

Chapter 4 Maintenance

Part 1 Failure Code Table

1. System Failure Code Table

		GREE VRF Display Code (1)																						
Content symbol	Distinctive symbol	0	1	2	3	4	5	6	7	8	9	A	H	C	L	E	F	J	P	U	b	d	n	y
		Indoor	a	r	Indoor unit fault (unified)	Indoor fan protection	Auxiliary heating protection	Water overflow protection	Power supply over-current protection	Anti-freezing protection	Mode conflict	No master IDU	Power supply shortage	Inconsistent number of multi-split IDUs	Inconsistent series of multi-split IDUs	Warning about poor air quality	Mismatching indoor and ODU models	—	—					
			Indoor unit PCB fault	—	Temperature sensor fault	temperature	temperature	temperature	temperature	Humidity sensor fault	temperature	Jumper cap fault	network address	Wired controller PCB exception	Volume dial switch setting exception	temperature	Indoor CO2 sensor fault							
			Project commissioning																					

		GREE VRF Display Code (2)																							
Content symbol	Distinctive symbol	0	1	2	3	4	5	6	7	8	9	A	H	C	L	E	F	J	P	U	b	d	n	y	
		Outdoor	m	Outdoor unit fault (unified)	High-pressure protection	Low exhaust temperature protection	Low-pressure protection	High exhaust temperature protection	High exhaust temperature protection	High exhaust temperature protection for compressor 1	High exhaust temperature protection for compressor 2	High exhaust temperature protection for compressor 3	High exhaust temperature protection for compressor 4	High exhaust temperature protection for compressor 5	High exhaust temperature protection for compressor 6	—	falling protection for	falling protection for	falling protection for	falling protection for	falling protection for	falling protection for	High cover temperature protection for compressor 1	High cover temperature protection for compressor 2	

Outdoor	
I	P
F-an driver board fault (displayed on the IDU)	Compressor driver board fault (displayed on the IDU)
F-an driver board failure (displayed on the IDU)	Compressor driver board failure (displayed on the IDU)
F-an driver board power voltage protection (displayed on the IDU)	Compressor driver board power voltage protection (displayed on the IDU)
F-an drive module reset protection	Compressor drive module reset protection
F-an drive PFC protection	Compressor drive PFC protection
Variable frequency fan over-current protection	Inverter compressor over-current protection
F-an drive IPM module protection	Compressor drive IPM module protection
F-an drive temperature sensor fault	Compressor drive temperature sensor fault
F-an drive IPM over-temperature protection	Compressor drive IPM over-temperature protection
Variable frequency fan out-of-step protection	Inverter compressor out-of-step protection
Variable frequency fan drive storage chip fault	Inverter compressor drive storage chip fault
F-an drive DC bus high voltage protection	Compressor drive DC bus high voltage protection
F-an drive current detection circuit fault	Compressor drive current detection circuit fault
F-an drive DC bus low voltage protection	Compressor drive DC bus low voltage protection
Variable frequency fan out-of-phase protection	Inverter compressor out-of-phase protection
F-an drive recharging circuit fault	Compressor drive recharging circuit fault
Variable frequency fan starting failure	Inverter compressor starting failure
Variable frequency fan AC current protection	Inverter compressor AC current protection

GREE VRF Display Code (5)	
Content	Symbol
	Distinctive symbol
Commissioning	0
	1
Deficient preheating of the compressor	2
Wrong ODU capacity code/warning can setting	3
Power phase sequence protection	4
Refrigerant shortage protection	5
Wrong compressor drive board address	6
Valve exception warning	7
	8
Indoor unit pipeline fault	9
Outdoor unit pipeline fault	A
	H
	C
Master IDU is set	L
Wrong compressor emergency operation dial	E
Invalid refrigerant injection	F
	J
	P
	U
	b
	d
	n
	y

Part 2 Exception and Troubleshooting

Exception Analyzing and Troubleshooting

(1) Form analyzing

1. Control

Fault code	Fault	Possible reasons	Solution
F0	Faults in the ODU's main board (such as memory and address chip exceptions)	<ol style="list-style-type: none"> 1. The clock chip on the main board is damaged. 2. The memory chip on the main board is damaged. 3. The address chip on the main board is damaged. 	<ol style="list-style-type: none"> 1. Replace the small CPU board. 2. Replace the control board. 3. Replace the control board.
FC	Faults in the constant frequency compressor's current sensor	<ol style="list-style-type: none"> 1. The constant-frequency compressor is not started. 2. The current detection board is faulty. 3. The main board's detection circuit is faulty. 	<ol style="list-style-type: none"> 1. If the compressor is not started, check if the AC contact is closed. If not, replace the AC contact. If the connection is loose, reconnect it; 2. Replace the current detection board. 3. Replace the main board.
U2	Wrong outdoor capacity code setting	<ol style="list-style-type: none"> 1. The capacity code is wrong. 2. The dial component is faulty. 	<ol style="list-style-type: none"> 1. Modify the capacity code setting. 2. Replace the main board.
U3	Power phase sequence protection	<ol style="list-style-type: none"> 1. The three-phase power cable is not connected correctly. 2. The main board's detection circuit is faulty. 	<ol style="list-style-type: none"> 1. Check connection of the power cable. 2. Replace the control board.
UL	Wrong emergency operation dial code	<ol style="list-style-type: none"> 1. The dial setting is wrong. 2. The dial component is faulty. 	<ol style="list-style-type: none"> 1. Modify the dial setting. 2. Replace the main board.
C0	Communication failure between indoor and ODUs and IDU's communicator	<ol style="list-style-type: none"> 1. The communication cable is not connected. 2. The communicator is disconnected. 3. The communication cable is poorly connected. 4. The communicator controller is faulty. 	<p>If C0 is not displayed on the control board of the ODU, check the network between the IDU and communicator. If C0 is displayed, check the network between the IDUs and ODUs and between the IDU and communicator as follows:</p> <ol style="list-style-type: none"> 1) Check if the cables connecting the control board of the ODU and the IDU and connecting the IDU and communicator are loose. If yes, reconnect them; 2) Check if the cables connecting the control board and IDU and connecting the IDU and communicator are broken. If yes, replace the cables; 3) Check the contact of the communication cables; 4) Replace the control board. If the fault is solved, the control board is faulty. Replace the IDU. If the fault is solved, the IDU is faulty.
C2	Communication failure between main control board and inverter compressor drive	<ol style="list-style-type: none"> 1. The communication cable is not connected. 2. The communicator is disconnected. 3. The communication cable is poorly connected. 4. The communicator is faulty. 	<ol style="list-style-type: none"> 1) Check if the cable connecting the control board and the compressor's drive board is loose. If yes, reconnect it; 2) Check if the cable connecting the control board and compressor's drive board is broken. If yes, replace the cable; 3) Check the contact of the communication cable connecting the control board and compressor's drive board; 4) Replace the control board. If the fault is solved, the control board is faulty. Replace the compressor's drive board. If the fault is solved, the compressor's drive board is faulty.

C3	Communication failure between main control board and variable frequency fan drive	<ol style="list-style-type: none"> 1. The communication cable is not connected. 2. The communicator is disconnected. 3. The communication cable is poorly connected. 4. The communicator is faulty. 	<ol style="list-style-type: none"> 1) Check if the cable connecting the fan's drive board and the compressor's drive board is loose. If yes, reconnect it; 2) Check if the cable connecting the fan's drive board and compressor's drive board is broken. If yes, replace the cable; 3) Check the contact of the communication cable connecting the fan's drive board and compressor's drive board; 4) Replace the control board. If the fault is solved, the control board is faulty. Replace the fan's drive board. If the fault is solved, the fan's drive board is faulty.
C5	Indoor unit project number conflict warning	<ol style="list-style-type: none"> 1. Project numbers conflict with each other. 	<ol style="list-style-type: none"> 1. Change conflicting project numbers and ensure that no IDU's project number is repeated.
C6	Outdoor unit number inconsistency warning	<ol style="list-style-type: none"> 1. Communication cables between ODUs are loose. 2. Communication cables between ODUs are broken. 3. Communication cables between ODUs are poorly connected. 4. The control board is faulty. 	<ol style="list-style-type: none"> 1. If the communication cable is loose, reconnect it; 2. If the communication cable is broken, replace it; 3. Check contact of the communication cable; 4. Replace the control board.
CC	No controlling unit	<ol style="list-style-type: none"> 1. The SA8 dial switch of the ODU is not switched to 00. 2. The SA8 dial switch of the ODU is faulty. 	<ol style="list-style-type: none"> 1. Switch the SA8 dial switch of an ODU to 00; 2. Replace the control board or switch an ODU's SA8 dial switch to 00.
CF	Multiple controlling units	<ol style="list-style-type: none"> 1. SA8 dial switches of multiple ODUs are switched to 00. 2. Dial switches of multiple ODUs are faulty. 	<ol style="list-style-type: none"> 1. Leave one SA8 dial switch unchanged, while switch all the other dial switches to 11; 2. Replace the control board.
L7	No master IDU	<ol style="list-style-type: none"> 1. The master IDU is powered off. 2. The communication of the master IDU fails. 3. The main board of the master IDU is faulty. 4. No master IDU is set in the system. 	<ol style="list-style-type: none"> 1. Check if the master IDU is powered on. If yes, replace the main board; 2. Check the contact of the communication cable of the master IDU. If no communication failure (C0) is reported, replace the main board. 3. Replace the IDU's main board and reset the master IDU. 4. Set the master IDU.
C5	Project number conflict	<ol style="list-style-type: none"> 1. Multiple IDUs share one project number. 	<ol style="list-style-type: none"> 1. Reset the repeated project number (useful when there is no centralized control of multiple systems).

Note: Solution of C5 fault when multiple cooling systems are controlled in a centralized way

When multiple cooling systems are controlled in a centralized way, the C5 fault, i.e. project number conflict, may occur on different cooling systems. In such case, set project numbers of each system and solve the fault as follows:

1) Project number conflict:

When multiple systems are controlled in a centralized way, if two or more IDUs share the same project number, the engineer number conflict occurs. In that case, IDUs cannot be switched to varied modes or be turned on or off. The whole device cannot be started before the conflict is solved. The commissioning software will show the following page:

When the project number conflict occurs, you can use the communicator or remote controller to revise project numbers and solve the conflict. See the manual of the communicator or remote controller for the method.

③Setting of auto project number deviation on ODU's main board (recommended)

You can set auto IDU project number deviation via the ODU's main board as follows:

(1) After the whole system is commissioned, short press SW3 on the controlling unit and the system will enter the standby status as follows:

LED1		LED2		LED3	
Function Code	LED Status	Progress	LED Status	Status	LED Status
A7	Flicker	00	Flicker	00	Flicker
A6	Flicker	00	Flicker	00	Flicker
A2	Flicker	00	Flicker	00	Flicker
A8	Flicker	00	Flicker	00	Flicker
n0	Flicker	01	Flicker	00	Flicker
n1	Flicker	00	Flicker	00	Flicker
n2	Flicker	00	Flicker	00	Flicker
n3	Flicker	00	Flicker	00	Flicker
n4	Flicker	00	Flicker	00	Flicker
n5	Flicker	00	Flicker	00	Flicker

(2) Press SW2 (▼) on the controlling unit and select n5. Short press SW7 to show the following information:

LED1		LED2		LED3	
Function Code	LED Status	Progress	LED Status	Status	LED Status
n5	Solid On	00	Flicker	OC	Flicker

(3) When project number deviation is to be confirmed, short press SW7 confirmation button to enter the project number deviation status as shown in the following:

LED1		LED2		LED3	
Function Code	LED Status	Current Progress/Mode	LED Status	Status	LED Status
n5	Solid On	00	Solid On	OC	Solid On

IDU project numbers in all systems will automatically deviate. The conflict will be solved in about 1 minute and the system will work properly.

The automatic deviation function only works when it is enabled on the controlling unit in the system, of which the centralized control address is 00000.

Note: When there are only a few conflicting IDUs, manual setting is recommended. This method only applies to conflicting IDUs and does only affect other IDUs' project numbers.

In case of many conflicting IDUs, auto deviation is recommended. This method is faster, but may change project numbers of normal IDUs. This method applies for the first commissioning after installation.

Fault code	Fault	Possible reasons	Solution

C2	Communication failure between main control board and inverter compressor drive	<ol style="list-style-type: none"> 1. The control board is powered off; 2. The compressor drive board is powered off; 3. The communication cable between the control board and compressor drive board is not connected; 4. The compressor drive board's dial switch SA201 is wrong. 	<ol style="list-style-type: none"> 1. Check the power supply of the control board. Replace the control board if it works properly; 2. Check the power supply of the drive board. Replace the drive board if it works properly; 3. Connect the main board and drive board using the communication cable; 4. Adjust the dial switch of the compressor drive board.
P3	Compressor drive module reset protection	<ol style="list-style-type: none"> 1. The compressor drive board is faulty. 	<ol style="list-style-type: none"> 1. Replace the compressor drive board.
P5	Inverter compressor over-current protection	<ol style="list-style-type: none"> 1. The drive board's IPM module is damaged; 2. The compressor's UVW cable is not connected properly; 3. The compressor is damaged. 	<ol style="list-style-type: none"> 1. Replace the compressor drive board; 2. Reconnect the compressor's UVW cable; 3. Replace the compressor.
P6	Compressor drive IPM module protection	<ol style="list-style-type: none"> 1. The drive board's IPM module is damaged; 2. The compressor's UVW cable is not connected properly; 3. The compressor is damaged. 	<ol style="list-style-type: none"> 1. Replace the compressor drive board; 2. Reconnect the compressor's UVW cable; 3. Replace the compressor.
P7	Compressor drive temperature sensor fault	<ol style="list-style-type: none"> 1. The compressor drive board is faulty. 	<ol style="list-style-type: none"> 1. Replace the compressor drive board.
P8	Compressor drive IPM over-temperature protection	<ol style="list-style-type: none"> 1. The compressor drive board is faulty; 2. Thermal gel is not applied evenly on the IPM module; 3. The IPM module is not screwed properly. 	<ol style="list-style-type: none"> 1. Replace the compressor drive board; 2. Apply thermal gel evenly on the IPM module; 3. Screw the IPM module properly.
P9	Inverter compressor out-of-step protection	<ol style="list-style-type: none"> 1. The compressor drive board is faulty. 2. The compressor is damaged. 	<ol style="list-style-type: none"> 1. Replace the compressor drive board. 2. Replace the compressor.
PH	Compressor drive DC bus high voltage protection	<ol style="list-style-type: none"> 1. Does the voltage of the input power cable of the whole system exceed 460 V; 2. The compressor drive board is faulty. 	<ol style="list-style-type: none"> 1. Lower the voltage of the input power cable to the required range; 2. Replace the compressor drive board.
PL	Compressor drive DC bus low voltage protection	<ol style="list-style-type: none"> 1. Is the voltage of the input power cable of the whole system lower than 320 V; 2. The compressor drive board is faulty. 	<ol style="list-style-type: none"> 1. Elevate the voltage of the input power cable to the required range; 2. Replace the compressor drive board.
PC	Compressor drive current check circuit fault	<ol style="list-style-type: none"> 1. The compressor drive board is faulty. 	<ol style="list-style-type: none"> 1. Replace the compressor drive board.
PF	Compressor drive recharging circuit fault	<ol style="list-style-type: none"> 1. Is the voltage of the input power cable of the whole system lower than 280 V; 2. The compressor drive board is faulty. 	<ol style="list-style-type: none"> 1. Elevate the voltage of the input power cable to the required range; 2. Replace the compressor drive board.
PJ	Inverter compressor starting failure	<ol style="list-style-type: none"> 1. The drive board is damaged; 2. The compressor's UVW cable is not connected properly; 3. The compressor is damaged. 	<ol style="list-style-type: none"> 1. Replace the compressor drive board; 2. Reconnect the compressor's UVW cable; 3. Replace the compressor.
C3	Communication failure between	<ol style="list-style-type: none"> 1. The control board is powered off; 2. The fan drive board is powered 	<ol style="list-style-type: none"> 1. Check the power supply of the control board. Replace the control board if it

	main control board and variable frequency fan drive	off; 3. The communication cable between the control board and fan drive board is not connected; 4. The fan drive board's dial switch is wrong.	works properly; 2. Check the power supply of the drive board. Replace the drive board if it works properly; 3. Connect the main board and drive board using the communication cable; 4. Adjust the dial switch of the fan drive board.
H3	Fan drive module reset protection	1. The fan drive board is faulty.	1. Replace the fan drive board.
H5	Variable frequency fan over-current protection	1. The fan drive board's IPM module is damaged; 2. The fan's UVW cable is not connected properly; 3. The fan is damaged.	1. Replace the fan drive board; 2. Reconnect the fan's UVW cable; 3. Replace the fan.
H6	Fan drive IPM module protection	1. The fan drive board's IPM module is damaged; 2. The fan's UVW cable is not connected properly; 3. The fan is damaged.	1. Replace the fan drive board; 2. Reconnect the fan's UVW cable; 3. Replace the fan.
H7	Fan drive temperature sensor fault	1. The fan drive board is faulty.	1. Replace the fan drive board.
H8	Fan drive IPM over-temperature protection	1. The fan drive board is faulty; 2. Thermal gel is not applied evenly on the IPM module; 3. The IPM module is not screwed properly.	1. Replace the fan drive board; 2. Apply thermal gel evenly on the IPM module; 3. Screw the IPM module properly.
H9	Variable frequency fan out-of-step protection	1. The fan drive board is faulty. 2. The fan is damaged.	1. Replace the fan drive board. 2. Replace the fan.
HH	Fan drive DC bus high voltage protection	1. Does the voltage of the input power cable of the whole system exceed 460 V; 2. The fan drive board is faulty.	1. Lower the voltage of the input power cable to the required range; 2. Replace the fan drive board.
HL	Fan drive DC bus low voltage protection	1. Is the voltage of the input power cable of the whole system lower than 320 V; 2. Is the fan drive board well connected with the compressor drive board; 3. The fan drive board is faulty.	1. Elevate the voltage of the input power cable to the required range; 2. Connect the fan drive board with the compressor drive board according to the wiring diagram; 3. Replace the fan drive board.
HC	Fan drive current detection circuit fault	1. The fan drive board is faulty.	1. Replace the fan drive board.
HJ	Variable frequency fan starting failure	1. The drive board is damaged; 2. The fan's UVW cable is not connected properly; 3. The fan is damaged.	1. Replace the fan drive board; 2. Reconnect the fan's UVW cable; 3. Replace the fan.

2. System faults

2.1 System exhaust temperature exception

Fault code	Fault	Possible reasons						Solution
		Primary reason		Secondary reason		Tertiary reason		
		Description	Confirmation method	Description	Confirmation method	Description	Confirmation method	
E4	High exhaust temperature protection	1. The stop valve of the ODU is not fully opened as required.	—	—	—	—	Manual check	Fully open the stop valve.
		2. The IDU's electronic expansion valve is not working properly.	When the IDU is working in the cooling mode and the electronic expansion valve is opened to 2000PLS, the exhaust temperature of the IDU's coil is more than 15°C higher than the intake temperature ; when the IDU is working in the heating mode and the electronic expansion valve is opened to 2000PLS, the intake temperature of the IDU's coil is more than 10°C higher than the intake temperature ;	2.1 The controlling of electronic expansion valve by main board of indoor unit is abnormal.	Reset the IDU. Listen to the sound and touch the tube to see if the electronic expansion valve is reset. If it is set, it is normal. Otherwise, it is faulty.	2.1.1 The control wire of the electronic expansion valve is not connected to the main board.	Manual check	Connect the electronic expansion valve's control wire to the main board.
						2.1.2 The control wire that connects the electronic expansion valve to the main board is broken.	Manual check	Repair or replace the control wire of the electronic expansion valve.
				2.2 The electronic expansion valve in the mode switcher is faulty.	Other reasons	2.2.1 Affected by impurities in the system	—	Clean the system and clear the impurities. Replace the body of the electronic expansion valve.
						2.2.2 The valve body is faulty.	—	Replace the body of the electronic expansion valve.
		3. The system pipeline is blocked.	The system's exhaust temperature rises and the low	3.1 The fluid pipe is blocked.	Touch the pipe along the flowing direction of refrigerant to feel the	—	—	Replace and solder the pipe.

		pressure is too low (compared with the reference value).	3.2 The air pipe is blocked.	temperature difference. The difference is large or part of the pipe is frosting.	—	—	Replace and solder the pipe.
			3.3 The pipe that connects the IDU is blocked.	Touch the pipe along the flowing direction of refrigerant to feel the temperature difference. The difference is large or part of the pipe is frosting.	3.3.1 The block is caused by solder.	Cut off the pipe to see if it is blocked.	Replace and solder the pipe.
		3.3.2 The pipeline is blocked by impurities.					Replace and solder the pipe.
	4. Lacking refrigerant	The system's exhaust temperature rises and the low pressure is too low (compared with the reference value).	4.1 Not enough refrigerant	—	—	—	Inject refrigerant as required.
			4.2 Refrigerant pipe leakage	Use the refrigerant leak detector to detect the leak along the pipe.	—	—	Stop the leak. Pump out air and inject refrigerant again.
	5. Wrong refrigerant is injected.	Stop the whole system. Test the system's balance pressure 20 minutes later and convert the pressure into the corresponding saturation temperature. Compare it with the outdoor ambient temperature. If the difference is	—	—	—	—	Discharge existing refrigerant and inject the correct refrigerant as required.

			larger than 5°C, it is exceptional.					
		6. Exhaust temperature sensor failure	—	—		—		Replace the temperature sensor or main board.
		7. The ambient temperature exceeds the scope of temperature required for safe operation.	—	The outdoor ambient temperature exceeds 50°C.	Measure the ambient temperature.	—	—	It is a normal phenomenon caused by the protection function.
E2	Low exhaust temperature protection	1. The ODU's electronic expansion valve is not working properly.	When the system is working in the heating mode and the ODU's electronic expansion valve is opened to 100PLS, the intake temperature of the corresponding liquid-air separator is more than 1°C lower than the low-pressure saturation temperature and the difference between the compressor's exhaust temperature or cover temperature and the high-pressure	1.2 The controlling heating electronic expansion of the main board or the electronic expansion valve of the subcooler is faulty.	Reset the ODU. Listen to the sound and touch the tube to see if the electronic expansion valve is reset. If it is set, it is normal. Otherwise, it is faulty.	1.2.1 The control wire of the electronic expansion valve is not connected to the main board.	Manual check	Connect the electronic expansion valve's control wire to the main board.
						1.2.2 The control wire that connects the electronic expansion valve to the main board is broken.	Manual check	Repair or replace the control wire of the electronic expansion valve.
			1.3 The body of the electronic expansion valve is not working properly.	Other reasons	1.3.1 Affected by impurities in the system	—	Clean the system and clear the impurities. Replace the body of the electronic expansion valve.	

		re temperature is smaller than 10°C.			1.3.2 The body of the valve is faulty.	—	Replace the body of the electronic expansion valve.
2. The IDU's electronic expansion valve is not working properly	When the system is working in the cooling mode and the ODU's electronic expansion valve is opened to 200PLS, the exhaust temperature of the IDU's coil is more than 1°C lower than the intake pipe's temperature and the difference between the compressor's exhaust temperature or cover temperature and the high-pressure temperature is smaller than 10°C.	2.1 The controlling of electronic expansion valve by main board of indoor unit is abnormal.	Reset the IDU. Listen to the sound and touch the tube to see if the electronic expansion valve is reset. If it is set, it is normal. Otherwise, it is faulty.	2.1.1 The control wire of the electronic expansion valve is not connected to the main board.	Manual check	Connect the electronic expansion valve's control wire to the main board.	
				2.1.2 The control wire that connecting the electronic expansion valve to the main board is broken.	Manual check	Repair or replace the control wire of the electronic expansion valve.	
		2.2 The body of the electronic expansion valve is not working properly.	Other reasons	2.2.1 Affected by impurities in the system	—	Clean the system and clear the impurities. Replace the body of the electronic expansion valve.	
				2.2.2 The valve body is faulty.	—	Replace the body of the electronic expansion valve.	
3. Exhaust temperature sensor failure	—	—	—	—	—	Replace the temperature sensor or main board.	

		4. Too much refrigerant	Other reasons	Incorrect quantity of refrigerant is injected.	—	—	—	Check the necessary amount of refrigerant and discharge the unneeded refrigerant slowly via the stop valve of the fluid pipe.
--	--	-------------------------	---------------	--	---	---	---	---

2.2 Pressure exception

Fault code	Fault	Possible reasons						Solution
		Primary reason		Secondary reason		Tertiary reason		
		Description	Confirmation method	Description	Confirmation method	Description	Confirmation method	
E1	High pressure protection	1. The stop valve of the ODU is not fully opened as required.	—	—	—	—	Manual check	Fully open the stop valve.
		2. The system pipeline is blocked.	The system's exhaust pressure rises and the low pressure is too low (compared with the reference value).	2.1. The system air pipeline is blocked.	Touch the pipe along the flowing direction of refrigerant to feel the temperature difference. The difference is large.	2.1.1 The block is caused by solder.	Cut off the pipe and check it.	Replace and solder the pipe.
						2.1.2 The pipeline is blocked by impurities.		Replace and solder the pipe.
				2.2 The fluid pipe is blocked.	Touch the pipe along the flowing direction of refrigerant to feel the temperature difference. The difference is large or part of the pipe is frosting.	—	—	Replace and solder the pipe.
				2.4 The pipe that connects the IDU is blocked.	Touch the pipe along the flowing direction of refrigerant to feel the temperature difference. The difference is large or part of the pipe is frosting.	2.4.1 The block is caused by solder.	Cut off the pipe and check it.	Replace and solder the pipe.
		2.4.2 The pipeline is blocked by impurities.	Replace and solder the pipe.					

				3.1 In the cooling mode, the outdoor temperature is over 50°C.	Measure the outdoor ambient temperature.	—	—	It is a normal phenomenon caused by the protection function.
				3.2 In the heating mode, the actual ambient temperature of the IDU's return air is over 30°C.	Measure the temperature of the unit's return air.	—	—	It is a normal phenomenon caused by the protection function.
	3. The ambient temperature is too high.	—						
	4. The pressure sensor is faulty.	—	4.1 The high pressure sensor is faulty.	Stop the whole system. Test the system's balance pressure 20 minutes later and convert the pressure into the corresponding saturation temperature. Compare it with the outdoor ambient temperature. If the difference is larger than 5°C, it is exceptional.		—	—	Replace the high pressure sensor.

				4.2 The high pressure and low pressure sensors are connected reversely.	Connect the stop valve of the module fluid pipe and air pipe to the high and low pressure gauges and transform the readings into corresponding temperatures. Compare them to the high- and low-temperatures tested by the system. If the difference is larger than 5°C, it is exceptional.	—	—	Reconnect the high- and low-pressure sensors.
5. The high pressure switch is faulty.	E1 protection is displayed on the unit when it is powered on.	5.1 The high pressure switch is not connected to the main board.		5.1.1 The pressure switch is not connected to the main board.	—	—	Reconnect it.	
				5.1.2 The connect wire between the pressure switch and main board is faulty.	—	—	Reconnect them with the wire.	
		5.2 The high pressure switch is damaged.	—	—	—	Replace the pressure switch.		
6. The fan is not working properly.	A. The ODU's fan does not work in the cooling mode. B. The IDU's motor	6.1 The IDU's fan is faulty.	Manual check	6.1.1 The power cable connecting the motor and main	Manual check	Manual check	Reconnect the motor with the power cable.	

			does not work in the heating mode.			board is loose.		
						6.1.2 The electric capacity is not connected or is damaged.	Manual check	Connect or replace the electric capacity.
						6.1.3 The motor is damaged.	Other reasons	Replace the motor.
						6.2.1 The fan motor is not properly connected with the control board of the motor with the power cable.	Manual check	Reconnect it properly.
						6.2.2 The fan motor is not properly connected with the control board of the motor with the signal feedback cable.	Manual check	Reconnect it properly.
				6.2 The ODU's fan is faulty.	Manual check	6.2.3 The control board of the fan's motor is damaged.	Manual check	Replace the control board of the motor.

						6.2.4 The main board of the fan's motor is damaged.	Other reasons	Replace the motor.
		7. Too much refrigerant	Other reasons	Incorrect quantity of refrigerant is injected.	---	---	---	Check the necessary amount of refrigerant and discharge unneeded refrigerant slowly via the stop valve of the fluid pipe.
JL	Low high pressure protection	1. The ambient temperature exceeds the range.	---	1.1 The outdoor ambient temperature in the cooling mode is lower than -10°C.	Measure the outdoor ambient temperature.	---	---	It is a normal phenomenon caused by the protection function.
				1.2 The indoor ambient temperature in the heating mode is lower than 5°C.	Measure the temperature of the unit's return air.	---	---	It is a normal phenomenon caused by the protection function.
		2. Not enough refrigerant	---					Locate the leak and inject refrigerant.

Fault code	Fault	Possible reasons						Solution
		Primary reason		Secondary reason		Tertiary reason		
		Description	Confirmation method	Description	Confirmation method	Description	Confirmation method	
E3	Low-pressure Protection	1. The stop valve of the ODU is not fully	---	---	---	---	Manual check	Fully open the stop valve.

	opened as required.								
	2. The system pipeline is blocked.	The system's exhaust pressure rises and the low pressure is too low (compared with the reference value).	2.1. The system air pipeline is blocked.	Touch the pipe along the flowing direction of refrigerant to feel the temperature difference. The difference is large.	2.1.1 The block is caused by solder.	Cut off the pipe and check it.	Replace and solder the pipe.		
					2.1.2 The pipeline is blocked by impurities.		Replace and solder the pipe.		
			2.2 The fluid pipe is blocked.	Touch the pipe along the flowing direction of refrigerant to feel the temperature difference. The difference is large or part of the pipe is frosting.	—	—	Replace and solder the pipe.		
			2.4 The pipe that connects the IDU is blocked.	Touch the pipe along the flowing direction of refrigerant to feel the temperature difference. The difference is large or part of the pipe is frosting.	2.4.1 The block is caused by solder.	Cut off the pipe and check it.	Replace and solder the pipe.		
					2.4.2 The pipeline is blocked by impurities.		Replace and solder the pipe.		
			3. The ambient temperature is too low.	—	3.1 The outdoor ambient temperature is lower than -25°C in the heating mode.	Measure the outdoor ambient temperature.	—	—	It is a normal phenomenon caused by the protection function.
			4. The pressure sensor is faulty.	—	4.1 The low pressure sensor is faulty.	Stop the whole system. Test the system's balance pressure 20 minutes	—	—	Replace the high pressure sensor.

				later and convert the pressure into the corresponding saturation temperature. Compare it with the outdoor ambient temperature. If the difference is larger than 5°C, it is exceptional.			
			4.2 The high pressure and low pressure sensors are connected reversely.	Connect the stop valves of the module high- and low-pressure air pipes to the high and low pressure gauges and transform the readings into corresponding temperatures. Compare them to the high- and low-temperatures tested by the system. If the difference is larger than 5°C, it is exceptional.	—	—	Reconnect the high- and low-pressure sensors.
	6. The fan is not working properly.	A. The IDU's fan does not work in the cooling mode. B. The ODU's fan does not work in the heating mode.	6.1 The IDU's fan is faulty.	Manual check	6.1.1 The power cable connecting the motor and main board is loose.	Manual check	Reconnect the motor with the power cable.
		6.1.2 The electric capacity is not connected or is			Manual check		Connect or replace the electric capacity.

						damaged.		
						6.1.3 The motor is damaged.	Other reasons	Replace the motor.
						6.2.1 The fan motor is not properly connected with the control board of the motor.	Manual check	Reconnect it properly.
						6.2.2 The fan motor is not properly connected with the control board of the motor with the communication feedback cable.	Manual check	Reconnect it properly.
						6.2.3 The control board of the fan's motor is damaged.	Manual check	Replace the control board of the motor.
				6.2 The ODU's fan is faulty.	Manual check	6.2.4 The main board of the fan's motor is damaged.	Other reasons	Replace the motor.
	7. Not enough refrigerant	Other reasons	Incorrect quantity of refrigerant is injected.		---	---	---	Check the necessary amount of refrigerant and inject refrigerant slowly via the stop valve of the low-pressure air pipe.

2.3 Poor cooling/heating performance

Feedback from user	Exception	Possible reasons						Solution	
		Primary reason		Secondary reason		Tertiary reason			
		Description	Confirmation method	Description	Confirmation method	Description	Confirmation method		
Poor heating/cooling performance	A. When the IDU is working in the cooling mode and the electronic expansion valve is opened to 2000PLS, the exhaust temperature of the IDU's coil is more than 5°C higher than the intake temperature; B. when the IDU is working in the heating mode and the electronic expansion valve is opened to 2PLS, the intake temperature of the IDU's coil is more than 12°C lower than the saturation temperature corresponding to the high pressure;	1. The stop valve of the ODU is not fully opened as required.	—	—	—	—	Manual check	Fully open the stop valve.	
		2. The system pipeline is blocked.	—	2.1. The system air pipeline is blocked.	Touch the pipe along the flowing direction of refrigerant to feel the temperature difference. The difference is large.	2.1.1 The block is caused by solder.	Cut off the pipe and check it.	Replace and solder the pipe.	
					Touch the pipe along the flowing direction of refrigerant to feel the temperature difference. The difference is large.	2.1.2 The pipeline is blocked by impurities.		Replace and solder the pipe.	
		2.2 The fluid pipe is blocked.	—	2.4 The pipe that connects the IDU is blocked.	Touch the pipe along the flowing direction of refrigerant to feel the temperature difference. The difference is large or part of the pipe is frosting.	—	—	Cut off the pipe and check it.	Replace and solder the pipe.
					Touch the pipe along the flowing direction	2.4.1 The block is caused by solder.	Replace and solder the pipe.		