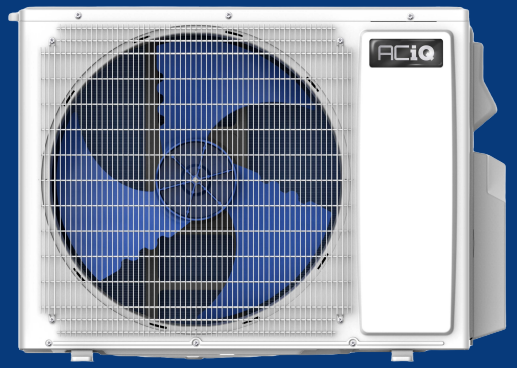
ACiQ

R32 MULTI-ZONE CONDENSER & WALL MOUNTED AIR HANDLER

TROUBLESHOOTING GUIDE

Models Covered:

ACiQ-09W-E-M
ACiQ-12W-E-M
ACiQ-18W-E-M
ACiQ-18Z-E-M2
ACiQ-24Z-E-M3



WARNING: DO NOT destroy or lose this manual. Please read the manual thoroughly. Also, store the manual in a place that allows for easy retrieval and future reference. As a result of continuous product improvement, the specification and design of this product are subject to change without advanced notice. Consult your manufacturer or your dealer for further details regarding this product. The images and illustrations within this this manual are for reference only. The actual shape and size of your product may vary.

VERSION DATE: 10-30-25

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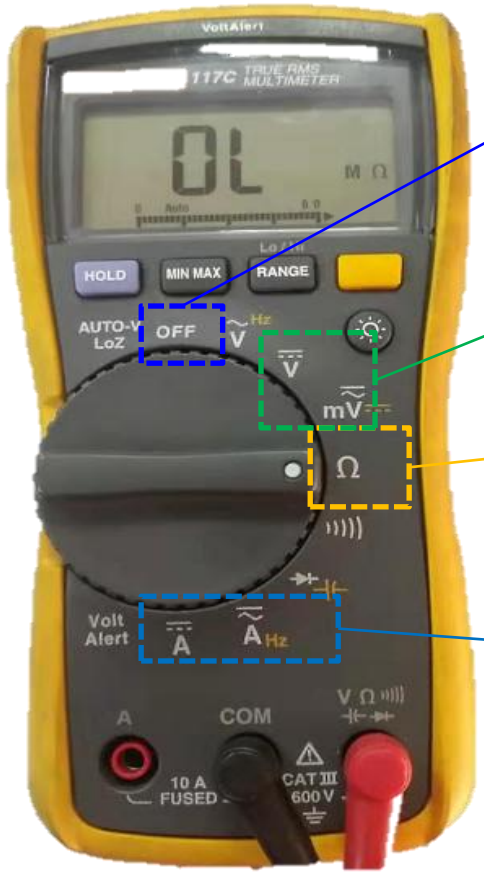
Necessary tools

1. Multimeter

Function： test **resistance , current , voltage ,etc.**



1.**Rest to “OFF”** before start testing

2. Switch to **V** before testing **voltage**
Note: Choose DC or AC according to demand

3. Switch to **Ω** to test **resistance**

4. Switch to **A** to test **current**
Note: Choose DC or AC according to demand

Necessary tools

2. Current clamp

Function: Test **running current**

Note: Single-core
wires go through the current clamp

3. Thermometer

Function: Test **air inlet & outlet temperature**

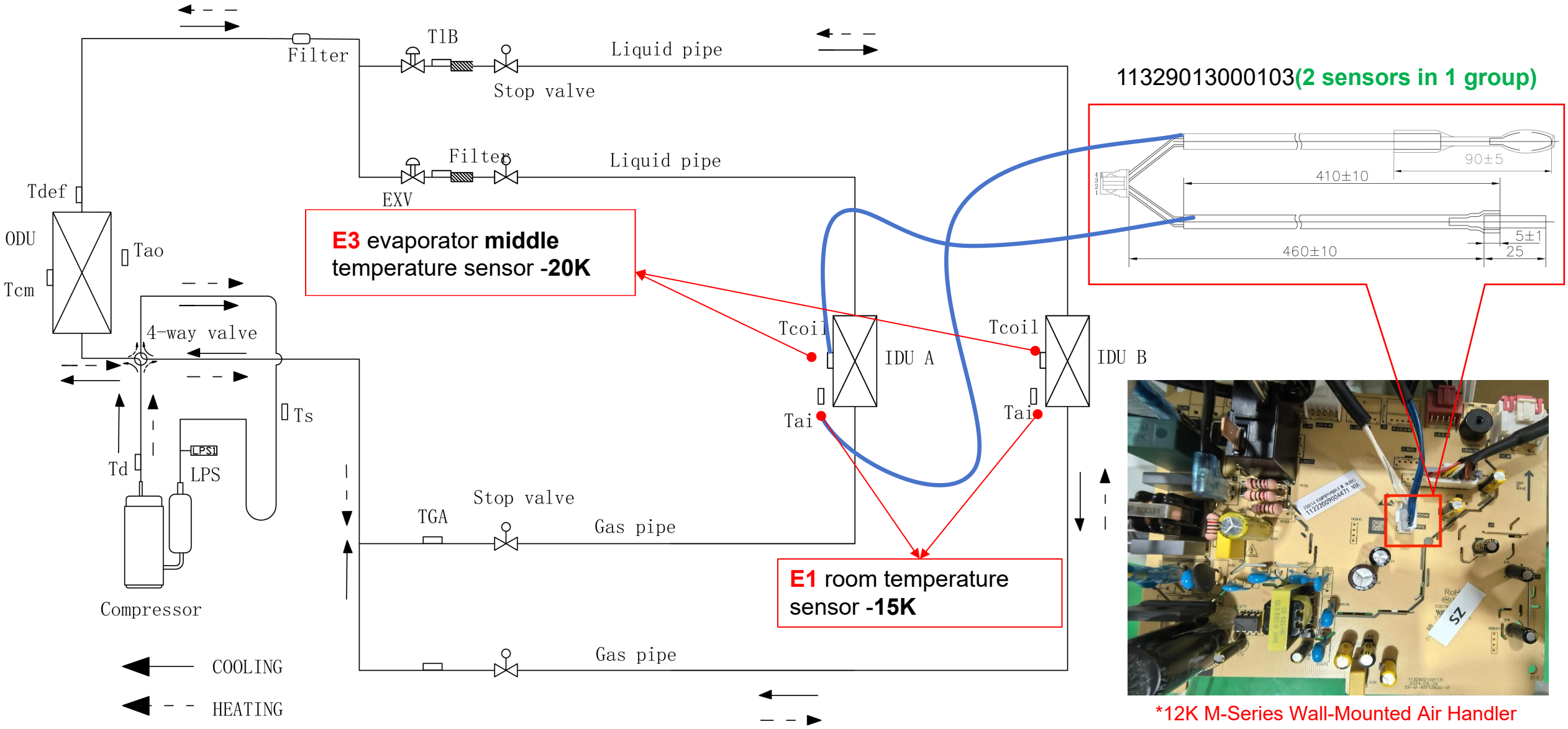
SECTION 1:

TEMPERATURE SENSOR FAULTS

Temp. sensor faults

IDU Code Display Wall-Mounted Air Handler	Fault code description	Possible reason
E1	Fault with the room temperature sensor in the N# indoor unit	①Damage of temperature sensor on the indoor unit ②Poor contact of temperature sensor on the indoor unit ③Damage of wiring of temperature sensor on the indoor unit ④Damage of the main PCB on the indoor unit
E3	Fault with the evaporator middle temperature sensor in N# indoor unit	
/	Fault with the evaporator inlet temperature sensor in N# indoor unit	
H3	Fault with the liquid pipe temperature sensor in outdoor unit	①Damage of temperature sensor ②Poor contact of temperature sensor ③Damage of wiring of temperature sensor ④Damage of the main PCB on the outdoor unit
H4	Fault with the gas pipe temperature sensor in outdoor unit	
E2	Fault with the defrosting condenser temperature sensor in outdoor unit	
E2(C8)	Fault with the condenser middle temperature sensor in outdoor unit	
F4	Fault with the discharge temperature sensor in outdoor unit	
F6	Fault with the ambient temperature sensor in outdoor unit	
FA	Fault with the suction temperature sensor in outdoor unit	

Where are these sensors?



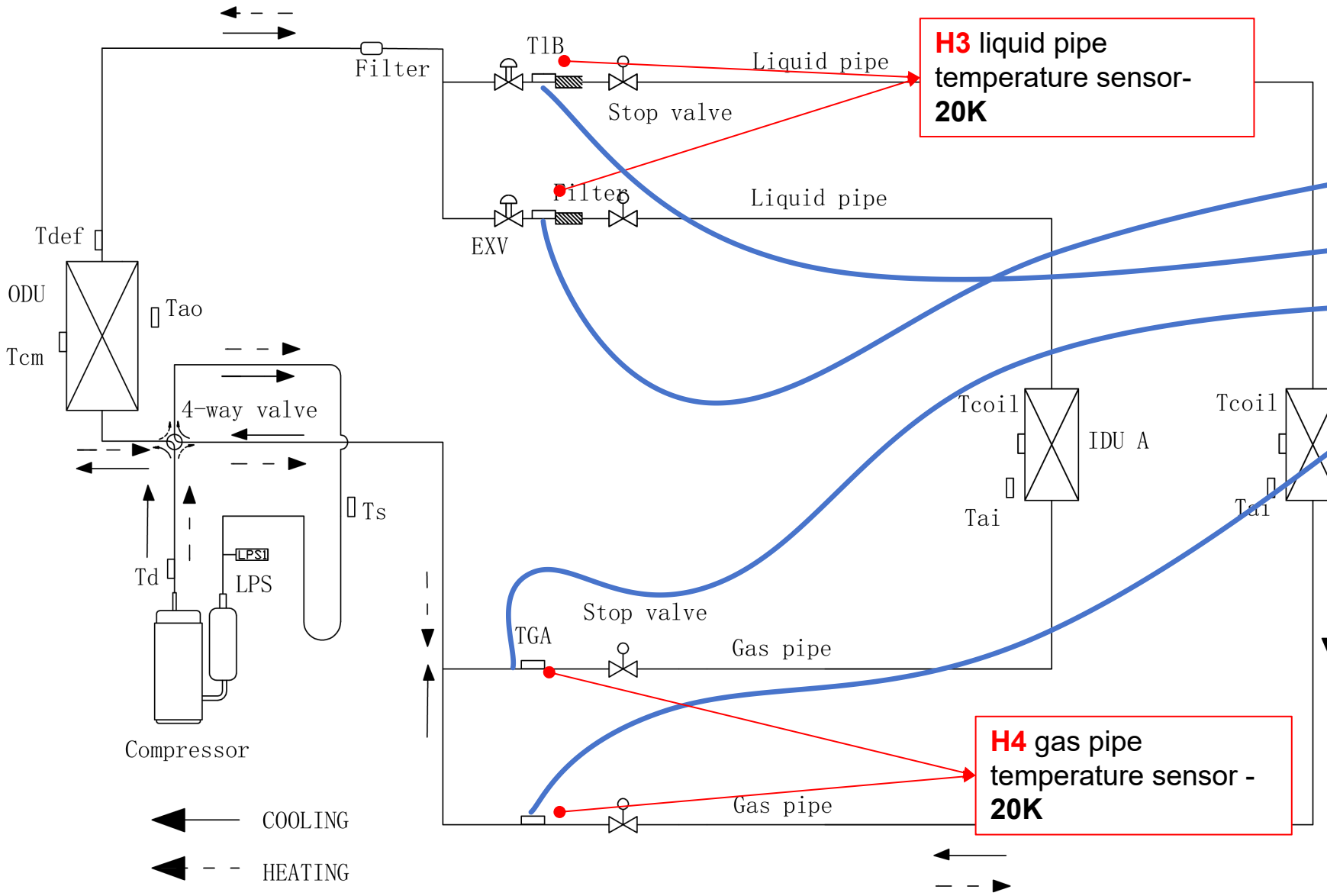
*12K M-Series Wall-Mounted Air Handler for reference

Sensor configuration

IDU temperature sensor specification		
Sensor group code		
Series		Wall Mounted Air Handler M-Series
Capacity	09K	11329013000103 **(2 sensors in 1 group)**
	12K	
	18K	

* /; means do not have this capacity

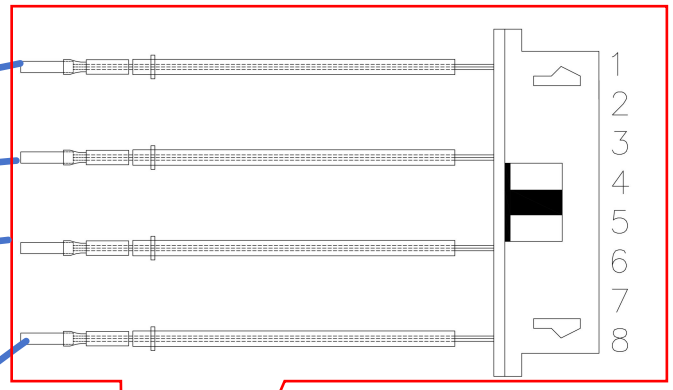
Where are these sensors?

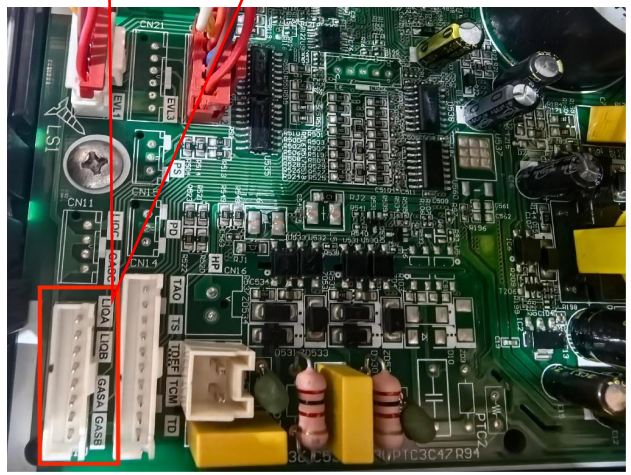


H3 liquid pipe temperature sensor- **20K**

H4 gas pipe temperature sensor - **20K**

164300070002 41 **(4 sensors in 1 group)**





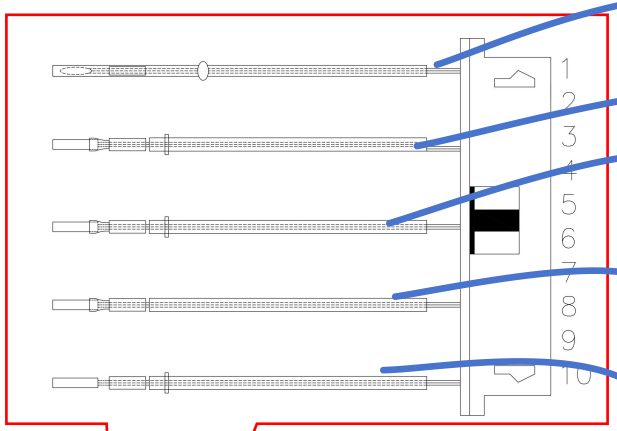
*18K ODU PCB for reference

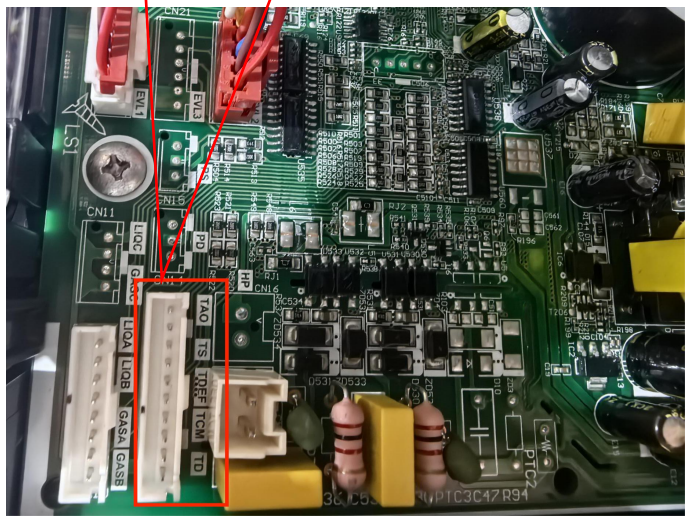
Sensor configuration

Series	Capacity	Refrigerant pipe temperature sensor specification		
		No.1 Sensor group code	No.2 Sensor group code	No.3 Sensor group code
Standard	18K	16430007000241 (4 sensors in 1 group)	✕	✕
	24K		16430007000267 (2 sensors in 1 group)	✕

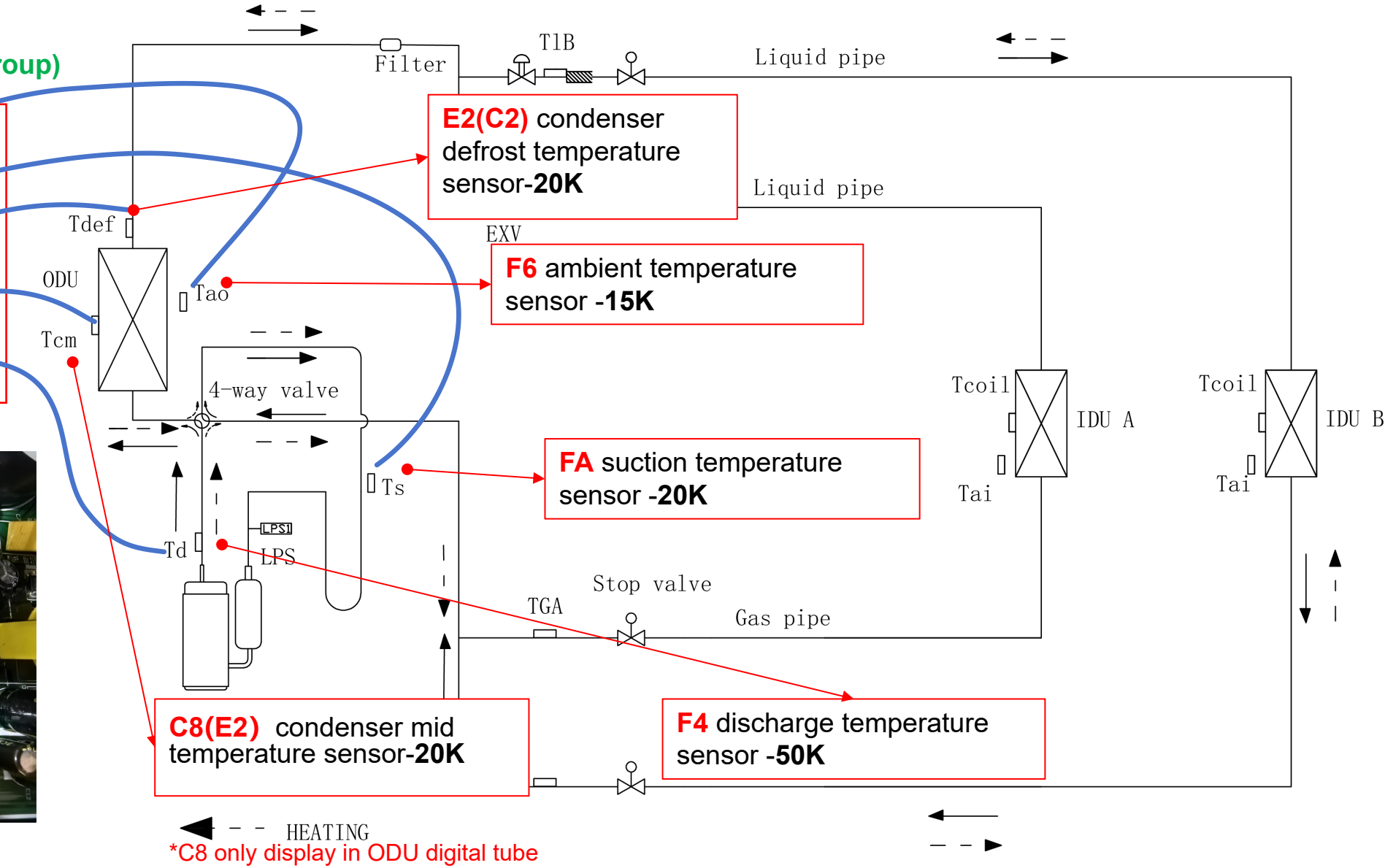
Where are these sensors?

16430007000239**(5 sensors in 1 group)**





*18K ODU PCB for reference



E2(C2) condenser defrost temperature sensor-**20K**

F6 ambient temperature sensor **-15K**

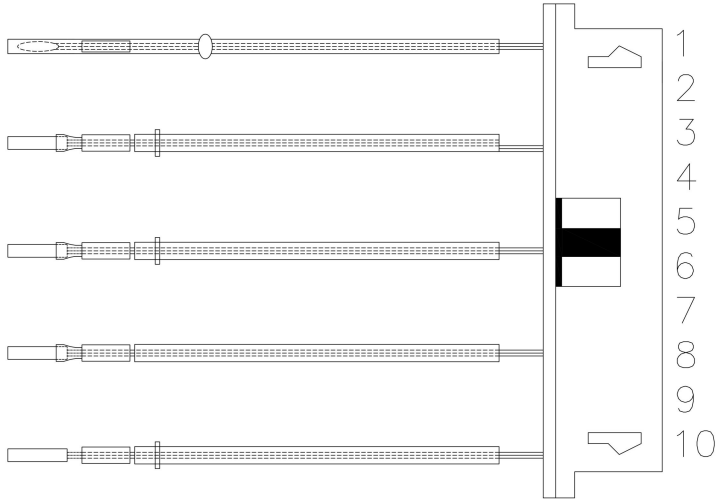
FA suction temperature sensor **-20K**

C8(E2) condenser mid temperature sensor-**20K**

F4 discharge temperature sensor **-50K**

*C8 only display in ODU digital tube

Sensor configuration

ODU temperature sensor specification			
Sensor group code			Diagram reference
Series		Standard	
Capacity	18K	16430007000239 **(5 sensors in 1 group)**	
	24K		

* /; means do not have this capacity

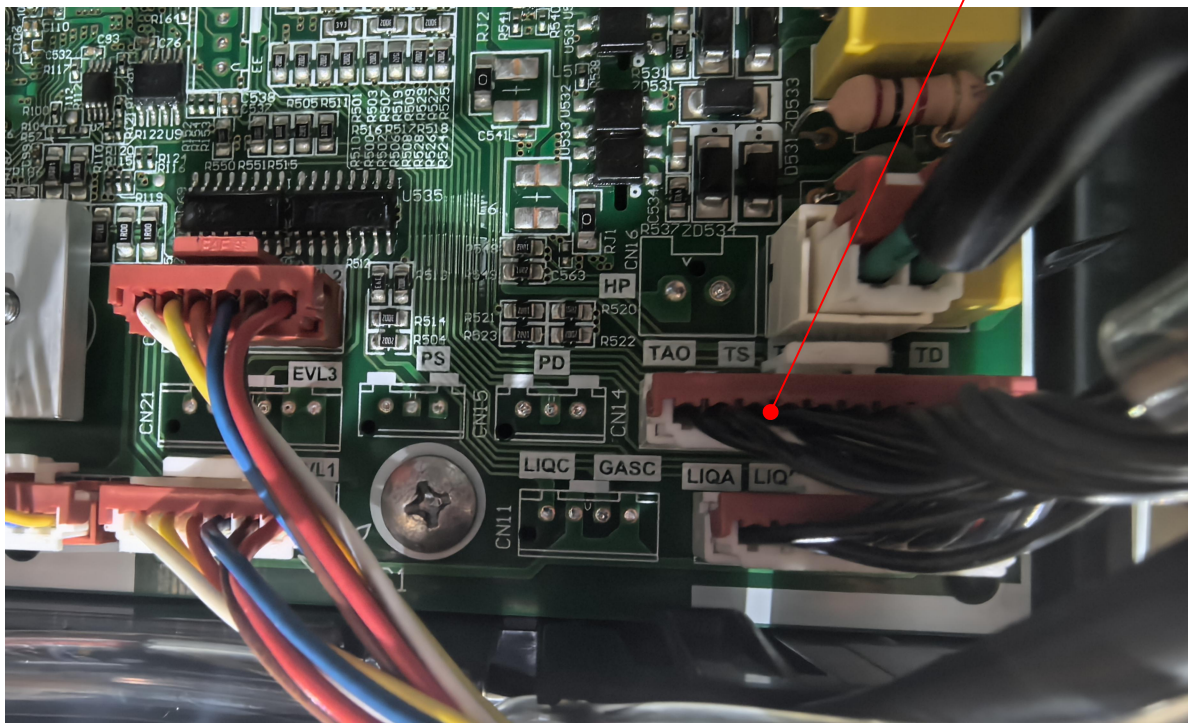
Troubleshooting reference

1. the connection of sensor plug is firm or not- - reconnect

Sensor plug

2. the connection of sensor is loose or short circuit- - reconnect

Sensor connection port



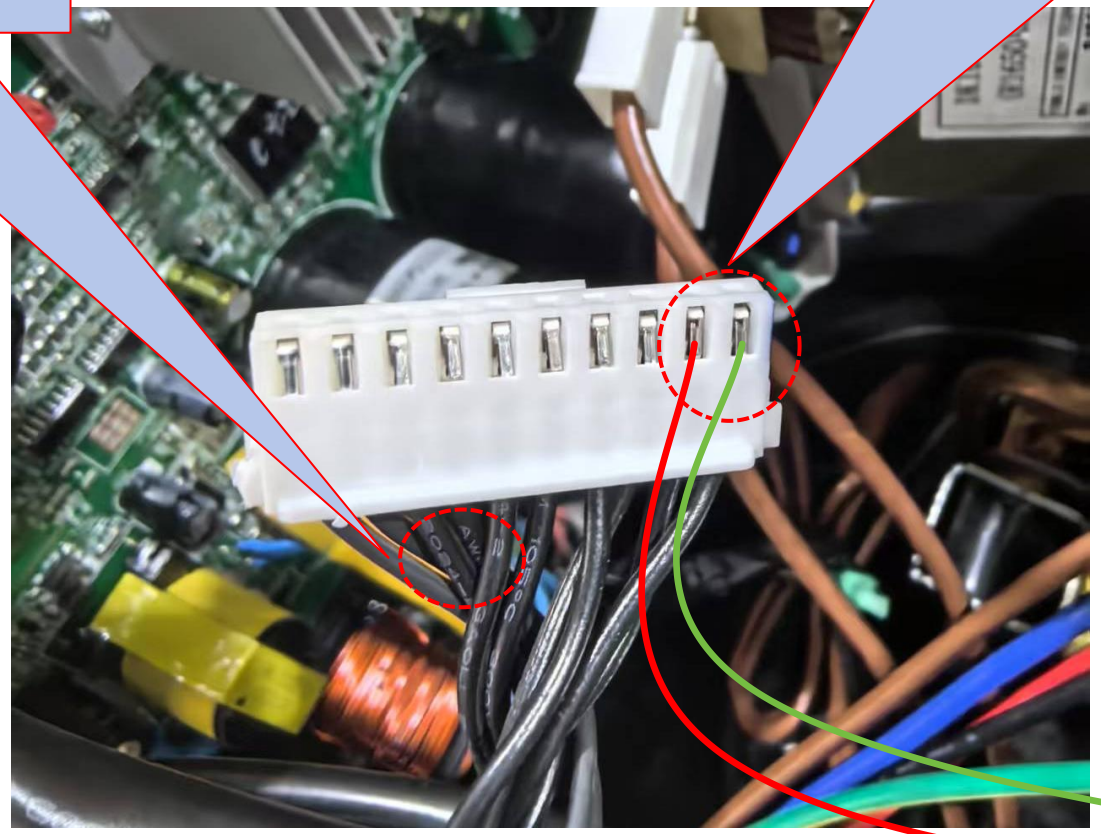
*18K ODU PCB for reference

Troubleshooting reference

3. Check whether the wiring is broken – replace

4. Check whether the sensor is damaged
Sensor value refer to sensor resistance table

*Resistance table attached on next page



Resistance comparison table

Sensor resistance at 25°C	Resistance comparison table
15KΩ	**Please Refer to the R32 Multi-Zone Condenser Service & Technical Manual**
20KΩ	
50KΩ	

SECTION 2:
COMMUNICATION FAULTS

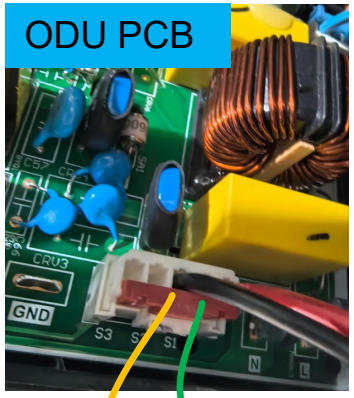
Communication faults

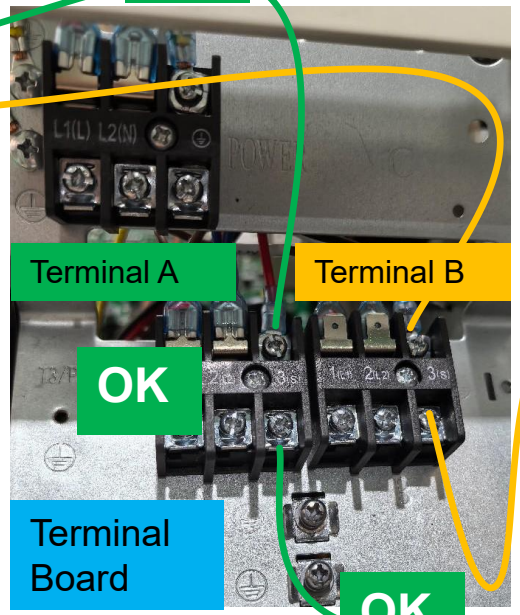
IDU Code Display Wall Mounted Air Handler M-Series	Fault code description	Possible reason
E5	Communication error between outdoor unit and the N# indoor unit	①Poor wiring ②Damage of the main PCB on the outdoor unit ③Damage of the main PCB on the indoor unit
F8	Communication error between drive PCB and main PCB of outdoor unit	①Poor wiring ②Damage of the main PCB on the outdoor unit ③Damage of the drive PCB on the outdoor unit

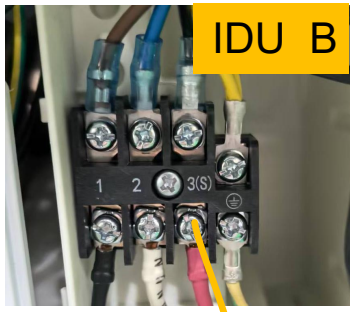
Communication faults

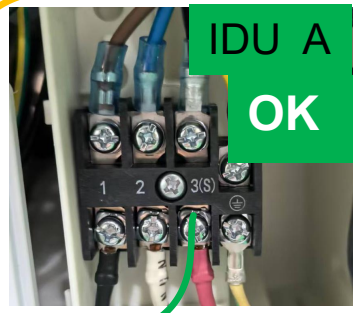
1. E5 Communication error between ODU and N # IDU

Error logic : no signal between ODU and IDU, then E5 error will be displayed

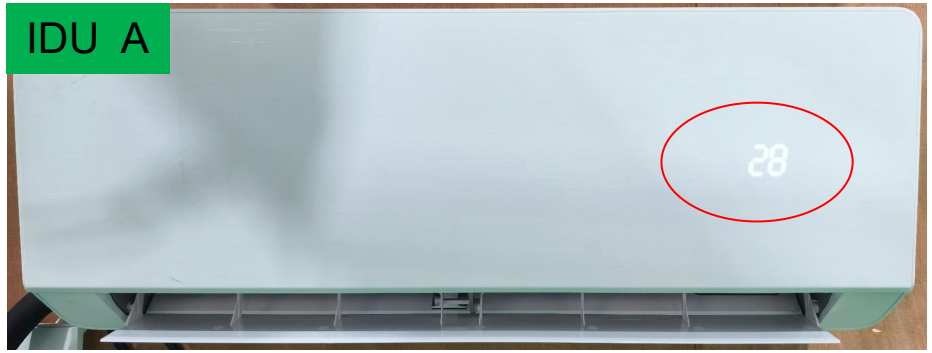








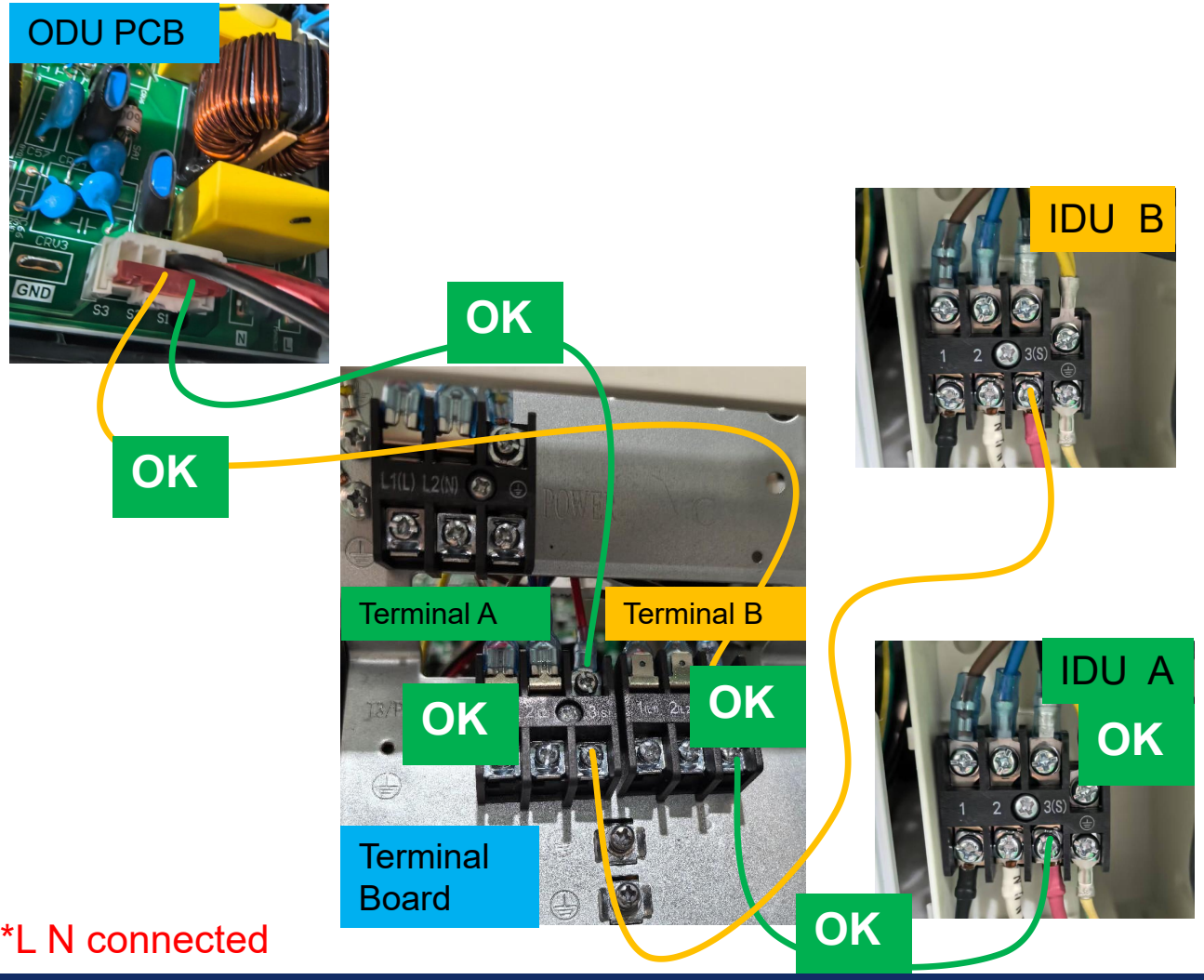
Eg： if IDU A work normal , IDU B display E5



*L N connected

Communication faults

E5 Troubleshooting reference



*L N connected

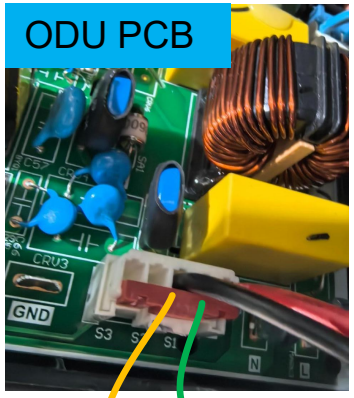
1.Try to change the wire connection as above turn on IDU A and IDU B, if **IDU A no error**

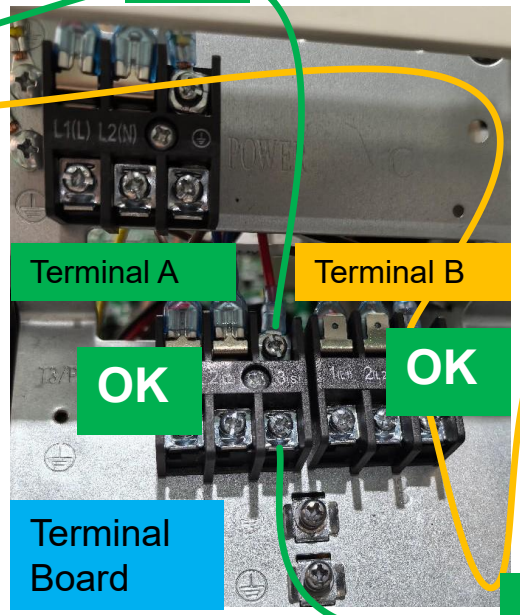
Which means possible reason are IDU B PCB abnormal or abnormal yellow wire(Terminal B-IDU B)

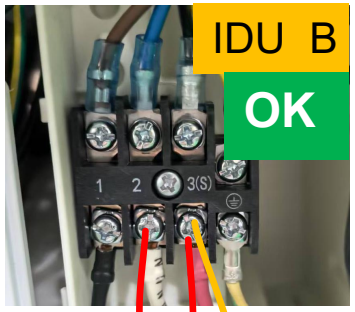
Communication faults

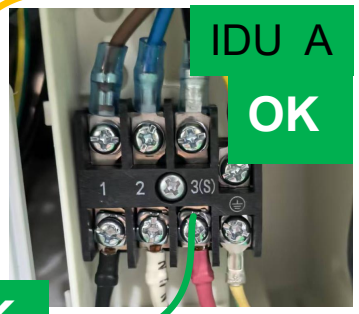
E5 Troubleshooting reference

*5E(98) is not an error code,but used to check IDU PCB function and considered as an indication code
Once display 5E(98), which means PCB function is normal

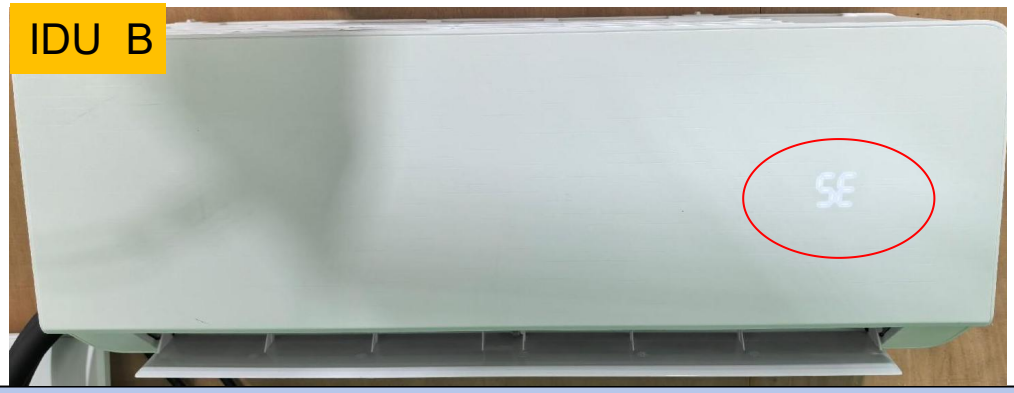




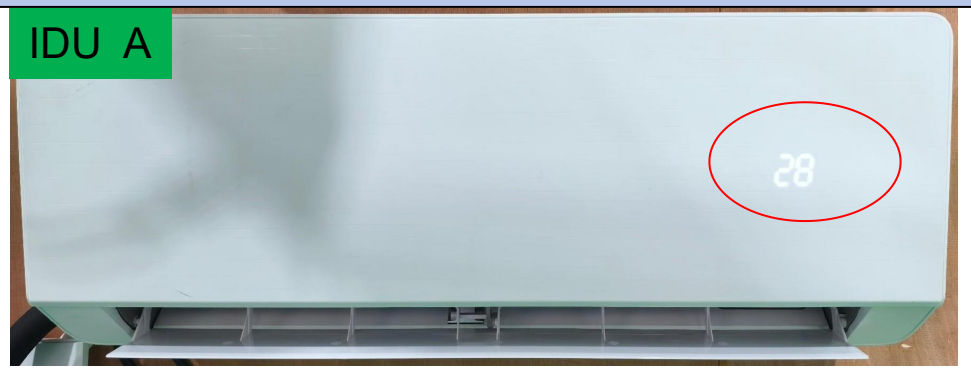




OK



2.Return to previous connection,short connect N and S of IDU B (red wire)
If IDU B still display E5,then check/replace PCB of IDU B If IDU B display 5E(98),then replace a new yellow wire(Terminal B-IDU B)



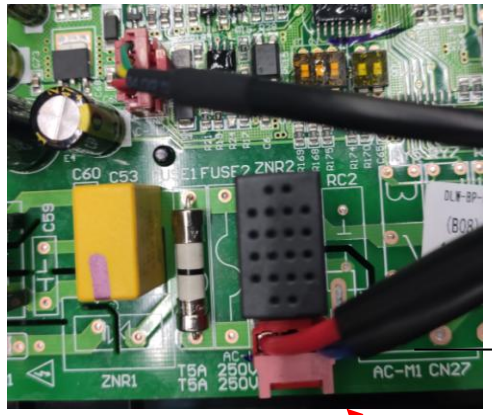
*L N connected

Communication faults

2. F8 Communication error between the driver module and main PCB of ODU

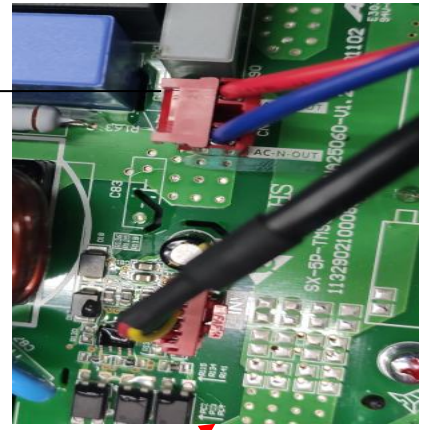
Error logic : no signal between them, then will display F8 error

Trouble shooting flow chart



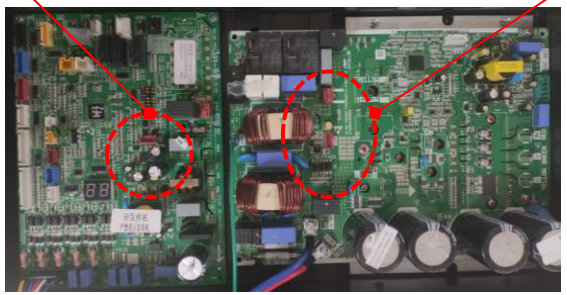
AC-L-N

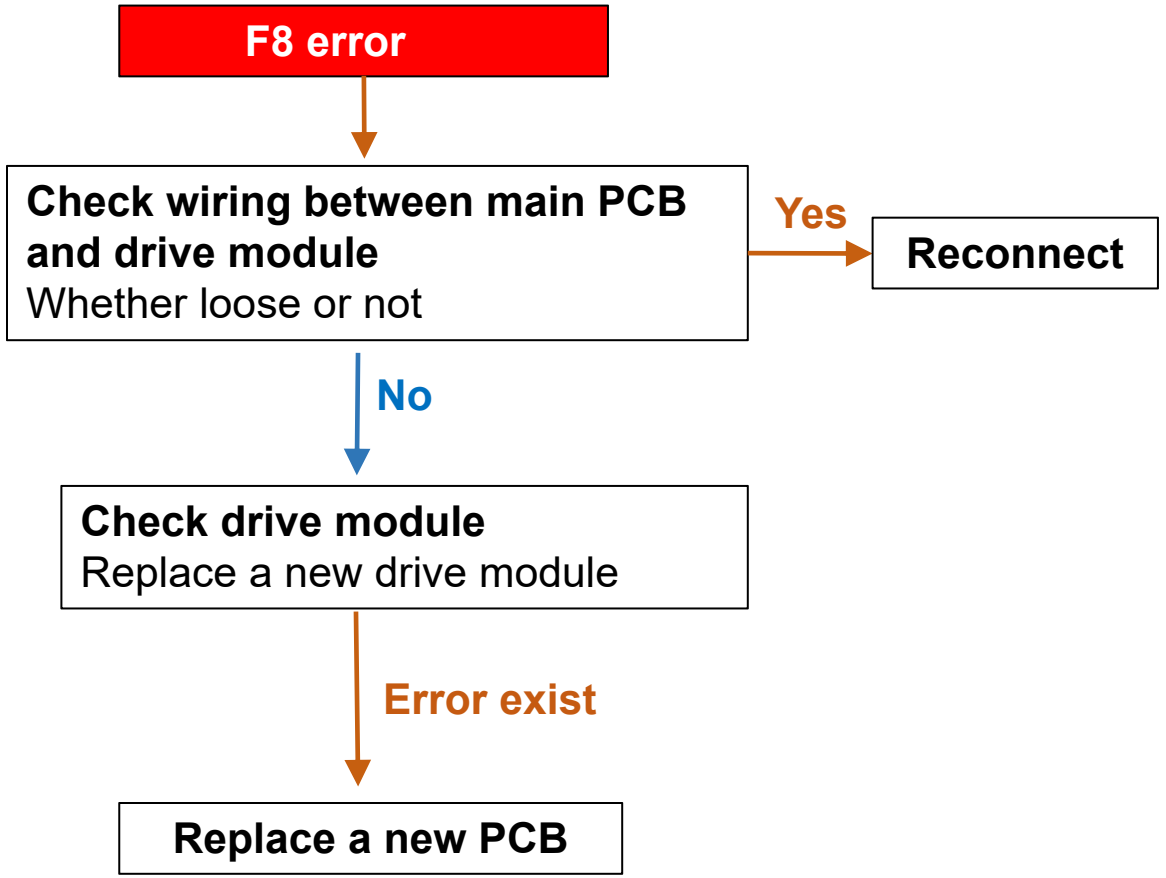
AC-L-N



② try to replace new main PCB

① replace new drive module





Drive board configuration

2. F8 only exist in Standard Series >24K

Series	Model	Drive board specification		
		Is there a seperate drive board	Main board code	Drive board code
Standard	18K	✕	11222542000190	✕
	24K	✕	11222542000191	✕

SECTION 3:
INDOOR UNIT FAULTS

IDU faults

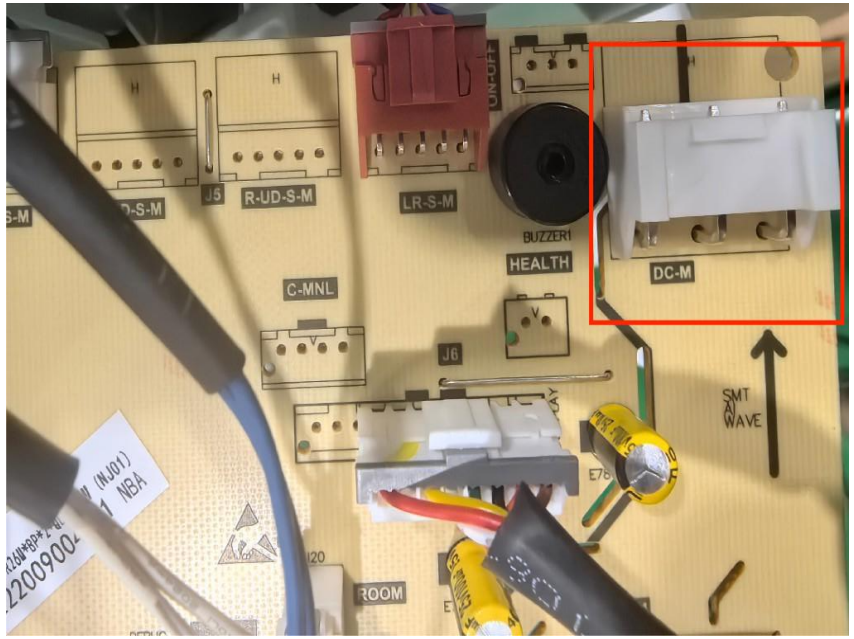
IDU Code Display Wall Mounted Air Handler M-Series	Fault/Protection code description	Possible reason
E4	Fault with the Fan motor of N # indoor unit	①Low voltage ②Poor wiring ③Damage of the main PCB on the indoor unit ④Damage of the motor
P7	Indoor anti-freezing protection	①Dirty blockage of heat exchanger in cooling indoor unit ②Blockage of indoor fan

IDU faults

1. E4 Fault with the Fan motor of N # indoor unit

Error logic :

- When the fan motor is abnormal, the detected current is too large over than the protection value;
- When the hardware of PCB is broken, the main chip will detect the fault signal sent by the motor.



IDU PCB

*12K wall-mounted air handler for reference

IDU faults

E4 Troubleshooting flow chart

E4 error

Check Fan motor wiring
Whether the connection port of fan motor is loose

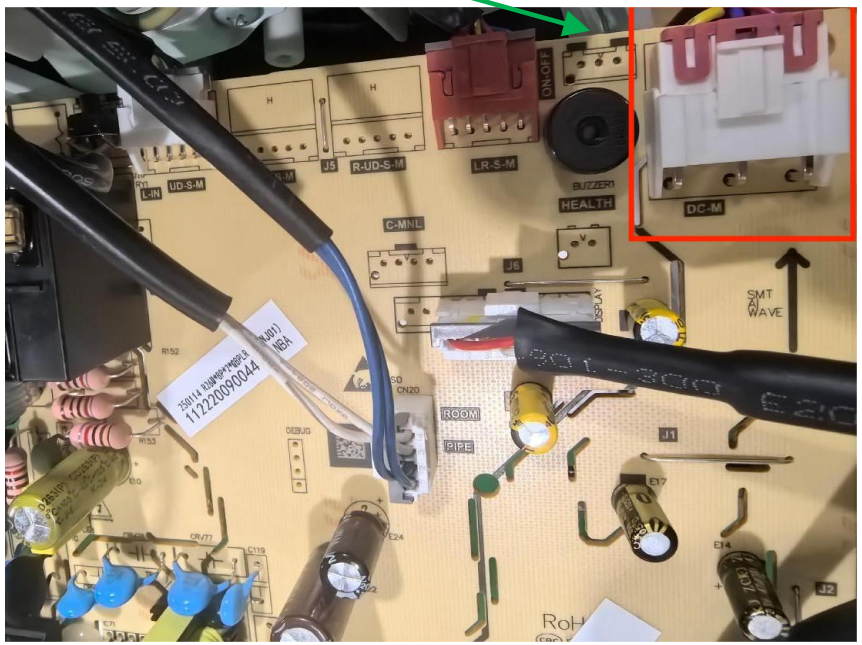
Yes → Reconnect the wire

No

Check fan motor (Method A or Method B)
Replace a new fan motor

Error exist

Replace a new PCB



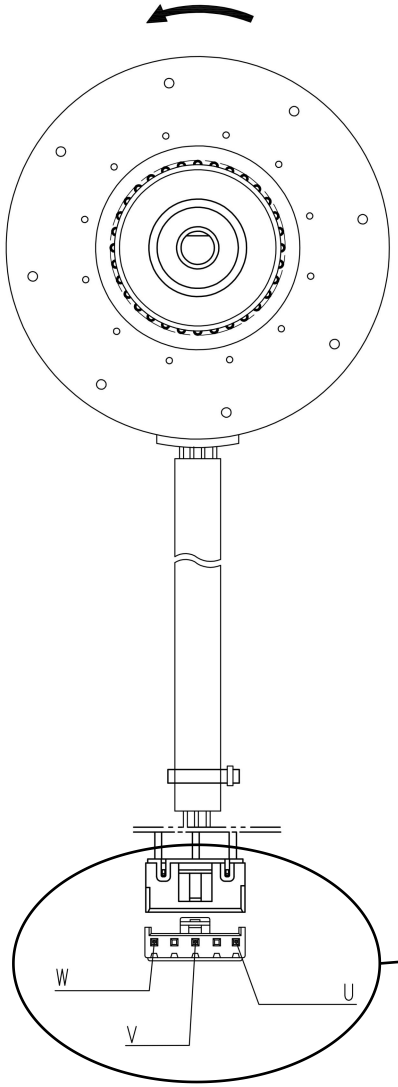
Connection port

Fan motor configuration

Series	Model	Fan motor specification		
		Fan control chip location	Fan code	Troubleshooting method
Wall Mounted Air Handler M-Series	09K	Main board	11230005000122	Method A
	12K			
	18K	Fan motor	11230005000123	Method B

IDU faults

IDU Fan motor fault-Method A



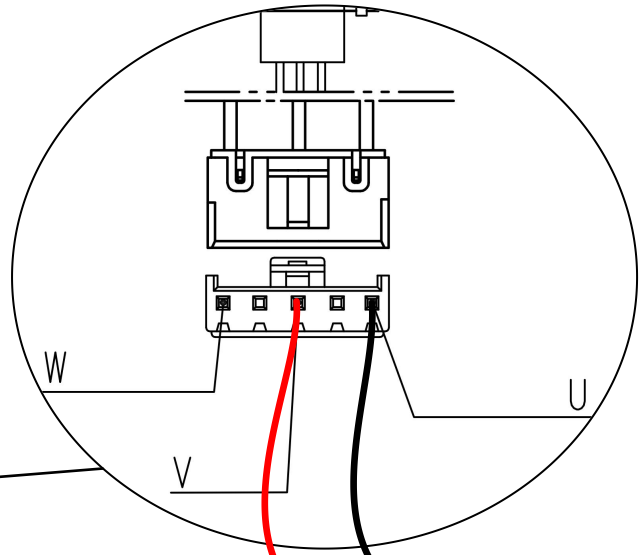
Trouble shooting:

When power off ,disconnect motor UVW from PCB, measure the resistance of **U-V,V-W,U-W**

Conclusion:

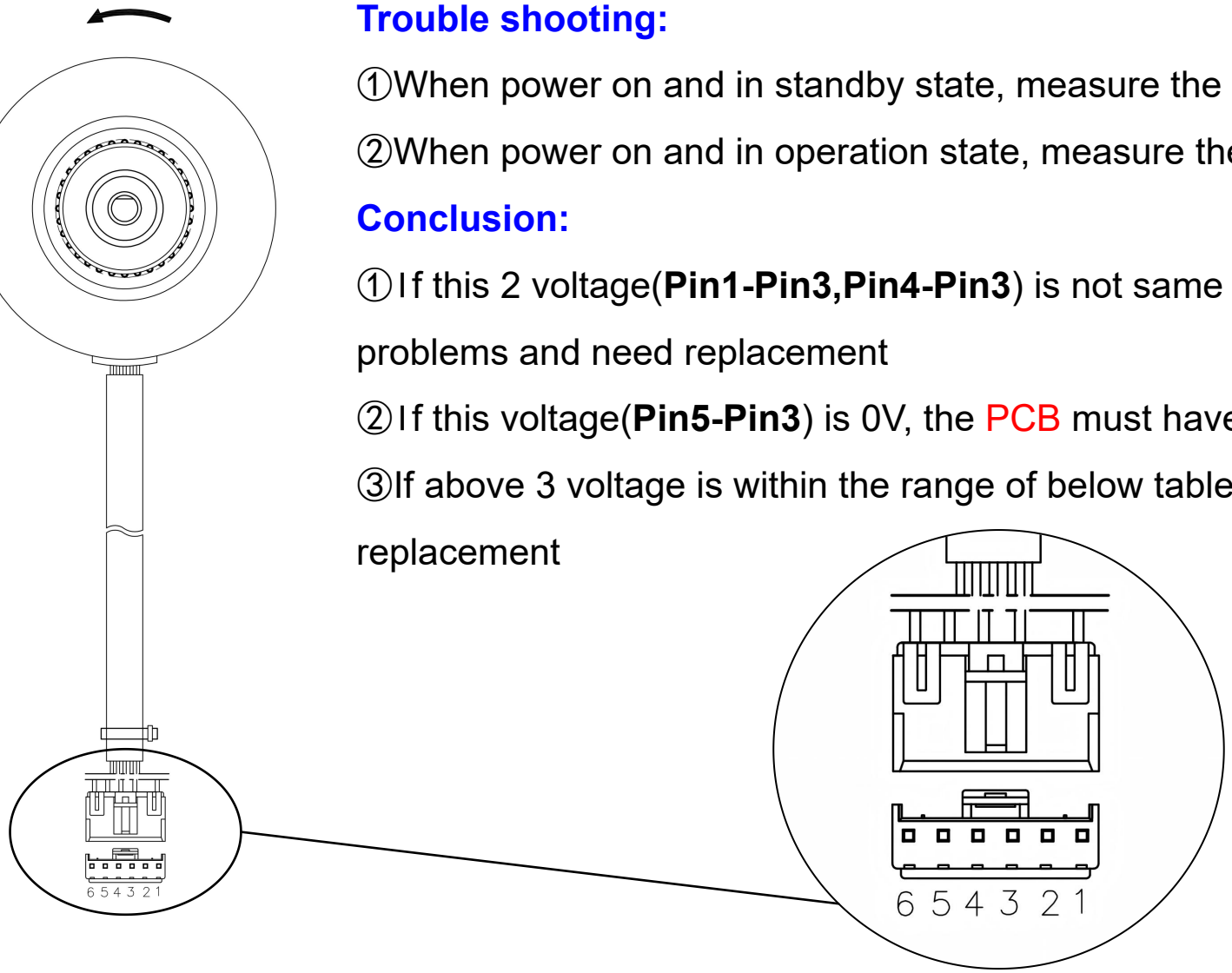
①If these resistance is not equal to each other, the motor must have problems and need replacement

②Otherwise,the PCB must have problems and need replacement



IDU faults

IDU Fan motor fault-Method B



Trouble shooting:

①When power on and in standby state, measure the voltage of **Pin1-Pin3,Pin4-Pin3**

②When power on and in operation state, measure the voltage of Pin5-Pin3

Conclusion:

①If this 2 voltage(**Pin1-Pin3,Pin4-Pin3**) is not same as value in below table, the PCB must have problems and need replacement

②If this voltage(**Pin5-Pin3**) is 0V, the PCB must have problems and need replacement

③If above 3 voltage is within the range of below table,then the motor must have problem and need replacement

Pin	Wire type	Voltage
1	Vdc	310V
2	/	/
3	GND	/
4	Vcc	+15V
5	Vsp	0~+6.5V
6	FG	/

IDU faults

2. P7 Indoor anti-freezing protection

Protection logic

During cooling mode, detect the evaporator temperature lower than the protection value, fan keep previous status and compressor frequency decrease until evaporator temperature increase

Check flow chart

P7 protection

Check ambient temperature
Whether ambient ＜ 20℃

No

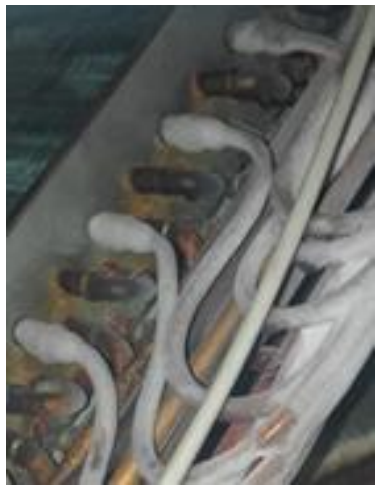
Check fan motor
Whether fan motor can not working normally

Yes

Repair/replace motor

Yes

Low ambient cooling mode , it is normal



No

Check heat exchange
1. Whether air outlet and air inlet blocked
2. Whether evaporator blocked

Yes

Remove obstacle or clean the dust

SECTION 4:

REFRIGERANT CIRCUIT FAULTS

Refrigerant circuit faults

IDU Code Display Wall Mounted Air Handler M-Series	Fault/Protection code description	Possible reason
P4	High temperature protection in ODU during cooling operation	Poor outdoor heat transfer
P6	High temperature protection in IDU during heating operation	Poor indoor heat transfer
P5	Protection of high discharge temperature	①Lack of the refrigerant ②Stop valve unopened ③Damage of the main PCB on the outdoor unit
H5	Protection of low temperature discharge	①Temperature sensor shedding ②Damage of the main PCB on the outdoor unit
H7	Low pressure protection	①Lack of the refrigerant ②Dirty heat exchanger

Refrigerant circuit faults

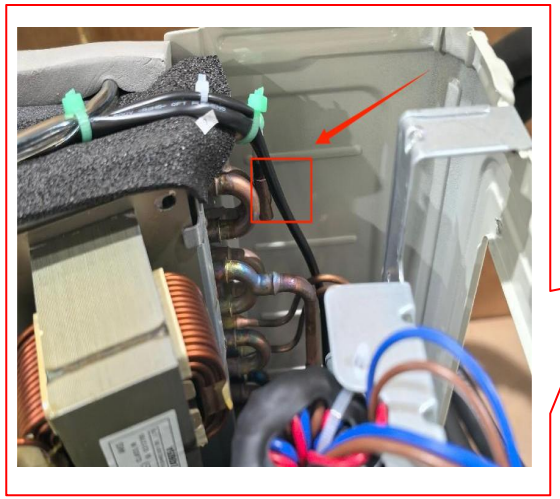
1. P4/P6 High temperature protection of IDU and ODU

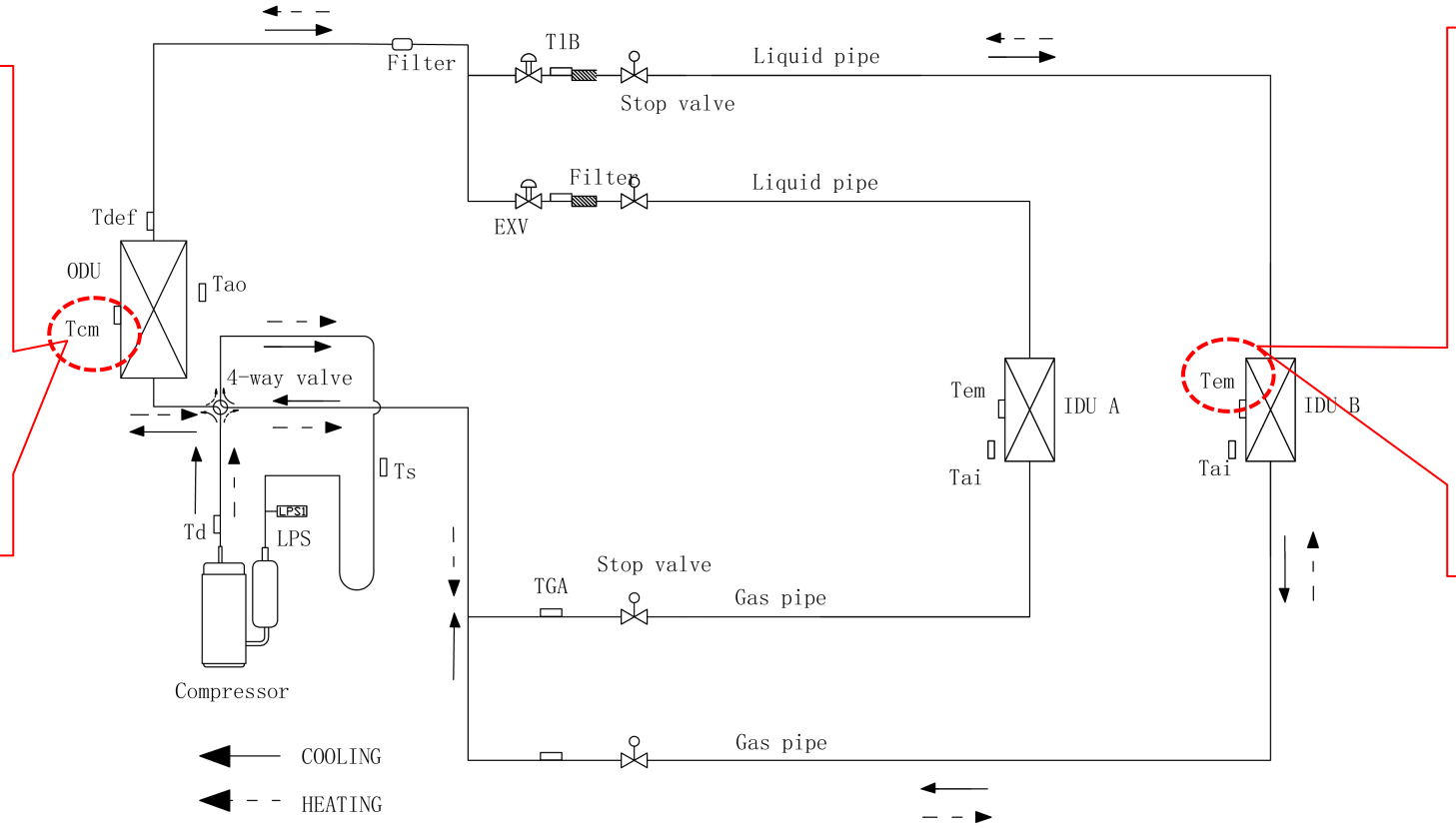
Protection logic

Cooling : condenser mid temperature sensor “**Tcm**” detected temperature over the protection value

Heating: evaporator mid temperature sensor “**Tem**” detected temperature over the protection value

will stop run due to run out range of compression ratio, will display P4/P6

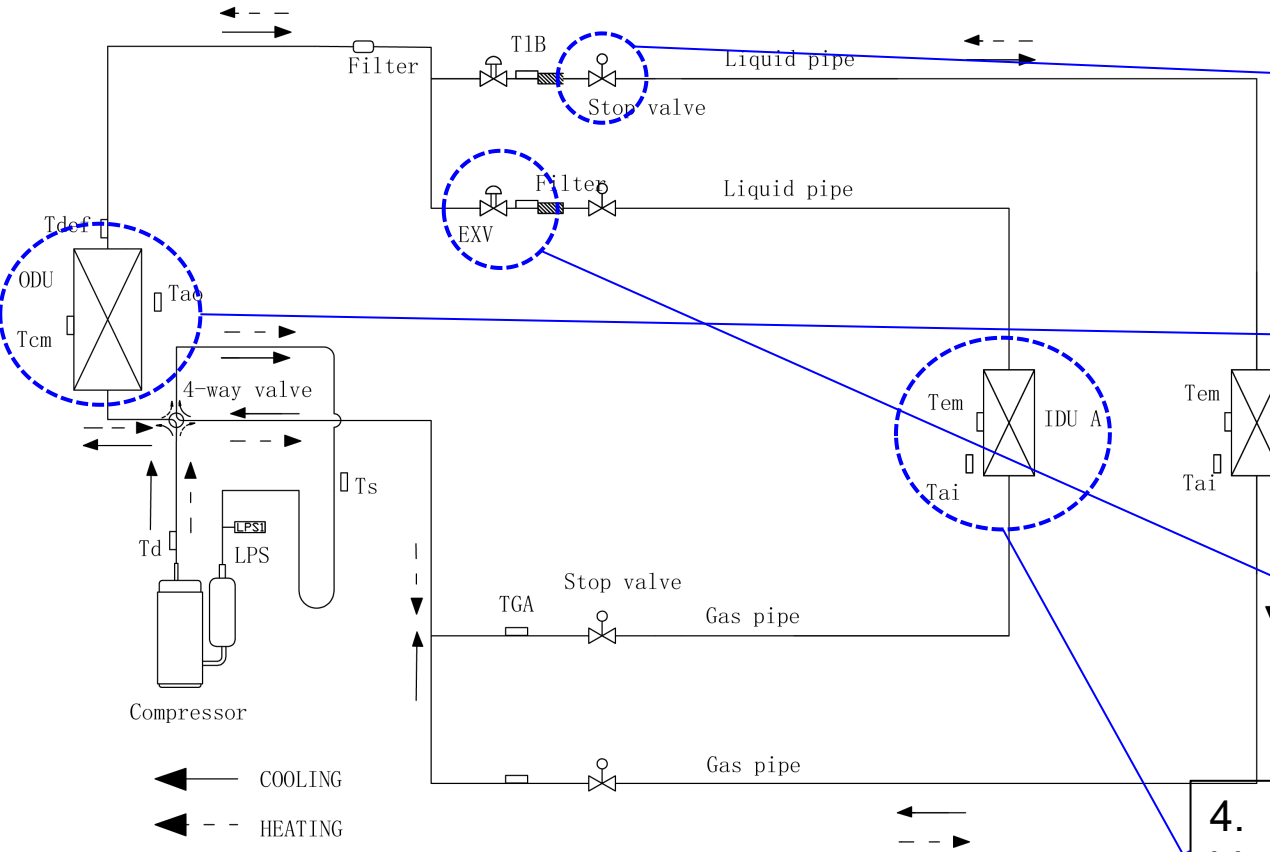


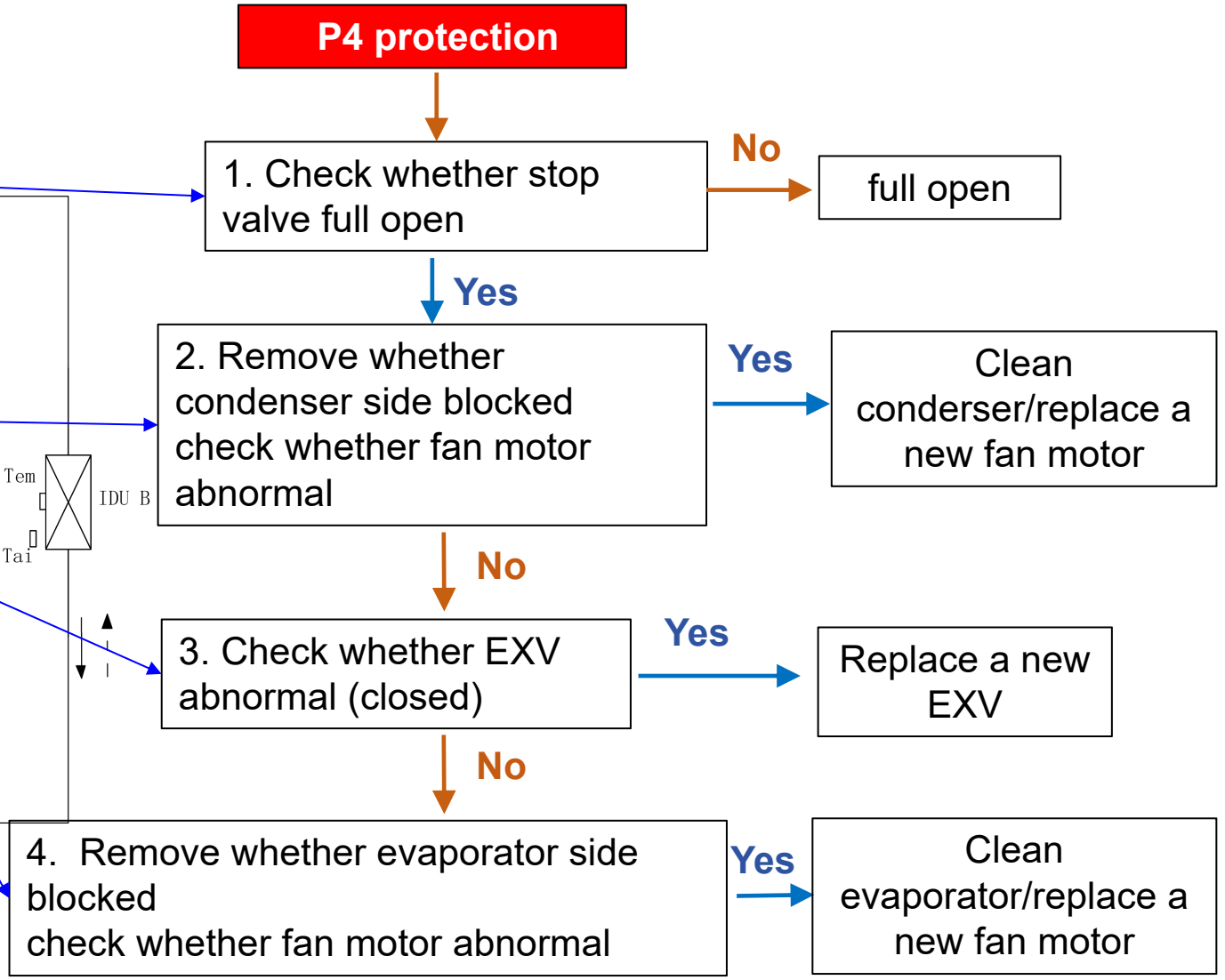


Refrigerant circuit faults

P4 Troubleshooting

Cooling mode protection

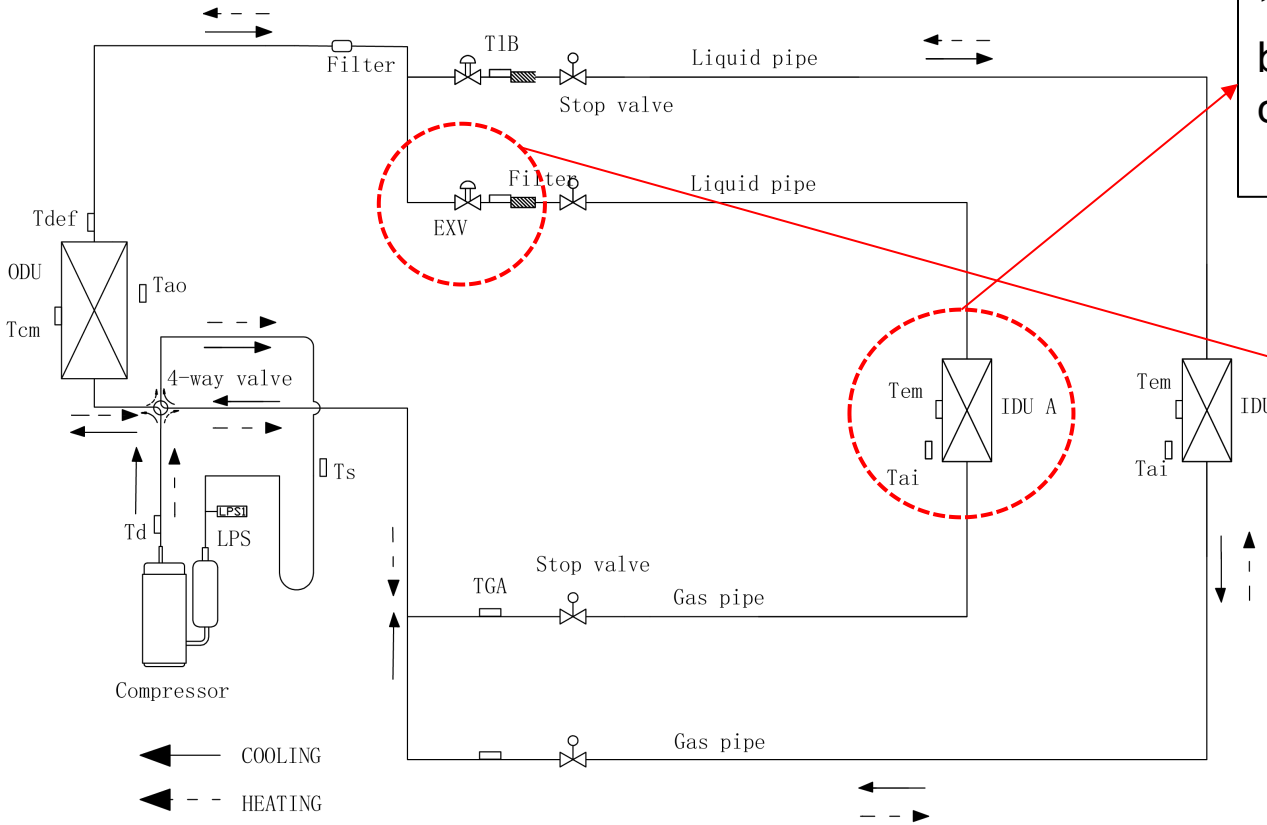




Refrigerant circuit faults

P6 Troubleshooting

Heating mode protection



P6 protection

1. Remove whether evaporator side blocked
check whether fan motor abnormal

Yes → Clean evaporator/replace a new fan motor

No

2. Check whether EXV abnormal (closed)

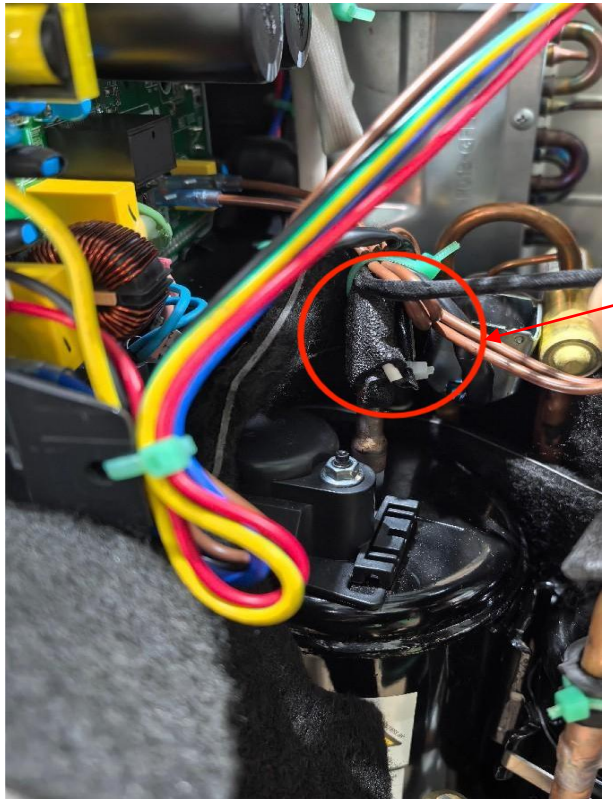
Yes → Replace EXV

Refrigerant circuit faults

2. P5 Discharge temperature too high protection

Protection logic:

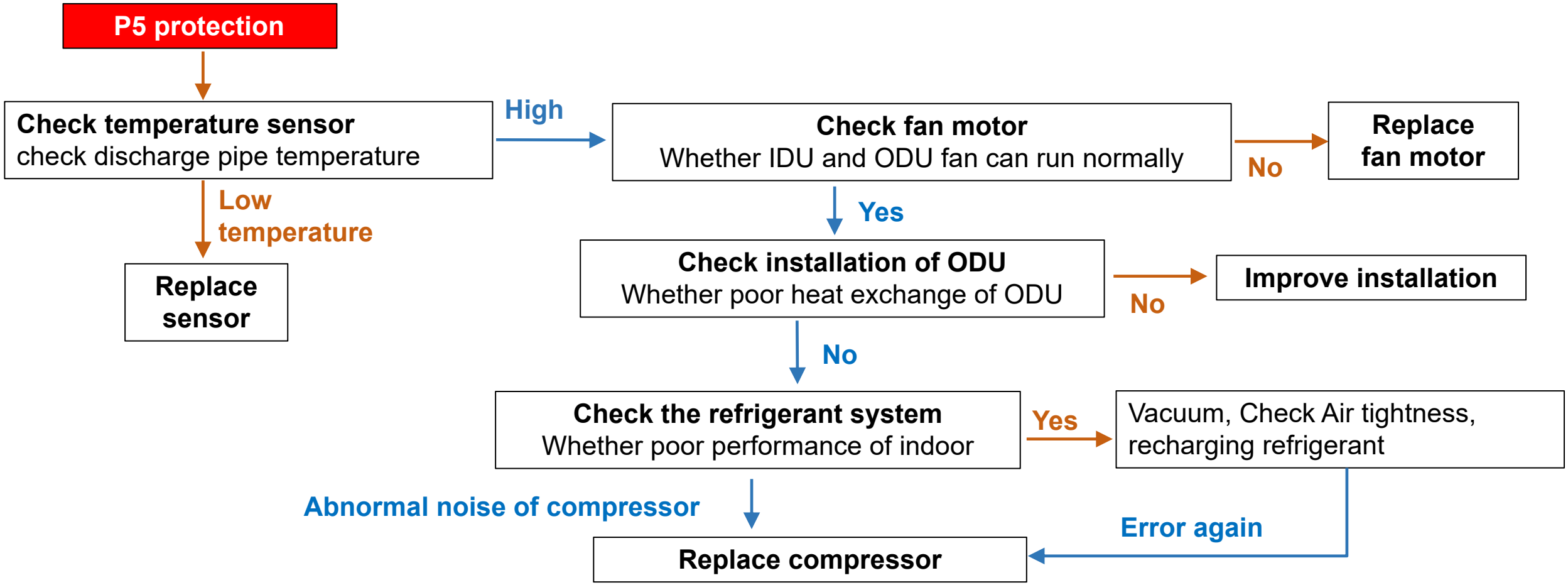
Once compressor discharge temperature sensor “Td” detected ≥115℃ , whole system will stop run to protect compressor, then display P5



Td:Discharge temperature sensor

Refrigerant circuit faults

P5 Troubleshooting flow chart

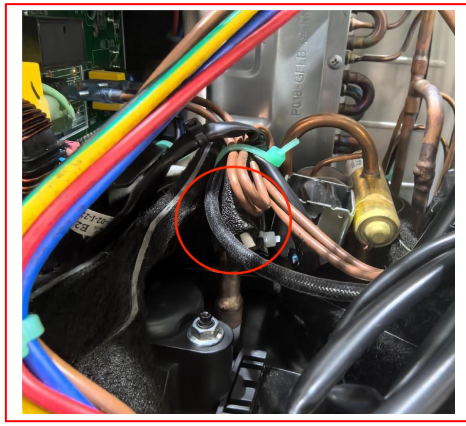


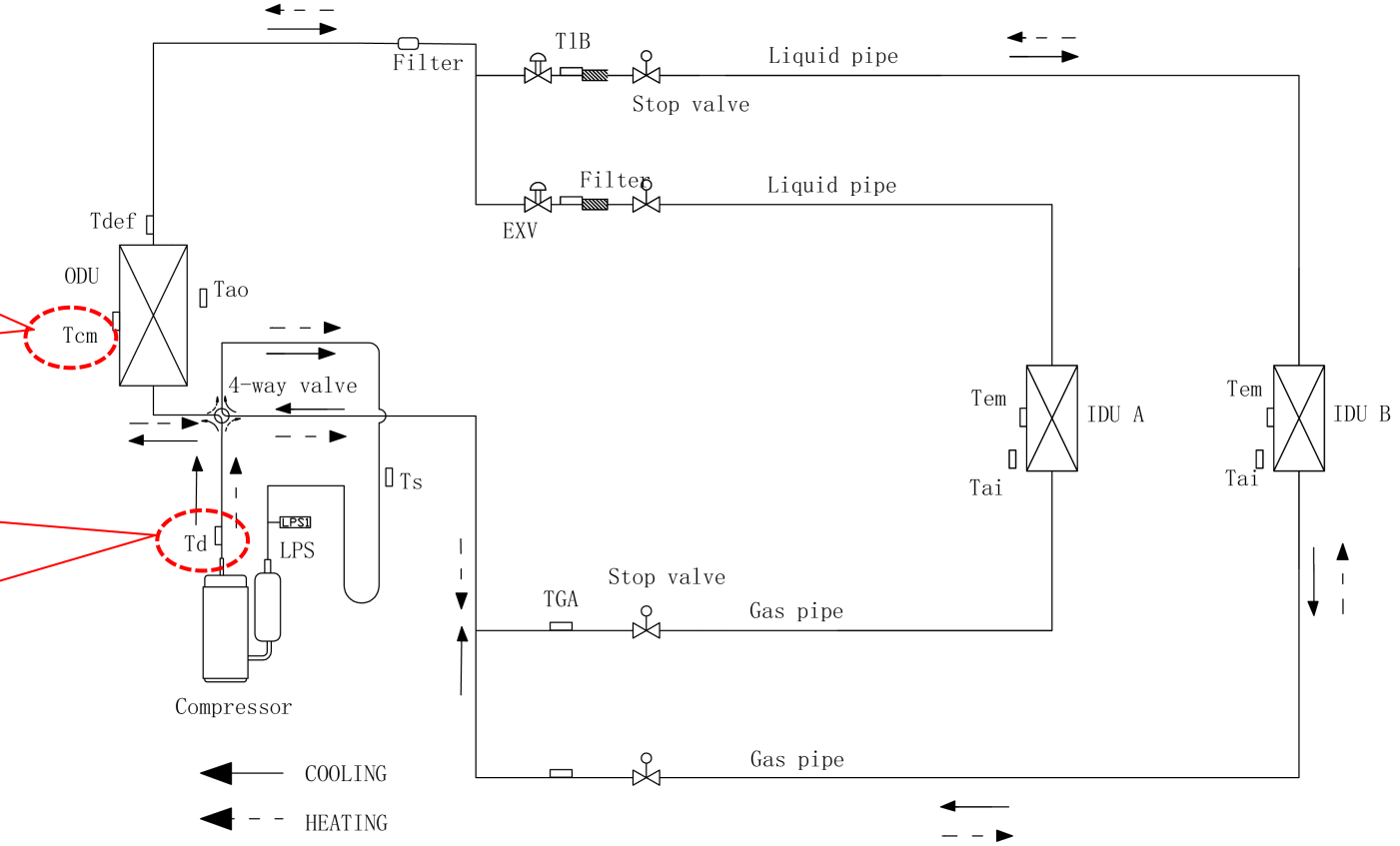
Refrigerant circuit faults

3. H5 Discharge temperature too low protection

Protection logic:

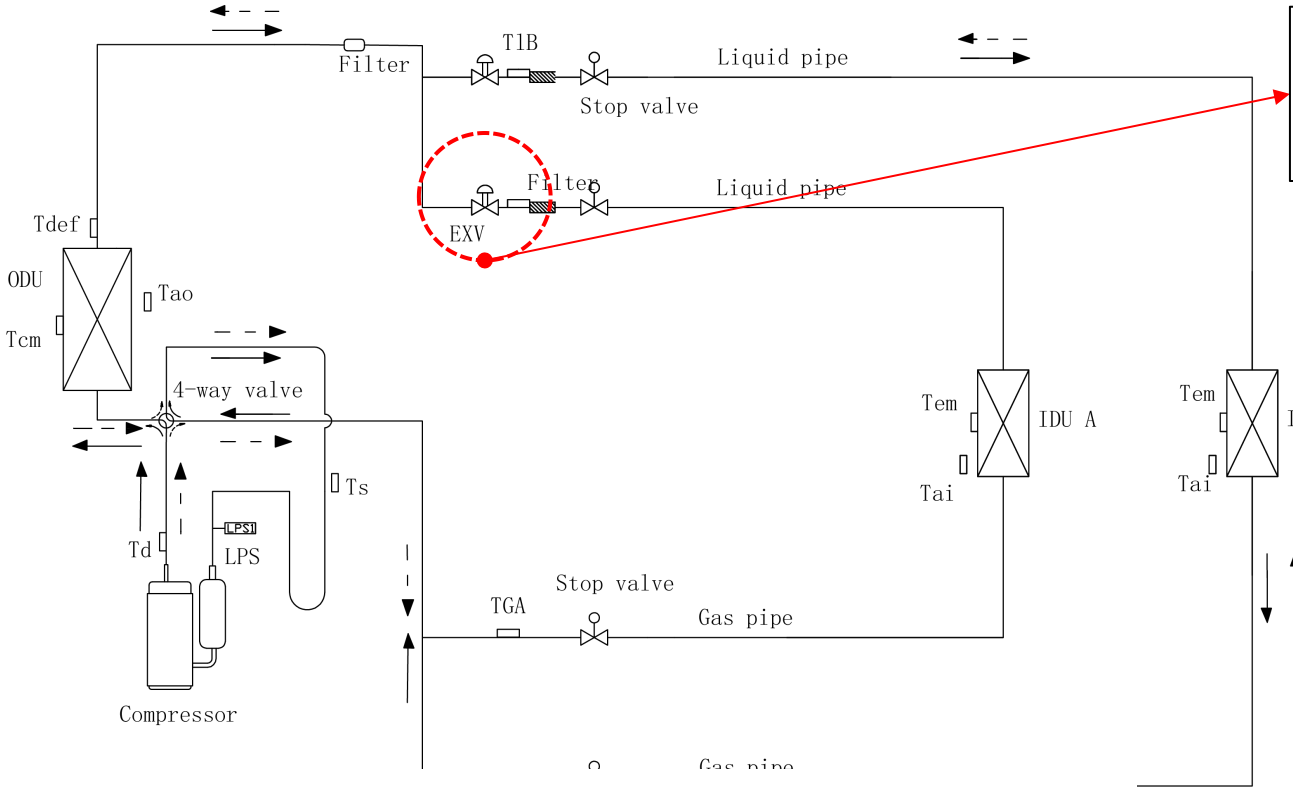
The temperature difference between discharge temperature “Td” and condenser mid temperature “Tcm” less than the protection value, will stop run to protect compressor ,then will display H5

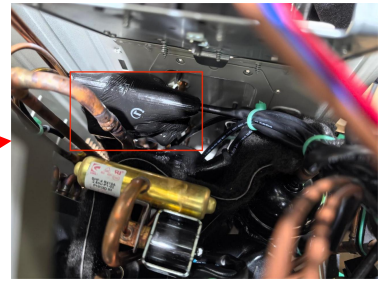




Refrigerant circuit faults

H5 Troubleshooting reference





H5 protection

1. Touch the off status' EXV inlet and outlet pipe, check whether EXV can not be closed

Yes

2. Check whether abnormal EXV body Abnormal EXV coil

Yes → Replace a new EXV body/coil

No

3. Test pressure whether add excess refrigerant

Yes → Vacuum, check air tightness, recharging refrigerant

No

4. Replace a new PCB

high& low pressure value as below reference

Rated Cooling: high(2.6-3.2)Mpa; low(0.6-0.9)Mpa

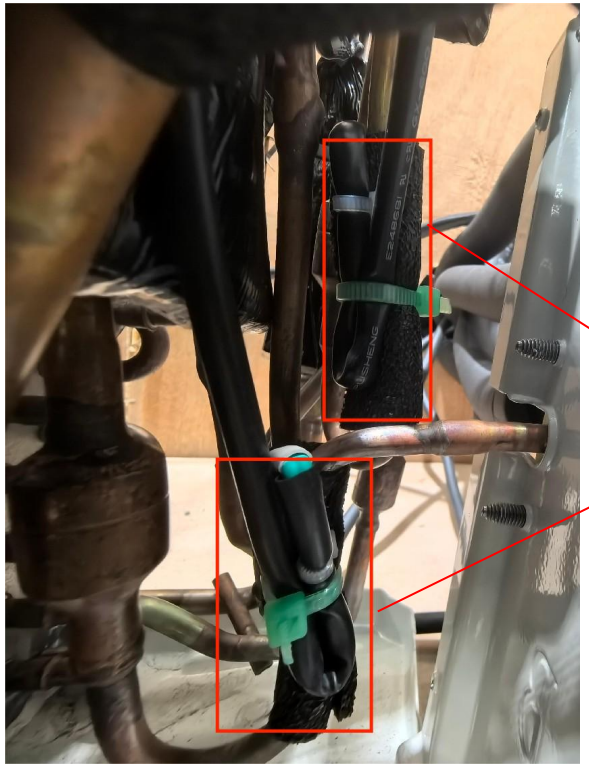
Rated Heating: high(2.3-2.8)Mpa; low(0.5-0.7)Mpa

Refrigerant circuit faults

4. H7 Low pressure protection

Protection logic :

The “**Tliq**” temperature sensor detected average value less than protection value, will stop run due to run out range of compression ratio , then will display H7

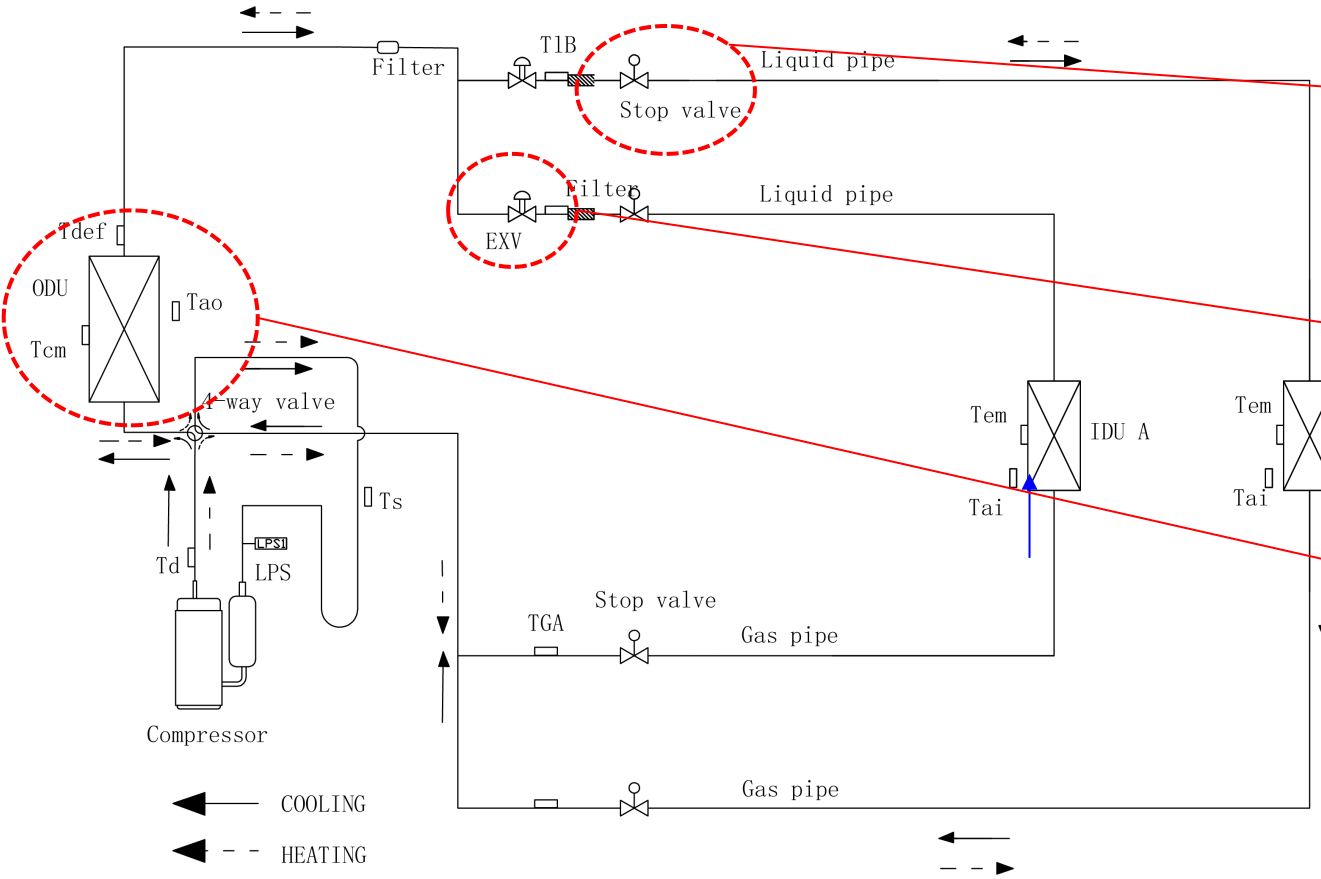


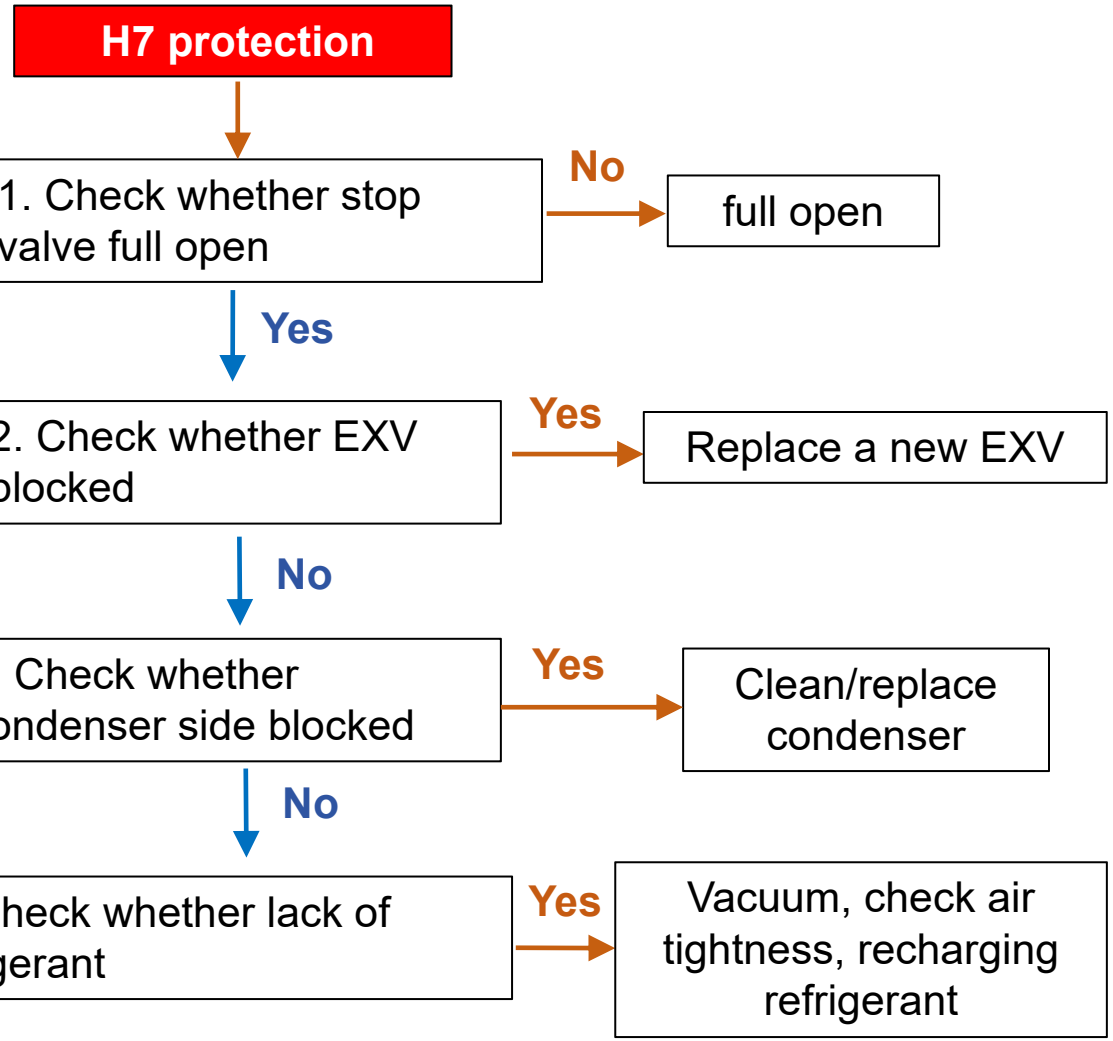
“**Tliq**” temperature sensor on the piping which outlet of EXV side.

The ODU which 1 to 2 IDUs contains 2 “**Tliq**” sensors

Refrigerant circuit faults

H7 Troubleshooting





SECTION 5:

OUTDOOR UNIT COMPONENT FAULTS

ODU components faults

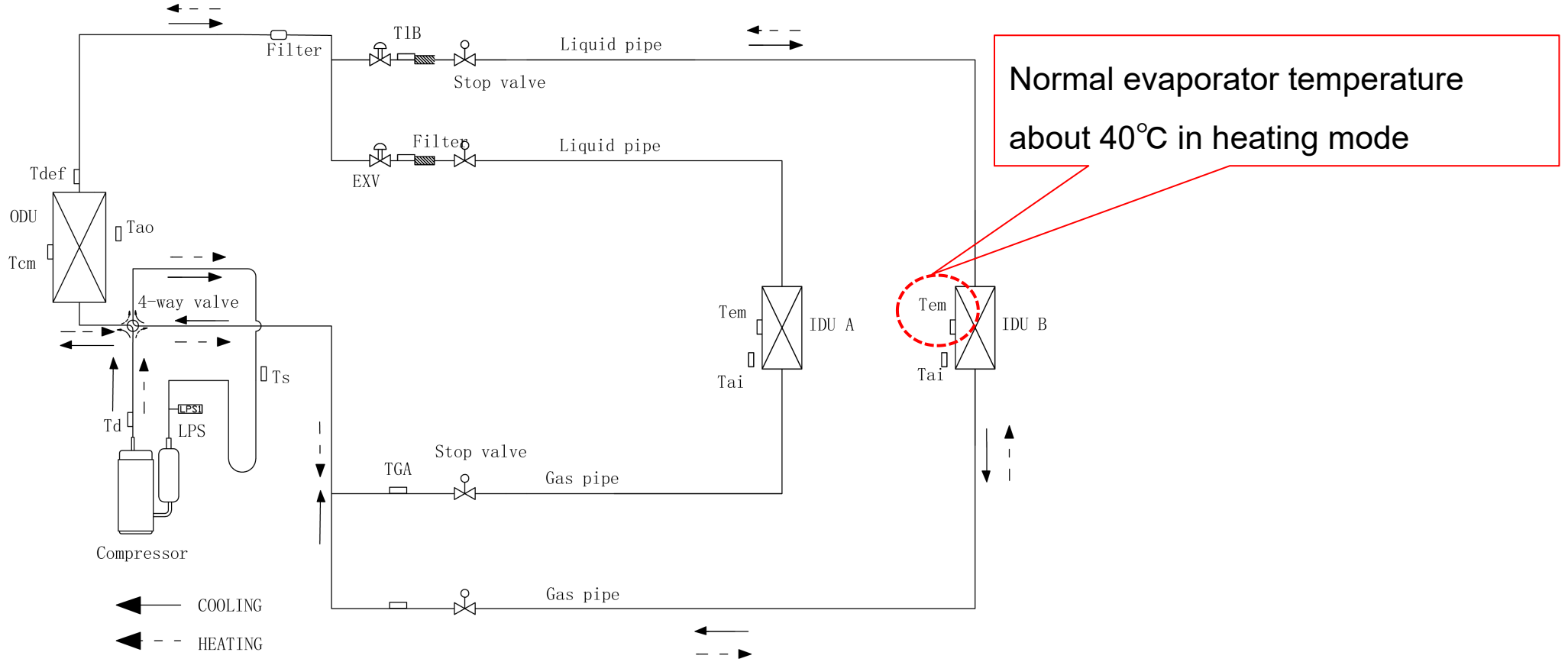
IDU code display Wall Mounted Air Handler M-Series	Fault/protection code description	Possible reason
H8	Fault of four way valve	①Damage of four-way valve ②Damage to coil of four-Way valve
P2	High pressure switch protection	①System dirty blocking ②Damage of high pressure switch
H6	Low pressure switch protection	①Lack of refrigerant ②Stop valve unopen ③Damage of low pressure switch

ODU components faults

1. H8 Fault of four way valve

Error logic :

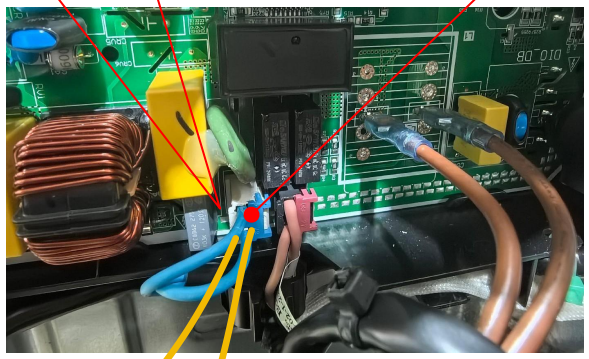
Heating : evaporator mid temperature sensor “Tem” detected temperature big difference with normal value,will display H8



ODU components faults

H8 Troubleshooting flow chart

Four way valve connection port, no input signal



Output 220V~

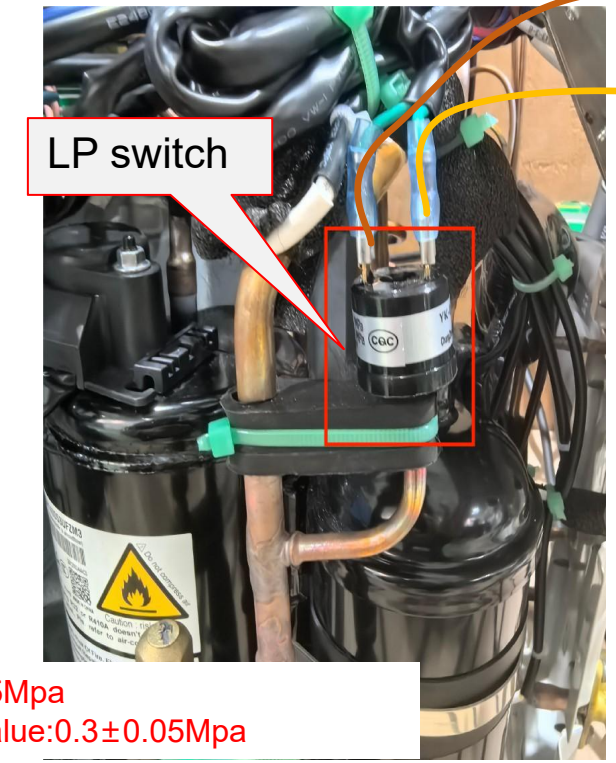
1. Check whether the connection port is loose
Yes → Reconnect
No ↓
2. Remove wiring, test port whether had 220V~ voltage
No → Replace PCB
Yes ↓
3. Replace a new FWV coil and reset heating mode
Error still → Replace FWV

ODU components faults

2. H6/P2 Low/High pressure switch protection

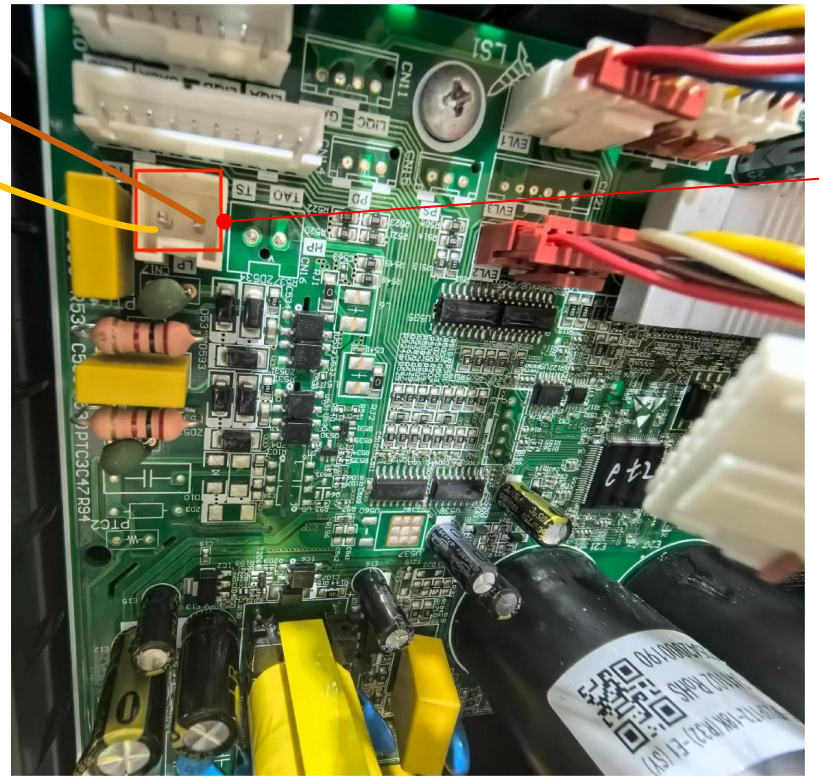
Protection logic :

LP/HP switch connection ports on PCB are normally closed circuit , once be disconnected after few minutes, will display **H6/P2**



Cut off value:0.1±0.05Mpa
Resume connected value:0.3±0.05Mpa

Main PCB(18K reference)



All models have low pressure switch

ODU components faults

H6/P2 Troubleshooting flow chart

H6/P2 protection

Check LP/HP port and PCB
Remove wiring,short connect 2 point then power reset

No error

Check LP/HP switch
Reconnect switch wiring to PCB
power reset

Still error

Replace LP/HP switch

No error

Error still

Replace PCB

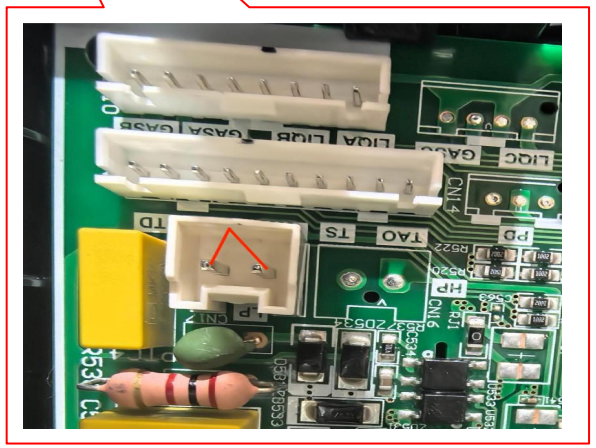
Check installation of ODU
Whether poor heat exchange of ODU

Yes

Improve installation

No error

Check the refrigerant system
Whether poor performance of indoor side
Whether abnormal current、high pressure value
Vacuum, check Air tightness, recharging refrigerant



*18K ODU PCB for reference

Pressure switch configuration

Series	Model	Pressure switch specification			
		Low pressure switch	pressure switch code	High pressure switch	pressure switch code
Standard	18K	✔	16442024000036	✕	✕
	24K	✔		✕	✕

SECTION 6:

OUTDOOR UNIT ELECTRIC CONTROL FAULTS

ODU electric control faults

Compressor fault/Protection

IDU code display Wall Mounted Air Handler M-Series	Fault/protection code description	Possible reason
LA(F3)	Compressor start failure(Compressor protection failure)	①Compressor power line not connected ②Compressor sequence connection error ③Damage of compressor ④Dirty heat exchanger
L2	Compressor out-of-step failure	①Damage of compressor ②Dirty refrigerant system
L3	Phase-absence protection of compressor	①Damage of compressor ②Compressor power line not connected
F1	Module protection failure	①Compressor damage ②Compressor IPM Module damage ③Dirty heat exchanger
L7	AD Abnormal protection for compressor current detection	Sensor damage of compressor IPM module
L4	IPM Fault of compressor drive module	Compressor drive module damage

ODU electric control faults

1. **LA/F3 Compressor failed to start**
2. **L2 Compressor out-of-step failure**
3. **L3 Phase-absence protection of compressor**
4. **F1 Module protection failure**
5. **L7 AD Abnormal protection for compressor current detection**
6. **L4 IPM Fault of compressor drive module**

Error/protection logic :

PCB detects the current feedback signal before compressor start . When an abnormal current is detected (the current is too high),will display above code(LA/F3/L2/L3/F1/L7/L4)

ODU electric control faults

LA/F3/L2/L3/F1/L7/L4 Troubleshooting reference

Situation 1: If the code appears after the unit has been in operation for some time, the reason for the failure may be a problem with the refrigerant system. The possible reasons are as follows:

Normally, the refrigerant pressure of the device is kept within a reasonable range. However, if the unit have a heat transfer problem in the installation environment, pipes are blocked during installation, or refrigerant leaks in the system. The unit will have the phenomenon of low refrigerant pressure, and the unit running current will increase, resulting in display above error code.

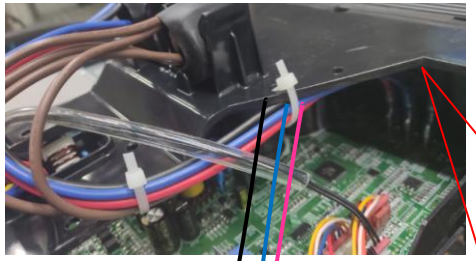
At this time, the first thing to do is to check whether the refrigeration system has the above problems.

ODU electric control faults

LA/F3/L2/L3/F1/L7/L4 Troubleshooting reference

Situation 2:If the error code appears when the unit is started, the possible cause is the failure of the unit components. In this case, follow these steps to identify the problem.

1. Using a multimeter to measure the voltage and check whether the IPM drive failure protection is enabled.



The normal value is about 15V

1. Check whether DC voltage < 13V

Yes

Replace Drive module

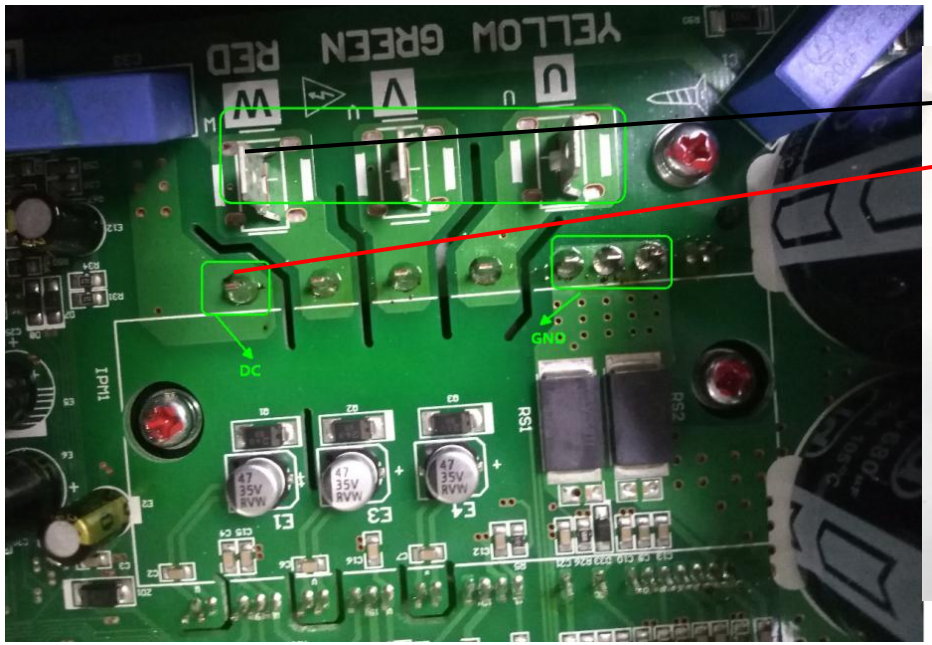
No

2. Check following page for next step

ODU electric control faults

LA/F3/L2/L3/F1/L7/L4 Troubleshooting reference

2. Using a multimeter to following Pins to check short circuit.



Test as below steps :

① test W and DC

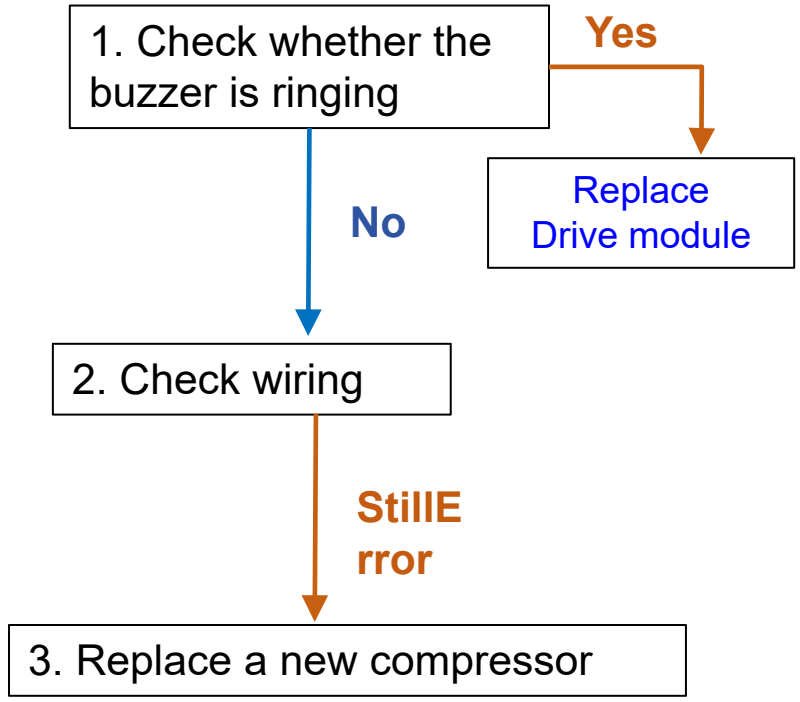
② test V and DC

③ test U and DC

④ test W and GND

⑤ test V and GND

⑥ test U and GND



ODU electric control faults

ODU drive module fault/Protection

IDU code display Wall Mounted Air Handler M-Series	Fault/protection code description	Possible reason
L5(F2)	Compressor drive PFC hardware protection	①Damage of the PFC circuit components ②Reactor damage
LC	PFC Current Detection AD Abnormal Protection	Failure of PFC Module Circuit Device
F9	Fault with the outdoor unit EEPROM	①Chip damage
L9	IPM Temperature sensor fault	①Compressor IPM Module sensor damage ②Poor contact between compressor IPM module and radiator
P8	AC Over-current protection of the whole machine	①Excessive running current of the unit ②Voltage drops abruptly in operation
L0（F7）	Fault with the over-voltage or low voltage protection	①Too high input voltage ②Too low input voltage

ODU electric control faults

6. **L5/F2 Compressor drive hardware protection**
7. **LC PFC Current Detection AD Abnormal Protection**
8. **F9 Fault with the outdoor unit EEPROM &**
9. **L9 Abnormal temperature sensor in IPM/PFC module**

Troubleshooting solution:

Situation 1: If the code appears after the unit has been in operation for some time, the reason for the failure may be a problem with the refrigerant system. Check refrigerant system

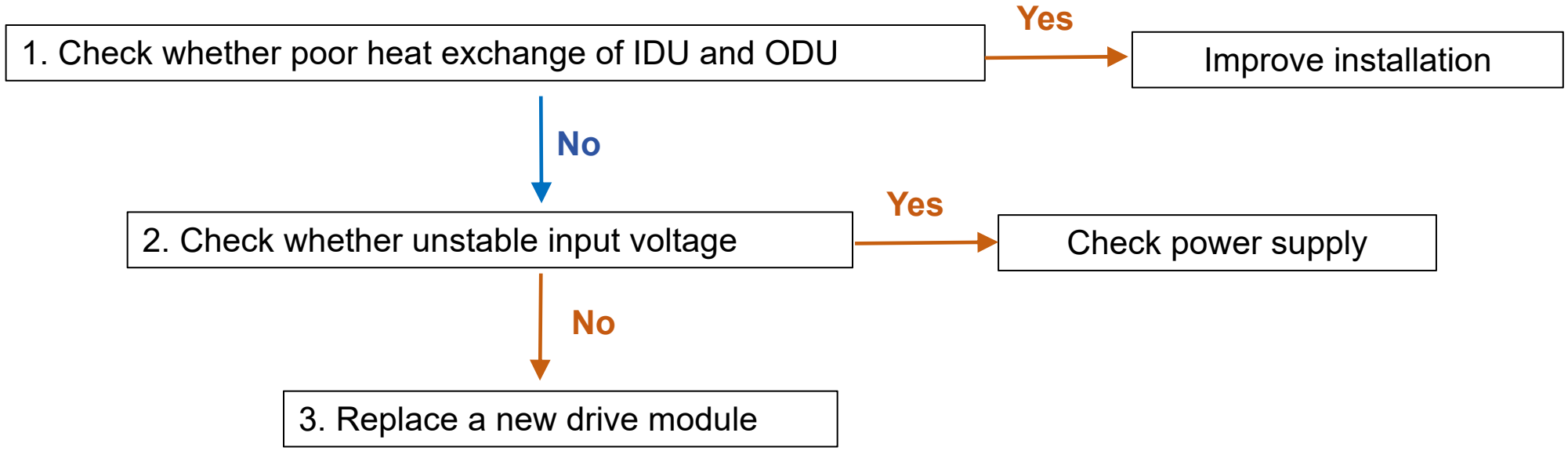
Situation 2:If the error code appears when the unit is started, the possible cause is the failure of the unit components. Replace a new drive module

ODU electric control faults

10. P8 AC Over-current protection of the whole machine

Protection logic :

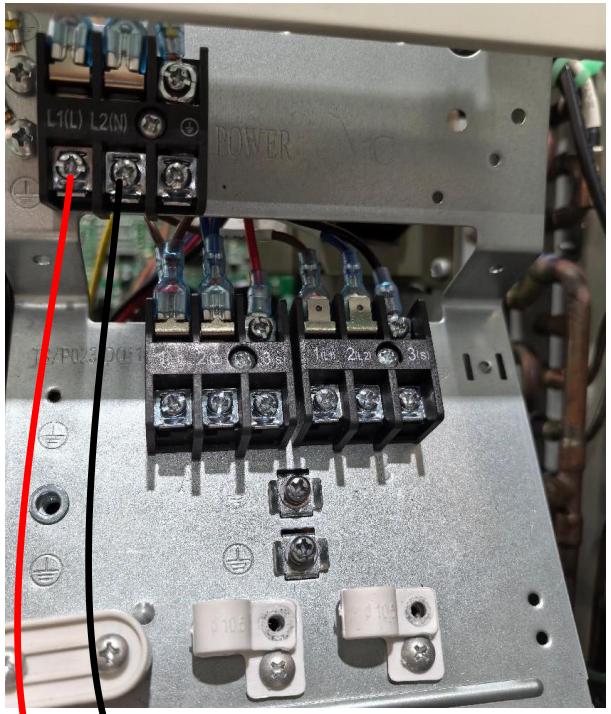
Due to poor signal of input AC voltage or unstable voltage cause high current



ODU electric control faults

11. L0 Fault with the over-voltage or low voltage protection

Troubleshooting



1. Check voltage whether in 125V~290V

No → Check power supply

Yes → Replace a new drive module

Normal voltage range:125V~290V

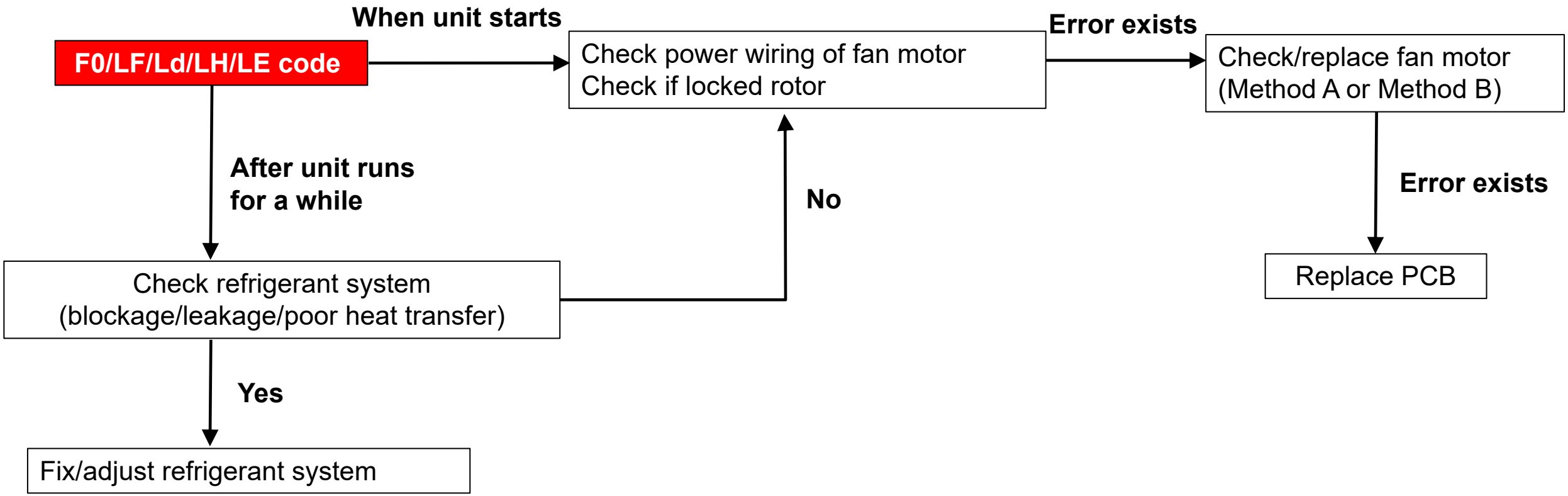
ODU electric control faults

ODU fan motor fault/Protection

IDU code display Wall Mounted Air Handler M-Series	Fault/protection code description	Possible reason
F0	Fault with the fan motor of outdoor unit	Damage of motor or PCB
LE	Phase-absence protection of outdoor DC fans	①DC fan line not connected ②Three wires of DC fan are disconnected
LF	Outdoor DC fan out-of-step/over current protection	①DC motor failure ②High Speed of DC Fan ③Dirty heat exchanger
Ld	AD abnormal protection for outdoor DC fan current detection	Failure of DC Fan Module Circuit Device
LH	IPM protection of outdoor DC fan	The IPM device of DC motor is damaged

ODU electric control faults

F0/LF/Ld/LH/LE Trouble shooting reference

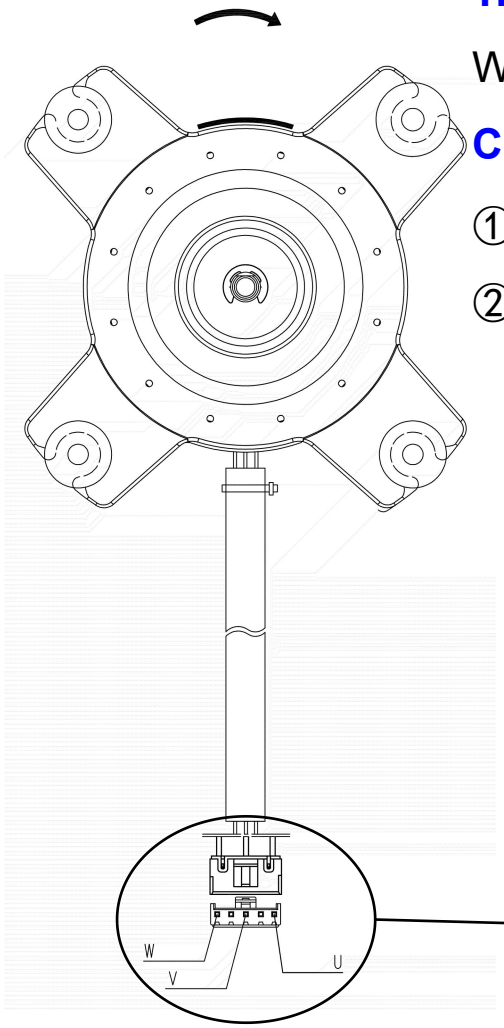


Fan motor configuration

Series	Model	Fan motor specification		
		Fan control chip location	Fan code	Trouble-shooting method
Regular	18K	Main board	11230005000078	Method A
	24K		11230005000077	

ODU electric control faults

ODU Fan motor fault-Method A



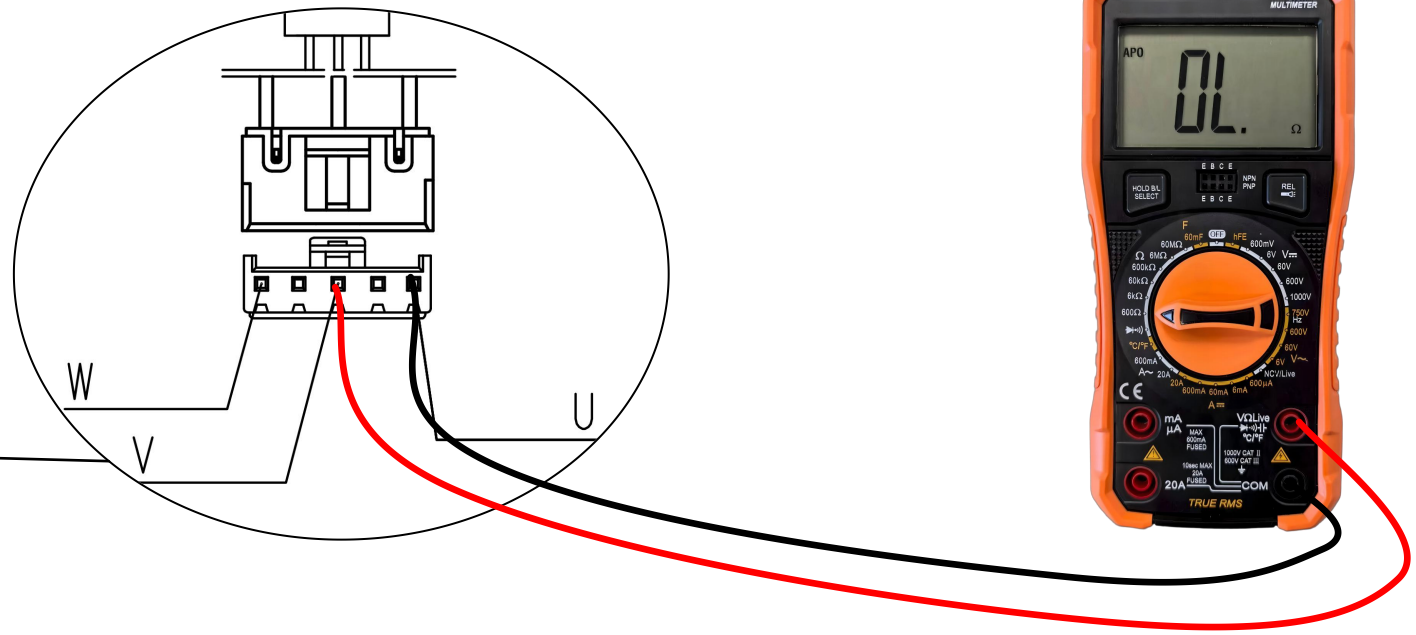
Troubleshooting:

When power off ,disconnect motor UVW from PCB, measure the resistance of **U-V,V-W,U-W**

Conclusion:

①If these resistance is not equal to each other, the motor must have problems and need replacement

②Otherwise,the PCB must have problems and need replacement

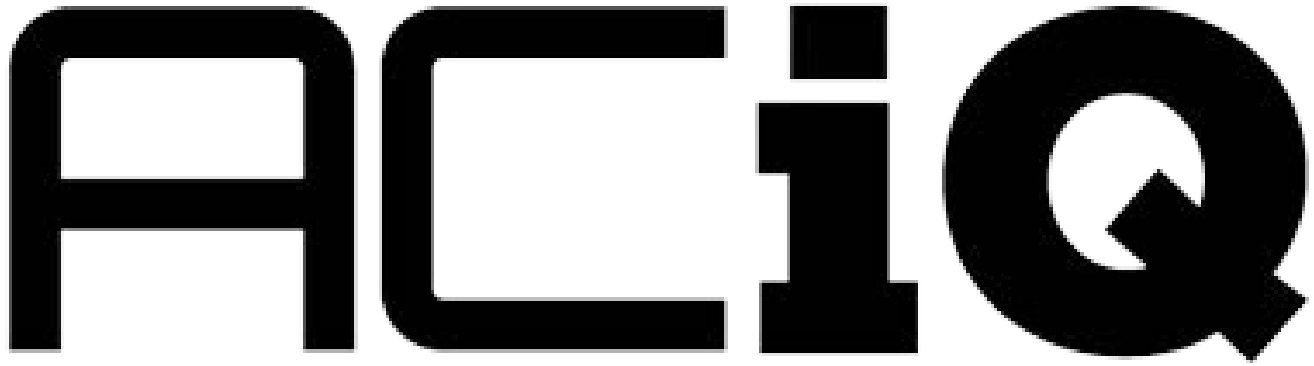


Malfunction guide (No codes present)

Phenomenon	Troubleshooting
Air conditioner dose not operate at all	①Has the power been shut down? ②Is the wiring loose? ③Is the voltage stable or in the range? ④Is the fuse burnt? ⑤Does it reach the set time for start up?
Remote controller is not available	①Is the remote controller out of effective distance to the indoor unit? ②Is the battery exhausted? ③Are there any obstructions between the controller and the signal receptor?
Cooling(Heating)efficiency is not good	①Is the setting temperature suitable? ②Is the air inlet or outlet obstructed? ③Is the air filter dirty? ④Is indoor fan speed set at low speed? ⑤Is there any heat source in your room?
Indoor unit does not operate immediately when the air conditioner is restarted	Once the air conditioner is stopped, it will not operate in approximately 3 minutes to protect itself.

Malfunction guide (No codes present)

Phenomenon	Troubleshooting
There is unusual smell blowing from the outlet after operation is started	This is caused by the odour in the room permeated from building material,furniture,or smoke.
Sound of water flow can be heard during cooling operation	This is caused by the refrigerant flowing inside the unit.
Mist is emitted during cooling operation.	Because the air of the room is cooled down rapidly by the cold wind and it looks like the fog.
Mist is emitted during heating operation.	This is due to moisture in defrosting process
A low hissing sound is caused by the refrigerant flowing.	①Low noise can be heard during operation ②A low squeak sound is caused by the deformation of plastic due to temperature.



The design and specifications are subject to change without prior notice for product improvement. Consult with the sales agency or manufacturer for details. Any updates to the manual will be uploaded to the service website, please check for the latest version.