Polar

SDA,SDB,SDX,SDY

Mini

Service manual

Error Code List

Applicable model: split type and floor standing unit

Display method of indoor unit				Malfunction name	AC status	Possible causes
Error code	Indicator display					
	Power indicator	Cool indicator	Heat indicator			
C5	Flash 15 times			Malfunction of jumper cap	The complete unit stops operation	1. Jumper cap is not installed in control panel; 2. Poor contact of jumper cap; 3. Jumper cap is damaged; 4. The tested circuit of jumper cap on control panel is abnormal.
E6	Flash 6 times			Communication malfunction between indoor unit and outdoor unit	Cool: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	See Page 10 “Communication malfunction”
H5			Flash 5 times	IPM protection	Cool/Dry: compressor stops operation, while indoor fan operates. Heat: all loads stops operation.	See Page 12 “IPM protection, over-phase current of compressor”
L3 LA				Malfunction of outdoor fan/ malfunction of DC motor	Cool/Dry: all loads stops operation except indoor fan. Heat: all loads stops operation.	1. Outdoor condenser, air inlet and air outlet are blocked by filth or dirt; 2.Fan is blocked or loosened; 3.Motor or connection wire of motor is damaged; 4.Main board of outdoor unit is damaged; (As for dual-outdoor fan, L3 indicates fan 1; LA indicates fan 2)
H3			Flash 3 times	Overload protection of compressor	Cool/Dry: compressor stops operation, while indoor fan operates. Heat: all loads stops operation.	1. Overload wire of compressor is loose; 2. The overload protector is damaged. Under normal circumstances, the resistance between both ends of terminal is less than 1ohm. 3.See Page 13 “Overload protection of compressor , High discharge temperature protection of compressor”
F0				Refrigerant insufficient protection, cut-off protection of refrigerant	Cool: compressor and outdoor fan stops operation, while indoor fan operates; Heat: Compressor, outdoor fan and indoor fan stops operation.	1. Is system cooling under high humidity environment, thus temperature difference of heat transfer is small; 2. Check whether the big valve and small valve of outdoor unit are opened completely; 3. Is the temperature sensor of evaporator of indoor unit loose? 4. Is the temperature sensor of condenser of outdoor unit loose? 5. Is the capillary or the electronic expansion valve blocked? 6. Is refrigerant leaking?
F1		Flash once		Indoor ambient temperature sensor is open/ short-circuited	Cool/Dry: indoor fan operates, while compressor and outdoor fan stops operation; Heat: all loads stops operation.	1. Temperature sensor is not well connected; 2. Temperature sensor is damaged (refer to Page 33 “Table 1”) 3. Main board of indoor unit is damaged.
F2		Flash twice		Indoor evaporator temperature sensor is open/ short-circuited	Cool/Dry: indoor fan operates, while compressor and outdoor fan stops operation; Heat: all loads stops operation.	1. Temperature sensor is not well connected; 2. Temperature sensor is damaged (refer to Page 33 “Table 2”) 3. Main board of indoor unit is damaged.
H6	Flash 11 times			No feedback from indoor unit’s motor	The complete unit stops operation	1. Is the fan blocked? 2. Is the motor terminal loose? 3. Is the connection wire of motor damaged? 4. Is the motor damaged? 5. Is the main board of indoor unit damaged?
LP				Indoor unit and outdoor can be matched with each other	Heat: compressor, outdoor unit and indoor fan stops operation.	Capacity of indoor unit and outdoor unit can’t be matched.
C4				Malfunction of jumper cap of outdoor unit	Heat: all loads are stopped; other modes: outdoor unit stops operation.	Jumper cap of outdoor unit hasn’t been installed.
b7		Flash 22 times		Gas valve temperature sensor is ON / short-circuited		1. Temperature sensor is not well connected or damaged; (refer to Page 33 “Table 2”) 2. The wire of temperature sensor is damaged, causing short circuit to copper pipe or outer casing; 3. Main board of outdoor unit is damaged.

Display method of indoor unit						
Error code	Indicator display			Malfunction name	AC status	Possible causes
	Power indicator	Cool indicator	Heat indicator			
b5		Flash 19 times		Liquid valve temperature sensor is ON / short-circuited		1. Temperature sensor is not well connected or damaged; (refer to Page 33 "Table 2") 2. The wire of temperature sensor is damaged, causing short circuit to copper pipe or outer casing; 3. Main board of outdoor unit is damaged.
E1	Flash once			High pressure protection of system	Cool/Dry: all loads stops operation except indoor fan; Heat: all loads stops operation.	1. Heat exchange of outdoor unit is too dirty, or it blocked the air inlet/outlet; 2. Ambient temperature is too high; 3. Is power voltage normal; (three-phase unit) 4. Refrigerant is too much. 5. Wiring of high pressure switch is loose or high pressure switch is damaged; 6. The internal system is blocked; (dirt blockage, ice blockage, oil blockage, angle valve is not completely opened) 7. Main board of outdoor unit is damaged;
E3	Flash 3 times			Low pressure/ low system pressure protection/ compressor low pressure protection	Cool: compressor, outdoor fan and indoor fan stop operation; Heat: compressor and outdoor fan stop operation at first. About 1min later, indoor fan stops operation; 2mins later, the 4-way valve stop operation.	1. Low pressure switch is damaged; 2. Refrigerant inside the system is insufficient.
E4	Flash 4 times			High discharge temperature protection of compressor	Cool/Dry: compressor and outdoor fan stops operation, while indoor fan operates; Heat: all loads stops operation.	See Page 13 "Overload protection of compressor , High discharge temperature protection of compressor" Fixed speed unit: 1. System abnormality; (e.g.: blockage) 2. Rotate speed of outdoor motor is abnormal; (cooling) 3. Outdoor air inlet is abnormal; (cooling) 4. System is normal, but the resistance of compressor exhausting temperature sensor is abnormal or poorly connected.
E5	Flash 5 times			AC overcurrent protection	Cool/Dry: compressor and outdoor fan stops operation, while indoor fan operates; Heat: all loads stops operation.	1. Power voltage is unstable; 2. Power voltage is too low; 3. System load is too high, which leads to high current; 4. Heat exchange of indoor unit is too dirty, or it blocked the air inlet/outlet; 5. Fan motor operation is abnormal; the fan speed is too low or not functioning; 6. Compressor is blocked; 7. The internal system is blocked; (dirt blockage, ice blockage, oil blockage, angle valve is not completely opened) 8. Main board of outdoor unit is damaged. See Page 24 "AC overcurrent protection"
E7	Flash 7 times			Mode shock/ sysmte mode shock	Load of indoor unit stops operation (indoor fan, E-heater, swing)	Malfunction of one-to-more system; there may be two indoor units which has set the shock mode, such as one is cooling and the other is heating.
E8	Flash 8 times			High temperature prevention protection	Cool: compressor stops operation while indoor fan operates; Heat: all loads stops operation.	See Page 17 "High temperature prevention protection; high power; system isabnormal"
EE			Flash 15 times	Malfunction of EEPROM	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	Main board of outdoor unit is damaged.
Fo	Flash once	Flash once		Refrigerant-recovery mode	Cool/Dry: compressor and outdoor fan stops operation, while indoor fan operates.	Refrigerant recovery. The maintenance personnel operate it when he is maintaining the unit.
F3		Flash 3 times		Outdoor ambient temperature is open/short-circuited	Cool/Dry: compressor and outdoor fan stop operation, while indoor fan operates; Heat: all loads stops operation.	1. Temperature sensor is not connected well or damaged; (refer to Page 33 "Table 1") 2.Temperature sensor wire of outdoor unit is damaged; short circuit between the temperature sensor and copper pipe or outer case 3.Main board of outdoor unit is damaged;
F4		Flash 4 times		Outdoor condenser temperature sensor is open/ short-circuited	Cool/Dry: compressor and outdoor fan stop operation, while indoor fan operates; Heat: after operating for 3mins, all loads stops operation.	1. Temperature sensor is not connected well or damaged; (refer to Page 33 "Table 2") 2. Temperature sensor wire of outdoor unit is damaged; short circuit between the temperature sensor and copper pipe or outer case; 3. Main board of outdoor unit is damaged.

Display method of indoor unit				Malfunction name	AC status	Possible causes
Error code	Indicator display					
	Power indicator	Cool indicator	Heat indicator			
F5		Flash 5 times		Outdoor air discharge temperature is open/short-circuited	Complete unit stops operation; motor of sliding door is cut off power.	1. The exhaust temperature sensor is not connected well or damaged. (refer to Page 33 "Table 3") 2.Temperature sensor wire of outdoor unit is damaged; short circuit between the temperature sensor and copper pipe or outer case 3.Main board of outdoor unit is damaged;
FC				Malfunction of micro switch	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	1. The sliding door is blocked; 2. Malfunction of the photoelectric inspection panel of sliding door;
H4	Flash 4 times			System is abnormal	Cool/Dry: all loads stops operation except indoor fan; Heat: all loads stops operation.	See Page 17 "High temperature prevention protection; high power; system isabnormal"
H7			Flash 7 times	Desynchronizing of compressor	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	See "Page 19 "Desynchronization diagnosis for compressor"
HC			Flash 6 times	PFC protection	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	1. The power grid quality is bad; AC input voltage fluctuates sharply; 2. Power plug of air conditioner or wiring board or reactor is not connected reliably; 3. Indoor and outdoor heat exchanger is too dirty, or air inlet/ outlet is blocked; 4. Main board of outdoor unit is damaged.
HE			Flash 14 times	Demagnetization protection of compressor	Cool: compressor and outdoor fan stop operation; Heat: compressor and outdoor fan stop operation at first; about 1min later, indoor fan stops operation.	1. The main board of outdoor unit is damaged; 2. Compressor is damaged;
UF				Communication malfunction between indoor unit and inspection board	Normal operation	1. Poor connection between the indoor unit and the inspection board. 2.The main board of indoor unit is damaged; 3. The inspection board is damaged;
L1				Malfunction of humidity sensor	Compressor, outdoor fan and indoor fan stop operation;	The inspection board is damaged.
L9				High power protection	Cool: compressor and outdoor fan stops operation, while indoor fan operates.	See Page 17 "High temperature prevention protection; high power; system isabnormal"
Lc			Flash 11 times	Start-up failed	Cool/Dry: compressor stops, while indoor fan operates; Heat: all loads stops operation.	See Page 20 "Malfunction diagnosis for failure startup"
Ld				Lost phase	Cool: compressor and outdoor fan stop operation; Heat: compressor and outdoor fan stop operation at first; about 1min later, indoor fan stops operation.	1. The main board of outdoor unit is damaged; 2. The compressor is damaged; 3. The connection wire of compressor is not connected well.
oE				Undefined outdoor unit error	Cool: compressor and outdoor fan stops operation, while indoor fan operates; Heat: compressor, outdoor fan and indoor fan stop operation.	1. Outdoor ambient temperature exceeds the operation range of unit (eg: less than-20°C or more than 60°C for cooling; more than 30°C for heating); 2. Are wires of compressor not connected tightly? 3. Failure startup of compressor? 4. Is compressor damaged? 5. Is main board damaged?
P5		Flash 15 times		Over-phase current protection of compressor	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	See "Page 13 "Overload protection of compressor , High discharge temperature protection of compressor"
P6	Flash 16 times			Communication malfunction between the drive board and the main board	Cool: compressor and outdoor fan stops operation; Heat: compressor and outdoor fan stop at first; about 1min later, indoor fan stops operation;	1. The drive board is damaged; 2. The main board of outdoor unit is damaged; 3. The drive board and the main board is not connected well.
P7			Flash 18 times	Circuit malfunction of module temperature sensor	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	Replace outdoor control board

Display method of indoor unit				Malfunction name	AC status	Possible causes
Error code	Indicator display					
	Power indicator	Cool indicator	Heat indicator			
P8			Flash 19 times	Module overheating protection	Cool: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	1. Air inlet / air outlet of outdoor unit are blocked by filth or dirt; 2. Condenser of outdoor unit is blocked by filth or dirt; 3. IPM screw of main board is not tightened; 4. Main board of outdoor unit is damaged;
PF				Malfunction of ambient temperature sensor of drive board	Cool: compressor, outdoor fan and indoor fan stop operation; Heat: compressor and outdoor fan stop operation at first; about 1min later, indoor fan stops operation.	1. The ambient temperature sensor of the drive board is not connected well; 2. Malfunction of the ambient temperature sensor of drive board.
PH		Flash 11 times		DC bus voltage is too high	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	1. Measure the voltage between position L and position N on the wiring board (XT). If it's higher than 265 VAC, please turn on the unit until the power voltage is decreased to the normal range; 2. If the AC input is normal, please replace the outdoor control board.
PL			Flash 21 times	DC bus voltage is too low	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	1. Measure the voltage between position L and position N on the wiring board (XT). If it's lower than 150 VAC, please turn on the unit until the power voltage is increased to the normal range; 2. If the AC input is normal, please replace the outdoor control board.
PU			Flash 17 times	Charging malfunction of capacitor	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	See "Page 21 "Charging malfunction of capacitor"
rF				Malfunction of RF module	Cool: compressor and outdoor fan stop operation; Heat: compressor and outdoor fan stop operation at first; about 1min later, indoor fan stops operation.	1. The connection wire of RF module is not connected well. 2. Malfunction of RF module;
U1			Flash 13 times	Phase current detection circuit malfunction of	Cool: compressor and outdoor fan stops operation, while indoor fan operates; Heat: compressor, outdoor fan and indoor fan stops operation.	The control board is damaged
U2			Flash 12 times	Lost phase protection of compressor	Cool: compressor and outdoor fan stop operation; Heat: compressor and outdoor fan stop operation at first; about 1min later, indoor fan stops operation.	1. The main board of outdoor unit is damaged; 2. The compressor is damaged; 3. The connection wire of compressor is not connected well.
U3			Flash 20 times	DC bus voltage drop malfunction	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	The power voltage is unstable.
U5				Current detection malfunction of unit	Cool: compressor and outdoor fan stops operation, while indoor fan operates; Heat: compressor, outdoor fan and indoor fan stops operation.	1. Is the complete unit lacking of refrigerant? 2. There's malfunction for the circuit of control board of outdoor unit. Replace the control board of outdoor unit.
U7				4-way valve is abnormal	This malfunction occurs when the unit is heating. All loads stops operation.	1. Power voltage is lower than AC175V; 2. Wiring terminal of 4-way valve is loose or broken; 3. 4-way valve is damaged. Replace the 4-way valve.
U8	Flash 17 times			Malfunction of zero-crossing signal of indoor unit	Compressor, outdoor fan and indoor fan stop operation.	1. The power is abnormal; 2. Main board of indoor unit is damaged.
U9				Zero-crossing malfunction of outdoor unit	Cool: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	Replace the control board of outdoor unit.

Display method of indoor unit				Malfunction name	AC status	Possible causes
Error code	Indicator display					
	Power indicator	Cool indicator	Heat indicator			
E2				Evaporator anti-freezing protection		Not error code, it is the status code in cooling process
E9				Anti cold air protection		Not error code, it is the status code in heating process
			Flash once/ 10s	Defrosting		Not error code, it is the status code in heating process

Note:

1. As for the models with "88" display, when there's malfunction, the dual-8 nixie tube displays the error code, while the indicator may not flash.
2. The AC status may be different for different models. Please refer to the corresponding manual for the model.

Applicable model: window type, TTW, PTAC, portable type and recreational vehicle AC

Display method of indoor unit			Malfunction name	AC status	Possible causes
Error code	Indicator display				
	Status LED (PTAC)	Heat indicator			
CS			Jumper cap error	All loads stop	1. Jumper cap is not installed in control panel; 2. Poor contact of jumper cap or jumper cap is damaged; 3. The tested circuit of jumper cap on control panel is abnormal.
F1			Indoor ambient temperature sensor is short-circuited	Cool, fan and dry: compressor and outdoor fan stops operation, while indoor fan operates; Heating: All loads stop.	1. Temperature sensor is not well connected; 2. The connection wire is short circuit or open circuit, and the temperature sensor is damaged. (refer to Page 33 "Table 1")
F2			Indoor tube temperature sensor is short-circuited	Cool, fan and dry: compressor and outdoor fan stops operation, while indoor fan operates; Heating: All loads stop.	1. Temperature sensor is not well connected; 2. The connection wire is short circuit or open circuit, and the temperature sensor is damaged. (refer to Page 33 "Table 2")
F3			Outdoor ambient temperature sensor is short-circuited	Cool, fan and dry: compressor and outdoor fan stops operation, while indoor fan operates; Heating: All loads stop.	1. Temperature sensor is not well connected; 2. The connection wire is short circuit or open circuit, and the temperature sensor is damaged. (refer to Page 33 "Table 1")
F4			Outdoor tube temperature sensor is short-circuited	Cool, fan and dry: compressor and outdoor fan stops operation, while indoor fan operates; Heating: All loads stop.	1. Temperature sensor is not well connected; 2. The connection wire is short circuit or open circuit, and the temperature sensor is damaged. (refer to Page 33 "Table 2")
FJ			Temperature sensor of air outlet is short-circuited	Cool, fan and dry: compressor and outdoor fan stops operation, while indoor fan operates; Heating: All loads stop.	1. Temperature sensor is not well connected; 2. The connection wire is short circuit or open circuit, and the temperature sensor is damaged. (refer to Page 33 "Table 1")

Display method of indoor unit			Malfunction name	AC status	Possible causes
Error code	Indicator display				
	Status LED (PTAC)	Heat indicator			
F0			Lacking fluorine protection	Cool and dry: compressor and outdoor fan stops operation, while indoor fan operates;	1. Heat exchanger is too dirty/blocks the air inlet/outlet; 2. Compressor operation is abnormal, strange noise or leakage occurs. Temperature of outer casing is too high; 3. The internal system is blocked (dirt blockage, ice blockage, oil blockage and the 4-way valve is not completely opened); 4. The pipeline is fractured or rusted, and the refrigerant is leaked.
H3			Compressor is overloaded	Cool and dry: compressor and outdoor fan stops operation, while indoor fan operates;	1. Heat exchanger is too dirty/blocks the air inlet/outlet; 2. The rotate speed of fan is abnormal, rotate speed is too low or the fan is not functioning; 3. Compressor operation is abnormal; 4. The internal system is blocked; 5. Refrigerant leakage, resulting in overheating protection of compressor; 6. Applied in poor condition of high temperature and high humidity. See Page 14 “Overload protection (window type, TTW, PTAC, portable type, recreational vehicle AC and dehumidifier”)
E8			Overload	Cool and dry: compressor and outdoor fan stops operation, while indoor fan operates;	1. Operation environment is bad; (Applied in poor condition of high temperature and high humidity) 2. Heat exchanger is too dirty/blocks the air inlet/outlet; 3. The rotate speed of fan is abnormal, rotate speed is too low or the fan is not functioning; 4. Compressor operation is abnormal; 5. The internal system is blocked; 6. If the outer tube temperature sensor on main board normal. See Page 18 “Overload”
UF			WiFi communication error	Load operation is normal, the APP cannot control the air conditioner normally	1. The connection between the indoor unit and detection plate is poor; 2. The inspection board is damaged; 3. Main board of the indoor unit is damaged.
A2			Electrical heating operation error (window type)	Cool, fan and dry: compressor stops operation, while the fan operates in high speed; Heating: other loads stop operation, while the indoor unit operates in high speed.	1. Wiring is wrong; 2. Electric heater tube is damaged; 3. Main board of the indoor unit is damaged. See Page 25 “Electrical heating operation error”
			Compressor is bonded with the relay of electrical heater (PTAC)	Other loads stop operation, while the indoor unit operates.	Relay adhesion; See Page 26 “Relay adhesion error”
E6			Communication error of wired controller and indoor unit	The wired controller cannot control the air conditioner	1. The connection between the indoor unit and wired controller is poor; 2. he wired controller is damaged; 3. Main board of the indoor unit is damaged. See Page 11 “Communication error between wired controller and indoor unit”
			Communication error of indoor and outdoor unit	Cool, fan and dry: compressor and outdoor unit stops operation, while the indoor fan operates. Heating: all loads stop operation.	1. The connection wire of indoor and outdoor unit is poor; 2. Wiring inside the unit is abnormal and damaged; 3. Communication circuit of control panel of indoor or outdoor unit is abnormal; See Page 10 “Communication error of indoor and outdoor unit”
E5			Compressor overload protection	Compressor, electrical heater and outdoor fan stops operation, while indoor fan operates.	1. Voltage of unit operation is too low; 2. Start-up current of compressor is too high; 3. Compressor is blocked;
U5			Current imbalance error (zero live line current)	All loads stop	1. Wire connection and insertion is wrong; 2. Leakage of electricity; 3. Electrical heater is short circuit and loose. See Page 27 “Current imbalance error”
A0			Combination method of electrical heating is incorrect	All loads stop	1. Wire connection and insertion is wrong; 2. Electrical heater is off. See Page 28 “Combination method of electrical heating is incorrect”
A4			Operation current of electrical heating is abnormal	All loads stop	1. Parts of the electrical heater is open circuit or short circuit; 2. Electrical heater is abnormal. See Page 29 “Operation current of electrical heating is abnormal”

Display method of indoor unit			Malfunction name	AC status	Possible causes
Error code	Indicator display				
	Status LED (PTAC)	Heat indicator			
C7			Circuit of temperature limiter is disconnected	All loads stop	1. Temperature limiter is fused; 2. Load connecting wire of electrical heater is disconnected. See Page 30 "Circuit of temperature limiter is disconnected"
FP			Low temperature protection	Start electric heating operation	Ambient temperature is low, or the resistance of temperature sensor is abnormal
	Flash 9 times		Wrong hint on wired controller wiring	The unit will judge operation according to the signal of wired controller	Wired controller wiring is wrong
	Flash 6 times		High temperature protection of outdoor condenser	Compressor stops operation, while the indoor fan operates, and the outdoor fan will be ON/OFF depends on the tube temperature of condenser.	Not error code, it is the status code in cooling process
	Flash 5 times		Anti-freezing protection of evaporator	Compressor and outdoor fan stops operation, while the indoor fan operates	Not error code, it is the status code in cooling process
	Flash 8 times		High temperature protection of evaporator	Compressor and outdoor fan will be ON/OFF depends on the tube temperature of evaporator, while the indoor fan will operate. Start electrical heating;	Not error code, it is the status code in heating process
	Flash 7 times		Frost prevention (heat pump)	Compressor and outdoor fan stops operation, while the indoor fan will operate. Start electrical heating;	Not error code, it is the status code in heating process
H1			Defrosting protection	Under heating mode, the unit will stop operation, while the compressor will operate normally	Not error code, it is the status code in heating process
		Flash once / 10S			
H8			Full water protection	All loads stop operation	1. The structure of water tank is abnormal; 2. Component on liquid level switch is abnormal; See Page 31 "Troubleshooting on full water protection"
PL			Low voltage protection	All loads stop operation	1. Voltage of the unit is less than 184V; 2. The detected circuit is damaged.

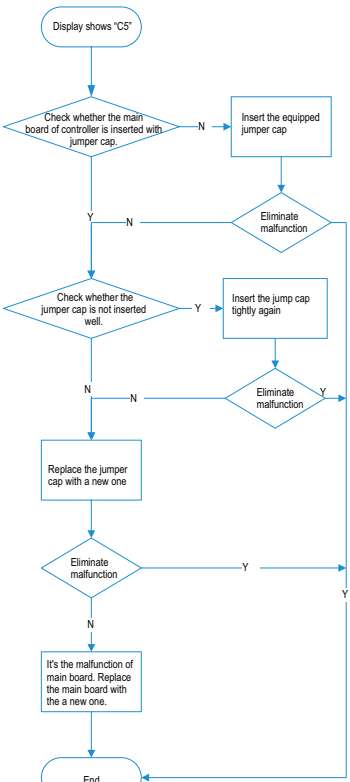
Note:
The AC status may be different for different models. Please refer to the corresponding manual for the model.

Display method of indoor unit		Malfunction name	Operation status	Possible causes
Error code	Indicator display Full water LED			
F1		Temperature and humidity sensor Temperature sensor is open/ short-circuited	All loads stop	Temperature sensor is not well connected or is damaged (refer to Page 34 "Table 4")
		Communication error of temperature and humidity sensor		Temperature sensor is not well connected or is damaged
F2		Indoor evaporator temperature sensor is open/ short-circuited	All loads stop	Temperature sensor is not well connected or is damaged (refer to Page 33 "Table 2")
F5		Discharge temperature sensor of compressor is open/ short-circuited	All loads stop	Temperature sensor is not well connected or is damaged (refer to Page 33 "Table 3")
L1		Temperature and humidity sensor Humidity temperature sensor is short-circuited	All loads stop	Humidity sensor is polluted by foreign matter, which leads to short circuit or soaking
		Temperature and humidity sensor Communication error		Temperature and humidity sensor is not well connected or is damaged
F0		Lacking fluorine protection	Compressor stops operation, and the fan stops operation after 30S	1. Heat exchanger is too dirty/blocks the air inlet/outlet; 2. Compressor operation is abnormal, strange noise or leakage occurs. Temperature of outer casing is too high; 3. The internal system is blocked (dirt blockage and ice blockage); 4. The pipeline is fractured or rusted, and the refrigerant is leaked.
	Flash	Full water protection	Compressor stops operation, and the fan stops operation after 3min	The structure of water tank is abnormal, or component on liquid level switch is abnormal; See Page 31 "Troubleshooting on full water protection"
H3		Overload protection	Compressor stops operation, and the fan stops operation after 30S	1. Heat exchanger is too dirty/blocks the air inlet/outlet; 2. The rotate speed of motor is abnormal, rotate speed is too low or the fan is not operating; 3. Compressor operation is abnormal; strange noise or leakage occurs. Temperature of outer casing is too high; 4. The internal system is blocked (dirt blockage and ice blockage); 5. Pipeline is fractured or rusted, refrigerant is leaking; 6. Applied in poor condition of high temperature and high humidity. 7. Main board is damaged.
E0		Water pump error	Compressor and water pump stops operation, the fan stops after 3min	Water pump is damaged or component on liquid level switch is abnormal See Page 32 "Water pump protection error"
E4		Discharge temperature protection	Compressor stops operation, and the fan stops operation after 30S	1. Heat exchanger is too dirty/blocks the air inlet/outlet; 2. The rotate speed of motor is abnormal, rotate speed is too low or the fan is not operating; 3. Compressor operation is abnormal; strange noise or leakage occurs. Temperature of outer casing is too high; 4. The internal system is blocked (dirt blockage and ice blockage); 5. Pipeline is fractured or rusted, refrigerant is leaking; 6. Applied in poor condition of high temperature and high humidity. 7. Main board is damaged.

Flow Chart of Troubleshooting for Main Malfunctions

1. Troubleshooting for jumper cap C5

Main check points:
(1) jumper cap (2) control board of indoor unit

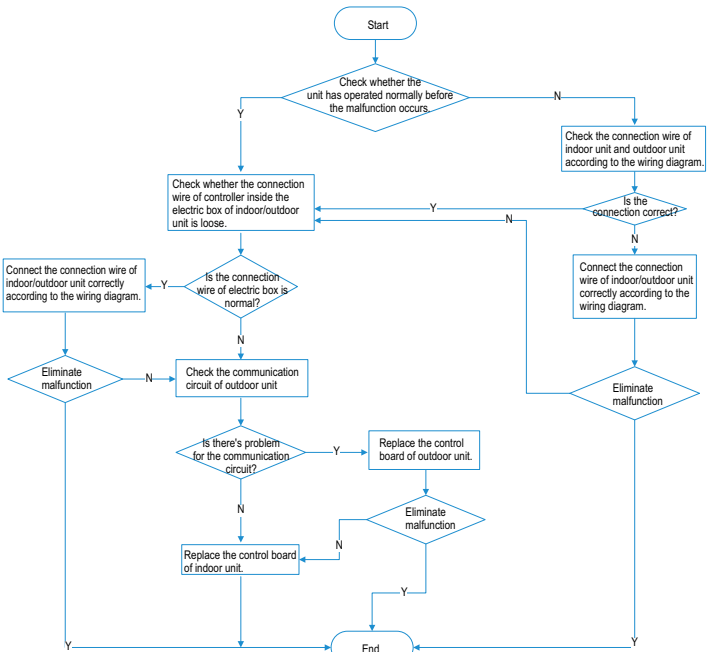


2. Communication malfunction E6

2.1 Communication error of indoor and outdoor unit

Main check points:

(1) Connection wire between indoor unit and outdoor unit
(2) Wiring inside the unit
(3) Communication circuit of control board of indoor unit
(4) Communication circuit of control board of outdoor unit



Note: method for checking the communication circuit of inverter split type and floor standing unit: cut off the communication wires of indoor/outdoor unit, and then measure the voltage between COM and N of the control board of outdoor unit (DC notch, about 56V)

2.2 Communication error between wired controller and indoor unit

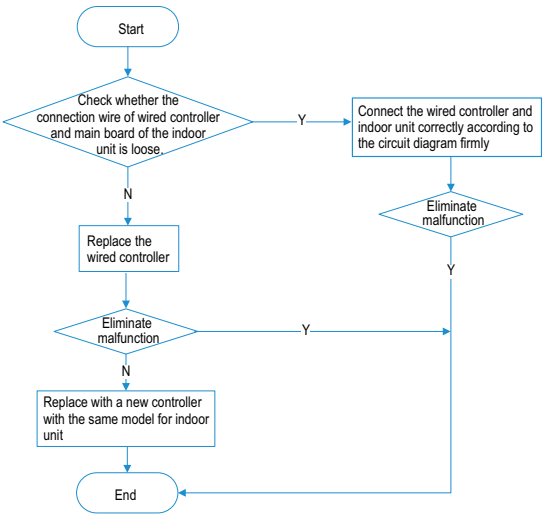
Main check points:

(1) Connection wire of wired controller

(2) Wiring terminal

(3) Wired controller

(4) Main board of indoor unit



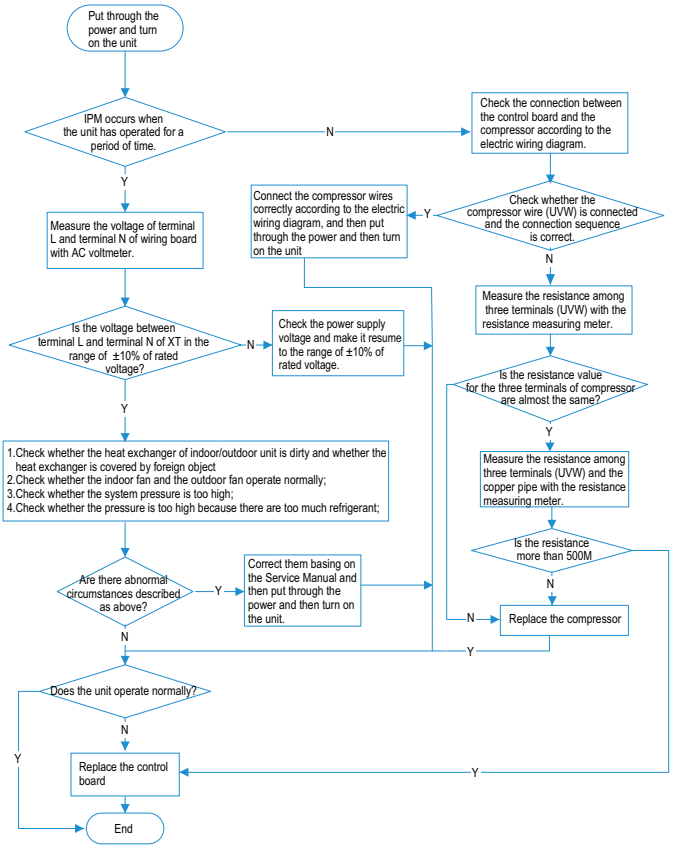
3. IPM protection HS, over-phase current of compressor PS

Main check points:

(1) compressor COMP terminal (2) power supply voltage (3) compressor

(4) charging amount of refrigerant (5) air inlet and air outlet of indoor/outdoor unit

NOTE:The control board as below means the control board of outdoor unit.



4. Overload protection of compressor H3, high discharge temperature protection of compressor E4

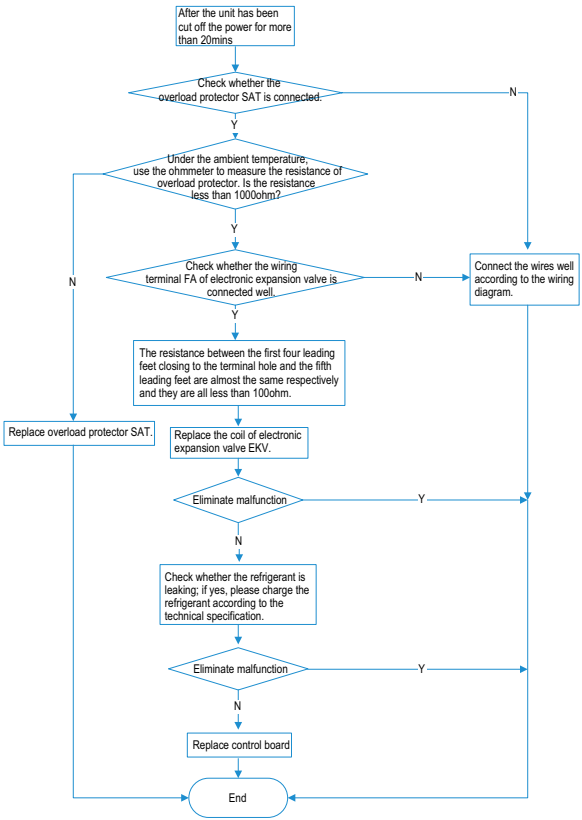
4.1 Overload protection of compressor, high discharge temperature protection of compressor (split type and floor standing unit)

Main check points:

(1) electronic expansion valve (2) expansion valve terminal

(3) charging amount of refrigerant (4) overload protector

NOTE:The control board as below means the control board of outdoor unit.



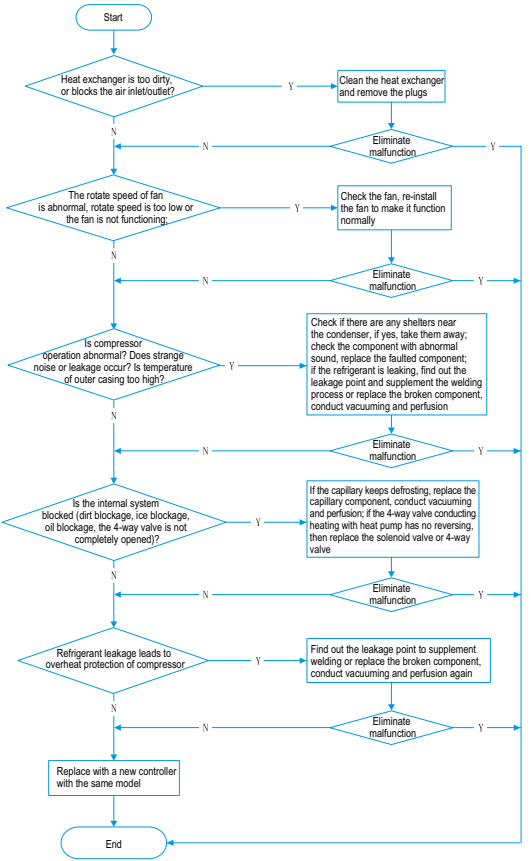
4.2 Overload protection (window type, TTW, PTAC, portable type, recreational vehicle AC and dehumidifier)

Main check points:

(1) Compressor (2) Refrigerant

(3) Whether the air inlet/outlet, heat exchanger and internal system is dirty and blocked

(4) Fan (5) Main board



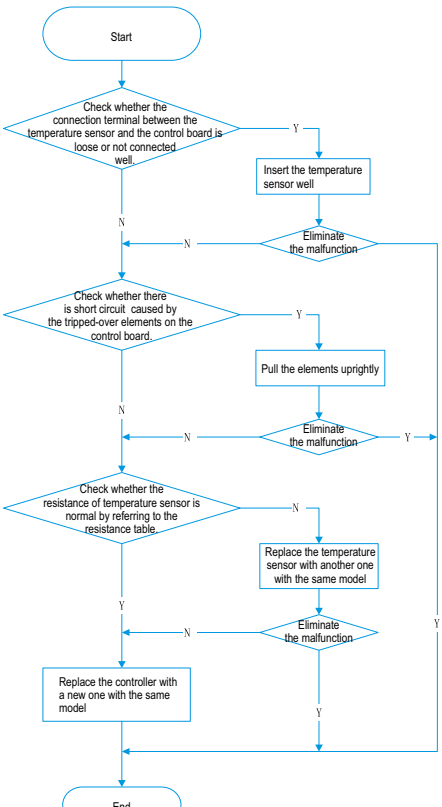
5.Troubleshooting for temperature sensor F1, F2, F3, F4, F5

Troubleshooting for Temperature and humidity sensor F1, L1

5.1Temperature sensor error

Main check points:

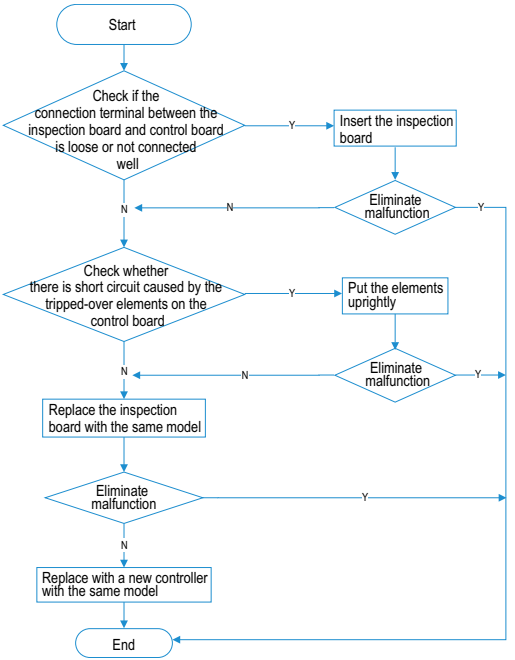
(1) connection terminal (2) temperature sensor (3) main board



5.2 Malfunction of temperature and humidity sensor (dehumidifier)

Main check points:

(1) connection terminal (2) inspection board (3) control board



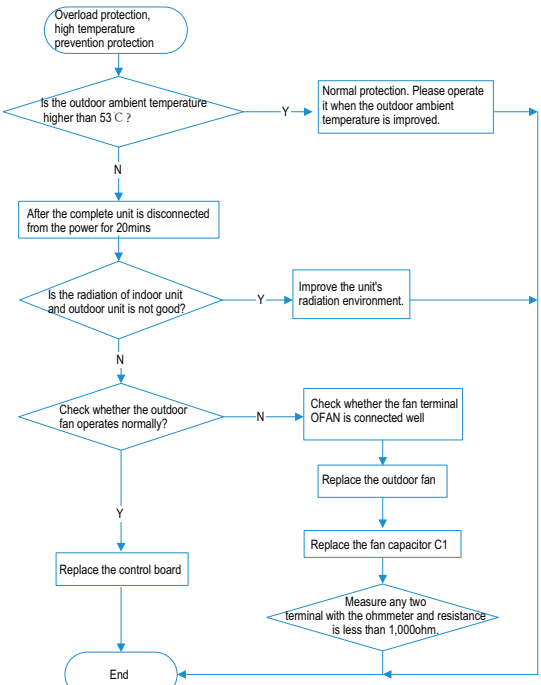
6.High temperature prevention protection E8; high power L9; system is abnormal H4

6.1 High temperature, overload, high power and abnormal system

Main check points:

(1) outdoor temperature (2) fan (3)air inlet and air outlet of indoor/outdoor unit

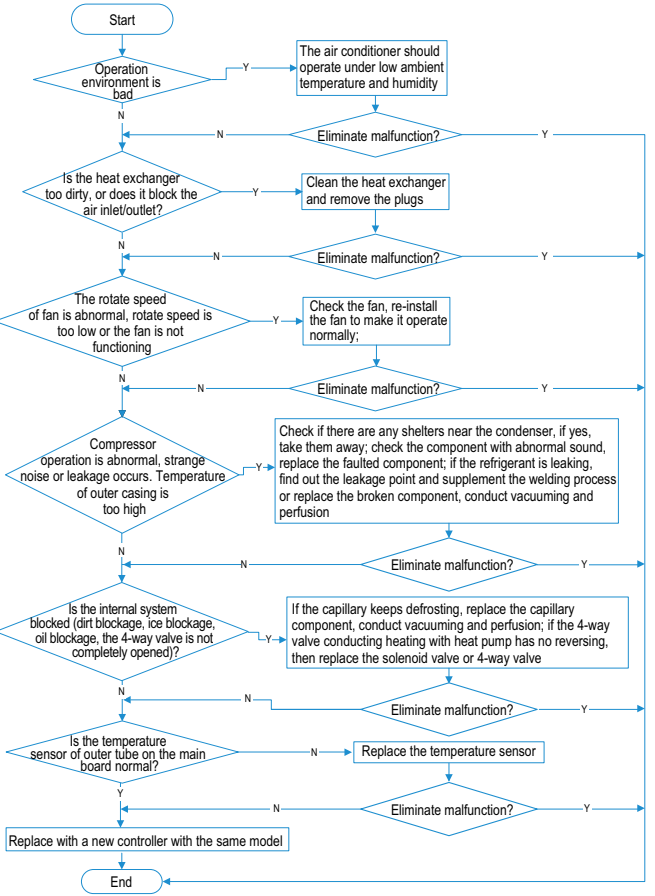
NOTE:The control board as below means the control board of outdoor unit.



6.2 Overload (window type, TTW, PTAC, portable type and recreational vehicle AC)

Main check points:

(1) compressor (2) refrigerant (3) air inlet/outlet, heat exchanger and internal system is dirty and blocked (4) fan (5) operation environment

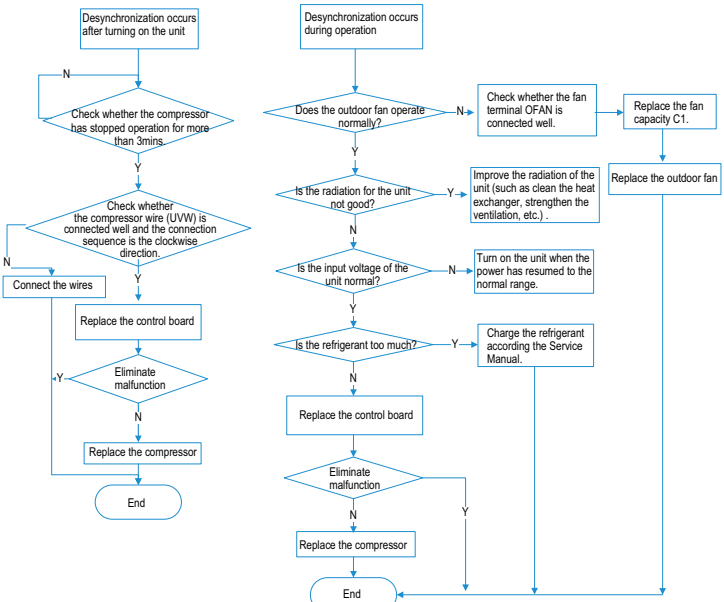


7.Desynchronization diagnosis for compressor H7

Main check point:

(1) system pressure (2) power supply voltage

NOTE:The control board as below means the control board of outdoor unit.

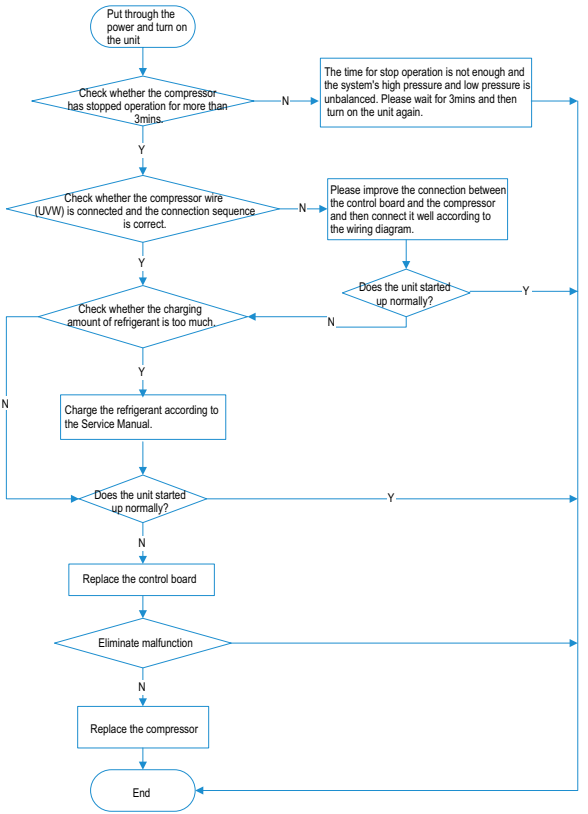


8.Malfunction diagnosis for failure startup LC

Main check points:

(1) compressor wire (2) compressor (3) charging amount of refrigerant

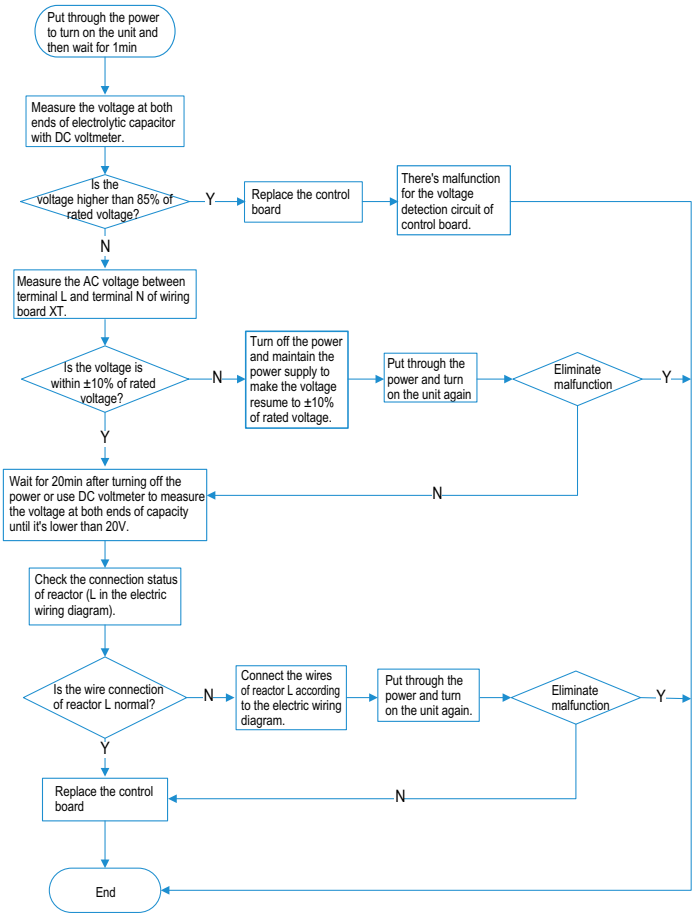
NOTE:The control board as below means the control board of outdoor unit.



9. Charging malfunction of capacitor PU

Main check points:
(1) wiring board XT (2) reactor

NOTE:The control board as below means the control board of outdoor unit.

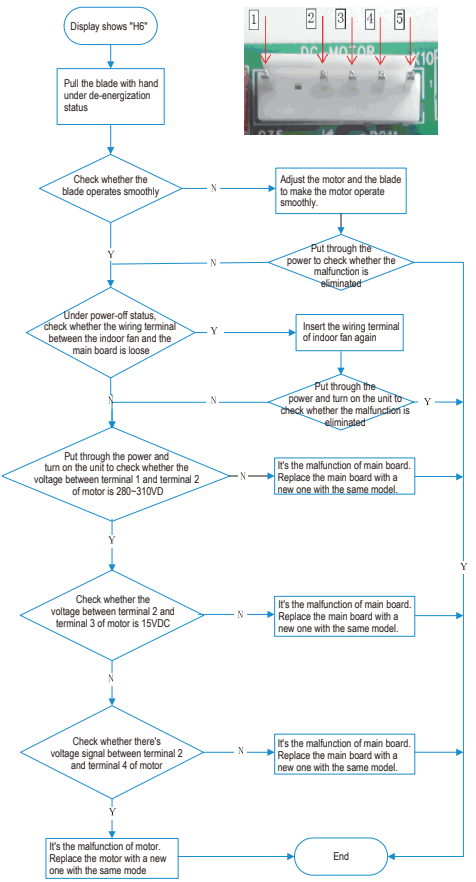


10. Troubleshooting-motor(indoor fan) doesn't operate H6

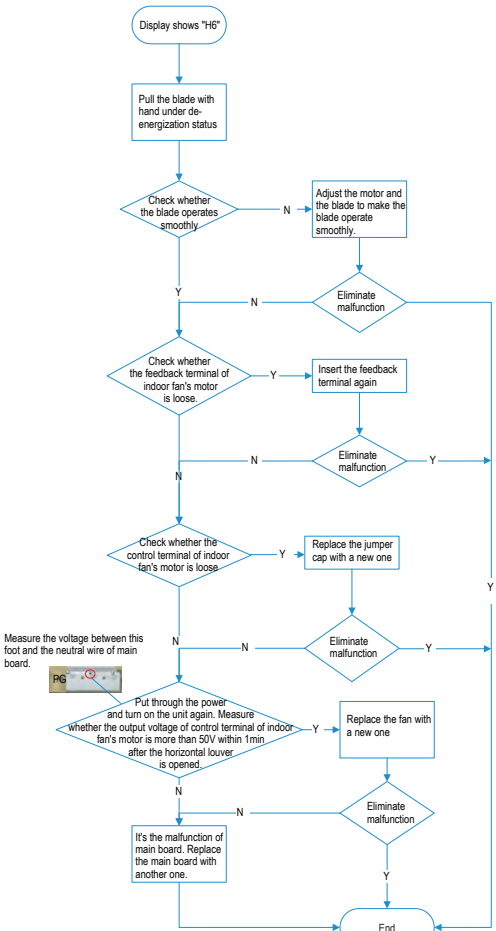
Main check points:

(1) connection terminal (2) motor (3) control board AP1 of indoor unit (4) blade

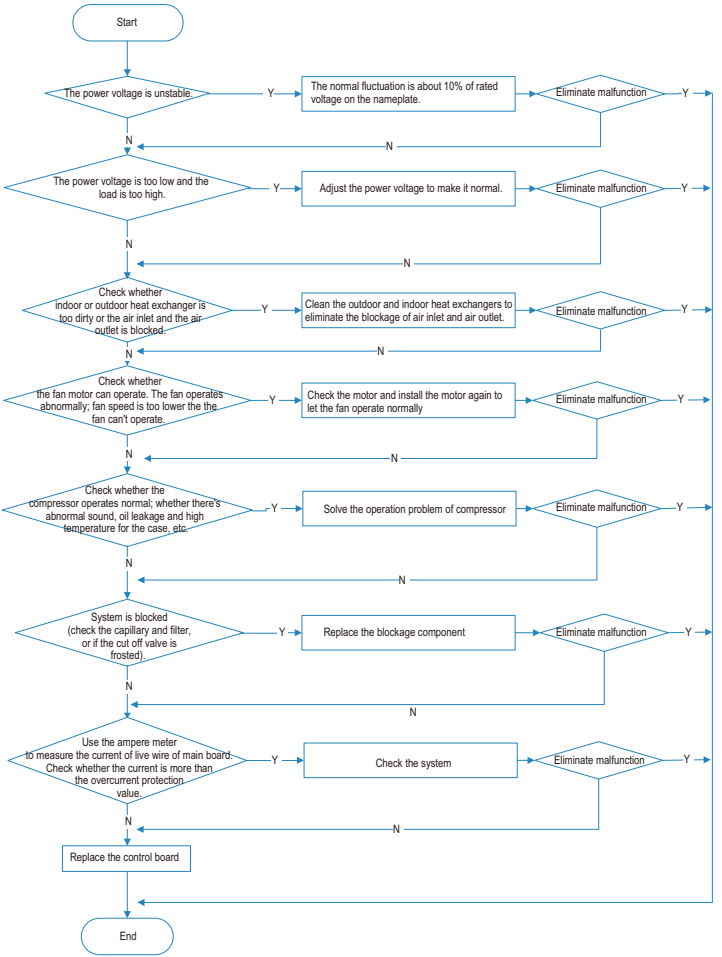
10.1 DC motor



10.2 PG motor


Display shows "H6"
Pull the blade with hand under de-energization status
Check whether the blade operates smoothly
N
Adjust the motor and the blade to make the blade operate smoothly.
Y
N
Eliminate malfunction
Check whether the feedback terminal of indoor fan's motor is loose.
Y
Insert the feedback terminal again
N
Eliminate malfunction
Y
N
Check whether the control terminal of indoor fan's motor is loose
Y
Replace the jumper cap with a new one
Y
Measure the voltage between this foot and the neutral wire of main board.
N
N
Eliminate malfunction
Y
PG
Put through the power and turn on the unit again. Measure whether the output voltage of control terminal of indoor fan's motor is more than 50V within 1min after the horizontal louver is opened.
Y
Replace the fan with a new one
N
N
Eliminate malfunction
It's the malfunction of main board. Replace the main board with another one.
Y
End

11. AC overcurrent protection E5



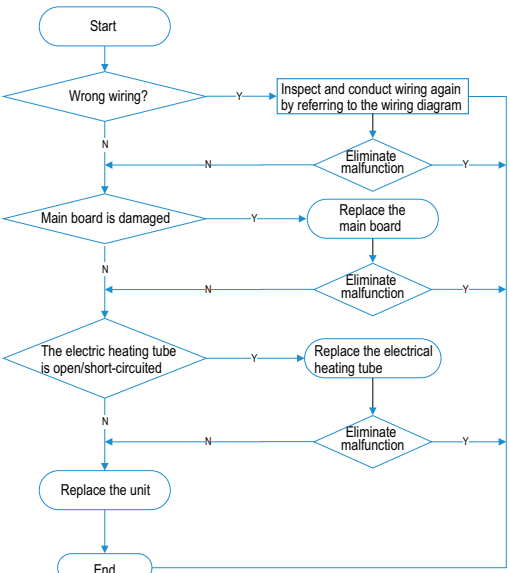
12. Electrical heating operation error (window type) / relay adhesion error (PTAC)

A2

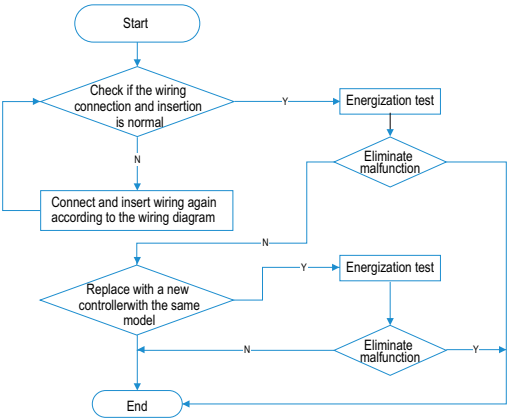
12.1 Electrical heating operation error (window type)

Main check points:

(1) electrical heating tube (2) main board (3) wiring method

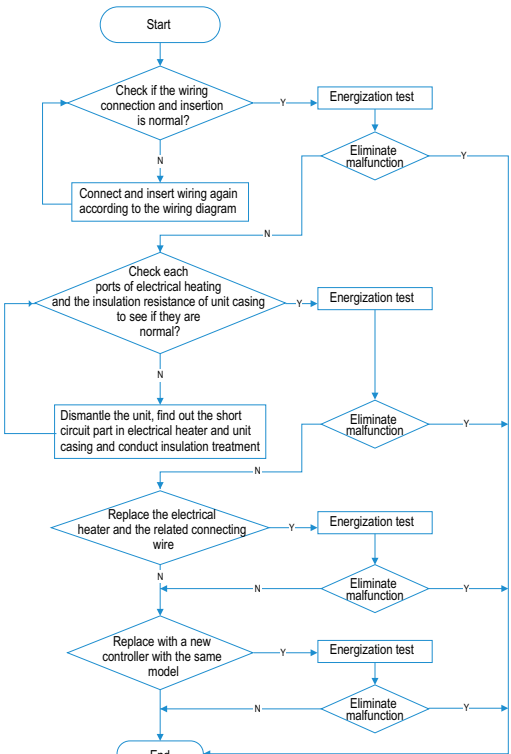


12.2 Relay adhesion error (PTAC)
Main check points:
(1) wiring diagram (2) main board



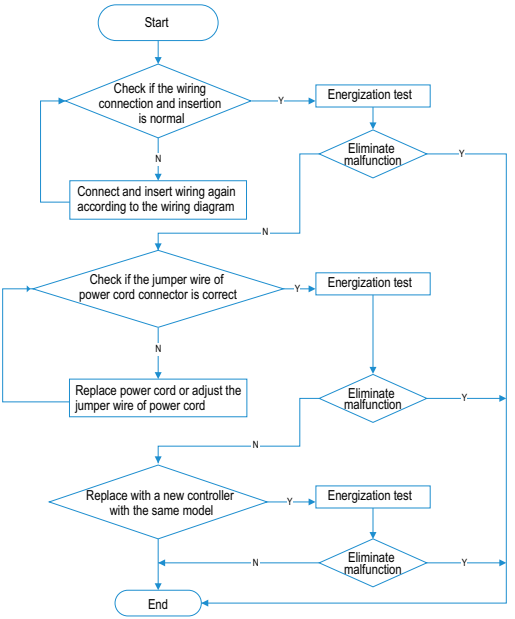
13. Current imbalance error (PTAC) U5

Main check points:
(1) wiring (2) main board



14. Combination method of electrical heating is incorrect A0

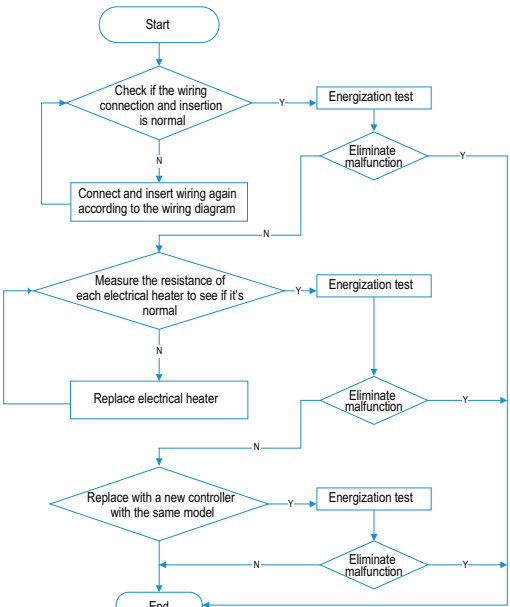
Main check points:
(1) wiring (2) main board (3) power cord



15. Operation current of electrical heating is abnormal A4

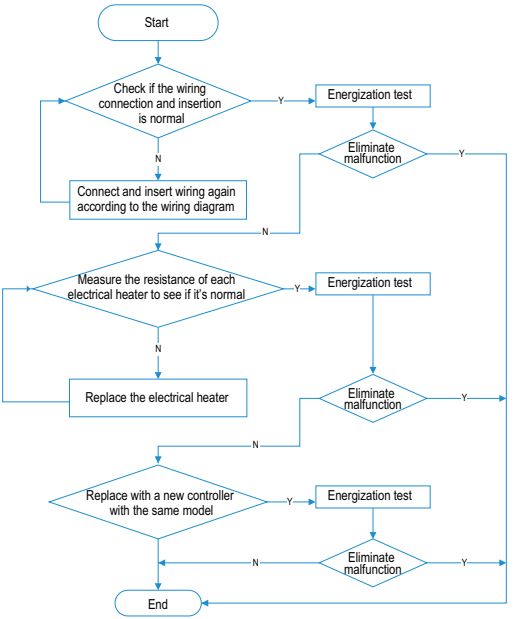
Main check points:

(1) wiring (2) main board (3) electrical heating



16. Circuit of temperature limiter is disconnected [7

Main check points:
(1) wiring (2) main board (3) electrical heater

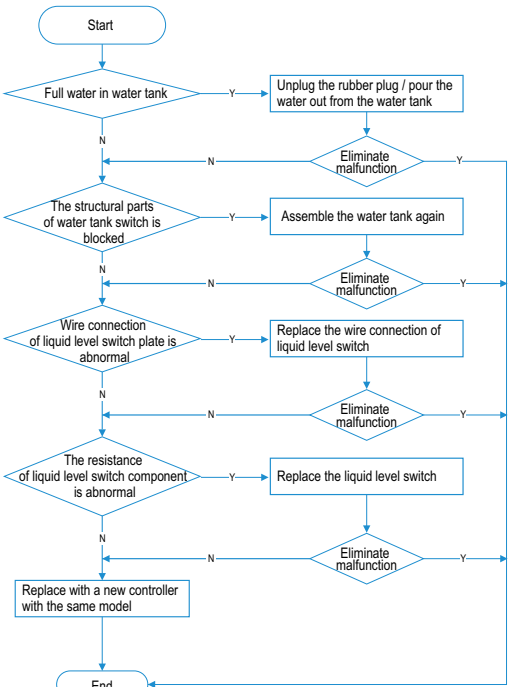


17. Troubleshooting on full water protection H8 (portable type), flashing full water light (dehumidifier)

Main check points:

(1) Structural parts of water tank switch (2) Connection wire of liquid level switch

(3) Component of liquid level switch (4) Main board



18. Water pump protection error E0 (dehumidifier)

Main check points:

(1) Water inlet/outlet of water pump (2) Water pump component and connection wire

(3) Component of liquid level switch (4) Main board

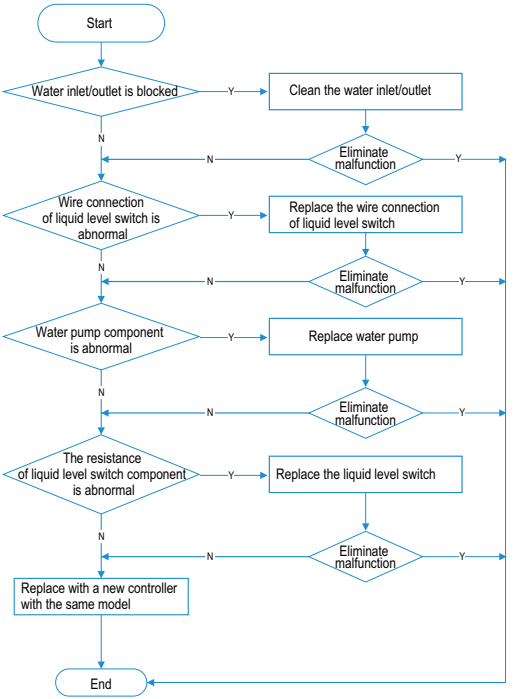


Table 1. Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units(15K)

Temp. (°C)	Resistance (kΩ)	Temp. (°C)	Resistance (kΩ)	Temp. (°C)	Resistance (kΩ)	Temp. (°C)	Resistance (kΩ)
-19	138.10	0	49.02	20	18.75	40	7.97
-18	128.60	2	44.31	22	17.14	42	7.35
-16	115.00	4	40.09	24	15.68	44	6.79
-14	102.90	6	36.32	26	14.36	46	6.28
-12	92.22	8	32.94	28	13.16	48	5.81
-10	82.75	10	29.90	30	12.07	50	5.38
-8	74.35	12	27.18	32	11.09	52	4.99
-6	66.88	14	24.73	34	10.20	54	4.63
-4	60.23	16	22.53	36	9.38	56	4.29
-2	54.31	18	20.54	38	8.64	58	3.99

Table 2. Resistance Table of Outdoor/Indoor Tube Temperature Sensor (20K)

Temp. (°C)	Resistance (kΩ)	Temp. (°C)	Resistance (kΩ)	Temp. (°C)	Resistance (kΩ)	Temp. (°C)	Resistance (kΩ)
-19	181.40	20	25.01	60	4.95	100	1.35
-15	145.00	25	20.00	65	4.14	105	1.16
-10	110.30	30	16.10	70	3.48	110	1.01
-5	84.61	35	13.04	75	2.94	115	0.88
0	65.37	40	10.62	80	2.50	120	0.77
5	50.87	45	8.71	85	2.13	125	0.67
10	39.87	50	7.17	90	1.82	130	0.59
15	31.47	55	5.94	95	1.56	135	0.52

Table 3. Resistance Table of Outdoor Discharge Temperature Sensor(50K)

Temp. (°C)	Resistance (kΩ)	Temp. (°C)	Resistance (kΩ)	Temp. (°C)	Resistance (kΩ)	Temp. (°C)	Resistance (kΩ)
-30	911.400	10	98	50	17.65	90	4.469
-25	660.8	15	77.35	55	14.62	95	3.841
-20	486.5	20	61.48	60	12.17	100	3.315
-15	362.9	25	49.19	65	10.18	105	2.872
-10	274	30	39.61	70	8.555	110	2.498
-5	209	35	32.09	75	7.224	115	2.182
0	161	40	26.15	80	6.129	120	1.912
5	125.1	45	21.43	85	5.222	125	1.682

Table 4. Resistance Table of Temperature and Humidity Sensor and Ambient Temperature Sensor (100K)

Temp. (℃)	Resistance (kΩ)	Temp. (℃)	Resistance (kΩ)	Temp. (℃)	Resistance (kΩ)	Temp. (℃)	Resistance (kΩ)
-20	926	0	357.92	20	124.96	40	53.14
-18	829.26	2	293.06	22	114.22	42	49.04
-16	743.64	4	265.56	24	104.51	44	45.30
-14	667.69	6	240.87	26	95.71	46	41.88
-12	600.20	8	218.68	28	87.74	48	38.75
-10	540.14	10	198.73	30	80.52	50	35.88
-8	486.60	12	180.77	32	73.95	52	33.26
-6	438.81	14	164.59	34	67.99	54	30.85
-4	396.11	16	150.01	36	62.57	56	28.64
-2	357.92	18	136.85	38	57.64	58	26.61

Table 5.Calculation method for added refrigerant amount

Added refrigerant amount= extension length of liquid pipe × added refrigerant amount for liquid pipe/meter

Note: When the connection pipe is more than 10m, 5ml refrigeration oil should be added for each 5m extension length

Added refrigerant amount for R22, R407C, R410A and R134a

Diameter of connection pipe		Added amount of refrigerant	
Liquid pipe (mm)	Gas pipe(mm)	Cooling only (g)	Heat pump (g)
Φ6	Φ9.52 or Φ12	15	20
Φ6 or Φ9.52	Φ16 or Φ19	15	50
Φ12	Φ19 or Φ22.2	30	120
Φ16	Φ25.4 or Φ31.8	60	120
Φ19	--	250	250
Φ22.2	--	350	350

Added refrigerant amount for R32

Diameter of connection pipe		Added amount of refrigerant	
Liquid pipe (mm)	Gas pipe(mm)	Cooling only (g)	Heat pump (g)
Φ6	Φ9.52 or Φ12	12	16
Φ6 or Φ9.52	Φ16 or Φ19	12	40
Φ12	Φ19 or Φ22.2	24	96
Φ16	Φ25.4 or Φ31.8	48	96
Φ19	--	200	200
Φ22.2	--	280	280

Table 6. Torque table of connection pipe:

External diameter(mm)	Torque (N.m)
Φ6(1/4")	15~20
Φ9.52(3/8")	30~40
Φ12(1/2")	45~55
Φ16(5/8")	60~65
Φ19(3/4")	70~75

Table 7. Connection pipe table:

Cooling capacity	Max. length of connection pipe	Max. drop
5000Btu/h（1465W）	15m	5m
7000Btu/h（2051W）	15m	5m
9000Btu/h（2637W）	15m	10m
12000Btu/h（3516W）	20m	10m
18000Btu/h（5274W）	25m	10m
24000Btu/h（7032W）	25m	10m
28000Btu/h（8204W）	30m	10m
36000Btu/h（10548W）	30m	20m
42000Btu/h（12306W）	30m	20m
48000Btu/h（14064W）	30m	20m