



Service Manual

U-Match 5 SERIES UNIT SERVICE MANUAL

(GC201811-III)

Capacity: 3.5kW~16.0kW

Rate Frequency: 50/60Hz

Operation Range: -20°C~48°C



Foreword

Thank you for choosing Gree U-Match air conditioners. In order to correctly install and use our units, and for the satisfactory operation effect, please read this manual carefully.

This manual specifies safe operation requirements from perspectives of product introduction, control, troubleshooting and maintenance, as well as basic principles and implementation methods. Professional operators must abide by relevant national (local) safety requirements and technical specifications set forth in this manual during operations; otherwise, the air conditioning system may fail or be damaged, and personnel safety accident may also occur.

Safety Notice

	The air conditioner is charged with inflammable refrigerant R32.
	Before using the air conditioner, please first read the instruction manual.
	Before installing the air conditioner, please first read the instruction manual.
	Before repairing the air conditioner, please first read the technical service manual.

Compared with common refrigerant, R32 is an environmental-friendly refrigerant that has no harm to the ozone layer and weak greenhouse effect. Its GWP is 675. Because of its thermodynamic characteristics, R32 requires a smaller charging quantity to reach high energy efficiency. It is inflammable and odourless, but may cause explosion under certain circumstances.

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Safety Notice on Maintenance



PROHIBITED:

1. Do not pierce or burn.
2. Please note that refrigerant may be odorless.
3. The appliance shall be stored in a room without continuously operating ignition sources (For example: open flames, an operating gas appliance or an operating electric heater).
4. Indoor unit adopts special joints that can't be detached. The installation method is the same with the common joints. However, because the joint can't be detached, if it is badly connected and causes leakage, it needs to be cut and replaced by a new one through welding.
5. Using unsuitable parts or tools may lead to electric shock or fire hazard.
6. If refrigerant leaks during maintenance, please ventilate the room immediately. Heavy leakage may lead to breathing difficulty, severe injury or death.
7. Disconnect power before disassembling the appliance for maintenance.
8. The appliance should be maintained and cared by authorized technical personnel with necessary qualifications.



WARNING:

1. If the working place is more than 2m's high, please wear a safety helmet, gloves and a safety belt.
2. Never mix any other substances except the specified refrigerant into the refrigerant circuit.
3. When re-locating the appliance, check whether the new location is strong enough to withstand the weight of the appliance.
4. If there is refrigerant leak, please fix the leak before charging in the refrigerant. After refrigerant is charged, check for refrigerant leaks. If you cannot spot the leak, stop the maintenance work. Please evacuate the system and close the service valve to prevent refrigerant leaking into the room.
5. Prepare suitable tools and protectors.
6. If you need to carry out maintenance or check the electric circuit without cutting off the power, please be careful not to touch the electrical parts.



NOTICE:

1. If the appliance is maintained at a humid place, it should be grounded to avoid electric shock.
2. Never repair the unit with wet hands. Operating the unit with wet hands may lead to electric shock.
3. If the unit is not correctly grounded, please check and fix it.
4. Before cleaning the unit, please disconnect power to prevent the inner fan from starting up and running at high speed; otherwise personal injury may occur.
5. Measure the insulation resistance after maintenance. The resistance must be 1M or higher. Bad insulation may lead to electric shock.
6. Welding and cutting work must be done in a well-ventilated place.
7. Gas appliances, heaters and other fire sources should be kept away from the installation and maintenance site.
8. Maintenance should be done according to suggestions of the manufacturer.
9. Maintenance should be done only after the refrigerant is completely reclaimed from the unit.



OBSERVED:

1. After the maintenance work is done, check the drainage of indoor unit.
2. Do not tilt the unit, otherwise, water may spill out from the unit and make the floor and furniture wet.

3. Disassembly of the unit, handling of the refrigerant, oil and accessories should all be done according to applicable local rules and regulations.

Safety Notice on Operation



PROHIBITED:

1. Never try to modify the unit, otherwise, it may cause electric shock, overheat or fire hazard.
2. If the power cord or conducting wires are scratched, please replace them.
3. Never use connected or extended power cord or share the power socket with other appliances.
4. Prepare a specialized power circuit for the appliance.



WARNING:

1. If the power plug is dirty, please clean it before inserting it to the power socket. If the power plug is loose, please tighten it up.
2. Do not damage the power cord. A damaged or refitted power cord may lead to electric shock or fire hazard.
3. Check frequently whether the appliance is in good condition.



NOTICE:

1. After changing the batteries of remote control, please discard them to avoid being swallowed by children.
2. When the unit is working, do not remove the fan cover.
3. Do not use organic solvents to wipe the controller operating panel.
4. Before cleaning the unit, cut off the power supply.

1. Product Introduction

1.1 Lists of Units

1.1.1 List of ODU

Model	Power Supply	Finished Product Code	Appearance	
	V/Ph/Hz			
GUD35W/NhA-T	220-240V~50Hz 208-230V~60Hz	CF090W1310		
GUD50W/NhA-T		CF090W1210		
GUD71W/NhA-T		CF090W1220		
GUD85W/NhA-T		CF090W1230		
GUD100W/NhA-T		CF090W1240		
GUD125W/NhA-T		CF090W1260		
GUD140W/NhA-T		CF090W1280		
GUD100W/NhA-X		380-415V 3N~50/60Hz	CF090W1250	
GUD125W/NhA-X			CF090W1270	
GUD140W/NhA-X			CF090W1290	
GUD160W/NhA-X	380-415V 3N~50/60Hz	CF090W1300		

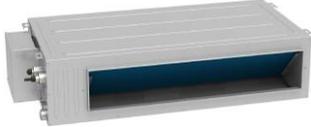
Note: 1 Ton = 12000Btu/h = 3.517kW

If one outdoor unit is to be connected with multiple indoor units, the indoor units must have the same cooling capacity and be of the same type.

1.1.2 List of IDUs

Model		Rated Cooling/ Heating Capacity (kw)	Power Supply	Finished Product Code	Appearance
			V/Ph/Hz		
Cassette Type	GUD35T/A-T	3.5/4.0	220-240V~50Hz 208-230V~60Hz	ET010N1640	
	GUD50T/A-T	5.0/5.5		ET010N1540	
	GUD71T/A-T	7.0/8.0		ET010N1420	
	GUD85T/A-T	8.5/8.8		ET010N1430	
	GUD100T/A-T	10.0/12.0		ET010N1440	
	GUD125T/A-T	12.1/13.5		ET010N1450	
	GUD140T/A-T	13.4/15.5		ET010N1460	
	GUD160T/A-T	14.5/17.0		ET010N1470	
Duct Type	GUD35P/A-T	3.5/4.0	220-240V~50Hz 208-230V~60Hz	CF022N1650	
	GUD50P/A-T	5.0/5.5		CF022N1630	
	GUD71P/A-T	7.0/8.0		CF022N1670	
	GUD85P/A-T	8.5/8.8		CF022N1610	

Model		Rated Cooling/ Heating Capacity (kw)	Power Supply	Finished Product Code	Appearance
			V/Ph/Hz		
Duct Type	GUD100PH/A-T	10.0/12.0	220-240V~50Hz 208-230V~60Hz	CF022N1590	
	GUD125PH/A-T	12.1/13.5		CF022N1570	
	GUD140PH/A-T	13.4/15.5		CF022N1550	
	GUD160PH/A-T	16.0/17.0		CF022N1530	
	GUD35PS/A-T	3.5/4.0		CF022N1640	
	GUD50PS/A-T	5.0/5.5		CF022N1620	
	GUD71PS/A-T	7.0/8.0		CF022N1660	
	GUD85PS/A-T	8.5/8.8		CF022N1600	
	GUD100PHS/A-T	10.0/12.0		CF022N1580	

Model		Rated Cooling/ Heating Capacity (kw)	Power Supply	Finished Product Code	Appearance
			V/Ph/Hz		
Duct Type	GUD125PHS/A -T	12.1/13.5	220-240V~50Hz 208-230V~60Hz	CF022N1560	
	GUD140PHS/A -T	13.4/15.5		CF022N1540	
	GUD160PHS/A -T	16.0/17.0		CF022N1520	
Floor Ceiling Type	GUD35ZD/A-T	3.5/4.0	220-240V~50Hz 208-230V~60Hz	ED020N1720	
	GUD50ZD/A-T	5.0/5.5		ED020N1730	
	GUD71ZD/A-T	7.0/8.0		ED020N1740	
	GUD85ZD/A-T	8.5/8.8		ED020N1750	
	GUD100ZD/A-T	10.0/12.0		ED020N1680	

Model		Rated Cooling/ Heating Capacity (kw)	Power Supply	Finished Product Code	Appearance
			V/Ph/Hz		
Floor Ceiling Type	GUD125ZD/A-T	12.1/13.5	220-240V~50Hz 208-230V~60Hz	ED020N1690	
	GUD140ZD/A-T	13.4/15.5		ED020N1700	
	GUD160ZD/A-T	16.0/17.0		ED020N1710	

Note: The outdoor unit is generally suitable to any one of the three types of indoor units with no need of change (limited to cassette type, duct type and floor ceiling type).

1.2 Electrical Parameters

Model	Power supply	Circuit breaker capacity	Min. sectional area of power cord
	V/Ph/Hz	A	mm ²
GUD35W/NhA-T	220-240V~50Hz 208-230V~60Hz	16	1.5
GUD50W/NhA-T		16	1.5
GUD71W/NhA-T		20	2.5
GUD85W/NhA-T		25	2.5
GUD100W/NhA-T		32	4.0
GUD125W/NhA-T		32	4.0
GUD140W/NhA-T		40	6.0
GUD100W/NhA-X	380-415V 3N~50/60Hz	16	1.5
GUD125W/NhA-X		16	1.5
GUD140W/NhA-X		16	1.5
GUD160W/NhA-X		16	1.5

Model	Power Supply	Fuse Capacity	Circuit Breaker Capacity	Min. Sectional Area of Power Cord
	V/Ph/Hz	A	A	mm ²
Indoor unit	220-240V~50Hz 208-230V~60Hz	3.15	6	1.0

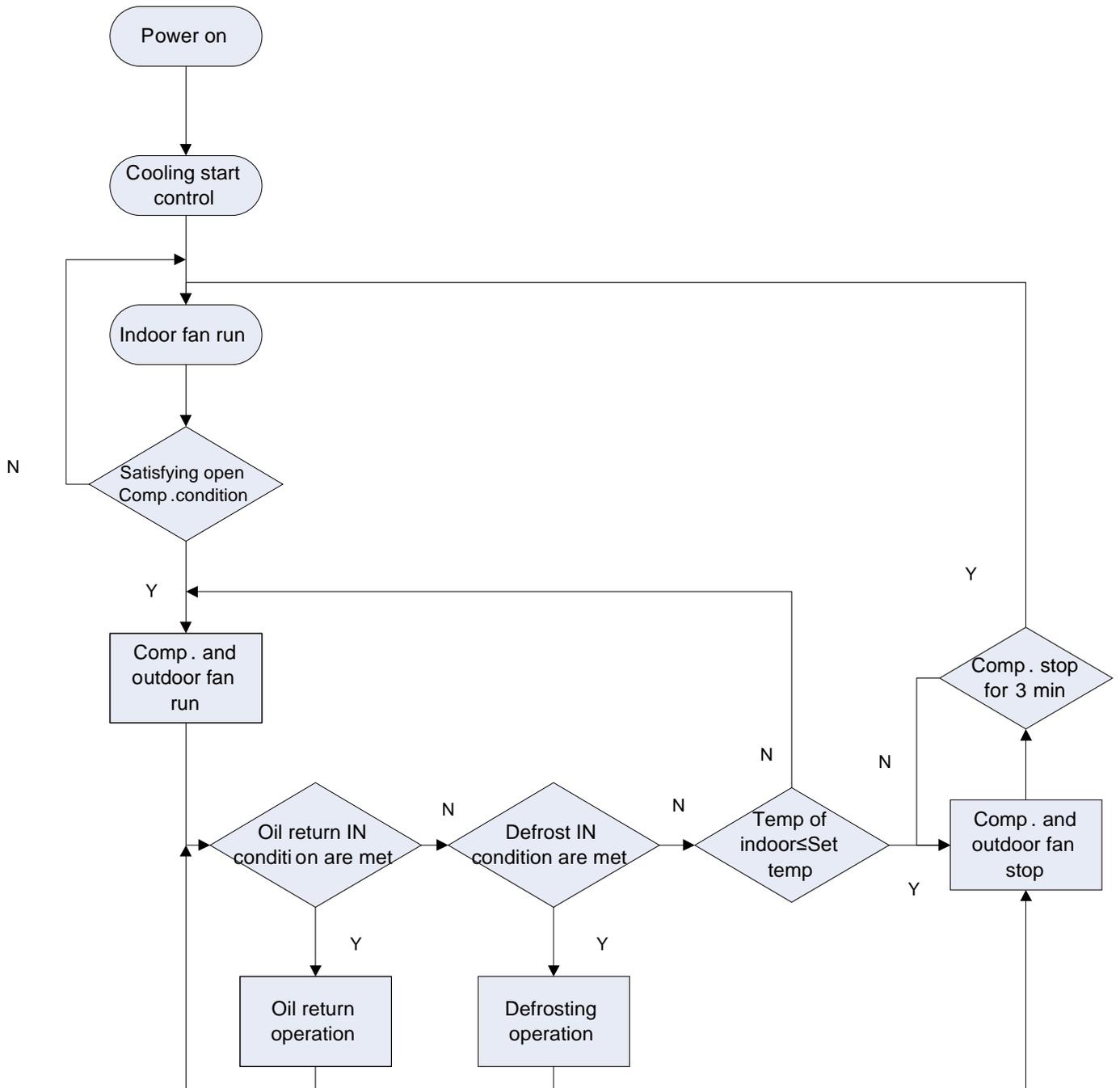
**NOTICE:**

- ① Fuse is located on the main board.
- ② Install a circuit breaker at every power terminal near the units (indoor and outdoor units) with at least 3mm contact gap. The units must be able to be plugged or unplugged.
- ③ Circuit breaker and power cord specifications listed in the above table are determined based on the maximum power input of the units.
- ④ Specifications of power cords listed in the above table are applicable in a working condition where ambient temperature is 40°C and multi-core copper cable (e.g. YJV copper cable, with insulated PE and PVC sheath) is protected by a conduit, and is resistant to 90°C in maximum (See IEC 60364-5-52). If working condition changes, please adjust the specifications according to national standards.
- ⑤ Specifications of circuit breaker are based on a working condition where the working temperature is 40°C. If working condition changes, please adjust the specifications according to national standards.
- ⑥ Adopt 2pc of 0.75mm² power cords to be the communication cords between indoor and outdoor units. The maximum length is 100m. Please select a proper length according to local conditions. Communication cords must not be twisted together. To be in compliance with EN 55014, it is necessary to use 8 meters long wire.
- ⑦ Adopt 2pc of 0.75mm² power cords to be the communication cords between wired control and indoor unit. The maximum length is 30m. Please select a proper length according to local conditions. Communication cords must not be twisted together. To be in compliance with EN 55014, it is necessary to use 7.5 meters long wire.
- ⑧ The wire gauge of communication cord should not be less than 0.75mm². It's recommended to use 0.75mm² power cords as the communication cords.

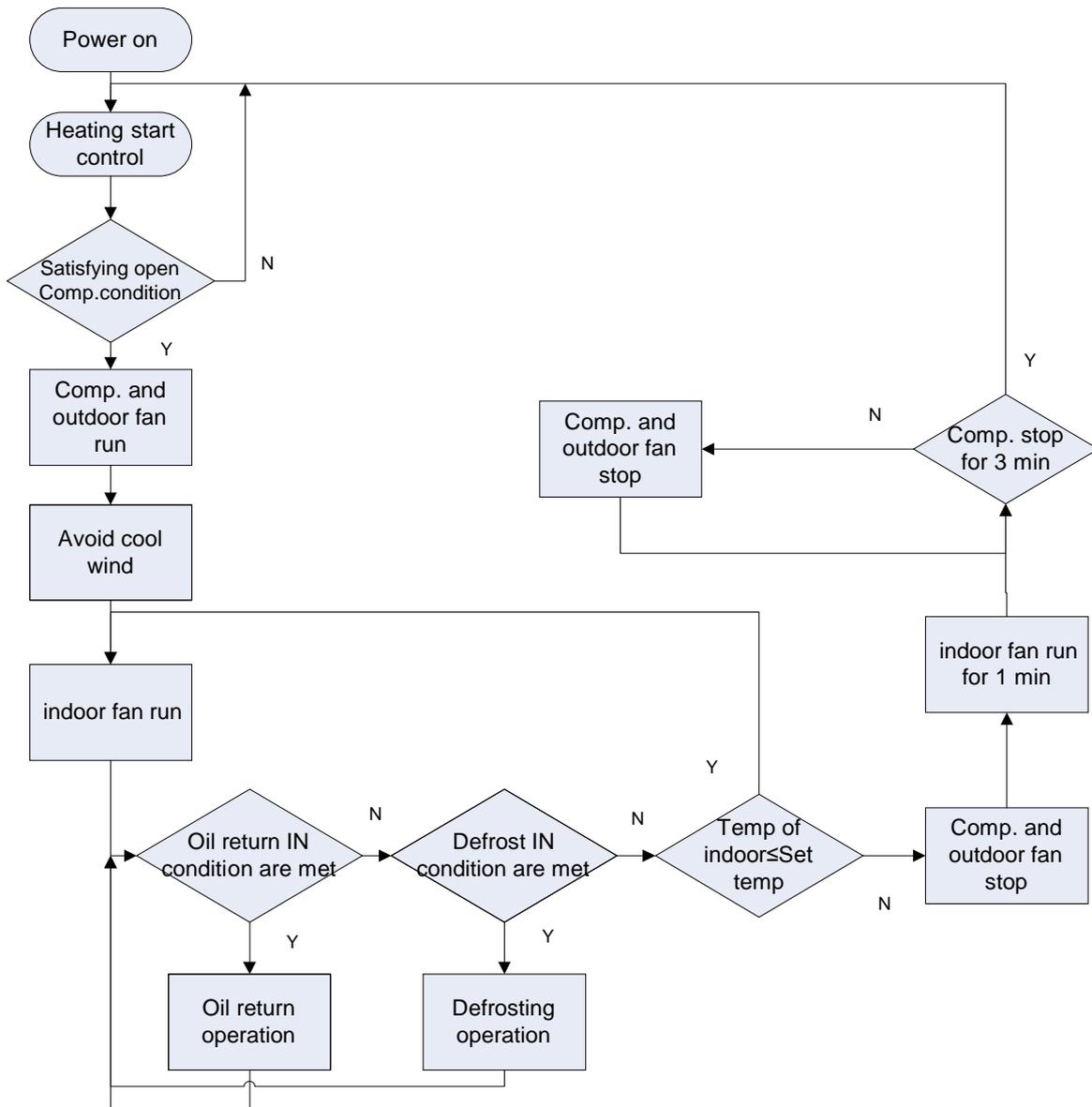
2. Control

2.1 Operation Mode

2.1.1 Cooling Mode



2.1.2 Heating Mode



2.2 Control Mode

2.2.1 Based Control

2.2.1.1 Compressor Control

When cooling or heating mode is turned on, indoor fan will run for a while before the compressor starts. Under different modes, the compressor can only be stopped after running for some time (special cases excluded). This is to protect the compressor from frequent start or stop. Once the compressor is stopped, it must not be restarted right away. Please wait for a few minutes.

2.2.1.2 EXV Control

When the unit is first started, the electronic expansion valve will reset control. During the process, the expansion valve will produce rattling sound. When cooling or heating mode is turned on, the valve will be open at a certain step before the compressor starts.

2.2.1.3 Outdoor Fan Control

This series air conditioner has two types of outdoor units: one with a single fan and the other with double fans. The outdoor fan can run at the highest level 10 and the lowest level 1. By controlling the speed of outdoor fan, the unit can achieve cooling at low temperature and heating at high temperature. In fan mode, outdoor fan will not work.

2.2.1.4 4-way Valve Control

After heating mode is turned on for a while, 4-way valve will be energized to change the direction of refrigerant flow so that the system can run in heating and the indoor unit will not blow cold air. Under other modes, the valve will not be energized.

To avoid the 4-way valve from incorrectly changing directions, when the unit stops in heating, due to a temperature point or other protection reasons, the 4-way valve will continue to function temporarily and lose power after a while.

There must be adequate differential pressure for the 4-way valve to change directions.

2.2.2 Special Control

2.2.2.1 Defrosting Control

ODU defrosting control in heating: Defrosting will start when the temperature sensed by outdoor tube temperature sensor reaches a preset value. During defrosting, the 4-way valve will switch to the cooling condition, and outdoor and indoor fans will both stop. When the temperature sensed by outdoor tube temperature sensor reaches the preset value of defrosting stop, system will quit defrosting. The 4-way valve will switch back to the heating condition, outdoor fan will start working first and indoor fan will resume its previous fan speed after performing cold air prevention.

2.2.2.2 Oil Return Control

If the unit is running at low frequency for a long time, system will enable oil return control. This is to lead oil in the pipeline back to the compressor so that the compressor will not be lack of oil. Generally, the oil return takes about 5min. The compressor running frequency will be raised to the preset oil return frequency.

2.2.2.3 Refrigerant Recovery Control

Enabling method: Remote control and wired control both use the same enabling method. That is, within 5min after power is connected, start cooling mode (turn on the unit) and set temperature at 16°C, then press “▲, ▼, ▲, ▼, ▲, ▼” (6 times of pressing) in 5s to enter the refrigerant recovery mode. If it is successfully enabled, the indoor unit will display the corresponding code E3.

After the refrigerant recovery mode is enabled, if remote control or wired control sends a signal or the refrigerant recovery mode has been enabled for 10min, system will exit from refrigerant recovery. If outdoor unit is shut down because of malfunction, refrigerant recovery will be stopped immediately.

Please note that refrigerant recovery mode cannot be enabled under the following conditions:

1. If temperature is shielded remotely, refrigerant recovery mode cannot be enabled. You need to first unlock the remote shield against temperature.
2. If temperature is higher than 16 degrees under energy-saving mode, refrigerant recovery mode cannot be enabled. You need to first turn off the energy-saving mode.

2.2.2.4 Forced Operation Control

This control is used to quickly check whether the unit can operate normally after installation. Wired control has to be used to enable this control. For cassette type unit, you can enable the control through the light board.

Enabling method through the light board of cassette type unit: After the unit is installed and connected to power, press TEST button on the light board to enter forced operation mode. Short-press TEST button (less than 2s), cooling mode will be activated. Long-press TEST button (more than 2s), heating mode will be activated.

Enabling method through wired control:

Under power-on status,

Forced cooling: press the “▼” button continuously for 5s to enter the forced test mode;

Forced heating: press the “▲” button continuously for 5s to enter the forced test mode.

During test mode, press any button to quit the test mode.

Note: Forced test mode can only be enabled when the unit is first turned on and not yet receives any remote control signal or button control signal.

2.2.3 Protection Control

2.2.3.1 High Pressure Protection Control

System will enable high pressure protection control if the high pressure switch is detected open for continuously a little time. Under high pressure protection, system will be shut down and display error code E1.

When high pressure protection occurs for the first time, system will restore operation if the high pressure switch is detected to be reclosed for continuously a little time. When high pressure protection occurs for the second time in a certain time period, system will not restore operation. You need to manually turn off the unit and clear the error before restarting up the unit. (If high pressure protection occurs frequently, please send for professional personnel to repair.)

2.2.3.2 Low Pressure Protection Control

System will enable low pressure protection control if the low pressure switch is detected open for continuously a little time. Under low pressure protection, system will be shut down and display error code E3. When low pressure protection occurs, system will restore operation if the low pressure switch is detected to be reclosed within a few minutes after shutdown. If low pressure protection occurs for several times in a period of time, system will not restore operation automatically. You need to manually turn off the unit before restarting up the unit.

2.2.3.3 High Temperature Prevention Control

Under heating mode, system will enable high temperature prevention control if the temperature sensed by indoor tube temperature sensor reaches a certain value. When high temperature prevention control is enabled, outdoor fan will slow down.

2.3 Functions

2.3.1 Setting of Filter Cleaning Reminder

When setting washing remind function, the timer area will display 2-bit number that means the pollution level, then press “▲” and “▼” buttons to select, and press “SWING/ENTER” button to confirm the setting. Conversion relation between the displayed pollution level and accumulative operating time are as the following list. After setting, when it reaches the washing time, “CLEAN” icon will flash and remind, if you press “▲” and “▼” buttons to adjust the level, and press “SWING/ENTER” button, then the accumulative time for filter washing remind will not be reset; if the time after adjustment is larger than the current

accumulative time, then “CLEAN” icon will stop flashing; if the time after adjustment is less than the current accumulative time, then “CLEAN” icon will continue to flash.

The only method for cancelling the remind function is to press “FUNCTION” button to switch to “CLEAN” icon, and set the timer area to be “00”, and then press “SWING/ENTER” button, then the accumulative time of filter washing remind is reset.

Pollution Level	Accumulated Operating Time (hour)	Pollution Level	Accumulated Operating Time (hour)	Pollution Level	Accumulated Operating Time (hour)
10	5500	20	1400	30	100
11	6000	21	1800	31	200
12	6500	22	2200	32	300
13	7000	23	2600	33	400
14	7500	24	3000	34	500
15	8000	25	3400	35	600
16	8500	26	3800	36	700
17	9000	27	4200	37	800
18	9500	28	4600	38	900
19	10000	29	5000	39	1000

2.3.2 Low-temperature Drying Function

Under dry mode, when the setting temperature is 16° C, press “▼” button for twice, the setting temperature becomes 12° C, then the unit enters into low-temperature dry function.

When low-temperature dry function is turned on, directly press “▲” button or switch the mode can quit the function.

2.3.3 Child-lock Function

Without error, under ON or OFF status of unit, press “▲” and “▼” buttons simultaneously for 5 seconds can enter into child-lock function, the liquid crystal screen will display “”; press “▲” and “▼” buttons simultaneously again for 5 seconds can quit the child-lock function.

Under child-lock status, no response for pressing any buttons. The unit will memorize the child-lock status after power failure and re-energizing the unit.

2.3.4 Memory Function

Under power-off status, press “MODE” and “▲” button simultaneously for 5 seconds can turn on or turn off memory function. When memory function is set, “MEMORY” displays.

If memory function has not been set, when the unit is re-energized after power failure, the unit is power-off status. If the memory function is set in wired controller, when the wired controller is re-energized after power failure, it will resume to the operating status before power failure.

2.3.5 Door Control Function

When door control function is selected, the wired control will work when the room card is inserted and stop working when the room card is pulled out. When door control function senses the room card is not inserted.

The setting method please refer to Debugging Function (2.3.9).

Note:

- ① . In long-distance monitoring or centralized control, no matter the room card is inserted or not, the ON/OFF of unit can be controlled. If long-distance monitoring or centralized control information is received when the room card is not inserted, the icon  is cleared. When the card is reinserted, door control function is judged to be turned on. If long-distance monitoring or centralized control information is received when the room card is inserted, it will keep the original status.
- ② The unit can not be controlled by buttons when the card is not inserted.

2.3.6 Switch between Fahrenheit and Degree Celsius

Under power-off status, press “MODE” and “▼” buttons simultaneously for 5 seconds, display board will switch between degree Celsius and Fahrenheit.

2.3.7 Inquiry of Ambient Temperature

Under power-off or power-on status, press and hold “SWING/ENTER” button for 5 seconds to enter into ambient temperature inquiry interface, then timer area displays the ambient temperature type 01 or 02, and ambient temperature area displays the corresponding ambient temperature of corresponding type. In which, 01 refers to outdoor ambient temperature, 02 refers to indoor ambient temperature. Press “MODE” button can switch between type 01 and 02. Press buttons other than “MODE” or when the unit receives remote control signal, it will quit the inquiry status. If there is no any operation for 20 seconds, it will quit automatically.

Note:

When the outdoor ambient temperature sensor detects the same temperature for 12 hours, it will shield the display of outdoor ambient temperature sensor.

2.3.8 Inquiry of Historical Malfunction

Under off or on state of the unit, continuously press Function and ▼ buttons for 5s to view historical malfunction.

In enquiry state, set temperature displaying zone displays “00”. Press ▲ and ▼ buttons to view the 5 malfunctions happened recently. The timer displaying position displays the specific error code. The 5th displayed malfunction is the last malfunction.

2.3.9 Debugging Function

Under off state of the unit, press Function and Timer buttons at the same time for 5s to go to the debugging menu. Press Mode button to adjust the setting items and press ▲ or ▼ button to set the actual value.

2.3.9.1 Setting ambient temperature sensor (dual ambient temperature sensors function)

Under debugging state, press Mode button to adjust to “00” in temperature displaying zone. Timer zone displays setting state and press ▲ or ▼ button to adjust. There are 3 selections:

- (1) The ambient temperature at air return is set as indoor ambient temperature (timer zone displays 01)
- (2) The temperature at wired controller is set as indoor ambient temperature (timer zone displays 02)
- (3) Select the temperature sensor at air return in cooling, dry and fan mode; select the temperature sensor at wired controller in heating and auto mode.

2.3.9.2 Displaying setting of freeze protection error code

Under debugging state, press Mode button to adjust to “02” in temperature displaying zone. Timer zone displays setting state and press ▲ or ▼ button to adjust. There are 2 selections:

- (1) Displayed (LCD displays 01)
- (2) Not displayed (LCD displays 02)

It is defaulted to be not displayed for export unit and be displayed for domestic unit.

2.3.9.3 Setting refrigerant lacking protection function

Under debugging state, press Mode button to adjust to “04” in temperature displaying zone. Timer zone displays setting state and press ▲ or ▼ button to adjust. There are 2 selections:

- (1) With refrigerant lacking protection function (LCD displays 01)
- (2) Without refrigerant lacking protection function (LCD displays 02)

2.3.9.4 Selecting blowing residual heating of indoor unit

Under debugging state, press Mode button to adjust to “05” in temperature displaying zone. Timer zone displays setting state and press ▲ or ▼ button to adjust. There are 2 selections:

- (1) Mode 1 (LCD displays 00)
- (2) Mode 2 (LCD displays 01)

Note: Blowing residual heating of indoor unit

Mode 1: Unit stops when reaching temperature point and indoor fan motor does not stop in cooling mode; after unit stops when reaching temperature point in heating mode, duct type unit and floor ceiling unit blow residual heat for 60s and then stop indoor unit, while cassette type unit always operates in low fan speed and blows residual heat for 60s when there is malfunction.

Mode 2: After unit stops when reaching temperature point, the indoor fan motor stops operation with a 10s-delay no matter in cooling mode or in heating mode.

2.3.9.5 Mode selecting of compressor electric heating belt

Under debugging state, press Mode button to adjust to “06” in temperature displaying zone. Timer zone displays setting state and press ▲ or ▼ button to adjust. There are 2 selections:

- (1) Mode 1 (LCD displays 00)
- (2) Mode 2 (LCD displays 01)

Note:

Mode 1: Compressor electric heating belt starts when outdoor ambient temperature is below 35°C and stops when outdoor ambient temperature is above 37°C. When outdoor ambient temperature is within 35°C~ 37°C, the belt will keep its previous operation state.

Mode 2: Compressor electric heating belt starts when outdoor ambient temperature is below -2°C and stops when outdoor ambient temperature is above 0°C. When outdoor ambient temperature is within -2°C~0°C, the belt will keep its previous operation state.

2.3.9.6 Selecting low-power consumption mode

Under debugging state, press Mode button to adjust to “07” in temperature displaying zone. Timer zone displays setting state and press ▲ or ▼ button to adjust. There are 2 selections:

- (1) With low-power consumption mode (LCD displays 00)
- (2) Without low-power consumption mode (LCD displays 01)

2.3.9.7 Selecting door control function

Under debugging state, press Mode button to adjust to “08” in temperature displaying zone. Timer zone displays setting state and press ▲ or ▼ button to adjust. There are 2 selections:

- (1) Without door control function (LCD displays 00)
- (2) With door control function (LCD displays 01)

2.3.9.8 Selecting long-distance monitoring or centralized controller

Under debugging state, press Mode button to adjust to “10” in temperature displaying zone. Timer zone displays setting state and press ▲ or ▼ button to adjust. There are 2 selections:

- (1) Centralized controller (LCD displays 00)
- (2) Long-distance monitoring (LCD displays 01)

2.3.9.9 Selecting fan mode of indoor fan motor

Under debugging state, press Mode button to adjust to “11” in temperature displaying zone. Timer zone displays setting state and press ▲ or ▼ button to adjust.

a. There are 5 selections for low static pressure duct:

- (1) P3 (LCD displays 03)
- (2) P4 (LCD displays 04)
- (3) P5 (LCD displays 05)
- (4) P6 (LCD displays 06)
- (5) P7 (LCD displays 07)

Note: You can select P03, P04, P05, P06, P07 in fan mode of indoor fan motor, which means different fan mode combinations are corresponding to different static pressure. Ex-factory defaulted mode is P05. You can set the mode through wired controller. S01, S02, S03……S12, S13 means the rotation speed of indoor unit is from low to high.

Combination relationship of P03, P04, P05, P06, P07

Static pressure selection	Super high speed	High speed	Medium high speed	Medium speed	Medium low speed	Low speed	Quiet R1 speed	Quiet R2 speed	Quiet R3 speed
P03	S09	S08	S07	S06	S05	S04	S03	S02	S01
P04	S10	S09	S08	S07	S06	S05	S04	S03	S02
P05	S11	S10	S09	S08	S07	S06	S05	S04	S03
P06	S12	S11	S10	S09	S08	S07	S06	S05	S04
P07	S13	S12	S11	S10	S09	S08	S07	S06	S05

b. There are 9 selections for high static pressure duct:

- (1) P1 (LCD displays 01)
- (2) P2 (LCD displays 02)
- (3) P3 (LCD displays 03)
- (4) P4 (LCD displays 04)
- (5) P5 (LCD displays 05)
- (6) P6 (LCD displays 06)
- (7) P7 (LCD displays 07)
- (8) P8 (LCD displays 08)
- (9) P9 (LCD displays 09)

Note: You can select P01, P02, P03, P04, P05, P06, P07, P08, P09 in fan mode of indoor fan motor, which means different fan mode combinations are corresponding to different static pressure. Ex-factory defaulted mode is P05. You can set the mode through wired controller. S01, S02, S03……S12, S13 means the rotation speed of indoor unit is from low to high.

Combination relationship of P01, P02, P03, P04, P05, P06, P07, P08, P09

Static pressure selection	Super high speed	High speed	Medium high speed	Medium speed	Medium low speed	Low speed	Quiet R1 speed	Quiet R2 speed	Quiet R3 speed
P1	S05	S03	S02	S02	S01	S01	S01	S01	S01
P2	S06	S04	S03	S03	S02	S02	S02	S02	S02
P3	S07	S05	S04	S04	S03	S03	S03	S03	S03
P4	S08	S06	S05	S05	S04	S04	S04	S04	S04
P5	S09	S07	S06	S06	S05	S05	S05	S05	S05
P6	S10	S08	S07	S07	S06	S06	S06	S06	S06
P7	S11	S09	S08	S08	S07	S07	S07	S07	S07
P8	S12	S10	S09	S09	S08	S08	S08	S08	S08
P9	S13	S11	S10	S10	S09	S09	S09	S09	S09

2.3.9.10 Selecting compensation of temperature sensor at air return

Under debugging state, press Mode button to adjust to “12” in temperature displaying zone. Timer zone displays setting state and press ▲ or ▼ button to adjust. There are 16 selections:

- (1) Compensate 0℃ (LCD displays 00)
- (2) Compensate 1℃ (LCD displays 01)
- (3) Compensate 2℃ (LCD displays 02)
- (4) Compensate 3℃ (LCD displays 03)
- (5) Compensate 4℃ (LCD displays 04)
- (6) Compensate 5℃ (LCD displays 05)
- (7) Compensate 6℃ (LCD displays 06)
- (8) Compensate 7℃ (LCD displays 07)
- (9) Compensate 8℃ (LCD displays 08)
- (10) Compensate 9℃ (LCD displays 09)
- (11) Compensate 10℃ (LCD displays 10)
- (12) Compensate 11℃ (LCD displays 11)
- (13) Compensate 12℃ (LCD displays 12)
- (14) Compensate 13℃ (LCD displays 13)
- (15) Compensate 14℃ (LCD displays 14)
- (16) Compensate 15℃ (LCD displays 15)

Note: Indoor ambient temperature compensation can be set through the wired control (E.g.: If 02 is selected, it indicates the compensation temperature is 2℃. If the indoor ambient temperature detected by the temperature sensor at air return is 29℃, the ambient temperature after compensation is 29℃-2℃=27℃).

After finishing setting, press Enter/Cancel button to save and exit setting. After entering this interface, the system will exit this menu if there is no operation on the button within 20s. Normal off state interface will be displayed and present setting will not be saved.

2.3.9.11 Auto mode selection

Under debugging state, press Mode button to adjust to “16” in temperature displaying zone. Timer zone displays setting state and press ▲ or ▼ button to adjust. There are 2 selections:

- (1) Auto mode 1, the set temperature under auto mode can't be adjusted (LCD displays 01)
- (2) Auto mode 2, the set temperature can be adjusted under auto mode (LCD displays 02)

2.3.9.12 Defrost mode selection

Under debugging state, press Mode button to adjust to “17” in temperature displaying zone. Timer zone displays setting state and press ▲ or ▼ button to adjust. There are 2 selections:

- (1) Defrost mode 1 (LCD displays 01)
- (2) Defrost mode 2 (LCD displays 02)

2.3.9.13 Heat pump unit and cooling only unit selection

Under debugging state, press Mode button to adjust to “18” in temperature displaying zone. Timer zone displays setting state and press ▲ or ▼ button to adjust. There are 2 selections:

- (1) Heat pump type unit (LCD displays 00)
- (2) Cooling only unit (LCD displays 01)

After finishing setting, press Swing/Enter button to save and exit setting. After entering this interface, the system will exit this menu if there is no operation on the button within 20s. Normal off state interface will be displayed and present setting will not be saved.

2.3.10 Connect to Interface of Centralized Control

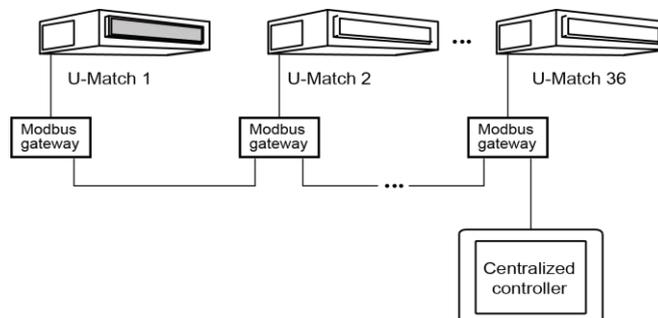
The indoor unit is with the interface of centralized controller. When centralized controller is connected, centralized control of unit can be realized when the wired controller is not connected;

(1) Interface instruction:

1) The printing of interface on the indoor unit PCB is COM_BMS, before connecting the centralized controller, a gateway model ME50-00/EG(M) is required, The following figure shows an example;

2) Electrical characteristic: none;

3) Working principle: centralized control the communication of indoor mainboard and realize the unit control;



(2) Function instructions:

In order to achieve this function, set the address mode and address through wired controller. Please refer to Point 3 for the setting method. The address mode is defaulted to be connecting to centralized controller mode and the defaulted address is 1;

When the centralized controller is connected, centralized control of the unit can be realized to control unit ON/OFF, operation mode, set fan speed/temperature and weekly timer.

(3) Setting method:

1) Centralized control for up to 16 indoor units.

Firstly, set the address mode of wired controller into centralized controller address mode. The setting method is:

Under off state of the unit, press Function and Timer buttons at the same time for 5s to go to the debugging menu. Press Mode button to adjust to "10" in temperature displaying zone. Timer zone displays setting state and press ▲ or ▼ button to adjust. There are 2 selections:

a. Centralized controller address mode (LCD displays 00)

b. Long-distance control address mode (LCD displays 01)

Choose the first selection and then press Enter/Cancel button to save and exit setting. Now, the address of wired controller is set to match the address of centralized controller. The unit will memorize this setting status. The setting value will be memorized after power failure.

Address setting of each unit: when the address mode is set to be centralized controller address mode. The address setting value range is 01~16. The setting method is:

Under off state of the unit, press Function and Mode buttons at the same time for 5s to enter setting interface of wired controller address. LCD displays address sequence. Press ▲ or ▼ button to adjust the address sequence and then press Enter/Cancel button to confirm. The setting value will be memorized after power failure.

When the address is set, the wired controller can be removed and connect the centralized controller to the indoor mainboard. Then connect the required units to realize centralized control of these units;

Note:

- ① When centralized controller is to be connected, set the address mode into centralized controller address mode through wired controller. Long-distance control address mode can not be set;
- ② The unit addresses in the same network must be different, otherwise, communication malfunction will occur and the unit can not work normally;
- ③ When centralized controller is to be connected, the unit address range is 1-16. Only 16 sets of unit in maximum can be connected
- ④ The code and model of wired controller is as below:

Name	Product code	Remark
Centralized controller CE50-24/E	MC207025	Only 16 sets of unit in maximum can be connected to this controller

2) Centralized control for up to 36 indoor units.

Firstly, set the address mode of wired controller into Long-distance control address mode. The setting method is:

Under off state of the unit, press Function and Timer buttons at the same time for 5s to go to the debugging menu. Press Mode button to adjust to "10" in temperature displaying zone. Timer zone displays setting state and press ▲ or ▼ button to adjust. There are 2 selections:

a. Centralized controller address mode (LCD displays 00)

b. Long-distance control address mode (LCD displays 01)

Choose the second selection and then press Swing/Enter button to save and exit setting. Now, the address of wired controller is set to match the address of centralized controller. The unit will memorize this setting status. The setting value will be memorized after power failure.

Address setting of each unit: when the address mode is set to be Long-distance control address mode. The address setting value range is 01~36. The setting method is:

Under off state of the unit, press Function and Mode buttons at the same time for 5s to enter setting interface of wired controller address. LCD displays address sequence. Press ▲ or ▼ button to adjust the address sequence and then press Swing/Enter button to confirm. The setting value will be memorized after power failure.

When the address is set, the wired controller can be removed and connect the centralized controller to the indoor mainboard. Then connect the required units to realize centralized control of these units;

Note:

- ① The unit addresses in the same network must be different, otherwise, communication malfunction will occur and the unit can not work normally;
- ② When centralized controller is to be connected, the unit address range is 1-36. Only 36 sets of unit in maximum can be connected
- ③ The code and model of wired controller is as below:

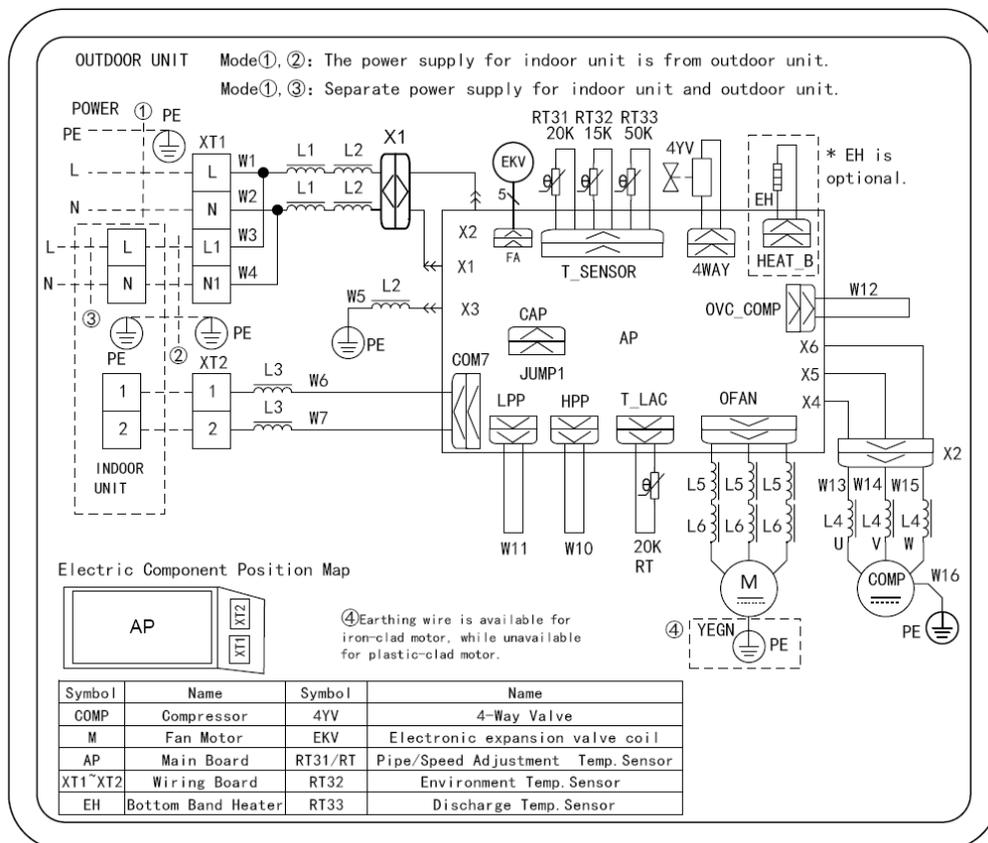
Name	Product code	Remark
Centralized controller CE52-24/F(C)	MC207052	Only 36 sets of unit in maximum can be connected to this controller

3. Troubleshooting

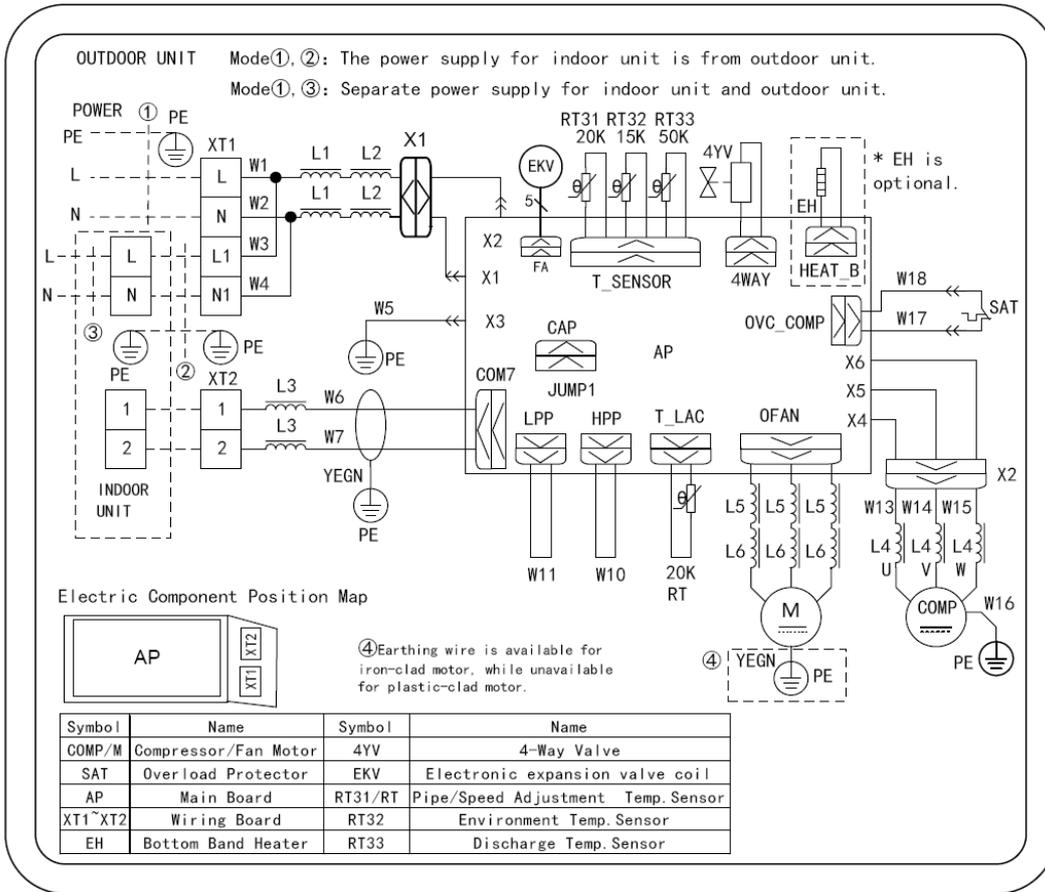
3.1 Wiring Diagrams

3.1.1 Wiring Diagrams of ODUs

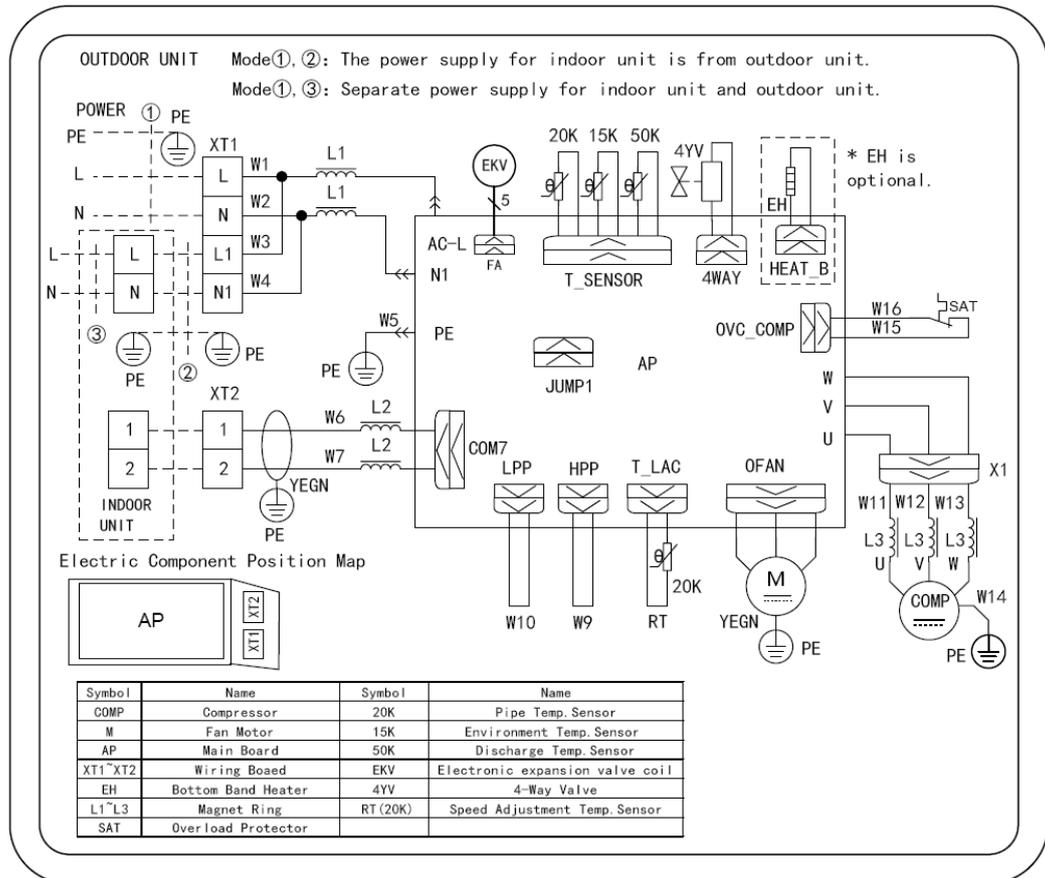
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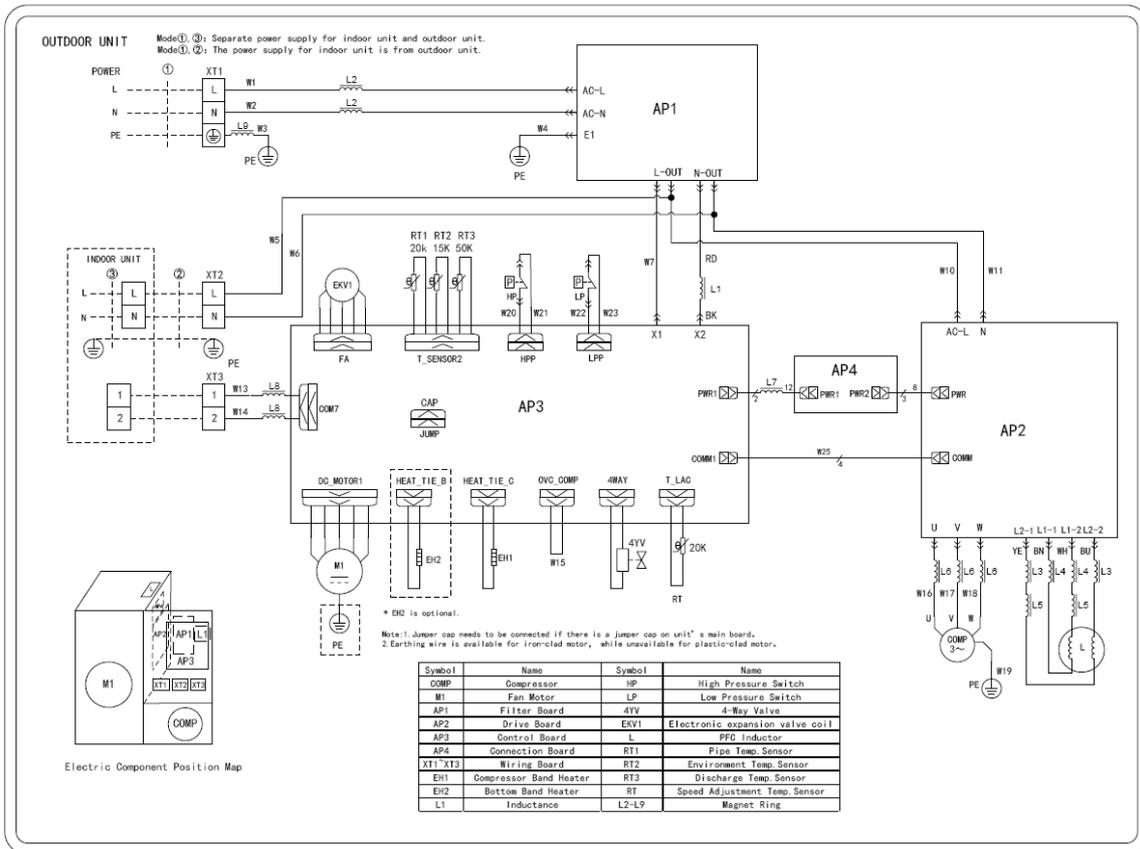
Model: GUD50W/NhA-T



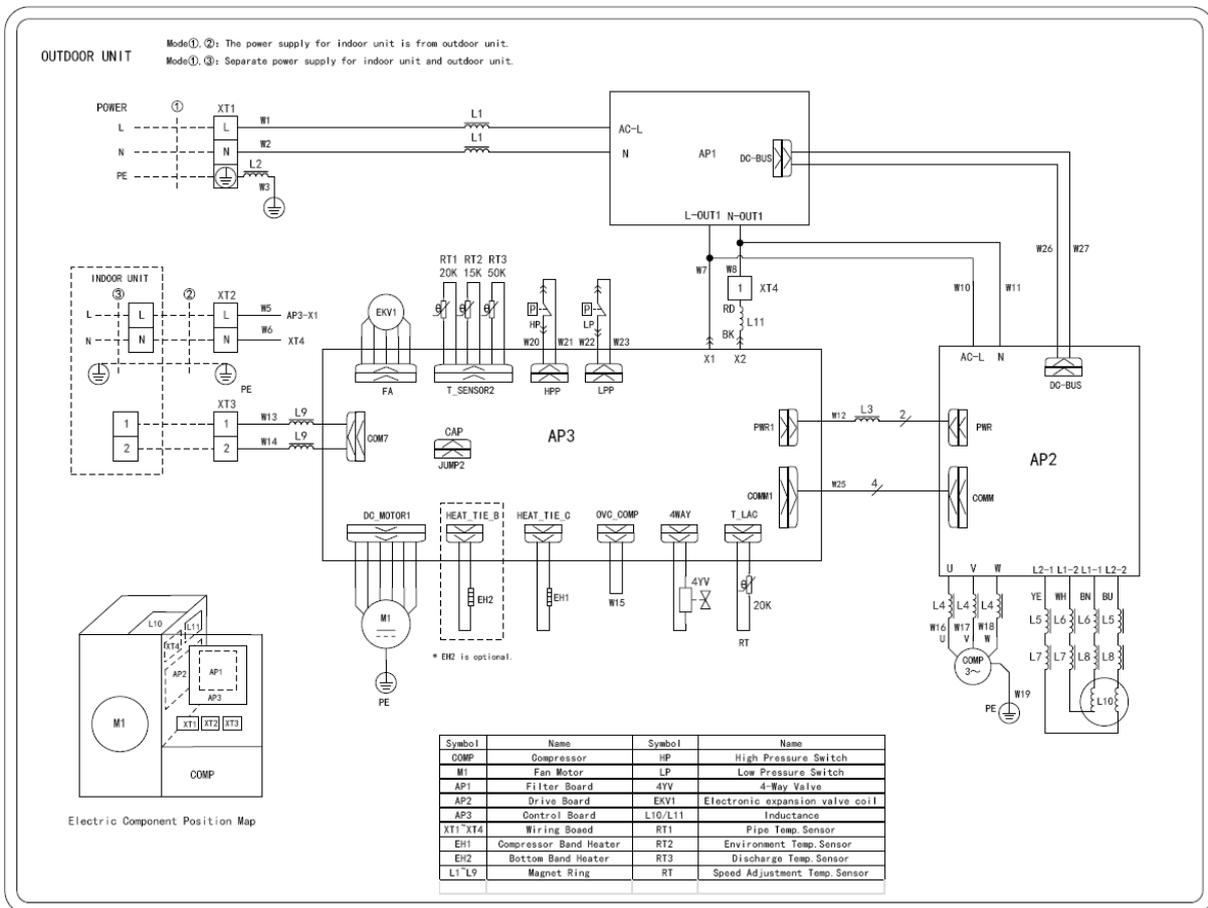
Model: GUD71W/NhA-T, GUD85W/NhA-T



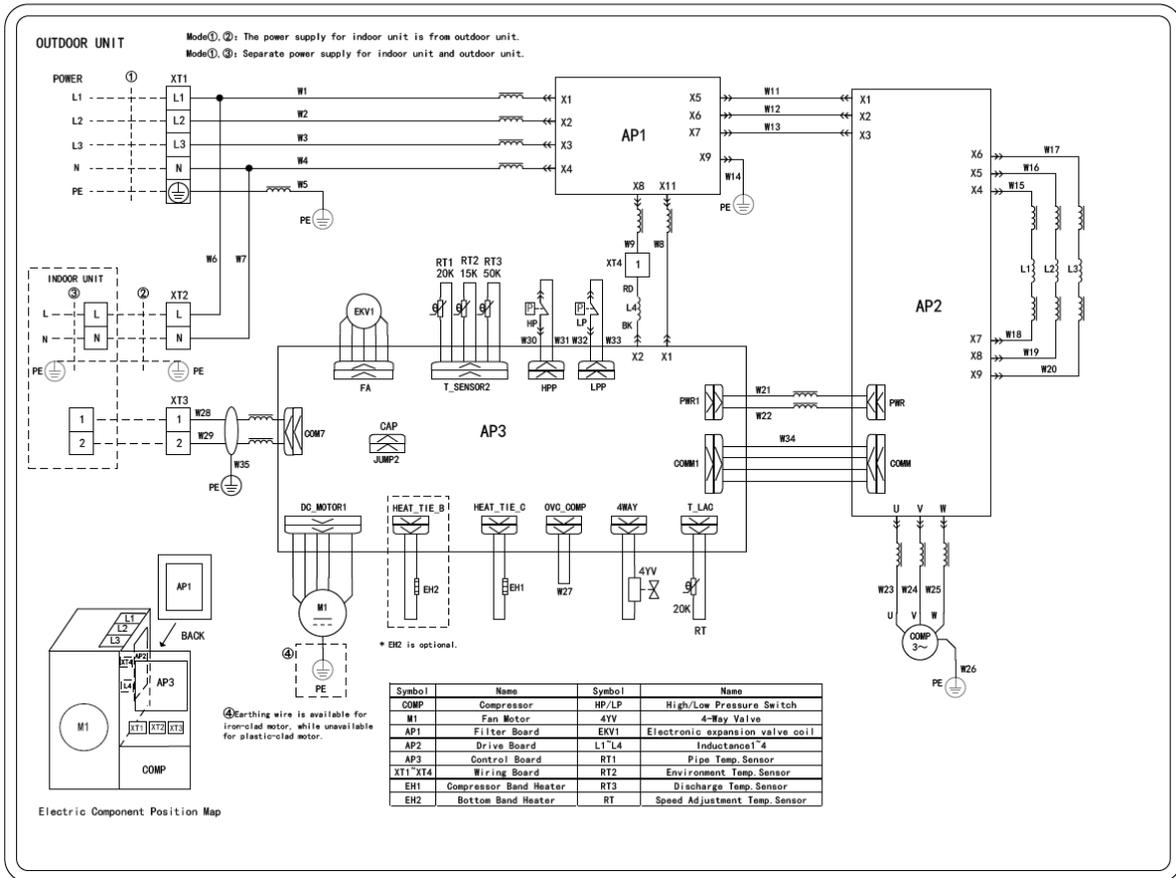
Model:GUD100W/NhA-T



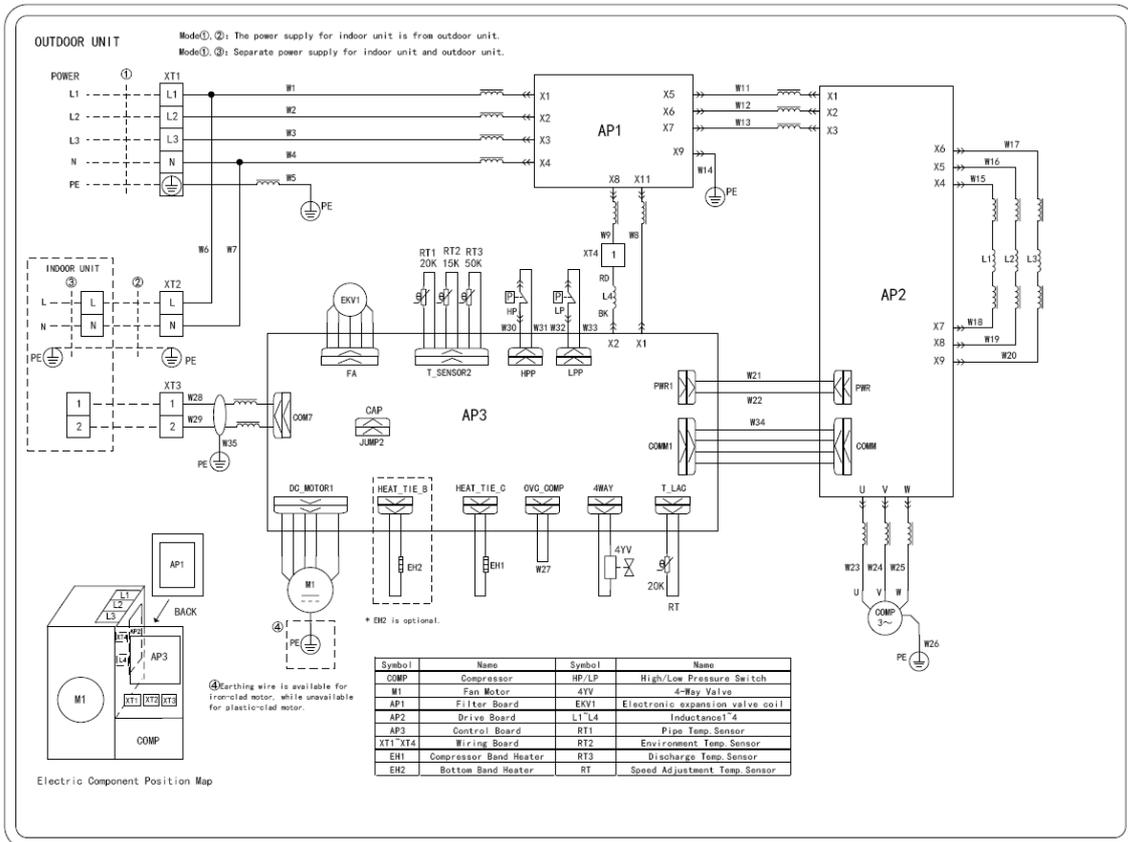
Model:GUD125W/NhA-T, GUD140W/NhA-T



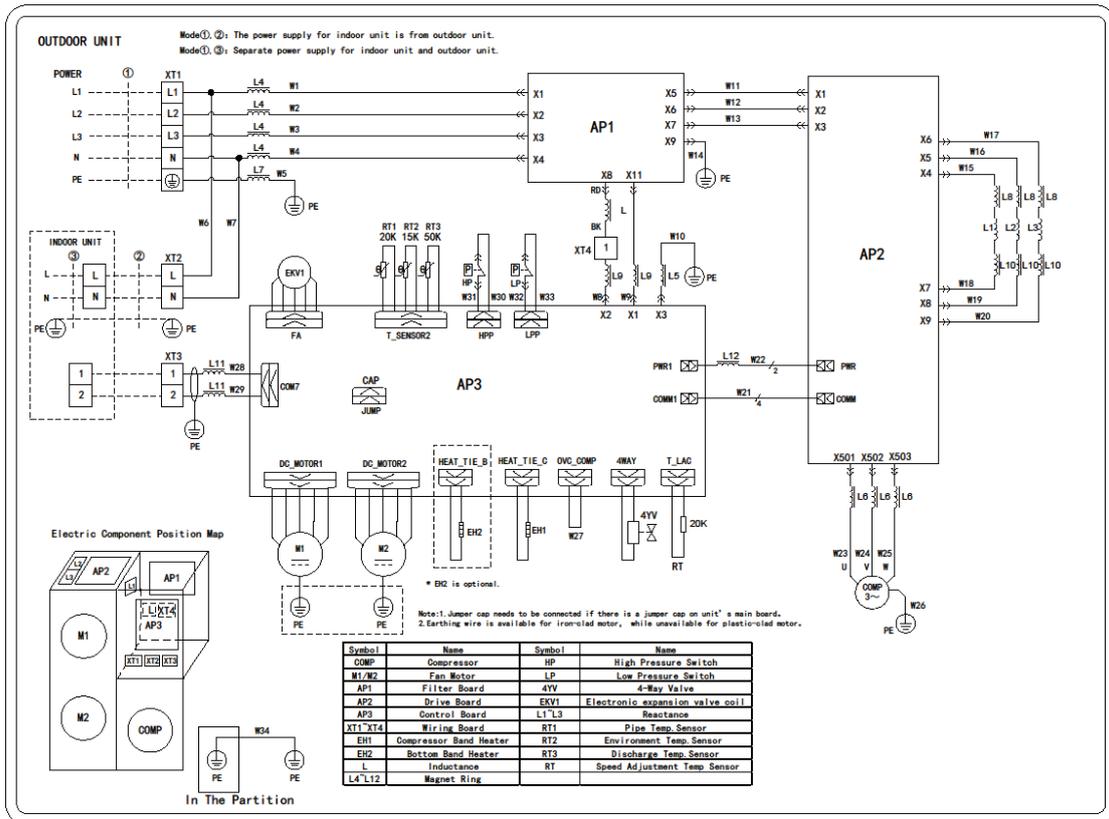
Model:GUD100W/NhA-X



Model:GUD125W/NhA-X,GUD140W/NhA-X

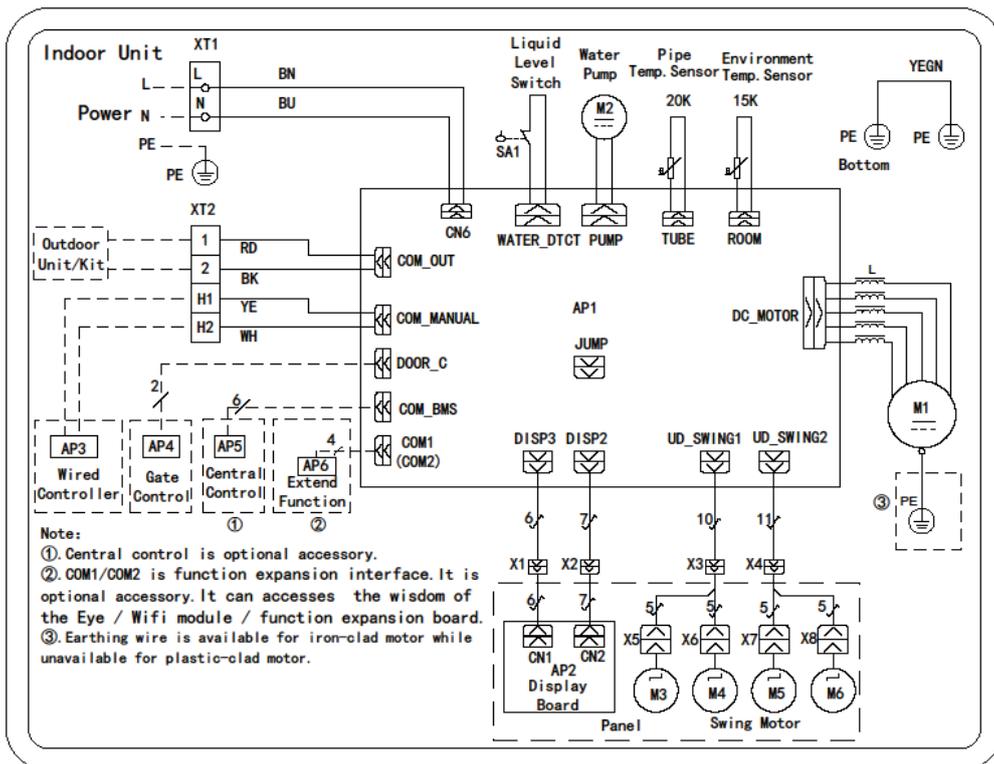


Model:GUD160W/NhA-X

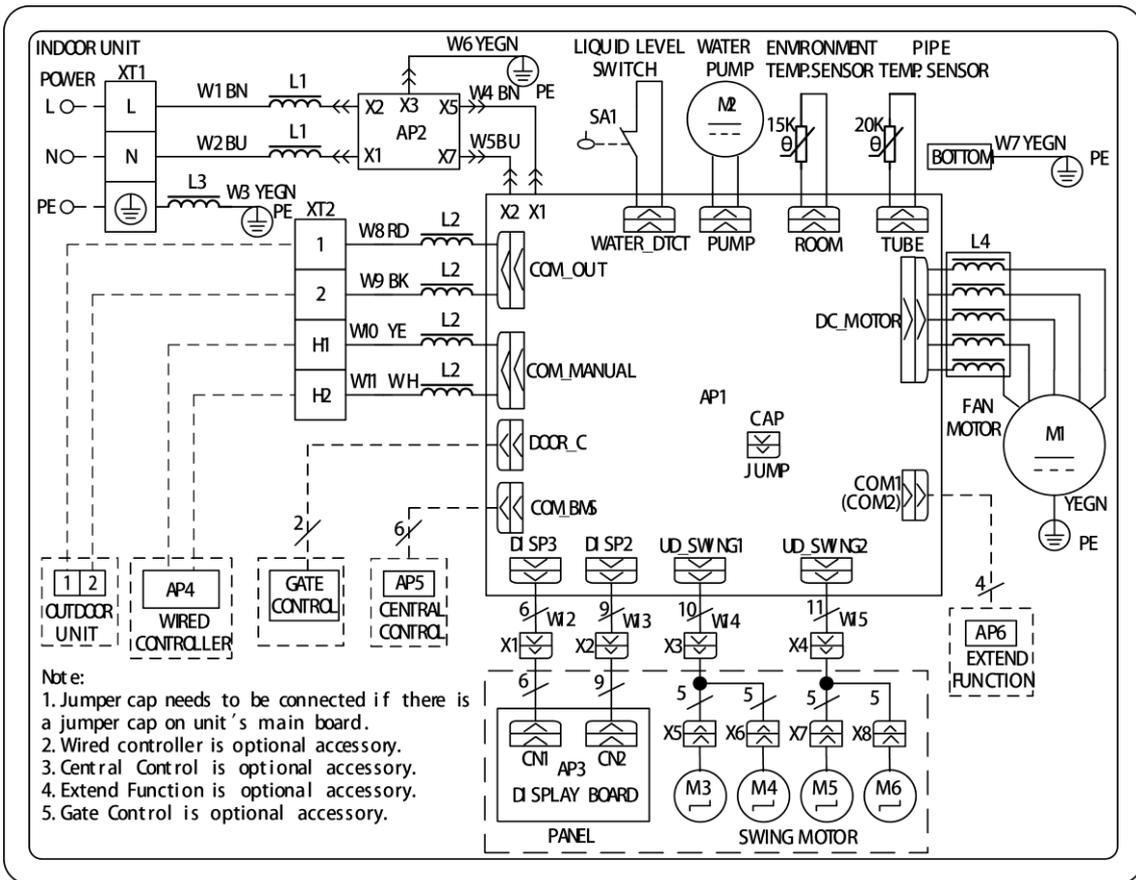


3.1.2 Wiring Diagrams of IDUs

Model: GUD35T/A-T, GUD50T/A-T

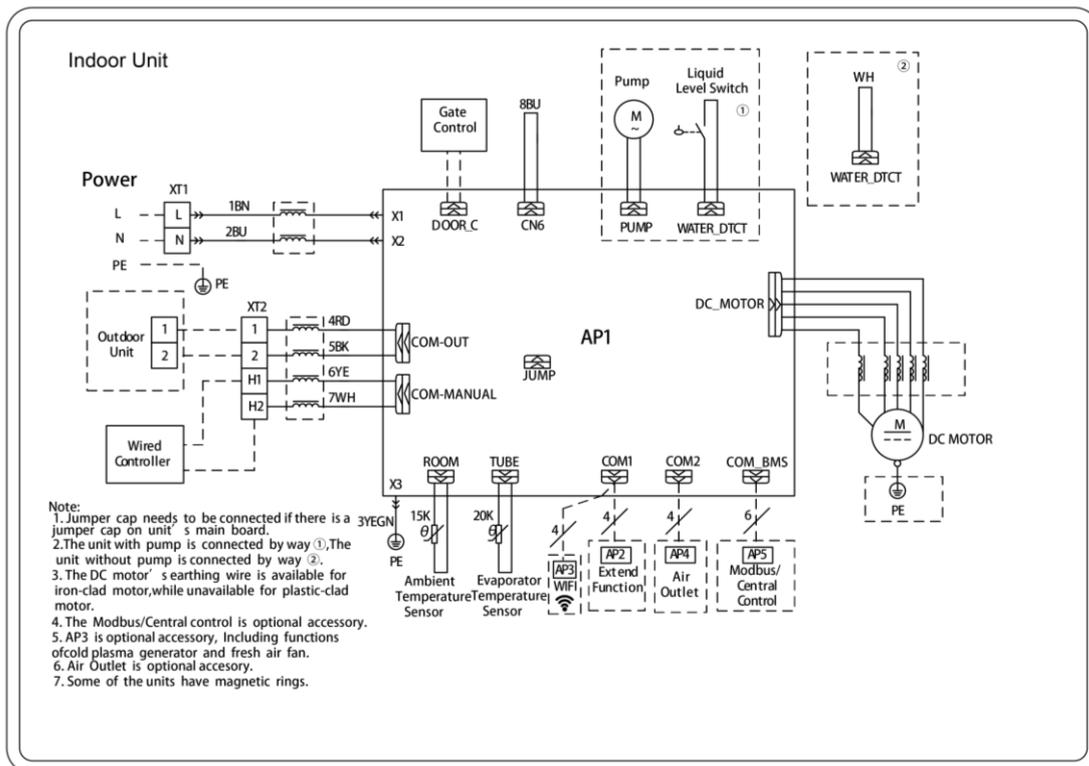


Model: GUD71T/A-T, GUD85T/A-T, GUD100T/A-T, GUD125T/A-T, GUD140T/A-T, GUD160T/A-T

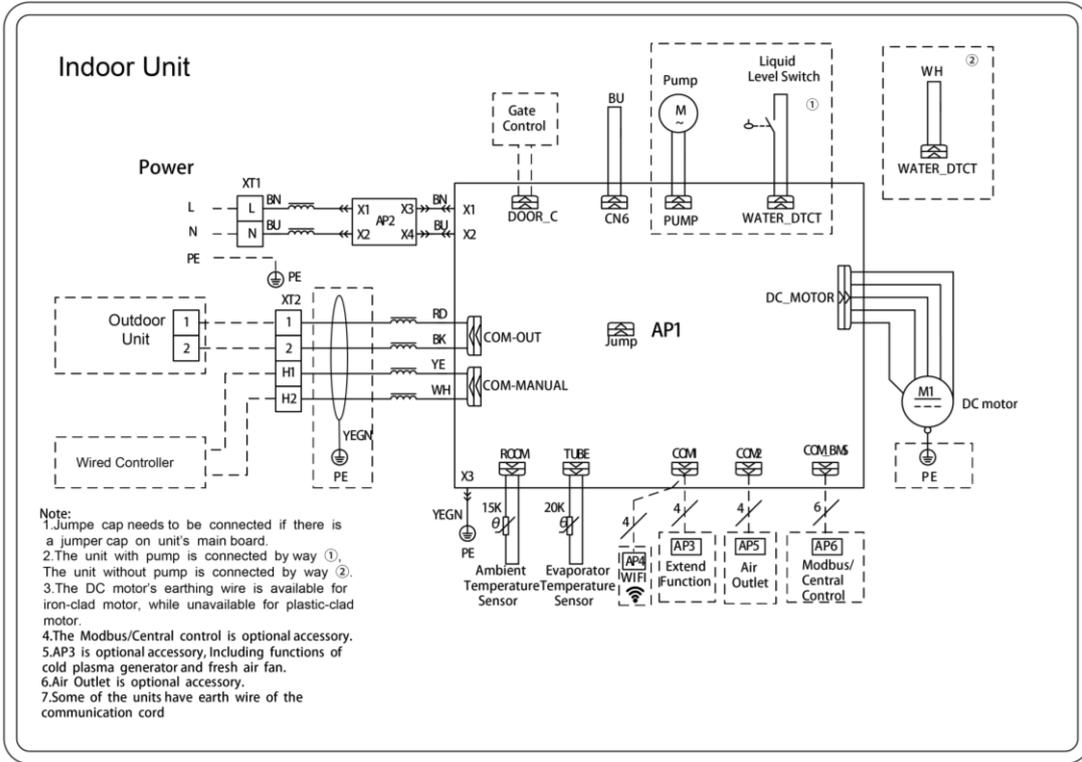


Duct Type

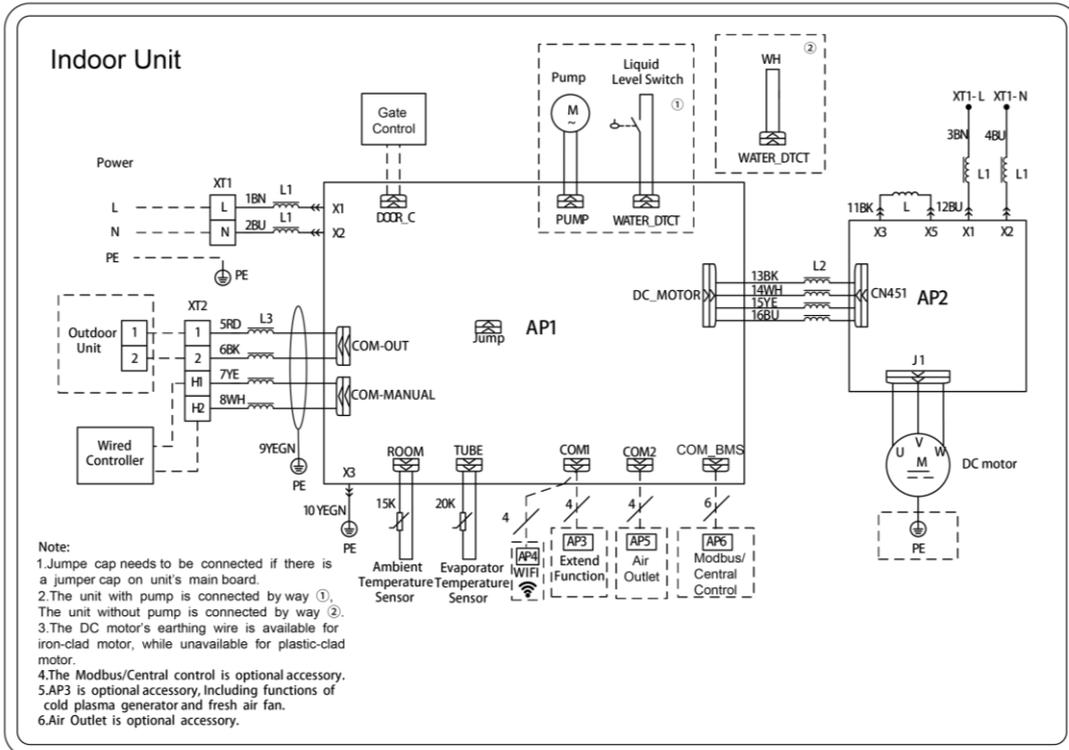
Model: GUD35P/A-T, GUD50P/A-T, GUD71P/A-T, GUD85P/A-T,
GUD35PS/A-T, GUD50PS/A-T, GUD71PS/A-T, GUD85PS/A-T



Model: GUD100PH/A-T, GUD125PH/A-T, GUD140PH/A-T
 GUD100PHS/A-T, GUD125PHS/A-T, GUD140PHS/A-T

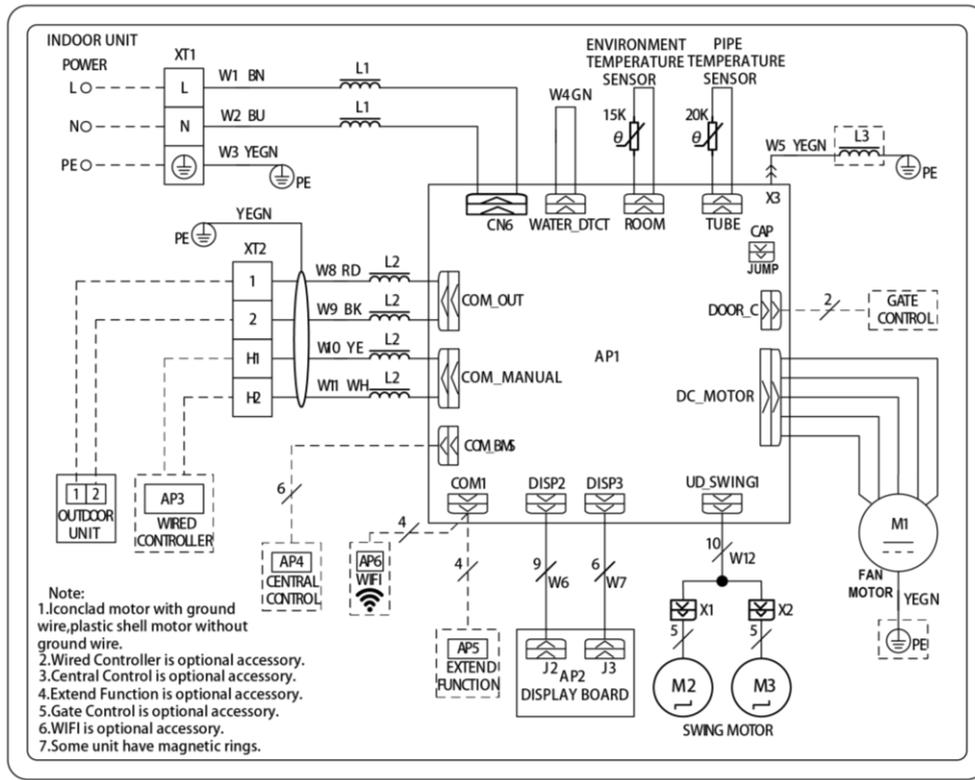


Model: GUD160PH/A-T, GUD160PHS/A-T



Floor Ceiling Type

Model: GUD35ZD/A-T, GUD50ZD/A-T, GUD71ZD/A-T, GUD85ZD/A-T, GUD100ZD/A-T, GUD125ZD/A-T, GUD140ZD/A-T, GUD160ZD/A-T



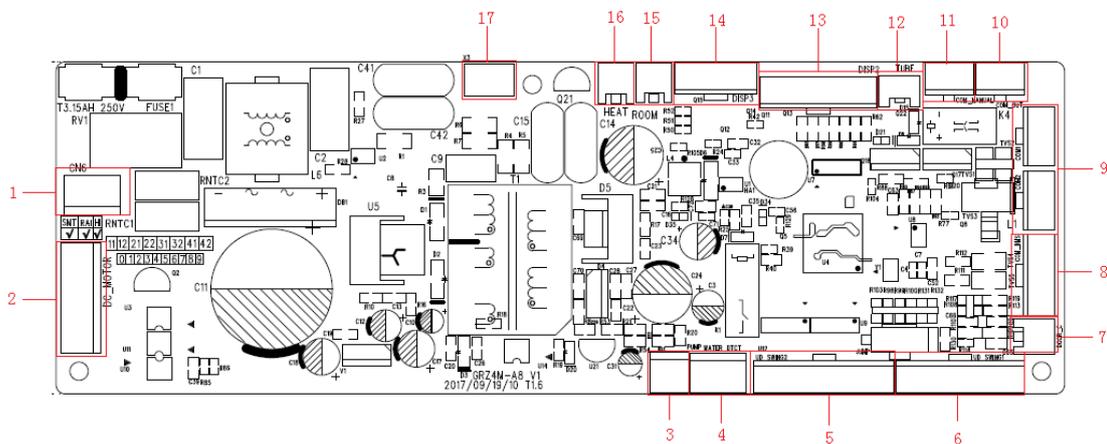
3.2 PCB Layout

3.2.1 Interface

Indoor unit:

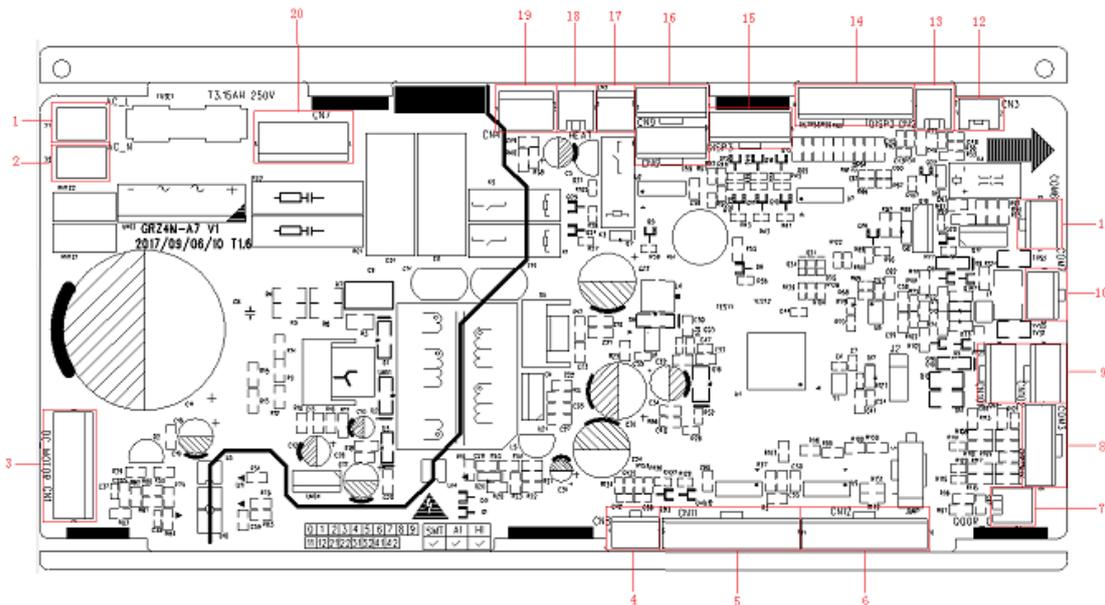
Model: GUD35T/A-T, GUD50T/A-T:

GUD35ZD/A-T, GUD50ZD/A-T, GUD71ZD/A-T, GUD85ZD/A-T, GUD100ZD/A-T, GUD125ZD/A-T, GUD140ZD/A-T, GUD160ZD/A-T;



No.	Printing	Interface	No.	Printing	Interface
1	CN6	Power supply	2	DC_MOTOR	DC motor output
3	PUMP	DC water pump	4	WATER_DTCT	Water level switch
5	UD_SWING2	Vertical swing output 2	6	UD_SWING1	Vertical swing output 1
7	DOOR_C	Access control interface	8	COM_BMS	MODBUS gateway interface
9	COM1,COM2	Accessories communication interface	10	COM_OUT	ODU communication interface
11	COM_MANAUL	Wired control communication interface	12	TUBE	Evaporator temperature sensor
13	DISP2	Light board interface 2	14	DISP3	Light board interface 3
15	ROOM	Ambient temperature sensor interface	16	HEAT	Electric heating interface
17	X3	Ground wire			

Model: GUD71T/A-T, GUD85T/A-T, GUD100T/A-T, GUD125T/A-T, GUD140T/A-T, GUD160T/A-T:



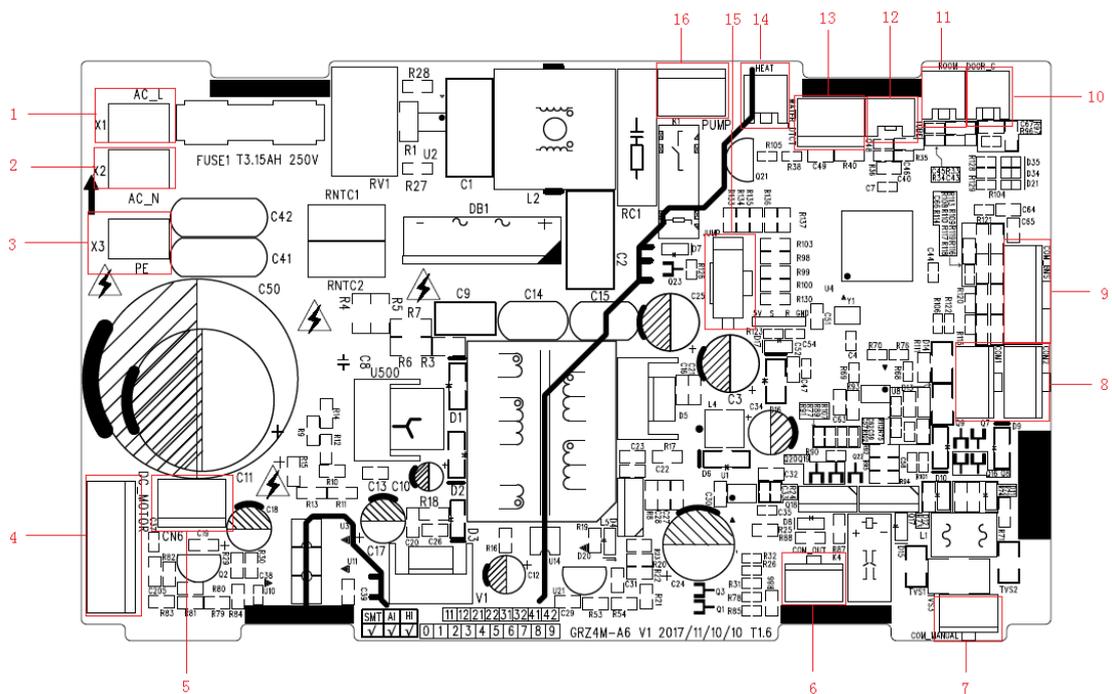
No.	Printing	Interface	No.	Printing	Interface
1	AC-L	Live wire input	2	AC-N	Neutral wire input
3	DC_MOTOR	DC motor output	4	SS	Limit switch sensing interface
5	UD_SWING2	Vertical swing output 2	6	UD_SWING1	Vertical swing output 1
7	DOOR_C	Access control interface	8	COM_BMS	MODBUS gateway interface
9	COM1, COM2	Accessories communication	10	COM_MANUAL	Wired control communication

No.	Printing	Interface	No.	Printing	Interface
		interface			interface
11	COM_OUT	ODU communication interface	12	TUBE	Indoor tube temperature sensor interface
13	ROOM	Ambient temperature sensor interface	14	DISP2	Light board interface 2
15	DISP3	Light board interface 3	16	SWING_OUT1 SWING_OUT2	Air outlet lifting output 1 Air outlet lifting output 2
17	PUMP	DC water pump interface	18	HEAT	Electric heating interface
19	WATER_DTCT	Water level switch	20	CN7	Air return lifting output

Model:

GUD35P/A-T, GUD50P/A-T, GUD71P/A-T, GUD85P/A-T, GUD100PH/A-T, GUD125PH/A-T, GUD140PH/A-T, GUD160PH/A-T;

GUD35PS/A-T, GUD50PS/A-T, GUD71PS/A-T, GUD85PS/A-T, GUD100PHS/A-T, GUD125PHS/A-T, GUD140PHS/A-T, GUD160PHS/A-T

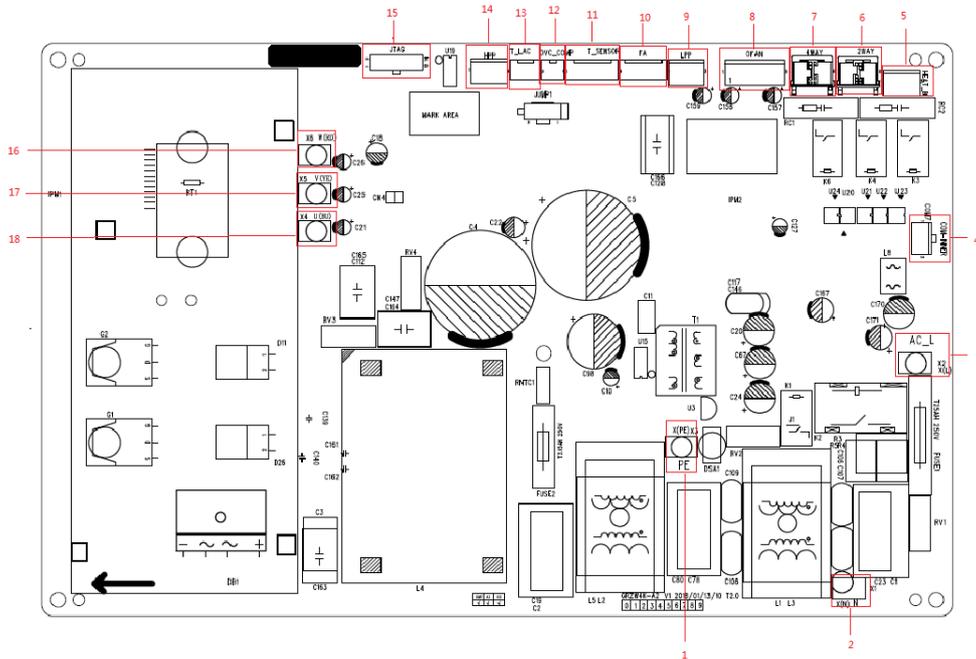


No.	Printing	Interface	No.	Printing	Interface
1	AC-L	Live wire input	2	AC-N	Neutral wire input
3	PE	Ground wire	4	DC-MOTOR	DC motor output
5	CN6	Motor type selection	6	COM-OUT	ODU communication

No.	Printing	Interface	No.	Printing	Interface
		interface			interface
7	COM-MANUAL	Wired control communication interface	8	COM1, COM2	Accessories communication interface
9	COM_BMS	MODBUS gateway interface	10	DOOR_C	Access control sensing interface
11	ROOM	Room ambient temperature sensor interface	12	TUBE	Indoor tube temperature sensor interface
13	WATER_DTCT	Water overflow detection	14	HEAT	Auxiliary heating interface (reserved)
15	JUMP	Jumper cap	16	PUMP	Water pump interface

Model: GUD35W/NhA-T, GUD50W/NhA-T

Mainboard

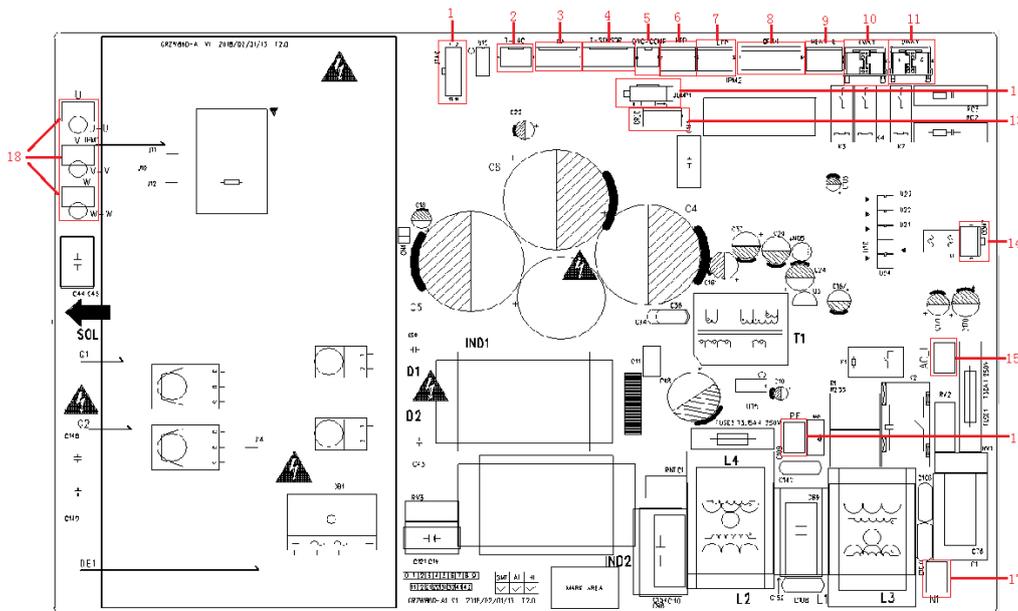


No.	Printing	Interface	No.	Printing	Interface
1	X3	Ground wire	2	X1	Neutral wire
3	X2	Live wire	4	COM7	IDU communication interface
5	HEAT_B	Chassis electric heating	6	2WAY	2-way valve
7	4WAY	4-way valve	8	OFAN	External drive DC fan
9	LPP	System low pressure protection interface	10	FA	Solenoid expansion valve
11	T_SENSOR	Temperature sensor group	12	OVC_COMP	Compressor overload detection
13	T_LAC	Low temperature cooling temperature sensor	14	HPP	System high pressure protection interface

No.	Printing	Interface	No.	Printing	Interface
15	JTAG	Programming	16	X6	Inverter compressor W phase
17	X5	Inverter compressor V phase	18	X4	Inverter compressor U phase

Model: GUD71W/NhA-T, GUD85W/NhA-T

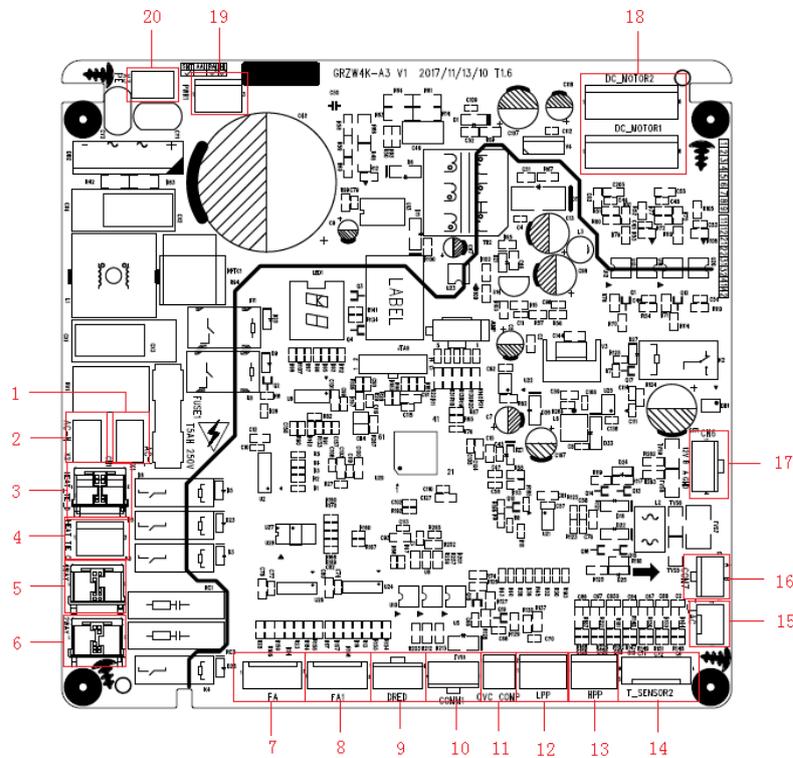
Mainboard



No.	Printing	Interface	No.	Printing	Interface
1	JTAG	Programming interface	10	2WAY	2-way valve
2	T-LAC	Low temperature cooling temperature sensing interface	11	HEAT-B	Chassis electric heating
3	FA	Electronic expansion valve	12	JUMP1	Jumper cap
4	T-SENSOR	Temperature sensor	13	DRED	DRED
5	OVC-COMP	Compressor overload detection	14	COM7	IDU and ODU communication interface
6	HPP	High pressure switch	15	AC-L	AC input live wire
7	LPP	Low pressure switch	16	N1	AC input neutral wire
8	OFAN	DC fan interface	17	PE	AC input ground wire
9	4WAY	4-way valve	18	U/V/W	Compressor interface

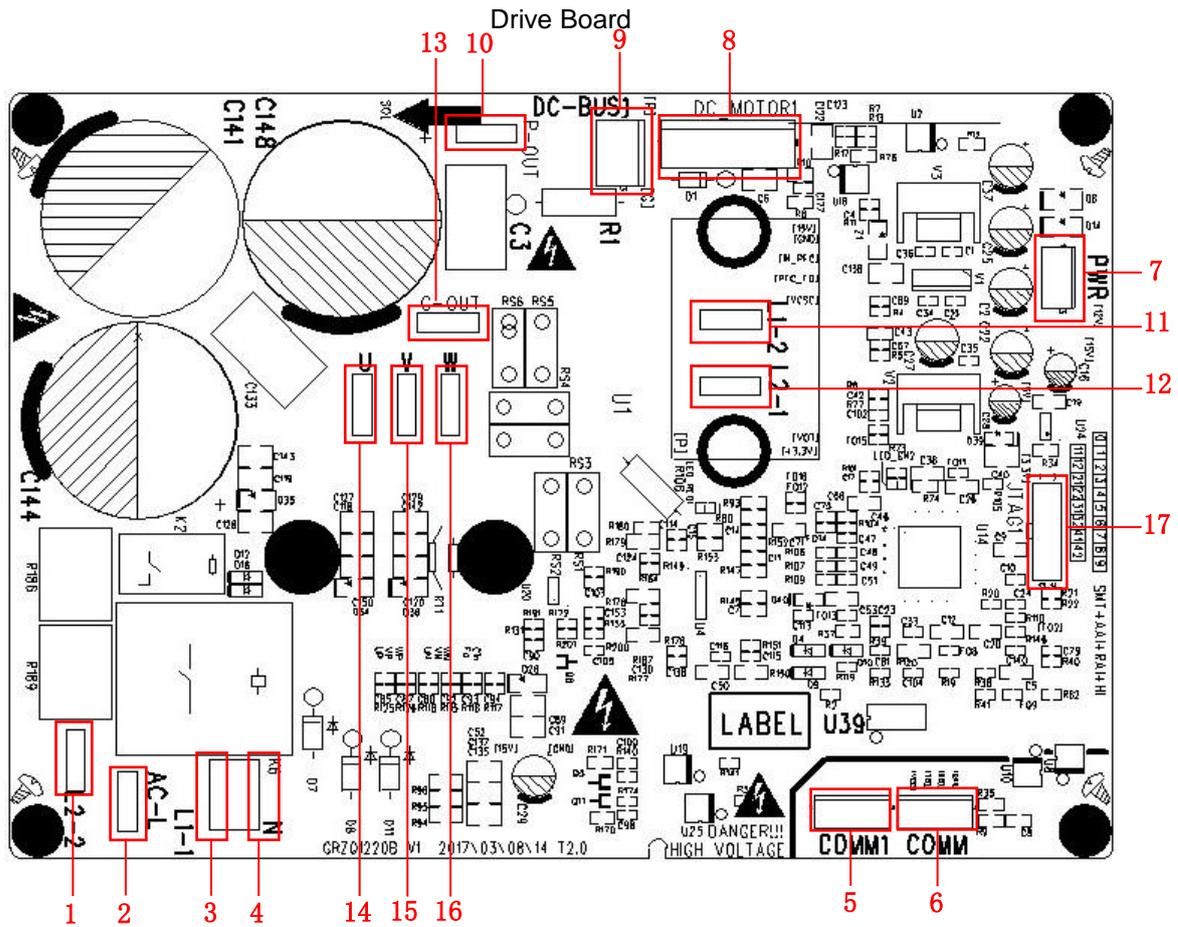
Model: GUD100W/NhA-T, GUD125W/NhA-T, GUD140W/NhA-T, GUD100W/NhA-X, GUD125W/NhA-X, GUD140W/NhA-X, GUD160W/NhA-X:

Mainboard

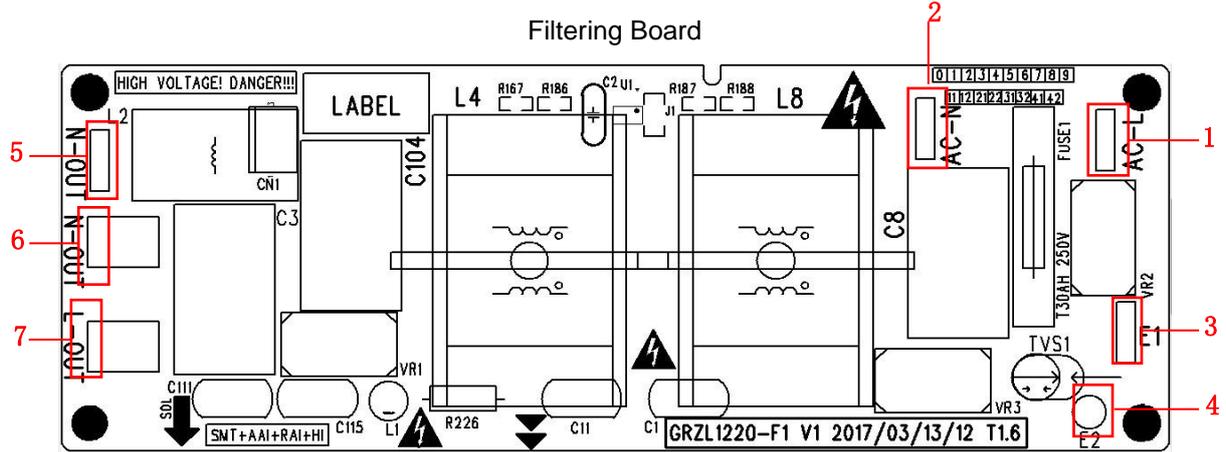


No.	Printing	Interface	No.	Printing	Interface
1	AC-L	Live wire input	2	AC-N	Neutral wire input
3	HEAT_TIE_B	Chassis electric heating belt	4	HEAT_TIE_C	Compressor electric heating belt
5	4WAY	4-way valve	6	2WAY	2-way valve
7	FA	Electronic expansion valve interface	8	FA1	Electronic expansion valve 1 interface Refrigerant heat dissipation
9	DRED	DRED communication interface	10	COMM1	Drive communication interface
11	OVC_COMP	Compressor overload protection interface	12	LPP	System low pressure protection interface
13	HPP	System high pressure protection interface	14	T_SENSOR2	2. Outdoor tube temperature sensor interface 4. Outdoor ambient temperature sensor interface 6. Discharge temperature sensor interface
15	T_LAC	Low temperature cooling temperature sensing	16	COM7	Unit communication interface
17	CN6	GPRS communication interface	18	DC_MOTOR1 DC_MOTOR2	DC motor output
19	PWR1	310V DC power supply interface	20	PE	Ground wire interface

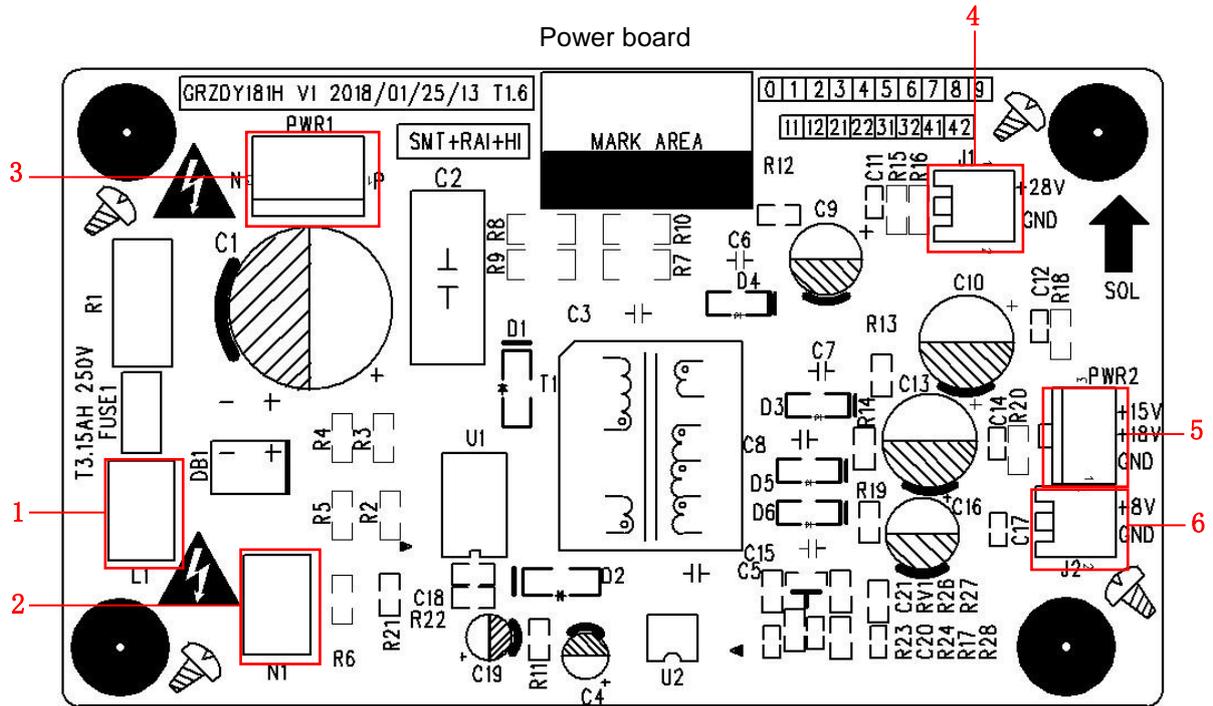
Model: GUD100W/NhA-T



No.	Printing	Interface	No.	Printing	Interface
1	L2-2	PFC induction wire (blue)	10	P-OUT	Reserved
2	AC-L	Live wire	11	L1-2	PFC induction wire (white)
3	L1-1	PFC induction wire (brown)	12	L2-1	PFC induction wire (yellow)
4	N	Neutral wire	13	G-OUT	Reserved
5	COMM1	Communication terminal, same with COMM	14	U	Compressor U phase terminal
6	COMM	Communication terminal, same with COMM1	15	V	Compressor V phase terminal
7	PWR	Drive power supply terminal	16	W	Compressor W phase terminal
8	DC-MOTOR1	DC fan terminal	17	JTAG1	Programming interface (for testing)
9	DC-BUS1	Power discharge terminal (for testing)			



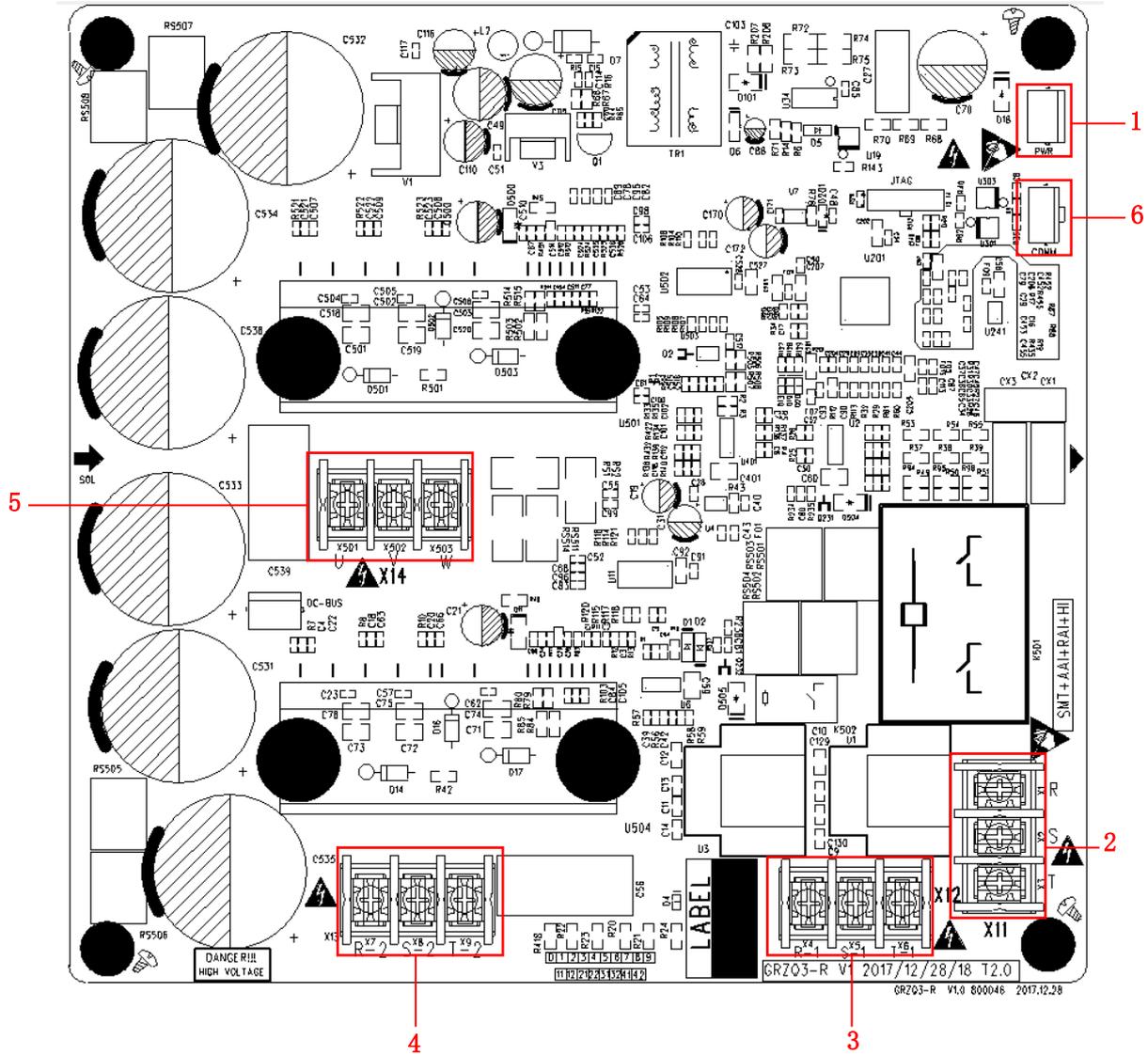
No.	Printing	Interface	No.	Printing	Interface
1	AC-L	Power input live wire terminal	5	N-OUT	Power output neutral wire terminal (reserved)
2	AC-N	Power input neutral wire terminal	6	N-OUT	Power output neutral wire terminal
3	E1	Filtering board ground wire terminal	7	L-OUT	Power output live wire terminal
4	E2	Filtering board grounding hole (reserved)			



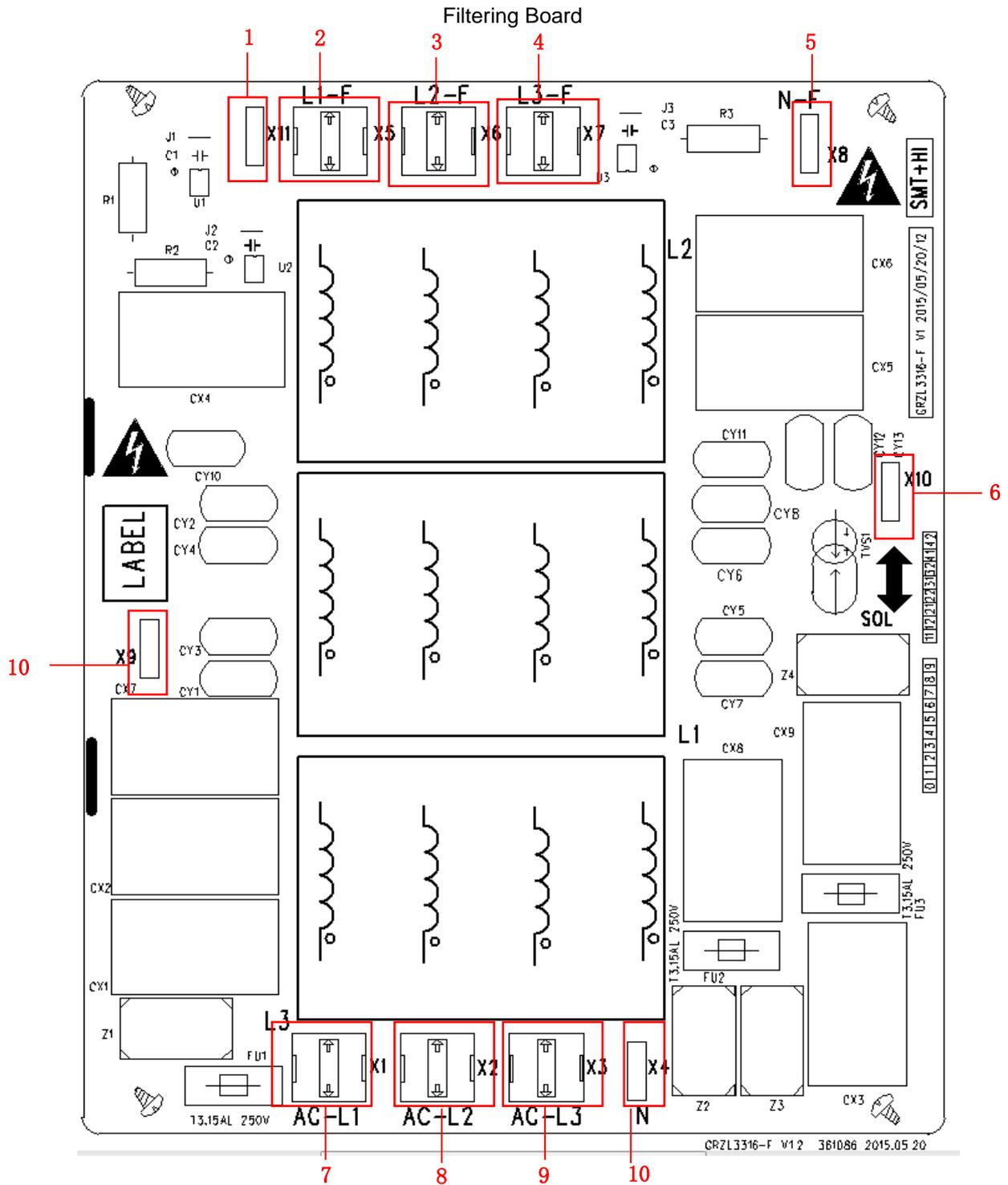
No.	Printing	Interface	No.	Printing	Interface
1	L1	Power live wire terminal (reserved)	4	J1	+28V terminal (reserved)
2	N1	Power neutral wire terminal (reserved)	5	PWR2	Drive power supply terminal
3	PWR1	DC busbar terminal	6	J2	+8V terminal (reserved)

Model: GUD100W/NhA-X, GUD125W/NhA-X, GUD140W/NhA-X, GUD160W/NhA-X

Drive Board



No.	Printing	Interface
1	PWR	Power supply busbar input terminal
2	X1/ X2/X3	Mainboard power supply 3-phase input terminal
3	X4/ X5/X6	Electric reactor 3-phase connection terminal (input terminal)
4	X7/ X8/X9	Electric reactor 3-phase connection terminal (output terminal)
5	X501/X502/X503	Compressor 3-phase connection terminal
6	COMM	Communication interface

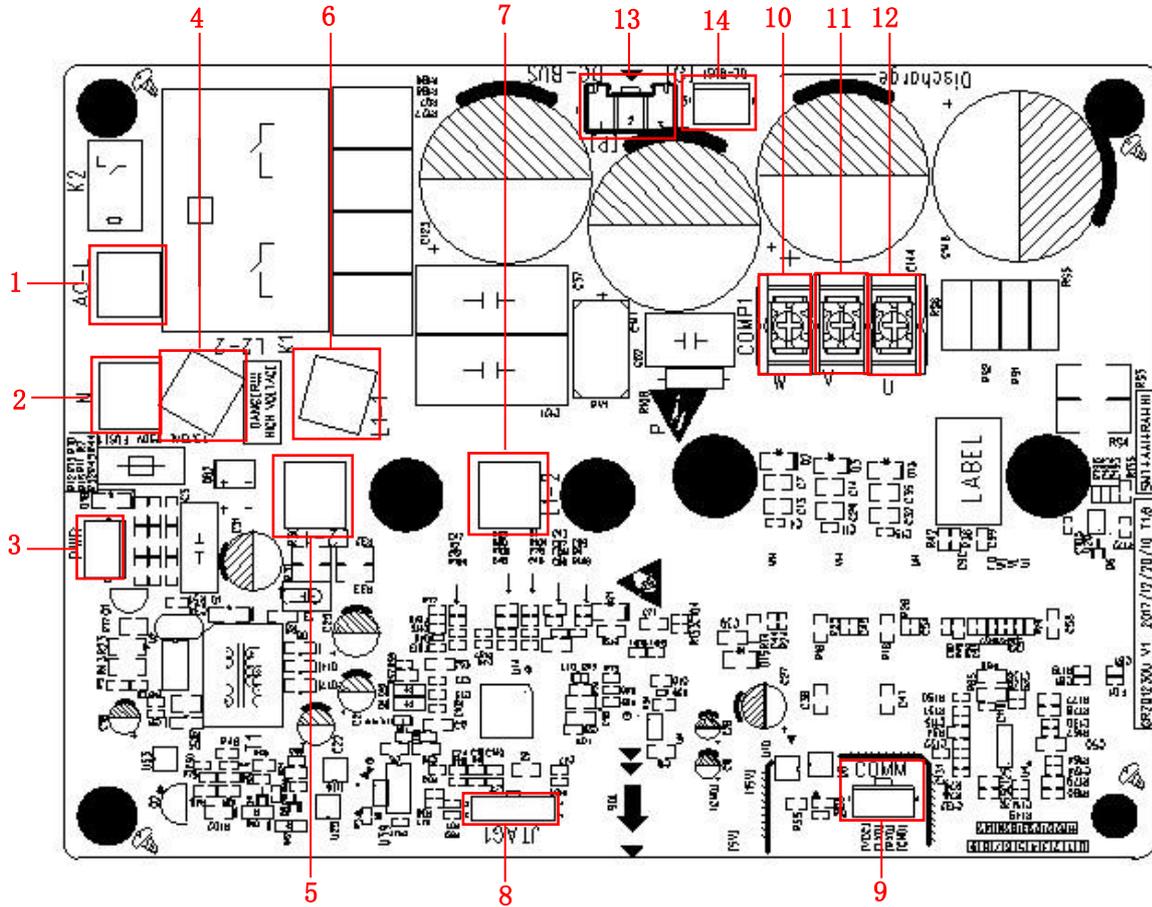


No.	Printing	Interface	No.	Printing	Interface
1	X11	Power output live wire AC-L1 (connect to master control board AC-L)	7	X3	Unit power input wire AC-L3
2	X5	Power output wire L1-F (connect to drive board L1-F)	8	X2	Unit power input wire AC-L2
3	X6	Power output wire L2-F (connect to drive board L2-F)	9	X1	Unit power input wire AC-L1
4	X7	Power output wire L3-F (connect to drive board L3-F)	10	X9	Ground wire
5	X8	Power output wire N-F (connect to	11	X4	Unit power input

No.	Printing	Interface	No.	Printing	Interface
		master control board N)			neutral wire N
6	X10	Ground wire E, reserved			

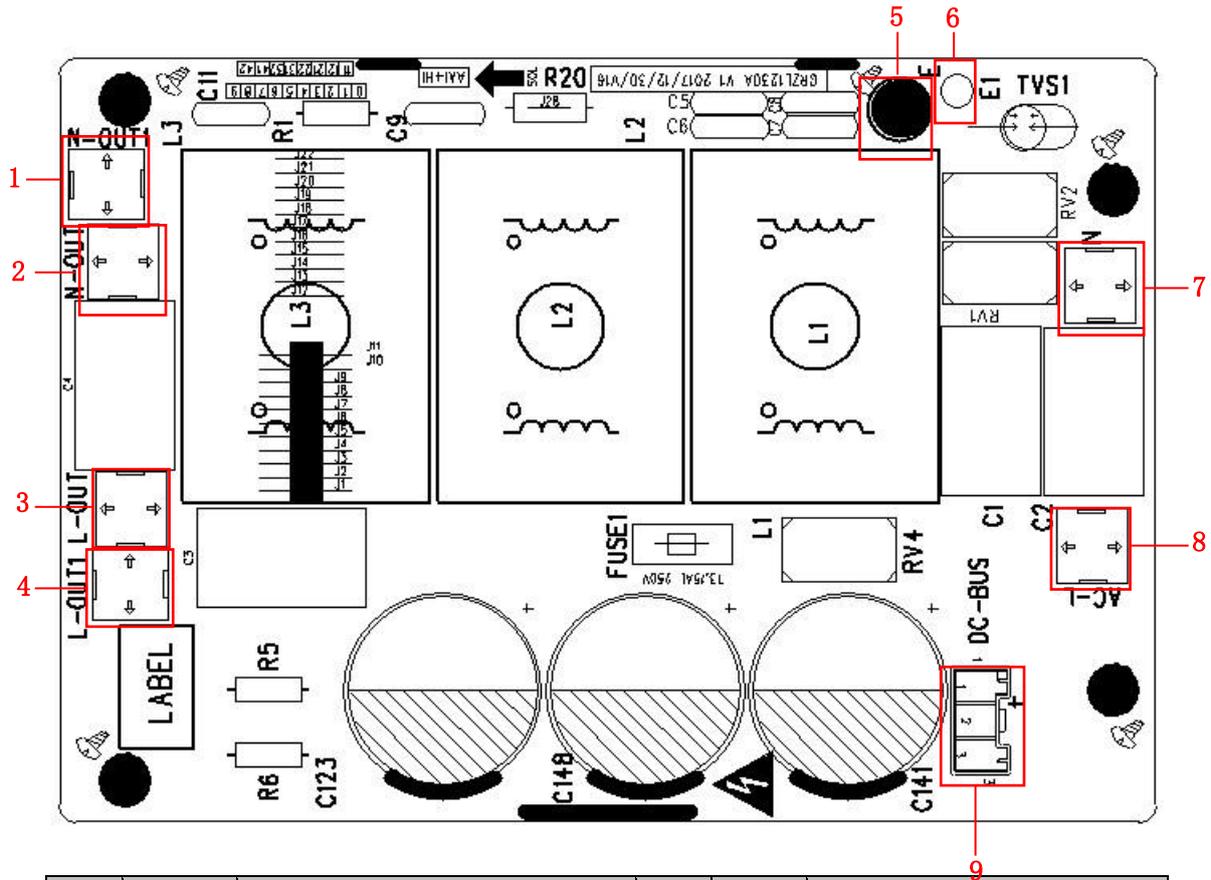
Model: GUD125W/NhA-T, GUD140W/NhA-T

Drive Board:



No.	Printing	Interface	No.	Printing	Interface
1	AC-L	Live wire	8	JTAG1	Programming interface (for testing)
2	N	Neutral wire	9	COMM	Communication interface
3	PWR	Drive power supply busbar terminal	10	W	Compressor W phase
4	L2-2	PFC induction wire (white)	11	V	Compressor V phase
5	L2-1	PFC induction wire (white)	12	U	Compressor U phase
6	L1-1	PFC induction wire (white)	13	DC-BUS	DC busbar terminal
7	L1-2	PFC induction wire (white)	14	DC-BUS1	Power discharge terminal (for testing)

Filtering Board



No.	Printing	Interface	No.	Printing	Interface
1	N-OUT1	Power output neutral wire terminal (for U-MATCH)	6	E1	Filtering board grounding hole (reserved)
2	N-OUT	Power output neutral wire terminal (reserved for other models)	7	N	Power input neutral wire terminal
3	L-OUT	Power output live wire terminal (reserved for other models)	8	AC-L	Power input live wire terminal
4	L-OUT1	Power output live wire terminal (for U-MATCH)	9	DC-BUS	DC busbar terminal
5	E	Filtering board grounding hole			

3.2.2 IPM,PFC Testing Method

3.2.2.1 Method of Testing IPM Module

(1) Preparation before test: prepare a universal meter and turn to its diode option, and then remove the wires U, V, W of the compressor after it is powered off for one minute.

(2) Testing Steps

Step 1: put the black probe on the place P and the red one on the wiring terminal U, V, W respectively as shown in the following figure to measure the voltage between UP, VP and WP.

Step 2: put the red probe on the place N and the black one on the wiring terminal U, V, W respectively as shown in the following figure to measure the voltage between NU, NV and NW.

(3) If the measured voltages between UP, VP, WP, NU, NV, NW are all among 0.3V-0.7V, then it indicates the IPM module is normal; If any measured value is 0, it indicates the IPM is damaged.

3.2.2.2 Method of Testing PFC Module Short Circuit: (only for GUD100W/NhA-T, GUD125W/NhA-T, GUD140W/NhA-T)

(1) Preparation before test: prepare a universal meter and turn to its diode option, and then remove the wires L1-2, L2-1 after it is powered off for one minute.

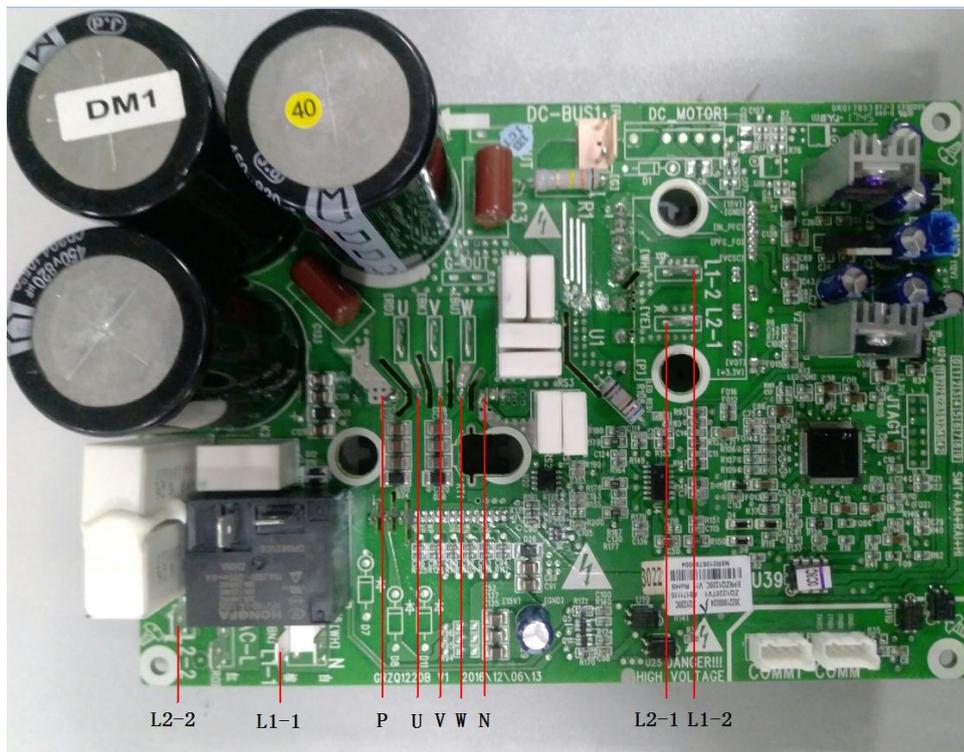
(2) Testing Steps:

Step 1: put the black probe on the place P and the red one on the wiring terminal L1-2, L2-1 respectively as shown in the following figure to measure the voltage between L1-2P and L2-1 P.

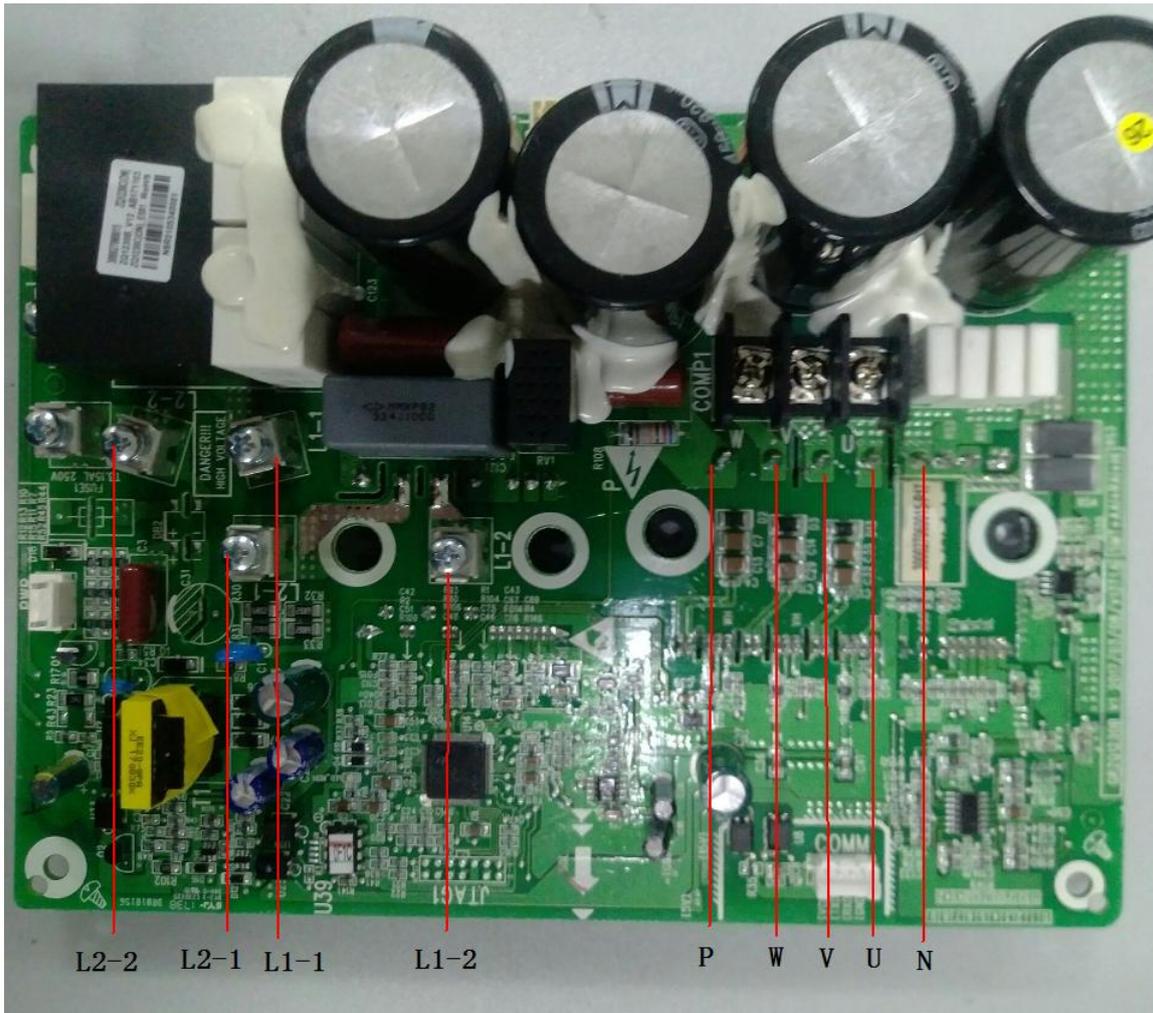
Step 2: put the red probe on the place N and the black one on the wiring terminal L1-2, L2-1 respectively as shown in the following figure to measure the voltage between N L1-2 and NL2-1.

(3) If the measured voltages between L1-2P ,L2-1 P, N L1-2 , NL2-1 are all among 0.3V-0.7V, then it indicates the PFC module is normal; If any measured value is 0, it indicates the PFC is damaged.

◆ GUD100W/NhA-T



◆ GUD125W/NhA-T , GUD140W/NhA-T

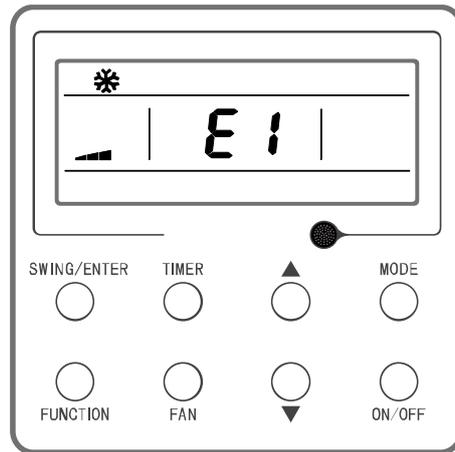


3.3 Error Code

Number	Error code	Error
1	E1	Compressor high pressure protection
2	E2	Indoor anti-freeze protection
3	E3	Compressor low pressure protection, refrigerant lack protection and refrigerant collecting mode
4	E4	Compressor air discharge high-temperature protection
5	E6	Communication error
6	E8	Indoor fan error
7	E9	Water-full protection
8	F0	Indoor ambient temperature sensor error
9	F1	Evaporator temperature sensor error
10	F2	Condenser temperature sensor error
11	F3	Outdoor ambient temperature sensor error
12	F4	Discharge temperature sensor error

Number	Error code	Error
13	F5	Wired control temperature sensor error
14	C5	IDU jumper cap error
15	EE	IDU or ODU memory chip error
16	PF	Electric box sensor error
17	H3	Compressor overload protection
18	H4	Overload
19	H5	IPM protection
20	H6	DC fan error
21	H7	Driver out-of-step protection
22	HC	Pfc protection
23	Lc	Startup failure
24	Ld	Compressor phase-sequence protection
25	LF	Power protection
26	Lp	IDU and ODU unmatched
27	U7	4-way valve switch-over error
28	P0	Driver reset protection
29	P5	Over-current protection
30	P6	Master control and driver communication error
31	P7	Driver module sensor error
32	P8	Driver module high temperature protection
33	P9	Zero-crossing protection
34	PA	AC current protection
35	Pc	Driver current error
36	Pd	Sensor connection protection
37	PE	Temperature drift protection
38	PL	Bus low-voltage protection
39	PH	Bus high-voltage protection
40	PU	Charge loop error
41	PP	Input voltage error
42	ee	Drive memory chip error
43	C4	ODU jumper cap error
44	dJ	Phase-loss and anti-phase protection
45	oE	ODU error, for specific error please see the status of ODU indicator
46	EL	Emergency stop (fire alarm)

If malfunction occurs during operation, LCD temperature display zone will show the failure information. If several malfunctions occur at the same time, their corresponding error codes will be shown in turn. When malfunction occurs, please shut off the unit and send for professional personnel to repair. For example, E1 (as shown below) indicates high pressure protection.



3.4 Troubleshooting

3.4.1 “E1” Compressor High Pressure Protection

Error display: ODU mainboard, IDU wired control and IDU receiver light board will display

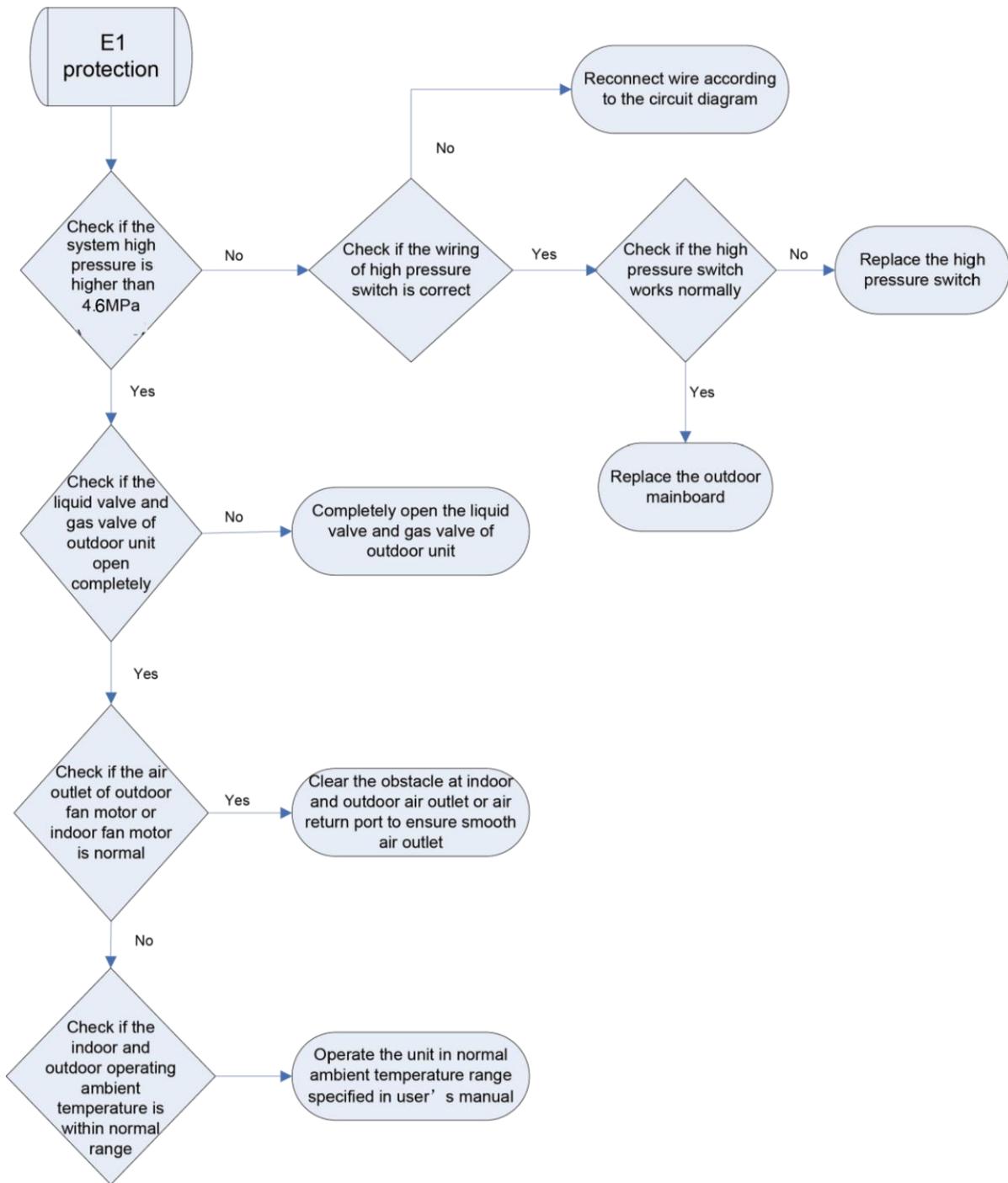
Error judgment condition and method:

It is judged through the action of high pressure switch. If the high pressure switch is cut off, it is judged that high pressure is too high and the system stops operation for protection.

Possible reason:

- Cut-off valve of ODU is not fully opened;
- High pressure switch is abnormal;
- Outdoor or indoor fan is not working properly;
- IDU filter or air duct is blocked (heating mode);
- Ambient temperature is too high;
- Refrigerant charging amount is too much;
- System pipeline is blocked

Troubleshooting:



3.4.2 “E2” Indoor Anti-freezing Protection

Error display: IDU wired control and IDU receiver light board will display

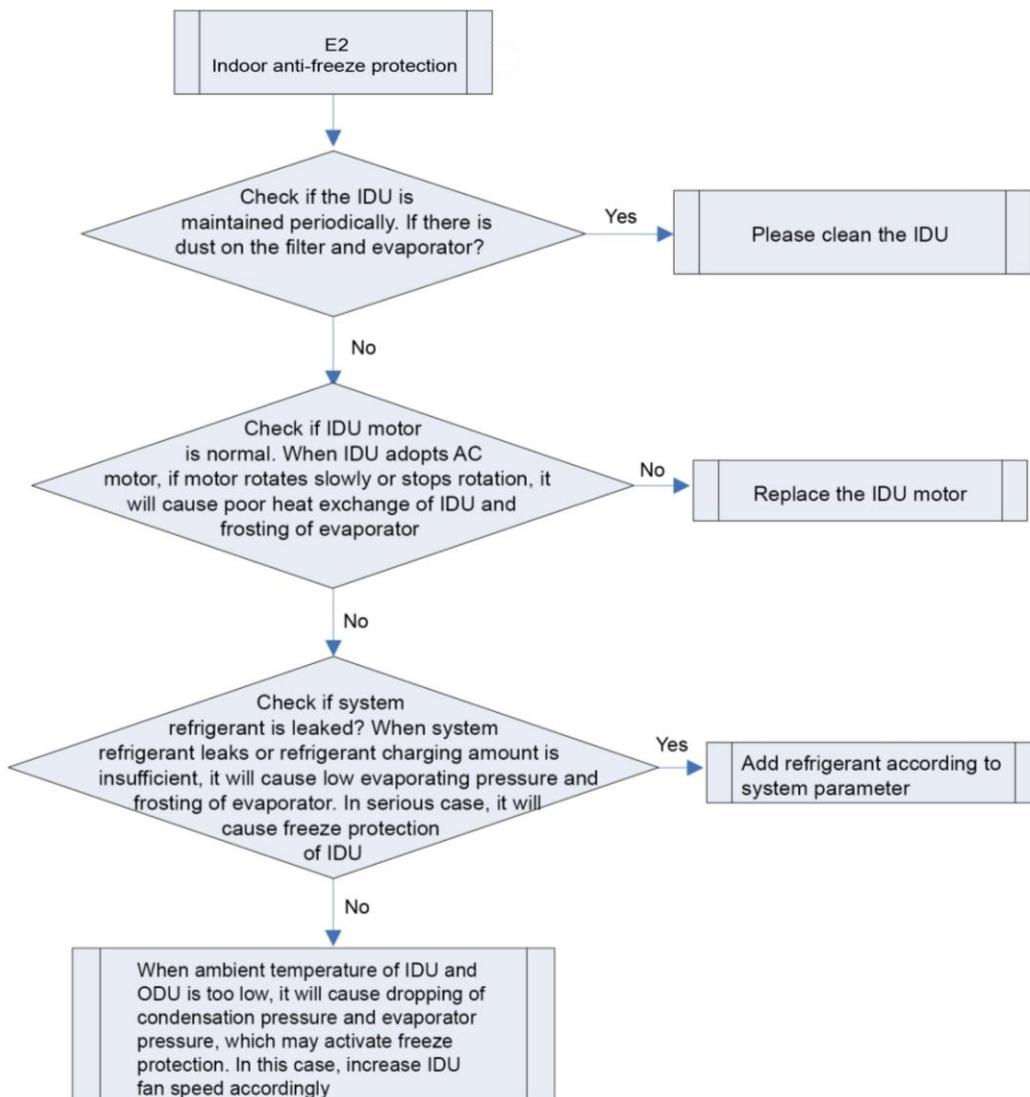
Error judgment condition and method:

Check IDU pipe temperature. When pipe temperature is too low, freeze protection will be activated to prevent freezing damage of evaporator.

Possible reason:

- IDU filter and evaporator are dirty
- IDU motor is blocked
- Refrigerant amount is insufficient
- Ambient temperature of IDU and ODU is too low

Troubleshooting:



3.4.3 “E3” Compressor Low-pressure Protection, Refrigerant Shortage Protection, Refrigerant Recovery Mode

Error display: ODU mainboard, IDU wired control and IDU receiver light board will display

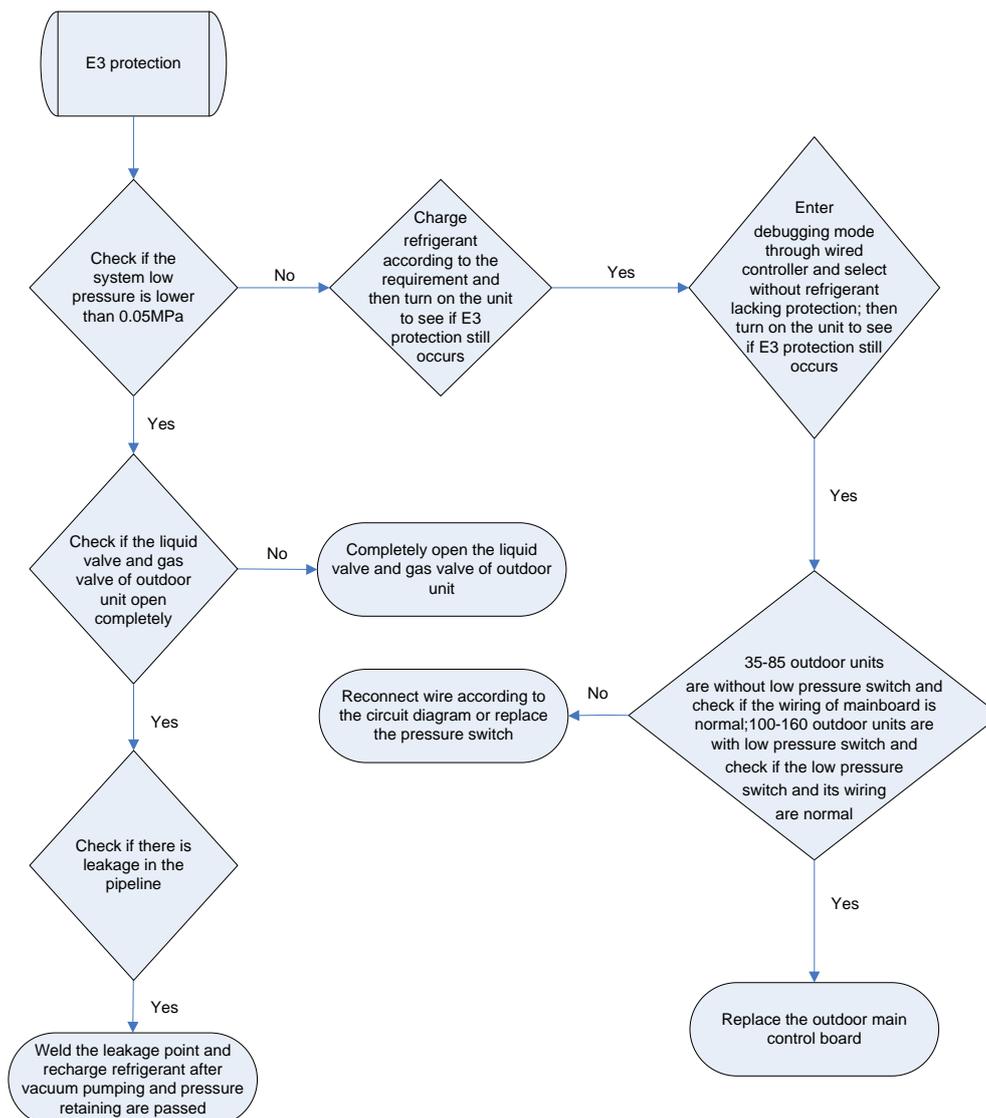
Error judgment condition and method:

It is judged through the action of low pressure switch. If the low pressure switch is cut off, it is judged that low pressure is too low and the system stops operation for protection.

Possible reason :

- Cut-off valve of ODU is not fully opened;
- Low pressure sensor is abnormal;
- Outdoor or indoor fan is not working properly;
- IDU filter or air duct is blocked (cooling mode);
- Ambient temperature is too low;
- Refrigerant charging amount is insufficient;
- System pipeline is blocked;

Troubleshooting:



3.4.4 “E4” Compressor Air Discharge High-temperature Protection

Error display: ODU mainboard, IDU wired control and IDU receiver light board will display

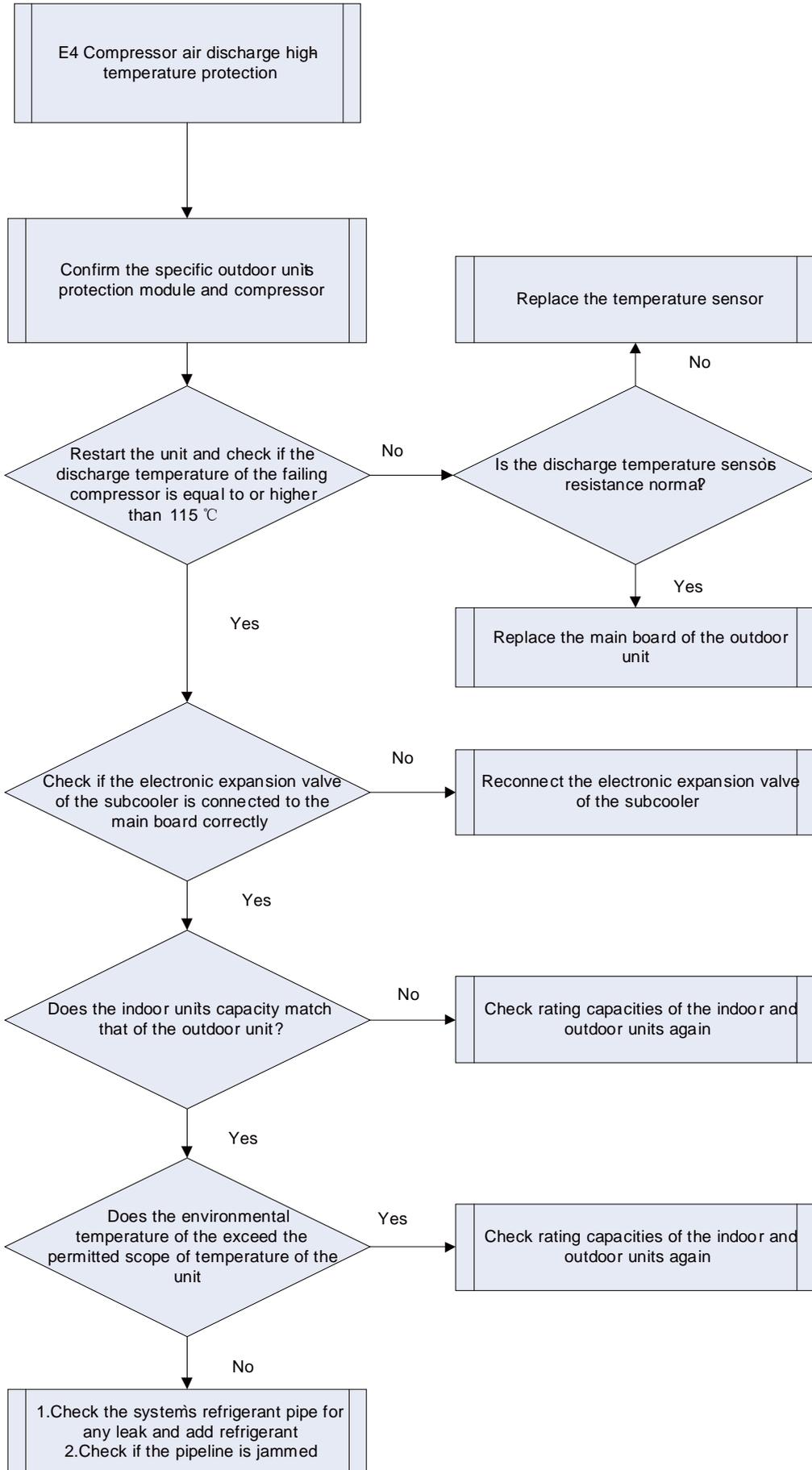
Error judgment condition and method:

Test the compressor discharge temperature through compressor discharge pipe and shell top temperature sensor. If the tested temperature value is higher than 115°C, the unit will stop for protection

Possible reason :

- Cut-off valve of ODU is not fully opened;
- Electronic expansion valve is abnormal;
- Outdoor or indoor fan is not working properly;
- IDU filter or air duct is blocked (cooling mode);
- Ambient temperature exceeds allowable operation range;
- Refrigerant charging amount is insufficient;
- System pipeline is blocked;

Troubleshooting:



3.4.5 “E6” Communication Error

Error display: ODU mainboard, IDU wired control and IDU receiver light board will display

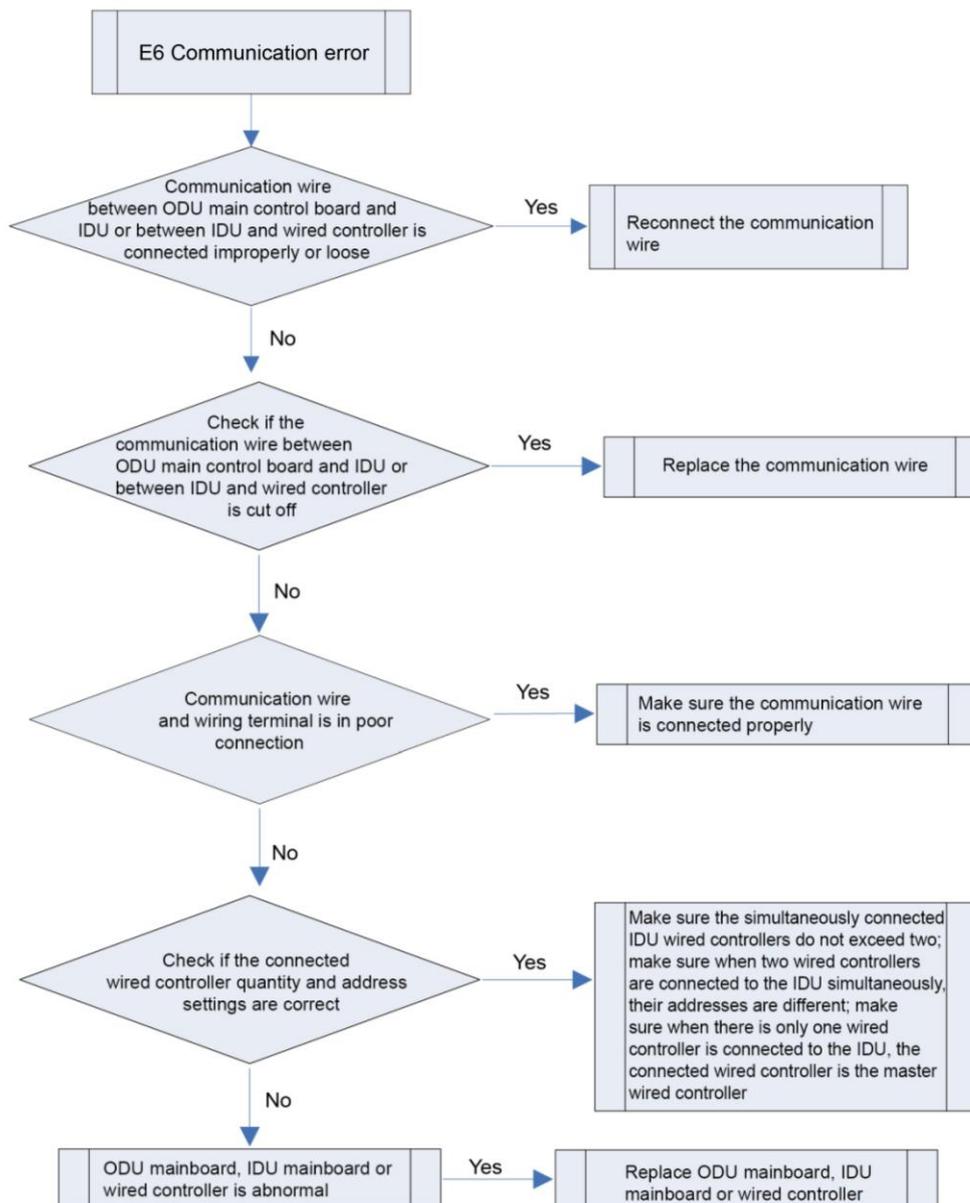
Error judgment condition and method:

If no communication between ODU and IDU or between IDU and wired controller in continuously 120s, this error will be reported.

Possible reason:

- Communication wire is connected improperly or loose.
- Communication wire is cut off
- Communication wire is in poor connection
- Connected wired controller quantity or address setting is improper
- Controller is abnormal

Troubleshooting:



3.4.6 “E8” Indoor Fan Error

Error display: IDU wired control and IDU receiver light board will display

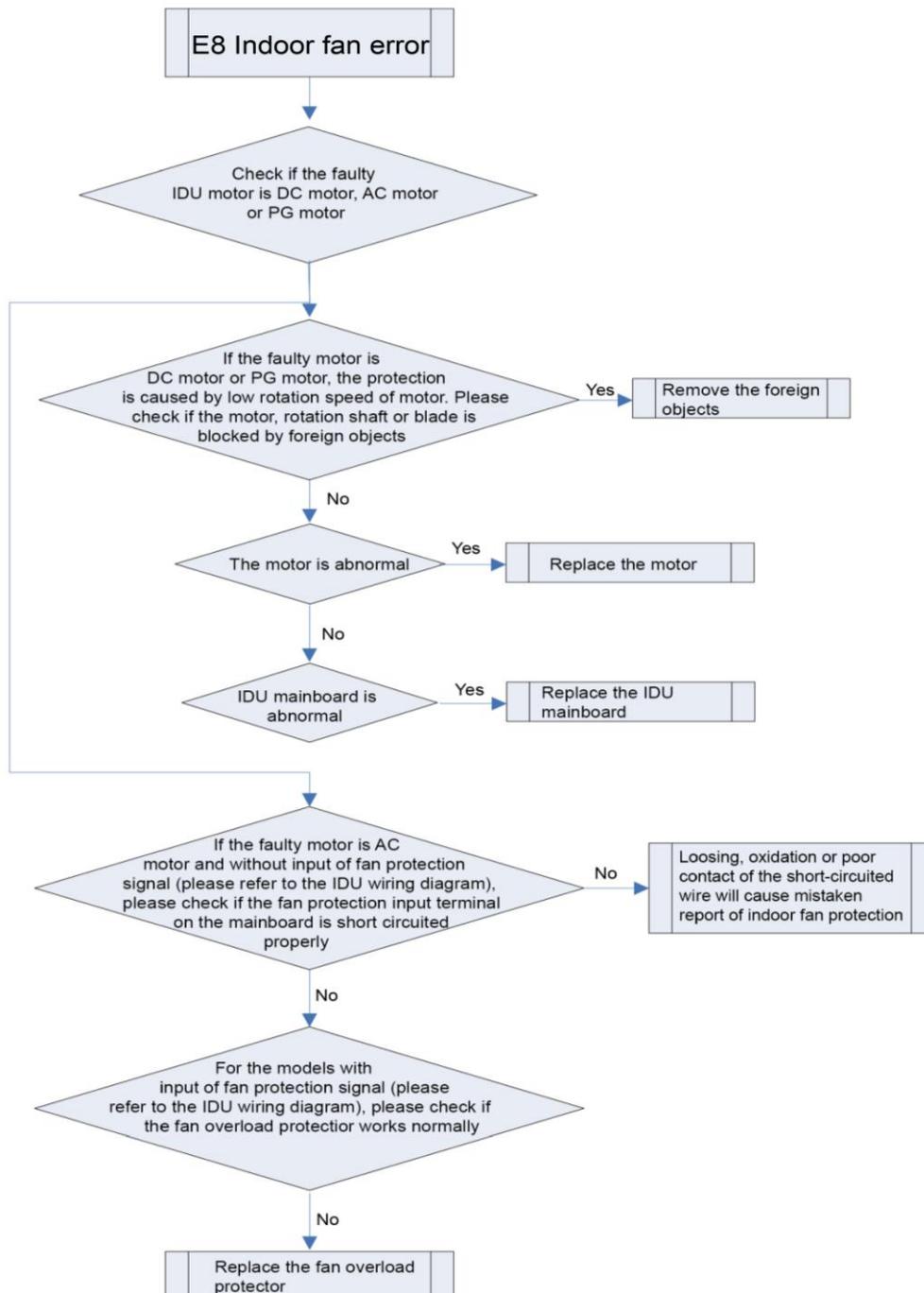
Error judgment condition and method:

Check if the rotation speed of IDU is too slow, or it stops rotation, or protection signal of outdoor fan is transferred. If yes, it is judged that indoor fan protection occurs

Possible reason:

- Motor stops operation or it is blocked
- IDU mainboard is abnormal;

Troubleshooting:



3.4.7 “E9” Water Overflow Protection

Error display: IDU wired control and IDU receiver light board will display

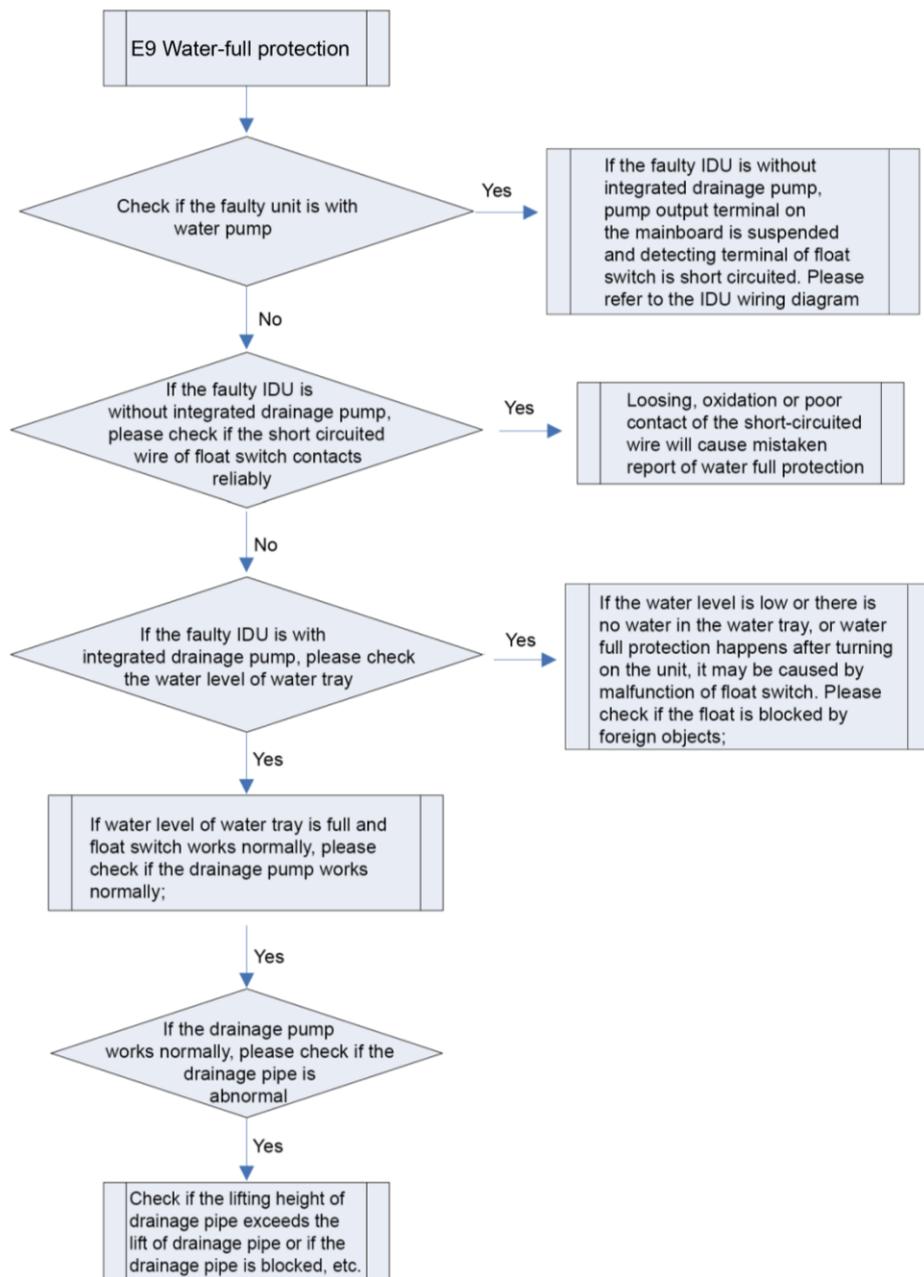
Error judgment condition and method:

Check the status of IDU float switch. When water level is too high, float switch is activated, so water full protection happens.

Possible reason:

- IDU is installed improperly
- Drainage pump is broken
- Float switch operates abnormally
- IDU mainboard is abnormal;

Troubleshooting:



3.4.8 “F0” Indoor Ambient Temperature Sensor Error

Error display: IDU wired control and IDU receiver light board will display

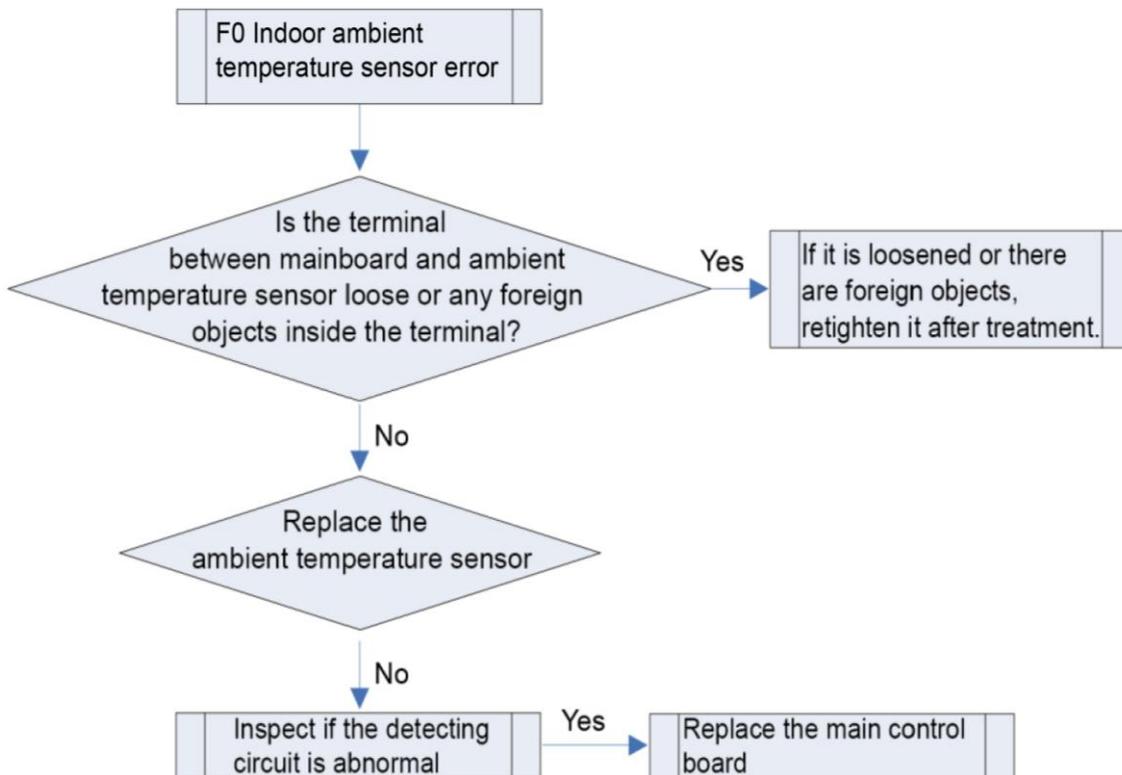
Error judgment condition and method:

Sample the AD value of temperature sensor through temperature sensor detecting circuit and judge the range of AD value, If the sampling AD value exceeds upper limit and lower limit in 5 seconds continuously, report the error.

Possible reason:

- Poor contact between ambient temperature sensor and terminal in mainboard interface
- Ambient temperature sensor is abnormal
- Detecting circuit is abnormal

Troubleshooting:



3.4.9 “F1” Evaporator Temperature Sensor Error

Error display: IDU wired control and IDU receiver light board will display

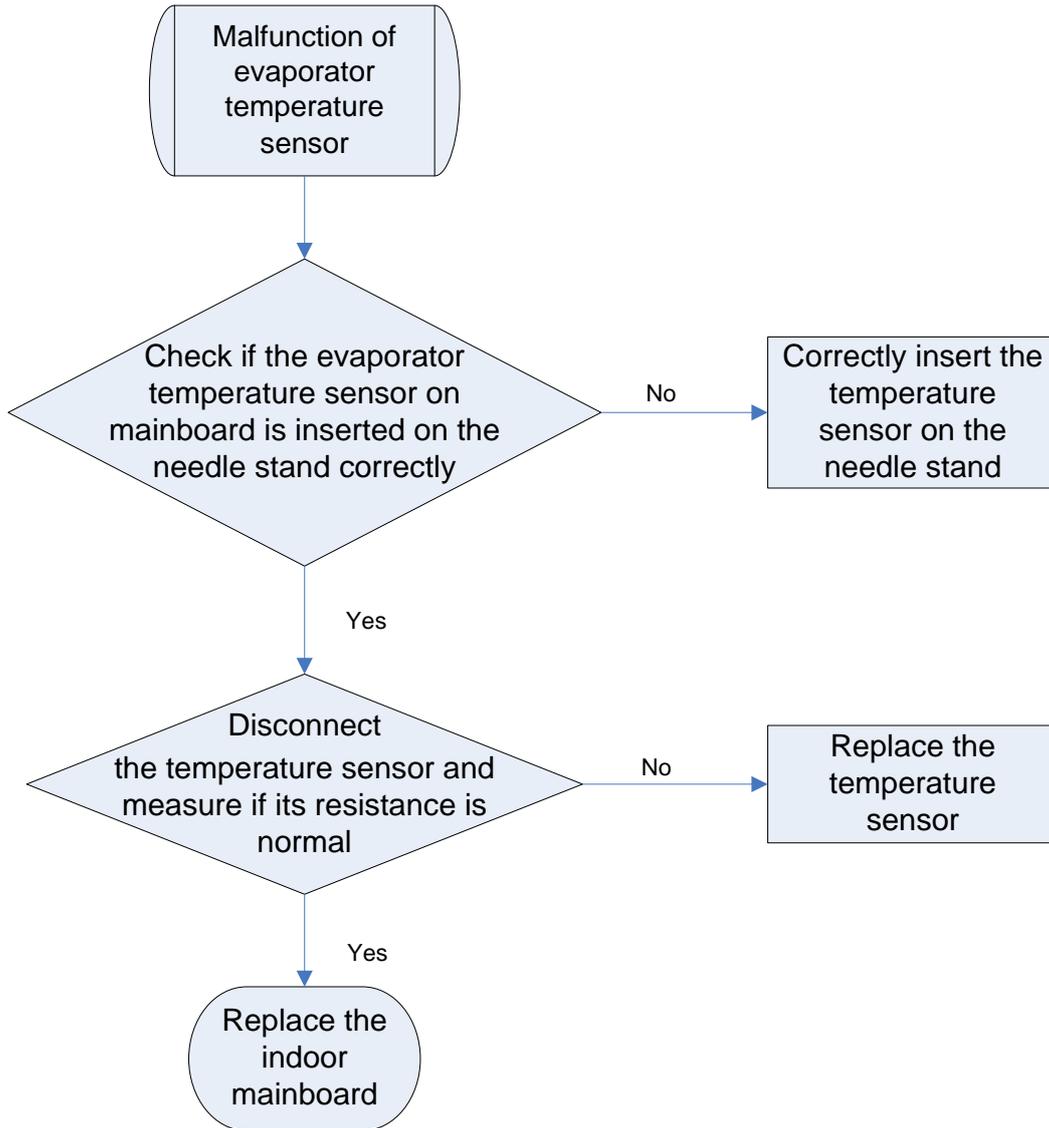
Error judgment condition and method:

Sample the AD value of temperature sensor through temperature sensor detecting circuit and judge the range of AD value, If the sampling AD value exceeds upper limit and lower limit in 5 seconds continuously, report the error.

Possible reason:

- Poor contact between temperature sensor and terminal in mainboard interface
- Temperature sensor is abnormal
- Detecting circuit is abnormal

Troubleshooting:



Note: Please refer to Appendix 1 for the relation between temperature and resistance of temperature sensor.

3.4.10 “F2” Condenser Temperature Sensor Error

Error display: ODU mainboard, IDU wired control and IDU receiver light board will display:

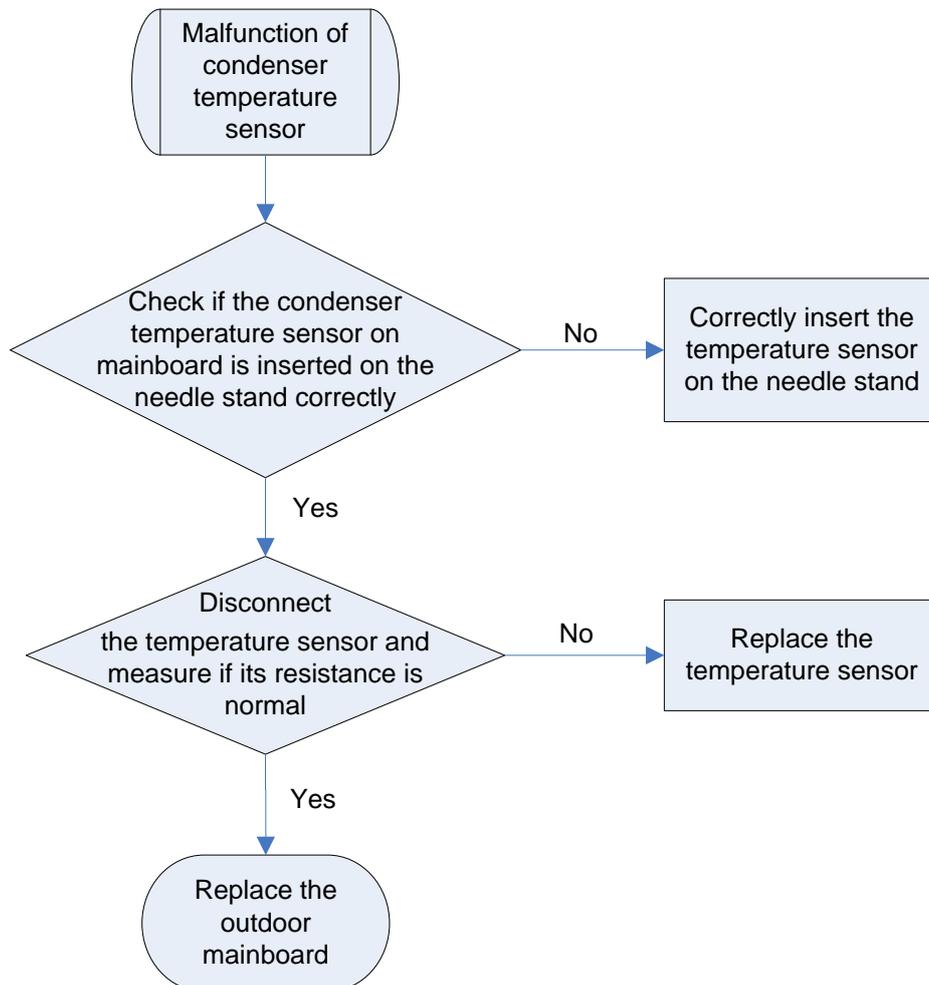
Error judgment condition and method:

Sample the AD value of temperature sensor through temperature sensor detecting circuit and judge the range of AD value, If the sampling AD value exceeds upper limit and lower limit in 5 seconds continuously, report the error.

Possible reason:

- Poor contact between temperature sensor and terminal in mainboard interface
- Temperature sensor is abnormal
- Detecting circuit is abnormal

Troubleshooting:



Note: Please refer to Appendix 1 for the relation between temperature and resistance of temperature sensor.

3.4.11 “F3” Outdoor Ambient Temperature Sensor Error

Error display: ODU mainboard, IDU wired control and IDU receiver light board will display:

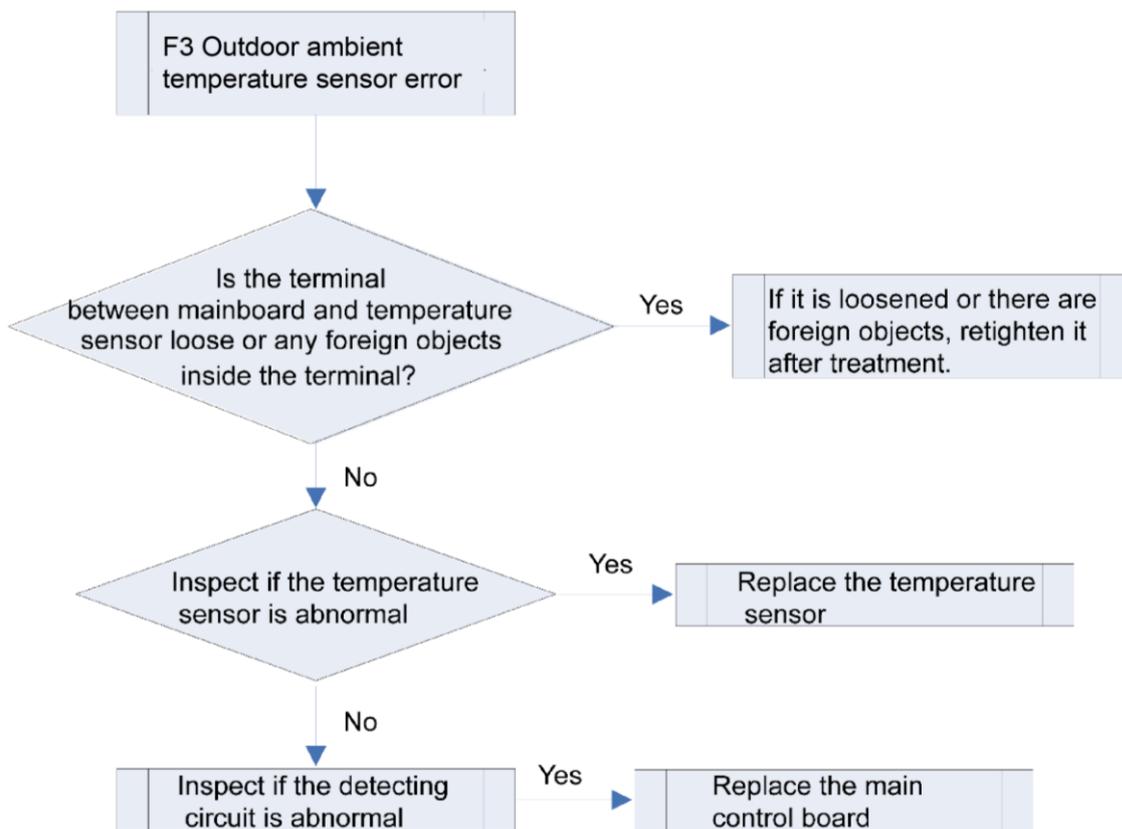
Error judgment condition and method:

Sample the AD value of temperature sensor through temperature sensor detecting circuit and judge the range of AD value, If the sampling AD value exceeds upper limit and lower limit in 5 seconds continuously, report the error.

Possible reason:

- Poor contact between ambient temperature sensor and terminal in mainboard interface
- Ambient temperature sensor is abnormal
- Detecting circuit is abnormal

Troubleshooting:



Note: Please refer to Appendix 1 for the relation between temperature and resistance of temperature sensor.

3.4.12 “F4” Discharge Temperature Sensor Error

Error display: ODU mainboard, IDU wired control and IDU receiver light board will display

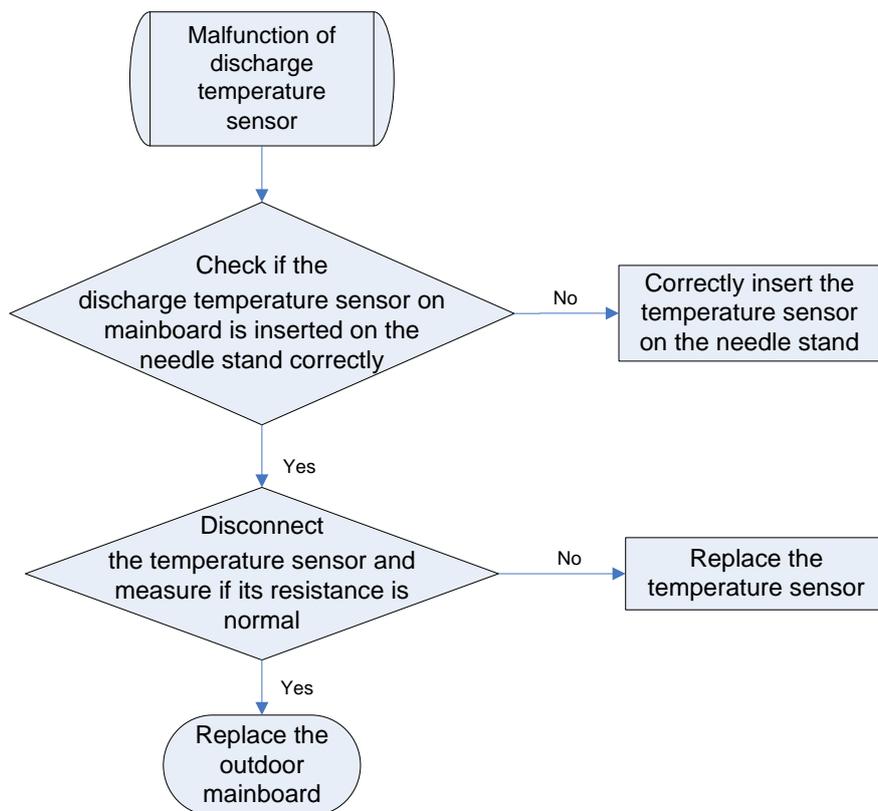
Error judgment condition and method:

Sample the AD value of temperature sensor through temperature sensor detecting circuit and judge the range of AD value, If the sampling AD value exceeds upper limit and lower limit in 5 seconds continuously, report the error.

Possible reason:

- Poor contact between temperature sensor and terminal in mainboard interface
- Temperature sensor is abnormal
- Detecting circuit is abnormal

Troubleshooting:



Note: Please refer to Appendix 1 for the relation between temperature and resistance of temperature sensor.

3.4.13 “F5” Wired Control Temperature Sensor Error

Error display: IDU wired control and IDU receiver light board will display

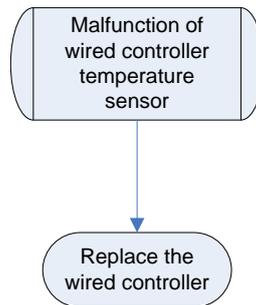
Error judgment condition and method:

Sample the AD value of temperature sensor through temperature sensor detecting circuit and judge the range of AD value, If the sampling AD value exceeds upper limit and lower limit in 5 seconds continuously, report the error.

Possible reason:

- Poor contact between temperature sensor and terminal in mainboard interface
- Temperature sensor is abnormal
- Detecting circuit is abnormal

Troubleshooting:



3.4.14 “C5” IDU Jumper Cap Error

Error display: IDU wired control and IDU receiver light board will display

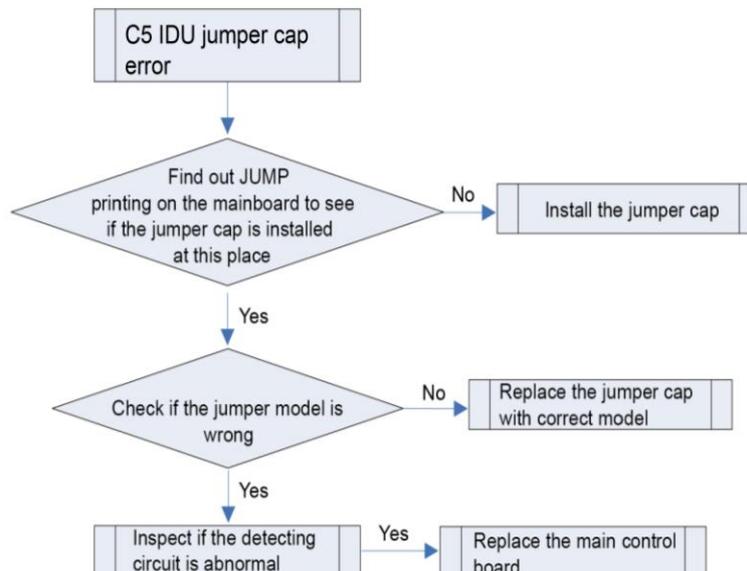
Error judgment condition and method:

If jumper cap model doesn't match with mainboard, this error will be reported.

Possible reason:

- Jumper cap is not installed.
- Jumper cap model is wrong.
- Detecting circuit is abnormal.

Troubleshooting:



3.4.15 “EE” IDU or ODU Memory Chip Error

Error display: IDU wired control, IDU and ODU receiver light board will display

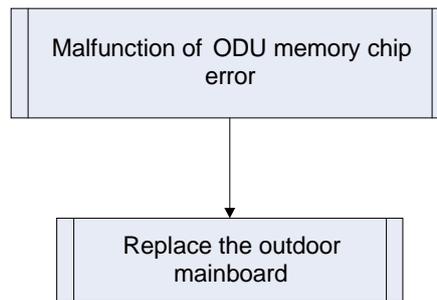
Error judgment condition and method:

If ODU mainboard cannot read the memory chip, this error will be reported.

Possible reason:

- Memory chip on the ODU mainboard is damaged.
- Memory chip is weakly welded.
- Memory chip lead is short-circuited.

Troubleshooting:



3.4.16 “PF” Electric Box Sensor Error

Error display: ODU mainboard, IDU wired controller

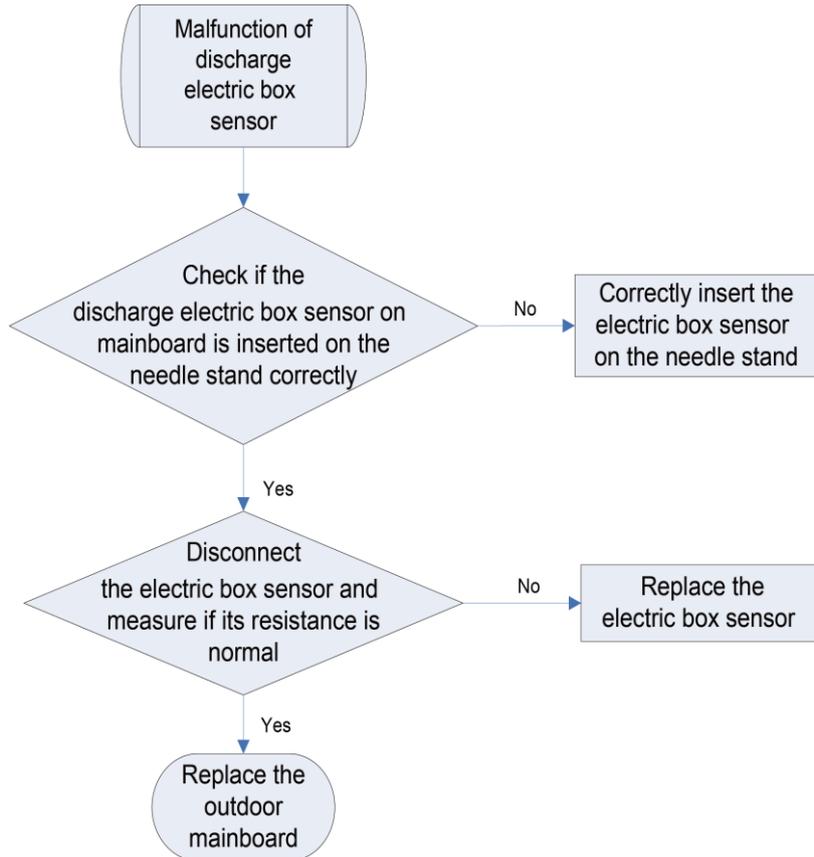
Error judgment condition and method:

Sample the AD value of temperature sensor through temperature sensor detecting circuit and judge the range of AD value, If the sampling AD value exceeds upper limit and lower limit in 5 seconds continuously, report the error.

Possible reason:

- Poor contact between temperature sensor and terminal in mainboard interface
- Temperature sensor is abnormal
- Detecting circuit is abnormal

Troubleshooting:



Note: Please refer to Appendix 1 for the relation between temperature and resistance of temperature sensor.

3.4.17 “H3” Compressor Overload Protection

Error display: ODU mainboard, IDU wired control and IDU receiver light board will display

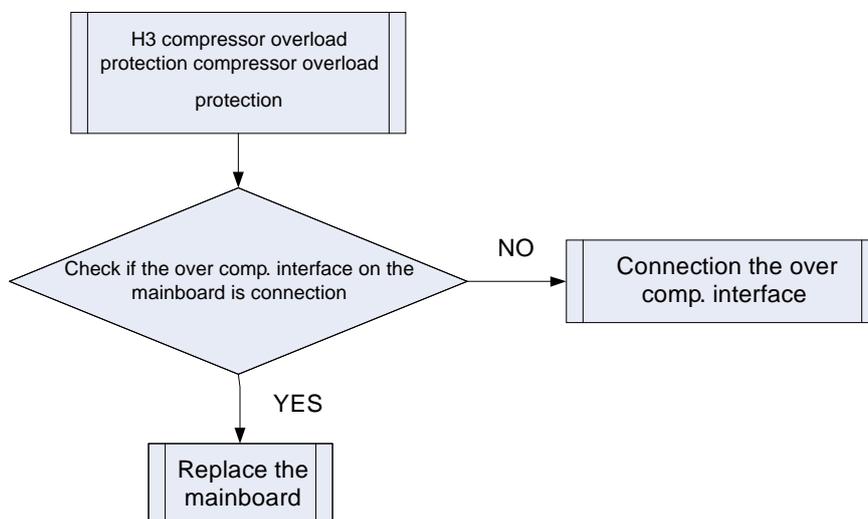
Error judgment condition and method:

When the mainboard’s interface ovc-comp is broken off for 3s, error H3 will be reported.

Possible reason:

- The interface ovc-comp is not short-circuited.
- ODU mainboard is damaged.

Troubleshooting:



3.4.18 “H4” Overload

Error display: ODU mainboard, IDU wired control and IDU receiver light board will display

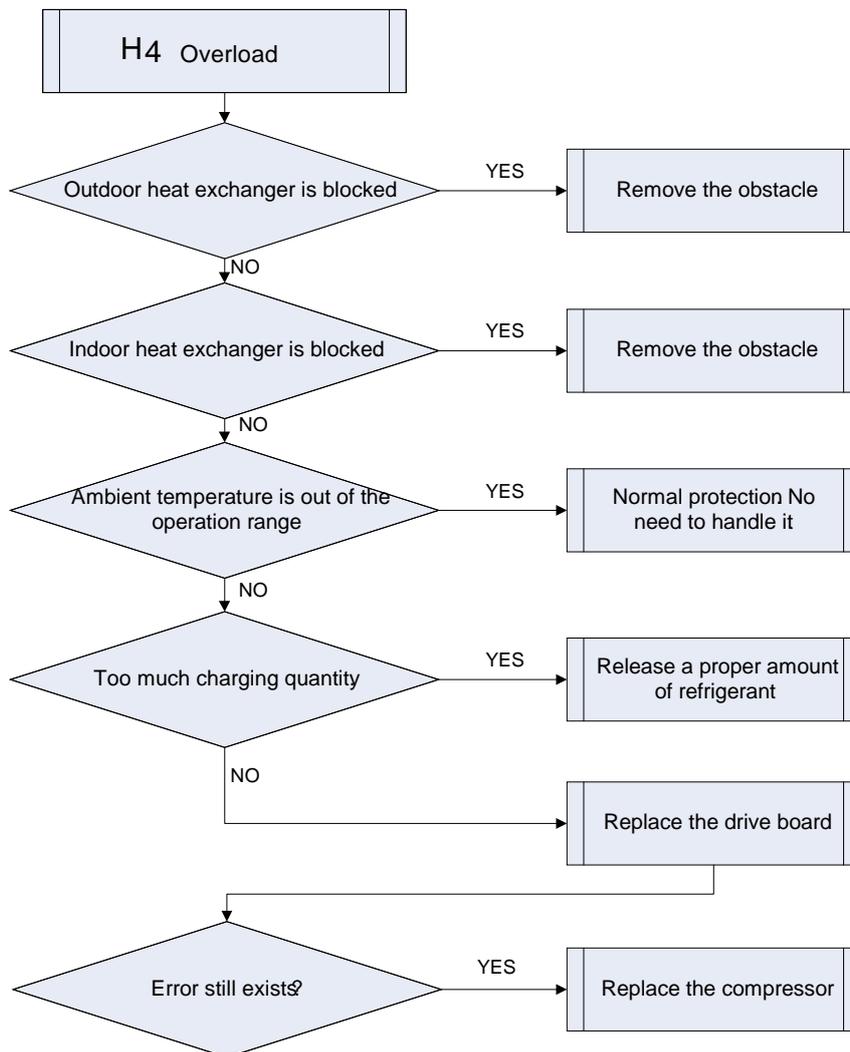
Error judgment condition and method:

When tube temperature is higher than the protection value, system will report overload protection.

Possible reason:

- Cooling ODU heat exchanger is blocked or heat exchange is bad.
- Heating IDU heat exchanger is blocked or heat exchange is bad.
- Operating temperature is too high.
- System charging quantity is too much.

Troubleshooting:



3.4.19 “H5” IPM Protection

Error display: ODU mainboard, IDU wired control and IDU receiver light board will display

Error judgment condition and method:

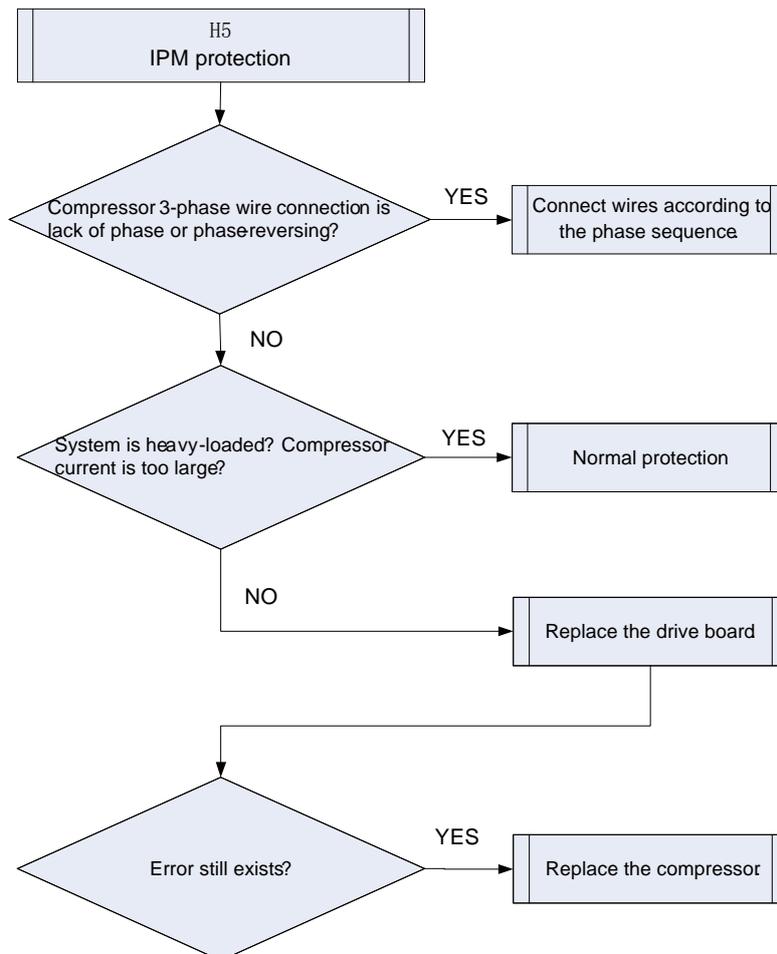
When power is connected and drive chip received IPM lead F0 that is of low level, than it is IPM module malfunction. System will shut down for protection.

Possible reason:

- Compressor 3-phase wire connection is lack of phase or phase-reversed.

- System is overloaded and compressor current is too large.
- Drive board IPM module is damaged.
- Drive board IPM module's 15V power supply is lower than 13.5V.
- Drive board 6-line PWM signal and the corresponding element are abnormal.
- Drive board compressor current sampling circuit element is damaged or drive chip current sampling AD terminal is abnormal.
- Compressor is damaged.

Troubleshooting:



3.4.20 "H6" DC Fan Error

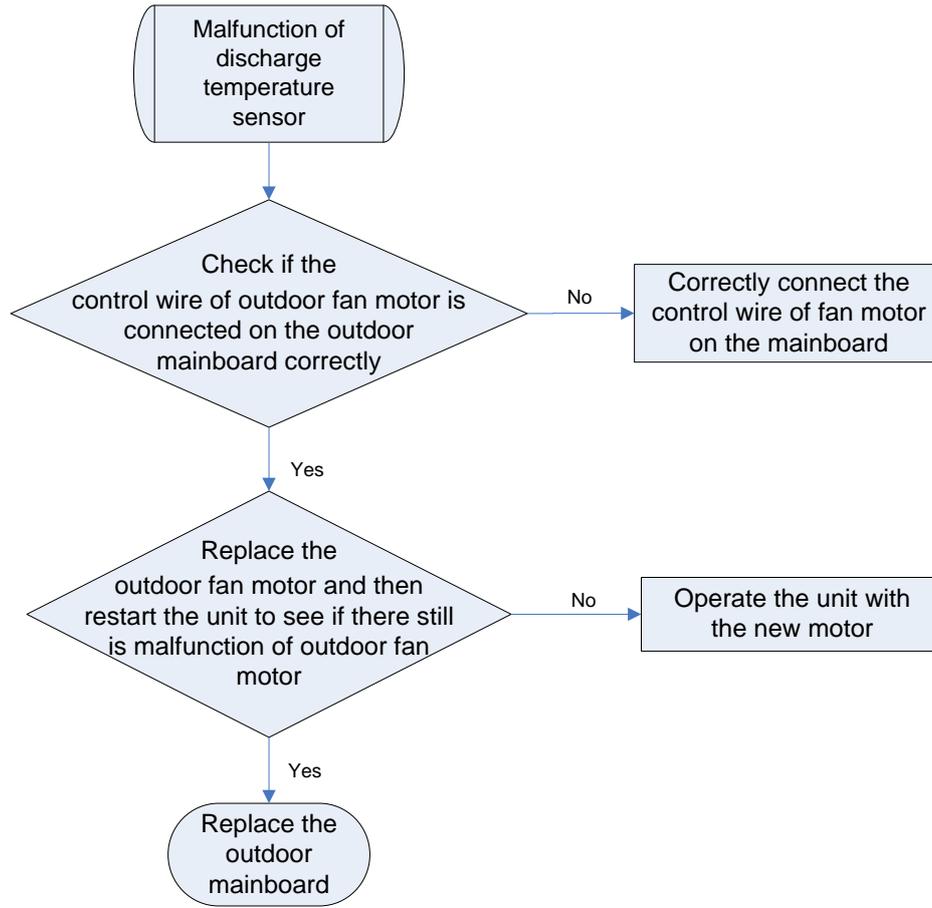
Error display: ODU mainboard, IDU wired control and IDU receiver light board will display

Error judgment condition and method:

Mainboard doesn't receive the signal of outdoor fan within 30s after the outdoor fan starts up.

Possible reason:

- Outdoor fan wiring terminal is not correctly connected to the mainboard.
- Outdoor fan is damaged.
- If it is a new unit or a new motor has been replaced in the unit and the wire connection is correct, then probably it is the program that goes wrong.

Troubleshooting:**3.4.21 “H7” Driver Out-of-Step Protection**

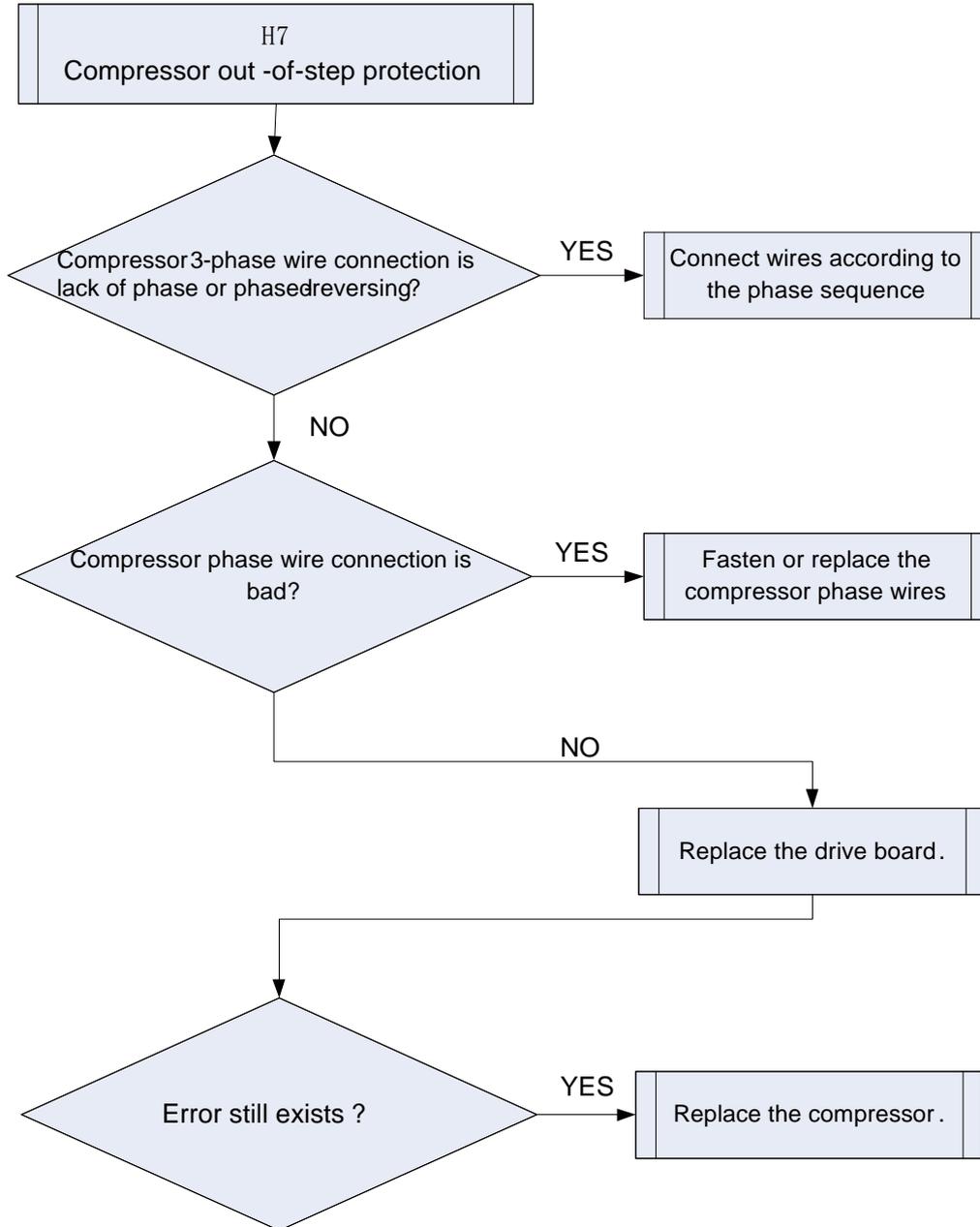
Error display: ODU mainboard, IDU wired control and IDU receiver light board will display

Error judgment condition and method:

During operation, it can't detect the rotor position and stops output. Or the actual running speed differs too much from the set running speed. In each case, compressor runs out of step and system stops for protection.

Possible reason:

- Compressor 3-phase wire connection is lack of phase or phased-reversed.
- Compressor phase wire connection is bad.
- System is blocked, short of refrigerant or compressor oil.
- Drive board IPM module is damaged.
- Drive board compressor current sampling circuit element is damaged or drive chip current sampling AD terminal is abnormal.
- Compressor is damaged.

Troubleshooting:**3.4.22 “HC” PFC Protection**

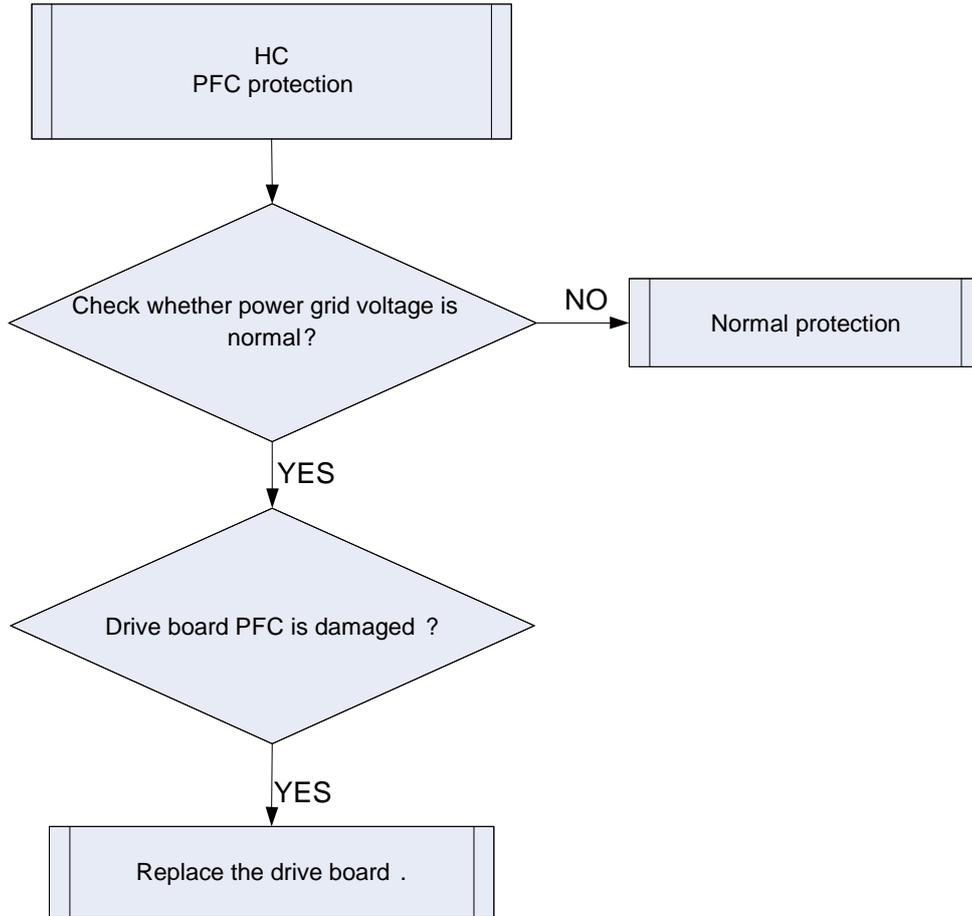
Error display: ODU mainboard, IDU wired control and IDU receiver light board will display

Error judgment condition and method:

After power is connected, and drive chip received IPM lead F0 that is of low level, than it is IPM module malfunction. System will shut down for protection.

Possible reason:

- Power grid voltage is abnormal.
- Drive board PFC module is damaged.
- Drive board IPM module's 15V power supply is lower than 13.5V.
- Drive board PWM signal for PFC and the corresponding element are abnormal.
- Drive board PFC current sampling circuit element is damaged or drive chip current sampling AD terminal is abnormal.

Troubleshooting:**3.4.23 “Lc” Startup Failure**

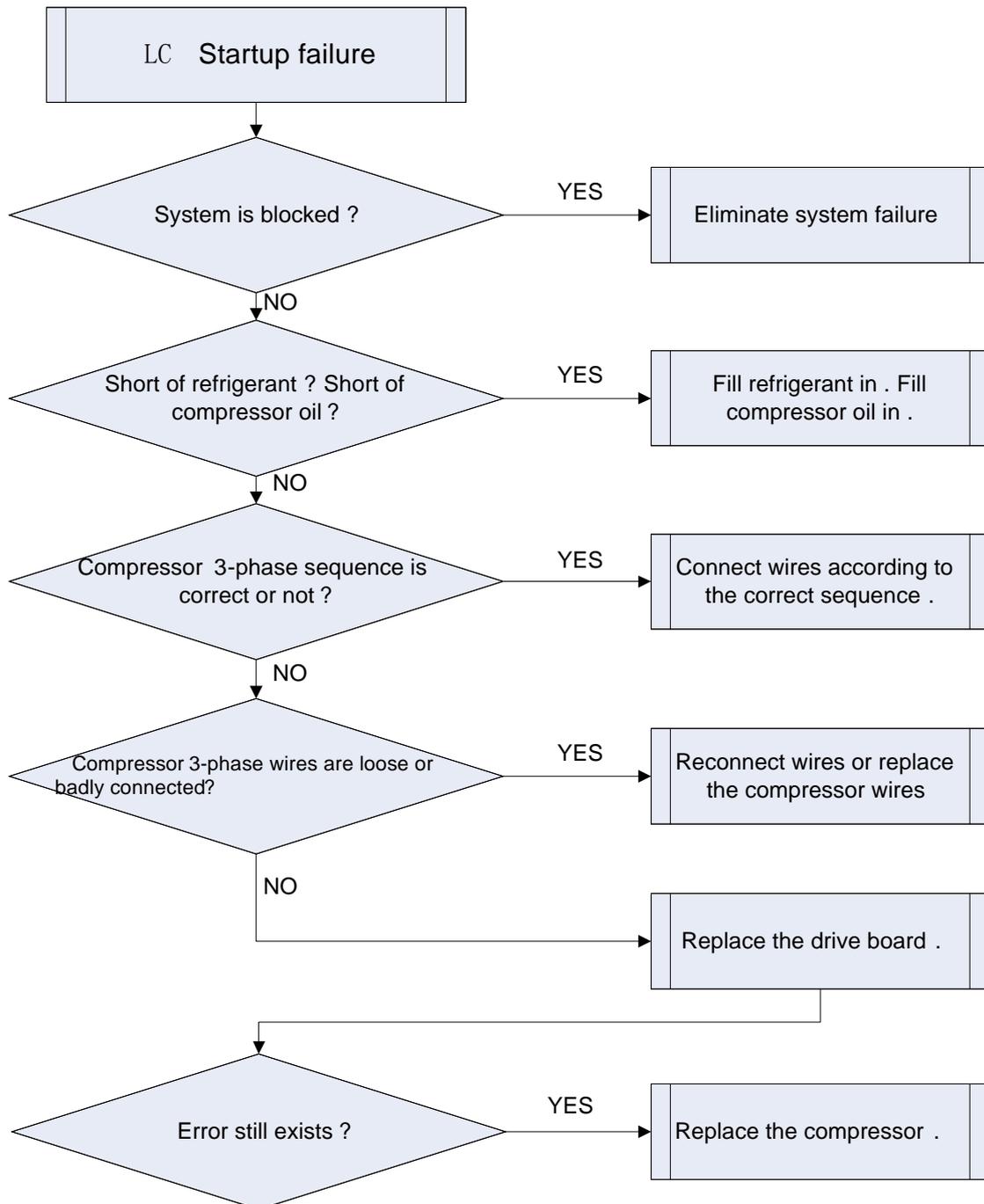
Error display: ODU mainboard, IDU wired controller and IDU receive light board will display

Error judgment condition and method:

Check the error code on nixie tube of ODU main control board. If PJ is displayed, it indicates inverter compressor startup failure

Possible reason:

- Poor contact of compressor UVW wire;
- Compressor is broken;
- Compressor drive board is broken;

Troubleshooting:**3.4.24 “Lp” IDU and ODU Unmatched**

Error display: ODU mainboard, IDU wired control and IDU receiver light board will display

Error judgment condition and method: /

Possible reason:

■ Models of indoor unit and outdoor unit do not match with each other

Troubleshooting:

Turn off the unit and replace with a matched indoor or outdoor unit.

3.4.25 “U7” 4-Way Valve Switch-Over Error

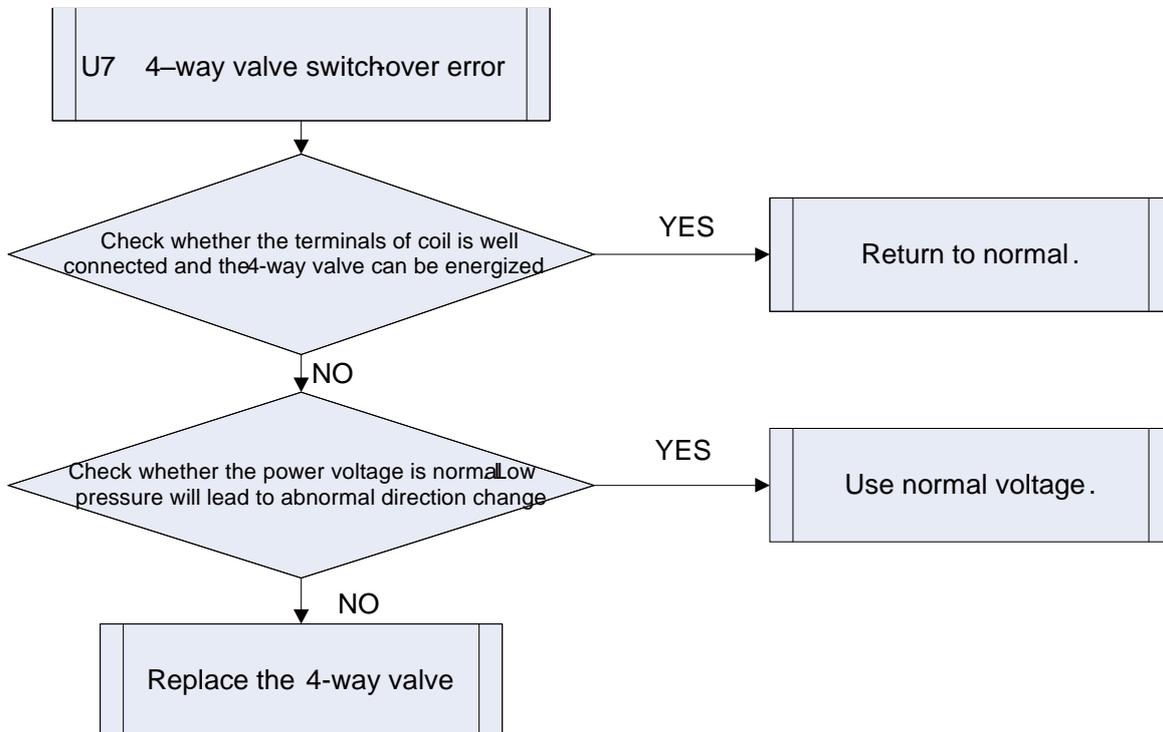
Error display: ODU mainboard, IDU wired control and IDU receiver light board will display

Error judgment condition and method:

Possible reason:

- Voltage is abnormal. For example, low voltage will cause abnormal direction change of the 4-way valve.
- Pilot valve holder hole or the capillary tube is blocked, which has caused small flow or no flow.
- Capillary tube is blocked when connecting to the pilot valve or main valve.
- Coil is not power-connected, or is open-circuited. Voltage is low, or the contact between turns or terminals is bad.
- The stainless steel cover of pilot valve is damaged, or the steel core is stuck, or the spring is not elastic.
- Insert block is bent or not elastic, so the little slide cannot get in place.
- When adding refrigerant, the little slide is over-running and can't spring back.

Troubleshooting:



3.4.26 “P0” Driver Reset Protection

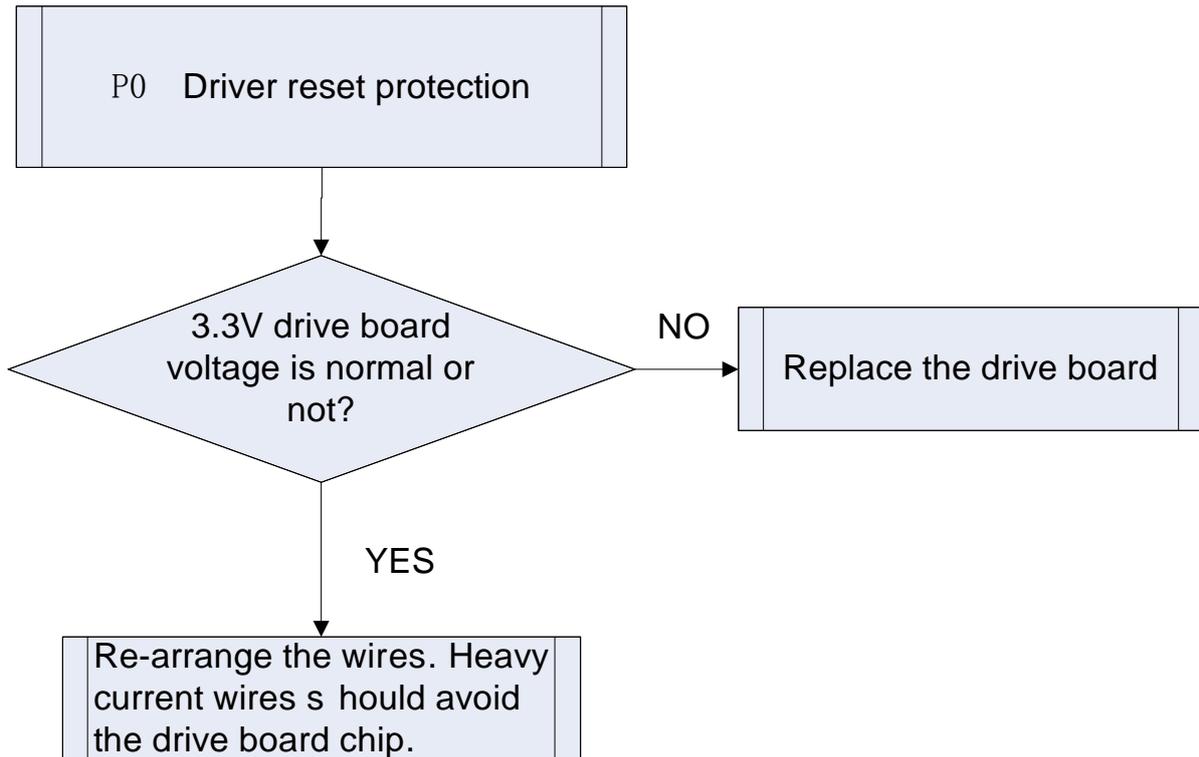
Error display: ODU mainboard, IDU wired control and IDU receiver light board will display

Error judgment condition and method:

Drive board chip resets and starts initialization. After the drive board is energized for 5s, it detects that the chip resets again. In this case, it can be judged as drive chip reset protection.

Possible reason:

- 3.3V drive chip supply voltage drop.
- TRST lead of JTAG programming is interrupted.

Troubleshooting:**3.4.27 “P5” Over-Current Protection**

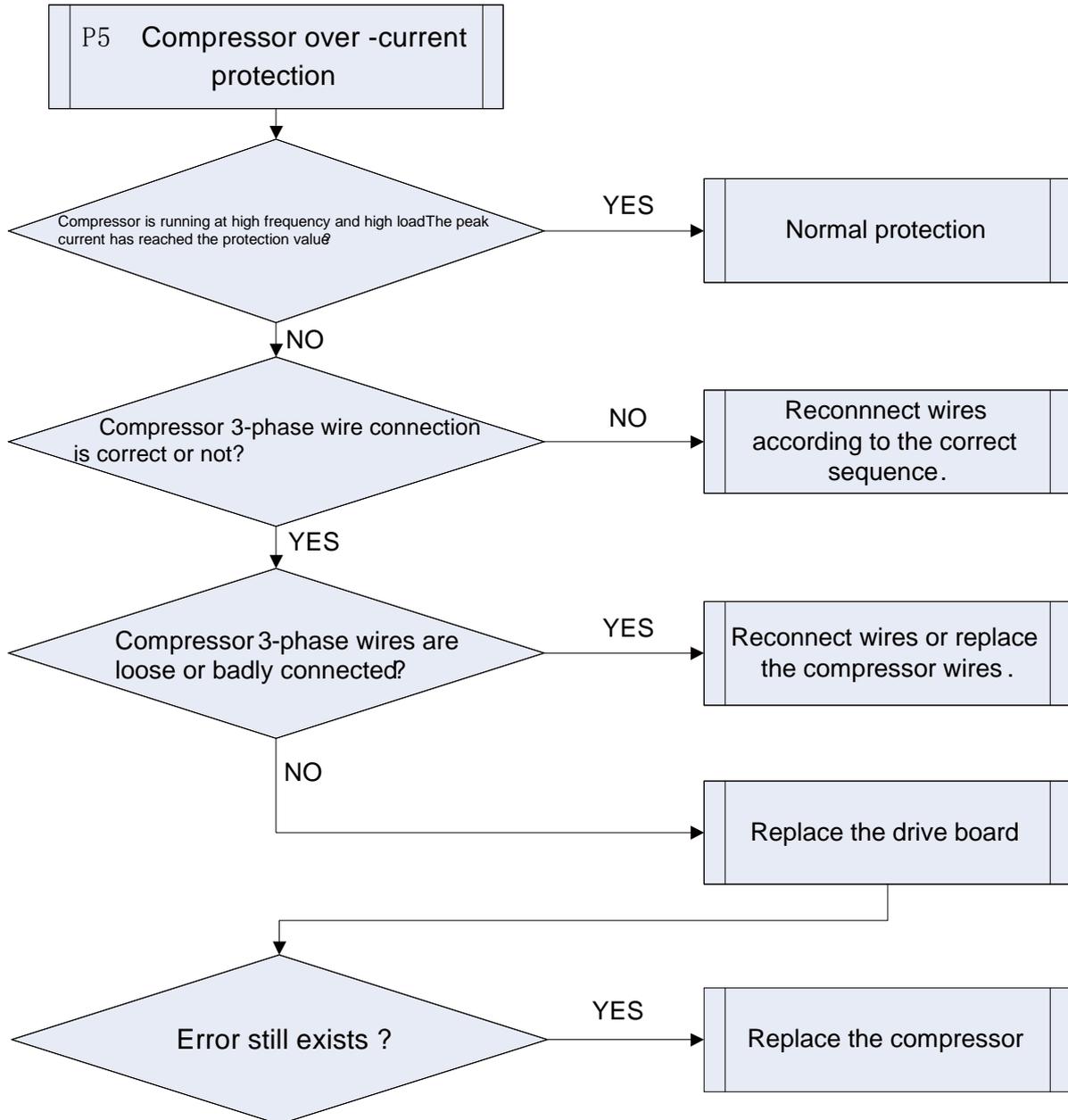
Error display: ODU mainboard, IDU wired control and IDU receiver light board will display

Error judgment condition and method:

If compressor's instant current value is higher than the set current protection value, then it can be judged that compressor over-current occurs and system will shut down for protection.

Possible reason:

- System load is too much and compressor current is too large.
- Compressor 3-phase wire connection is lack of phase or phase-reversed.
- Compressor phase wire is loose or has bad contact.
- Drive board current sampling circuit element is damaged or drive chip current sampling AD terminal is abnormal.
- Compressor is damaged.

Troubleshooting:**3.4.28 “P6” Master Control and Driver Communication Error**

Error display: ODU mainboard, IDU wired control and IDU receiver light board will display

Error judgment condition and method:

If there is no other malfunction and the communication between master control and driver is cut off for 30s, then it can be judged that the communication between master control and driver is faulted. System will shut down for protection.

Possible reason:

- Communication wire between master control and driver is not well connected, or has bad contact, or is broken.
- The switch power of drive board is abnormal, therefore, the 3.3V power voltage is abnormal.
- Communication circuit of the drive board or the master control board is abnormal.