

Samsung AR Series Technical Support Code List

NO.	Malfunction Name	Display Method of Indoor Unit	A/C status	Possible Causes
		Dual-8 Code Display		
1	High pressure protection of system	E1	During cooling and drying operation, except indoor fan operates, all loads stop operation. During heating operation, the complete unit stops.	Possible reasons: 1. Refrigerant was superabundant 2. Poor heat exchange (including fil blockage of heat exchanger and bad radiating environment); Ambient temperature is too high.
2	Antifreezing protection	E2	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates.	1. Poor air-return in indoor uni 2. Fan speed is abnormal 3. Evaporator is dirty .
3	System block or refrigerant leakage	E3	The Dual-8 Code Display will show E3 until the low pressure switch stop operation.	1.Low-pressure protection 2.Low-pressure protection of system 3.Low-pressure protection of compressor
4	High discharge temperature protection of compressor	E4	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	Please refer to the malfunction analysis (discharge protection, overload).
5	Overcurrent protection	E5	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	1. Supply voltage is unstable 2. Supply voltage is too low and load is too high; 3. Evaporator is dirty .
6	Communication Malfunction	E6	During cooling operation, compressor stops while indoor fan motor operates. During heating operation, the complete unit stops.	Refer to the corresponding malfunction analysis.
7	High temperature resistant protection	E8	During cooling operation: compressor will stop while indoor fan will operate. During heating operation, the complete unit stops.	Refer to the malfunction analysis (overload, high temperature resistant).
8	EEPROM malfunction	EE	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Replace outdoor control panel AP1
9	Limit/decrease frequency due to high temperature of module	EU	All loads operate normally, while operation frequency for compressor is decreased	Discharging after the complete unit is de-energized for 20mins, check whether the thermal grease on IPM Module of outdoor control panel AP1 is sufficient and whether the radiator is inserted tightly. If its no use, please replace control panel AP1.
10	Malfunction protection of jumper cap	C5	Wireless remote receiver and button are effective, but can not dispose the related command	1. No jumper cap insert mainboard. 2. Incorrect insert of jumper cap 3. Jumper cap damage 4. Abnormal detecting circuit of mainboard.

NO.	Malfunction Name	Display Method of Indoor Unit	A/C status	Possible Causes
		Dual-8 Code Display		
11	Gathering refrigerant	F0	When the outdoor unit receive signal of Gathering refrigerant ,the system will be forced to run under cooling mode for gathering refrigerant	Nominal cooling mode
12	Indoor ambient temperature sensor is open/short circuited	F1	During cooling and drying operation, indoor unit operates while other loads will stop; during heating operation, the complete unit will stop operation.	1. Loosening or bad contact indoor ambient temp. sensor and mainboard terminal. 2. Components in mainboard fe down leads short circuit. 3. Indoor ambient temp. sens damaged.(check with sensor resistance value chart) 4. Mainboard damage
13	Indoor evaporator temperature sensor is open/short circuited	F2	AC stops operation once reaches the setting temperature. Cooling, drying: internal fan motor stops operation while other loads stop operation; heating: AC stop operation	1. Loosening or bad contact of Indo evaporator temp. sensor and mainboard terminal. 2. Components on the mainboard fa down leads short circuit. 3. Indoor evaporator temp. sens damaged.(check temp. sensor value chart for testing) 4. Mainboard damage
14	Outdoor ambient temperature sensor is open/short circuited	F3	During cooling and drying operating, compressor stops while indoor fan operates; During heating operation, the complete unit will stop operation	Outdoor temperature sensor hasnt been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor)
15	Outdoor condenser temperature sensor is open/short circuited	F4	During cooling and drying operation, compressor stops while indoor fan will operate; During heating operation, the complete unit will stop operation.	Outdoor temperature sensor hasnt been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor)
16	Outdoor discharge temperature sensor is open/short circuited	F5	During cooling and drying operation, compressor will sop after operating for about 3 mins, while indoor fan will operate; During heating operation, the complete unit will stop after operating for about 3 mins.	1.Outdoor temperature sensor hasnt be connected well or is damaged. Please check it by referring to the resistance table for temperature sensor) 2.The head of temperature sensor hasnt be inserted into the copper tube
17	Limit/decrease frequency due to overload	F6	All loads operate normally, while operation frequency for compressor is decreased	Refer to the malfunction analysis (overload, high temperature resistant)
18	Decrease frequency due to overcurrent	F8	All loads operate normally, while operation frequency for compressor is decreased	The input supply voltage is too low; System pressure is too high and overload

NO.	Malfunction Name	Display Method of Indoor Unit	A/C status	Possible Causes
		Dual-8 Code Display		
19	Decrease frequency due to high air discharge	F9	All loads operate normally, while operation frequency for compressor is decreased	Overload or temperature is too high; Refrigerant is insufficient; Malfunction of electric expansion valve (EKV)
20	Limit/decrease frequency due to antifreezing	FH	All loads operate normally, while operation frequency for compressor is decreased	Poor air-return in indoor unit or fan speed is too low
21	Voltage for DC bus-bar is too high	PH	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	1. Measure the voltage of position and N on wiring board (XT), if the voltage is higher than 265VAC, turn on the unit after the supply voltage is increased to the normal range. 2.If the AC input is normal, measure the voltage of electrolytic capacitor C on control panel (AP1), if its normal, theres malfunction for the circuit, please replace the control panel (AP1)
22	Voltage of DC bus-bar is too low	PL	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	1. Measure the voltage of position and N on wiring board (XT), if the voltage is higher than 150VAC, turn on the unit after the supply voltage is increased to the normal range. 2.If the AC input is normal, measure the voltage of electrolytic capacitor C on control panel (AP1), if its normal, theres malfunction for the circuit, please replace the control panel (AP1)
23	Compressor Min frequency in test state	P0		Showing during min. cooling or min. heating test
24	Compressor rated frequency in test state	P1		Showing during nominal cooling or nominal heating test
25	Compressor maximum frequency in test state	P2		Showing during max. cooling or max. heating test

NO.	Malfunction Name	Display Method of Indoor Unit	A/C status	Possible Causes
		Dual-8 Code Display		
26	Compressor intermediate frequency in test state	P3		Showing during middle cooling or middle heating test
27	Overcurrent protection of phase current for compressor	P5	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor.
28	Charging malfunction of capacitor	PU	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Refer to the part three—charging malfunction analysis of capacitor
29	Malfunction of module temperature sensor circuit	P7	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Replace outdoor control panel AP1
30	Module high temperature protection	P8	During cooling operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	After the complete unit is de-energized for 20mins, check whether the thermal grease on IPM Module of outdoor control panel AP1 is sufficient and whether the radiator is inserted tightly. If its no use, please replace control panel AP1.
31	Overload protection for compressor	H3	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	1. Wiring terminal OVC-CO is loosened. In normal state, the resistance for this terminal should be less than 1ohm. 2.Refer to the malfunction analysis (discharge protection, overload)
32	IPM protection	H5	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor.

NO.	Malfunction Name	Display Method of Indoor Unit	A/C status	Possible Causes
		Dual-8 Code Display		
34	Internal motor (fan motor) do not operate	H6	Internal fan motor, external fan motor, compressor and electric heater stop operation, guide louver stops at present location.	1. Bad contact of DC motor feedback terminal. 2. Bad contact of DC motor control end. 3. Fan motor is stalled 4. Motor malfunction 5. Malfunction of mainboard refrigerant detecting circuit.
35	Desynchronizing of compressor	H7	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor).
36	Outdoor DC fan motor malfunction	L3	Outdoor DC fan motor malfunction leads to compressor stop operation,	DC fan motor malfunction or system blocked or the connector is loose
37	power protection	L9	compressor stop operation and Outdoor fan motor will stop 30s later, 3 minutes later fan motor and compressor will restart	To protect the electronic components when detect high power
38	Indoor unit and outdoor unit doesn't match	LP	compressor and Outdoor fan motor can't work	Indoor unit and outdoor unit doesn't match
39	Failure start-up	LC	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis
40	Defrosting	Heating indicator off for 0.5s and then blinks for 10s	Not the error code. It's the status code for the operation.	
41	PFC protection	HC	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Replace outdoor control panel AP1 or Reactor
42	Anti-freezing protection for evaporator	E2		Not the error code. It's the status code for the operation.
43	Cold air prevention protection	H1		Not the error code. It's the status code for the operation.

NO.	Malfunction Name	Display Method of Indoor Unit	A/C status	Possible Causes
		Dual-8 Code Display		
44	Malfunction of phase current detection circuit for compressor	U1	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Replace outdoor control panel AP1
45	Malfunction of voltage dropping for DC bus-bar	U3	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Supply voltage is unstable
46	Malfunction of complete units current detection	U5	During cooling and drying operation, the compressor will stop while indoor fan will operate; During heating operating, the complete unit will stop operation.	Theres circuit malfunction on outdoor units control panel AP1, please replace the outdoor units control panel AP1.
47	The four-way valve is abnormal	U7	If this malfunction occurs during heating operation, the complete unit will stop operation.	1. Supply voltage is lower than AC175V; 2. Wiring terminal 4V is loosened or broken; 3. 4V is damaged, please replace 4V.
48	Malfunction of zero-cross detection circuit	U8	The complete unit stops	1. Power supply is abnormal; 2. Detection circuit of indoor contr mainboard is abnormal.
49	Malfunction of detecting plate(WIFI)	JF	Loads operate normally, while the unit can't be normally controlled by APP	1. Main board of indoor unit is damaged; 2. Detection board is damaged; 3. The connection between indoor unit a detection board is not good;
50	Undefined outdoor unit error	oE	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 t operation range of unit (eg: less than -20oC or more than 60oC for cooling; more than 30oC for heating); 2. Failure startup of compresso 3. Are wires of compressor not connected tightly? 4. Is compressor damage 5. Is main board damage
51	Refrigerant recovery mode	Fo		Refrigerant recovery. The Serviceman operates it for maintenance.

Analysis or processing of some of the malfunction display:

1. Compressor discharge protection

Possible causes: shortage of refrigerant; blockage of air filter; poor ventilation or air flow short pass for condenser; the system has noncondensing gas (such as air, water etc.); blockage of capillary assy (including filter); leakage inside four-way valve causes incorrect operation; malfunction of compressor; malfunction of protection relay; malfunction of discharge sensor; outdoor temperature too high.

Processing method: refer to the malfunction analysis in the above section.

2. Low voltage overcurrent protection

Possible cause: Sudden drop of supply voltage.

3. Communication malfunction

Processing method: Check if communication signal cable is connected reliably.

4. Sensor open or short circuit

Processing method: Check whether sensor is normal, connected with the corresponding position on the controller and if damage of lead wire is found.

5. Compressor over load protection

Possible causes: insufficient or too much refrigerant; blockage of capillary and increase of suction temp.; improper running of compressor, burning in or stuck of bearing, damage of discharge valve; malfunction of protector.

Processing method: adjust refrigerant amount; replace the capillary; replace the compressor; use universal meter to check if the contactor of compressor is fine when it is not overheated, if not replace the protector.

6. System malfunction

ie overload protection. When tube temperature (Check the temperature of outdoor heat exchanger when cooling and check the temperature of indoor heat exchanger when heating) is too high, protection will be activated.

Possible causes: Outdoor temperature is too high when cooling; insufficient outdoor air circulation; refrigerant flow malfunction. please refer to the malfunction analysis in the previous section for handling method.

7. IPM module protection

Processing method: Once the module malfunction happens, if it persists for a long time and can not be self-canceled, cut off the power and turn off the unit, and then re-energize the unit again after about 10 min. After repeating the procedure for several times, if the malfunction still exists, replace the module.