

KLIMAIRE®

KSIN INVERTER SERIES



Troubleshooting

9. Troubleshooting

9.1 Indoor Unit Error Display

Display	Operation lamp flash times	Timer lamp	Failure
E0	1	X	EEPROM error
E1	2	X	Indoor and outdoor communication error
E2	3	X	Zero crossing detection error
E3	4	X	Indoor fan speed has been out of control
E4	5	X	Indoor room temperature sensor T1 open circuit or short circuit
E5	6	X	Evaporator coil temperature sensor T2 open circuit or short circuit
EC	7	X	Refrigerant leak detection error
F1	2	O	Outdoor temperature sensor T4 open circuit or short circuit
F2	3	O	Condenser coil temperature sensor T3 open circuit or short circuit
F3	4	O	Compressor discharge temperature sensor T5 open circuit or short circuit
F4	5	O	Outdoor EEPROM parameter error
P0	1	☆	IPM malfunction or IGBT over-strong current
P1	2	☆	Over voltage or too low voltage protection
P2	3	☆	Temperature protection of compressor top(only for 24k models)
P4	5	☆	Inverter compressor drive error

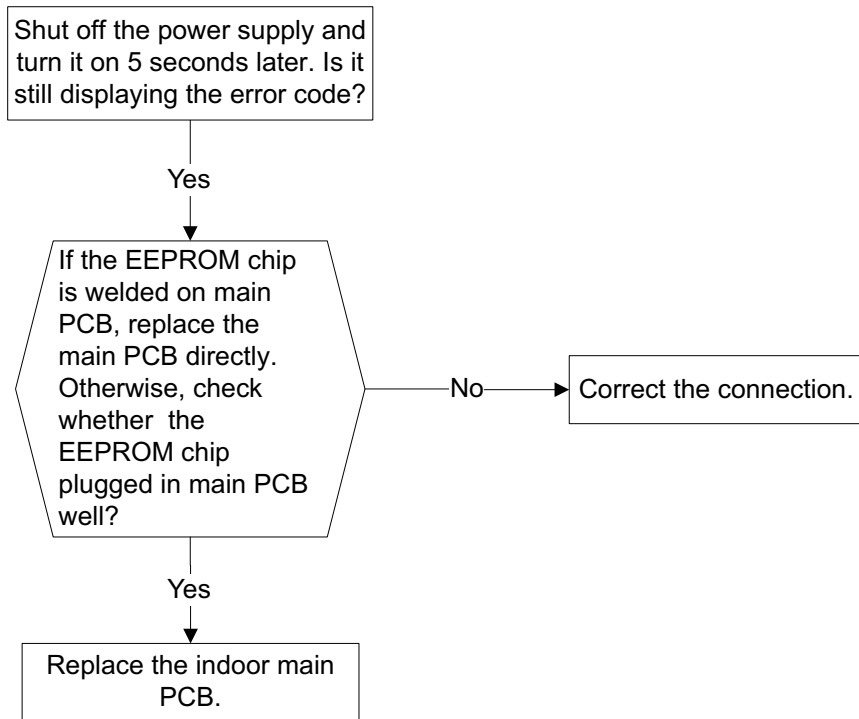
O (light)

X (off)

☆ (flash)

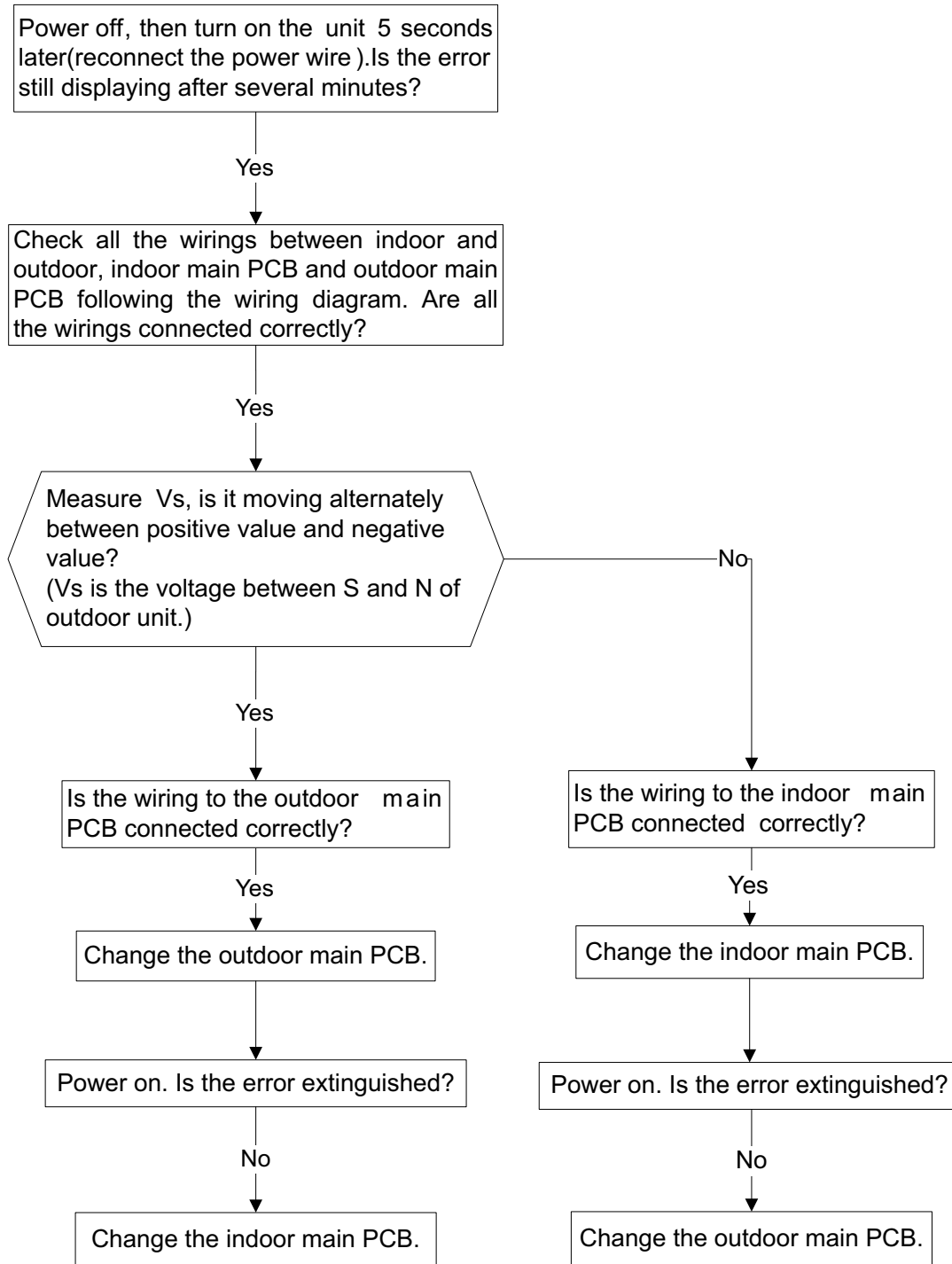
9.2 Diagnosis and Solution

9.2.1 EEPROM parameter error diagnosis and solution(E0/F4)

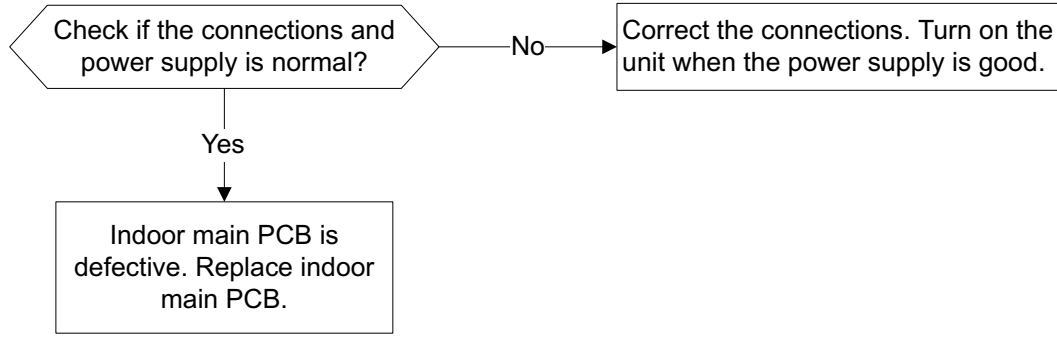


EEPROM: a read-only memory whose contents can be erased and reprogrammed using a pulsed voltage.

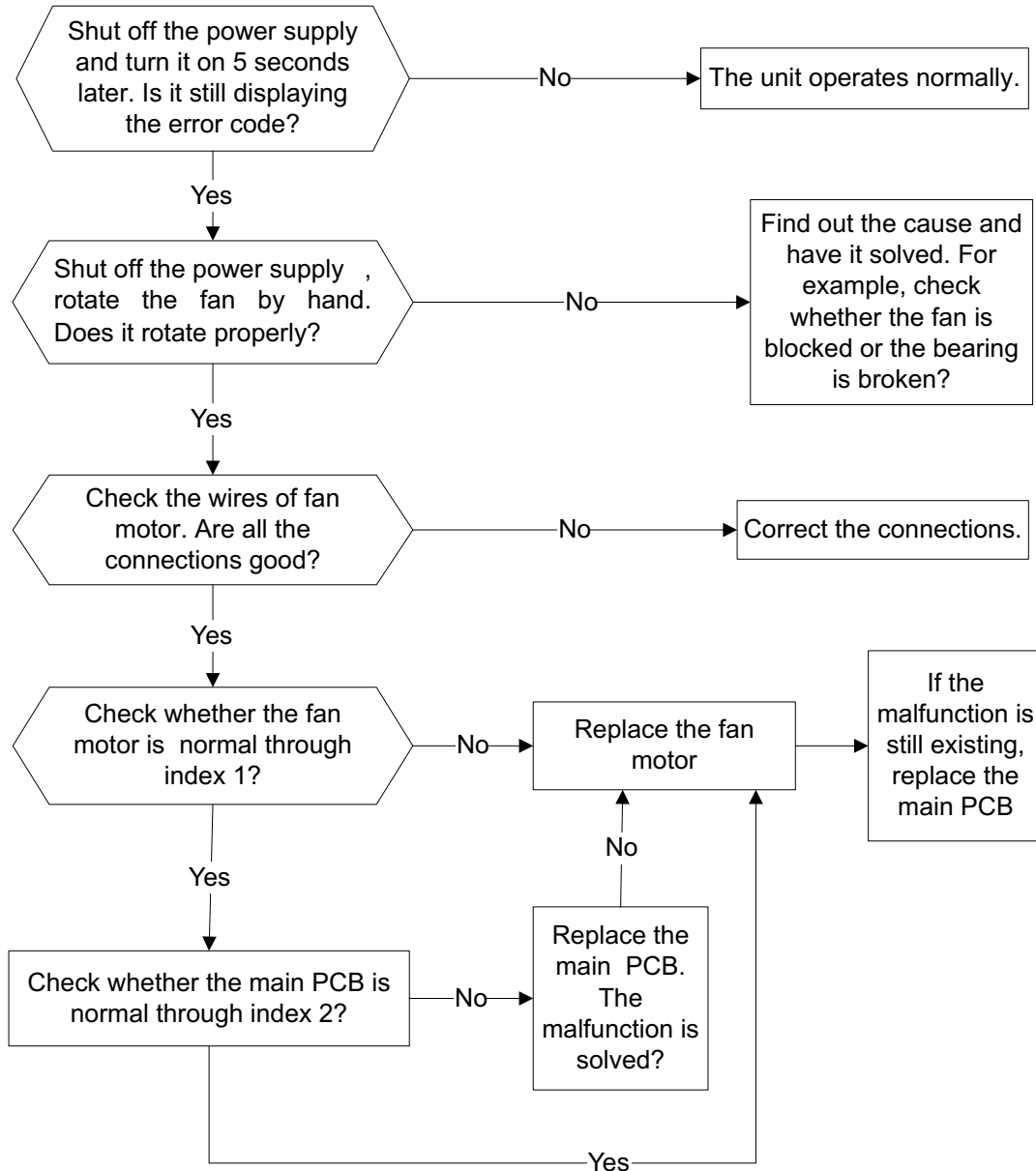
9.2.2 Indoor / outdoor unit's communication error diagnosis and solution(E1)



9.2.3 Zero crossing detection error diagnosis and solution(E2)



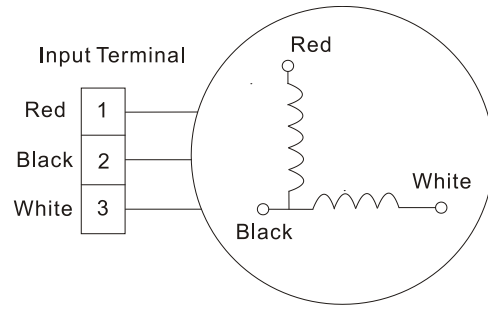
9.2.4 Indoor fan speed has been out of control diagnosis and solution(E3)



Index 1:

1. Indoor AC Fan Motor

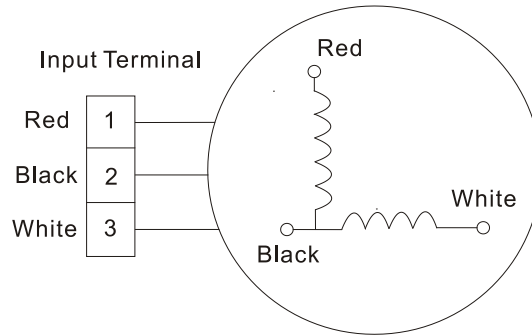
Measure the resistance value of each winding by using the tester.



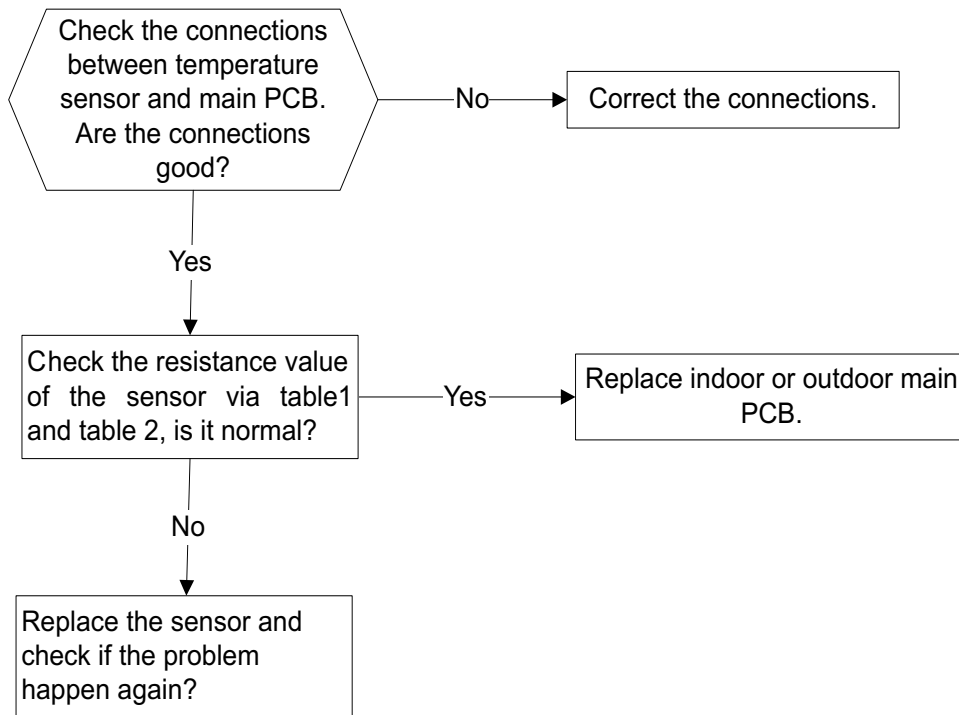
Index2:

1: Indoor AC Fan Motor

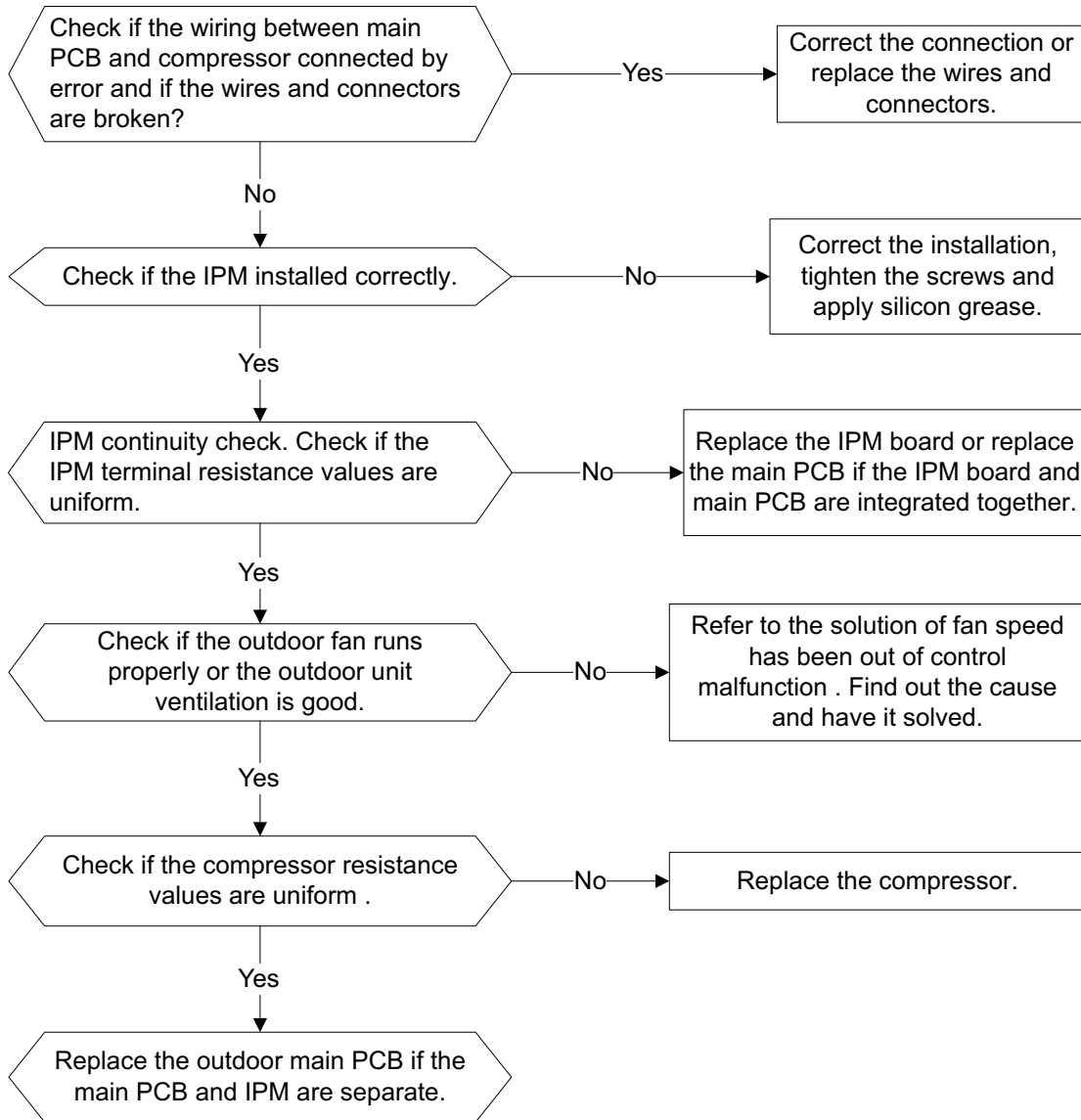
Power on and set the unit running in fan mode at high fan speed. After running for 15 seconds, measure the voltage of pin1 and pin2. If the value of the voltage is less than 100V(208~240V power supply) or 50V(115V power supply), the PCB must have problems and need to be replaced.



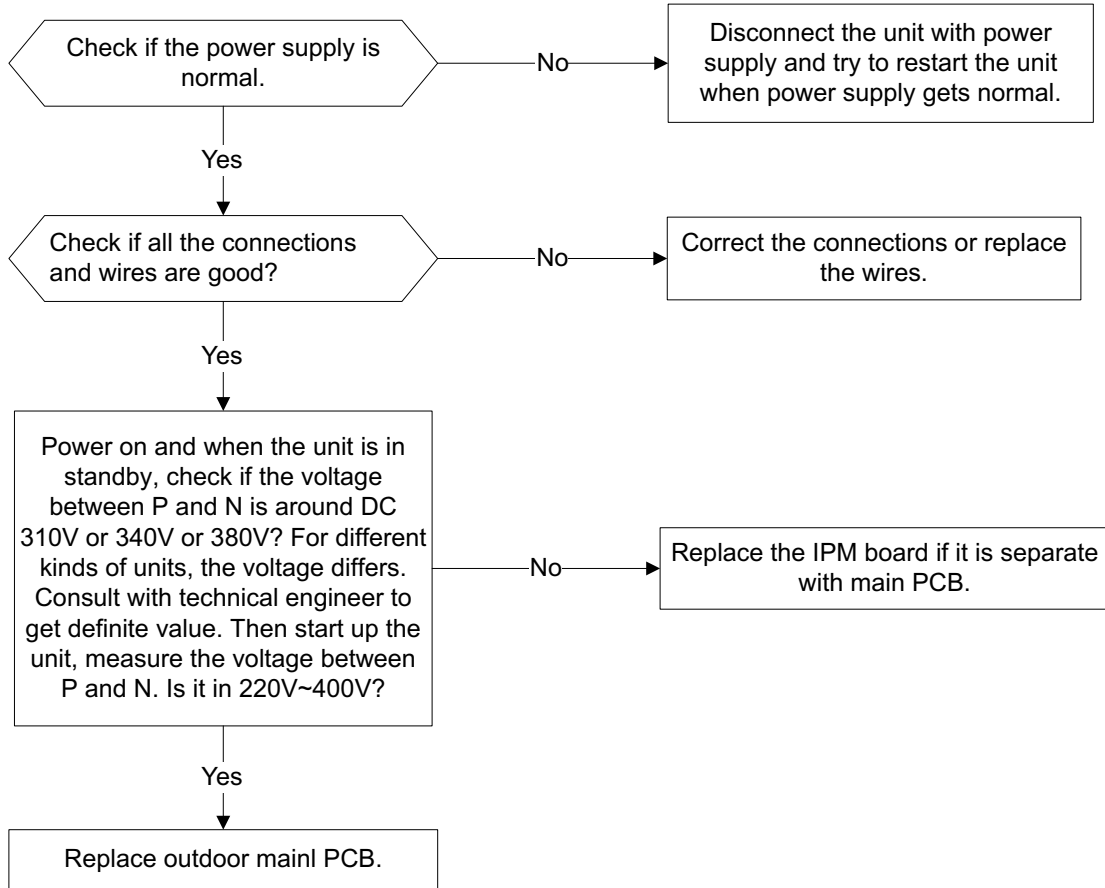
9.2.5 Open circuit or short circuit of temperature sensor diagnosis and solution(E4/E5/F1/F2/F3)



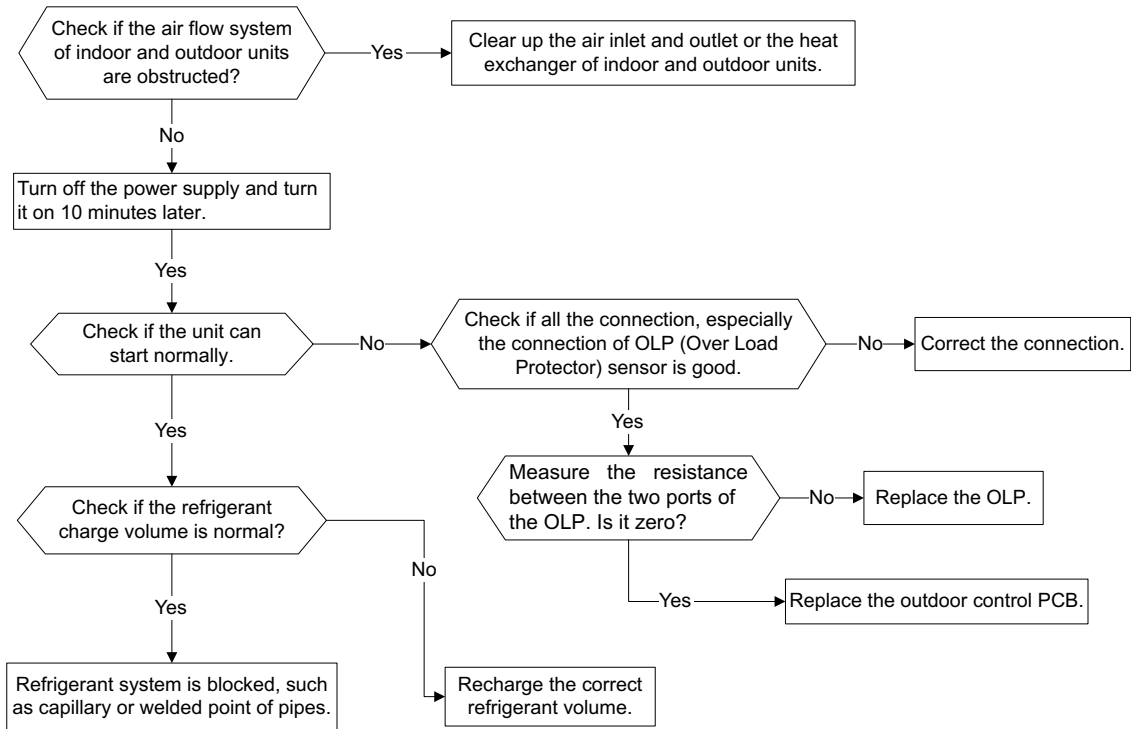
9.2.5 IPM malfunction or IGBT over-strong current diagnosis and solution(P0)



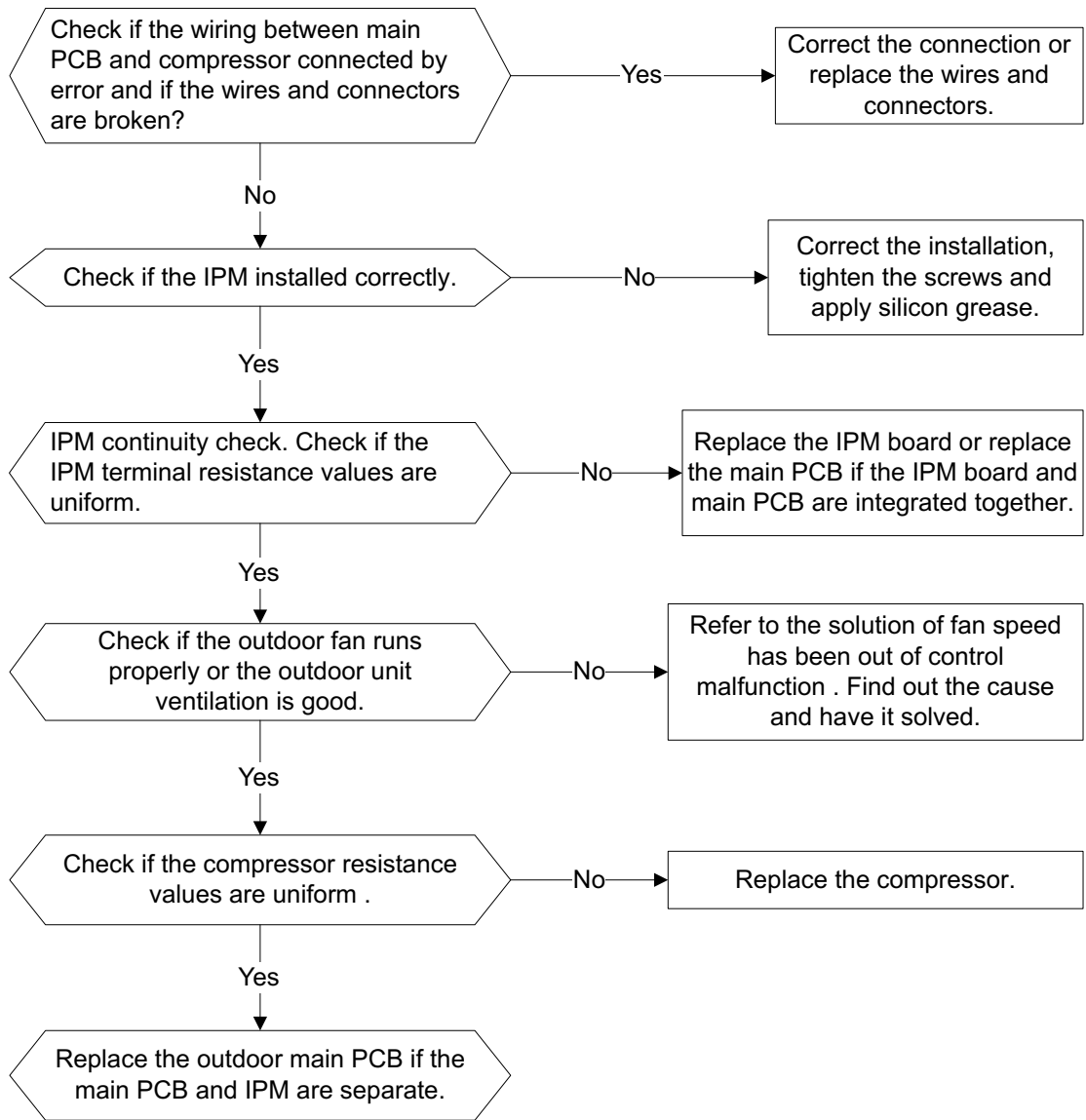
9.2.6 Over voltage or too low voltage protection diagnosis and solution(P1)



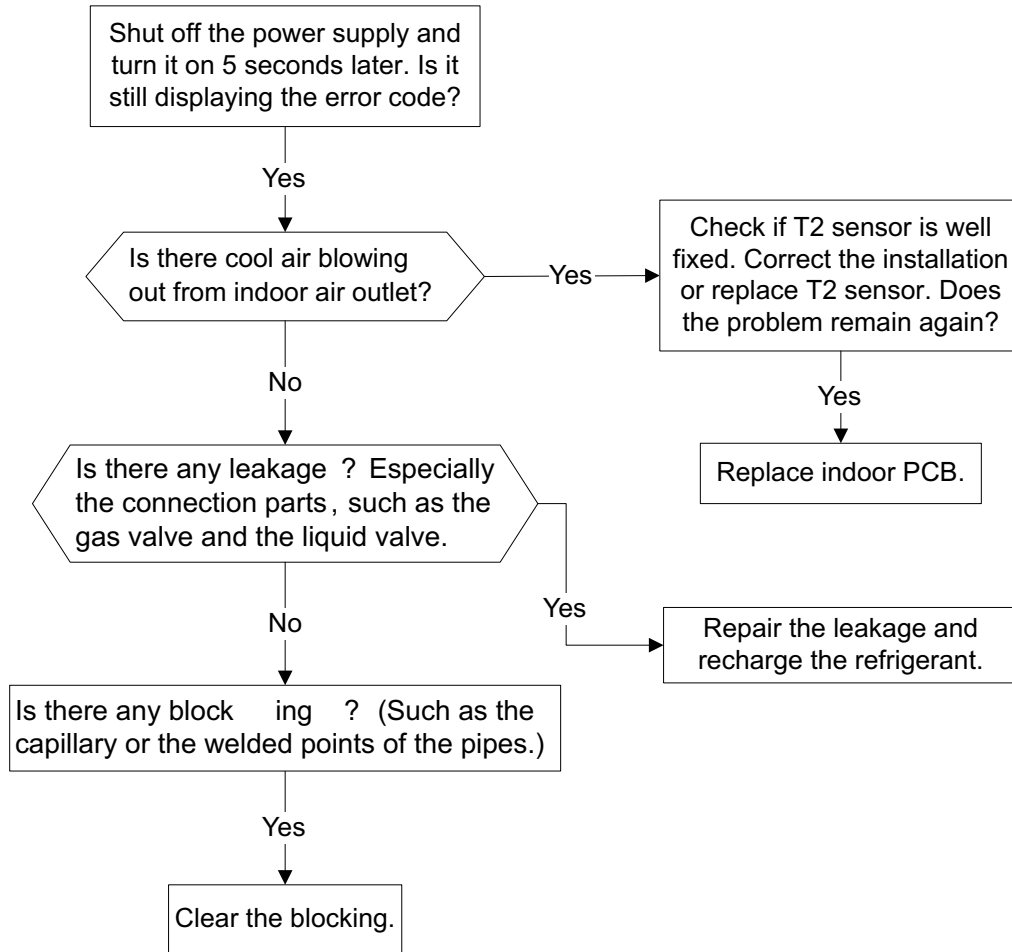
9.2.7 High temperature protection of compressor top diagnosis and solution(P2)



9.2.8 Inverter compressor drive error diagnosis and solution(P4)

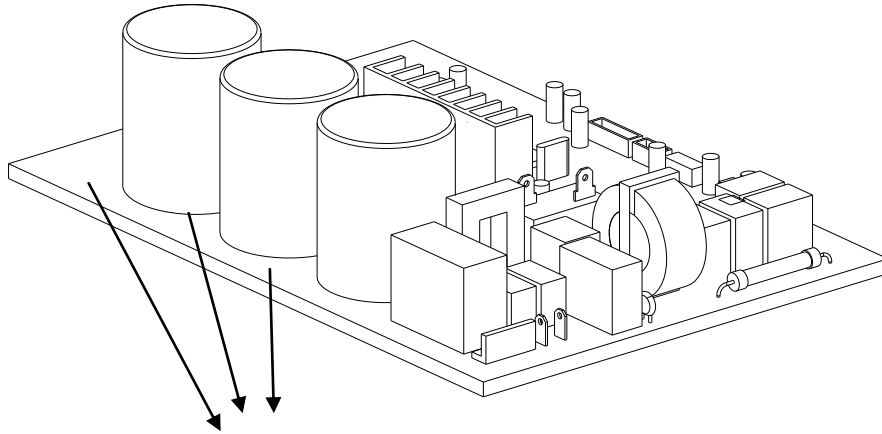


9.2.9 Refrigerant Leakage Detection diagnosis and solution(EC)



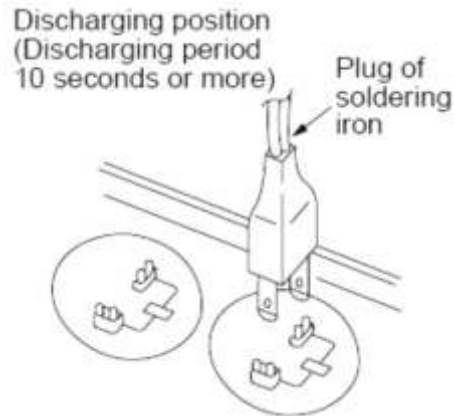
Safety

Electricity power is still kept in capacitors even the power supply is shut off. Do not forget to discharge the electricity power in capacitor.



Electrolytic Capacitors
(HIGH VOLTAGE! CAUTION!)

Connect discharge resistance (approx. 100Ω 40W) or soldering iron (plug) between +, - terminals of the electrolytic capacitor on the contrary side of the outdoor PCB.

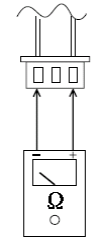


Note: The picture above is only for reference. The plug of your side may be different.

Main parts check

1. Temperature sensor checking

Disconnect the temperature sensor from PCB, measure the resistance value with a tester.



Tester

Temperature Sensors.

Room temp.(T1) sensor,

Indoor coil temp.(T2) sensor,

Outdoor coil temp.(T3) sensor,

Outdoor ambient temp.(T4) sensor,

Compressor discharge temp.(T5) sensor.

Measure the resistance value of each winding by using the multi-meter.

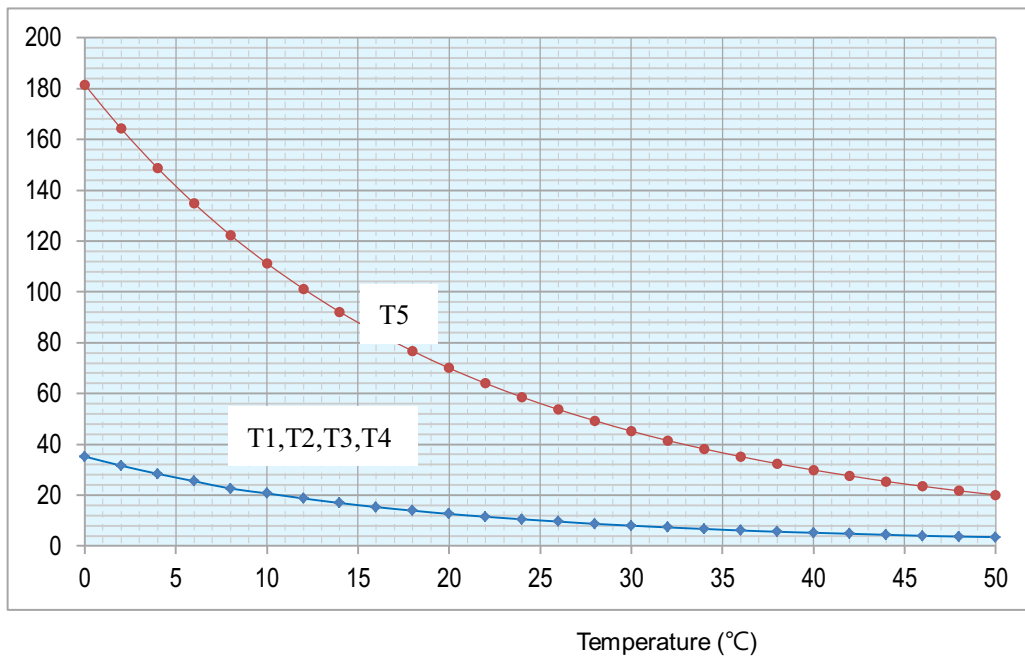
Table1:Some frequently-used R-T data for T1,T2,T3 and T4 sensor:

Temperature (°C)	5	10	15	20	25	30	40	50	60
Resistance Value (KΩ)	26.9	20.7	16.1	12.6	10	8	5.2	3.5	2.4

Table 2:Some frequently-used R-T data for T5 sensor:

Temperature (°C)	5	15	25	35	60	70	80	90	100
Resistance Value (KΩ)	141.6	88	56.1	36.6	13.8	9.7	6.9	5	3.7

Resistance value (KΩ)



Spec.

Code	2T0032300786	2T0032300703	2T0032300704	2T0032300810
Indoor code	220032308400	220032307640	220032307650	220032308640
Indoor	KSIN009-H215-I	MS11D-09HRDN1-QC2	MS11D-09HRDN1-QC2(B)	KSIN009-C115-I
Outdoor code	220037305940	220037304920	220037304990	220037306090
Outdoor	KSIN009-H215-O	MOR2-09HDN1-QC2	MOA2-09HDN1-QC2	KSIN009-H115-O
Compressor	DA108X1C-23EZ	DA108X1C-23EZ	DA108X1C-23EZ	DA108X1C-23EZ
Indoor fan motor	RPG13B	RPG13H	RPG13H	RPG15A
Outdoor fan motor	YDK24-6KB	YDK24-6P(B)	YDK24-6K	YDK24-6AS

Code	2T0032500627	2T0032300811	2T0032500628	2T0032400193
Indoor code	220032506960	220032308650	220032506970	220032402610
Indoor	KSIN012-C115-I	KSIN009-H115-I	KSIN012-H215-I	MS11D-12HRDN1-QC2
Outdoor code	220037505560	220037306100	220037505570	220037401650
Outdoor	KSIN012-C115-O	KSIN009-H215-O	KSIN012-H215-O	MOR3-12HDN1-QC2
Compressor	DA108X1C-23EZ	DA108X1C-23EZ	DA108X1C-23EZ	DA108X1C-23EZ
Indoor fan motor	RPG15A	RPG15A	RPG15A	RPG20D
Outdoor fan motor	YDK24-6AS	YDK24-6AS	YDK24-6AS	YDK24-6P(B)

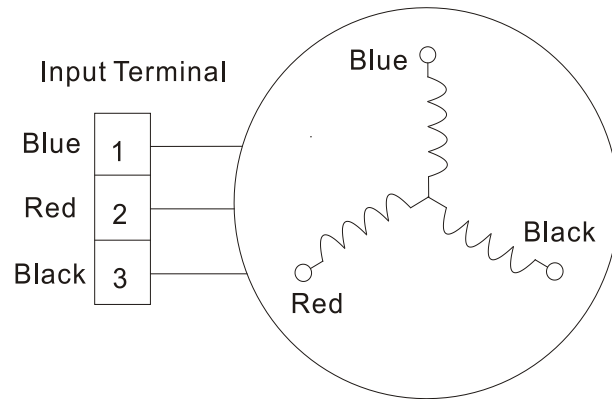
Code	2T0032400194	2T0032700268	2T0032700281	2T0033000405
Indoor code	220032402620	220032703410	220032703550	220033004520
Indoor	MS11D-12HRDN1-QC2(B)	MS11D-18HRDN1-QC2	MS11D-18HRDN1-QC2(B)	MS11D-24HRDN1-QC2W
Outdoor code	220037401740	220037702022	220037701832	220038001761
Outdoor	MOB2-12HDN1-QC2	MOC-18HDN1-QC2	MOC2-18HDN1-QC2	MOF-24HDN1-QC2W
Compressor	DA108X1C-23EZ	DA130S1C-20FZ	DA130M1C-31FZ	DA150S1C-20FZ
Indoor fan motor	RPG20D	RPG25	RPG25	RPG45C
Outdoor fan motor	YDK24-6G	YDK24-6G	YDK24-6G	YDK55-6G

Code	2T0032300842
Indoor code	220032308940
Indoor	KSIN009-C215-I

Outdoor code	220037306370
Outdoor	KSIN009-C215-O
Compressor	DA108X1C-23EZ
Indoor fan motor	RPG13B
Outdoor fan motor	YDK24-6KB

2. Compressor checking

Measure the resistance value of each winding by using the tester.



Position	Resistance Value			
	DA108X1C-23EZ	DA130M1C-31FZ	DA130S1C-20FZ	DA150S1C-20FZ
Blue - Red	1.1Ω	0.95Ω	0.95Ω	0.95Ω
Blue - Black	(20°C)	(20°C)	(20°C)	(20°C)
Red - Blue				

3. IPM continuity check

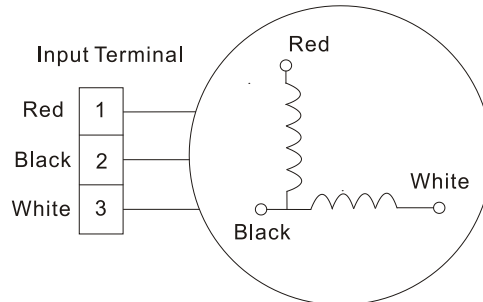
Turn off the power, let the large capacity electrolytic capacitors discharge completely, and dismantle the IPM. Use a digital tester to measure the resistance between P and UVWN; UVW and N.

Digital tester		Normal resistance value
(+)Red	(-)Black	∞ (Several M Ω)
P	N	
	U	
	V	
	W	

Digital tester		Normal resistance value
(+)Red	(-)Black	∞ (Several M Ω)
U	N	
V		
W		

4. Indoor AC Fan Motor

Measure the resistance value of each winding by using the tester.



Position	Resistance Value					
	RPG13B	RPG13H	RPG20D	RPG15A	RPG25	RPG45C
Black - Red (20°C)	530 Ω ±8%	575 Ω ±8%	400 Ω ±8%	75 Ω ±8%	287 Ω ±8%	172 Ω ±8%
White - Black (20°C)	315 Ω ±8%	558 Ω ±8%	383 Ω ±8%	150 Ω ±8%	409 Ω ±8%	138 Ω ±8%



The Klimaïre logo is a registered Trademark of Klimaïre Products Inc.
Copyright 2016 Klimaïre Products Inc.

2190 NW 89 Place, Doral, FL 33172 - USA

Tel: (305) 593-8358 Fax: (305) 675-2212
www.klimaïre.com sales@klimaïre.com