

KLIMAIRE[®] ≈

KSIM

MULTI OUTDOOR UNITS

TROUBLESHOOTING

Multi zone

CONDENSING UNITS



Model Numbers:

KSIM20912-H216 (2g) KSIM330-H219
KSIM20912-H216 (3g) KSIM40912-H216 (2g)
KSIM30912-H216 (2g)

Table of Contents

1. Trouble Shooting



WARNING

- Installation **MUST** conform with local building codes or, in the absence of local codes, with the National Electrical Code NFPA70/ANSI C1-1993 or current edition and Canadian Electrical Code Part1 CSA C.22.1.
- The information contained in the manual is intended for use by a qualified service technician familiar with safety procedures and equipped with the proper tools and test instruments
- Installation or repairs made by unqualified persons can result in hazards to you and others.
- Failure to carefully read and follow all instructions in this manual can result in equipment malfunction, property damage, personal injury and/or death.

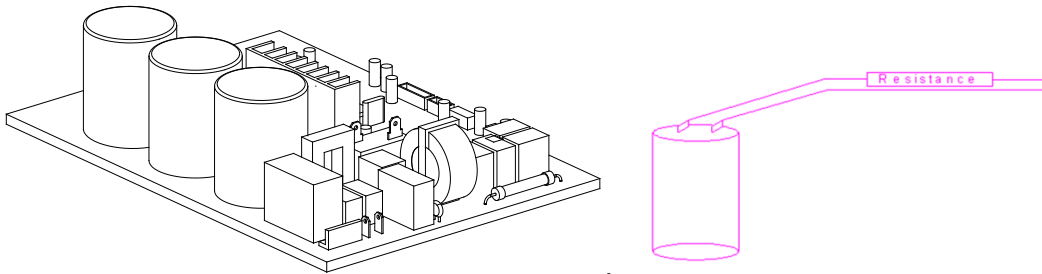


1. Troubleshooting

1.1 Safety

Because of there are capacitors in PCB and relative circuit in outdoor unit, even shut down the power supply, electricity power still are kept in capacitors, do not forget to discharge the electricity power in capacitor.

The value of resistance is about 1500 ohm to 2000 ohm



Electrolytic Capacitors

(HIGH VOLTAGE! CAUTION!)

Bulb (25-40W)

The voltage in P3 and P4 in outdoor PCB is high voltage about 310V

The voltage in P5 and P6 in outdoor PCB is high voltage about 310V

1.2 Indoor Unit Error

Display KWIM series & KWIL

SD Display	Failure	ODU Error code
E0	Indoor EEPROM malfunction	---
E1	Communication malfunction between indoor and outdoor units	E2
E2	Zero-crossing signal error	---
E3	Indoor fan speed has been out of control	---
E5	Open circuit or short circuit of outdoor temperature sensor or outdoor EEPROM malfunction	E0,E4
E6	Open circuit or short circuit of T1 or T2 temperature sensor	---
P0	IPM module protection or IGBT over-strong current protection	P6
P1	Voltage protection	E5
P2	Temperature protection of compressor top	P0
P3	Outdoor temperature is lower than -15°C (optional function)	---
P4	Inverter compressor drive protection	---
P5	Mode conflict	---

Console series

Operation	Timer	De-frost	Failure
★	X	X	Open or short circuit of T1 temperature sensor
X	X	★	Open or short circuit of T2 temperature sensor
X	★	X	Communication malfunction between indoor and outdoor units
★	★	X	Indoor EEPROM malfunction
X	★	●	Outdoor fan speed has been out of control
★	X	★	IPM module protection
★	★	★	Open or short circuit of T3 or T4 temperature sensor or Outdoor unit EEPROM parameter error
★	●	X	Temperature protection of compressor top
★	◎	X	Inverter compressor drive protection
★	X	●	Mode conflict
★	●	★	Indoor fan speed has been out of control
★ flash at 5Hz, ● light, X extinguished, ◎flash at 0.5Hz			

For MCA2I-12HRDN1-M, MCA2I-18HRDN1-M, MUBI-12HRDN1-M, MUBI-18HRDN1-M:

Operation	Timer	De-frost	Alarm	Failure
★	X	X	X	Open or short circuit of T1 temperature sensor
X	X	★	X	Open or short circuit of T2 temperature sensor
X	★	X	X	Communication malfunction between indoor and outdoor units
X	X	X	★	Water-level alarm malfunction
★	★	X	X	Indoor EEPROM malfunction
★	X	X	●	IPM module protection
★	●	X	X	Open or short circuit of T3 or T4 temperature sensor
★	●	X	●	Voltage protection
★	★	★	★	Temperature protection of compressor top.
★	X	●	●	Mode conflict
★	●	●	X	Inverter compressor drive protection

★ flash (For cassette, flash at 5Hz)(for ceiling&floor, flash 2.5Hz), ● light, X extinguished,

For MTBI-12HWDN1-M, MTBI-18HWDN1-M:

Operation	Timer	De-frost	Alarm	Failure	Display	ODU Error code
★	X	X	X	Open or short circuit of T1 temperature sensor	E0	—
X	X	★	X	Open or short circuit of T2 temperature sensor	E1	—
X	★	X	X	Communication malfunction between indoor and outdoor units	E2	E2
X	X	X	★	Water-level alarm malfunction	E3	—
★	★	X	X	Indoor EEPROM malfunction	E4	—
★	X	X	●	IPM module protection	E5	P6
★	●	X	X	Open or short circuit of T3 or T4 temperature sensor or outdoor EEPROM malfunction	E6	E0,E4
★	●	★	X	Outdoor fan has been out of control	E7	E8
★	●	X	●	Voltage protection	P0	E5
★	★	★	★	Temperature protection of compressor top.	P3	P0
★	◎	X	X	Inverter compressor drive protection	P4	—
★	X	●	X	Mode conflict	P5	—

★ flash at 2.5Hz, ● light, X extinguished ◎flash at 1Hz

For MTBU-12HRDN1-M, MTBU-18HRDN1-M, MCA2U-12HRFN1-M, MCA2U-18HRFN1-M, MUBU-12HRFN1-M, MUBU-18HRFN1-M:

Operation	Timer	De-frost	Alarm	Failure	Display	ODU Error code
★	X	X	X	Open or short circuit of T1 temperature sensor	E0	—
X	X	★	X	Open or short circuit of T2 temperature sensor	E1	—
X	★	X	X	Communication malfunction between indoor and outdoor units	E2	E2
X	X	X	★	Water-level alarm malfunction	E3	—
★	★	X	X	Indoor EEPROM malfunction	E4	—
★	X	X	●	IPM module protection	E5	P6
★	●	X	X	Open or short circuit of T3 or T4 temperature sensor or outdoor EEPROM malfunction	E6	E0,E4
★	●	★	X	Outdoor fan has been out of control	E7	E8
★	●	●	X	Indoor fan speed has been out of control	F5	—
★	●	X	●	Voltage protection	P0	E5
★	X	●	X	Temperature protection of compressor top.	P1	P0
★	★	★	X	Outdoor unit over-current protection	P2	P3
★	◎	X	X	Inverter compressor drive protection	P4	—
★	X	●	●	Mode conflict	P5	—

★ flash at 2.5Hz, ● light, X extinguished, ◎ flash at 0.5Hz
 Note: Digital display is only available for duct type.

KWIO series:

Operation lamp	Timer lamp	Display	LED STATUS	ODU Error
★ 1 time	X	E0	Indoor EEPROM malfunction	—
★ 2 times	X	E1	Communication malfunction between indoor and outdoor units	E2
★ 4 times	X	E3	Indoor fan speed malfunction.	—
★ 5 times	X	E4	Indoor room temperature sensor open or short circuit.	—
★ 6 times	X	E5	Evaporator coil temperature sensor open or short circuit.	—
★ 2 times	●	F1	Outdoor temperature sensor open or short circuit.	E4
★ 3 times	●	F2	Condenser coil temperature sensor open or short circuit.	E4
★ 4 times	●	F3	Compressor discharge pipe sensor open or short circuit.	E4
★ 5 times	●	F4	Outdoor EEPROM malfunction	E0
★ 6 times	●	F5	Outdoor fan has been out of control	E8
★ 7 times	●	F6	Indoor unit coil outlet temp. sensor open or short circuit.	E4

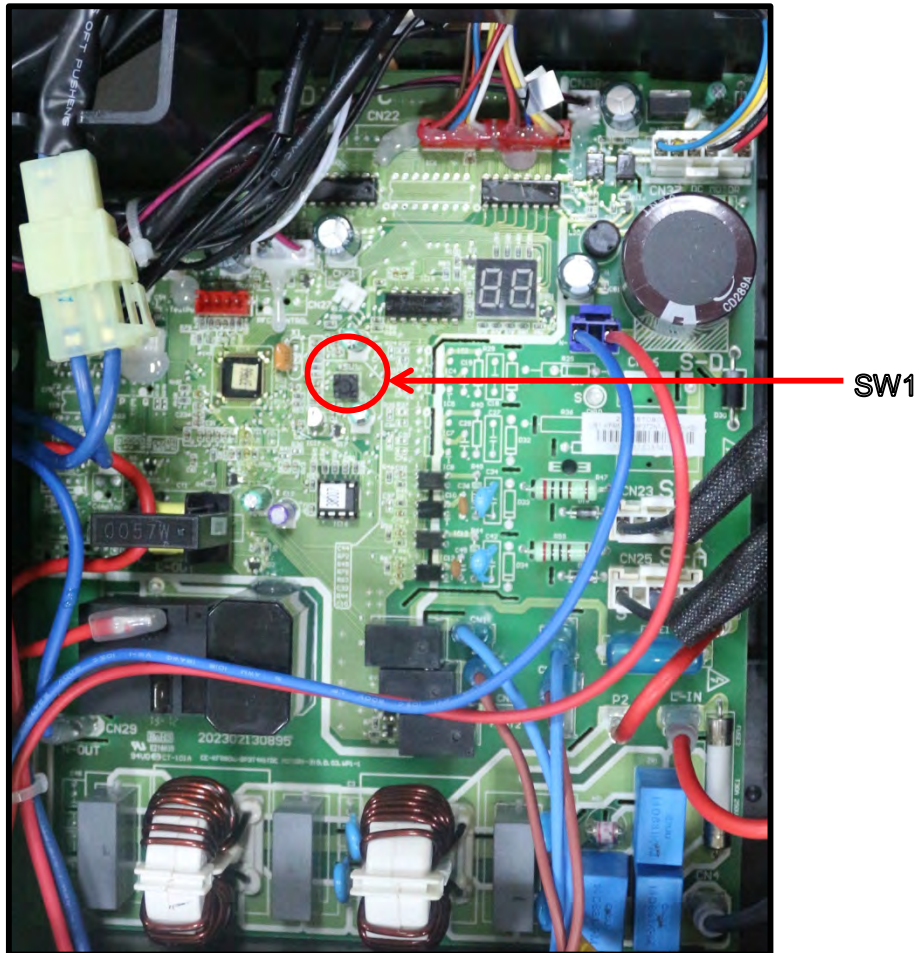
★ 1 times	★	P0	Inverter module (IPM) malfunction or IGBT over-strong current protection	P6
★ 2 times	★	P1	Voltage(High voltage or low voltage) protection.	E5
★ 3 times	★	P2	High temperature protection of compressor top (only for KSIM30912-H216 (2g))	P0
★ 5 times	★	P4	Compressor drive error	--
★ 6 times	★	P5	Mode conflict	--
★ flash , ● light, X extinguished				

1.3 Outdoor Unit Display

1.3.1 Outdoor unit point check function

There is a check switch in outdoor PCB.

Push the switch SW1 to check the states of unit when the unit is running. The digital display tube will display the follow procedure when push SW1 each time.



	Display	Remark										
0	Normal display	Display running frequency, running state or malfunction code										
1	No. of indoor units in good connection	Actual data <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Display</th> <th>Number of indoor unit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> </tr> <tr> <td>2</td> <td>2</td> </tr> <tr> <td>3</td> <td>3</td> </tr> <tr> <td>4</td> <td>4</td> </tr> </tbody> </table>	Display	Number of indoor unit	1	1	2	2	3	3	4	4
Display	Number of indoor unit											
1	1											
2	2											
3	3											
4	4											
2	Outdoor unit running mode code	Off:0,Fan only 1, Cooling:2, Heating:3, Forced cooling:4										
3	A indoor unit capacity	The capacity unit is horse power. If the indoor unit is not connected, the digital display tube will show: "____" (9K:1HP,12K:1.2HP,18K:1.5HP)										
4	B indoor unit capacity											
5	C indoor unit capacity											
6	D indoor unit capacity											
7	E indoor unit capacity											
8	A Indoor unit capacity demand code	Norm code*HP (9K:1HP,12K:1.2HP,18K:1.5HP)										
9	B Indoor unit capacity demand code											
10	C Indoor unit capacity demand code											
11	D Indoor unit capacity demand code											
12	E Indoor unit capacity demand code											
13	Outdoor unit amendatory capacity demand code	Forced cooling:7										
14	The frequency corresponding to the total indoor units amendatory capacity demand											
15	The frequency after the frequency limit											
16	The frequency sending to compressor control chip											
17	A indoor unit evaporator outlet temp.(T _{2B} A)	If the temp. is lower than -9 degree, the digital display tube will show "-9".If the temp. is higher than 70 degree, the digital display tube will show "70". If the indoor unit is not connected, the digital display tube will show: "____"										
18	B indoor unit evaporator outlet temp.(T _{2B} B)											
19	C indoor unit evaporator outlet temp.(T _{2B} C)											
20	D indoor unit evaporator outlet temp.(T _{2B} D)											
21	E indoor unit evaporator outlet temp.(T _{2B} E)											
22	A indoor unit room temp.(T ₁ A)	If the temp. is lower than 0 degree, the digital display tube will show "0".If the temp. is higher than 50 degree, the digital display tube will show "50". If the indoor unit is not connected, the digital display tube will show: "____"										
23	B indoor unit room temp.(T ₁ B)											
24	C indoor unit room temp.(T ₁ C)											
25	D indoor unit room temp.(T ₁ D)											
26	E indoor unit room temp.(T ₁ E)											
27	A indoor unit evaporator temp.(T ₂ A)	If the temp. is lower than -9 degree, the digital display tube will show "-9".If the temp. is higher than 70 degree, the digital display tube will show "70". If the indoor unit is not connected, the digital display tube will show: "____"										
28	B indoor unit evaporator temp.(T ₂ B)											
29	C indoor unit evaporator temp.(T ₂ C)											
30	D indoor unit evaporator temp.(T ₂ D)											
31	E indoor unit evaporator temp.(T ₂ E)											
32	Condenser pipe temp.(T3)											
33	Outdoor ambient temp.(T4)											
34	Compressor discharge temp.(T5)		The display value is between 30~129 degree. If the temp. is lower than 30 degree, the digital display tube will show "30".If the temp. is higher than 99 degree, the digital display tube will show single digit and tens digit. For example, the digital display tube show "0.5",it means the compressor discharge temp. is 105 degree.)									

35	AD value of current	The display value is hex number. For example ,the digital display tube show "Cd", it means AD value is 205.		
36	AD value of voltage			
37	EXV open angle for A indoor unit	Actual data/4. If the value is higher than 99, the digital display tube will show single digit and tens digit. For example ,the digital display tube show "2.0",it means the EXV open angle is 120×4=480p.)		
38	EXV open angle for B indoor unit			
39	EXV open angle for C indoor unit			
40	EXV open angle for D indoor unit			
41	EXV open angle for E indoor unit			
42	Frequency limit symbol	Bit7	Frequency limit caused by IGBT radiator	The display value is hex number. For example, the digital display tube show 2A, then Bit5=1, Bit3=1, Bit1=1. It means frequency limit caused by T4, T3 and current.
		Bit6	Frequency limit caused by PFC	
		Bit5	Frequency limit caused by T4.	
		Bit4	Frequency limit caused by T2.	
		Bit3	Frequency limit caused by T3.	
		Bit2	Frequency limit caused by T5.	
		Bit1	Frequency limit caused by current	
		Bit0	Frequency limit caused by voltage	
43	Average value of T2	(Sum T2 value of all indoor units)/(number of indoor units in good connection)		
44	Outdoor unit fan motor state	Off:0, High speed:1, Med speed:2, Low speed:3 Breeze:4, Super breeze:5		
45	The last error or protection code	00 means no malfunction and protection		

1.3.2 Outdoor unit's digital display tube

There is a digital display tube in outdoor PCB.

Digital display tube display function

- In standby , the LED displays "- -"
- In compressor operation, the LED display the running frequency,
- In defrosting mode, The LED displays "dF" or alternative displays between running frequency and "dF"(each displays 0.5s)
- In compressor pre-heating, The LED displays "PH" or alternative displays between running frequency and "PH"(each displays 0.5s)
- During the oil return process, The LED displays "RO" or alternative displays between running frequency and "RO"(each displays 0.5s)
- In low ambient cooling mode, the LED displays "LC" or alternative displays between running frequency and "LC"(each displays 0.5s)
- In forced cooling mode, the LED displays "FC" or alternative displays between running frequency and "FC"(each displays 0.5s)
- When PFC module protection occurs three times within 15 minutes, the LED displays "E6" or alternative displays between running frequency and "E6"(each displays 0.5s)
- In protection or malfunction, the LED displays error code or protection code.

1.3.3 Outdoor unit error display

Display	LED STATUS	IDU Error (KWIM/KWIL)	IDU Error (KWIO)	IDU Error (MTBI(MTBU))
E0	Outdoor EEPROM malfunction	E5	F4	E6
E2	Communication malfunction between indoor and outdoor units	E1	E1	E2
E3	Communication malfunction between IPM board and outdoor main board	---	---	---
E4	Open or short circuit of outdoor temperature sensor(T3、 T4、 T5、 T2B)	E5	F2	E6
E5	Voltage protection	P1	P1	P0
E6	PFC module protection(Only for KSIM40912-H216 (2g))	---	---	---
E8	Outdoor fan speed has been out of control(Only for DC fan motor models)	---	F5	---
F1	No A Indoor unit coil outlet temp. sensor or connector of sensor is defective	---	---	---
F2	No B Indoor unit coil outlet temp. sensor or connector of sensor is defective	---	---	---
F3	No C Indoor unit coil outlet temp. sensor or connector of sensor is defective	---	---	---
F4	No D Indoor unit coil outlet temp. sensor or connector of sensor is defective	---	---	---
P0	Temperature protection of compressor top (Only for M3OD-27HRDN1-M)	P2	P2	P3(P1)
P1	High pressure protection (Only for KSIM40912-H216 (2g))	---	---	---
P2	Low pressure protection(Only for KSIM40912-H216 (2g))	---	---	---
P3	Current protection of compressor	---	---	---(P2)
P4	Temperature protection of compressor discharge	---	---	---
P5	High temperature protection of condenser	---	---	---
P6	IPM module protection	P0	P0	E5



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