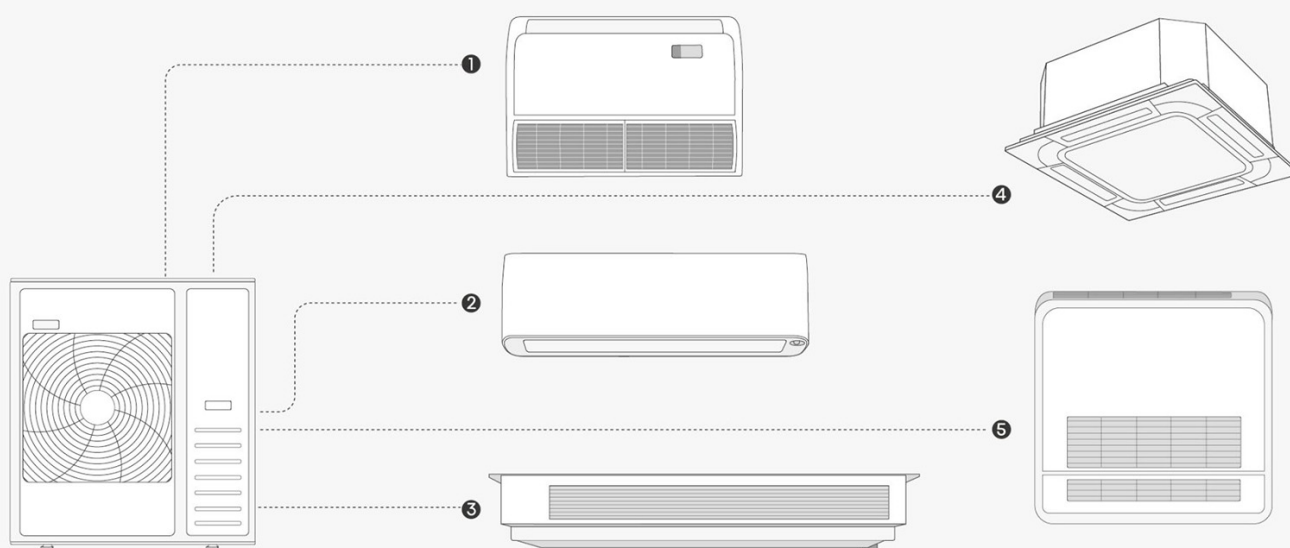


# STORINGSLIJST FREE MATCH

Error Code



De FreeMatch Multisplitsysteem van Hisense biedt in de winter efficiënte verwarming, in de zomer aangename koeling, evenals de mogelijkheid tot ontvochtiging. De apparaten van dit systeem zijn perfect op elkaar afgestemd en kunnen naar wens worden gecombineerd. Dankzij de invertertechnologie bereiken de apparaten energie-efficiëntieklasse A++ bij koelen en zijn ze uiterst zuinig in gebruik.

Dit document is opgesteld om gedetailleerde informatie te verstrekken over de storingscodes die mogelijk worden weergegeven door het FreeMatch Multisplitsysteem van Hisense. Ondanks het geavanceerde ontwerp van het systeem voorzien in efficiënte verwarming tijdens de winter, verfrissende koeling gedurende de zomer en de capaciteit voor ontvochtiging, kunnen zich incidenteel storingen voordoen.

De storingscodes dienen als nuttige indicatoren om gebruikers op de hoogte te stellen van mogelijke problemen met het systeem. In dit document worden deze codes uitvoerig behandeld, inclusief gedetailleerde uitleg en stappenplannen om gebruikers te begeleiden bij het identificeren en oplossen van storingen. Door dit document te raadplegen, krijgt u inzicht in de mogelijke oorzaken van problemen en kunt u de aanbevolen procedures volgen om het FreeMatch Multisplitsysteem optimaal te laten functioneren.

Wij raden aan deze handleiding zorgvuldig door te nemen om een effectieve probleemoplossing te garanderen en ervoor te zorgen dat het FreeMatch Multisplitsysteem van Hisense consistent en betrouwbaar presteert.



## Trouble guide

### Troubleshooting for normal malfunction

Troubleshooting	Possible Reasons of Abnormality	How to Deal With
Air conditioner can not start up	<ol style="list-style-type: none"> <li>1. Power supply failure;</li> <li>2. Trip of breaker or blow of fuse ;</li> <li>3. Power voltage is too low;</li> <li>4. Improper setting of remote controller;</li> <li>5. Remote controller is short of power.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check power supply circuit;</li> <li>2. Measure insulation resistance to ground to see if there is any leakage;</li> <li>3. Check if there is a defective contact or leak current in the power supply circuit;</li> <li>4. Check and set remote controller again;</li> <li>5. Change batteries.</li> </ol>
The compressor starts or stops frequently	The airinlet and outlet have been blocked.	Remove obstacles.
Poor cooling/heating	<ol style="list-style-type: none"> <li>1. The outdoor heat exchanger is dirty, such as condenser;</li> <li>2. There are heating devices indoors;</li> <li>3. The airtightness is not enough, and people come in and out too frequently;</li> <li>4. Block of outdoor heat exchanger;</li> <li>5. Improper setting of temperature.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean the heat exchanger of the outdoor unit, such as condenser;</li> <li>2. Remove heating devices;</li> <li>3. Keep certain air tightness indoors;</li> <li>4. Remove block obstacles;</li> <li>5. Check and try to set temperature again.</li> </ol>
Sound from deforming parts	During system starting or stopping, a sound might be heard. However, this is due to the normal deformation of plastic parts.	It is not abnormal, and the sound will disappear soon.
Waterleakage	<ol style="list-style-type: none"> <li>1. Drainage pipe is blocked or broken;</li> <li>2. Wrap of refrigerant pipe joint is not closed completely.</li> </ol>	<ol style="list-style-type: none"> <li>1. Change drainage pipe;</li> <li>2. Re-wrap and make it tight.</li> </ol>

**How to check fault codes**

**Troubleshooting according to fault codes**

**When the air conditioner failure occurs, the fault code will display on control board, or maintenance board.**

**Outdoor unit**

Fault code displayed by LED lamps on outdoor main control board.

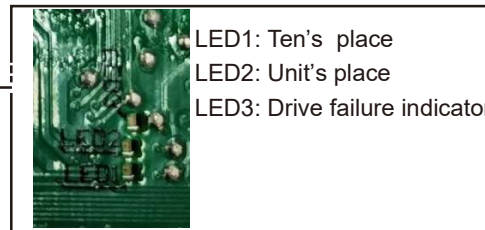
There are 3 LED lamps on control board, LED1, LED2 and LED3.

LED1 indicates fault code represented by 2-digit number, LED2 indicates fault code represented by single digit number and LED3 indicates outdoor drive control fault. When LED3 is off, LED1 and LED 2 indicate main control fault code.

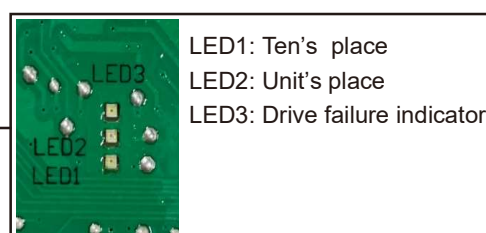
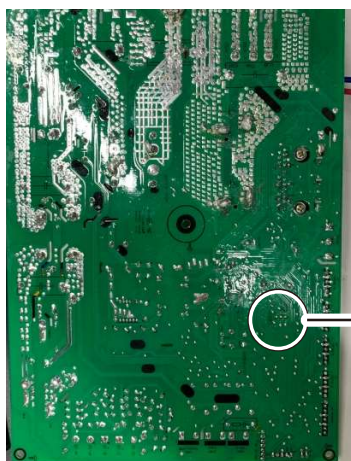
When LED3 is on, LED1 and LED 2 indicate drive control fault code.

When LED3 is flickering and LED1, LED 2 are all off, indicate compressor is preheating. Failures display with 5s interval. It means LED will be off for 5s to report next fault code. System protection codes display method is the same with main control fault code. LED lamps will be off when there is no failure, protection or preheating.

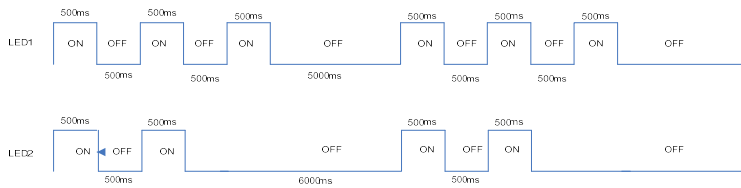
**12K~18K**



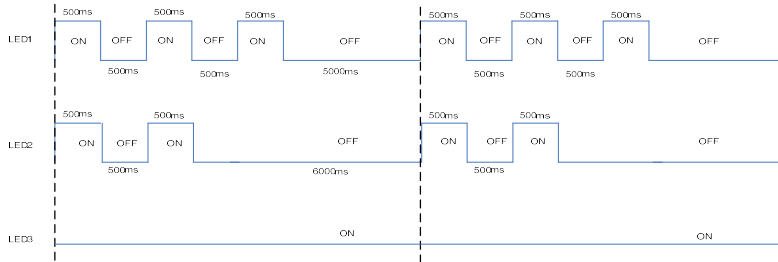
**21K~27K**



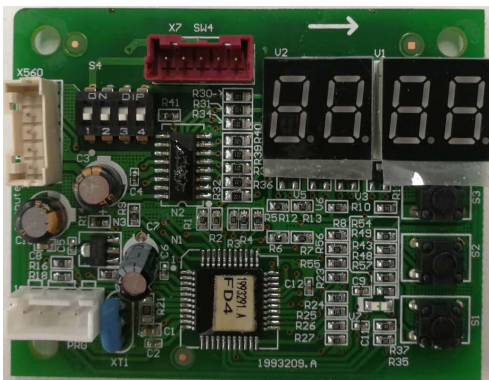
For example, outdoor main control fault 32:



For example, outdoor drive fault 32:



For 21K~27K, fault codes also can be checked by 7 segment display on the maintenance board. Fault codes will display directly when fault occurs.



Maintenance Board



E shows failure occur

Display ERROR Code

### 13.2 Fault codes

**Table 1 Outdoor fault codes**

Fault code	Fault description	Possible reasons for abnormality	How to deal with	Remarks
1	Outdoor ambient temperature sensor fault	<ol style="list-style-type: none"> <li>1.The outdoor ambient temperature sensor is connected loosely;</li> <li>2.The outdoor ambient temperature sensor fails to work;</li> <li>3.The sampling circuit fails.</li> </ol>	<ol style="list-style-type: none"> <li>1.Reconnect the outdoor ambient temperature sensor;</li> <li>2.Replace the outdoor ambient temperature sensor components;</li> <li>3.Replace the outdoor control board components.</li> </ol>	
2	Outdoor coil temperature sensor fault	<ol style="list-style-type: none"> <li>1.The outdoor coil temperature sensor is connected loosely;</li> <li>2.The outdoor coil temperature sensor fails to work;</li> <li>3.The sampling circuit fails.</li> </ol>	<ol style="list-style-type: none"> <li>1.Reconnect the outdoor coil temperature sensor;</li> <li>2.Replace the outdoor coil temperature sensor components;</li> <li>3.Replace the outdoor control board components.</li> </ol>	
3	The unit over-current turn off fault	<ol style="list-style-type: none"> <li>1. Control board current sampling circuit fails;</li> <li>2. The current is over high because the supply voltage is too low;</li> <li>3. The compressor is blocked;</li> <li>4. Overload in cooling mode;</li> <li>5. Overload in heating mode.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace the electrical control board components;</li> <li>2. Normal protection;</li> <li>3. Replace the compressor;</li> <li>4. Please see Table 2;</li> <li>5. Please see Table 3.</li> </ol>	
4	EEprom Data error	<ol style="list-style-type: none"> <li>1.EE components fails;</li> <li>2.EE components control circuit fails;</li> <li>3.EE components are inserted incorrectly.</li> </ol>	<ol style="list-style-type: none"> <li>1.Replace the EE components;</li> <li>2.Replace the outdoor control board components;</li> <li>3.Reassemble the EE components.</li> </ol>	
5	Cooling freezing protection (the indoor coil temperature is too low) or heating overload (indoor coil temperature is too high)	<ol style="list-style-type: none"> <li>1.The indoor unit can not blow air normally;</li> <li>2.The room temperature is too low in cooling mode or the room temperature is too high in heating;</li> <li>3.The filter is dirty;</li> <li>4.The duct resistance is too high to result in low air flow;</li> <li>5.The setting fan speed is too low;</li> <li>6.The indoor unit is not installed in accordance with the installation standards, and the air inlet is too close to the air outlet .</li> </ol>	<ol style="list-style-type: none"> <li>1.Check whether the indoor fan, indoor fan motor and evaporator work normally;</li> <li>2.Normal protection;</li> <li>3.Clean the filter;</li> <li>4.Check the volume control valve, duct length etc.;</li> <li>5.Set the speed with high speed;</li> <li>6.Reinstall the indoor unit referring to the user manual to change the distance between the indoor unit and the wall or ceiling.</li> </ol>	
7	The communication fault between the indoor unit and outdoor unit	<ol style="list-style-type: none"> <li>1.The connection cable is connected improperly between the indoor unit and outdoor unit;</li> <li>2.The communication cable is connected loosely;</li> <li>3.The communication cable fails;</li> <li>4.The indoor control board fails;</li> <li>5.The outdoor control board fails;</li> <li>6.Communication circuit fuse open;</li> <li>7.The specification of communication cable is incorrect.</li> </ol>	<ol style="list-style-type: none"> <li>1.Reconnect the connection cable referring to the wiring diagram;</li> <li>2.Reconnect the communication cable;</li> <li>3.Replace the communication cable;</li> <li>4.Replace the indoor control board;</li> <li>5.Replace the outdoor control board;</li> <li>6.Check the communication circuit, adjust the DIP switch and the short-circuit fuse.</li> <li>7.Choose suitable communication cable referring to the user manual.</li> </ol>	

Fault code	Fault description	Possible reasons for abnormality	How to deal with	Remarks
13	Compressor overheat protector device	<ol style="list-style-type: none"> <li>1. The wiring of the overload protector is connected loosely.</li> <li>2. The overload protector fails .</li> <li>3. The refrigerant is not enough;</li> <li>4. The installation pipe is much longer than the normal one, but extra refrigerant is not added ;</li> <li>5. The expansion valve fails;</li> <li>6. The outdoor control board fails.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reconnect the wiring of the overload protector;</li> <li>2. Replace the overload protector;</li> <li>3. Check the welding point of the unit to confirm whether it is leakage, and then recharge the refrigerant;</li> <li>4. Add the refrigerant;</li> <li>5. Replace expansion valve;</li> <li>6. Replace the outdoor control board.</li> </ol>	
16	Overload protection in cooling mode	System overload	Please refer to Table 2.	
17	Discharge temperature sensor fault	<ol style="list-style-type: none"> <li>1.The wiring of the discharge temperature sensor is connected loosely;</li> <li>2. The discharge temperature sensor fails;</li> <li>3.The sampling circuit is abnormal.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reconnect the wiring of the discharge temperature sensor;</li> <li>2. Replace the discharge temperature sensor;</li> <li>3. Replace the outdoor control board.</li> </ol>	
18	AC voltage is abnormal	<ol style="list-style-type: none"> <li>1.The AC voltage&gt;275V or &lt;160V;</li> <li>2.The AC voltage of sampling circuit on the driver board is abnormal.</li> </ol>	<ol style="list-style-type: none"> <li>1. Normal protection, please check the supply power;</li> <li>2. Replace the driver board.</li> </ol>	
19	Suction temperature sensor fault	<ol style="list-style-type: none"> <li>1.The wiring of the suction temperature sensor is connected loosely;</li> <li>2.The suction temperature sensor fails;</li> <li>3.The sampling circuit is abnormal.</li> </ol>	<ol style="list-style-type: none"> <li>1.Reconnect the wiring of the suction temperature sensor;</li> <li>2.Replace the suction temperature sensor;</li> <li>3.Replace the outdoor control board.</li> </ol>	
22	The defrosting sensor fault	<ol style="list-style-type: none"> <li>1. The wiring of the defrosting sensor is connected loosely;</li> <li>2. The defrosting sensor fails;</li> <li>3. The sampling circuit is abnormal.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reconnect the wiring of the defrosting sensor;</li> <li>2. Replace the defrosting sensor;</li> <li>3. Replace the outdoor control board.</li> </ol>	
23	Expansion valve A pipe (liquid) sensor fault	<ol style="list-style-type: none"> <li>1. The wiring of the sensor for the expansion valve A(liquid pipe) is connected loosely;</li> <li>2. The sensor for the expansion A (liquid pipe) fails;</li> <li>3. The sampling circuit is abnormal.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reconnect the wiring of the sensor for the expansion valve A (liquid pipe);</li> <li>2. Replace the sensor for the expansion valve A (liquid pipe);</li> <li>3. Replace the outdoor control board.</li> </ol>	
24	Expansion valve B (liquid) pipe sensor fault	<ol style="list-style-type: none"> <li>1. The wiring of the sensor for the expansion valve B (liquid pipe) is connected loosely;</li> <li>2.The sensor for the expansion valve B(liquid pipe) fails;</li> <li>3.The sampling circuit is abnormal.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reconnect the wiring of the sensor for the expansion valve B(liquid pipe);</li> <li>2. Replace the sensor for the expansion valve B(liquid pipe);</li> <li>3. Replace the outdoor control board.</li> </ol>	
25	Expansion valve C (liquid) pipe sensor fault	<ol style="list-style-type: none"> <li>1. The wiring of the sensor for the expansion valve C (liquid pipe) is connected loosely;</li> <li>2. The sensor of the expansion valve C (liquid pipe) fails;</li> <li>3. The sampling circuit fails.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reconnect the wiring of the sensor for the expansion valve C (liquid pipe);</li> <li>2. Replace the sensor for the expansion valve C (liquid pipe);</li> <li>3. Replace the outdoor control board.</li> </ol>	

Fault code	Fault description	Possible reasons for abnormality	How to deal with	Remarks
26	Expansion valve D (liquid) pipe sensor fault	<ol style="list-style-type: none"> <li>1. The wiring of the sensor for the expansion valve D (liquid pipe) is connected loosely;</li> <li>2. The sensor of the expansion valve D (liquid pipe) fails;</li> <li>3. The sampling circuit fails.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reconnect the wiring of the sensor for the expansion valve D (liquid pipe);</li> <li>2. Replace the sensor for the expansion valve D (liquid pipe);</li> <li>3. Replace the outdoor control board.</li> </ol>	
27	Expansion valve A (gas pipe) sensor fault	<ol style="list-style-type: none"> <li>1. The wiring of the sensor for the expansion valve A (gas pipe) is connected loosely;</li> <li>2. The sensor of the expansion valve A (gas pipe) fails;</li> <li>3. The sampling circuit fails.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reconnect the wiring of the sensor for the expansion valve A (gas pipe);</li> <li>2. Replace the sensor for the expansion valve A (gas pipe);</li> <li>3. Replace the outdoor control board.</li> </ol>	
28	Expansion valve B (gas pipe) sensor fault	<ol style="list-style-type: none"> <li>1. The wiring of the sensor for the expansion valve B (gas pipe) connect is connected loosely;</li> <li>2. The sensor of the expansion valve B (gas pipe) fails;</li> <li>3. The sampling circuit fails.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reconnect the wiring of the sensor for the expansion valve B (gas pipe);</li> <li>2. Replace the sensor for the expansion valve B (gas pipe);</li> <li>3. Replace the outdoor control board.</li> </ol>	
29	Expansion valve C (gas pipe) sensor fault	<ol style="list-style-type: none"> <li>1. The wiring of the sensor for the expansion valve B (gas pipe) connect is connected loosely;</li> <li>2. The sensor of the expansion valve C (gas pipe) fails;</li> <li>3. The sampling circuit fails.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reconnect the wiring of the sensor for the expansion valve B (gas pipe);</li> <li>2. Replace the sensor for the expansion valve C (gas pipe);</li> <li>3. Replace the outdoor control board.</li> </ol>	
30	Expansion valve D (gas pipe) sensor fault	<ol style="list-style-type: none"> <li>1. The wiring of the sensor for the expansion valve B (gas pipe) connect is connected loosely;</li> <li>2. The sensor of the expansion valve D (gas pipe) fails;</li> <li>3. The sampling circuit fails.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reconnect the wiring of the sensor for the expansion valve B (gas pipe);</li> <li>2. Replace the sensor for the expansion valve D (gas pipe);</li> <li>3. Replace the outdoor control board.</li> </ol>	
45	IPM fault	<p>There are many reasons for this failure. You can check the driver board fault LED to further analyze the fault code of the drive board and to learn about what leads to the fault and how to operate it. Specific information can be seen in table 4.</p>	<p>See attached "analysis of the driving board fault".</p>	
46	IPM and control board communication fault	<ol style="list-style-type: none"> <li>1.The control board and the driver board is loose;</li> <li>2.The cable between the control board and the driver board fails;</li> <li>3.The driver board fails;</li> <li>4.The control board fails.</li> </ol>	<ol style="list-style-type: none"> <li>1.Reconnect the communication cable ;</li> <li>2.Replace the communication cable;</li> <li>3.Replace the driver board;</li> <li>4.Replace the control board.</li> </ol>	



Fault code	Fault description	Possible reasons for abnormality	How to deal with	Remarks
47	Discharge temperature is too high	<ol style="list-style-type: none"> <li>1. The refrigerant of the unit is not enough;</li> <li>2. The refrigerant of the unit is not enough ;</li> <li>3. Throttling service fails;</li> <li>4. The outdoor ambient temperature is too high.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check to confirm whether there is leakage exist;</li> <li>2. Add some refrigerant referring to the installation user manual;</li> <li>3. Replace the throttling service (such as capillary, expansion valve)</li> <li>4. Normal protection.</li> </ol>	
48	The outdoor DC fan motor fault (upper fan motor)	<ol style="list-style-type: none"> <li>1. The connecting wiring of the up DC fan motor is loose;</li> <li>2. The cord of the upper DC fan motor fails;</li> <li>3. The upper DC fan motor fails;</li> <li>4. The drive circuit of the upper DC fan motor fails;</li> <li>5. The outdoor fan has been blocked.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reconnect the wiring of the up DC fan motor;</li> <li>2. Replace the upper DC fan motor;</li> <li>3. Replace the upper DC fan motor;</li> <li>4. Replace the driver board of the fan motor;</li> <li>5. Check the outdoor fan and ensure the outdoor fan can run normally.</li> </ol>	
67	Fan of IPM device overheat protect	<ol style="list-style-type: none"> <li>1. The fan of IPM is overload;</li> <li>2. The circuit of IPM fails.</li> </ol>	<ol style="list-style-type: none"> <li>1. Normal protection;</li> <li>2. Replace the IPM.</li> </ol>	
91	The unit turn off due the IPM board over heating fault	<ol style="list-style-type: none"> <li>1. The outdoor ambient temp. is too high;</li> <li>2. The speed of the out fan motor is too low if the fan motor is AC fan motor;</li> <li>3. The outdoor unit is not installed in accordance with the standard;</li> <li>4. The supply power is too low.</li> </ol>	<ol style="list-style-type: none"> <li>1. Normal protection;</li> <li>2. Check the fan capacitor, and replace the fan capacitor if it is failure;</li> <li>3. Reinstalled the outdoor unit refer to the installation user manual;</li> <li>4. Normal protection.</li> </ol>	
96	Lacking of refrigerant	The refrigerant of the unit is not enough.	Discharge the refrigerant and charge the refrigerant referring to the rating label.	
97	4-way valve commutation failure fault	<ol style="list-style-type: none"> <li>1. The connecting wiring of the 4-way valve coil is loose;</li> <li>2. The 4-way valve coil fails;</li> <li>3. The 4-way valve fails;</li> <li>4. The driver board of the 4-way valve fails.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reconnect the wiring of the 4-way valve;</li> <li>2. Replace the 4-way valve coil;</li> <li>3. Replace the 4-way valve;</li> <li>4. Replace the driver board of the 4-way valve.</li> </ol>	

**Table 2 Overload in cooling mode**

Overload in cooling mode		
sr.	The root cause	Corrective measure
1	The refrigerant is excessive.	Discharge the refrigerant, and recharge the refrigerant referring to the rating label.
2	The outdoor ambient temperature is too high.	Please use it within allowable temperature range
3	Short-circuit occurs in the air outlet and air inlet of the outdoor unit.	Adjust the installation of the outdoor unit referring to the user manual.
4	The outdoor heat exchanger is dirty, such as condenser.	Clean the heat exchanger of the outdoor unit, such as condenser.
5	The speed of the outdoor fan motor is too low.	Check the outdoor fan motor and fan capacitor.
6	The outdoor fan is broken or the outdoor fan is blocked.	Check the outdoor fan.
7	The air inlet and outlet have been blocked.	Remove the obstacles.
8	The expansion valve or the capillary fails.	Replace the expansion valve or the capillary.

**Table 3 Overload in heating mode**

Overload in heating mode		
sr.	The root cause	Corrective measure
1	The refrigerant is excessive.	Discharge the refrigerant, and recharge the refrigerant referring to the rating label.
2	The indoor ambient temperature is too high.	Please use within allowable temperature range.
3	Short-circuit occurs in the air outlet and air inlet of the indoor unit.	Adjust the installation of the indoor unit referring to the user manual.
4	The indoor filter is dirty.	Clean the indoor filter.
5	The speed of the indoor fan motor is too low.	Check the indoor fan motor and fan capacitor.
6	The indoor fan is broken or the outdoor fan is blocked.	Check the indoor fan.
7	The air inlet and outlet have been blocked.	Remove the obstacles.
8	The expansion valve or the capillary fails.	Replace the expansion valve or the capillary.

**Table 4 Analysis of the driving board fault**

Fault code	Fault description	Possible reasons for abnormality	How to deal with
1	Inverter DC voltage overload fault	1. Power supply input is too high or too low; 2. Driver board fault.	1. Check the power supply; 2. Change the driver board.
2	Inverter DC low voltage fault		
3	Inverter AC current overload fault		
4	Out-of-step detection	1. Compressor phase lost; 2. Bad driver board components; 3. The compressor insulation fault.	1. Check the compressor wire connection; 2. Change the driver board; 3. Change the compressor.
5	Loss phase detection fault (speed pulsation)		
6	Loss phase detection fault (current imbalance)		
7	Inverter IPM fault (edge)	1. System overload or current overload; 2. Driver board fault; 3. Compressor oil shortage, serious wear of crankshaft ; 4. The compressor insulation fault.	1. Check the system; 2. Change the driver board; 3. Change the compressor; 4. Change the compressor.
8	Inverter IPM fault (level)		
9	PFC fault (edge)		
10	PFC fault (level)		
11	PFC power detection of failure	1. The power supply is not stable; 2. Instantaneous power failure; 3. Driver board failure.	1. Check the power supply; 2. No need to deal with; 3. Change the driver board.
12	PFC overload current detection of failure.	1. System overloads, and the current is too high; 2. Driver board fails; 3. PFC fails.	1. Check the system; 2. Change the driver board; 3. Change the PFC.
13	DC voltage detected abnormal .	1. Input voltage is too high or too low; 2. Driver board fails.	1. Check the power supply; 2. Change the driver board.
14	PFC LOW voltage detected failure.		
15	AD offset abnormal detected failure.		
16	Inverter PWM logic set fault.		
17	Inverter PWM initialization failure		
18	PFC_PWM logic set fault.		
19	PFC_PWM initialization fault.		
20	Temperature abnormal.	Driver board fails.	Change the driver board.
21	Shunt resistance unbalance adjustment fault		
22	Communication failure.	1. Communication wire connection is not proper; 2. Driver board fails; 3. Control board fails.	1. Check the wiring; 2. Change the driver board; 3. Change the control board.
23	Motor parameters setting of failure	Initialization is abnormal.	Reset the power supply.
25	EE data abnormal	Driver board EEPROM is abnormal.	1. Change EEPROM; 2. Change the driver board.
26	DC voltage mutation error	1. Power input changes suddenly; 2. Driver board fails.	1. Check the power supply, to provide stable power supply; 2. Change the driver board.
27	D axis current control error	1. System overload, phase current is too high; 2. Driver board fails.	1. Check if the system is normal; 2. Check if the stop valve is open; 3. Change the driver board.
28	Q axis current control error	1. System overload, phase current is too high; 2. Driver board fails.	1. Check if the system is normal; 2. Check if the stop valve is open; 3. Change the driver board.
29	Saturation error of D axis current control integral	1. System overloads suddenly; 2. Compressor parameter is not suitable; 3. Driver board fails.	1. Check if the system is normal; 2. Check if the stop valve is open; 3. Change the driver board.
30	Saturation error of Q axis current control integral	1. System overloads suddenly; 2. Compressor parameter is not suitable; 3. Driver board fails.	1. Check if the system is normal; 2. Check if the stop valve is open; 3. Change the driver board.

Fault code	Fault description	Possible reasons for abnormality	How to deal with
50	Inverter software over-current	<ol style="list-style-type: none"> <li>1. The fan motor system overloads;</li> <li>2. The drive board fails;</li> <li>3. The fan motor is not insulated well;</li> </ol>	<ol style="list-style-type: none"> <li>1. Change the fan motor;</li> <li>2. Change the drive board;</li> <li>3. Change the fan motor.</li> </ol>
51	Out-of-step detection	<ol style="list-style-type: none"> <li>1.The wire is not connected well;</li> <li>2.Bad drive board components;</li> <li>3.The fan motor starting overloads;</li> <li>4. The fan motor is demagnetized;</li> <li>5. The fan motor is not insulated well.</li> </ol>	<ol style="list-style-type: none"> <li>1.Check the fan motor wire connection;</li> <li>2.Change the drive board;</li> <li>3. Change the fan motor.</li> <li>4. Change the fan motor.</li> <li>5. Change the fan motor.</li> </ol>
52	Abnormal speed control	<ol style="list-style-type: none"> <li>1.Bad driver board components;</li> <li>2.The fan motor shaft clamping;</li> <li>3.The fan motor insulation fails.</li> </ol>	<ol style="list-style-type: none"> <li>1.Change the drive board;</li> <li>2. Change the fan motor.</li> <li>3.Change the fan motor.</li> </ol>
53	Out of phase detection fault	<ol style="list-style-type: none"> <li>1. Phase loss of the fan motor;</li> <li>2. Bad drive board components.</li> </ol>	<ol style="list-style-type: none"> <li>1. Change the drive board;</li> <li>2. Change the fan motor;</li> <li>3. Change the fan motor</li> </ol>
54	IPM-FO hardware over-current (edge)	<ol style="list-style-type: none"> <li>1.The fan motor overloads or over-current;</li> <li>2.The drive board fails;</li> <li>3.The fan motor insulation fails.</li> </ol>	<ol style="list-style-type: none"> <li>1. Change the fan motor;</li> <li>2. Change the drive board;</li> <li>3. Change the fan motor</li> </ol>
55	IPM-FO hardware over-current (level)	<ol style="list-style-type: none"> <li>1.The fan motor overloads or over-current;</li> <li>2.The drive board fails;</li> <li>3.The fan motor insulation fails.</li> </ol>	<ol style="list-style-type: none"> <li>1. Change the fan motor;</li> <li>2. Change the drive board;</li> <li>3. Change the fan motor</li> </ol>
56	The fan motor -AD Offset abnormal detection fault	The drive board circuit fails.	Change the drive board.
57	The fan motor speed control integral saturation	<ol style="list-style-type: none"> <li>1. The fan motor overload mutation;</li> <li>2. Parameters are inappropriate;</li> <li>3. The drive board fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Change the fan motor system;</li> <li>2. Change the fan motor;</li> <li>3. Change the drive board.</li> </ol>
58	The fan motor D,Q axis current control error	<ol style="list-style-type: none"> <li>1. The fan motor overloads, the phase current is large;</li> <li>2. The drive board fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the fan motor system;</li> <li>2. Change the drive board.</li> </ol>
59	The fan motor D,Q axis current control integral saturation	<ol style="list-style-type: none"> <li>1. The fan motor overload mutation;</li> <li>2. Parameters are inappropriate;</li> <li>3. The drive board fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Change the fan motor system;</li> <li>2. Change the fan motor;</li> <li>3. Change the drive board.</li> </ol>
60	The fan motor reverse	<ol style="list-style-type: none"> <li>1. Bad drive board components;</li> <li>2. Wiring problems</li> </ol>	<ol style="list-style-type: none"> <li>1. Change the drive board;</li> <li>2. Check the wiring.</li> </ol>
61	IPM-PWM initialization fault	<ol style="list-style-type: none"> <li>1. EE logics error;</li> <li>2. The drive board fails.</li> </ol>	<ol style="list-style-type: none"> <li>1. Change the drive board;</li> <li>2. Change the drive board.</li> </ol>

**Table 5 Limitation Code**

Code	Definitions	Descriptions
101	When overcurrent occurs, stop the frequency from increasing.	Current control
102	When overcurrent occurs, reduce the frequency.	Current control
103	When the temperature of IPM module is too high, stop the frequency from increasing.	Frequency control to keep appropriate temperature of IPM module.
104	When the temperature of IPM module is too high, reduce the frequency.	Frequency control to keep appropriate temperature of IPM module.
105	When the discharge temperature is too high, stop the frequency from increasing.	Frequency control to keep appropriate discharge temperature.
106	When the discharge temperature is too high, reduce the frequency.	Frequency control to keep appropriate discharge temperature.
107	In cooling mode, when the temperature of the outdoor unit coil is too high, stop the frequency from increasing.	Frequency control to keep appropriate temperature of the outdoor unit coil in cooling mode.
108	In cooling mode, when the temperature of the outdoor unit coil is too high, reduce the frequency.	Frequency control to keep appropriate temperature of the outdoor unit coil in cooling mode.
113	To prevent the indoor unit from being frozen or high temperature, stop the frequency from increasing.	Frequency control to keep appropriate temperature of the indoor unit coil.
114	To prevent the indoor unit from being frozen or high temperature, reduce the frequency.	Frequency control to keep appropriate temperature of the indoor unit coil.
119	When DSH exceeds the target value, the valve opening gets wider to adjust the flow.	Control on expansion valve based on DSH.
120	When DSH exceeds the target value, the valve opening gets narrower to adjust the flow.	Control on expansion valve based on DSH.
121	When DSH exceeds the target value, stop the valve opening from getting narrower.	Control on expansion valve based on DSH.
122	When DSH exceeds the target value, stop the valve opening from getting wider.	Control on expansion valve based on DSH.
131	When the temperature of IPM module is too high, stop the frequency from increasing.	Frequency control to keep appropriate temperature of IPM module.
132	When the temperature of IPM module is too high, reduce the frequency.	Frequency control to keep appropriate temperature of IPM module.
134	When the discharge temperature is too high, stop the valve opening getting narrower.	Control on discharge temperature expansion valve.
140	The compressor overloads.	Control on the compressor output.
141	The compressor current overloads.	Control on the output torque of the compressor.

※ DSH: Discharge Super Heat

These codes appearing in the operation process indicate some kind of normal operation state, instead of faults, so they do not need to be dealt with.

# 14. Checking components

## 14.1 Check refrigerant system

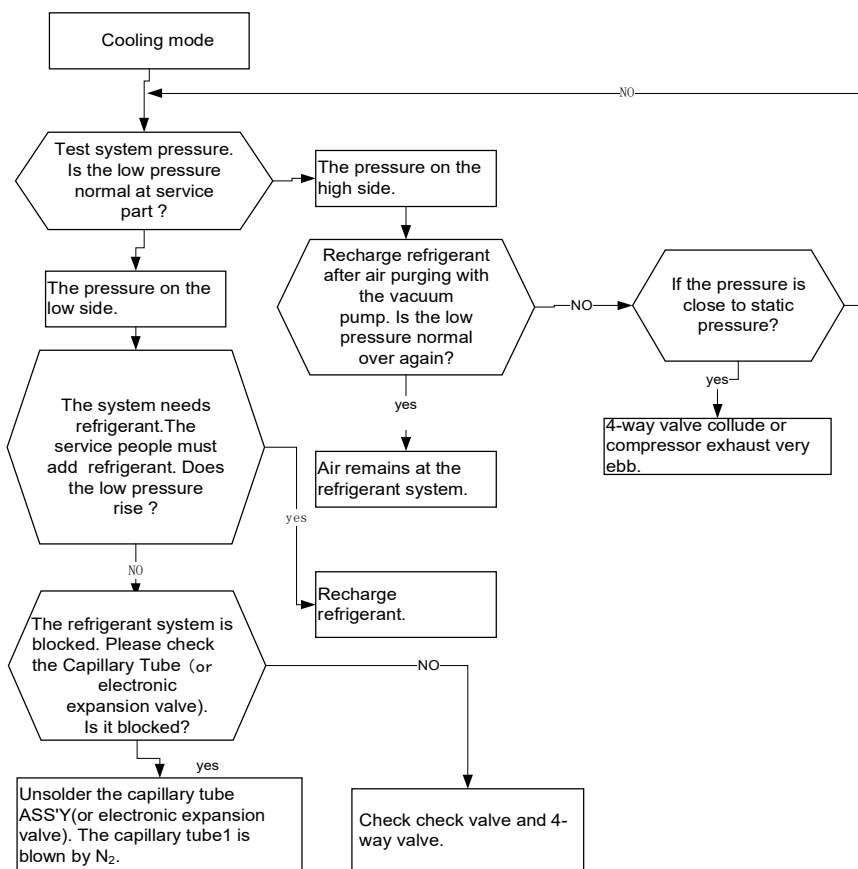
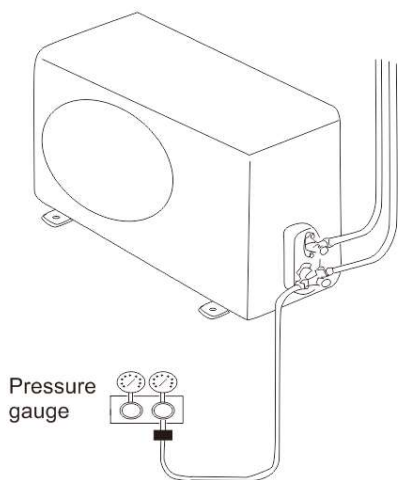
### TEST SYSTEM FLOW

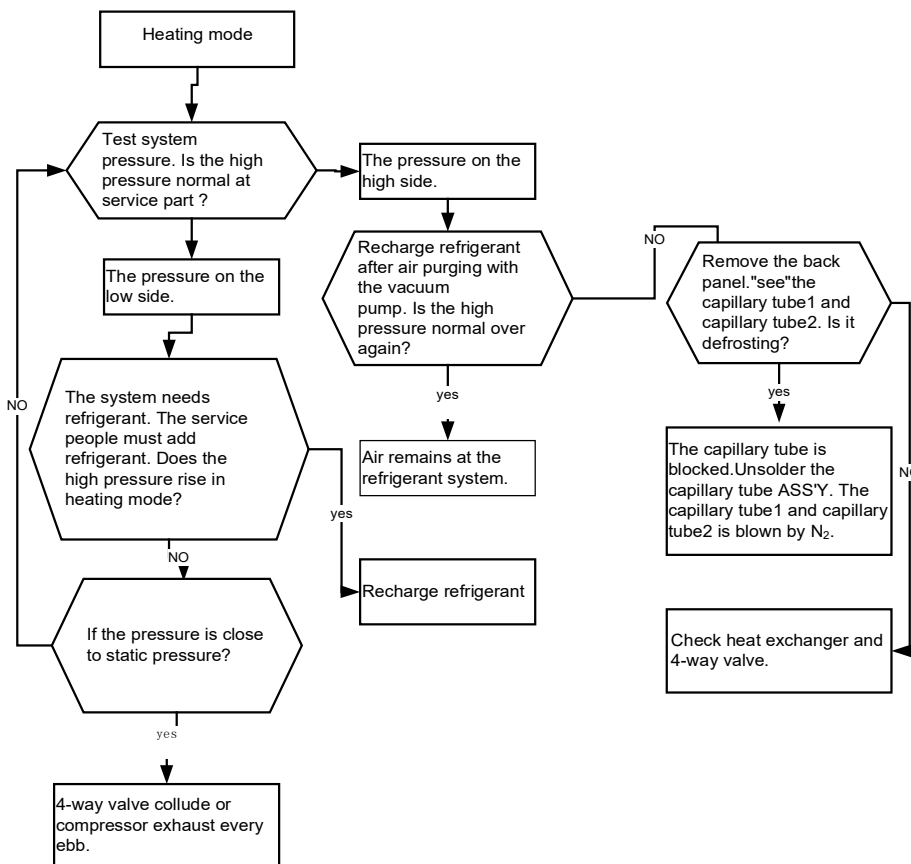
Conditions: ① Compressor is running.  
 ② The air condition should be installed in good ventilation.

Tool: Pressure Gauge

Technique: ① see ② feel ③ test

- See ----- Tube defrost.
- Feel ----- The difference between tube's temperature.
- Test ----- Test pressure.





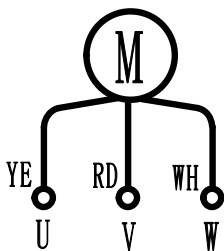
## 14.2 Check parts unit

### 1. Outdoor unit fan motor(DC type)

12K/14K model: ZWA138L03B

18K model: ZKFN-40-8-33

21K/24K/27K model: ZWB1710L00A



Test in voltage(For DC motor)

TOOL: Multimeter.

Insert screwdriver to rotate indoor fan motor slowly for 1 revolution or over, and measure voltage "YELLOW" and "GND" on motor. The voltage repeat 0V DC and 5V DC.

NOTE: Please don't hold motor by lead wires.

Please don't plug IN/OUT the motor connector while power ON.

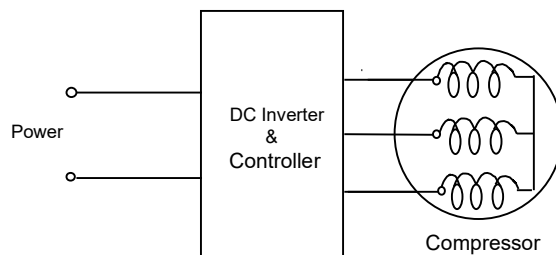
Please don't drop hurl or dump motor against hard material. Malfunction may not be observed at early stage after such shock. But it may be found later, this type of mishandling void our warranty.

### 2. Compressor

12K/14K: KSN108D34UFZ

18K: KTN130D42UFZ

21K/24K/27K: KTM240D43UMT



Compressor examine and repair

Test in resistance.

TOOL: Multi-meter.

Test the resistance of the winding. The compressor fails if the resistance of winding is 0 (short circuit) or  $\infty$  (open circuit).

Familiar error:

- 1) Compressor motor lock.
- 2) Discharge pressure value approaches static pressure value.
- 3) Compressor motor winding abnormality.

Notes:

- 1) Don't put a compressor on its side or turn over.
- 2) Please assemble the compressor in your air conditioner rapidly after removing the plugs.  
Don't place the comp. in air for a long time.
- 3) Avoid compressor running in reverse caused by connecting electrical wire incorrectly.
- 4) Warning! In case AC voltage is impressed to compressor, the compressor performance will decrease because of its rotor magnetic force decreasing.







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