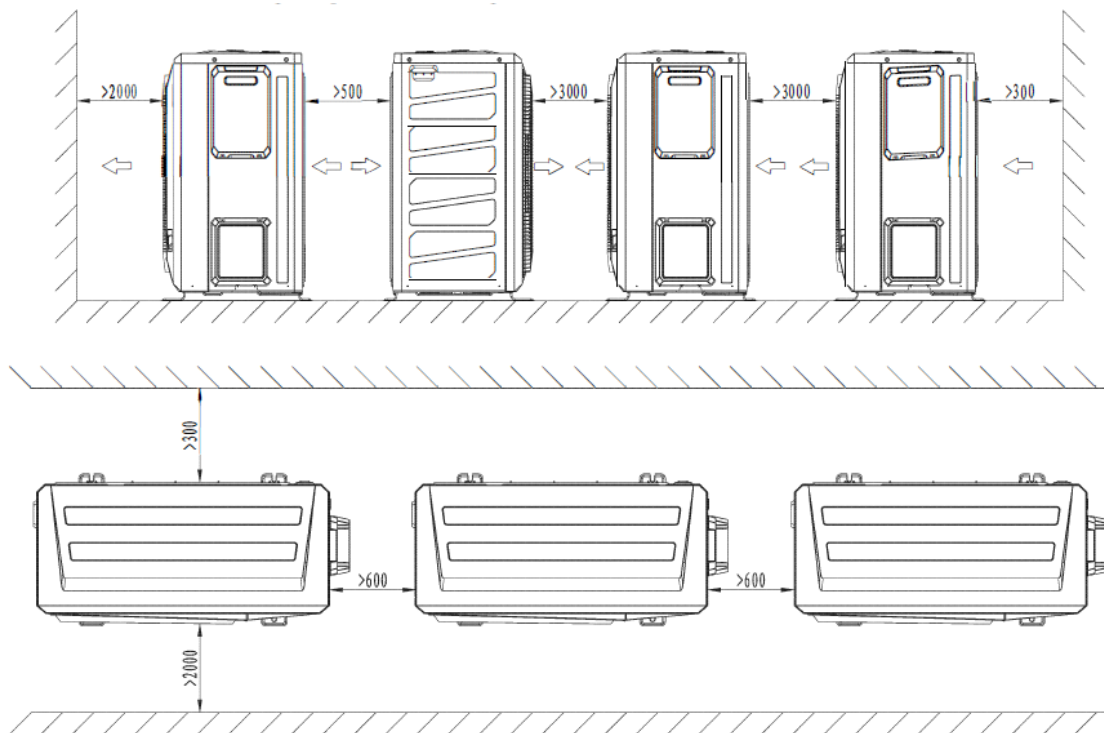
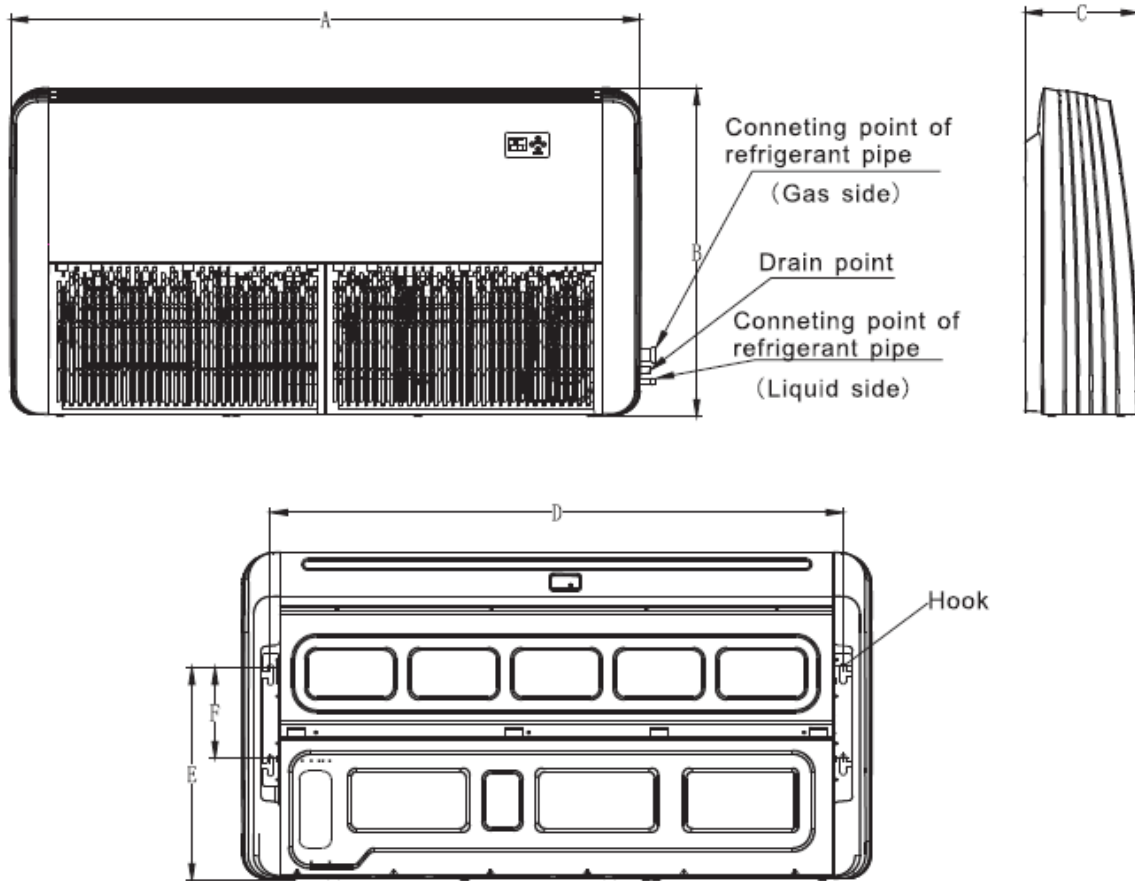


Fig 8-3 Space schematic diagram II for installation and maintenance of outdoor unit

8.2 Dimensional drawing of indoor unit (Unit: mm)

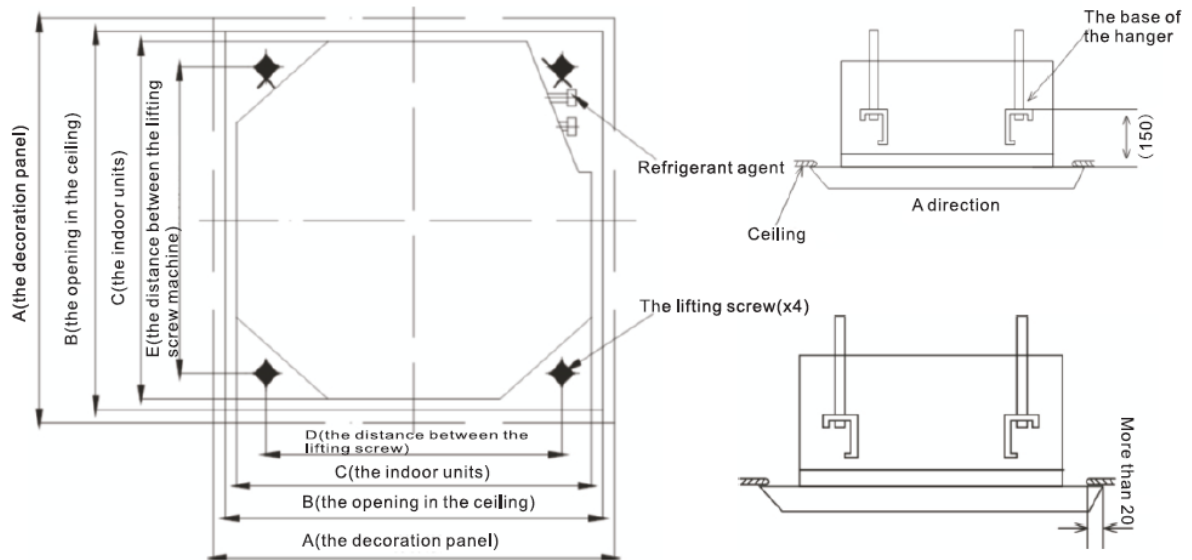
8.2.1 Floor-ceiling



Model (kBtu/h)	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)
18~24	1050	675	235	933	440	188
36	1300	675	235	1185	440	188
48~60	1670	675	235	1553	440	188

8.2.2 Round-way cassette

The position relationship between the opening in the ceiling, the unit and the lifting screw



unit: mm

Model(Btu/h)	Dimensions(H)				
	A	B	C	D	E
For 18K, 24K, 36K, 48K, 60K series	950	890	840	680	780

8.2.3 Duct

8.2.3.1 18K/24K36K

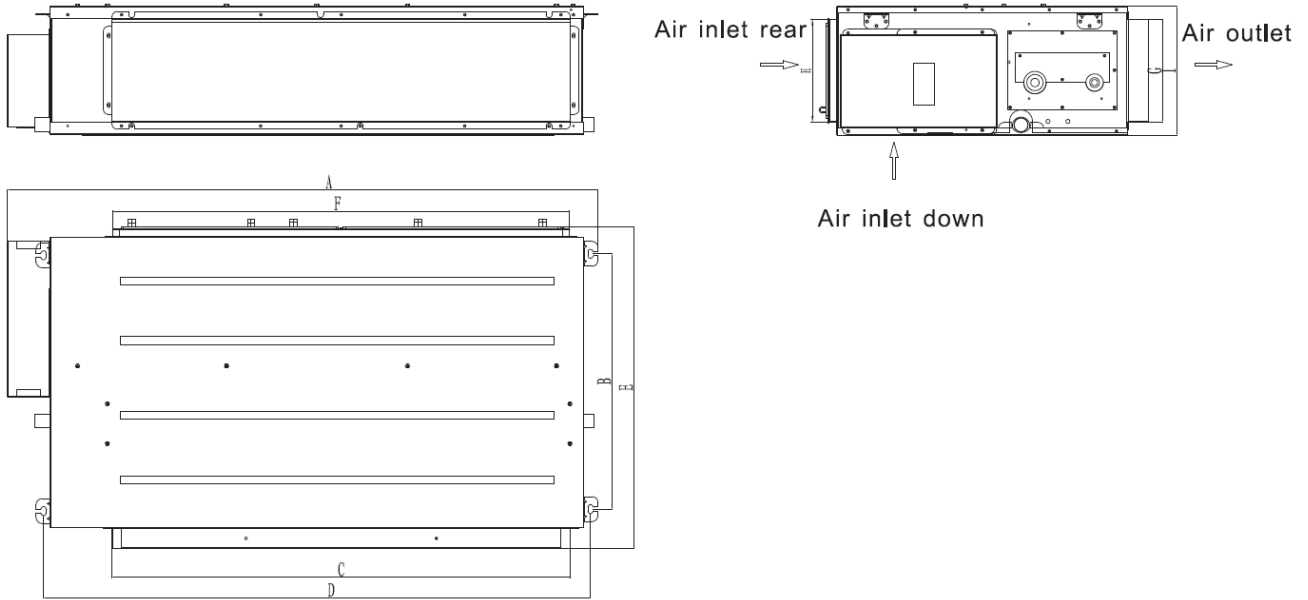
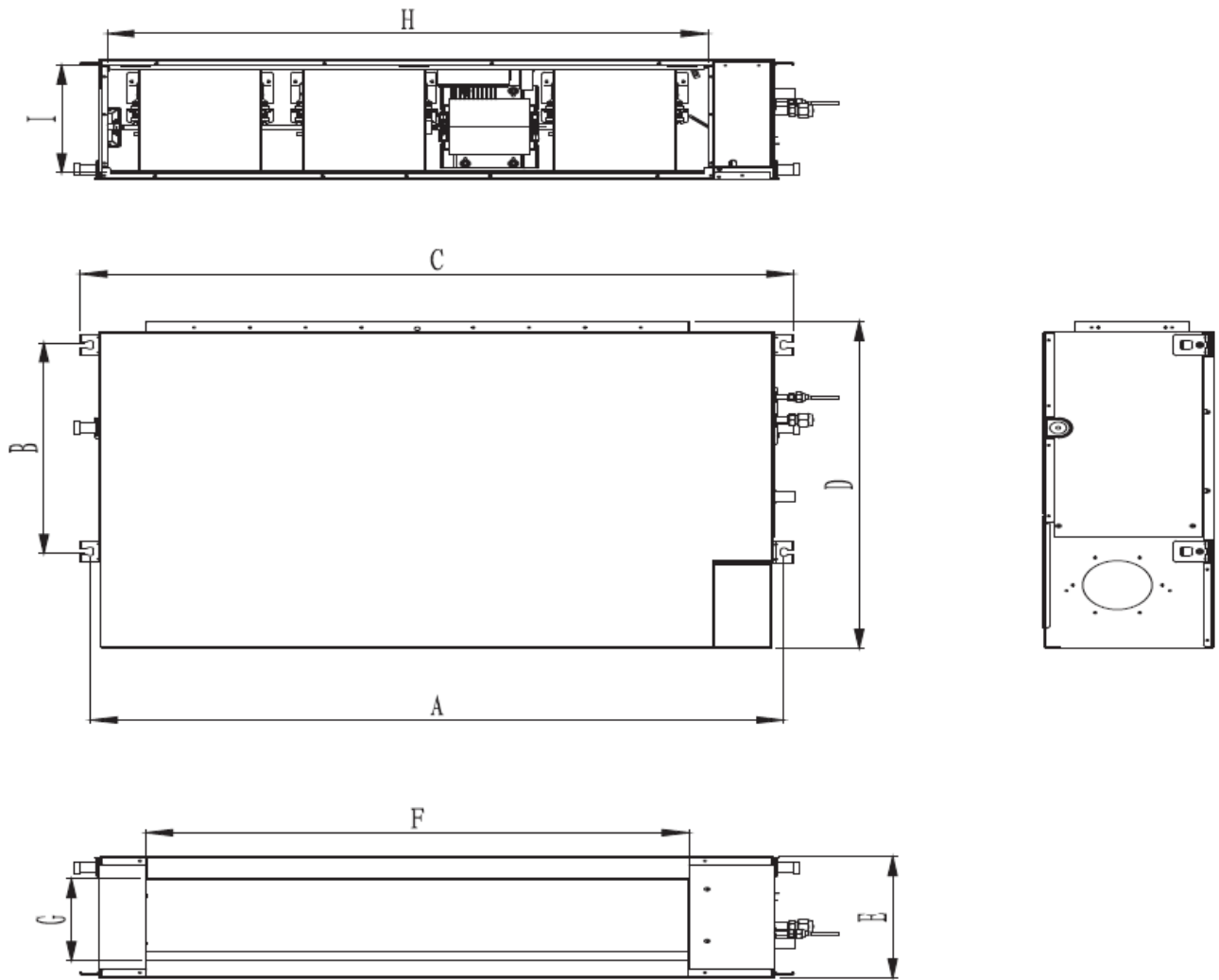


Table 1: unit : mm

Items Model(Btu/h)	A	B	C	D	E	F	G	H	I
18/24K	1190	515	920	1100	643	920	207	207	260
36K	1425	515	1155	1337	643	1155	207	207	260

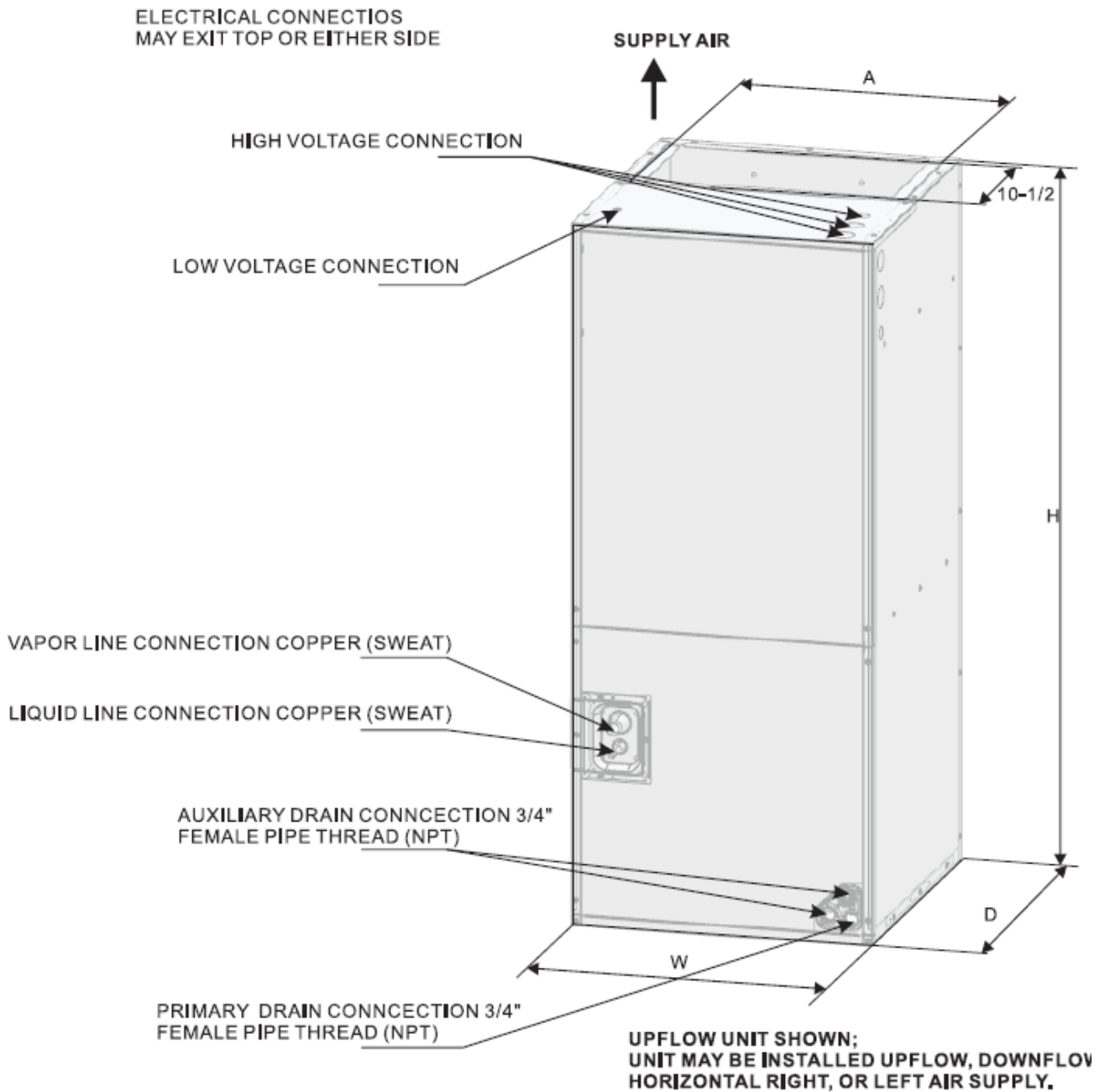
8.2.3.2 48K/60K



unit : mm

Items Model(Btu/h)	A	B	C	D	E	F	G	H	I
48/60K	1242	535	1279	830	307	973	207	1077	273

8.2.4 AHU



DIMENSIONAL DATA

MODEL SIZE	Dimensions inch[mm]				
	UNIT HEIGHT "H" IN. [mm]	UNIT WIDTH "W" IN.[mm]	UNIT LENGHT "D" IN. [mm]	SUPPLYDUCT "A" IN[mm]	LIQUID LINE/ VAPOR LINE IN
18K	30-1/2"[774]	18-1/10"[460]	20-1/2"[520]	16-1/3"[414]	3/8" / 5/8"
24K	30-1/2"[774]	18-1/10"[460]	20-1/2"[520]	16-1/3"[414]	3/8" / 5/8"
36K	45-3/4"[1162]	19-5/8"[500]	22"[560]	17-7/8"[454]	3/8" / 3/4"
48K	45-3/4"[1162]	19-5/8"[500]	22"[560]	17-7/8"[454]	3/8" / 3/4"
60K	53-1/8"[1350]	22"[560]	24-1/2"[623]	19-1/2"[496]	3/8" / 7/8"

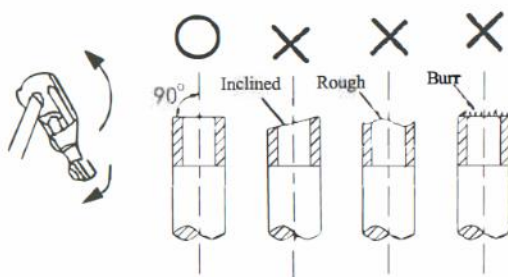
8.3 Installation of Connecting Pipe

8.3.1 Longest pipe length

Model	Max. length (m)	Max. drop height (m)
18K&60K	30	10

8.3.2 Flaring

(1) Use a pipe cutter to cut the refrigerant pipe and a pipe expander to flare



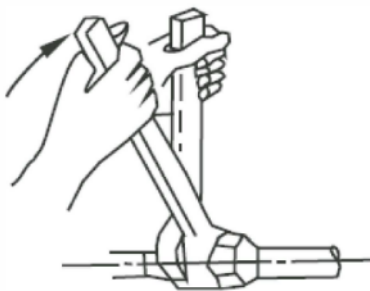
Cutting Pipe of Connecting Pipe

Flaring Dimension of Connecting Pipe

Outer Diameter (mm)	A (mm)	
	Maximum	Minimum
Φ 6.35	8.7	8.3
Φ 9.52	12.4	12.0
Φ 12.7	15.8	15.4
Φ 15.88	19.0	18.6
Φ 19.05	23.7	23.3

(2) Fastening nut

Align the connecting pipe, tighten it by hand, and then by a wrench.



Tightening Schematic Diagram

Tightening Torque

The diameter of the duct Φ (millimeter)	Torque(kgf · m)
6.35	1.4~1.7
9.52	1.4~1.7
12.7	4.8~6.2
15.88	4.8~ 6.2
19.05	6.9 ~9.9

4.3.3 VacuuRemove foreign materials in the pipelme.

- The foreign materials, which enter the refrigerant pipe during installation, shall be cleaned with high pressure nitrogen.
- Don't connect with the indoor unit upon cleaning.

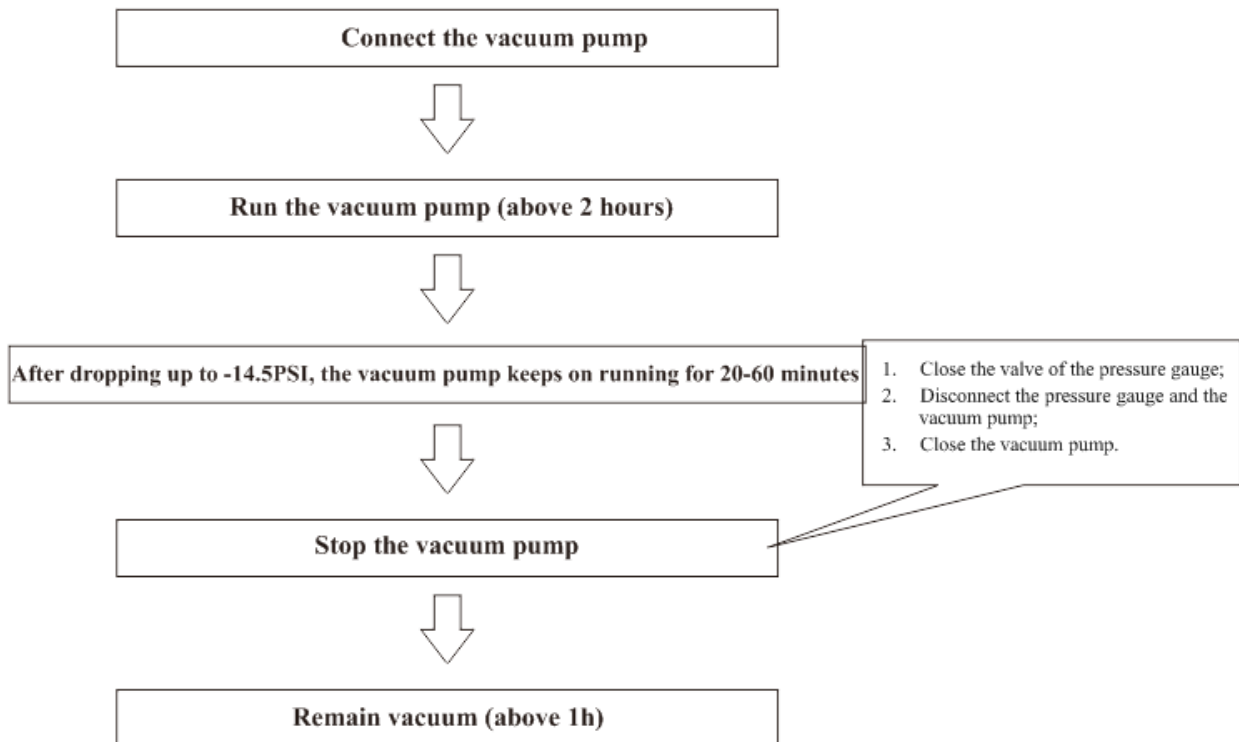
- Use the nitrogen instead of refrigerant or flammable toxic gases like oxygenmizing

4.3.4 Air tightness test

- After the refrigerant pipe is installed and connected to the indoor un 几, and before the connecting pipes between the indoor and outdoor units are
- connected to the valves of the outdoor units, refill the nitrogen with the pressure of 40kgf/cm2 (4.0MPa) from the gas side and the fluid side
- simultaneously, mark the pressure value, and then perform 24-hour air tightness test.
- If the pressure drops, recheck the leakage of all interfaces and then maintain the pressure for 24 hours.
- Don't connect with the outdoor unit during maintaining the pressure.

4.3.5 Vacuumizing

- 1) The vacuum pump has the vacuum degree of less than -14.5PSI and the air displacement of more than 40L/min.
- 2) It is unnecessary to vacuumize the outdoor unit. Don't open the check valves at the gas side and the liquid side of the outdoor unit.
- 3) Make sure the vacuum pump can drop up to -14.5PSI within 2 hours; if it fails to drop up to -14.5PSI after 3 hours, check moisture or air leak.
- 4) The vacuum pump must have a check valve.



8.3.6 Additional refrigerant charging

The refilling volume of refrigerant (R410A) is calculated according to the diameter and length of the pipe at the liquid side of the indoor and outdoor units. The additional refrigerant to be charged can be calculated as following:

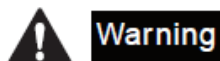
Table 4-3 Refilling Volume of Refrigerant

Diameters of pipe at the liquid side (mm)	Refilling volume of refrigerant equal to the length of 1m pipe (unit: kg)
$\phi 6.35$	0.023
$\phi 9.52$	0.040

Note: The R410A refrigerant must be weighed by an electronic scale and filled in the liquid state.

9 Troubleshooting

9.1 Safety caution



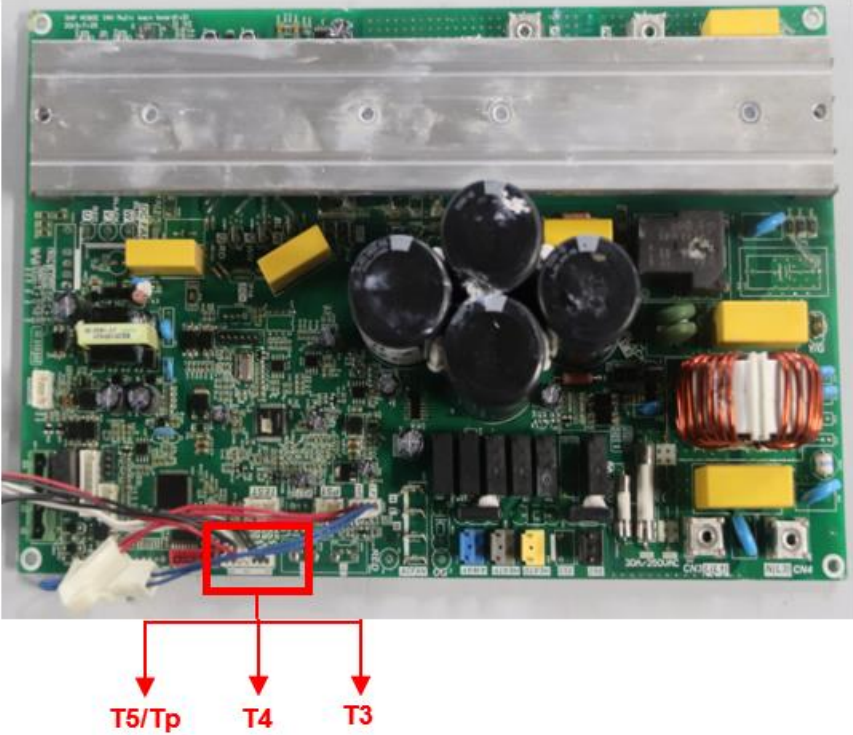
- Be sure to turn off all power supplies or disconnect all wires to avoid electric shock. While checking indoor/outdoor PCB, please equip oneself with antistatic gloves or wrist strap to avoid damage to the board.
- Electricity remains in capacitors even when the power supply is off.
- Ensure the capacitors are fully discharged before troubleshooting.
(Test the voltage between P and N on back of the main PCB with multimeter. If the voltage is lower than 36V, the capacitors are fully discharged.)

9.2 Error code list

Definitions of malfunction	Error code
T4 Outdoor ambient temperature sensor error	E4
T5 Discharge temperature sensor error	E5
T3 Condenser temperature sensor error	E6
AC under voltage protection	E9
EEPROM error	E10
IPM modular sensor error	E12
HLP Pressure sensor error	E13
T3 or T5 sensor disconnect error	E14
High pressure switch error	E15
Communication error of main chip and IPM chip	H0
T3 sensor high temperature error(In cooling mode) (20 times P5 error within 180mins)	H1
High pressure switch error(20 times P1 error within 150 mins)	H2
High pressure abnormal in heating mode (20 times P13 error within 180 mins)	H3
IPM modular high temp error (20 times P8 within 120 mins)	H4
Low pressure error (20 times P2 within 100 mins)	H5
Discharge temperature abnormal error(20 times P4 within 100 mins)	H6
Wet operation error (20 times P12 within 200 mins)	H7

T3 condenser sensor disconnect error (20 times E14 within 100 mins)	H8
Discharge temp sensor disconnect error(20 times E14 within 180 mins)	H12
High pressure protection	P1
Low pressure protection	P2
DC over current protection	P3
T5 Discharge temperature abnormal error	P4
T3 Condenser sensor high temp protection(In cooling mode)	P5
IPM module protection	P6
IPM high temperature protection (Ft)M high temperature protection (Ft)	P8
DC fan motor error	P9
Wet operation error	P12
High pressure abnormal error(In heating mode)	P13
High compression ratio protection	P14
Low compression ratio protection	P15
DC cable bus low voltage protection	L1
DC cable bus high voltage protection	L2
MCE fault / sync / closed loop	L4
Zero speed protection	L5
Compressor phase loss protection ratio protection	L7
Compressor stalls	L8
Frequency limitation or decline by high pressure	L9
Frequency limitation by voltage	LA
Frequency limitation by condenser temp.	LC
Frequency limitation by discharge temp	LD
Frequency limitation by IPM modular high temp	LE
Frequency limitation by current	LF
Oil return	d0
Defrost	dF
Force cooling	dH

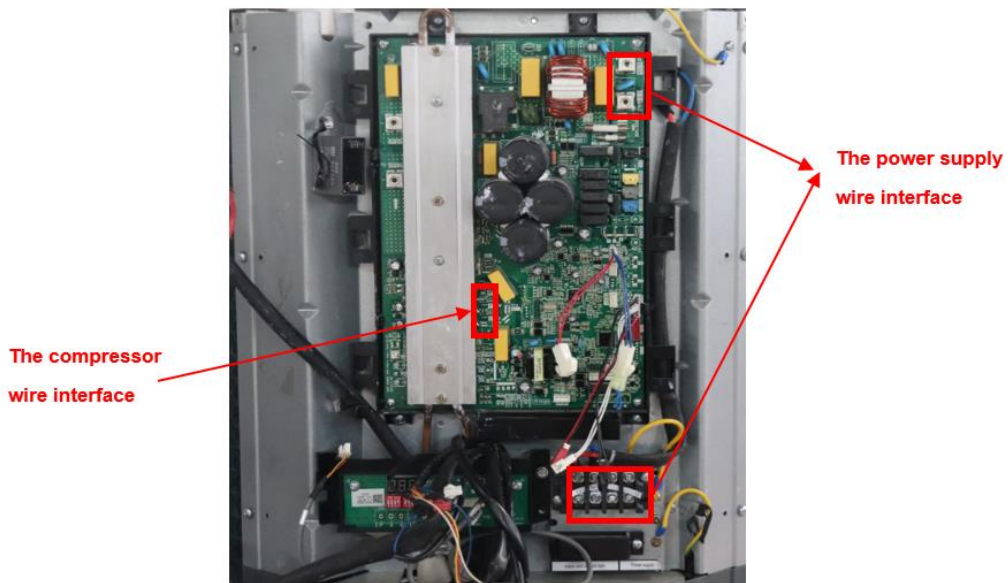
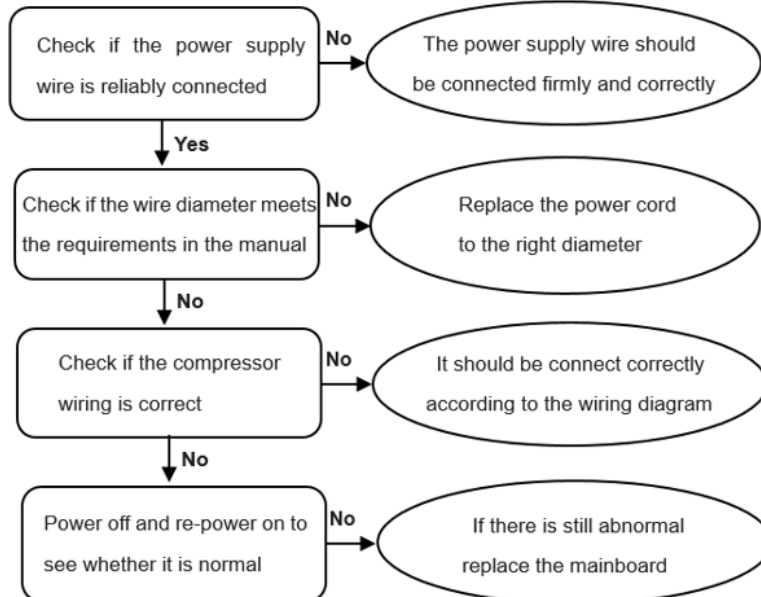
9.3 Troubleshooting by error code

E4/E5/E6 (T4/T5/T3 temperature sensors error)	
Diagnosis	Handling
<p>Check the connection between the sensor and PCB</p> <p style="text-align: right;">Error</p> <p style="text-align: center;">↓ OK</p> <p>Check if the sensor is damaged</p> <p style="text-align: right;">Yes</p> <p style="text-align: center;">↓ No</p> <p>Replace the main board</p>	<p>The sensor should be connected firmly and correctly</p> <p>Replace with a new sensor, and insert it in the corresponding position</p>
	
E10 (EEPROM failure)	
Diagnosis	Handling
<p>Power off and re-power on to see whether it is normal</p>	<p>If there is still abnormal replace the mainboard</p>

E9 (AC under voltage protection)

Diagnosis

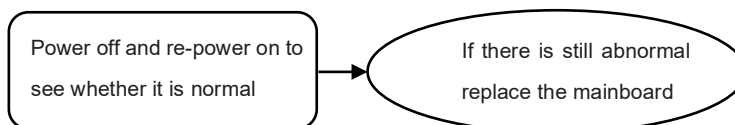
Handling



E12 (IPM modular sensor error)

Diagnosis

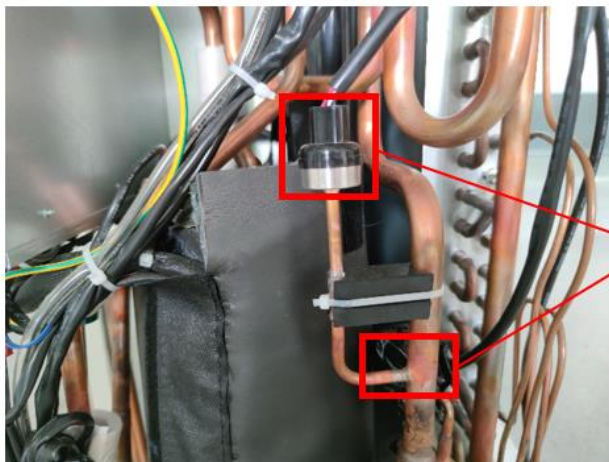
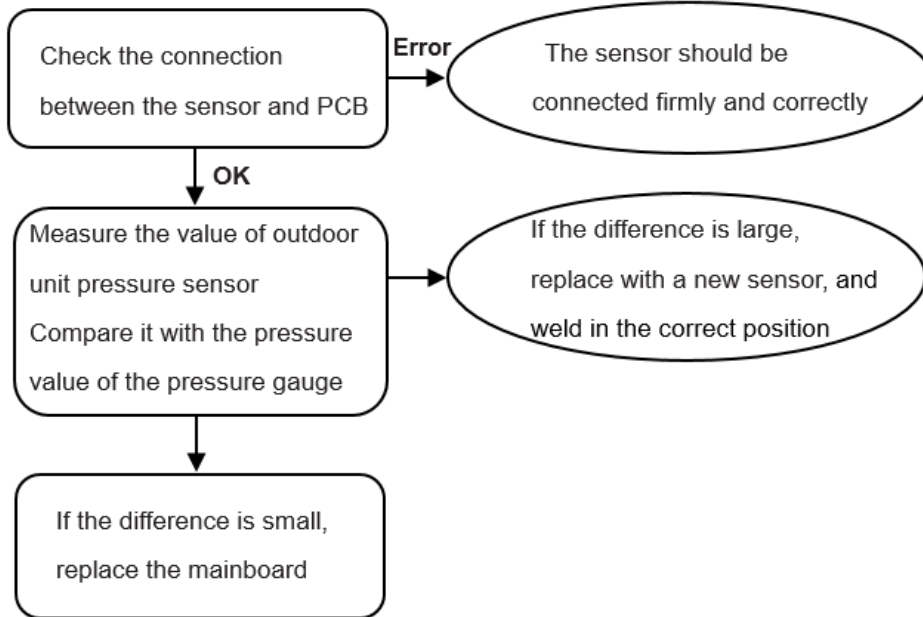
Handling



E13 (HP/LP Pressure sensor error)

Diagnosis

Handling

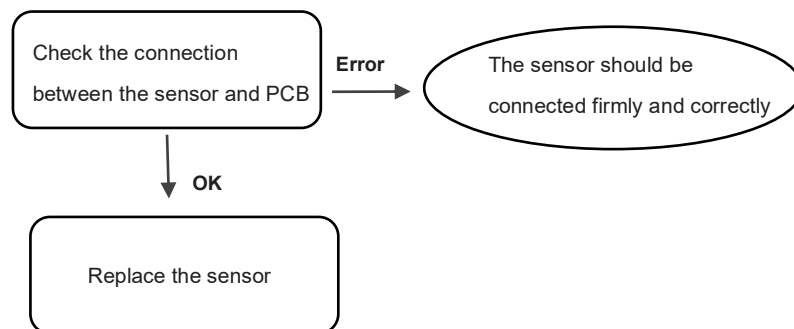


The pressure sensor should be soldered in the correct position

E14/H8/H12 (T3 or T5 sensor disconnect error)

Diagnosis

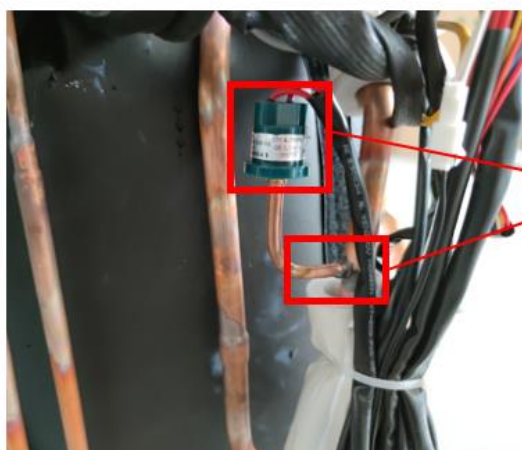
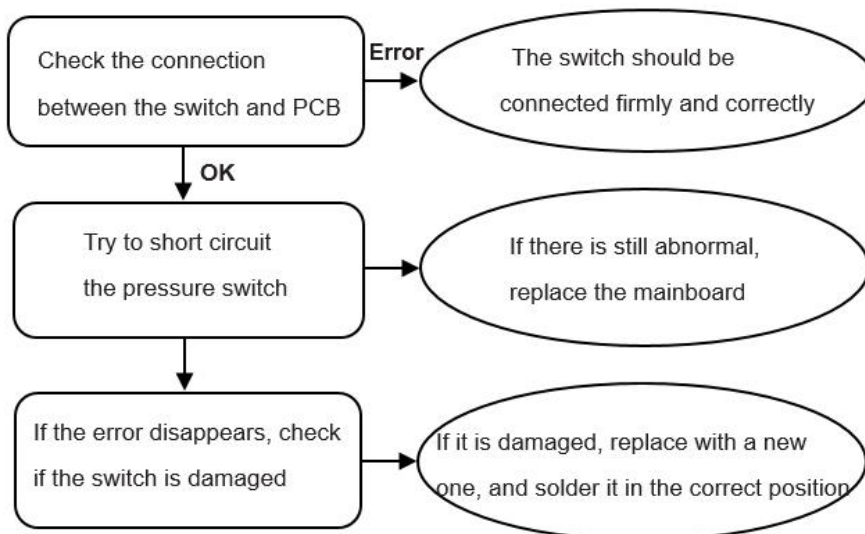
Handling



E15 (High pressure switch error)

Diagnosis

Handling

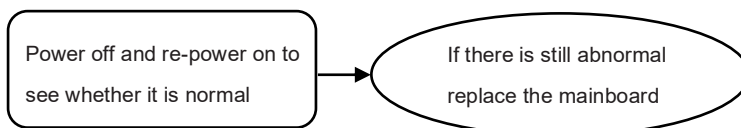


The high pressure switch should be soldered in the correct position

H0 (Communication error of main chip and IPM chip)

Diagnosis

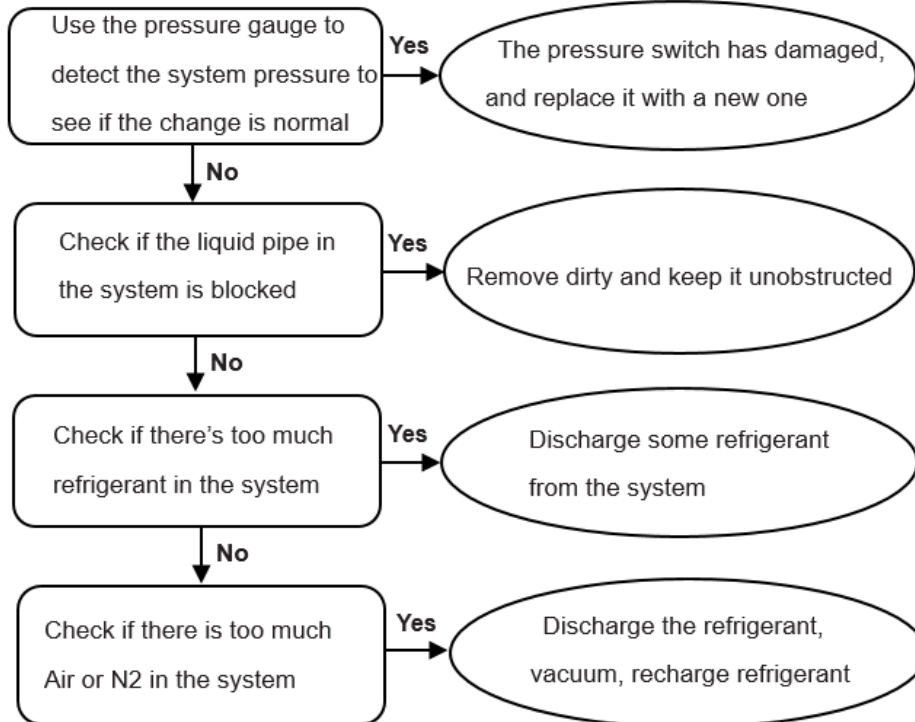
Handling



P1/H2 (High pressure switch protection)

Diagnosis

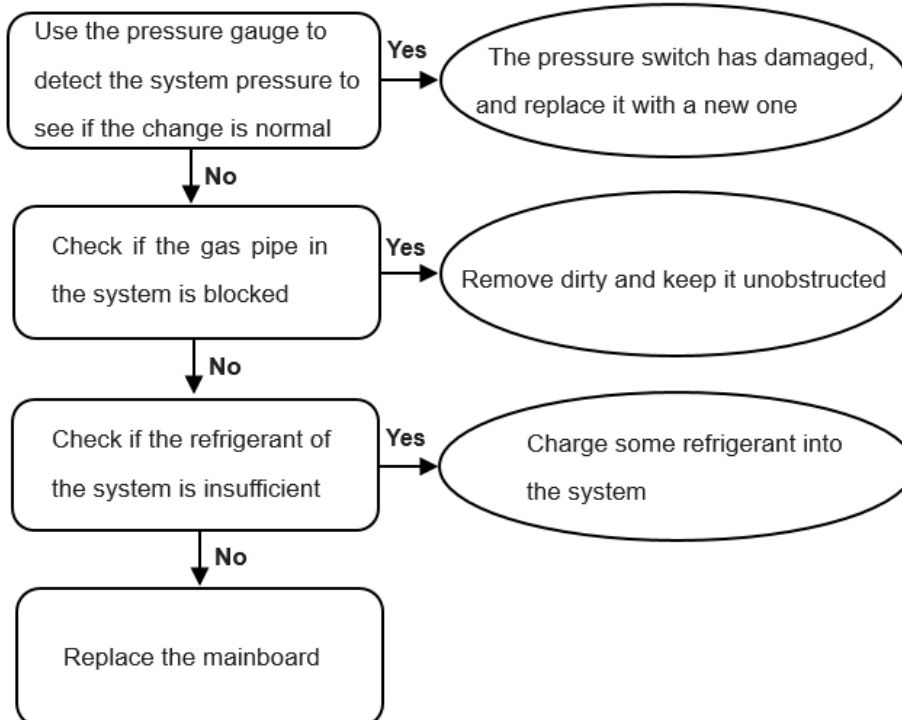
Handling



P2/H5 (Low pressure switch protection)

Diagnosis

Handling



P3(Inverter over current protection)

Diagnosis	Handling
<p>Check if the power supply wire is reliably connected</p> <p style="text-align: right;">No</p> <p style="text-align: center;">↓ Yes</p> <p>Check if the wire diameter meets the requirements in the manual</p> <p style="text-align: right;">No</p> <p style="text-align: center;">↓ Yes</p> <p>Power off and re-power on to see whether it is normal</p>	<p>The power supply wire should be connected firmly and correctly</p> <p>Replace the power cord to the right diameter</p> <p>If there is still abnormal replace the mainboard</p>

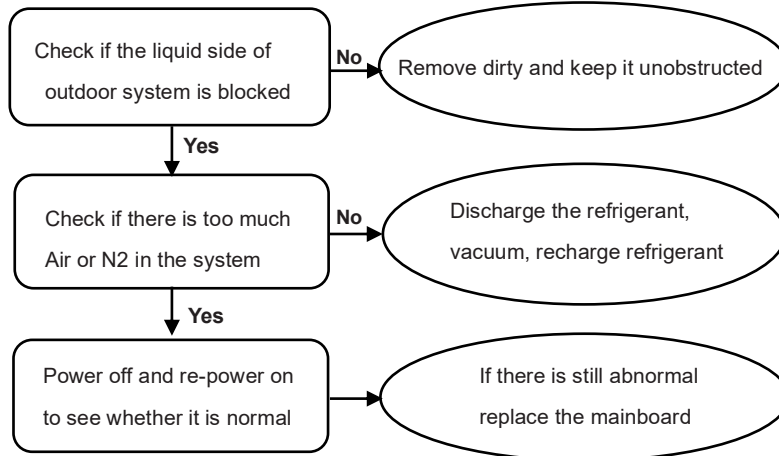
P4/H6 (T5 Discharge temperature abnormal error)

Diagnosis	Handling
<p>Check if the low pressure side of the system is blocked</p> <p style="text-align: right;">Yes</p> <p style="text-align: center;">↓ No</p> <p>Check if the refrigerant is lack or the refrigerant is insufficient</p> <p style="text-align: right;">Yes</p> <p style="text-align: center;">↓ No</p> <p>Check if there is too much Air or N2 in the system</p> <p style="text-align: right;">Yes</p> <p style="text-align: center;">↓ No</p> <p>Power off and re-power on to see whether it is normal</p>	<p>Remove dirty and keep it unobstructed</p> <p>Charge some refrigerant into the system</p> <p>Discharge the refrigerant, vacuum, recharge refrigerant</p> <p>If there is still abnormal replace the mainboard</p>

P5/H1(T3 condenser sensor high temp protection)

Diagnosis

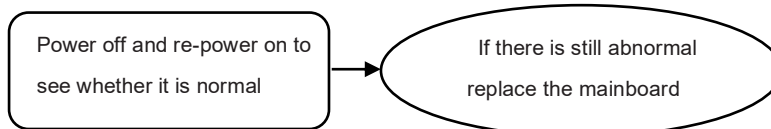
Handling



P6 (IPM module protection)

Diagnosis

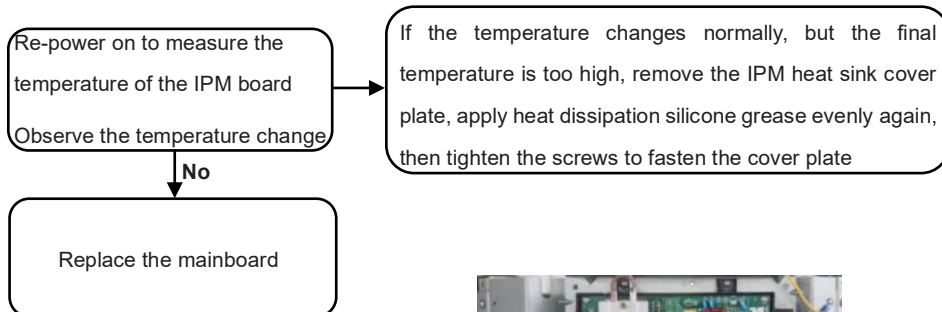
Handling



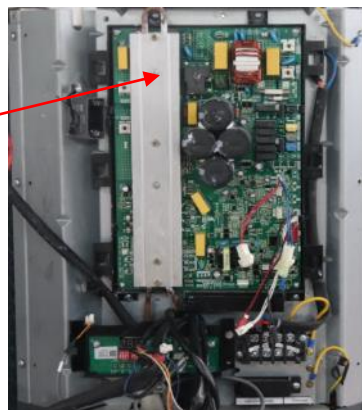
P8/H4 (IPM high temperature protection)

Diagnosis

Handling



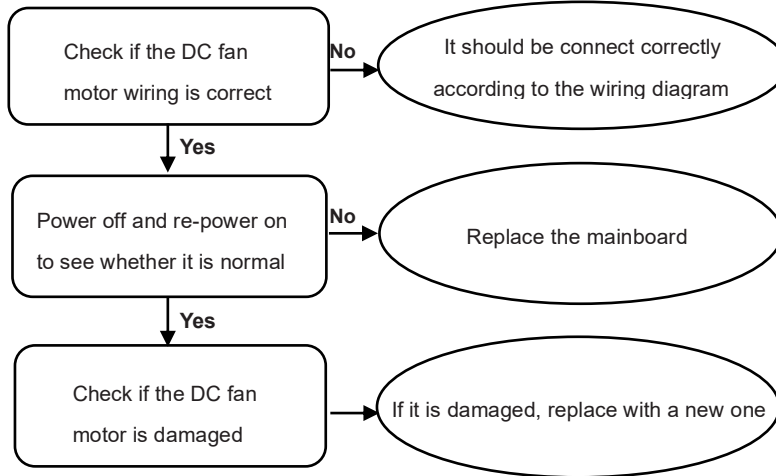
IPM heat sink cover plate should be fastened



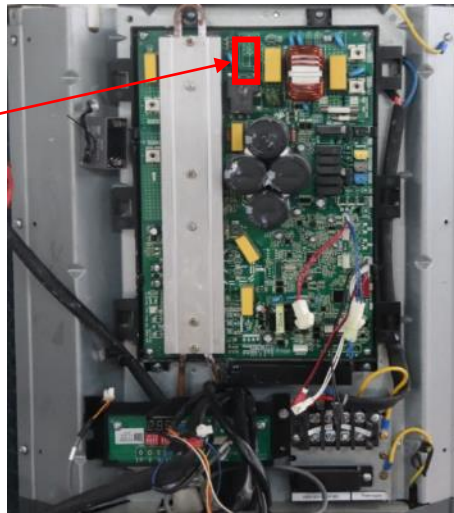
P9 (DC fan motor error)

Diagnosis

Handling



The DC fan motor wire interface



P12/H7 (Wet operation error)

Diagnosis

Handling

Power off and re-power on to see whether it is normal

P13/H3(High pressure abnormal error(In heating mode))

Diagnosis	Handling
<p>Check if the liquid side of outdoor system is blocked</p> <p style="text-align: right;">Yes →</p>	<p>Remove dirty and keep it unobstructed</p>
<p style="text-align: center;">↓ No</p> <p>Check if there is too much Air or N2 in the system</p> <p style="text-align: right;">Yes →</p>	<p>Discharge the refrigerant, vacuum, recharge refrigerant</p>
<p style="text-align: center;">↓ No</p> <p>Power off and re-power on to see whether it is normal</p> <p style="text-align: right;">Yes →</p>	<p>If there is still abnormal replace the mainboard</p>

P14 (High compression ratio protection)

Diagnosis	Handling
<p>Check if the throttle part of the system is blocked</p> <p style="text-align: right;">Yes →</p>	<p>Remove dirty and keep it unobstructed</p>
<p style="text-align: center;">↓ No</p> <p>Check if the refrigerant is lack or the refrigerant is insufficient</p> <p style="text-align: right;">Yes →</p>	<p>Charge some refrigerant into the system</p>
<p style="text-align: center;">↓ No</p> <p>Check if there is too much Air or N2 in the system</p> <p style="text-align: right;">Yes →</p>	<p>Discharge the refrigerant, vacuum, recharge refrigerant</p>
<p style="text-align: center;">↓ No</p> <p>Power off and re-power on to see whether it is normal</p> <p style="text-align: right;">Yes →</p>	<p>If there is still abnormal replace the mainboard</p>

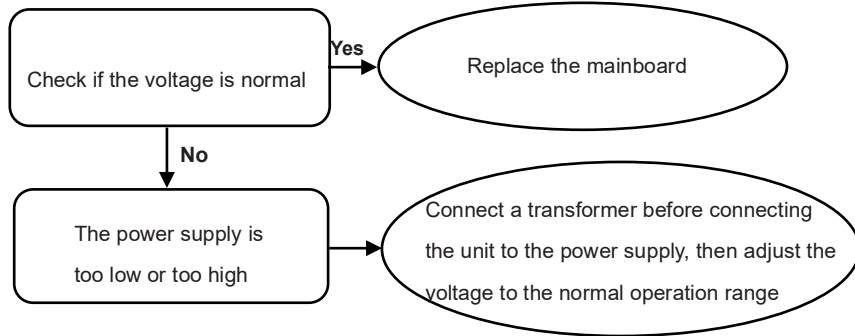
P15 (Low compression ratio protection)

Diagnosis	Handling
<p>Check if the throttle part of the system is blocked</p> <p style="text-align: right;">Yes →</p>	<p>Remove dirty and keep it unobstructed</p>
<p style="text-align: center;">↓ No</p> <p>Power off and re-power on to see whether it is normal</p> <p style="text-align: right;">→</p>	<p>If there is still abnormal replace the mainboard</p>

L1/L2 (DC cable bus low/high voltage protection)

Diagnosis

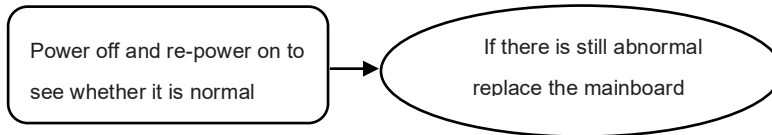
Handling



L4-L8 (IPM module subdivision protection)

Diagnosis

Handling



L9-LE (Frequency limitation protection, not error)




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