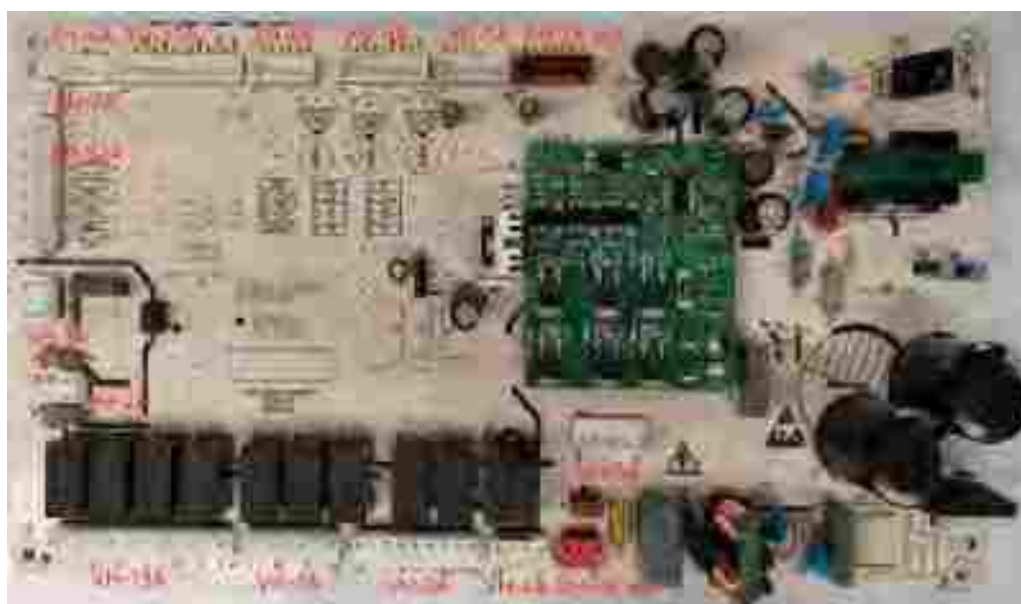


Error Codes

Error Codes	Error Explanation
<u>F1</u>	Fresh Food Compartment Air Sensor Error
<u>F2</u>	Defrost Fridge Sensor Error
<u>F3</u>	Special fridge Compartment Air Sensor Error
<u>F4</u>	Freezer Compartment Air Sensor Error
<u>F5</u>	Defrost Freezer Sensor Error
<u>F6</u>	Ambient Compartment Air Sensor Error
<u>CE</u>	Communication Failure
<u>1E</u>	Fridge Fan Error
<u>2E</u>	Freezer Fan Error
<u>3E</u>	Condenser Fan Error
<u>DR</u>	The Refrigerator Opens For More Than 2 Minutes
<u>Warning Icon</u>	High Temperature Error

Knowing the connection numbers on the control board will be necessary for the following error code explanations.



Control Board Connection Numbers	
XH-13A	Sensors
XH-9A	Fans
XH-6A	Door & Water Switch
XH-12A	Lights
XH-4A	User Interface
XH-7A	Special Fridge Damper Motor
XH-7A _{red}	Fridge Damper Motor
VH-13A	Water Valve
VH-3A	Solenoid Valve
VH-2A VH-4A	Ice Maker
XH-2A	Empty
VH-7A	Water Pipe Heater
VH-9A	Defrosting and drainage Heater
VH-5A	Compressor input power supply
VH-3A _{red}	Power plug input

F1 - Fresh Food Compartment Air Sensor Error

		Yes	No
1	Is F1 flashing?	>>2	Stop
2	Check cables connected to control board sensor socket (XH-13A) pins 1 & 2. Is the cable disconnected?	>>3	>>
3	Reconnect the cable and turn the refrigerator back on. Is error still there?	>>4	Solved
4	Remove the harness from the XH-13A socket on the control board. Using a multimeter, measure the sensor pins (1 & 2). Is the resistance reading between 1kΩ and 4kΩ. (2k at 77°F (25°C)) (See chart on page 23)	>>5	>>6
5	Replace the Control Board . (Turn refrigerator back on)	Solved	
6	Replace the faulty Sensor . (Turn refrigerator back on)		

F2 - Defrost Fridge Sensor Error

		Yes	No
1	Is F2 flashing?	>>2	Stop
2	Check cables connected to control board sensor socket (XH-13A) pins 3 & 4. Is the cable disconnected?	>>3	>>4
3	Reconnect the cable and turn the refrigerator back on. Is error still there?	>>4	Solved
4	Remove the harness from the XH-13A socket on the control board. Using a multimeter, measure the sensor pins (3 & 4). Is the resistance reading between 1kΩ and 4kΩ. (2k at 77°F (25°C)) (See chart on page 23)	>>5	>>6
5	Replace the Control Board . (Turn refrigerator back on)	Solved	
6	Replace the faulty Sensor . (Turn refrigerator back on)	Solved	

F1 Test points



F2 Test points



F3 - Special fridge Compartment Air Sensor Error

		Yes	No
1	Is F3 flashing?	>>2	Stop
2	Check cables connected to control board sensor socket (XH-13A) pins 5 & 6. Is the cable disconnected?	>>3	>>
3	Reconnect the cable and turn the refrigerator back on. Is error still there?	>>4	Solved
4	Remove the harness from the XH-13A socket on the control board. Using a multimeter, measure the sensor pins (5 & 6). Is the resistance reading between 1kΩ and 4kΩ. (2k at 77°F (25°C)) (See chart on page 23)	>>5	>>6
5	Replace the Control Board . (Turn refrigerator back on)	Solved	
6	Replace the faulty Sensor . (Turn refrigerator back on)		

F4 - Freezer Compartment Air Sensor Error

		Yes	No
1	Is F4 flashing?	>>2	Stop
2	Check cables connected to control board sensor socket (XH-13A) pins 7 & 8. Is the cable disconnected?	>>3	>>4
3	Reconnect the cable and turn the refrigerator back on. Is error still there?	>>4	Solved
4	Remove the harness from the XH-13A socket on the control board. Using a multimeter, measure the sensor pins (7 & 8). Is the resistance reading between 1kΩ and 4kΩ. (2k at 77°F (25°C)) (See chart on page 23)	>>5	>>6
5	Replace the Control Board . (Turn refrigerator back on)	Solved	
6	Replace the faulty Sensor . (Turn refrigerator back on)	Solved	

F3 Test points



F4 Test points



F5 - Defrost Freezer Sensor Error

		Yes	No
1	Is F5 flashing?	>>2	Stop
2	Check cables connected to control board sensor socket (XH-13A) pins 9 & 10. Is the cable disconnected?	>>3	>>
3	Reconnect the cable and turn the refrigerator back on. Is error still there?	>>4	Solved
4	Remove the harness from the XH-13A socket on the control board. Using a multimeter, measure the sensor pins (9 & 10). Is the resistance reading between 1kΩ and 4kΩ. (2k at 77°F (25°C)) (See chart on page 23)	>>5	>>6
5	Replace the Control Board . (Turn refrigerator back on)	Solved	
6	Replace the faulty Sensor . (Turn refrigerator back on)	Solved	

F6 - Ambient Compartment Air Sensor Error

		Yes	No
1	Is F6 flashing?	>>2	Stop
2	Check cables connected to control board sensor socket (XH-13A) pins 11 & 12. Is the cable disconnected?	>>3	>>4
3	Reconnect the cable and turn the refrigerator back on. Is error still there?	>>4	Solved
4	Remove the harness from the XH-13A socket on the control board. Using a multimeter, measure the sensor pins (11 & 12). Is the resistance reading between 1kΩ and 4kΩ. (2k at 77°F (25°C)) (See chart on page 23)	>>5	>>6
5	Replace the Control Board . (Turn refrigerator back on)	Solved	
6	Replace the faulty Sensor . (Turn refrigerator back on)	Solved	

F5 Test points



F6 Test points



CE - Communication Failure

		Yes	No
1	Is CE flashing?	>>2	Stop
2	Check cables connected to control board socket (XH-4A) Is the cable disconnected?	>>3	>>
3	Reconnect the cable and turn the refrigerator back on. Is error still there?	>>4	Solved
4	Check cables connected to User Interface socket Is the cable disconnected?	>>5	>>6
5	Replace the Control Board . (Turn refrigerator back on)	Solved	
6	Replace the User Interface . (Turn refrigerator back on)	Solved	

CE Test points (Control Board)



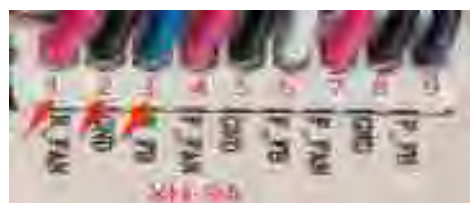
CE Test points User Interface



1E- Fridge Fan Error

		Yes	No
1	Is 1E flashing?	>>2	Stop
2	Check cables connected to control board Fan socket (XH-9A) pins 1 2 & 3. Is the cable disconnected?	>>3	>>4
3	Reconnect the cable and turn the refrigerator back on. Is error still there?	>>4	Solved
4	Using a multimeter, measure the DC voltage between pins 1 & 2 Is the resistance reading approximately 12VDC?	>>5	>>6
5	Remove the evaporator cover and ensure nothing is preventing fan blade rotation. Remove blockage. Turn refrigerator back on. Is error still there?	>>6	Solved
6	Replace the Fridge Fan . Turn refrigerator back on. Is error still there?	>>7	Solved
7	Replace control board . Turn refrigerator back on.	Solved	

1E Test points



2E- Freezer Fan Error

		Yes	No
1	Is 1E flashing?	>>2	Stop
2	Check cables connected to control board Fan socket (XH-9A) pins 4 5 & 6. Is the cable disconnected?	>>3	>>4
3	Reconnect the cable and turn the refrigerator back on. Is error still there?	>>4	Solved
4	Using a multimeter, measure the DC voltage between pins 4 & 5 Is theresistance reading approximately 12VDC?	>>5	>>6
5	Remove the evaporator cover and ensure nothing is preventing fan blade rotation. Remove blockage. Turn refrigerator back on. Is error still there?	>>6	Solved
6	Replace the Freezer Fan . Turn refrigerator back on. Is error still there?	>>7	Solved
7	Replace control board . Turn refrigerator back on.	Solved	

3E - Condenser Fan Error

		Yes	No
1	Is 3E flashing?	>>2	Stop
2	Check cables connected to control board Fan socket (XH-9A) pins 7 8 & 9. Is the cable disconnected?	>>3	>>4
3	Reconnect the cable and turn the refrigerator back on. Is error still there?	>>4	Solved
4	Using a multimeter, measure the DC voltage between pins 7 & 8. Is theresistance reading approximately 12VDC?	>>5	>>6
5	Remove the compressor compartment cover and ensure nothing is preventing the condenser fan blade rotation. Remove blockage. Turn refrigerator back on. Is error still there?	>>6	Solved
6	Replace the Condenser Fan . Turn refrigerator back on. Is error still there?	>>7	Solved
7	Replace control board . Turn refrigerator back on.	Solved	

2E Test points



3E Test points



DR - Door opening alarm Error

		Yes	No
1	Is DR flashing?	>>2	Stop
2	Check whether the refrigeration door is closed tightly, Repeat closing the door, if the fault still exists	>>3	>>4
3	Check whether the induction magnet on the top of the door of the refrigerator is missing. If it is missing, the fault will continue	>>4	Solved
4	Check whether the magnetic switches of the upper beam are normal	>>5	Solved



Maintenance guide for refrigeration failure

1. Freezer is not cold enough.
 - Error code on display. First, open and close the freezer door to see if the freezer light is always on. If so, check the freezer drawer brackets.
 - No error code on display. Check if the plugs on the main control board are connected properly.
 - Evacuate the gas and re-gas the system.
2. Freezer does not work
 - If the compressor works, check if the capillary is blocked.
3. Fridge does not work
 - If there is an error code F1, check the fan in fridge. If it is still not working after replacing the fan, check the wiring connection.
 - Check if the reed switch is working properly.
 - Check if the appliance is on a holiday mode.
4. Fresh zone is not working properly
 - Check if the fresh zone is switched off.
 - Check if there is cold air blowing from the outlet, if not, replace the air duct.
5. Fridge and freezer are not working
 - Check whether the power cord plug of the main control board is off or not connected.
 - Method 2 Check whether the plugs on the main control board are fully connected or correctly connected.

Guide to maintenance of ice making faults

1. Ice maker fails

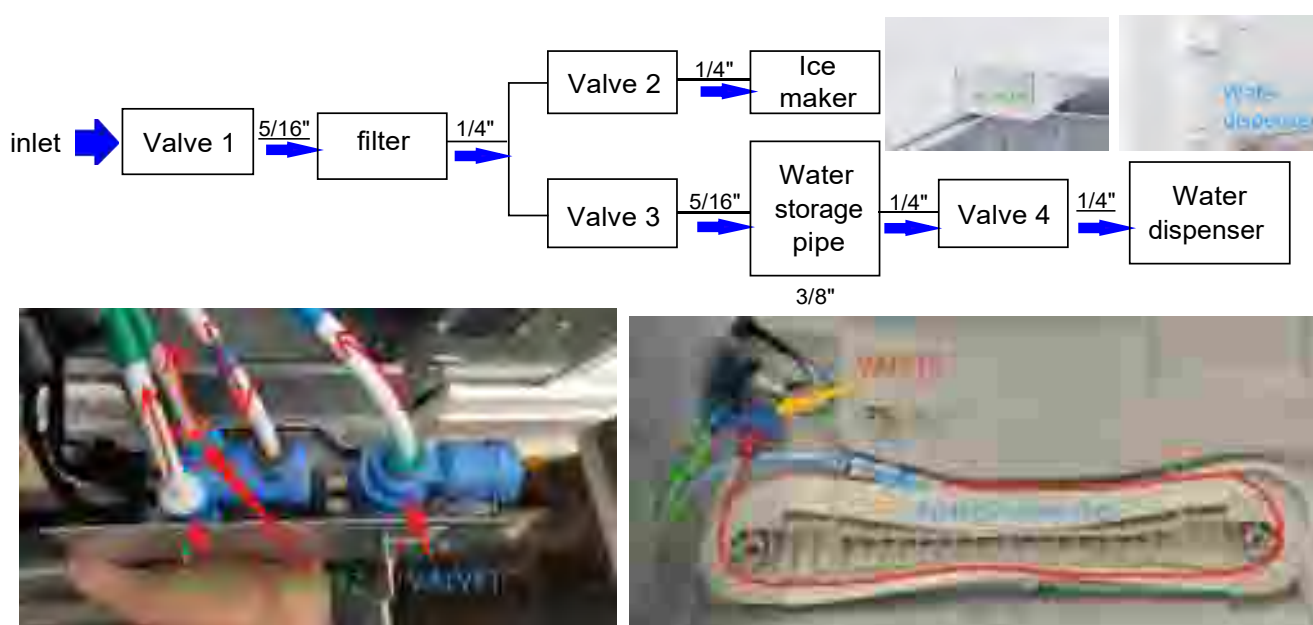
- Check whether the water inlet pipe or valve is blocked
- Check the switch of the ice maker and also the terminals of the ice maker have loose connections
- Insufficient amount of secondary ice is not formed

2. Ice amount is less and not fully shaped

- Check the water pressure
- Check whether the ice maker is installed properly
- Check whether each pipeline has extrusion deformation and bending

3. Water leakage

- Check the water valve leakage. whether the pipeline is in place, and the clip is installed.
- Check whether the water filter is tightened and whether it is leaking.
- Check the water storage pipes and joints



High Temp Error

When the temperature collected by the freezing sensor reaches set 39°F(+4°C), if the temperature rises $\geq 30^\circ\text{F}(-1^\circ\text{C})$, the high temperature alarm will buzz twice consecutively, and the freezing temperature LED light will flash; Touch any button, the over-temperature alarm sound will be canceled, but the freezing temperature LED light will continue to flash; The alarm will stop only when the temperature collected by the sensor is less than 28°F(-2°C).

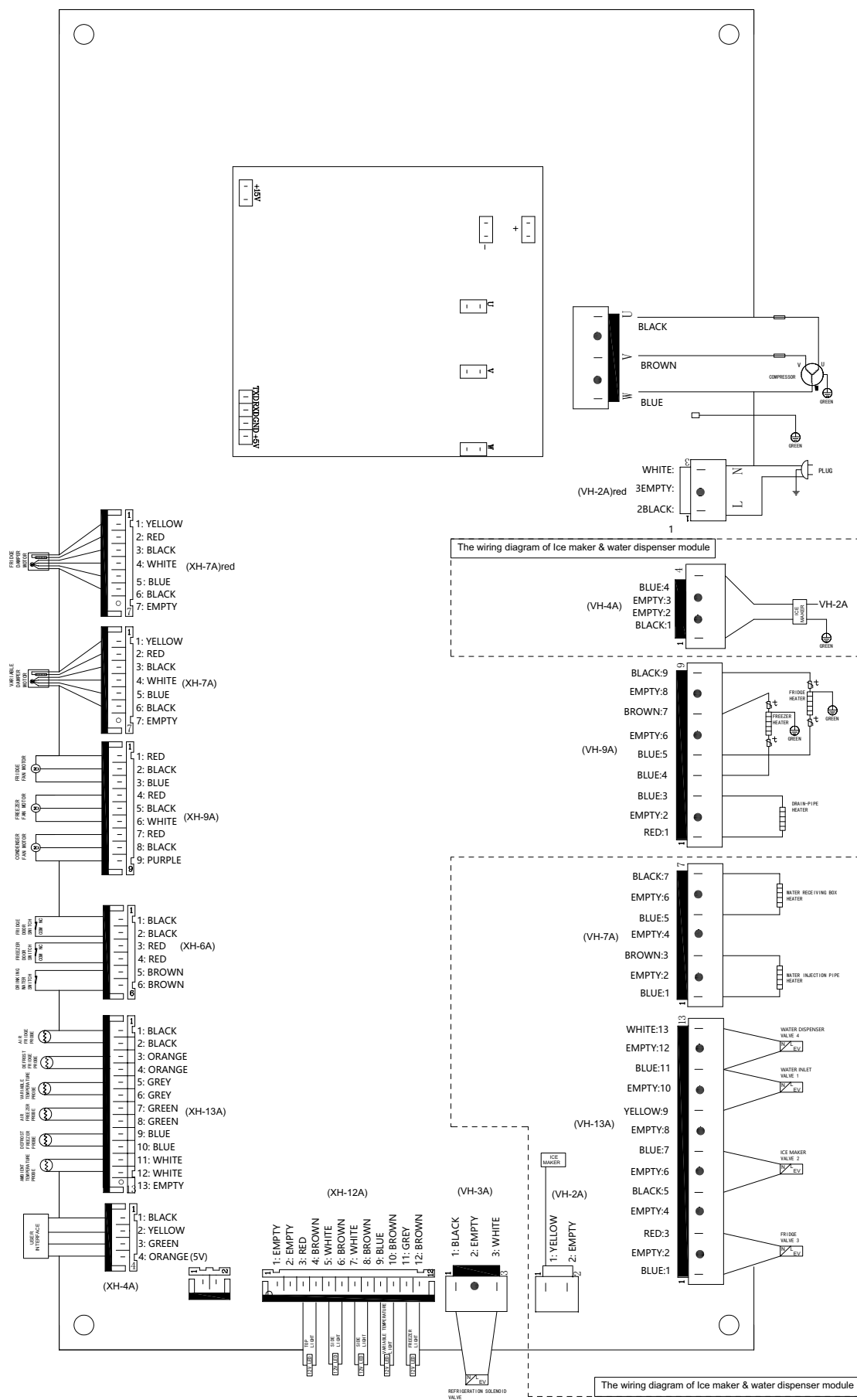
If the over-temperature alarm continues after rebooting the appliance, it is necessary to check whether the refrigeration system is blocked, and whether the compressor and fan are working properly.

Temperature to Resistance Chart

Low Range			
Temp	Resistance	Temp	Resistance
-40°F/-40°C	64.06KΩ	-15°F/-26°C	27.07KΩ
-38°F/-39°C	60.10KΩ	-13°F/-25°C	25.52KΩ
-36°F/-38°C	56.41KΩ	-11°F/-24°C	24.06KΩ
-35°F/-37°C	52.96KΩ	-9°F/-23°C	22.70KΩ
-33°F/-36°C	49.74KΩ	-8°F/-22°C	21.42KΩ
-31°F/-35°C	46.73KΩ	-6°F/-21°C	20.22KΩ
-29°F/-34°C	43.92KΩ	-4°F/-20°C	19.10KΩ
-27°F/-33°C	41.29KΩ	-2°F/-19°C	18.04KΩ
-26°F/-32°C	38.83KΩ	-3°F/-18°C	17.05KΩ
-24°F/-31°C	36.53KΩ	1°F/-17°C	16.11KΩ
-22°F/-30°C	34.38KΩ	3°F/-16°C	15.24KΩ
-20°F/-29°C	32.37KΩ	5°F/-15°C	14.41KΩ
-18°F/-28°C	30.49KΩ	7°F/-14°C	13.64KΩ
-17°F/-27°C	28.72KΩ	9°F/-13°C	12.91KΩ

Normal Operator Range			
Temp	Resistance	Temp	Resistance
10°F/-12°C	12.22KΩ	59°F/15°C	3.13KΩ
12°F/-11°C	11.57KΩ	61°F/16°C	2.99KΩ
14°F/-10°C	10.96KΩ	63°F/17°C	2.85KΩ
16°F/-09°C	10.39KΩ	64°F/18°C	2.73KΩ
18°F/-08°C	9.85KΩ	66°F/19°C	2.60KΩ
19°F/-07°C	9.34KΩ	68°F/20°C	2.49KΩ
21°F/-06°C	8.86KΩ	70°F/21°C	2.38KΩ
23°F/-05°C	8.41KΩ	72°F/22°C	2.28KΩ
25°F/-04°C	7.98KΩ	73°F/23°C	2.18KΩ
27°F/-03°C	7.57KΩ	75°F/24°C	2.08KΩ
28°F/-02°C	7.19KΩ	77°F/25°C	1.99KΩ
30°F/-01°C	6.83KΩ	79°F/26°C	1.91KΩ
32°F/00°C	6.49KΩ	81°F/27°C	1.83KΩ
34°F/01°C	6.17KΩ	82°F/28°C	1.75KΩ
36°F/02°C	5.87KΩ	84°F/29°C	1.68KΩ
37°F/03°C	5.58KΩ	86°F/30°C	1.61KΩ
39°F/04°C	5.31KΩ	88°F/31°C	1.54KΩ
41°F/05°C	5.06KΩ	90°F/32°C	1.48KΩ
43°F/06°C	4.81KΩ	91°F/33°C	1.41KΩ
45°F/07°C	4.58KΩ	93°F/34°C	1.36KΩ
46°F/08°C	4.37KΩ	95°F/35°C	1.30KΩ
48°F/09°C	4.16KΩ	97°F/36°C	1.25KΩ
50°F/10°C	3.96KΩ	99°F/37°C	1.20KΩ
52°F/11°C	3.78KΩ	100°F/38°C	1.15KΩ
54°F/12°C	3.60KΩ	102°F/39°C	1.11KΩ
55°F/13°C	3.44KΩ	104°F/40°C	1.06KΩ
57°F/14°C	3.28KΩ		

Wiring Diagram



Control Board Test Points (See the picture on page 15 for the control board)

XH-13A	Temp Sensors	Contacts	Values
	Air FridgeProbe	1&2	(See chart on page 23)
	Defrost FridgeProbe	3&4	
	Variable Temperature Probe	5&6	
	Air Freezer Probe	7&8	
	Defrost FreezerProbe	9&10	
	Ambient Temperature Probe	11&12	
XH-6A	Reed Switch	Contacts	Values
	Fridge Door Switch	1&2	Continuity when Open
	Freezer Door Switch	3&4	Continuity when closed
	Drinking Water Switch	5&6	Continuity when closed
XH-9A	Fans	Contacts	Values
	Fridge Fan Motor	1-3	12VDC
	Freezer Fan Motor	4-6	12VDC
	Condenser Fan Motor	7-9	12VDC
XH-12A	Lights	Contacts	Values
	Top Light	3&4	12VDC
	Side Light	5&6	12VDC
	Side Light	7&8	12VDC
	Variable Temperature Light	9&10	12VDC
	Freezer Light	11&12	12VDC
XH-4A	Display Voltage	3&4	5VDC
XH-7A	Variable Damper Motor	1-6	12VDC
XH-7A red	Fridge Damper Motor	1-6	12VDC
VH-7A	Water Heater	Contacts	Values
	Water Injection Pipe Heater	1&3	120VAC
	Water Receiving Box Heater	5&7	120VAC
VH-9A	Ac Components	Contacts	Values
	Drain-Pipe Heater	1&3	120VAC
	Freezer Heater	4&7	120VAC
	Fridge Heater	5&9	120VAC
VH-13A	Water Valve	Contacts	Values
	Fridge Valve	1&3	120VAC
	Ice Maker Valve	5&7	120VAC
	Water Inlet Valve	9&11	120VAC
	Water Dispenser Valve	11&13	120VAC
VH-3A	Refrigeration Solenoid Valve	1&3	120VAC
VH-4A	Ice Maker	1&4	120VAC
VH-2A	Ice Maker	1	120VAC
VH-3A red	Plug	1&3	120VAC
VH-5A	Compressor	W&V&U	120VAC

Main control board led flashing fault

Compressor does not start - list of fault codes prompted by main control panel indicator				
Serial number	Flashing times of main control panel LED	Main control board fault	Cause analysis of compressor failure	terms of settlement
1	LED flashes once	Overvoltage	1. The input voltage is too high, and the input voltage of 110V model is higher than 110V (this situation will cause the control board to burn out, the machine will not work, and there is no response) 2. Abnormal control board	1. Check whether the power supply voltage is normal 2. Disconnect the power and restart the machine 3. Replace the control board
2	LED flashes twice	Undervoltage	1. The input voltage is low, and the input voltage of 220V model is lower than 110V 2. Abnormal control board	1. Check whether the power supply voltage is normal 2. Disconnect the power and restart the machine 3. Replace the control board
3	LED flashes 3 times	communication	1. Abnormal data transmission between main board and frequency conversion board	1. Disconnect the power and restart the machine 2. Replace the control board
4	LED flashes 4 times	Phase deficiency	1. The compressor harness is not connected properly 2. The fuse on the compressor line is burnt out 3. The compressor is broken	1. Check the compressor line sequence 2. Check whether the fuse is burnt 3. Replace the compressor if there is no problem above
5	LED flashes 7 times	Software overcurrent	1. The actual current reaches the current threshold set by the software (the protection threshold setting is too small) 2. The software has a bug and does not meet the protection status required by special requirements	1. Disconnect the power and restart the machine 2. Replace the control board
6	LED flashes 10 times	Start failure, small board current detection circuit failure	1. The control board is broken 2. The solenoid valve is broken, resulting in excessive system pressure 3. The compressor is broken and the cylinder is jammed	1. Disconnect the power and restart the machine 2. Replace the control board 3. Replace the solenoid valve 4. Replace the compressor
7	LED flashes 12 times	Hardware overcurrent	1. The current detection is too large due to hardware components 2. Special abnormality causes damage to the components of the frequency conversion board, resulting in abnormality of the frequency conversion board	1. Replace the control board
8	LED flashes 14 times	Stall	1. Compressor internal jamming 2. The compressor is unstable 3. Wrong line sequence	1. Check whether the wire sequence UVW is connected properly 2. Check whether the compressor is aligned 3. Replace the compressor

Note: If the number 5, 6, 7 and 8 are abnormal, the theoretical priority is 6; No. 6 Normally, No. 8 appears first, followed by No. 5, and finally No. 7

The above phenomena are detected by current, Therefore, there are many factors that cause the current change:

- 1.The system pressure is abnormal
- 2.The solenoid valve is not conductive
- 3.The control board hardware is abnormal.
- 4.Ice jam.
- 5.The threshold set by the software is not large enough



Main Control Board Led Flashing trouble shooting
Compressor does not start
List of fault codes prompted by main control panel indicator

Led flashing Once- Overvoltage protection			
Flashing times of Main Control Board		Yes	No
1	Is Flashing Once(infinite loop)	>>2	Stop
2	Check the input voltage, is it too high?	>>3	>4
3	Find the reason of higher input voltage, stop to start the unit until the input voltage is normal.	Stop	
4	Disconnect the power and restart the machine, is the flashing still there?	>>5	Solved
5	Replace the Main control board	Solved	
Remarks	the higher input voltage is the first reason to defect electrical parts,especially control board. when it happened, suggest to share the result with consumers to protect consumers' other appliance.		
Led flashing Twice- Undervoltage protection			
Flashing times of Main Control Board		Yes	No
1	Is Flashing Twice(infinite loop)	>>2	Stop
2	Check the input voltage, is it too low?	>>3	>4
3	Find the reason of lower input voltage, stop to start the unit until the input voltage is normal.	Stop	
4	Disconnect the power and restart the machine, is the flashing still there?	>>5	Solved
5	Replace the Main control board	Solved	
Remarks	the lower input voltage is the first reason to defect parts,especially compressor. when it happened, suggest to share the result with consumers to protect consumers' other appliance.		

Led flashing 3 times- Communication fault			
Flashing times of Main Control Board		Yes	No
1	Is Flashing 3 times (infinite loop)	>>2	Stop
2	Disconnect the power and restart the machine, is the flashing still there?	>>3	Solved
3	Replace the Main control board	Solved	

Led flashing 4 times- Phase deficiency protection			
Flashing times of Main Control Board		Yes	No
1	Is Flashing 4 times (infinite loop)	>>2	Stop
2	Check the compressor wire harness, is it connected well?	>>4	>3
3	Reconnect the compressor wire harness,and restart the machine, is the flashing still there?	>>4	Solved
4	Check the fuse on the compressor line, is the fuse burnt out?	>>5	>6
5	Replace the fuse on the compressor line, is the flashing still there?	>>6	Solved
6	Check the output voltage of terminal between main control board and compressor, is the output voltage detected?	>>8	>7
7	Replace the Main control board, is the flashing still there?	>>8	Solved
8	Replace the compressor after cleaning the cooling system by N2, Vacuuming the system, and then charging	Solved	
Led flashing 7 times- Software overcurrent protection			
Flashing times of Main Control Board		Yes	No
1	Is Flashing 7 times (infinite loop)	>>2	Stop
2	Disconnect the power and restart the machine, is the flashing still there?	>>3	Solved
3	Replace the Main control board	Solved	
Rem arks	The actual software current reaches the current threshold set by the software(the protection threshold setting is too small), or the software has a bug and doesnot meet the protection status required by special requirement.		

Led flashing 10 times- Start/Current detection failure			
Flashing times of Main Control Board		Yes	No
1	Is Flashing 10 times (infinite loop)	>>2	Stop
2	Disconnect the power and restart the machine, is the flashing still there?	>>3	Solved
3	Replace the Main control board , is the flashing still there?	>>4	Solved
4	Replace the solenoid valve? is the flashing still there?	>>5	Solved
5	Replace the compressor after cleaning the cooling system by N2, Vacuuming the system, and then charging	Solved	
Remarks	if the solenoid valve is broken, It is resulting in excessive system pressure;or the cylinder inside the compressor is jammed.		

Led flashing 12 times- Hardware overcurrent protection			
Flashing times of Main Control Board		Yes	No
1	Is Flashing 12 times (infinite loop)	>>2	Stop
2	Disconnect the power and restart the machine, is the flashing still there?	>>3	Solved
3	Replace the Main control board	Solved	
Rem arks	The actual current detection is too large,due to hardware component. specail cause damage to the component of frequency conversation board(part of Main control board).		

Led flashing 14 times- Flameout failure			
Flashing times of Main Control Board		Yes	No
1	Is Flashing 14 times (infinite loop)	>>2	Stop
2	Check the compressor wire sequence, is the UVW connected properly?	>>4	>3
3	Reconnect the compressor wire sequence, make sure the UVW sequence is right, and restart the machine, is the flashing still there?	>>4	Solved
4	Replace the compressor after cleaning the cooling system by N2, Vacuuming the system, and then charging	Solved	
Rem arks	need to exclude wiring sequence fault first. and then there may be an internal jamming inside the compressor. if the compressor is unstable, it will be happened from time to time.		