

10. Troubleshooting

10.1 Indoor unit error code explanation:

Para SPLIT-PARED (F6WMY_C1R), CASSETTE (F6CKY) Y CONDUCTO (F6CCY)

Malfunction	Error Code	Timer Lamp	Operation Lamp (flashes)
Indoor EEPROM malfunction	E0	X	1
Communication malfunction between indoor and outdoor units	E1	X	2
Indoor fan speed has been out of control	E3	X	4
Open or short circuit of T1 temperature sensor	E4	X	5
Open or short circuit of T2 temperature sensor	E5	X	6
Refrigerant leakage detection	EC	X	7
Water level alarm	EE	X	8
Overcurrent protection (For some units)	F0	O	1
Open or short circuit of T4 temperature sensor	F1	O	2
Open or short circuit of T3 temperature sensor	F2	O	3
Open or short circuit of T5 temperature sensor	F3	O	4
Outdoor EEPROM malfunction (For some units)	F4	O	5
Outdoor fan speed is out of control	F5	O	6
Open or short circuit of T2B temperature sensor	F6	O	7
Communication malfunction between indoor two chips(For A6 Duct)	FA	O	11
IPM module malfunction	P0	☆	1
Over voltage or over low voltage protection	P1	☆	2
Too low ambient temperature protection	P3	☆	4
Inverter compressor drive protection	P4	☆	5
Indoor units mode conflict	--	☆	6
Low pressure protection of compressor	P6	☆	7
O (on) X(off) ☆(Parpadea a 2Hz)			

10.2 Outdoor unit error code explanation:

Para F6MSY40B1R2, F6MSY50B1R2, F6MSY80B1R3, F6MSY80B1R4, F6MSY100B1R4 y F6MSY120B1R5

Display	LED STATUS
E0	Outdoor EEPROM malfunction
E2	Indoor / outdoor units communication error
E3	Communication malfunction between IPM board and outdoor main board
E4	Open or short circuit of outdoor unit temperature sensor(T3,T4.T5)
E5	Voltage protection
E6	PFC module protection
E8	Outdoor fan speed has been out of control or compressor speed has been out of control
F1	No A Indoor unit coil outlet temperature sensor or connector of sensor is defective
F2	No B Indoor unit coil outlet temperature sensor or connector of sensor is defective
F3	No C Indoor unit coil outlet temperature sensor or connector of sensor is defective
F4	No D Indoor unit coil outlet temperature sensor or connector of sensor is defective
F5	No E Indoor unit coil outlet temperature sensor or connector of sensor is defective
P0	Top temperature protection of compressor
P1	High pressure protection (For M4OB-36HFN8-Q, M5OD-42HFN8-Q)
P2	Low pressure protection (For M4OB-36HFN8-Q, M5OD-42HFN8-Q)
P3	Current protection of compressor
P4	Temperature protection of compressor discharge
P5	High temperature protection of condenser
P6	IPM module protection
E9	24k indoor unit wiring error
LP	Low ambient temperature protection

Nota: una vez aparece el error, desaparecerá a los 30 segundos si el error desaparece (excepto E2 y E3)

Para otros modelos multi-split

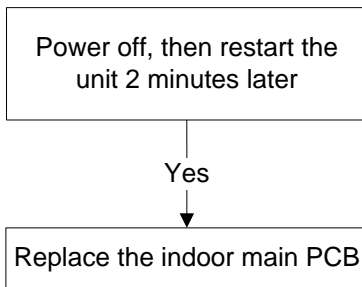
Display	LED STATUS
EC 51	Outdoor EEPROM malfunction
EL 01	Indoor / outdoor units communication error
PC 40	Communication malfunction between IPM board and outdoor main board
PC 08	Outdoor overcurrent protection
PC 10	Outdoor unit low AC voltage protection
PC 11	Outdoor unit main control board DC bus high voltage protection
PC 12	Outdoor unit main control board DC bus high voltage protection /341 MCE error
PC 00	IPM module protection
PC 0F	PFC module protection
EC 71	Over current failure of outdoor DC fan motor
EC 72	Lack phase failure of outdoor DC fan motor
EC 07	Outdoor fan speed has been out of control
PC 43	Outdoor compressor lack phase protection
PC 44	Outdoor unit zero speed protection
PC 45	Outdoor unit IR chip drive failure
PC 46	Compressor speed has been out of control
PC 49	Compressor overcurrent failure
PC 30	High pressure protection (For M5OE-42HFN8-Q)
PC 31	Low pressure protection (For M5OE-42HFN8-Q)
PC 0A	High temperature protection of condenser
PC 06	Temperature protection of compressor discharge
PC 0L	Low ambient temperature protection
PC 02	Top temperature protection of compressor
EC 52	Condenser coil temperature sensor T3 is in open circuit or has short circuited
EC 53	Outdoor room temperature sensor T4 is in open circuit or has short circuited
EC 54	Compressor discharge temperature sensor T5 is in open circuit or has short circuited
EC 56	Evaporator coil outlet temperature sensor T2B is in open circuit or has short circuited

EC 50	Open or short circuit of outdoor unit temperature sensor(T3,T4.T5)
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10.3 Trouble shooting

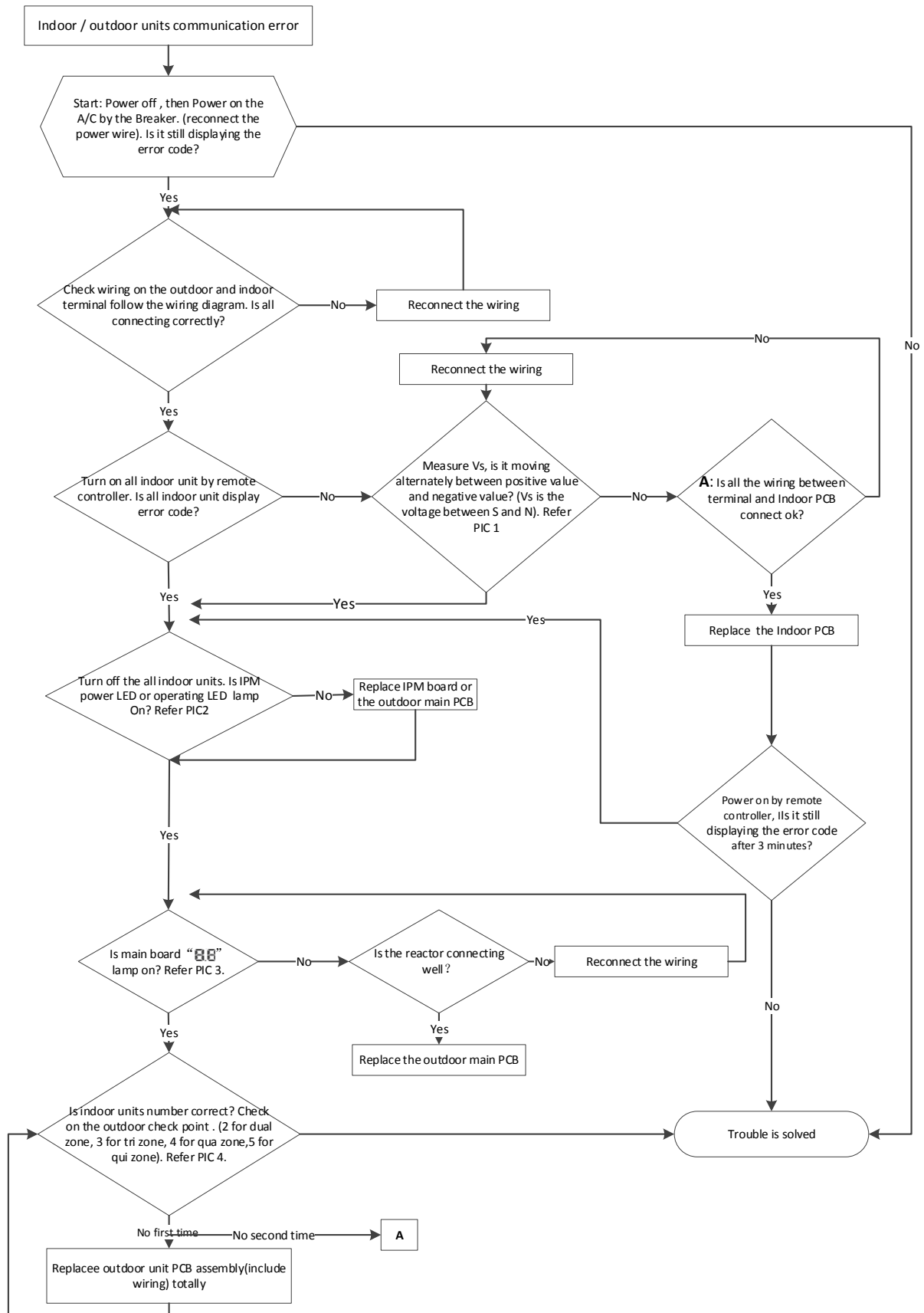
10.3.1 For the indoor unit

10.3.1.1 Indoor EEPROM malfunction (IDU E0/EA/EH 00/EH 0A)



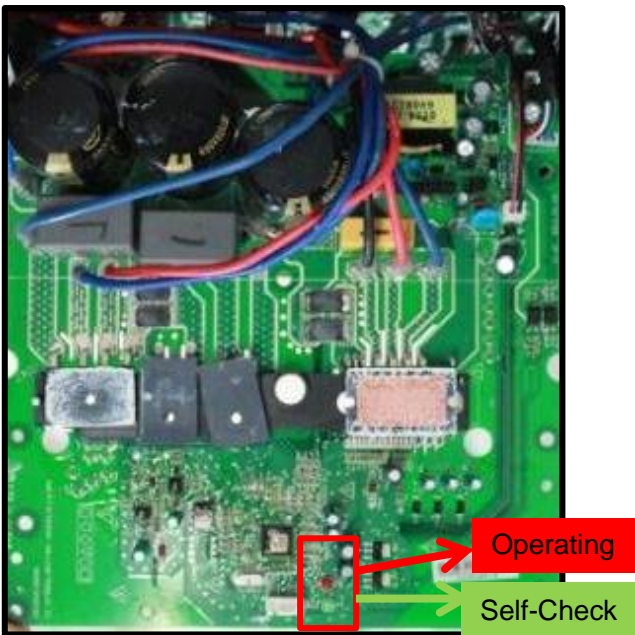
EEPROM: An electrically erasable programmable read-only memory whose contents can be erased and reprogrammed using a pulsed voltage.

10.3.1.2 Indoor / outdoor units communication error(E1(IDU)/ E2(ODU)/ EL 01(IDU/ODU))

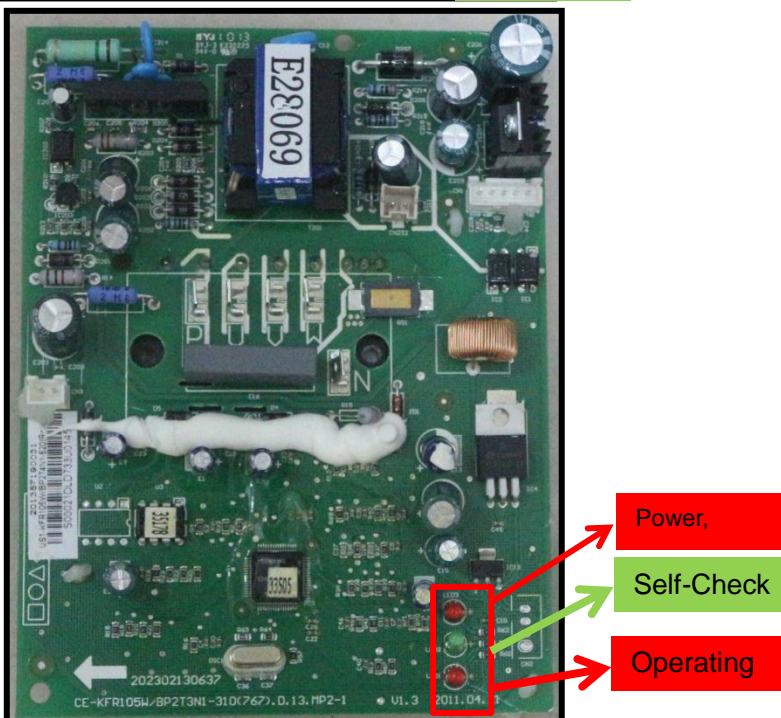




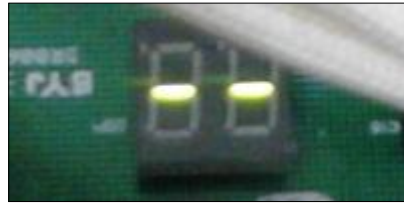
Pic 1: check the voltage of N to S (Vs), is it moving alternately between positive value and negative value?



Pic 2: IPM or outdoor main PCB



Pic 2: IPM or outdoor main PCB

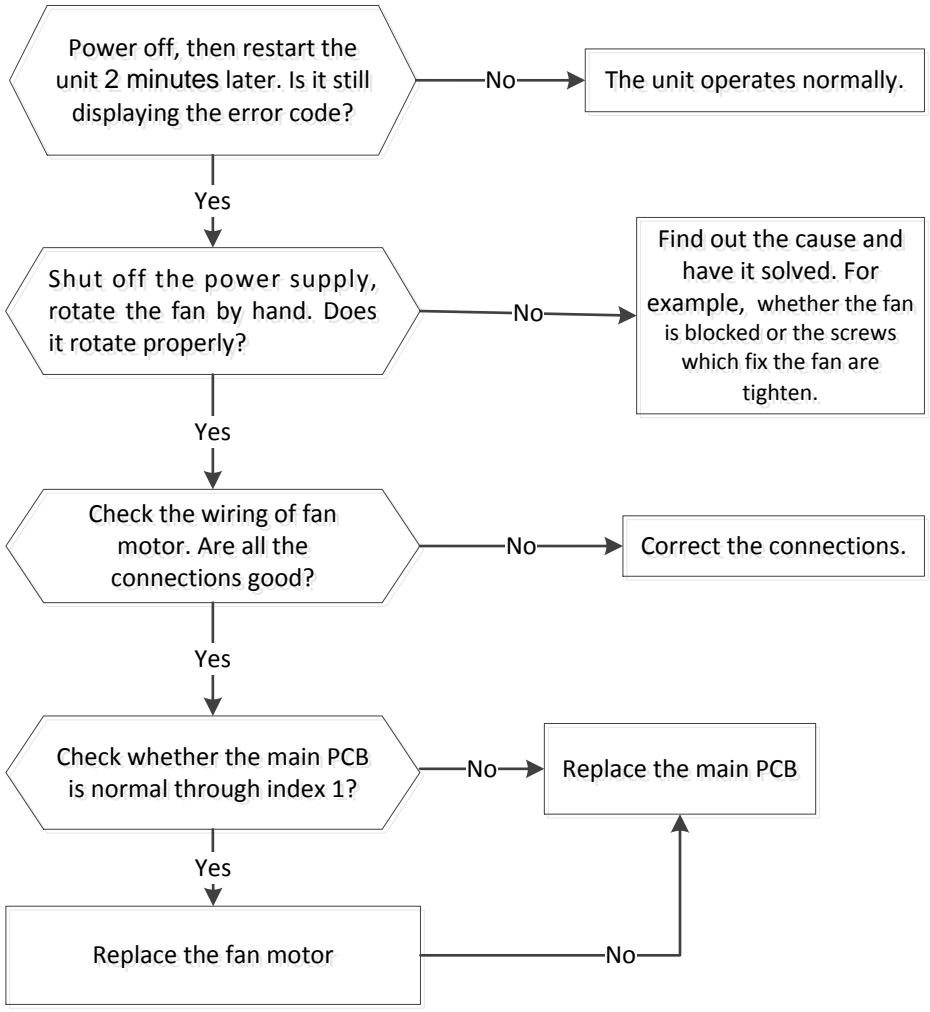


PIC3 :Main board LED when power on and unit standby.



PIC 4: check point button,
Press 1 time for check how many indoor units are connected

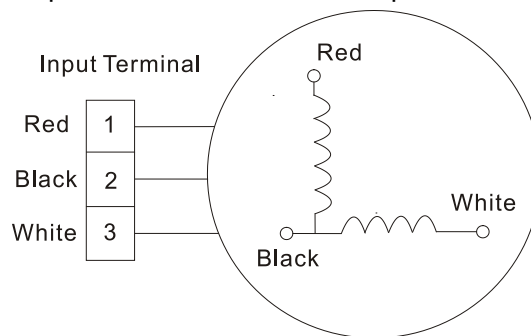
10.3.1.3 Indoor fan speed has been out of control (IDU E3/ EH 03)



Index 1:

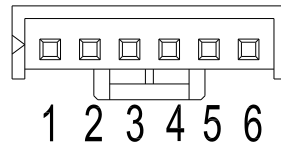
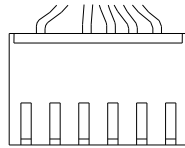
1: Indoor AC fan motor

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.



2. Indoor DC fan motor(control chip is inside fan motor)

Power on and when the unit is in standby, measure the voltage of pin1-pin3, pin4-pin3 in fan motor connector. If the value of the voltage is not in the range showing in below table, the PCB must have problems and need to be replaced.



DC motor voltage input and output

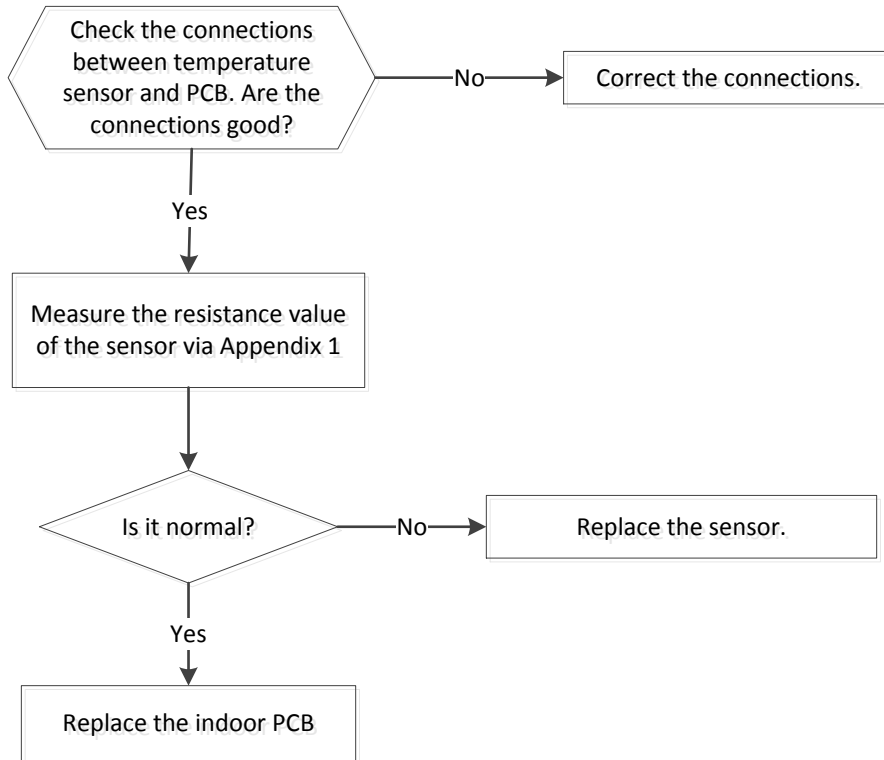
For split type:

NO.	Color	Signal	Voltage
1	Red	Vs/Vm	280V~380V
2	---	---	---
3	Black	GND	0V
4	White	Vcc	14-17.5V
5	Yellow	Vsp	0~5.6V
6	Blue	FG	14-17.5V

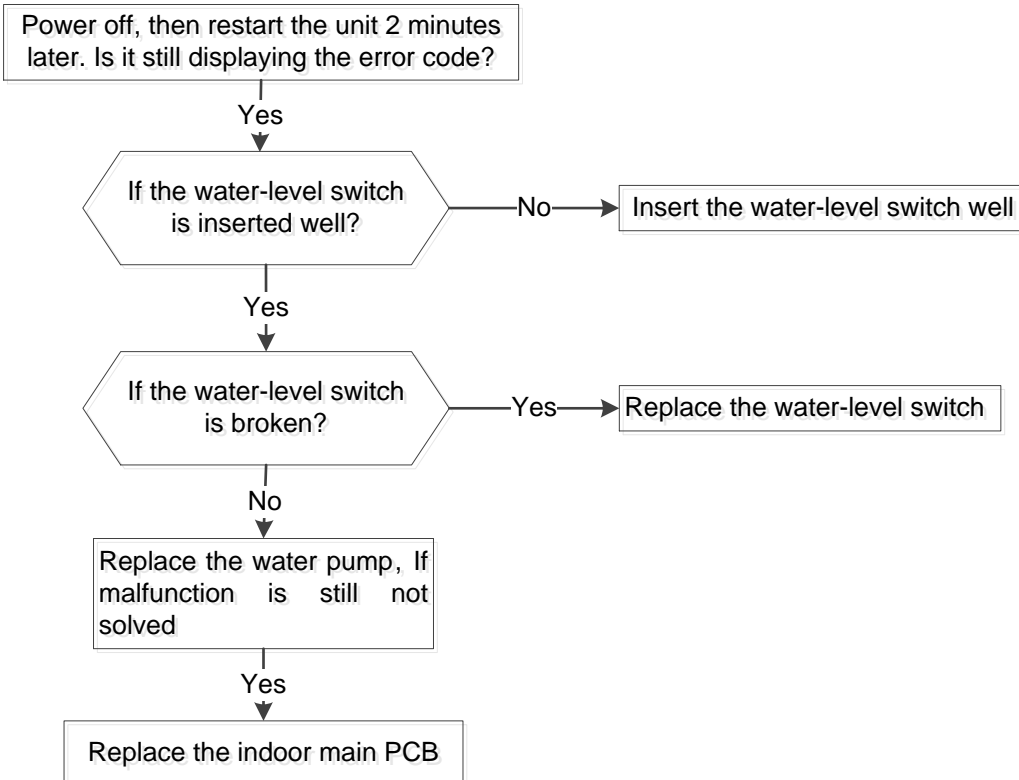
For other types:

NO.	Color	Signal	Voltage
1	Red	Vs/Vm	192V~380V
2	---	---	---
3	Black	GND	0V
4	White	Vcc	13.5-16.5V
5	Yellow	Vsp	0~6.5V
6	Blue	FG	13.5-16.5V

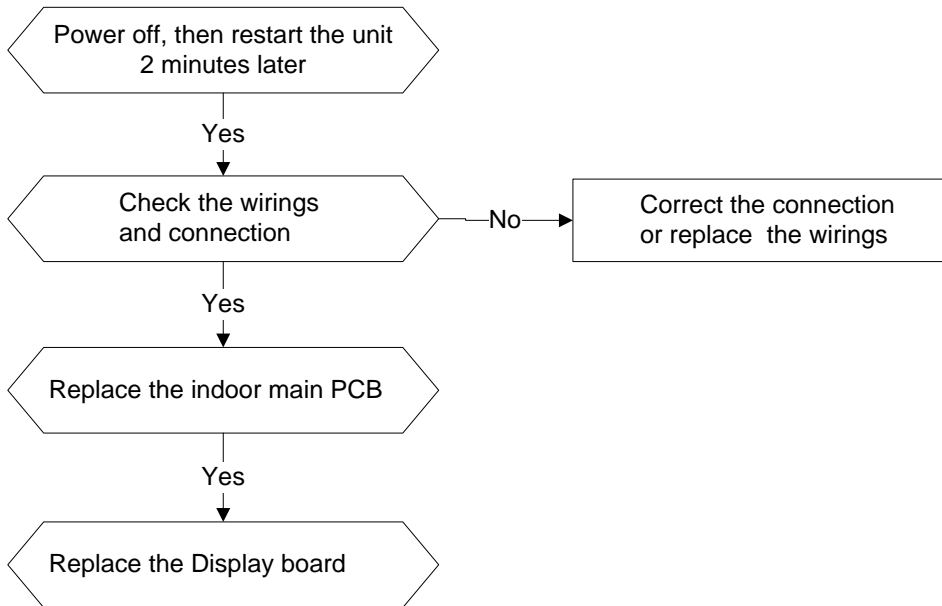
10.3.1.4 Open or short circuit of temperature sensor(IDU E4/E5/EH 60/EH 61)



10.3.1.5 Water-level alarm malfunction(IDU EE)



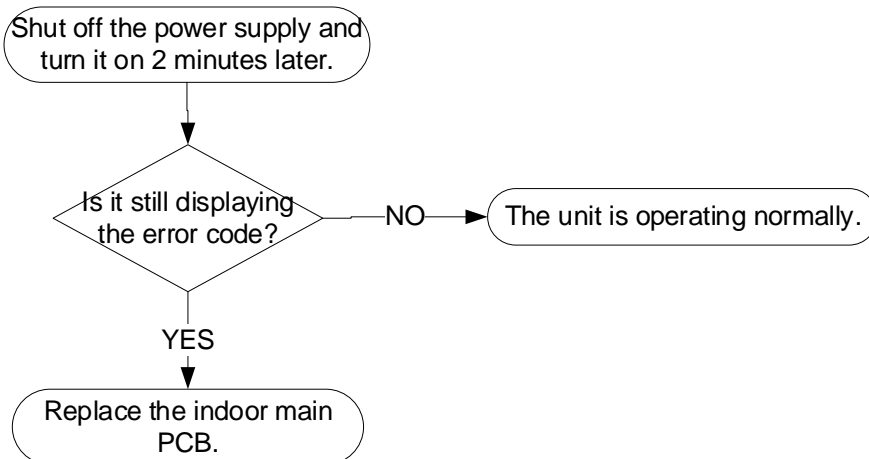
10.3.1.7 Communication error between the indoor PCB and display board(IDU Eb/EH 0b)



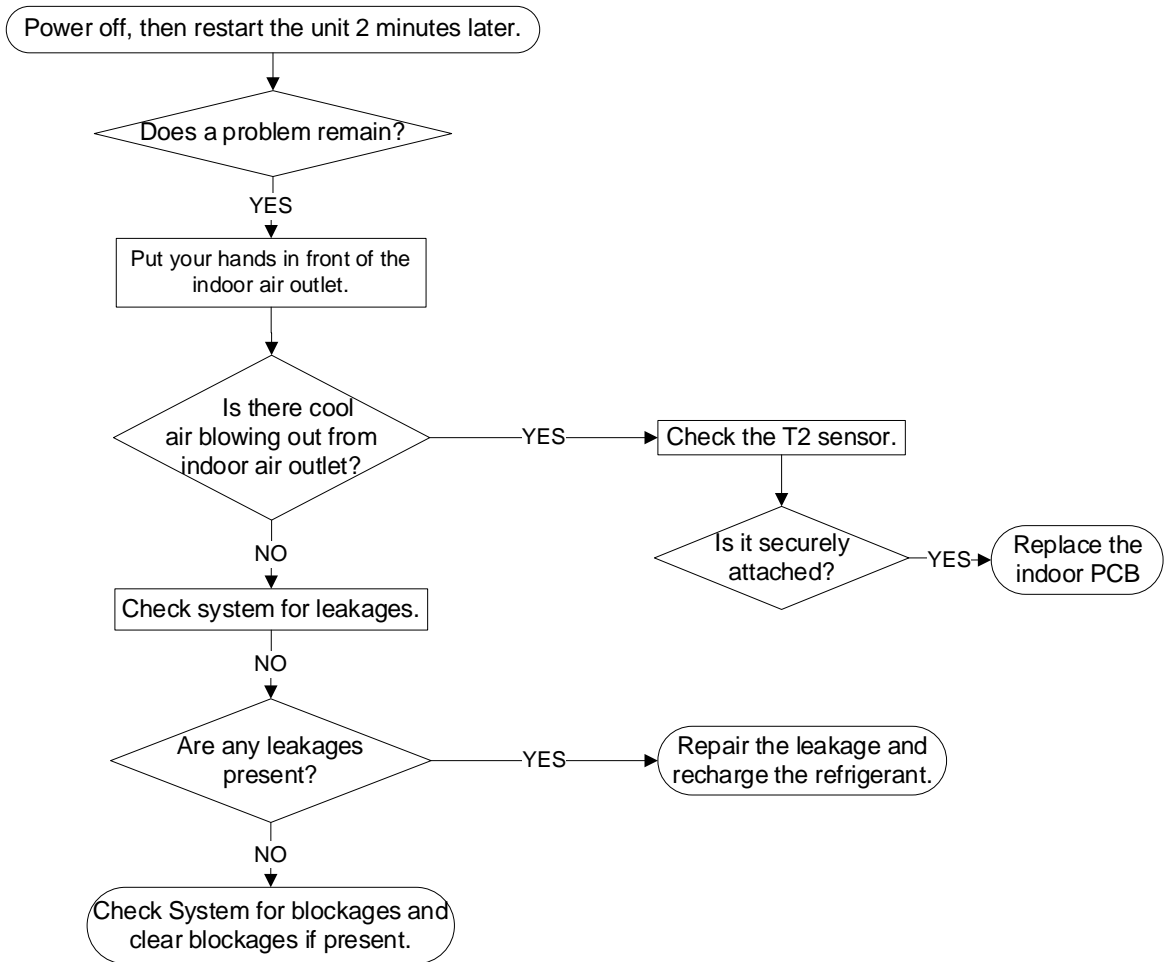
10.3.1.8 Inverter compressor drive malfunction(IDU P4/ PC04)

The trouble shooting is same with IPM module protection.

10.3.1.9 Communication malfunction between indoor two chips (IDU FA)

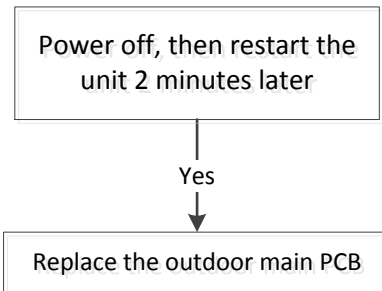


10.3.1.10 Refrigerant Leakage Detection(IDU EC/ EL 0C)



10.3.3 For the outdoor unit

10.3.3.1 Outdoor EEPROM malfunction(ODU E0/EC 51)



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

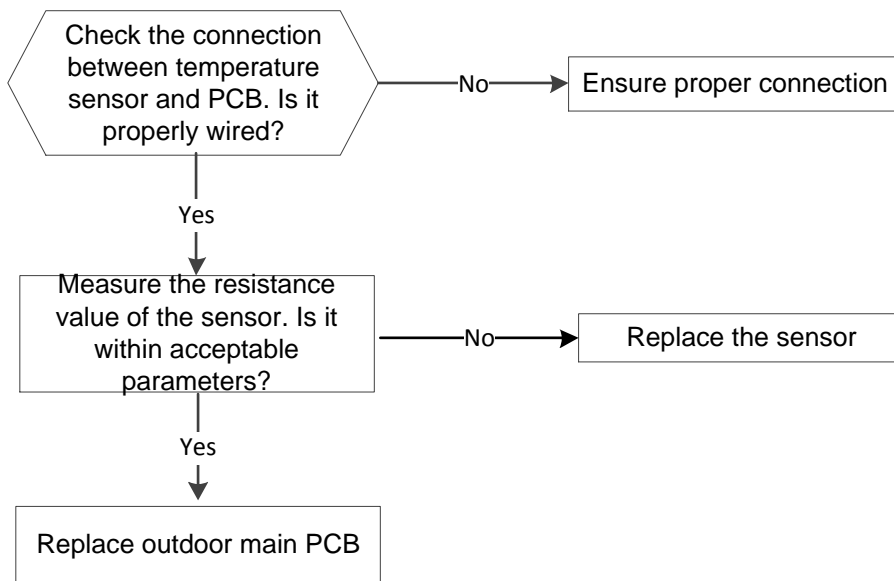
10.3.3.2 Condenser coil temperature sensor T3 is in open circuit or has short circuited(EC 52)

Outdoor room temperature sensor T4 is in open circuit or has short circuited(EC 53)

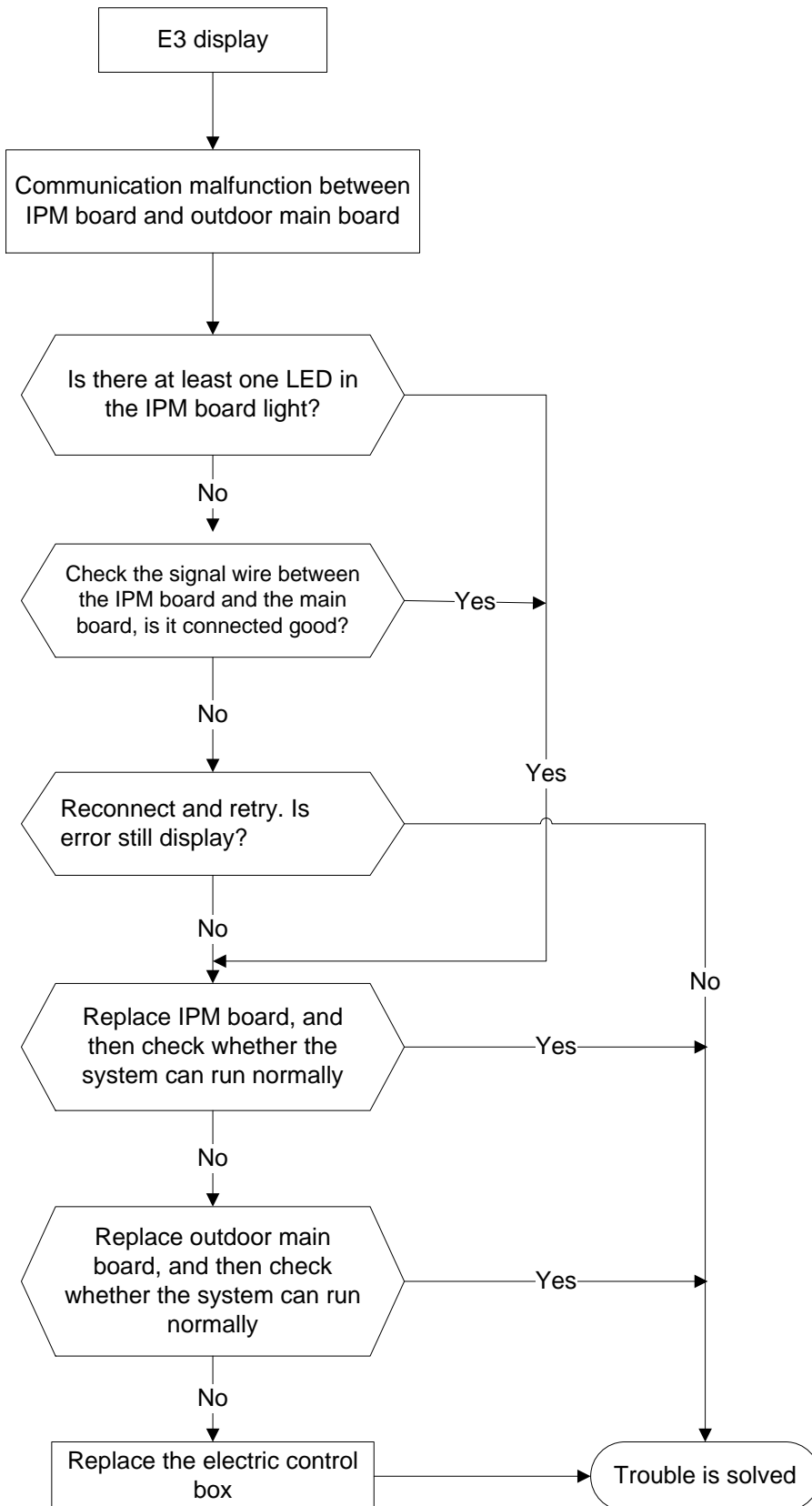
Compressor discharge temperature sensor T5 is in open circuit or has short circuited(EC 54)

Evaporator coil outlet temperature sensor T2B is in open circuit or has short circuited(EC 56)

Open or short circuit of outdoor unit temperature sensor(T3,T4.T5)(E4/ EC 50)



10.3.3.3 Communication malfunction between IPM board and outdoor main board(ODU E3/PC 40)

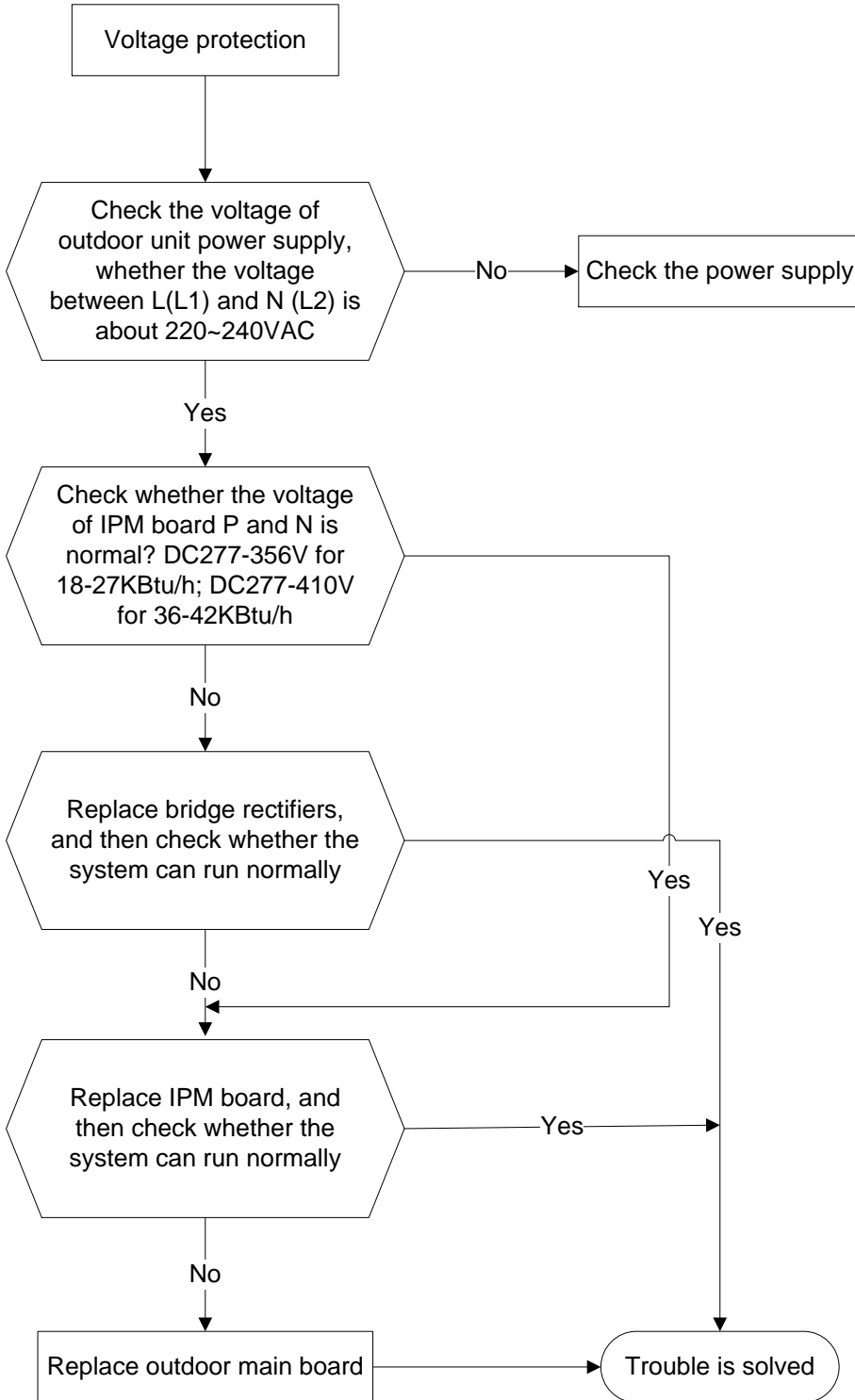


10.3.3.4 Voltage protection(ODU E5)

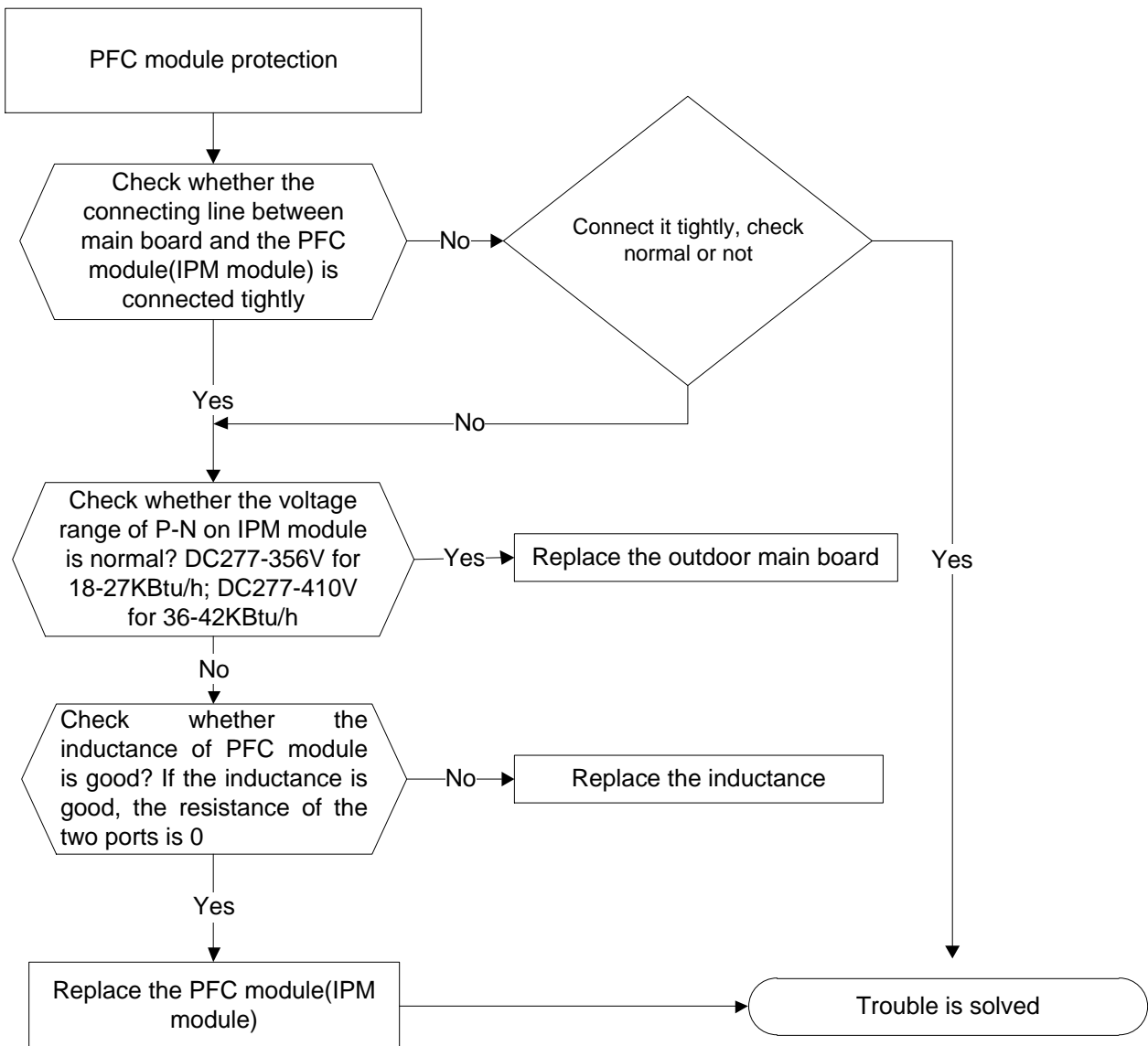
Outdoor unit low AC voltage protection(PC10)

Outdoor unit main control board DC bus high voltage protection(PC11)

Outdoor unit main control board DC bus high voltage protection /341 MCE error(PC12)

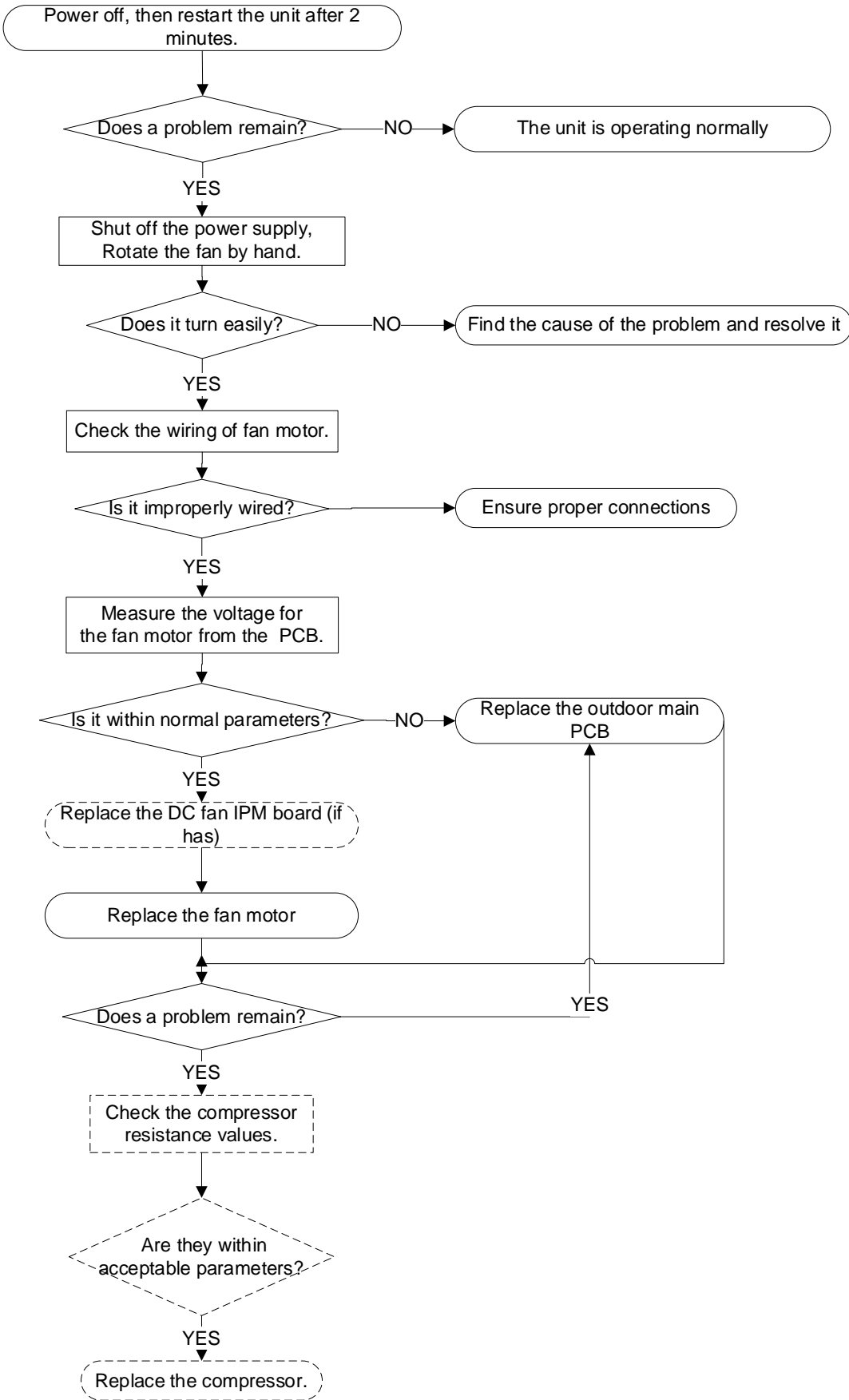


10.3.3.5 PFC module protection (ODU E6/PC 0F)



10.3.3.6 Outdoor fan speed has been out of control or compressor speed has been out of control (ODU E8/EC 07)

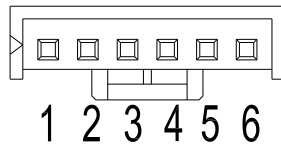
Over current failure of outdoor DC fan motor (ODU EC71)



Index 1:

1. Outdoor DC fan motor(control chip is inside fan motor)

Power on and when the unit is in standby, measure the voltage of pin1-pin3, pin4-pin3 in fan motor connector. If the value of the voltage is not in the range showing in below table, the PCB must have problems and need to be replaced.

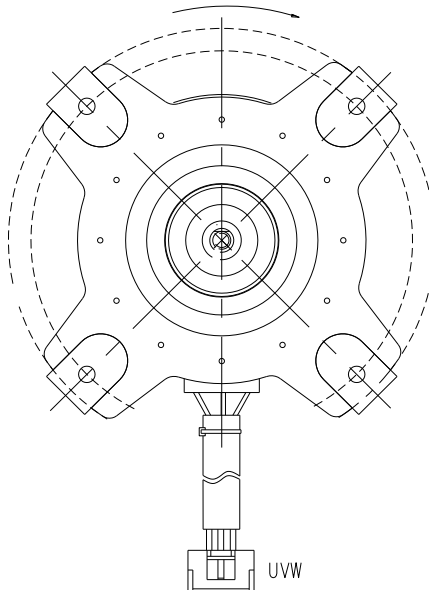


DC motor voltage input and output

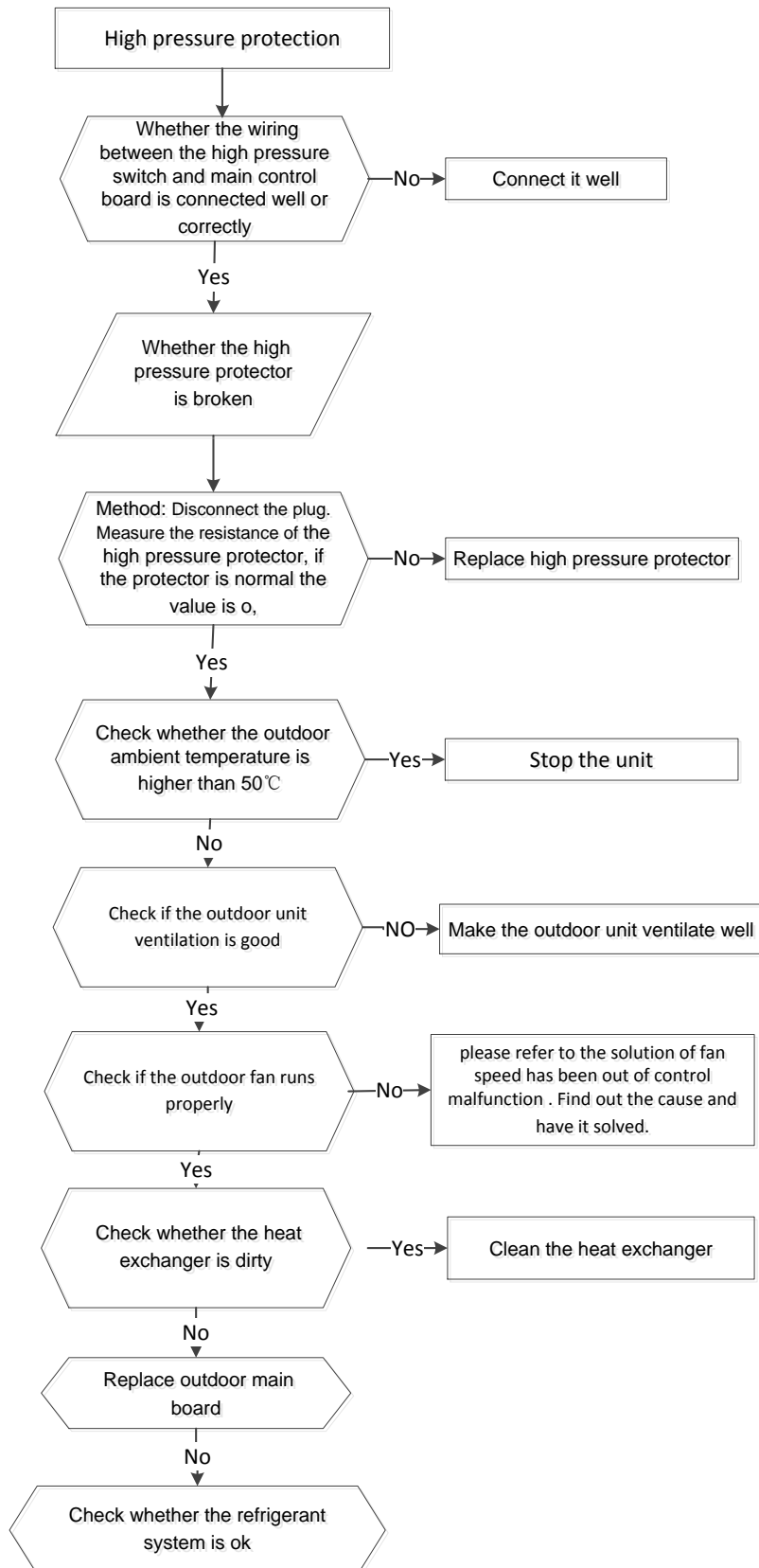
NO.	Color	Signal	Voltage
1	Red	Vs/Vm	140V~380V
2	---	---	---
3	Black	GND	0V
4	White	Vcc	13.5-16.5V
5	Yellow	Vsp	0~6.5V
6	Blue	FG	15V

2. Indoor or outdoor DC Fan Motor (control chip is in PCB)

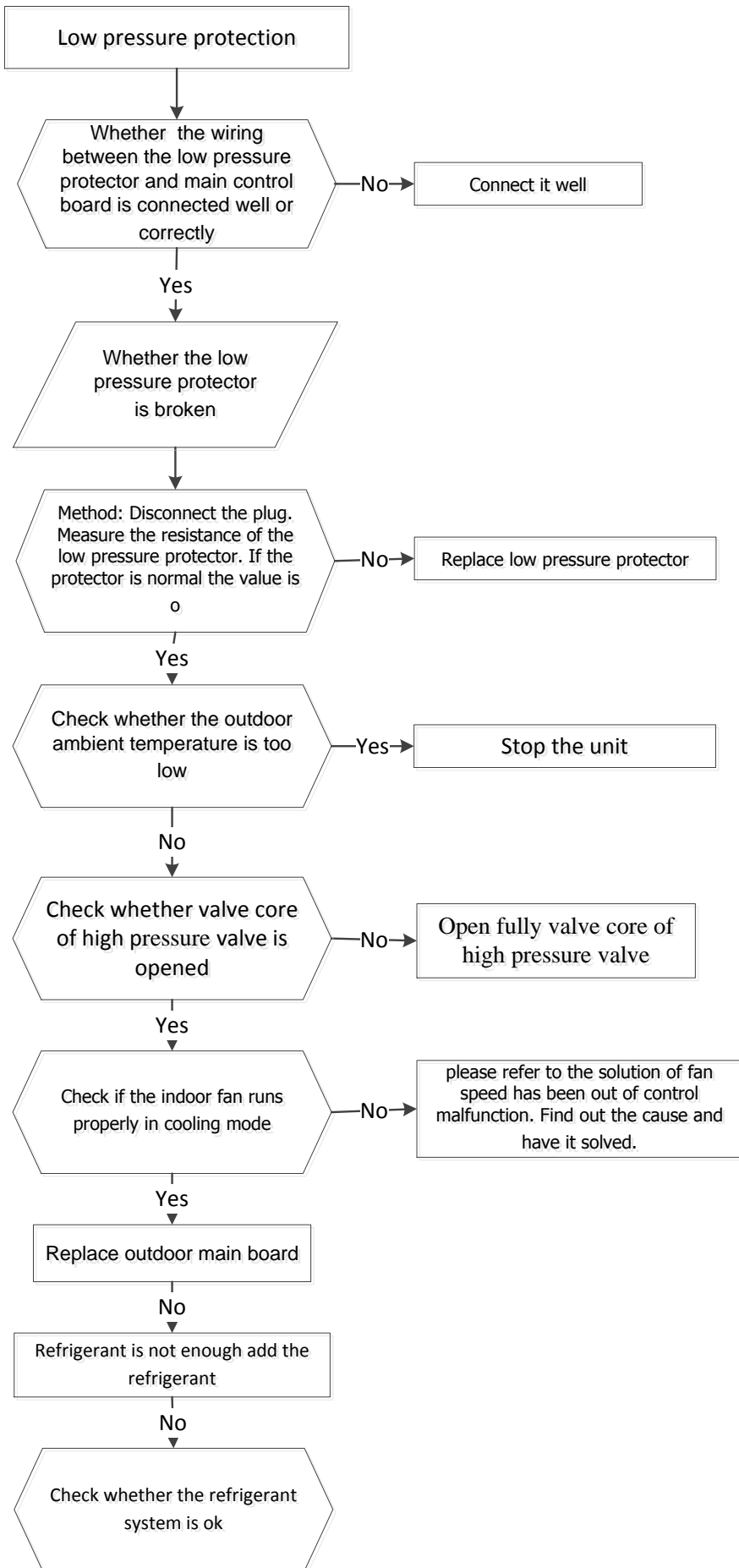
Release the UVW connector. Measure the resistance of U-V, U-W, and V-W. If the resistances are not equal to each other, the fan motor may be experiencing problems and need to be replaced. Otherwise, the PCB must has problems and need to be replaced.



10.3.3.7 High pressure protection (ODU P1/PC 30)(For M4OB-36HFN8-Q, M5OD-42HFN8-Q)



10.3.3.8 Low pressure protection (ODU P2/PC 31) (For M4OB-36HFN8-Q, M5OD-42HFN8-Q)

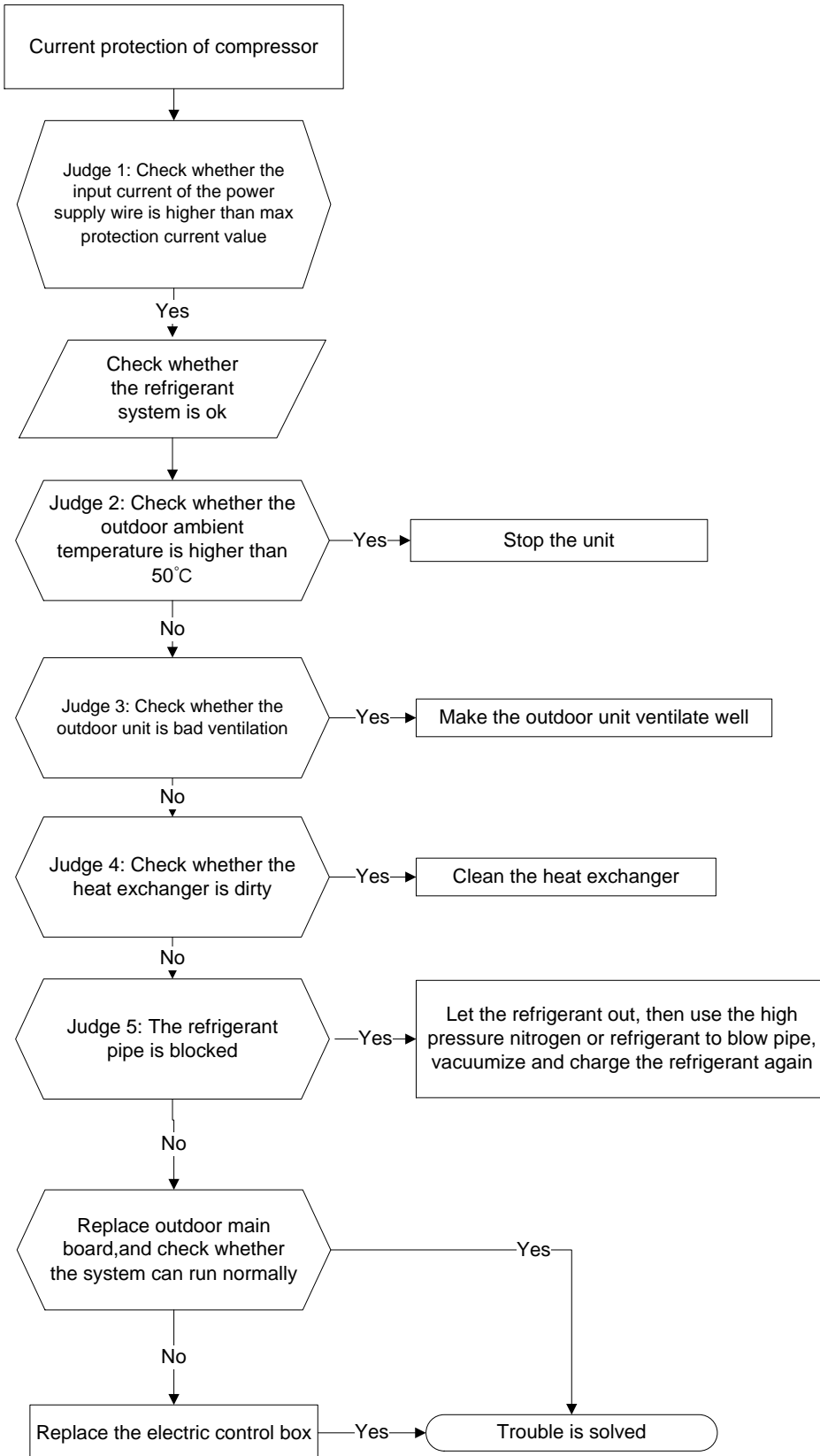


10.3.3.9 Current protection of compressor (ODU P3/PC 08)

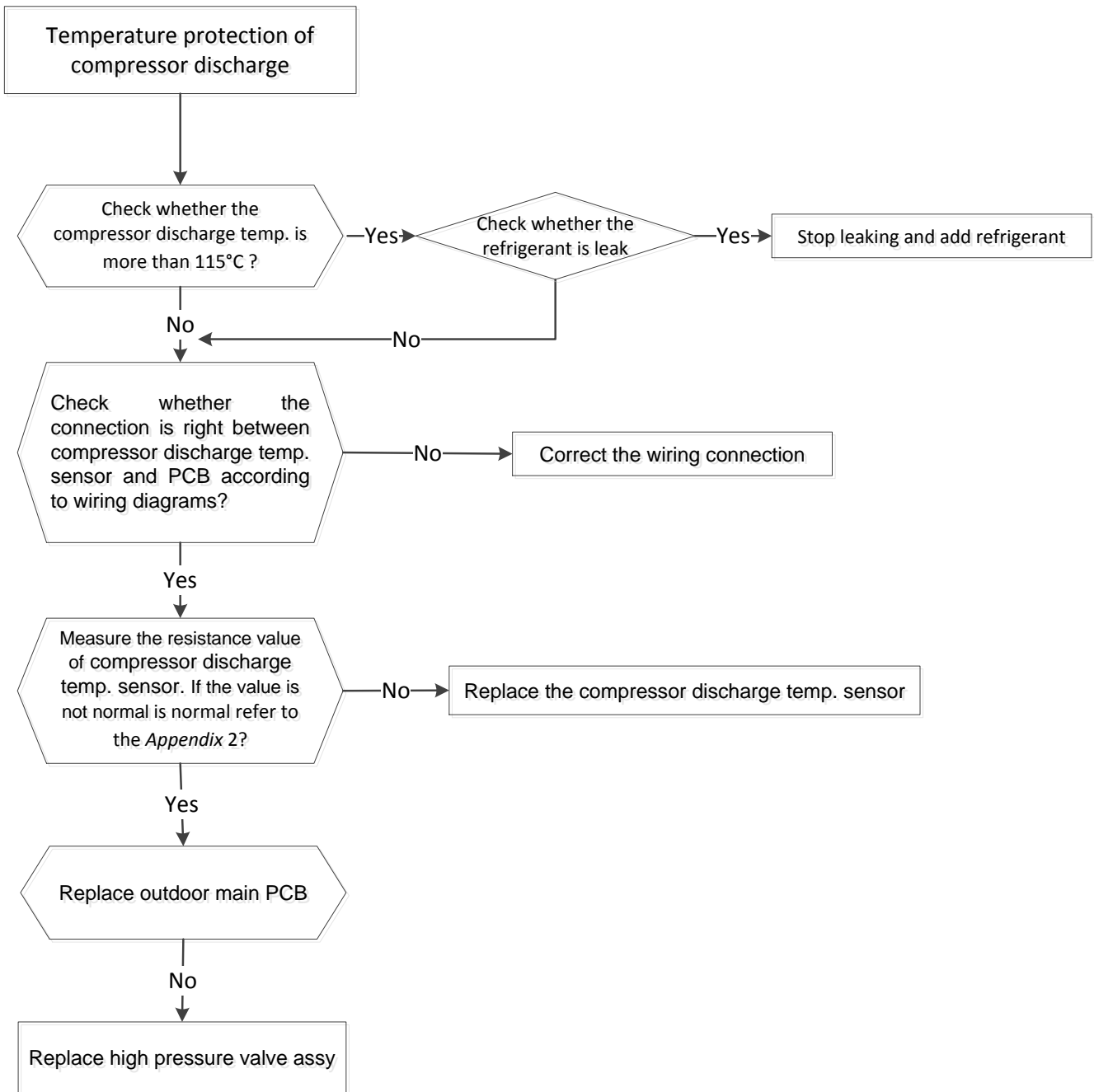
Outdoor unit zero speed protection(ODU PC44)

Compressor speed has been out of control(ODU PC46)

Compressor overcurrent failure(ODU PC49)

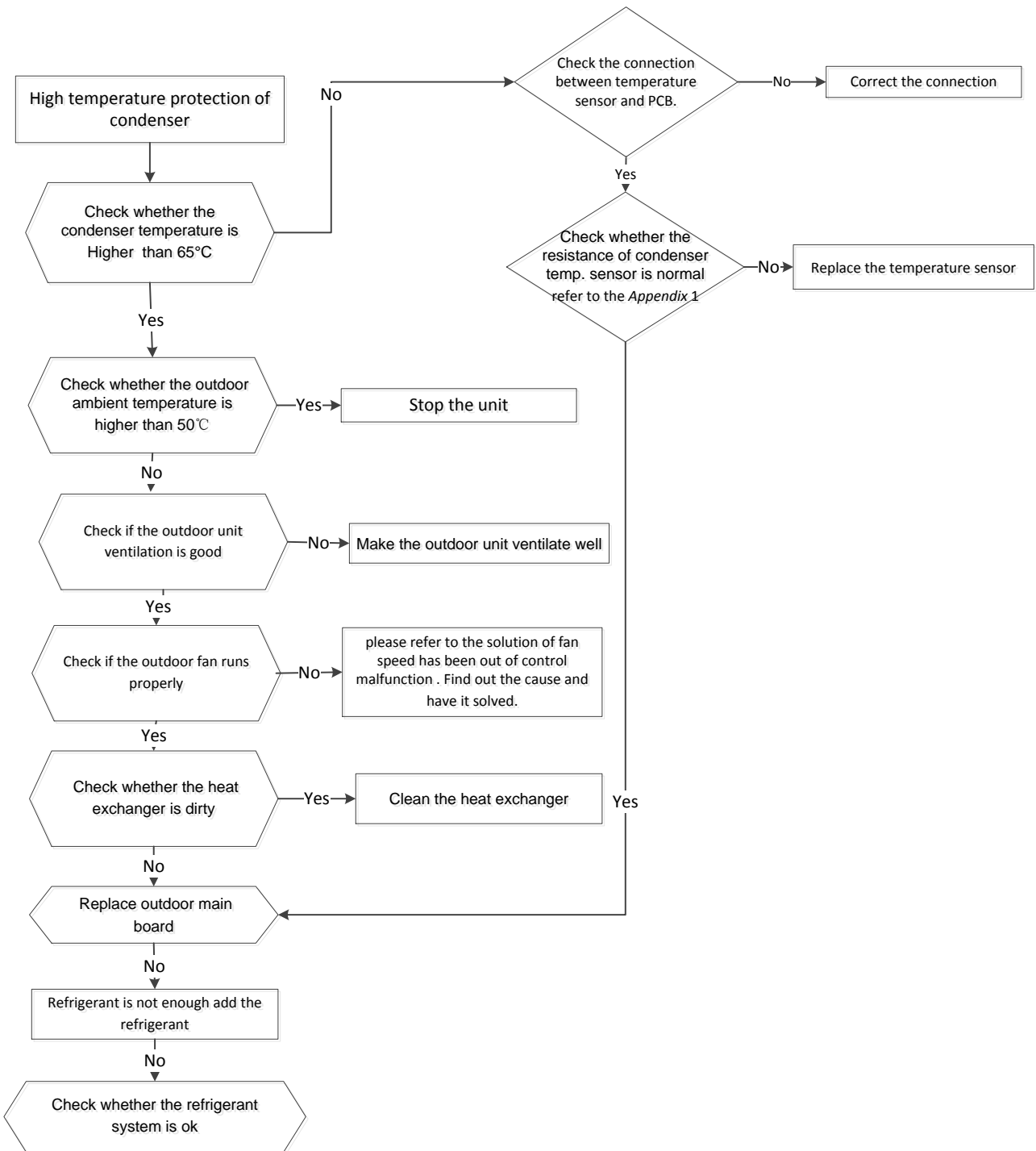


10.3.3.10 Temperature protection of compressor discharge (ODU P4/ PC 06)

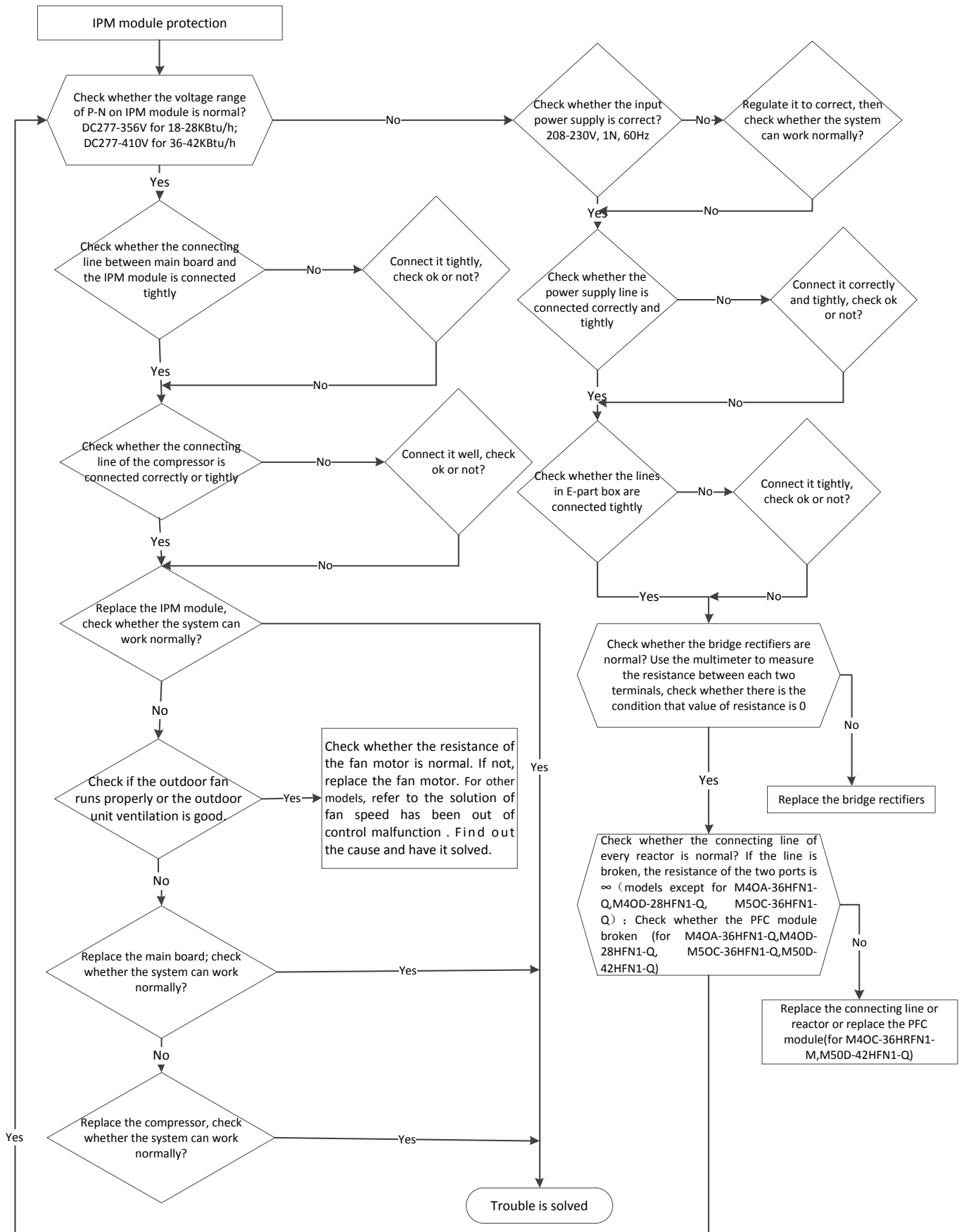


10.3.3.11 High temperature protection of condenser (ODU P5/ PC 0A)

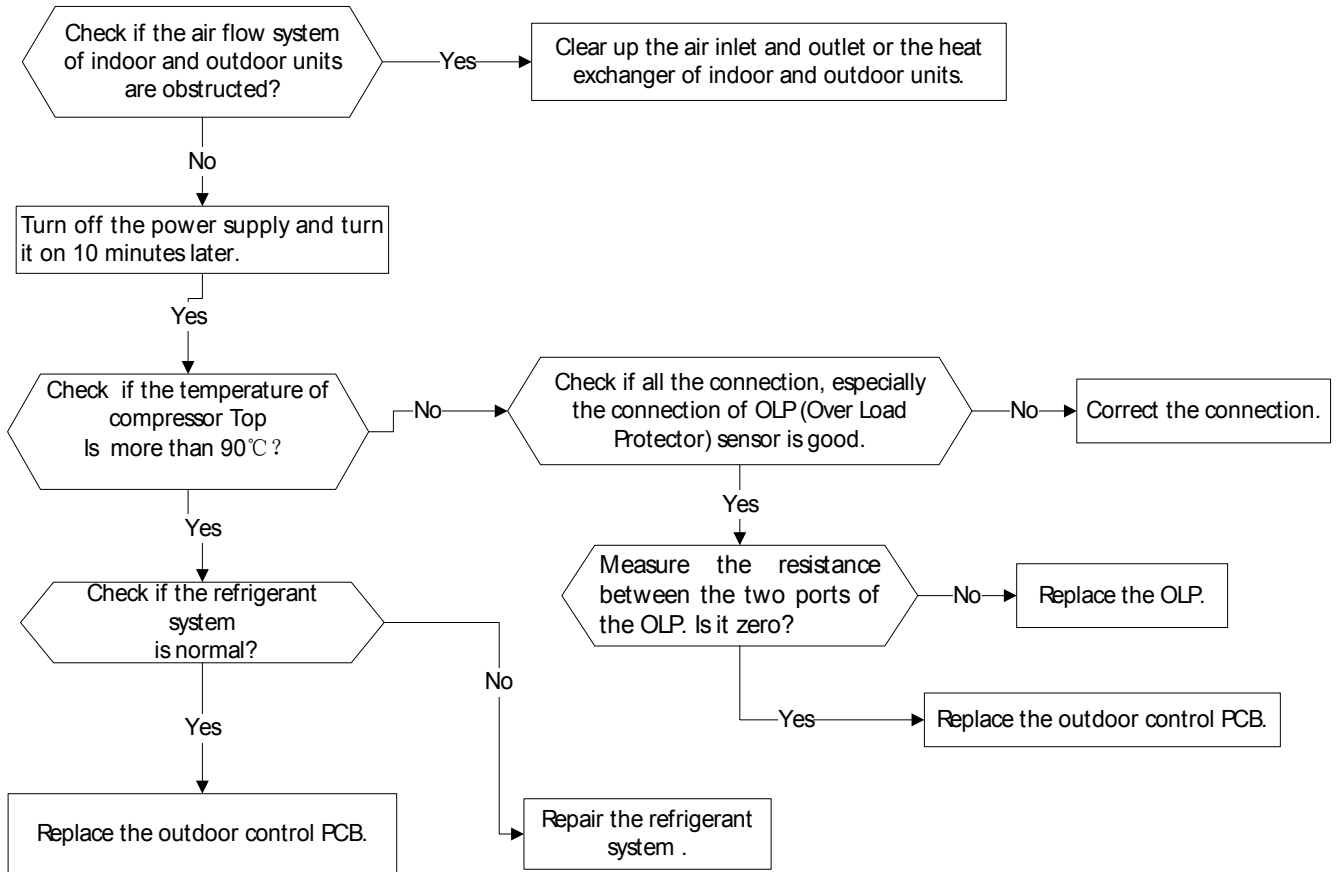
When outdoor pipe temperature is more than 65°C, the unit will stop, and unit runs again when outdoor pipe temperature less than 52°C.



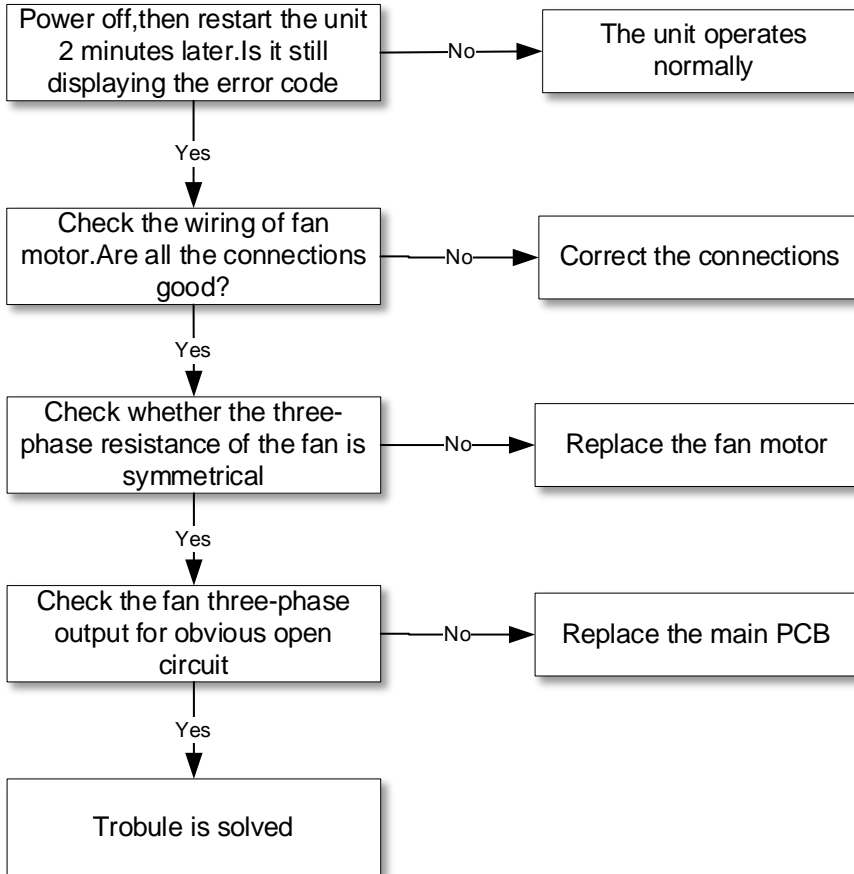
10.3.3.12 IPM module protection (ODU P6/PC 00)



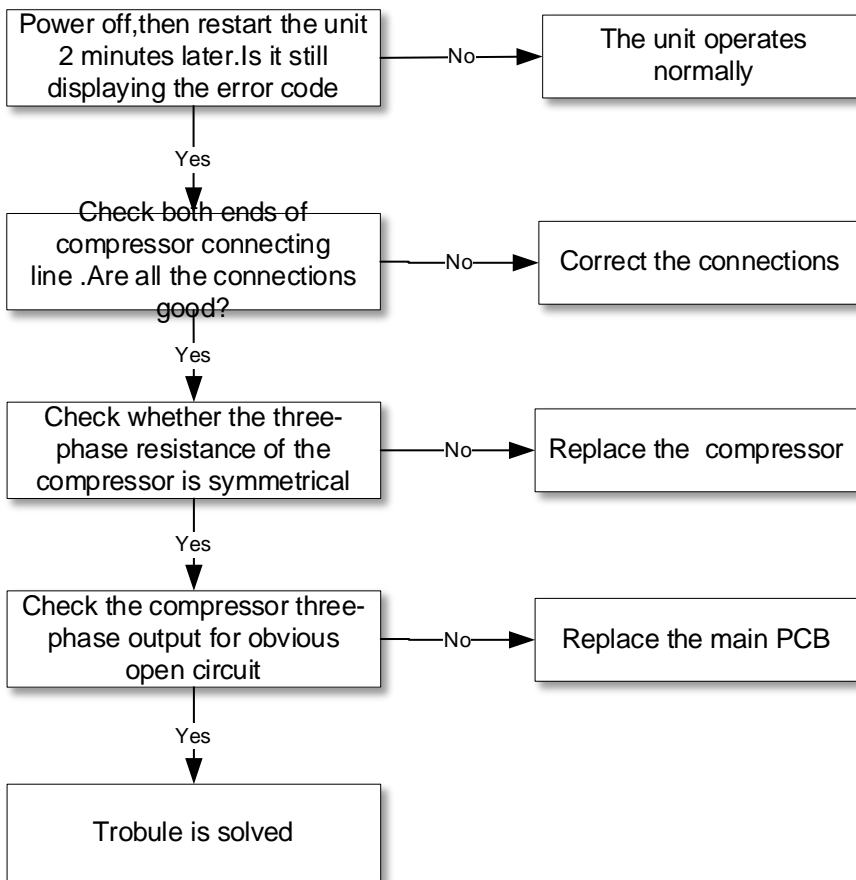
10.3.3.13 Top temperature protection of compressor (ODU P0/ PC 02)



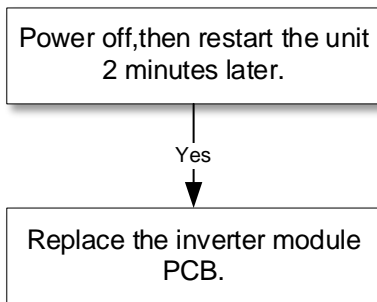
10.3.3.14 Lack phase failure of outdoor DC fan motor(EC72)



10.3.3.15 Outdoor compressor lack phase protection(PC43)



10.3.3.16 Outdoor unit IR chip drive failure(PC45)



10.3.3.17 The cooling operation or heating operation does not operate.

Potential causes

- Faulty 4-way valve

Check of 4-way, please refer to part 4 in 10.4 Trouble Criterion Of Main Parts.

10.3.3.18 When cooling, heat exchanger of non-operating indoor unit frosts.

When heating, non-operating indoor unit get warm.

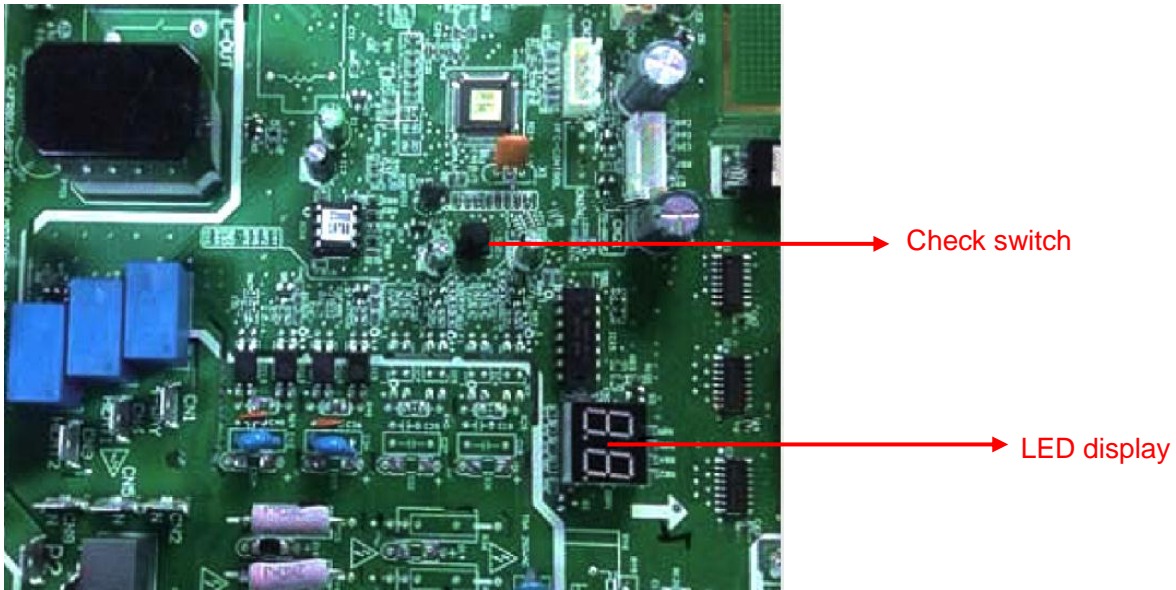
Potential causes

- Faulty EXV
- Wire and piping connected in reverse.

Check of EXV, please refer to part 5 in 10.4 Trouble Criterion Of Main Parts.

10.3.3.19 Automatic correction of wiring/piping error:

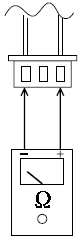
Press the "check switch" on the outdoor unit PCB board 5 seconds until LED display "CE", which mean this function is working, Approximately 5-10 minutes after the switch is pressed, the "CE" disappear the wiring/piping error will be corrected, and wiring/piping is properly connected.



10.4 Main parts check

1. Temperature sensor checking

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



Tester

Temperature Sensors.

Room temperature(T1) sensor,

Indoor coil temperature(T2) sensor,

Outdoor coil temperature(T3) sensor,

Outdoor ambient temperature(T4) sensor,

Compressor discharge temperature(T5) sensor.

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

Appendix 1 Temperature Sensor Resistance Value Table for T1,T2,T3,T4,T2B (°C--K)

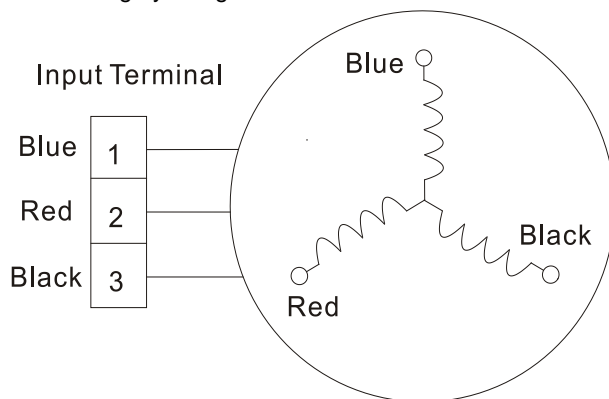
°C	K Ohm	°C	K Ohm	°C	K Ohm	°C	K Ohm
-20	115.266	20	12.6431	60	2.35774	100	0.62973
-19	108.146	21	12.0561	61	2.27249	101	0.61148
-18	101.517	22	11.5000	62	2.19073	102	0.59386
-17	96.3423	23	10.9731	63	2.11241	103	0.57683
-16	89.5865	24	10.4736	64	2.03732	104	0.56038
-15	84.2190	25	10.0000	65	1.96532	105	0.54448
-14	79.3110	26	9.55074	66	1.89627	106	0.52912
-13	74.5360	27	9.12445	67	1.83003	107	0.51426
-12	70.1698	28	8.71983	68	1.76647	108	0.49989
-11	66.0898	29	8.33566	69	1.70547	109	0.48600
-10	62.2756	30	7.97078	70	1.64691	110	0.47256
-9	58.7079	31	7.62411	71	1.59068	111	0.45957
-8	56.3694	32	7.29464	72	1.53668	112	0.44699
-7	52.2438	33	6.98142	73	1.48481	113	0.43482
-6	49.3161	34	6.68355	74	1.43498	114	0.42304
-5	46.5725	35	6.40021	75	1.38703	115	0.41164
-4	44.0000	36	6.13059	76	1.34105	116	0.40060
-3	41.5878	37	5.87359	77	1.29078	117	0.38991
-2	39.8239	38	5.62961	78	1.25423	118	0.37956
-1	37.1988	39	5.39689	79	1.21330	119	0.36954
0	35.2024	40	5.17519	80	1.17393	120	0.35982
1	33.3269	41	4.96392	81	1.13604	121	0.35042
2	31.5635	42	4.76253	82	1.09958	122	0.3413
3	29.9058	43	4.57050	83	1.06448	123	0.33246
4	28.3459	44	4.38736	84	1.03069	124	0.32390
5	26.8778	45	4.21263	85	0.99815	125	0.31559
6	25.4954	46	4.04589	86	0.96681	126	0.30754
7	24.1932	47	3.88673	87	0.93662	127	0.29974
8	22.5662	48	3.73476	88	0.90753	128	0.29216
9	21.8094	49	3.58962	89	0.87950	129	0.28482
10	20.7184	50	3.45097	90	0.85248	130	0.27770
11	19.6891	51	3.31847	91	0.82643	131	0.27078
12	18.7177	52	3.19183	92	0.80132	132	0.26408
13	17.8005	53	3.07075	93	0.77709	133	0.25757
14	16.9341	54	2.95896	94	0.75373	134	0.25125
15	16.1156	55	2.84421	95	0.73119	135	0.24512
16	15.3418	56	2.73823	96	0.70944	136	0.23916
17	14.6181	57	2.63682	97	0.68844	137	0.23338
18	13.9180	58	2.53973	98	0.66818	138	0.22776
19	13.2631	59	2.44677	99	0.64862	139	0.22231

Appendix 2 Temperature Sensor Resistance Value Table for T5 (°C--K)

°C	K Ohm	°C	K Ohm	°C	K Ohm	°C	K Ohm
-20	542.7	20	68.66	60	13.59	100	3.702
-19	511.9	21	65.62	61	13.11	101	3.595
-18	483	22	62.73	62	12.65	102	3.492
-17	455.9	23	59.98	63	12.21	103	3.392
-16	430.5	24	57.37	64	11.79	104	3.296
-15	406.7	25	54.89	65	11.38	105	3.203
-14	384.3	26	52.53	66	10.99	106	3.113
-13	363.3	27	50.28	67	10.61	107	3.025
-12	343.6	28	48.14	68	10.25	108	2.941
-11	325.1	29	46.11	69	9.902	109	2.86
-10	307.7	30	44.17	70	9.569	110	2.781
-9	291.3	31	42.33	71	9.248	111	2.704
-8	275.9	32	40.57	72	8.94	112	2.63
-7	261.4	33	38.89	73	8.643	113	2.559
-6	247.8	34	37.3	74	8.358	114	2.489
-5	234.9	35	35.78	75	8.084	115	2.422
-4	222.8	36	34.32	76	7.82	116	2.357
-3	211.4	37	32.94	77	7.566	117	2.294
-2	200.7	38	31.62	78	7.321	118	2.233
-1	190.5	39	30.36	79	7.086	119	2.174
0	180.9	40	29.15	80	6.859	120	2.117
1	171.9	41	28	81	6.641	121	2.061
2	163.3	42	26.9	82	6.43	122	2.007
3	155.2	43	25.86	83	6.228	123	1.955
4	147.6	44	24.85	84	6.033	124	1.905
5	140.4	45	23.89	85	5.844	125	1.856
6	133.5	46	22.89	86	5.663	126	1.808
7	127.1	47	22.1	87	5.488	127	1.762
8	121	48	21.26	88	5.32	128	1.717
9	115.2	49	20.46	89	5.157	129	1.674
10	109.8	50	19.69	90	5	130	1.632
11	104.6	51	18.96	91	4.849		
12	99.69	52	18.26	92	4.703		
13	95.05	53	17.58	93	4.562		
14	90.66	54	16.94	94	4.426		
15	86.49	55	16.32	95	4.294	B(25/50)=3950K	
16	82.54	56	15.73	96	4.167		
17	78.79	57	15.16	97	4.045	R(90°C)=5KΩ±3%	
18	75.24	58	14.62	98	3.927		
19	71.86	59	14.09	99	3.812		

2.Compressor checking

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



Position	Resistance Value		
		KSM135D23UFZ	KTF235D22UMT
Blue - Red	1.72Ω(20℃)	0.75Ω(20℃)	0.65Ω(20℃)



3. IPM continuity check

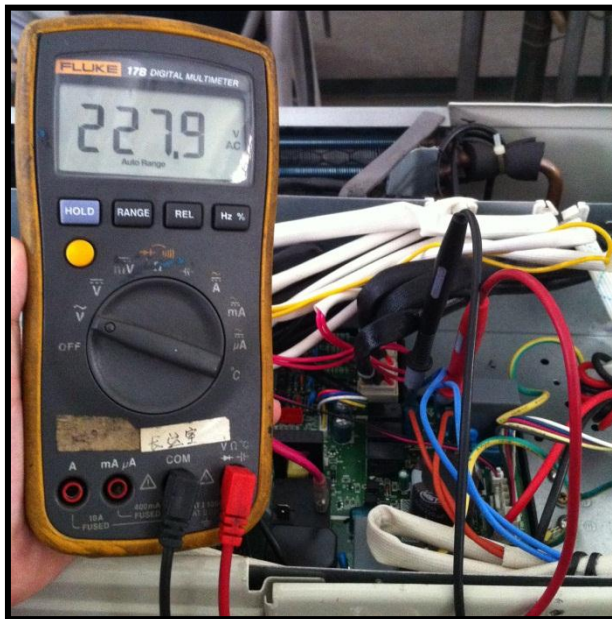
Turn off the power, let the large capacity electrolytic capacitors discharge completely, and dismount the IPM. Use a digital tester to measure the resistance between P and UVWN; UVW and N.

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

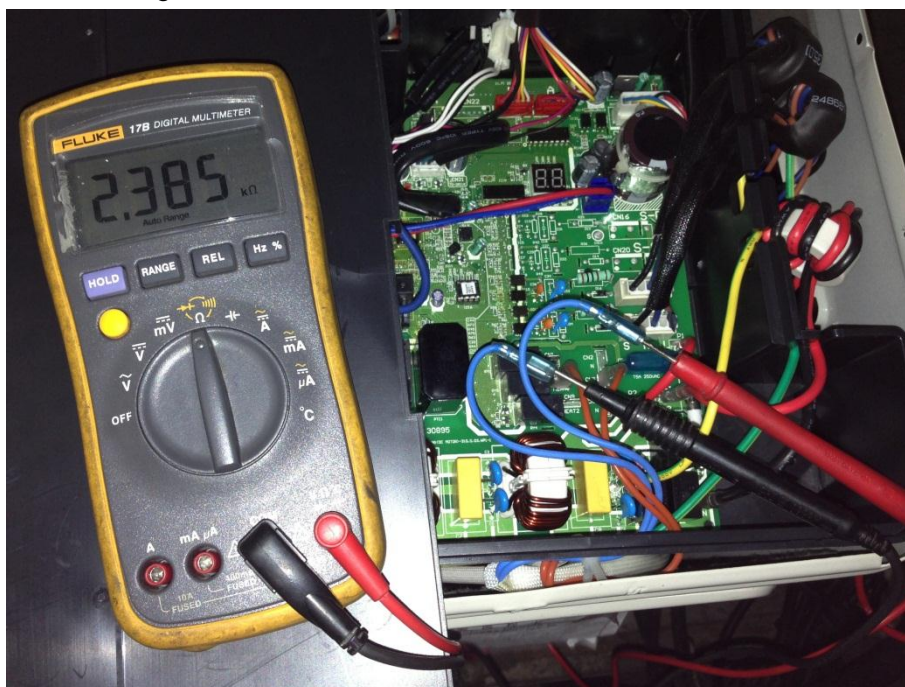
4.4-way valve

1. Power on, use a digital tester to measure the voltage, when the unit operates in cooling, it is 0V. When the unit operates in heating, it is about 230VAC.

If the value of the voltage is not in the range, the PCB must have problems and need to be replaced.

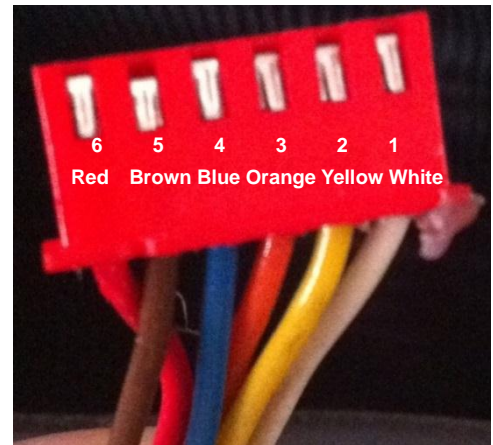
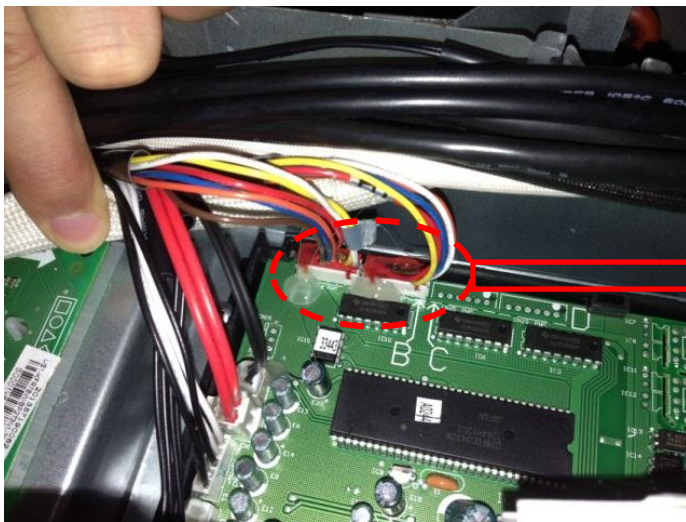
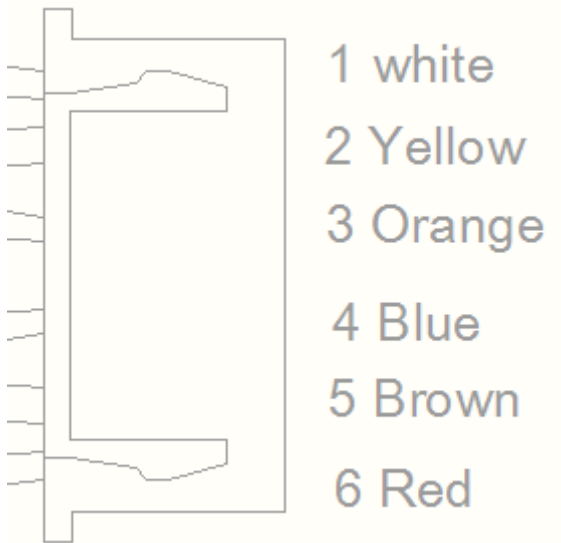


2 Turn off the power, use a digital tester to measure the resistance. The value should be 1.8~2.5 K Ω .



5.EXV check

Disconnect the connectors.



Resistance to EXV coil

Color of lead wire	Normal Value
Red- Blue	About 50Ω
Red - Yellow	
Brown-Orange	