



SERVICE MANUAL

Room Air Conditioner

Multi Split type Outdoor unit

/R410A DC Inverter/

FS2MI-147HFD

FS2MI-187HFD

FS3MI-217HFD

FS3MI-277HFD

FS4MI-277HFD

FS4MI-367HFD

FS5MI-367HFD

NOTE:

Before servicing the unit, please read this at first.

Always contact with your service center if meet problem.

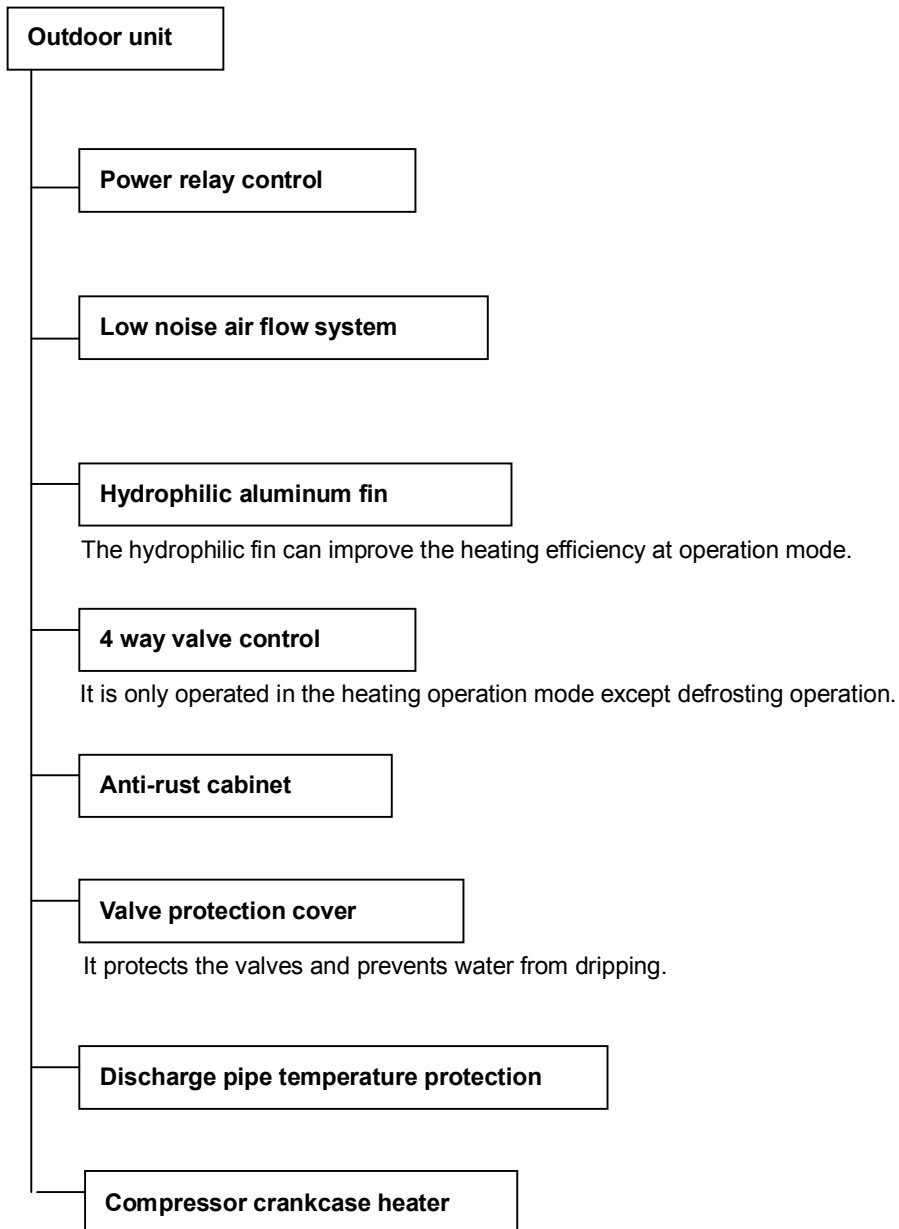
CONTENTS

1. General information of Outdoor Units.....	3
2. Features	4
3. Dimensions	5
4. Wiring Diagram	6
5. Refrigeration Cycle Diagram.....	9
6. Indoor units combination	11
7. Electronic control function	13
8. Troubleshooting	22

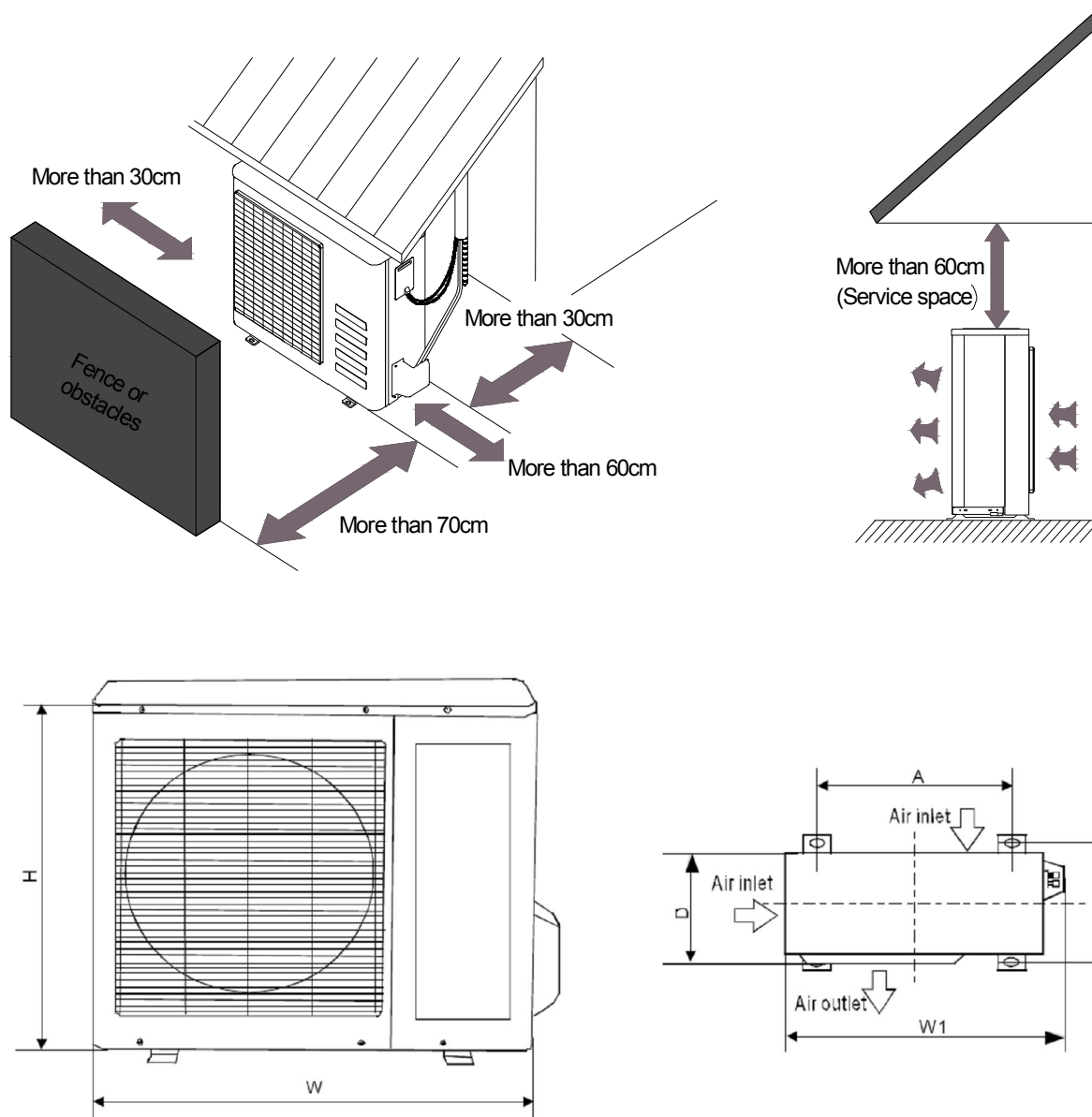
1. General information of Outdoor Units

Model name	Dimension (mm)	Net/Gross weight (kg)	Compressor
FS2MI-147HFD	760*590*285	39/41	DA108X1C-20FZ3
FS2MI-187HFD	845*700*320	51/55	DA130S1C-20FZ
FS3MI-217HFD	845*700*320	59/64	DA130S1C-20FZ
FS3MI-277HFD	845*700*320	57/60.5	DA150S1C-20FZ
FS4MI-277HFD	900*860*315	73/78	TNB220FLHMC-L
FS4MI-367HFD	990*965*345	86/90	TNB306FPGM
FS5MI-367HFD	990*965*345	86.5/91	TNB306FPGM

2. Features



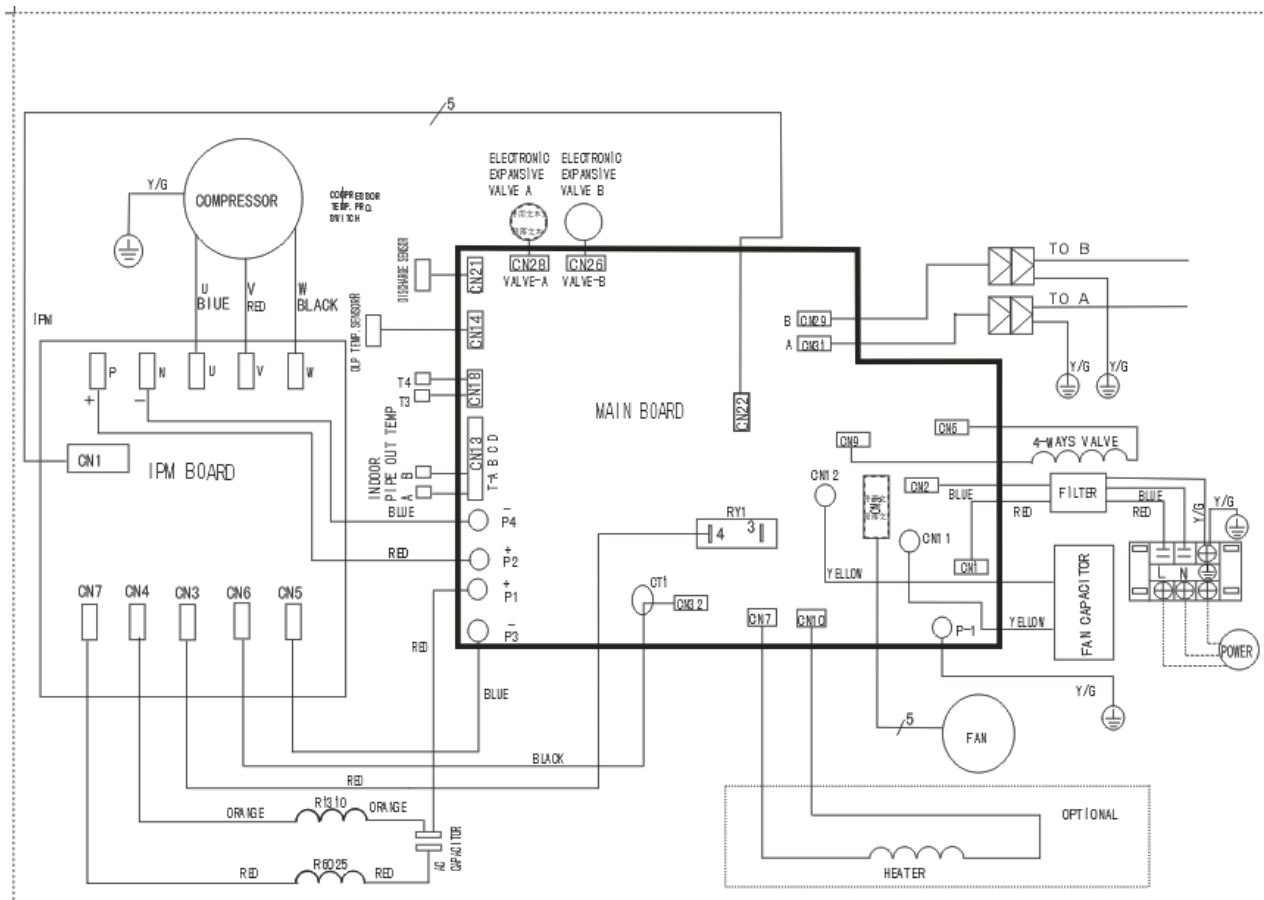
3. Dimensions



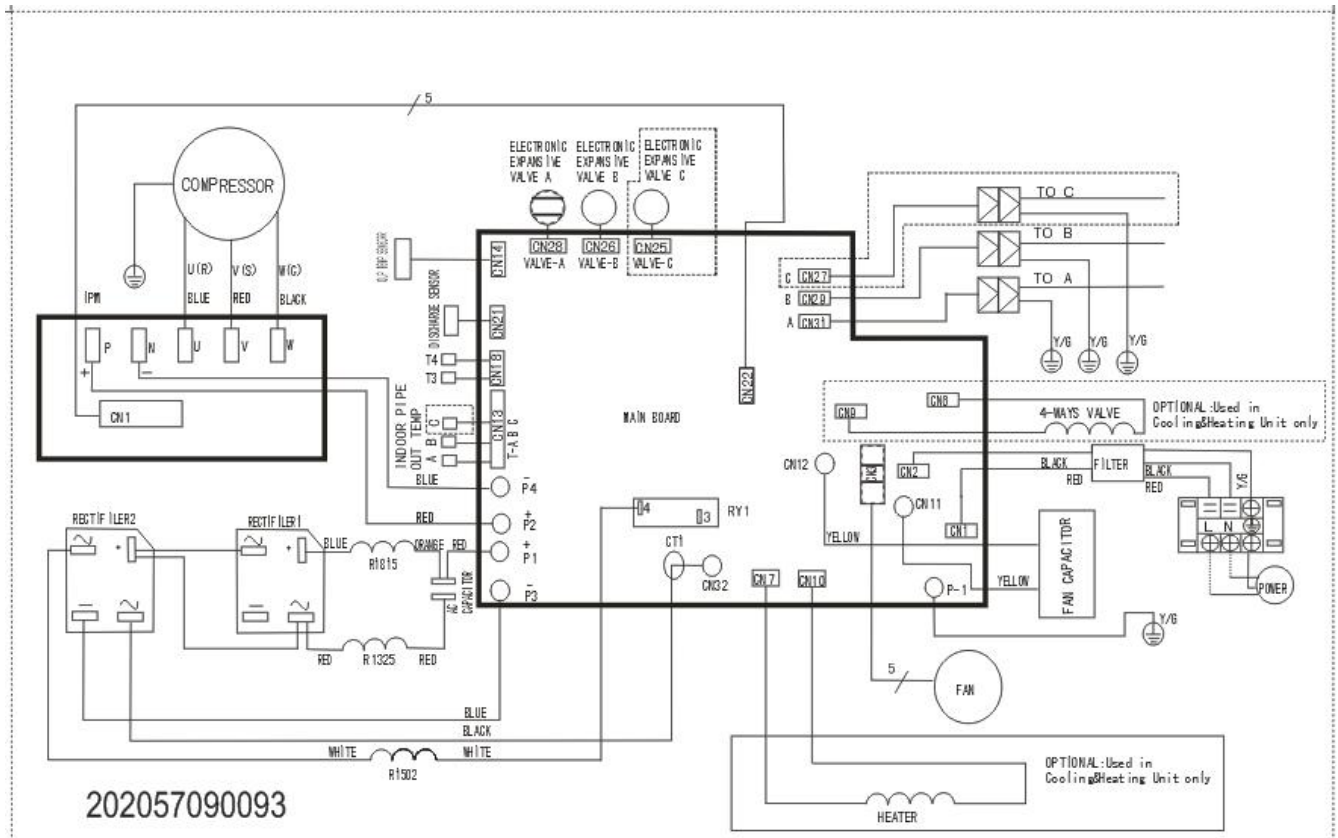
MODEL	W	D	H	W1	A	B
FS2MI-147HFD	760	285	590	823	530	290
FS2MI-187HFD	845	320	700	908	560	335
FS3MI-217HFD	845	320	700	908	560	335
FS3MI-277HFD	845	320	700	908	560	335
FS4MI-277HFD	900	315	860	980	590	333
FS4MI-367HFD	990	345	965	1075	624	366
FS5MI-367HFD	990	345	965	1075	624	366

4. Wiring Diagram

4.1 FS2MI-147HFD

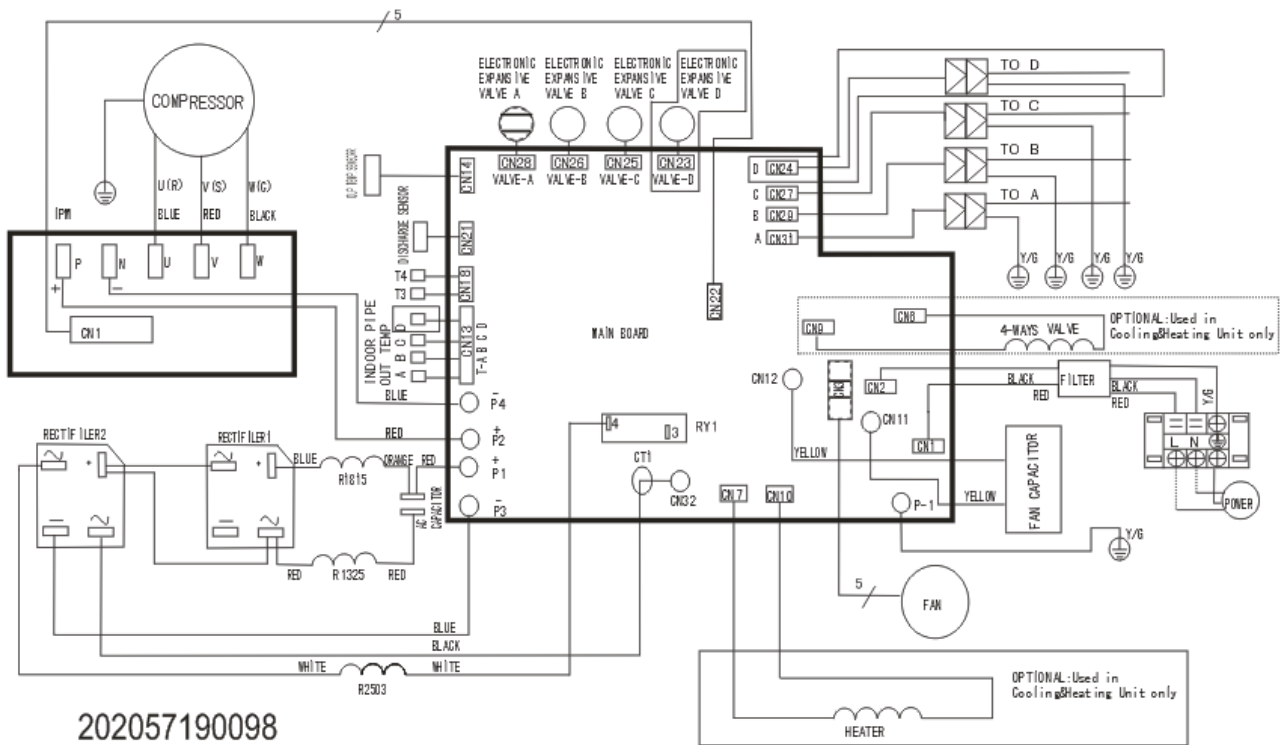


4.2 FS2MI-187HFD 、FS3MI-217HFD

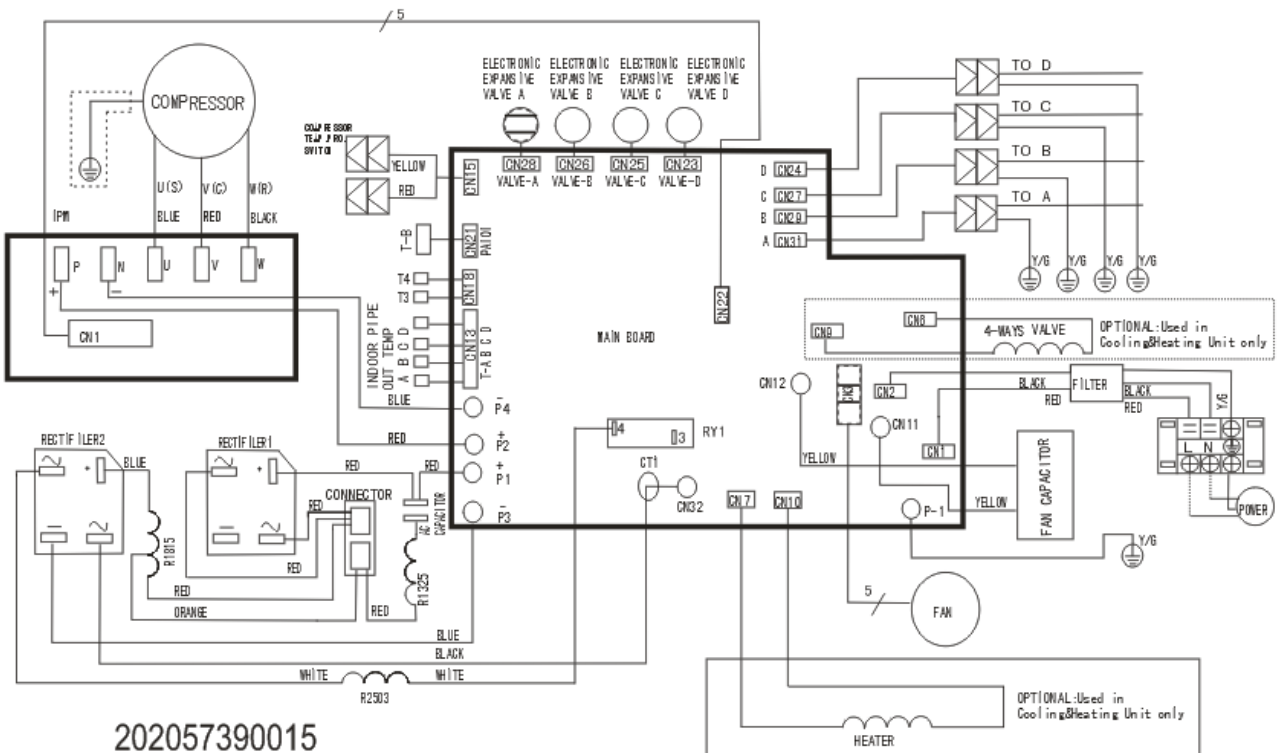


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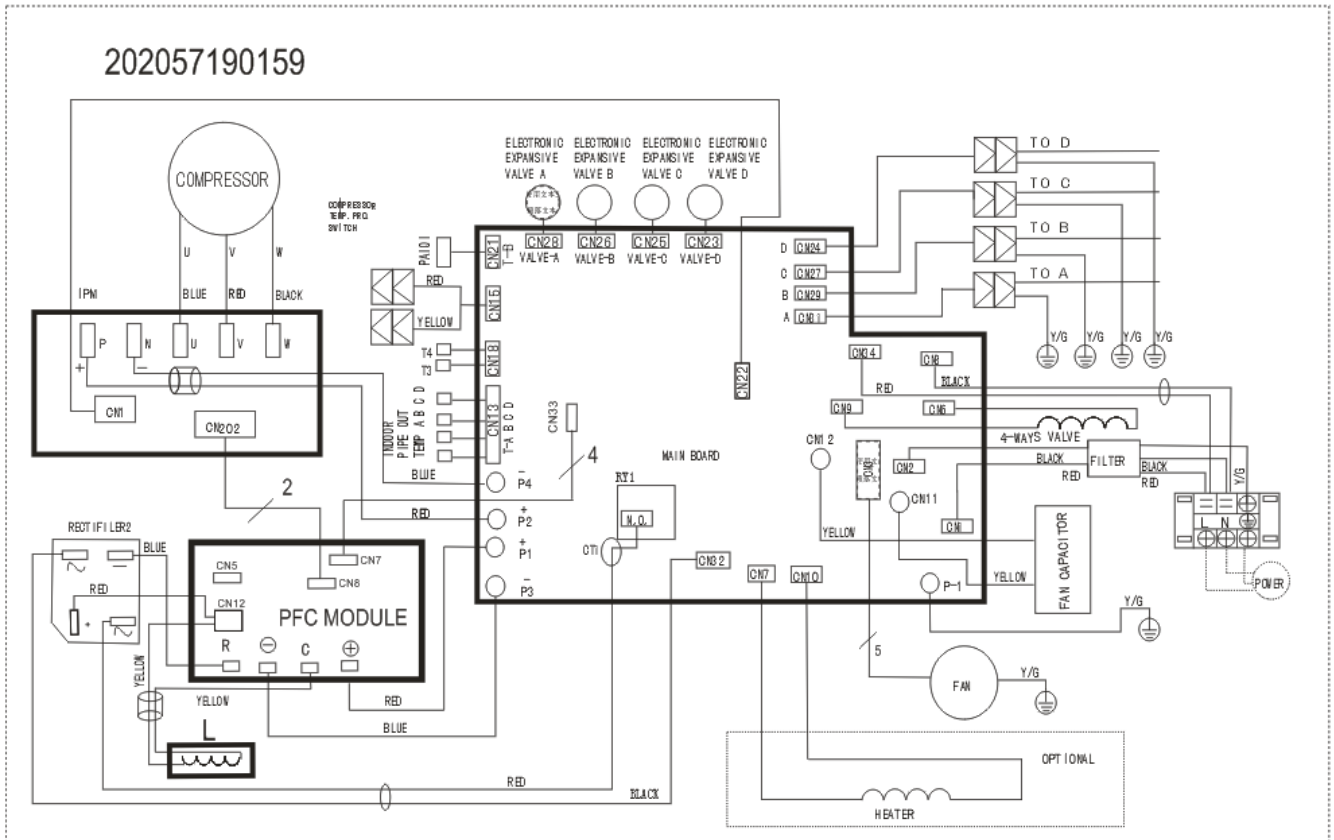
4.3 FS3MI-277HFD



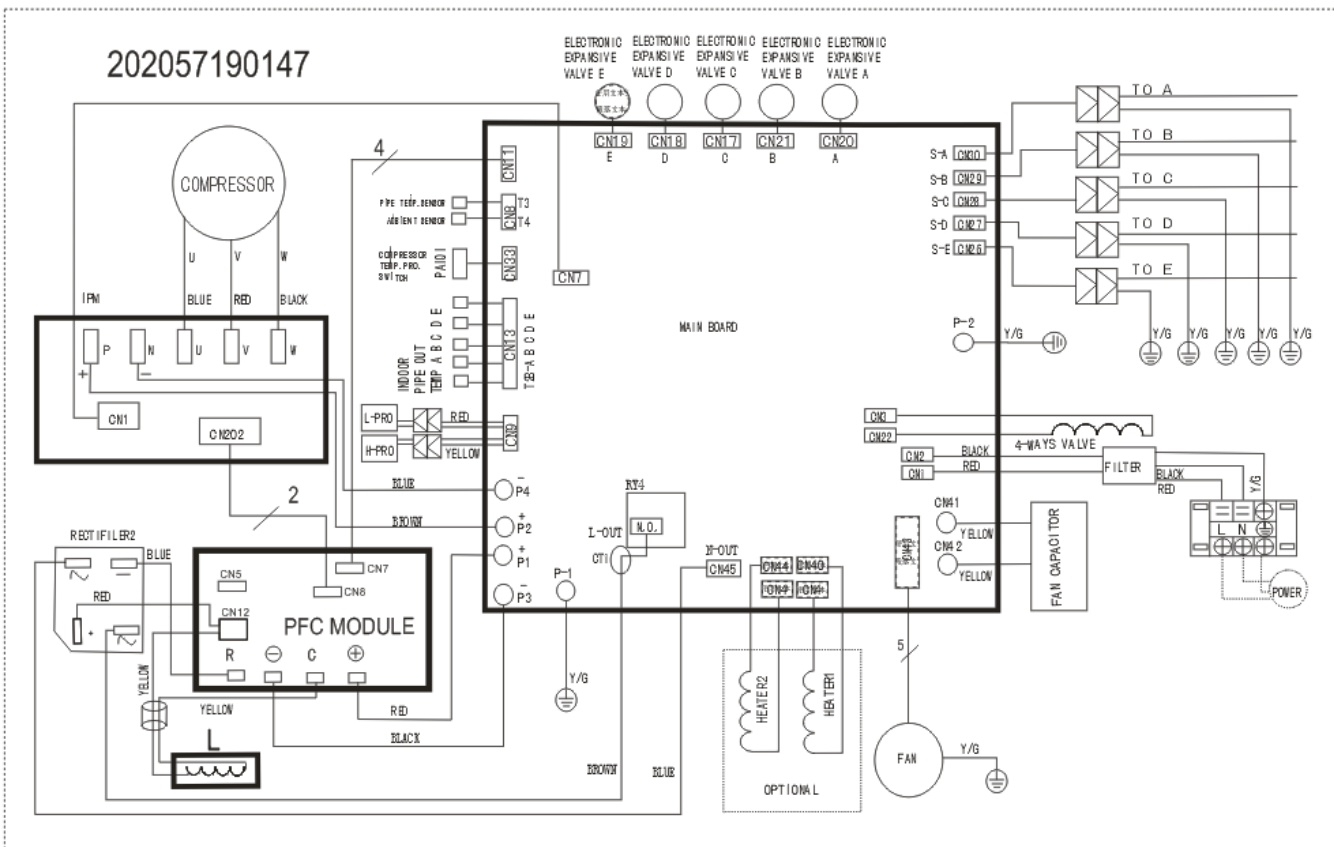
4.4 FS4MI-277HFD



4.5 FS4MI-367HFD

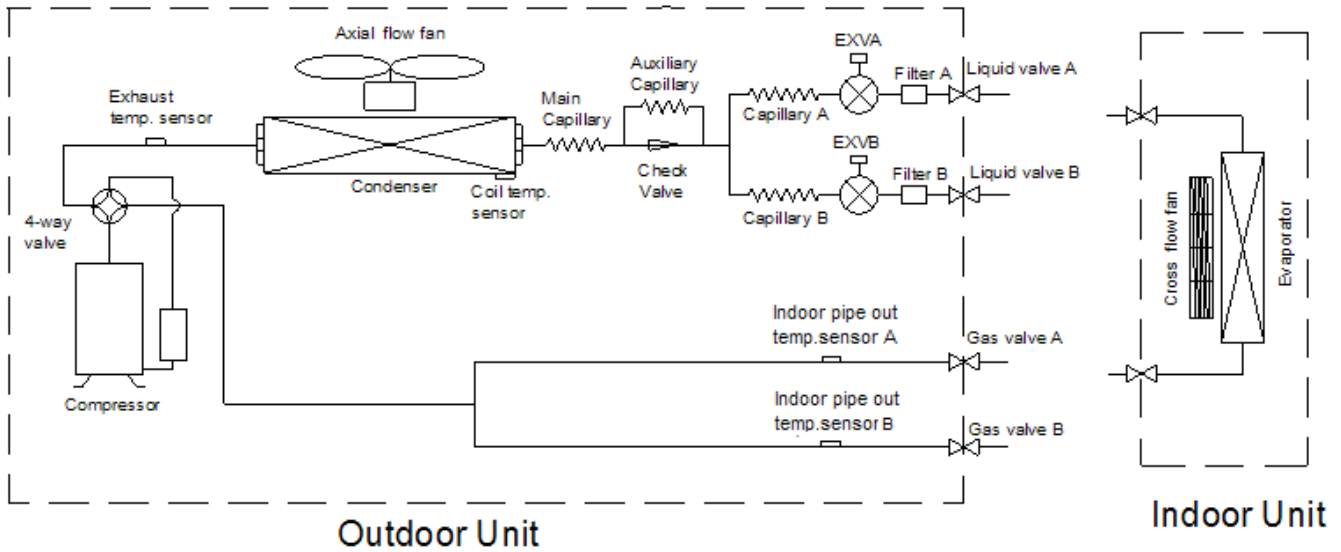


4.6 FS5MI-367HFD

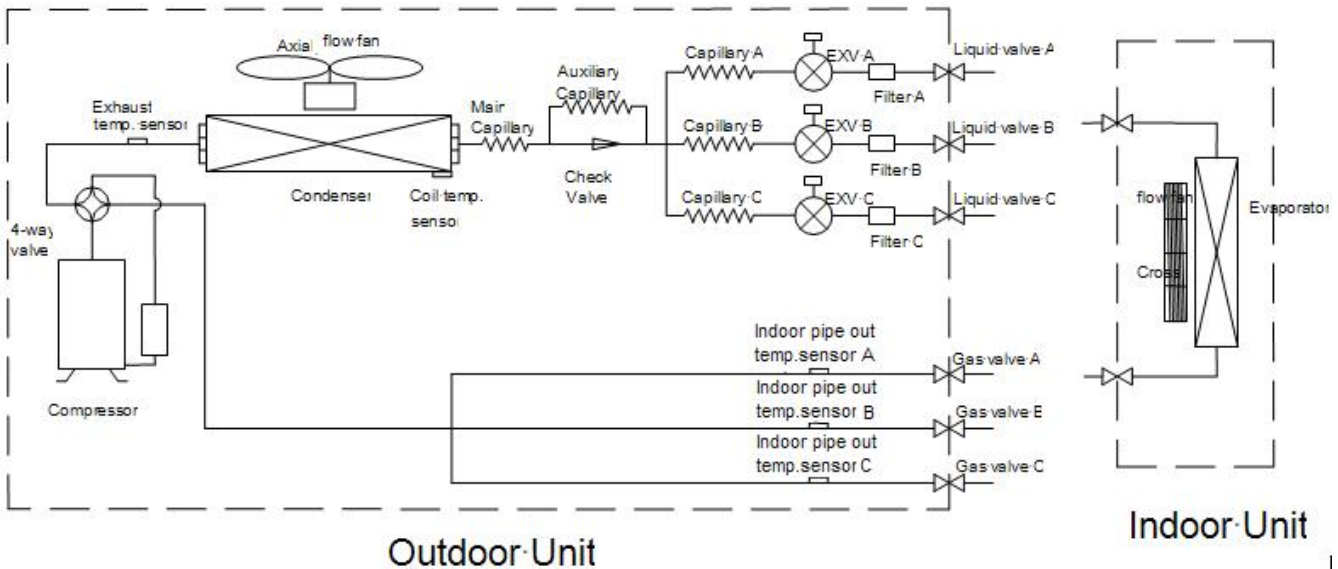


5. Refrigeration Cycle Diagram

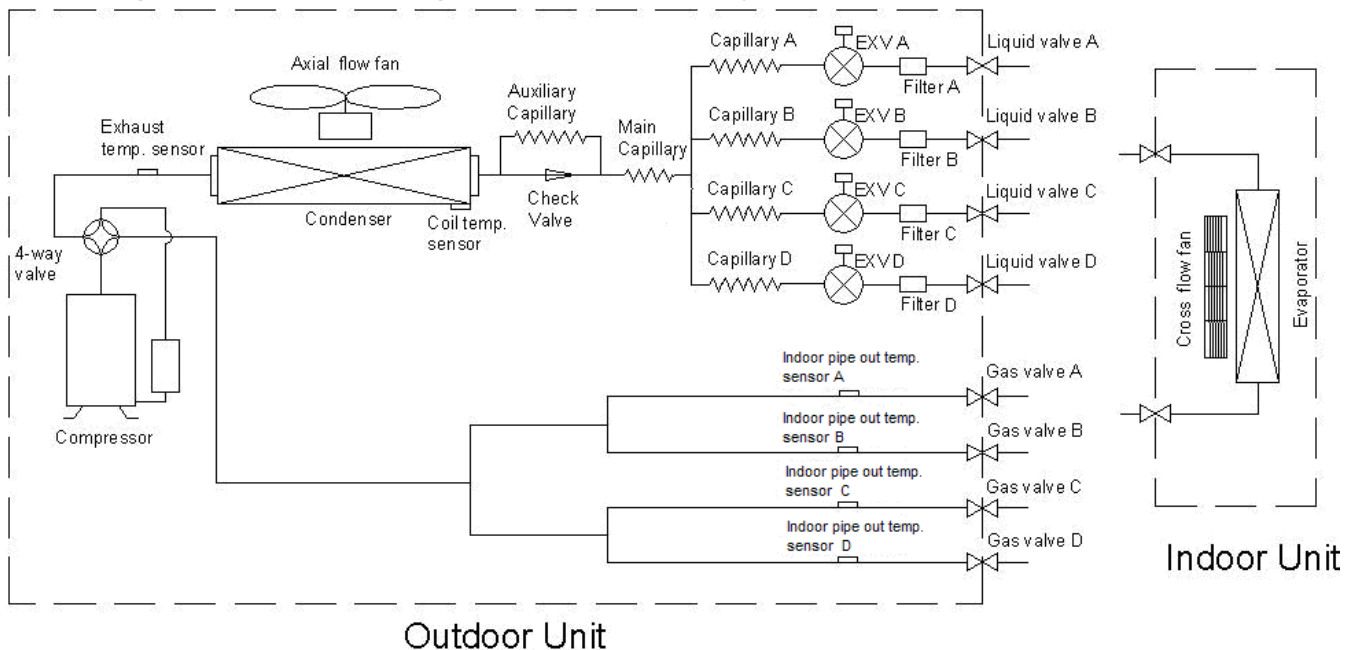
5.1 Refrigeration circuit drawing of inverter binary type



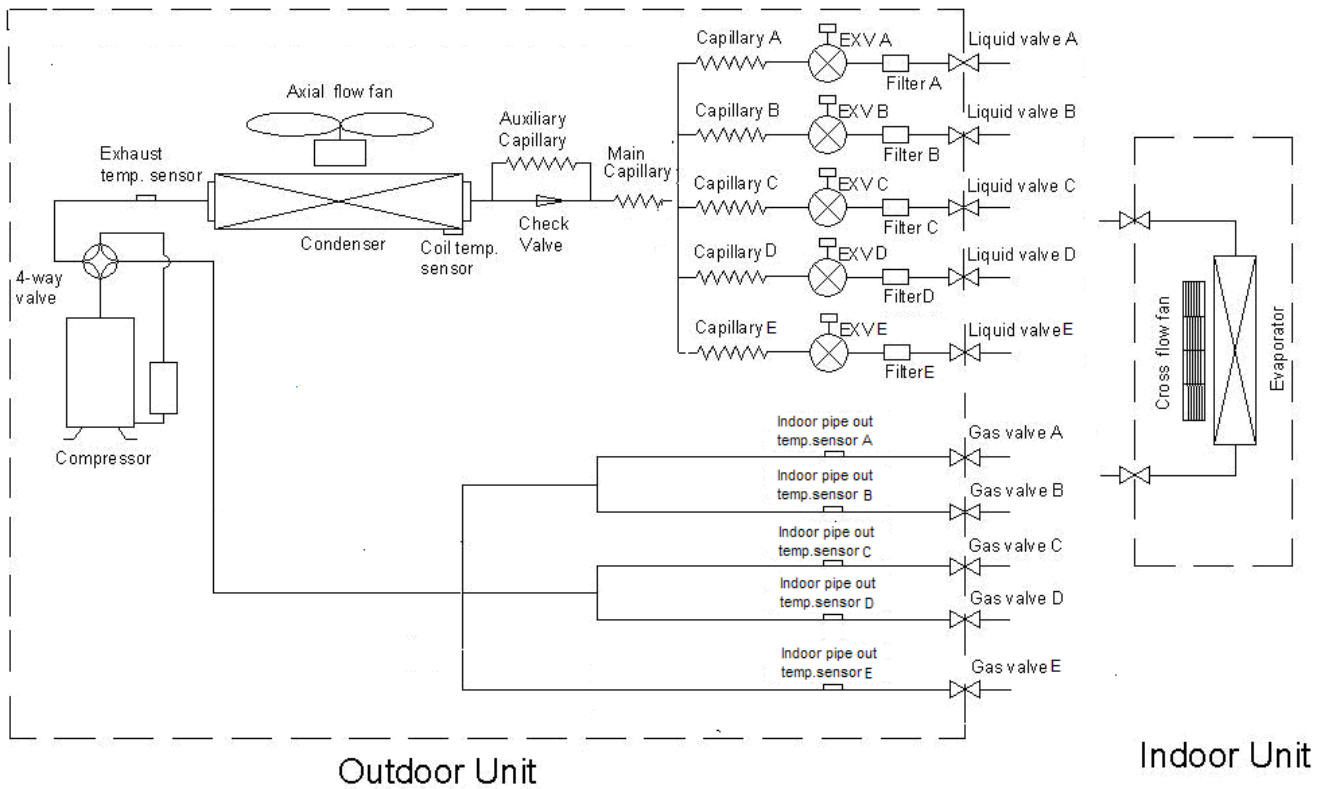
4.2 Refrigeration circuit drawing of inverter trinary type



5.3 Refrigeration circuit drawing of inverter quadplex type



5.4 Refrigeration circuit drawing of inverter quintuple type



6. Indoor units combination

6.1 Indoor unit combination for FS2MI-147HFD

One unit	Two unit	
7	7+7	9+9
9	7+9	9+12
12	7+12	

Note: There should be no more than one cassette or duct or console or ceiling & floor unit.

6.2 Indoor unit combination for FS2MI-187HFD

One unit	Two unit	
7	7+7	9+9
9	7+9	9+12
12	7+12	12+12
18	7+18	

Note: The 18k indoor unit should only be wall mounted unit.

6.3 Indoor unit combination for FS3MI-217HFD

One unit	Two unit		Three unit	
7	7+7	9+9	7+7+7	7+9+12
9	7+9	9+12	7+7+9	9+9+9
12	7+12	9+18	7+7+12	9+9+12
18	7+18	12+12	7+9+9	

Note: There should be no more than one cassette or duct or console or ceiling & floor unit. And the 18k indoor unit should only be wall mounted unit.

6.4 Indoor unit combination for FS3MI-277HFD

One unit	Two unit			Three unit		
7	7+7	9+9	12+12	7+7+7	7+9+9	9+9+9
9	7+9	9+12	12+18	7+7+9	7+9+12	9+9+12
12	7+12	9+18		7+7+12	7+12+12	9+12+12
18	7+18			7+7+18		

Note: The 18k indoor unit should only be wall mounted unit.

6.5 Indoor unit combination for FS4MI-277HFD

One unit	Two unit			Three unit			Four unit		
7	7+7	9+9	12+12	7+7+7	7+9+12	9+9+9	7+7+7+7	7+7+9+9	7+9+9+12
9	7+9	9+12	12+18	7+7+9	7+9+18	9+9+12	7+7+7+9	7+7+9+12	7+9+12+12
12	7+12	9+18	18+18	7+7+12	7+12+12	9+9+18	7+7+7+12	7+7+12+12	9+9+9+9
18	7+18			7+7+18	7+12+18	9+12+12	7+7+7+18	7+9+9+9	9+9+9+12
				7+9+9	12+12+12	9+12+18			

6.6 Indoor unit combination for FS4MI-367HFD

One unit	Two unit			Three unit			Four unit			
7	7+7	9+9	12+12	7+7+7	7+12+12	9+12+18	7+7+7+7	7+7+12+12	7+9+12+18	9+9+12+12
9	7+9	9+12	12+18	7+7+9	7+12+18	9+18+18	7+7+7+9	7+7+12+18	7+9+18+18	9+9+12+18
12	7+12	9+18	18+18	7+7+12	7+18+18	12+12+12	7+7+7+12	7+7+18+18	7+12+12+12	9+12+12+12
18	7+18			7+7+18	9+9+9	12+12+18	7+7+7+18	7+9+9+9	7+12+12+18	9+12+12+18
				7+9+9	9+9+12	12+18+18	7+7+9+9	7+9+9+12	9+9+9+9	12+12+12+12
				7+9+12	9+9+18		7+7+9+12	7+9+9+18	9+9+9+12	12+12+12+18
				7+9+18	9+12+12		7+7+9+18	7+9+12+12	9+9+9+18	

6.7 Indoor unit combination for FS5MI-367HFD

One Unit	Two Unit		Three Unit			
7	7+7	9+12	7+7+7	7+9+18	9+9+18	12+18+18
9	7+9	9+18	7+7+9	7+12+12	9+12+12	18+18+18
12	7+12	12+12	7+7+12	7+12+18	9+12+18	
18	7+18	12+18	7+7+18	7+18+18	9+18+18	
	9+9	18+18	7+9+9	9+9+9	12+12+12	
			7+9+12	9+9+12	12+12+18	
Four Unit						
7+7+7+7	7+7+9+18	7+9+9+18	7+12+18+18	9+9+18+18		
7+7+7+9	7+7+12+12	7+9+12+12	9+9+9+9	9+12+12+12		
7+7+7+12	7+7+12+18	7+9+12+18	9+9+9+12	9+12+12+18		
7+7+7+18	7+7+18+18	7+9+18+18	9+9+9+18	12+12+12+12		
7+7+9+9	7+9+9+9	7+12+12+12	9+9+12+12	12+12+12+18		
7+7+9+12	7+9+9+12	7+12+12+18	9+9+12+18			
Five Unit						
7+7+7+7+7	7+7+7+9+18	7+7+9+12+18	7+9+9+12+18	9+9+9+12+12		
7+7+7+7+9	7+7+7+12+18	7+7+12+12+18	7+9+12+12+12	9+9+9+12+18		
7+7+7+7+12	7+7+7+18+18	7+9+9+9+9	7+9+12+12+18	9+9+12+12+12		
7+7+7+7+18	7+7+9+9+9	7+9+9+9+12	9+9+9+9+9	9+12+12+12+12		
7+7+7+9+9	7+7+9+9+12	7+9+9+9+18	9+9+9+9+12	12+12+12+12+12		
7+7+7+9+12	7+7+9+9+18	7+9+9+12+12	9+9+9+9+18			

7. Electronic control function

7.1 Abbreviation

T1: Indoor ambient temperature

T2: Coil temperature of indoor heat exchanger middle.

T2B: Coil temperature of indoor heat exchanger outlet.

T3: Coil temperature of outdoor heat exchanger

T4: Outdoor ambient temperature

T5: Compressor discharge temperature

Ts: Setting temp.

7.2 Electric Control working environment.

7.2.1 Input voltage: 190~264V.

7.2.2 Input power frequency: 50Hz.

7.2.3 Indoor fan normal working amp. is less than 1A.

7.2.4 Outdoor fan. Normal working amp. is less than 1.5A.

7.2.5 Four-way valve normal working amp. is less than 1A.

7.2.6 Swing motor: DC12V.

7.3 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 displays the running frequency,
- In defrosting mode, The LED displays “dF” or alternatively displays between running frequency and “dF”(each displays 2s)
- In compressor pre-heating, The LED displays “- -”
- In protection or malfunction, the LED displays error code or protection code.

7.4 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.

For units except FS5MI-367HFD model:

	Display	Remark
1	Indoor unit capacity demand code	
2	Outdoor unit running mode code	Off:0, Cooling:1, Heating:2
3	Amendatory capacity demand code	
4	Outdoor unit fan motor state	Off:0, Low speed:1, High speed:2
5	Evaporator outlet temp. for 1# indoor unit	Actual data
6	Evaporator outlet temp. for 2# indoor unit	Actual data
7	Evaporator outlet temp. for 3# indoor unit	Actual data
8	Evaporator outlet temp. for 4# indoor unit	Actual data
9	Condenser pipe temp.	Actual data
10	Ambient temp.	Actual data
11	Compressor discharge temp.	Actual data

12	Inverter current	Actual data
13	EXV open angle for 1# indoor unit	Actual data/8
14	EXV open angle for 2# indoor unit	Actual data/8
15	EXV open angle for 3# indoor unit	Actual data/8
16	EXV open angle for 4# indoor unit	Actual data/8
17	Power supply of outdoor unit	AD data
18	Indoor unit number	The indoor unit can communicate with outdoor unit well.
19	The last error or protection code	00 means no malfunction
20	frequency value	Actual data
21	Ambient temp. of 1# indoor unit	Actual data
22	Condenser pipe temp. of 1# indoor unit	Actual data
23	Ambient temp. of 2# indoor unit	Actual data
24	Condenser pipe temp. of 2# indoor unit	Actual data
25	Ambient temp. of 3# indoor unit	Actual data
26	Condenser pipe temp. of 3# indoor unit	Actual data
27	Ambient temp. of 4# indoor unit	Actual data
28	Condenser pipe temp. of 4# indoor unit	Actual data
29	---	Check point over

For FS5MI-367HFD model:

	Display	Remark
1	No. of indoor units in good connection	Actual data
2	Outdoor unit running mode code	Off:0, 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: “—”
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	
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	Total indoor units amendatory capacity demand code	
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)	
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)	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: “ — — ”					
26	E indoor unit room temp.(T ₁ E)						
27	A indoor unit evaporator outlet temp.(T _{2B} A)						
28	B indoor unit evaporator outlet temp.(T _{2B} B)						
29	C indoor unit evaporator outlet temp.(T _{2B} C)						
30	D indoor unit evaporator outlet temp.(T _{2B} D)						
31	E indoor unit evaporator outlet temp.(T _{2B} E)						
32	Condenser pipe temp.(T3)	The display value is between 30~120 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.)					
33	Outdoor ambient temp.(T4)						
34	Compressor discharge temp.(Tp)						
35	AD value of current				The display value is hex number.		
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	0	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	0				
		Bit5	Frequency limit caused by T4.				
		Bit4	Frequency limit caused by T2.				
		Bit3	Frequency limit caused by T3.				
		Bit2	Frequency limit caused by Tp.				
		Bit1	Frequency limit caused by current				
		Bit0	Frequency limit caused by voltage				
43	Average value of T2	(Sum T2 value of all indoor units)/(indoor units number)					
44	Outdoor unit fan motor state	Off:0, High speed:1, Med speed:2, Low speed:3					
45	The last error or protection code	00 means no malfunction					

7.4.1 Frequency of compressor:

Display	Frequency of compressor (Hz)
30	30
--	Stand by
60	60

7.4.2 Running mode:

Display	Corresponding mode
0	Off
1	Cooling mode
2	Heating mode

7.4.3 Capacity demand:

Cooling mode

Capacity	2000-2500	2000-2500	3000-3800	4500-5000	5000-5500	5500-6100	6100-7000	7000-7500	7500-8000	>7500
Corresponding Code	1	2	3	4	5	6	7	8	9	>=10

Heating mode

Capacity	2000-2500	2000-2500	3000-3800	4500-5000	5500-6100	6100-7000	6100-7000	7000-7500	7500-8000	>8000
Corresponding Code	1	2	3	4	5	6	7	8	9-10	>=11

Note:

The capacity is just for reference.

7.4.4 Number of indoor unit

Display	Number of indoor unit
1	1
2	2
3	3

7.4.5 Outdoor ambient temp:

Display	Corresponding temp.	Display	Corresponding temp.	Display	Corresponding temp.
15	-7.5	50	10	80	25
16	-7	51	10.5	81	25.5
17	-6.5	52	11	82	26
18	-6	53	11.5	83	26.5
19	-5.5	53	11.5	84	27
20	-5	54	12	85	27.5
21	-4.5	55	12.5	86	28
22	-4	56	13	87	28.5
23	-3.5	57	13.5	88	29
24	-3	58	14	89	29.5
26	-2	59	14.5	90	30
27	-1.5	60	15	91	30.5
28	-1	61	15.5	92	31
29	-0.5	62	16	93	31.5
30	0	63	16.5	93	31.5
31	0.5	63	16.5	94	32
32	1	64	17	95	32.5
33	1.5	65	17.5	96	33
34	2	65	17.5	97	33.5
35	2.5	66	18	98	34
36	3	67	18.5	99	34.5
37	3.5	68	19	10.	35~40
38	4	69	19.5	11.	40~45
39	4.5	70	20	12.	45~50
40	5	71	20.5	13.	50~55
41	5.5	72	21	14.	55~60
42	6	73	21.5	15.	60~65
43	6.5	74	22	16.	65~70
44	7	75	22.5		
45	7.5	75	22.5		
46	8	76	23		
47	8.5	77	23.5		
48	9	78	24		
49	9.5	79	24.5		

7.4.6 Opening degree of electronic expansion valve:

Opening degree equals the display data times 8

7.5 Protection

7.5.1 Three minutes delay at restart for compressor.

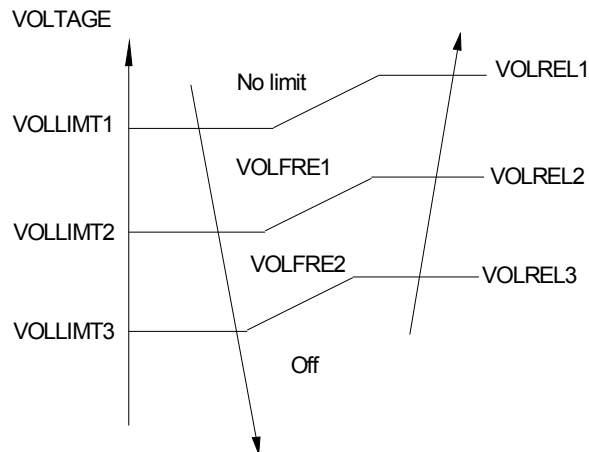
7.5.2 Temperature protection of compressor discharge.

When the compressor discharge temp. is getting higher, the running frequency will be limited as below rules:

----If $102^{\circ}\text{C} < T_5 < 115^{\circ}\text{C}$, decrease the frequency to the lower level every 2 minutes till to F1.

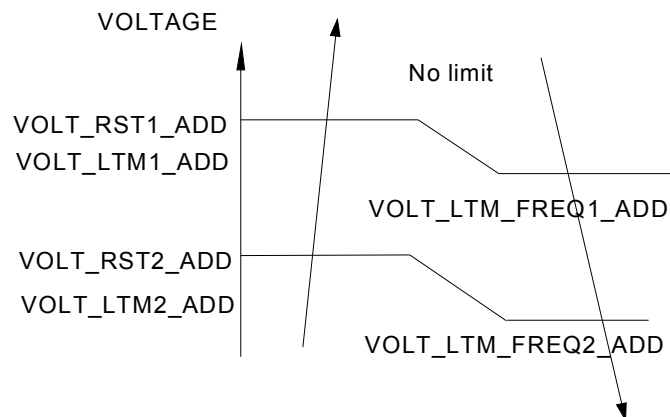
---If $T_5 > 115^{\circ}\text{C}$ for 10 seconds, the compressor will stop and restart till $T_5 < 90^{\circ}\text{C}$.

7.5.3 Under voltage protection



Mode	VOLLIMIT1(V)	VOLLIMIT2(V)	VOLLIMIT3(V)	VOLREL1(V)	VOLREL2(V)	VOLREL3(V)	VOLFRE1(Hz)	VOLFRE2(Hz)
FS2MI-147HFD	220	200	80	250	210	100	62	54
FS2MI-187HFD	230	200	120	260	210	135	62	54
FS3MI-217HFD	245	220	80	265	240	100	78	45
FS3MI-277HFD	245	220	120	265	240	135	78	45
FS4MI-277HFD	221	210	80	260	225	100	62	54
FS4MI-367HFD	200	185	80	210	195	100	54	42

For FS5MI-367HFD



VOLT_RST1_ADD=210V, VOLT_LIM1_ADD=200V, VOLT_RST2_ADD=195V, VOLT_LIM2_ADD=185V.
VOLT_LIM_FREQ1_ADD=54Hz, VOLT_LIM_FREQ2_ADD=42Hz.

7.5.4 Compressor current limit protection

If the compressor current exceeds the current limit value for 10 seconds, the compressor frequency will be limited as below table.

For models except FS5MI-367HFD.

Cooling mode:

Current frequency(Hz)	Current limit value(A)	Frequency limit
COOL_F10	ICOOLLMT6	Decrease the frequency to COOL_F4 and run at COOL_F4 for 3 minutes.
COOL_F9	ICOOLLMT5	
COOL_F8	ICOOLLMT4	After that, the frequency will be adjusted according to the capacity demand and rise to the upper level every 3 minutes (When the frequency>COOL_F4 via capacity demand).
COOL_F7	ICOOLLMT3	
COOL_F6	ICOOLLMT2	
COOL_F5	ICOOLLMT1	
If the current frequency is lower than COOL_F4, the frequency will not be limited. After 10s of the compressor start, if the current>ICOOL, the AC will display the failure for 30 seconds and stop. The AC will restart 3 minutes later.		

Heating mode:

Current frequency(Hz)	Current limit value(A)	Frequency limit
HEAT_F12	IHEATLMT8	Decrease the frequency to HEAT_F4 and run at HEAT_F4 for 3 minutes. After that, the frequency will be adjusted according to the capacity demand and rise to the upper level every 3 minutes (When the frequency>Heat_F4 via capacity demand).
HEAT_F11	IHEATLMT7	
HEAT_F10	IHEATLMT6	
HEAT_F9	IHEATLMT5	
HEAT_F8	IHEATLMT4	
HEAT_F7	IHEATLMT3	
HEAT_F6	IHEATLMT2	
HEAT_F5	IHEATLMT1	
If the current frequency is lower than HEAT_F4, the frequency will not be limited. After 10s of the compressor start, if the current>IHEAT, the AC will display the failure for 30 seconds and stop. The AC will restart 3 minutes later.		

For FS5MI-367HFD model:

Cooling mode:

Current frequency (Hz)	Current limit value (A)	Frequency limit
COOL_F16	ICOOLLMT12	Decrease the frequency to COOL_F4 and run at COOL_F4 for 3 minutes. After that, the frequency will be adjusted according to the capacity demand and rise to the upper level every 3 minutes (When the frequency>COOL_F4 via capacity demand).
COOL_F15	ICOOLLMT11	
COOL_F14	ICOOLLMT10	
COOL_F13	ICOOLLMT9	
COOL_F12	ICOOLLMT8	
COOL_F11	ICOOLLMT7	
COOL_F10	ICOOLLMT6	
COOL_F9	ICOOLLMT5	

COOL_F8	ICOOLLMT4	
COOL_F7	ICOOLLMT3	
COOL_F6	ICOOLLMT2	
COOL_F5	ICOOLLMT1	
If the current frequency is lower than COOL_F4, the frequency will not be limited. After 10s of the compressor start, if the current>ICOOL, the AC will display the failure for 30 seconds and stop. The AC will restart 3 minutes later.		

Heating mode:

Current frequency (Hz)	Current limit value (A)	Frequency limit
HEAT_F16	IHEATLMT12	Decrease the frequency to HEAT_F4 and run at HEAT_F4 for 3 minutes.
HEAT_F15	IHEATLMT11	
HEAT_F14	IHEATLMT10	After that, the frequency will be adjusted according to the capacity demand and rise to the upper level every 3 minutes (When the frequency>Heat_F4 via capacity demand).
HEAT_F13	IHEATLMT9	
HEAT_F12	IHEATLMT8	
HEAT_F11	IHEATLMT7	
HEAT_F10	IHEATLMT6	
HEAT_F9	IHEATLMT5	
HEAT_F8	IHEATLMT4	
HEAT_F7	IHEATLMT3	
HEAT_F6	IHEATLMT2	
HEAT_F5	IHEATLMT1	
If the current frequency is lower than HEAT_F4, the frequency will not be limited. After 10s of the compressor start, if the current>IHEAT, the AC will display the failure for 30 seconds and stop. The AC will restart 3 minutes later.		

6.5.5 Indoor / outdoor units communication protection

If the indoor units can not receive the feedback signal from the outdoor units for 2 minutes, the AC will stop and display the failure.

7.5.6 High condenser coil temp. protection.

When $T3 > 65^{\circ}\text{C}$ for 3 seconds, the compressor will stop while the indoor fan and outdoor fan will continue.

When $T3 < 52^{\circ}\text{C}$, the protection will release and the compressor will restart after 3 minutes.

7.5.7 Outdoor unit anti-freezing protection

When $T2B < 0^{\circ}\text{C}$ for 250 seconds, the indoor unit capacity demand will be zero and resume to normal when $T2B > 10^{\circ}\text{C}$.

7.5.8 Oil return

Running rules:

1. If the compressor frequency keeps lower than RECOILINFRE for T_e minutes, the AC will rise the frequency to RECOILFRE for T_f seconds and then resume to former frequency. For FS4MI-367HFD,

RECOILINFRE=45Hz, RECOILFRE=48Hz, $T_e=120$, $T_f=180$; For FS5MI-367HFD, RECOILINFRE=45Hz, RECOILFRE=48Hz, $T_e=90$, $T_f=100$; For other models, RECOILINFRE=50Hz, RECOILFRE=62Hz, $T_e=120$, $T_f=180$.

2. During the T_f seconds, the EXV and indoor units keep the current running mode(except FS5MI-367HFD model), the frequency will not be limited by the compressor discharge temp. and the current. For FS5MI-367HFD model, the EXV will keep 300p while the indoor units will keep the current running mode.
3. If the outdoor ambient is higher than 15°C during the oil return, the AC quit oil return.

7.5.9 Compressor preheating functions

----Preheating permitting condition:

If T_4 (outdoor ambient temperature) $<3^{\circ}\text{C}$ and the machine connects to power supply no longer than 5 seconds or if $T_4<3^{\circ}\text{C}$ and compressor has stopped for over 3 hours, the compressor heating cable will work.

----Preheating mode:

A weak current flow through the coil of compressor from the wiring terminal of compressor, then the compressor is heated without operation.

----Preheating release condition:

If $T_4\geq 5^{\circ}\text{C}$ or the compressor starts running, preheating function will stop.

7.5.10 Compressor crankcase heater

When $T_4<3^{\circ}\text{C}$ and the compressor is not running, the crankcase heater will be active.

When $T_4\geq 5^{\circ}\text{C}$ or the compressor starts up, the crankcase heater will stop work.

(For FS5MI-367HFD, $T_4\geq 8^{\circ}\text{C}$)

8. Troubleshooting

8.1 Indoor unit error code explanation:

Wall mounted series:

Display	LED STATUS
E0	EEPROM error
E1	Communication error between indoor and outdoor unit
E2	Zero-crossing examination error
E3	Fan speed beyond control
E5	Outdoor units temp. sensor or connector of temp. sensor is defective
E6	Indoor units temp. sensor or connector of temp. sensor is defective
P0	Inverter module protection
P1	Outdoor voltage protection
P2	Compressor temp. protection
P3	Compressor current protection
P4	Inverter compressor drive error

Duct/Cassette/Ceiling&Floor series:

Operation	Timer	De-frost	Alarm	LED STATUS
★	X	X	X	Indoor room temp. sensor open or short-circuit
X	X	★	X	Indoor pipe temp. sensor open or short-circuit
X	★	X	X	Indoor and outdoor communication error
X	X	X	★	Water level alarm
★	★	X	X	EEPROM error
★	X	X	●	Inverter module protection
★	●	X	X	Outdoor sensor open or short circuit
★	●	X	●	Outdoor voltage protection
★	X	●	X	Compressor top temp. protection
★	X	●	●	Mode conflict
★	X	★	★	Outdoor current protection

★ flash, ● light, X extinguished.

Console (7k9k12k)

Operation	Timer	De-frost	State
★	X	X	Indoor room temp. sensor open or short-circuit
X	X	★	Indoor pipe temp. sensor open or short-circuit
X	★	X	Indoor and outdoor communication error
X	★	★	Water level alarm
★	★	X	EEPROM error
★	X	★	Inverter module protection
★	★	★	Outdoor sensor open or short circuit
★	●	X	Compressor top temp. protection
★	X	●	Mode conflict

★ flash, ● light, X extinguished

Console (18k)

Operation	Timer	De-frost	State
★	★	X	Indoor temp. sensor open or short-circuit
X	★	X	Indoor and outdoor communication error
X	★	★	Water level alarm
★	★	★	EEPROM error
X	X	★	Outdoor unit is abnormal
X	X	★	Mode conflict

★ flash, ● light, X extinguished

8.2 Outdoor unit error code explanation:

For units(except FS5MI-367HFD)

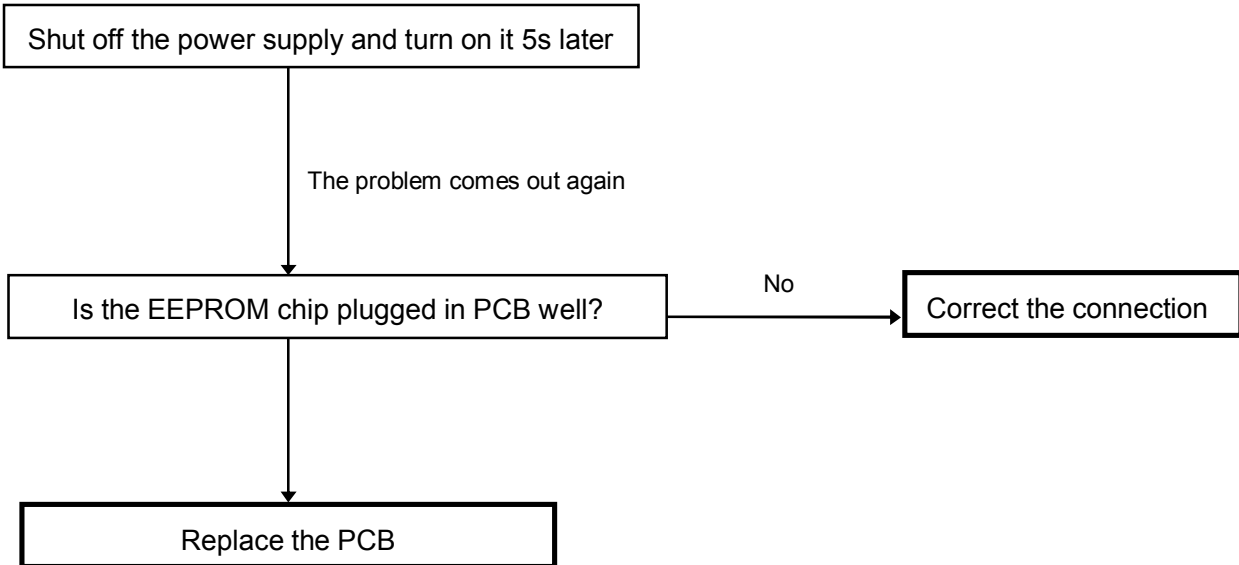
Display	LED STATUS
E0	EEPROM error
E1	No A Indoor unit coil outlet temp. sensor or connector of sensor is defective
E2	No B Indoor unit coil outlet temp. sensor or connector of sensor is defective
E3	No C Indoor unit coil outlet temp. sensor or connector of sensor is defective
E6	No D Indoor unit coil outlet temp. sensor or connector of sensor is defective
E4	Outdoor unit temp. sensor or connector of temp. sensor is defective
E5	Compressor voltage protection
E7	Communication malfunction between outdoor main chip and compressor control chip
P0	Temperature protection of compressor discharge or compressor top. For FS4MI-367HFD,it only means compressor discharge temp.protection.
P1	High pressure protection(only for FS4MI-367HFD)
P2	Low pressure protection(only for FS4MI-367HFD)
P3	Compressor current protection
P4	Inverter module protection
P6	Condenser high-temperature protection

For FS5MI-367HFD model

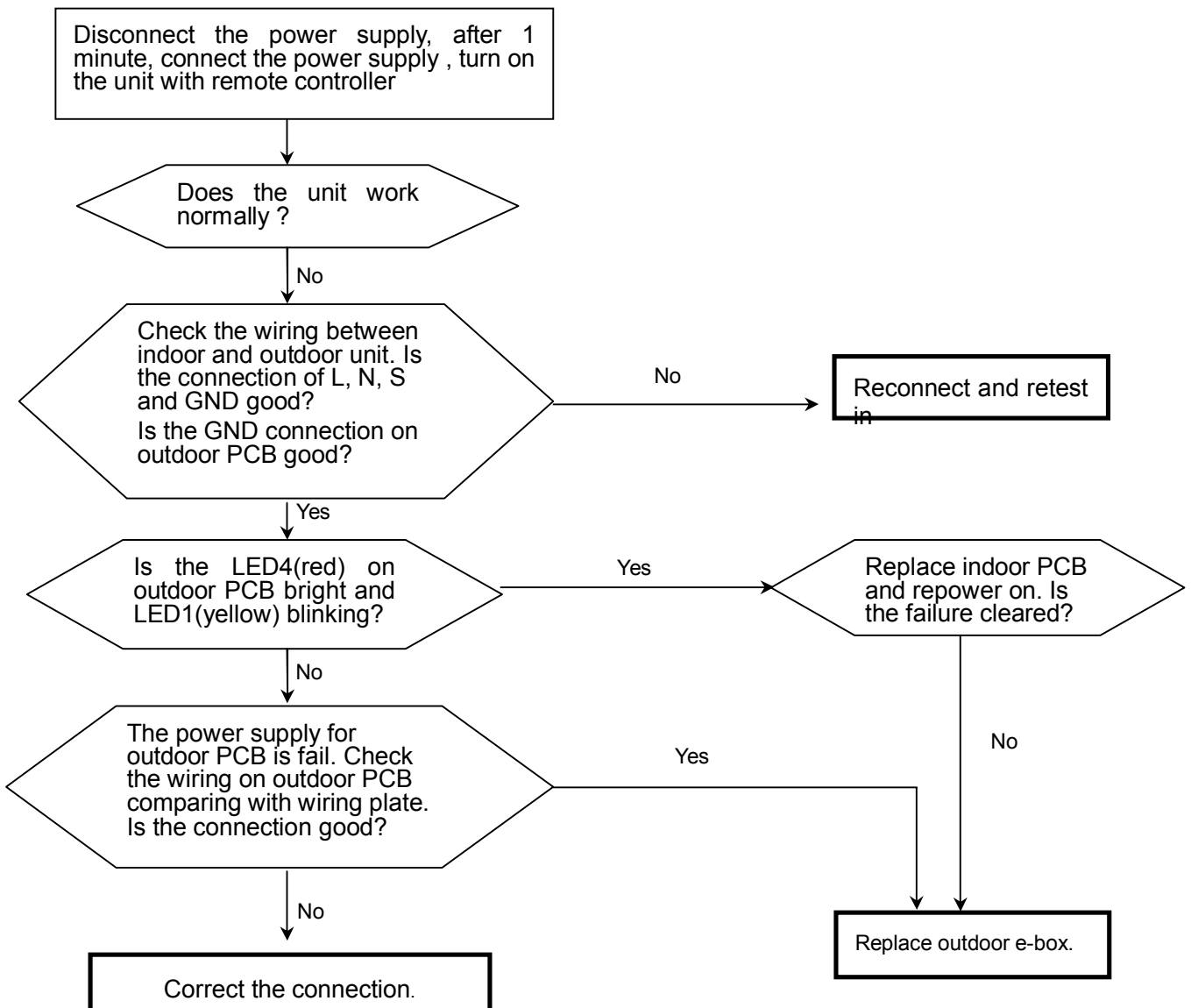
Display	LED STATUS
E0	EEPROM error
E2	Communication malfunction between outdoor unit and indoor units
E3	Communication malfunction between outdoor main chip and compressor control chip.
E4	Outdoor unit temp. sensor or connector of temp. sensor is defective
E5	Compressor voltage protection
E6	PFC module protection
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
F5	No E Indoor unit coil outlet temp. sensor or connector of sensor is defective
P0	Compressor top. temperature protection
P1	High pressure protection
P2	Low pressure protection
P3	Compressor current protection
P4	Compressor discharge high-temperature protection
P5	Condenser high-temperature protection
P6	Inverter module protection

8.3 Trouble shooting

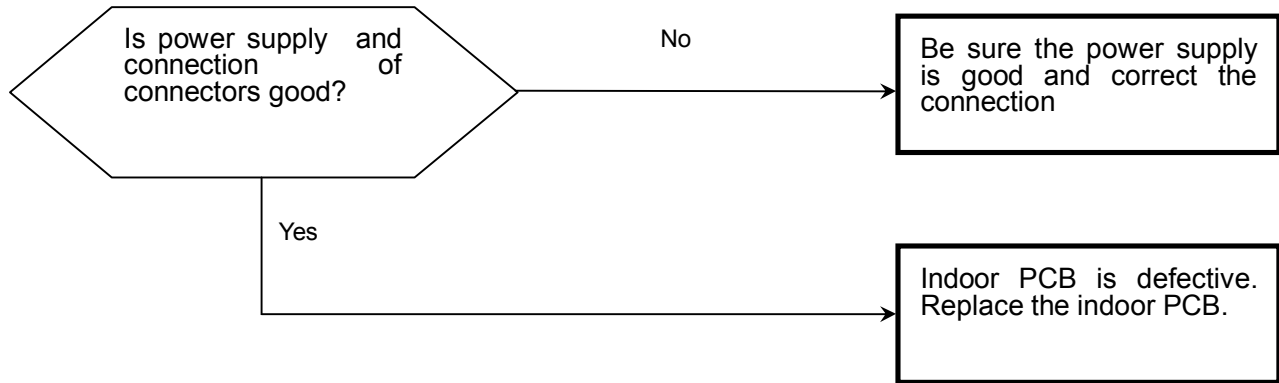
8.3.1 EEPROM parameter error diagnosis and solution



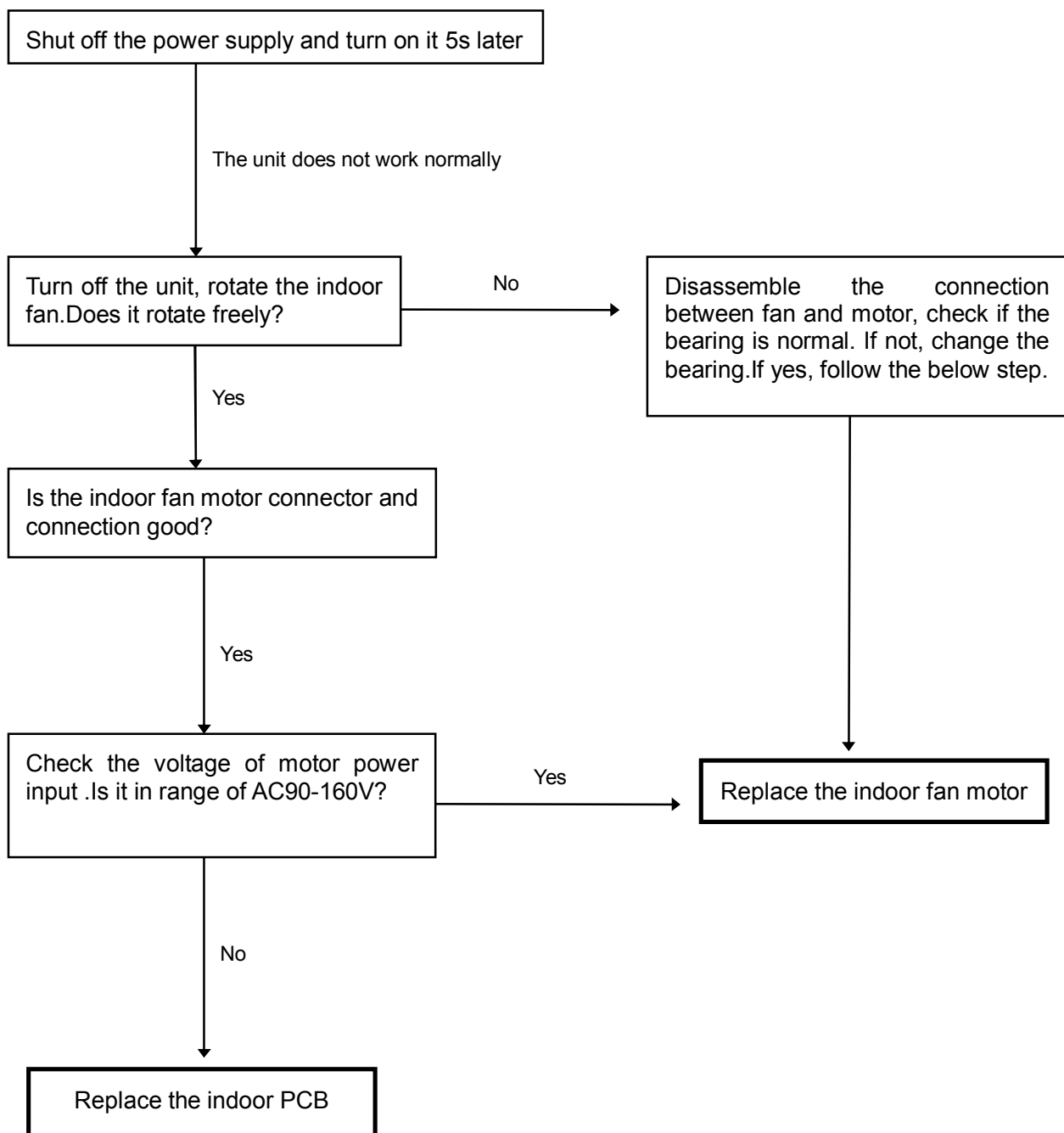
8.3.2 Indoor / outdoor units communication protection(Only for FS5MI-367HFD model)

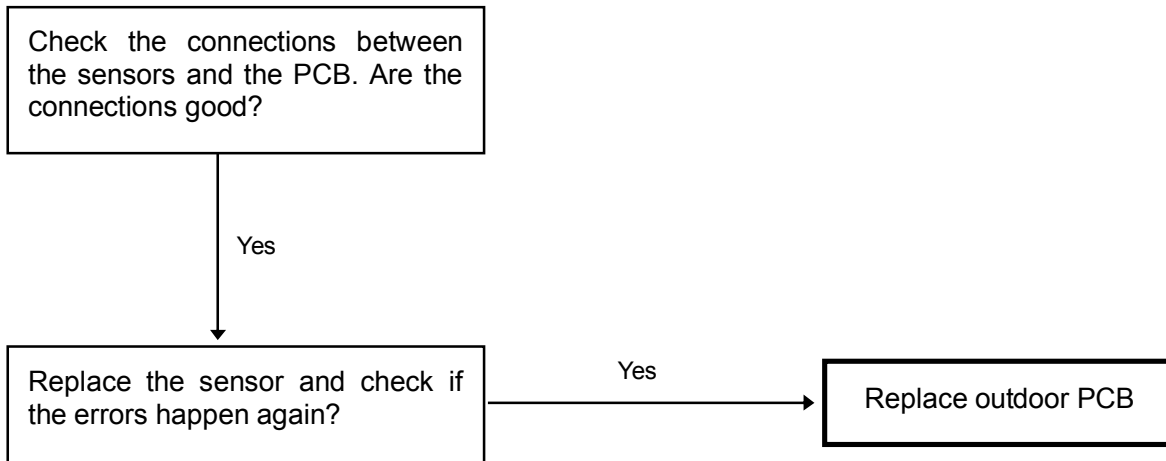
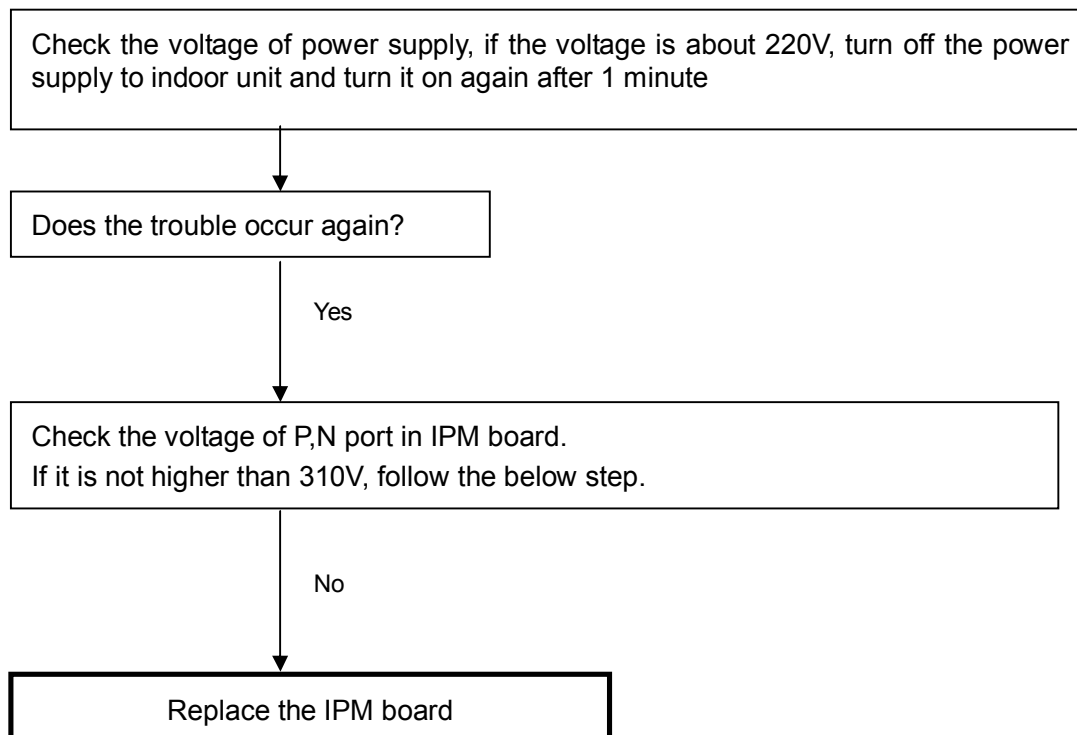


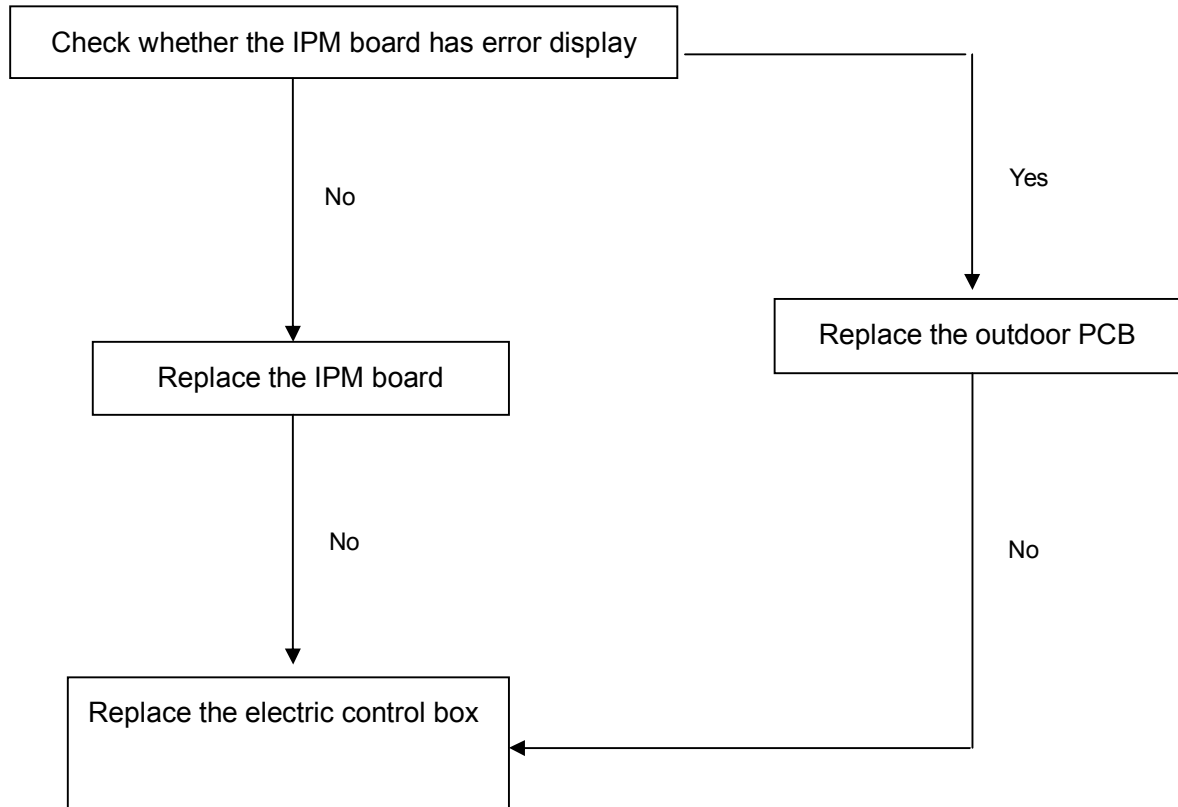
8.3.3 Zero-crossing signal error



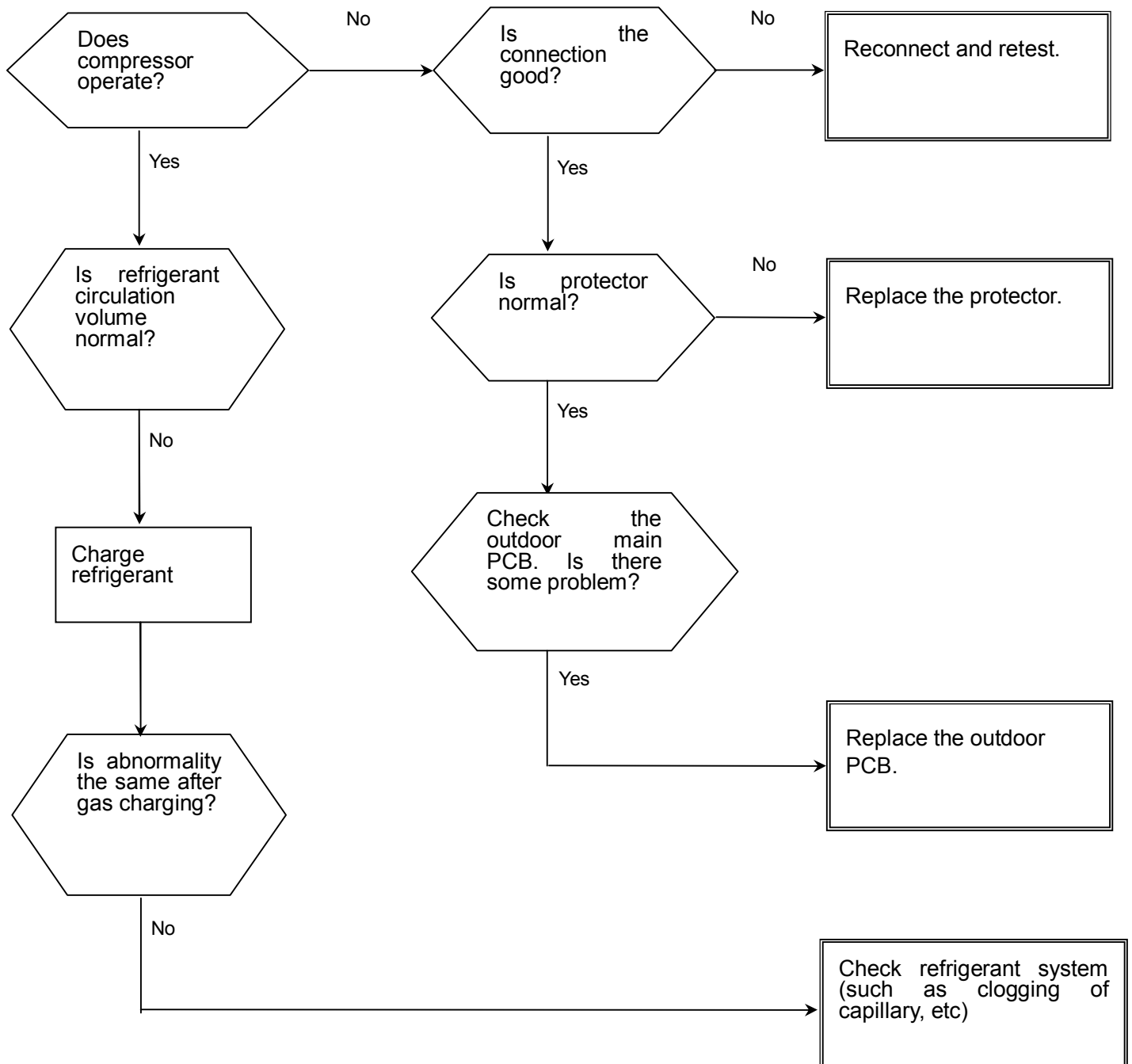
8.3.4 Fan speed out of control diagnosis



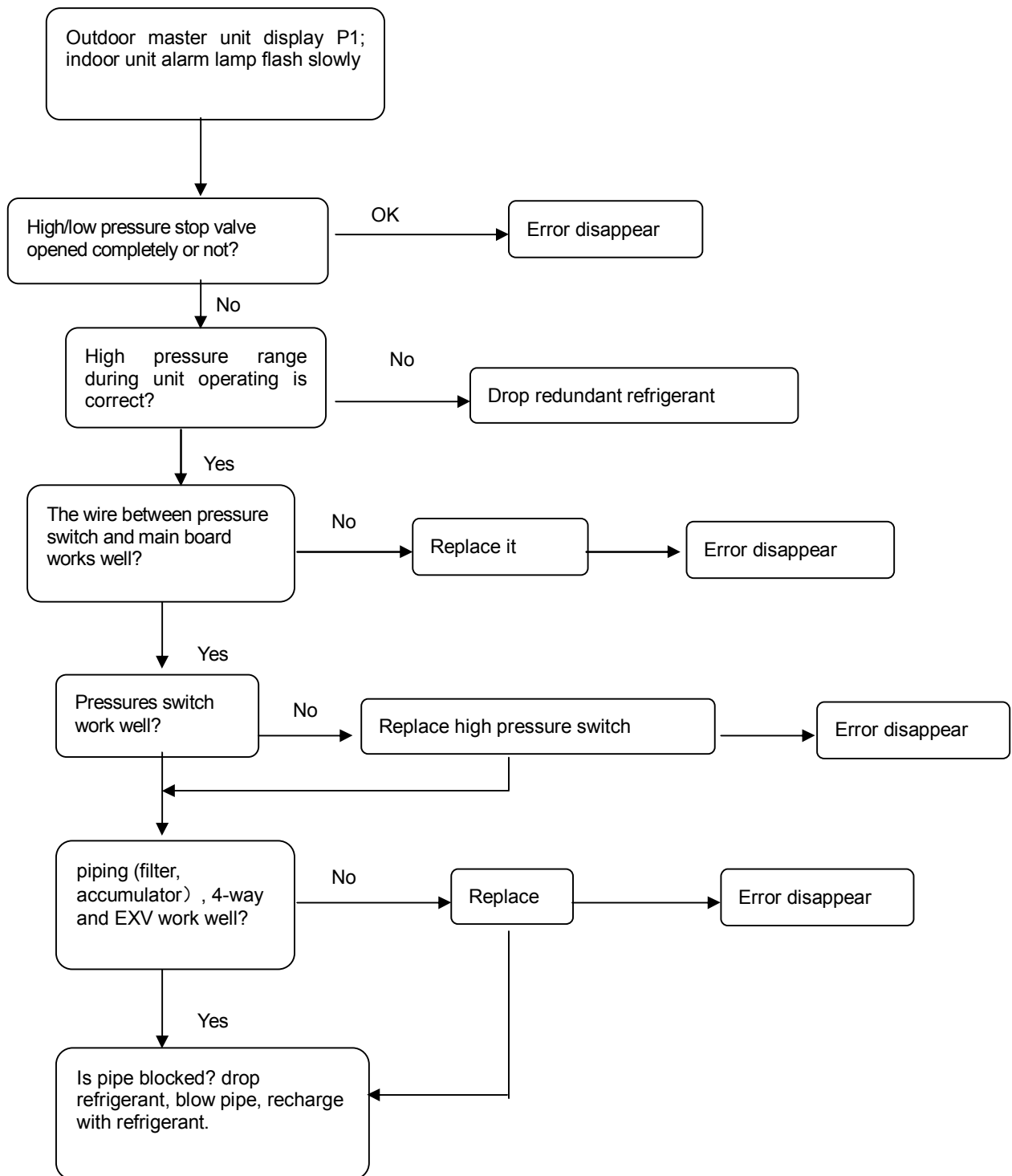
8.3.5 Open or short circuit of temperature sensor diagnosis and solution.**8.3.6 Compressor voltage protection**

8.3.7 Communication malfunction between outdoor main chip and compressor control chip.

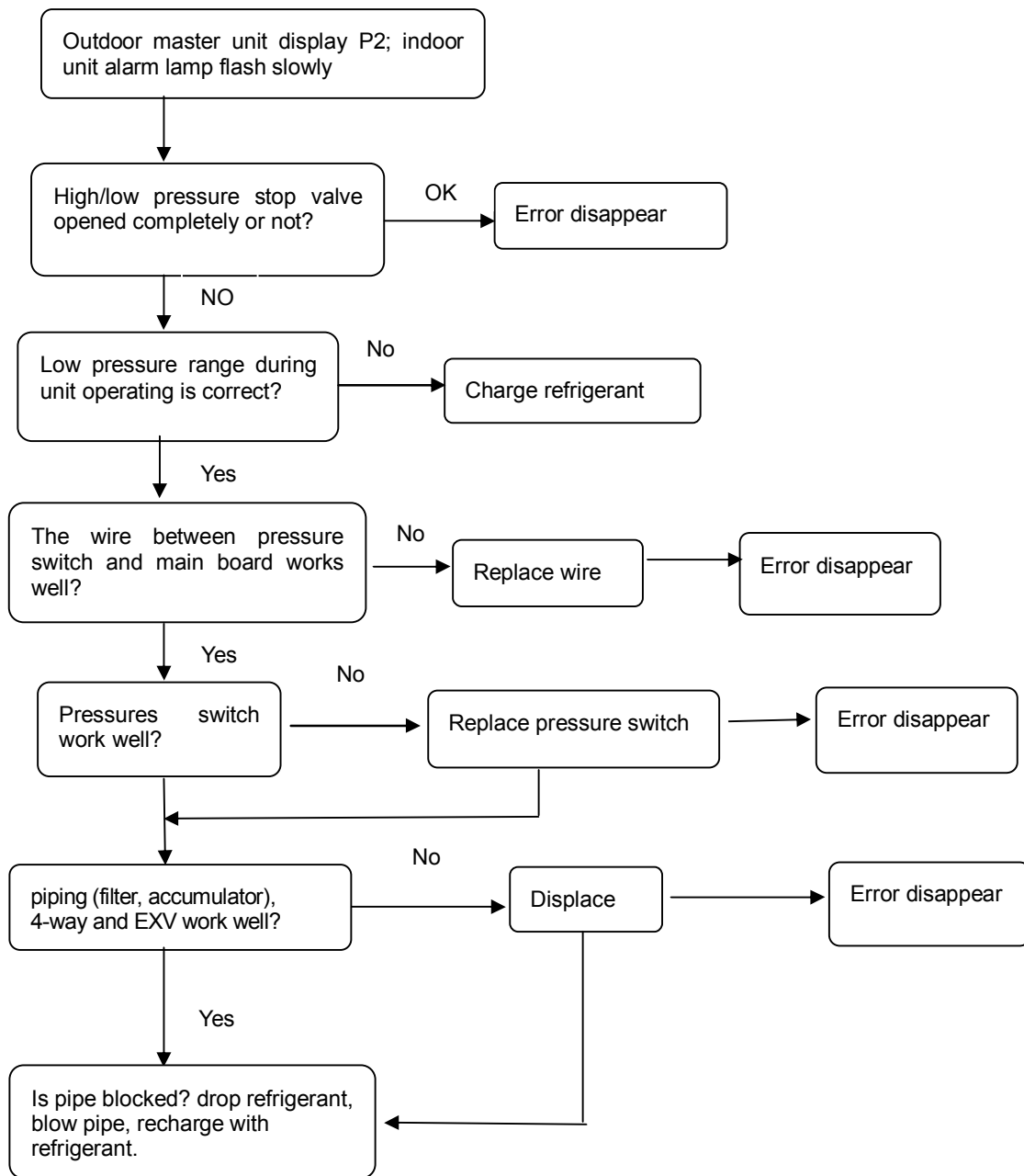
8.3.8 Temperature protection of compressor discharge or compressor top.



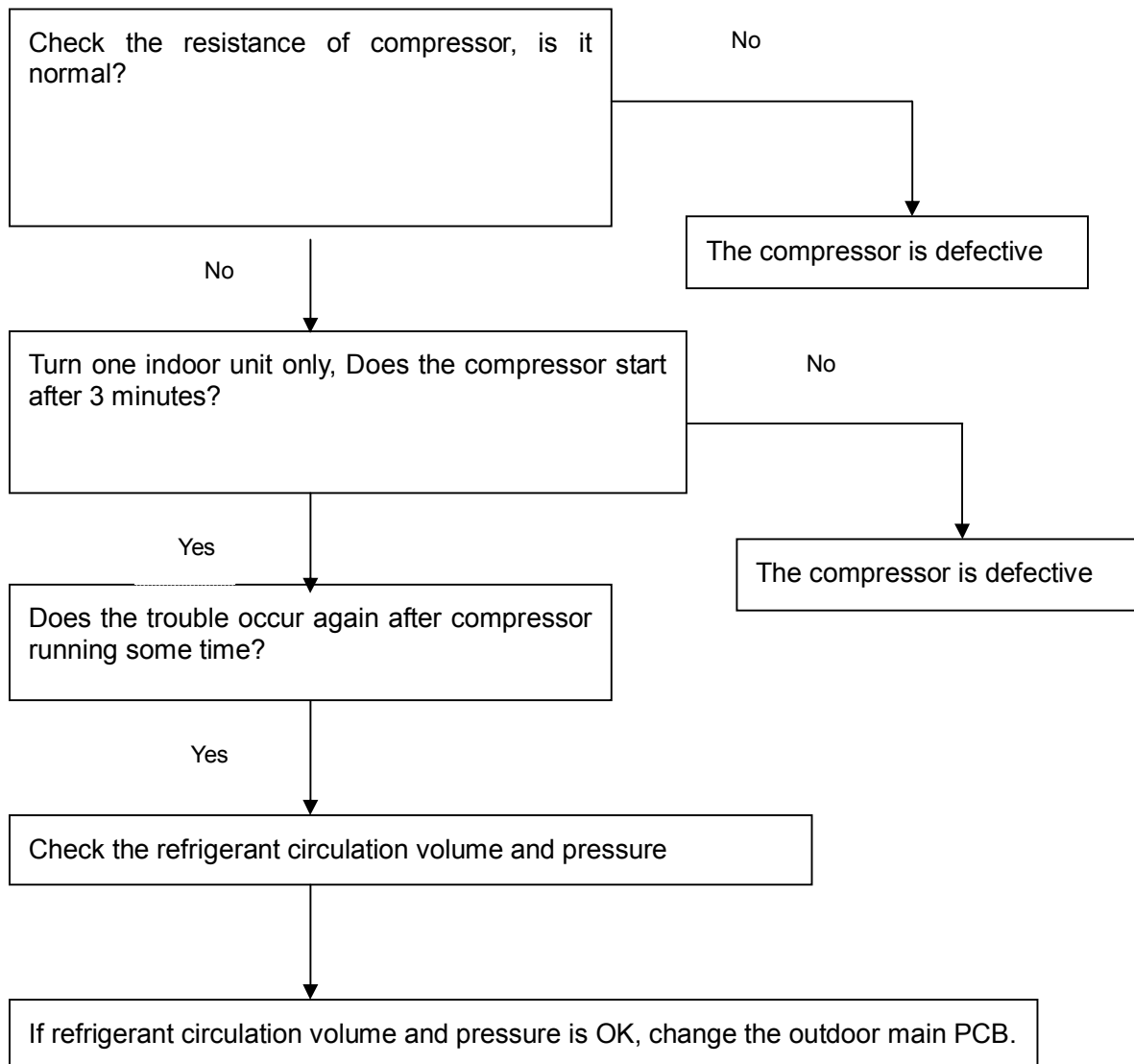
8.3.9 High pressure protection



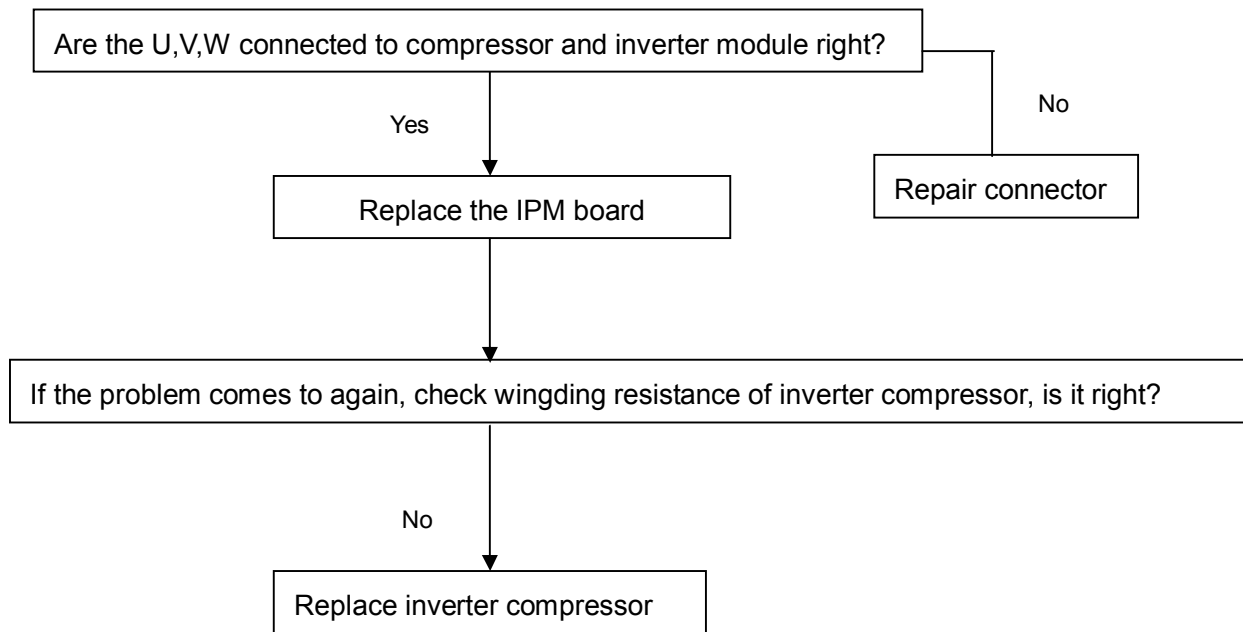
8.3.10 Low pressure protection



8.3.11 Compressor current protection

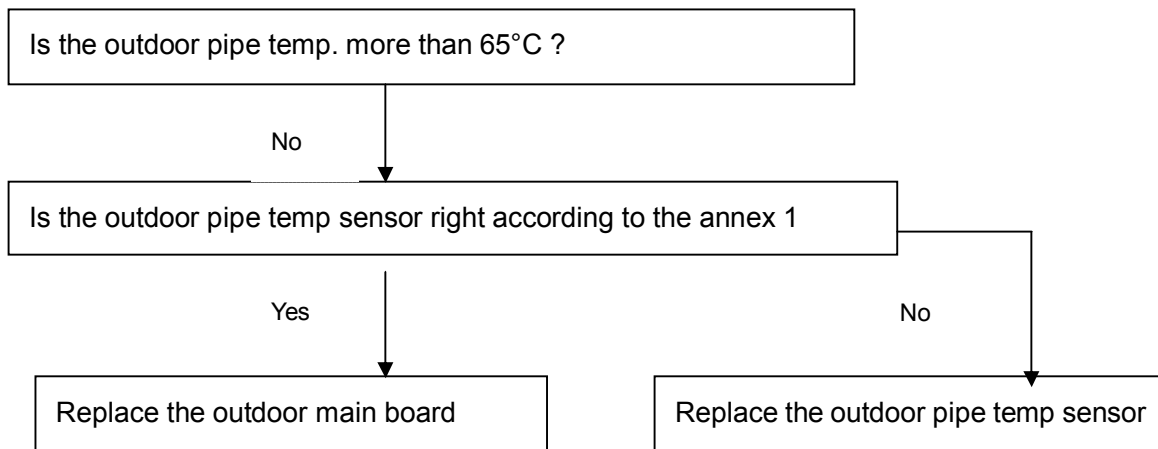


8.3.12 Inverter module protection

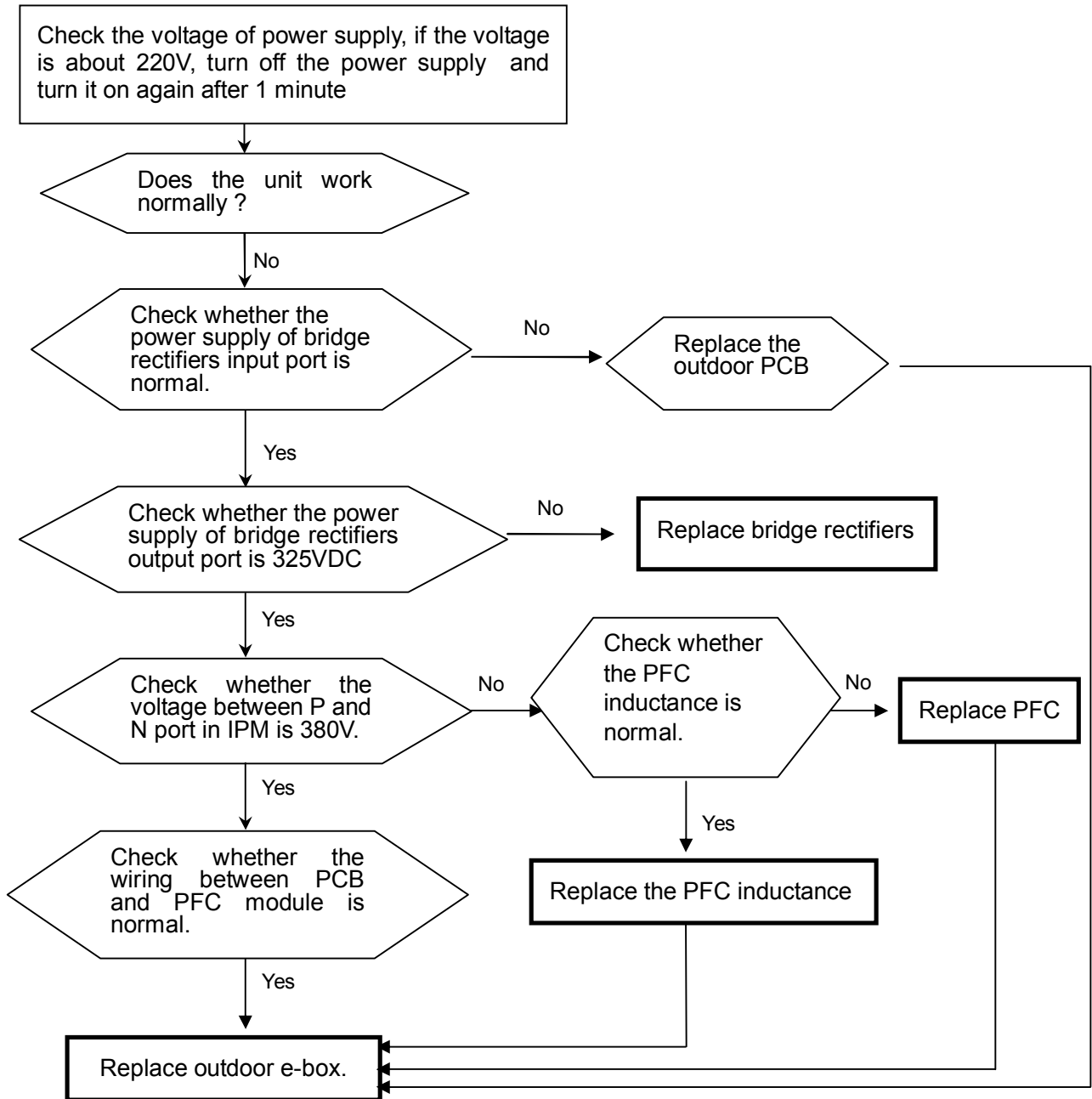


8.3.13 Condenser high-temperature protection

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



8.3.14 PFC module protection



Annex 1

Characteristic of temp. sensor

Temp. °C	Resistance KΩ		Temp. °C	Resistance KΩ		Temp. °C	Resistance KΩ
-10	62.2756		17	14.6181		44	4.3874
-9	58.7079		18	13.918		45	4.2126
-8	56.3694		19	13.2631		46	4.0459
-7	52.2438		20	12.6431		47	3.8867
-6	49.3161		21	12.0561		48	3.7348
-5	46.5725		22	11.5		49	3.5896
-4	44		23	10.9731		50	3.451
-3	41.5878		24	10.4736		51	3.3185
-2	39.8239		25	10		52	3.1918
-1	37.1988		26	9.5507		53	3.0707
0	35.2024		27	9.1245		54	2.959
1	33.3269		28	8.7198		55	2.8442
2	31.5635		29	8.3357		56	2.7382
3	29.9058		30	7.9708		57	2.6368
4	28.3459		31	7.6241		58	2.5397
5	26.8778		32	7.2946		59	2.4468
6	25.4954		33	6.9814		60	2.3577
7	24.1932		34	6.6835		61	2.2725
8	22.5662		35	6.4002		62	2.1907
9	21.8094		36	6.1306		63	2.1124
10	20.7184		37	5.8736		64	2.0373
11	19.6891		38	5.6296		65	1.9653
12	18.7177		39	5.3969		66	1.8963
13	17.8005		40	5.1752		67	1.830
14	16.9341		41	4.9639		68	1.7665
15	16.1156		42	4.7625		69	1.7055
16	15.3418		43	4.5705		70	1.6469

Annex 2

1. Reference voltage data:

a) Rectifier : Input :220-230V(AC), output :310V(DC)

b) Inverter module: U,V, W 3ph.

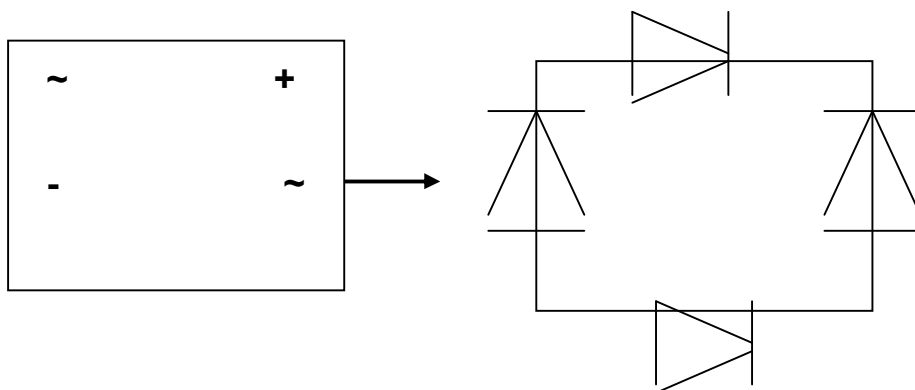
	Result
U-V	60-150V(AC)
U-W	60-150V(AC)
V-W	60-150V(AC)
P-N	DC 310V

c) Photo-couple PC817, PC851: Control side <+5V, AC side :< 24V(AC)

d) S terminal and N: changeable from 0-24V

2. Check the Diode Bridge component (In wiring diagram, rectifier)

Remark: If this part is abnormal, the LED will not light.



Multi-meter		Result	
		Forward Resistance	Backward Resistance
+	-	Infinite	Infinite
~	+	~500 ohm	Infinite
~			
-	~	~500 ohm	Infinite
	~		