



Service manual

R410A Multi DC inverter

220~240V-1Ph-50Hz

M2OC-14HRDN1

M2OC1-18HRDN1

M3OC1-21HRDN1

M3OC1-27HRDN1

M4OC1-27HRDN1

M4OC-36HRDN1

M5OA-36HRDN1



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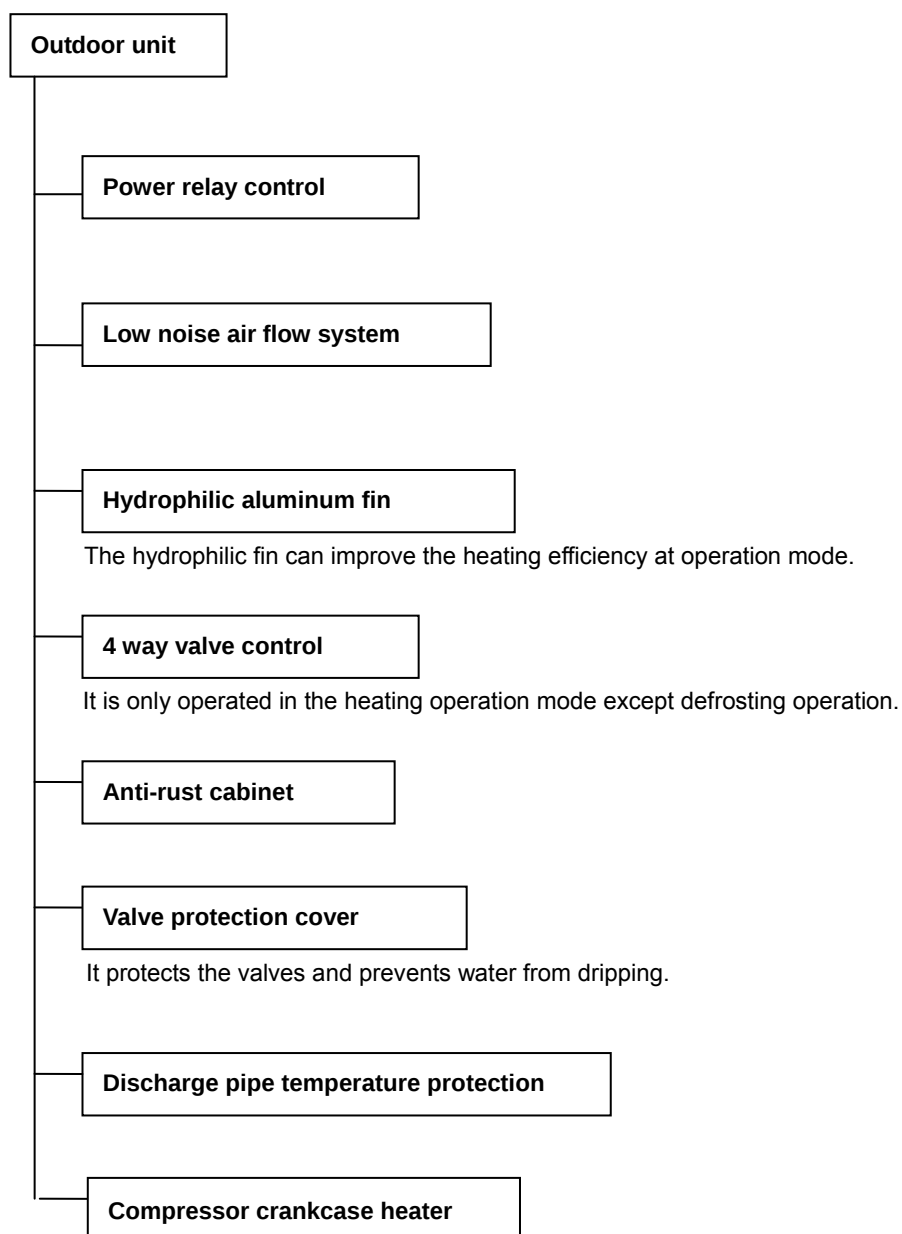
1. General information of Outdoor Units

Model name	Dimension (mm)	Net/Gross weight (kg)	Compressor
M2OC-14HRDN1	760*590*285	39/41	DA108X1C-20FZ3
M2OC1-18HRDN1	845*700*320	53.5/57	DA130S1C-20FZ
M3OC1-21HRDN1	845*700*320	55/60	DA130S1C-20FZ
M3OC1-27HRDN1	845*700*320	57/60.5	DA150S1C-20FZ
M4OC1-27HRDN1	900*860*315	73/78	DA250S2C-30MT
M4OC-36HRDN1	990*965*345	86/90	TNB306FPGMC-L
M5OA-36HRDN1	990*965*345	86.5/91	TNB306FPGMC-L

Matched indoor units

External Appearance	Model Name	External Appearance	Model Name
 Wall-mounted type	MS11PU-09HRDN1 MS11PU-12HRDN1 MS11PU-18HRDN1	 Wall-mounted type	MS11MU-09HRDN1 MS11MU-12HRDN1 MS11MU-18HRDN1
 Wall-mounted type	MS11DI-07HRDN1 MS11DI-09HRDN1 MS11DI-12HRDN1 MS11DI-18HRDN1	 Compact four-way cassette	MCA2I-07HRDN1 MCA2I-09HRDN1 MCA2I-12HRDN1 MCA2I-18HRDN1
 Middle Static Pressure Duct	MTBI-07HWDN1 MTBI-09HWDN1 MTBI-12HWDN1 MTBI-18HWDN1	 Ceiling & Floor type	MUBI-12HRDN1 MUBI-18HRDN1

2. Features



3. Specification

Model			M2OC-14HRDN1		M2OC1-18HRDN1	
Indoor unit combination			Single	Double	Single	Double
Power supply		Ph-V-Hz	1Ph, 220-240V~, 50Hz		1Ph, 220-240V~, 50Hz	
Cooling	Capacity	Btu/h	7000~12000	14000	7000~12000	18000
		kW	2,05~3,52	4,10	2,05~3,52	5,28
	Input	W	1000~1200	1270	1000~1200	1620
	Rated current	A	4.5~5.4	5.7	4.5~5.0	7.5
	EER	W/W	-----	3.21 / A	-----	3.21 / A
Heating	Capacity	Btu/h	9000~14000	15000	10000~14000	21000
		kW	2,64~4,10	4,40	2,93~4,10	6,15
	Input	W	1050~1250	1220	1050~1250	1670
	Rated current	A	4.7~5.6	5.5	5.0~6.0	7.6
	COP	W/W	-----	3.61 / A	-----	3.71 / A
Max. input consumption		W	1700		2150	
Max. current		A	8.0		10.5	
Starting current		A	-----		-----	
Compressor	Model		DA108X1C-20FZ3		DA130S1C-20FZ	
	Type		ROTARY		Rotary	
	Brand		GMCC		GMCC	
	Capacity	Btu/h	10918		13170	
	Input	W	855		990	
	Rated current(RLA)	A	5,3		4,97	
	Locked rotor Amp(LRA)	A	10		-----	
	Thermal protector		INT01L-4639 / CS-74		1NT01L-4639 or KSD301	
	Thermal protector position		EXTERNAL		-----	
	Capacitor	uF	45		45	
	Refrigerant oil/oil charge	ml	ESTER OIL VG74 / 480		ESTER OIL VG74/500	
Outdoor fan motor	Model		YDK24-6G		YDK53-6F	
	Brand		Welling		Welling	
	Input	W	67/48		126/106	
	Capacitor	uF	2.5		2.5	
	Speed	r/min	800/550		760/600	
Outdoor coil	a.Number of rows		2		1,5	
	b.Tube pitch(a)x row pitch(b)	mm	21x13.37		21x13.37	
	c.Fin spacing	mm	1,4		1.4	
	d.Fin type (code)		Hydrophilic aluminium		Hydrophilic aluminium	
	e.Tube outside dia.and type	mm	Ø7, innergroove tube		Ø7, innergroove tube	
	f.Coil length x height x width	mm	655x546x26.74		785x651x13.37+461x651x13.37	
	g.Number of circuits		3		4	
Outdoor air flow		m ³ /h	2000		2500	
Outdoor noise level		dB(A)	57.6		53	
Outdoor unit	Dimension(W*D*H)	mm	760x285x590		845x320x700	
	Packing (W*D*H)	mm	887x355x645		965x395x755	
	Net/Gross weight	Kg	39/41		53.5/57	
Refrigerant type		g	R410A/1350g		R410A/1450g	

Design pressure		MPa	4.2/1.5	4.2/1.5
Refrigerant piping	Liquid side/ Gas side	mm(inch)	2 X Ø6.35/Ø9.52(1/4"/3/8")	2 X Ø6.35/Ø9.52(1/4"/3/8")
	Max. refrigerant pipe length (each indoor unit)	m	20	20
	Max. difference in level (each indoor unit)	m	8	8
Connection wiring			NO	NO
Plug type			NO	NO
Thermostat type			Remote control	Remote control
Operation temp		°C	17-30	17-30
Ambient temp (cooling/heating)		°C	0-50/-15-24	0-50/-15-24

Model			M3OC-21HRDN1		
Indoor unit combination			Single	Double	Treble
Power supply		Ph-V-Hz	1Ph, 220-240V~, 50Hz		
Cooling	Capacity	Btu/h	7000~12000	14000~18000	21000
		kW	2,05~3,52	4,10~5,28	6,15
	Input	W	1000~1300	1500~1780	1910
	Rated current	A	4.5~5.8	6.7~8.0	8.6
	EER	W/W	-----	-----	3.21 / A
Heating	Capacity	Btu/h	9000~14000	17000~20000	23000
		kW	2,64~4,10	4,98~5,86	6,74
	Input	W	1100~1450	1650~1880	1860
	Rated current	A	4.9~6.5	7.4~8.4	8.4
	COP	W/W	-----	-----	3.61 / A
Max. input consumption		W	3335		
Max. current		A	14.0		
Starting current		A	-----		
Compressor	Model		DA130S1C-20FZ		
	Type		Rotary		
	Brand		GMCC		
	Capacity	Btu/h	13170		
	Input	W	990		
	Rated current(RLA)	A	4,97		
	Locked rotor Amp(LRA)	A	-----		
	Thermal protector		1NT01L-4639 or KSD301		
	Thermal protector position		-----		
	Capacitor	uF	45		
	Refrigerant oil/oil charge	ml	ESTER OIL VG74/500		
Outdoor fan motor	Model		YDK53-6F		
	Brand		Welling		
	Input	W	126/106		
	Capacitor	uF	2.5		
	Speed	r/min	760/600		
Outdoor coil	a.Number of rows		1,5		
	b.Tube pitch(a)x row pitch(b)	mm	21x13.37		
	c.Fin spacing	mm	1.4		
	d.Fin type (code)		Hydrophilic aluminium		
	e.Tube outside dia.and type	mm	Ø7, innergroove tube		
	f.Coil length x height x width	mm	785x651x13.37+461x651x13.37		
	g.Number of circuits		4		
Outdoor air flow		m ³ /h	2700		
Outdoor noise level		dB(A)	55		
Outdoor unit	Dimension(W*D*H)	mm	845x320x700		
	Packing (W*D*H)	mm	965x395x755		
	Net/Gross weight	Kg	55/60		

Refrigerant type		g	R410A/1500g
Design pressure		MPa	4.2/1.5
Refrigerant piping	Liquid side/ Gas side	mm(inch)	3 X Ø6.35/Ø9.52(1/4"/3/8")
	Max. refrigerant pipe length (each indoor unit)	m	20
	Max. difference in level (each indoor unit)	m	8
Connection wiring			NO
Plug type			NO
Thermostat type			Remote control
Operation temp		°C	17-30
Ambient temp (cooling/heating)		°C	0-50/-15-24

Model			M3OC1-27HRDN1		
Indoor unit combination			Single	Double	Treble
Power supply		Ph-V-Hz	1Ph, 220-240V~, 50Hz		
Cooling	Capacity	Btu/h	7000~12000	16000~19000	27000
		kW	2,05~3,52	4,69~5,57	7,91
	Input	W	1000~1300	1850~2150	2400
	Rated current	A	4.6~6.0	8.5~10.0	11.0
	EER	W/W	-----	-----	3.30 / A
Heating	Capacity	Btu/h	10000~14000	24000~27000	30000
		kW	2,93~4,10	7,03~7,91	8,79
	Input	W	1150~1450	1950~2300	2420
	Rated current	A	5.3~6.7	9.0~10.6	11.2
	COP	W/W	-----	-----	3.61 / A
Max. input consumption		W	3100		
Max. current		A	16.0		
Starting current		A	-----		
Compressor	Model		DA150S1C-20FZ		
	Type		ROTARY		
	Brand		GMCC		
	Capacity	Btu/h	15286		
	Input	W	1150		
	Rated current(RLA)	A	9,7		
	Locked rotor Amp(LRA)	A	----		
	Thermal protector		----		
	Thermal protector position		----		
	Capacitor	uF	55		
	Refrigerant oil/oil charge	ml	ESTER OIL VG74/500		
Outdoor fan motor	Model		YDK53-6F		
	Brand		Welling		
	Input	W	126/106		
	Capacitor	uF	2.5		
	Speed	r/min	760/600		
Outdoor coil	a.Number of rows		2		
	b.Tube pitch(a)x row pitch(b)	mm	21x13.37		
	c.Fin spacing	mm	1.4		
	d.Fin type (code)		Hydrophilic aluminium		
	e.Tube outside dia.and type	mm	Ø7, innergroove tube		
	f.Coil length x height x width	mm	779x651x26.74		
	g.Number of circuits		4		
Outdoor air flow		m ³ /h	2500		
Outdoor noise level		dB(A)	55		
Outdoor unit	Dimension(W*D*H)	mm	845x320x700		
	Packing (W*D*H)	mm	965x395x755		
	Net/Gross weight	Kg	57/60.5		

Refrigerant type		g	R410A/2000g
Design pressure		MPa	4.2/1.5
Refrigerant piping	Liquid side/ Gas side	mm(inch)	3 X Ø6.35/Ø9.52(1/4"/3/8")
	Max. refrigerant pipe length (each indoor unit)	m	20
	Max. difference in level (each indoor unit)	m	8
Connection wiring			NO
Plug type			NO
Thermostat type			Remote control
Operation temp		°C	17-30
Ambient temp (cooling/heating)		°C	0-50/-15-24

Model			M4OC1-27HRDN1			
Indoor unit combination			Single	Double	Treble	Quadplex
Power supply		Ph-V-Hz	1Ph, 220-240V~, 50Hz			
Cooling	Capacity	Btu/h	7000~18000	14000~24000	21000~26000	27000
		kW	2,05~5,28	4,10~7,03	6,15~7,62	7,91
	Input	W	1334~1784	1730~2403	2234~2777	2470
	Rated current	A	5.8~7.8	7.5~10.7	9.7~12.1	11.2
	EER	W/W	-----	-----	-----	3.21 / A
Heating	Capacity	Btu/h	9000~18000	16000~25000	21000~27000	30000
		kW	2,64~5,28	4,69~7,33	6,15~7,91	8,79
	Input	W	1656~2520	2131~3419	2959~3515	2440
	Rated current	A	7.2~11.0	9.3~14.9	12.9~15.3	11.1
	COP	W/W	-----	-----	-----	3.61 / A
Max. input consumption		W	4800			
Max. current		A	21.0			
Starting current		A	----			
Compressor	Model		DA250S2C-30MT			
	Type		ROTARY			
	Brand		GMCC			
	Capacity	Btu/h	15285			
	Input	W	2120			
	Rated current(RLA)	A	8.85			
	Locked rotor Amp(LRA)	A	----			
	Thermal protector		----			
	Thermal protector position		----			
	Capacitor	uF	60			
	Refrigerant oil/oil charge	ml	ESTER OIL VG74/820			
Outdoor fan motor	Model		YDK100-6T			
	Brand		Welling			
	Input	W	168/133			
	Capacitor	uF	5.0			
	Speed	r/min	880 / -- / 640			
Outdoor coil	a.Number of rows		2			
	b.Tube pitch(a)x row pitch(b)	mm	22x19.05			
	c.Fin spacing	mm	1.4			
	d.Fin type (code)		Hydrophilic aluminium			
	e.Tube outside dia.and type	mm	Ø7.94,innergroove tube			
	f.Coil length x height x width	mm	766x814x38.1			
	g.Number of circuits		4			
Outdoor air flow		m³/h	3500			
Outdoor noise level		dB(A)	58			
Outdoor unit	Dimension(W*D*H)	mm	900x315x860			
	Packing (W*D*H)	mm	1043x395x915			
	Net/Gross weight	Kg	73 / 78			
Refrigerant type		g	R410A/2400g			

Design pressure		MPa	4.2/1.5
Refrigerant piping	Liquid side/ Gas side	mm(inch)	4 X Ø6.35/Ø9.52(1/4"/3/8")
	Max. refrigerant pipe length (each indoor unit)	m	20
	Max. difference in level (each indoor unit)	m	8
Connection wiring			NO
Plug type			NO
Thermostat type			Remote control
Operation temp		°C	17-30
Ambient temp (cooling/heating)		°C	0-50/-15-24

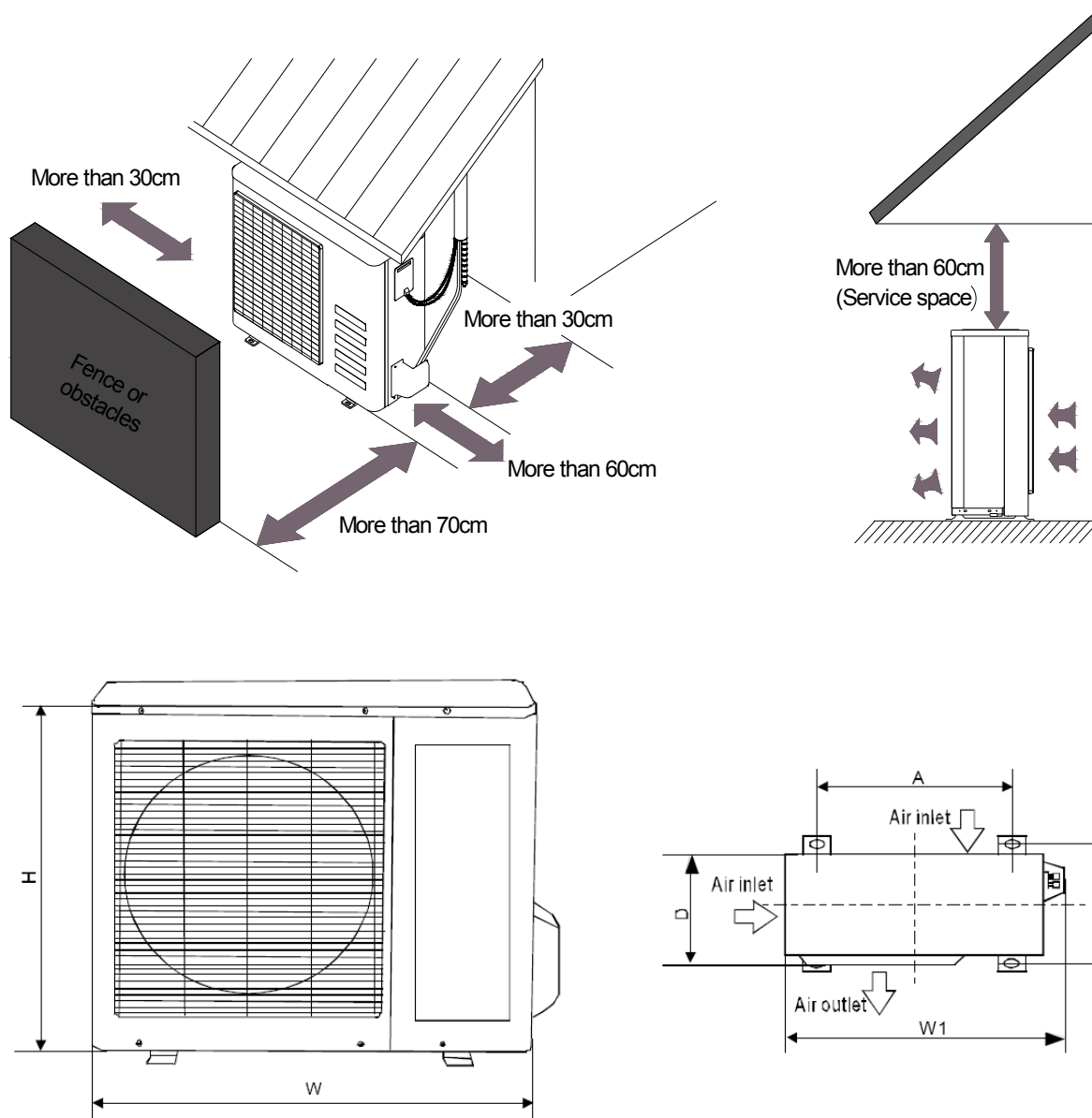
Model			M4OC-36HRDN1			
Indoor unit combination			Single	Double	Treble	Quadplex
Power supply		Ph-V-Hz	1Ph, 220-240V~, 50Hz			
Cooling	Capacity	Btu/h	7000~18000	14000~36000	21000~42000	36000
		kW	2,05~5,28	4,10~10,55	6,15~12,31	10,55
	Input	W	1334~1784	1730~3403	2234~3790	3450
	Rated current	A	5.8~7.8	7.5~15.0	7.5~15.0	15.5
	EER	W/W	-----	-----	-----	3.05 / B
Heating	Capacity	Btu/h	9000~18000	16000~37000	24000~43000	38000
		kW	2,64~5,28	4,69~10,84	7,03~12,60	11,14
	Input	W	1656~2520	2131~3419	2959~3515	3380
	Rated current	A	7.2~11.0	9.3~15.1	12.9~15.6	15.2
	COP	W/W	-----	-----	-----	3.29 / C
Max. input consumption		W	4900			
Max. current		A	22.5			
Starting current		A	-----			
Compressor	Model		TNB306FPGMC-L			
	Type		ROTARY			
	Brand		MITSUBISHI			
	Capacity	Btu/h	33642			
	Input	W	3080			
	Rated current(RLA)	A	13.5			
	Locked rotor Amp(LRA)	A	--			
	Thermal protector		--			
	Thermal protector position		--			
	Capacitor	uF	--			
	Refrigerant oil/oil charge	ml	FV50S / 1100			
Outdoor fan motor	Model		YDK250-6C			
	Brand		Welling			
	Input	W	320/240			
	Capacitor	uF	10			
	Speed	r/min	760/625			
Outdoor coil	a.Number of rows		2			
	b.Tube pitch(a)x row pitch(b)	mm	22x19.05			
	c.Fin spacing	mm	1.5			
	d.Fin type (code)		Hydrophilic aluminium			
	e.Tube outside dia.and type	mm	Ø7.94, innergroove tube			
	f.Coil length x height x width	mm	895x902x38.1			
	g.Number of circuits		8			
Outdoor air flow		m³/h	3800			
Outdoor noise level		dB(A)	61			
Outdoor unit	Dimension(W*D*H)	mm	990x345x965			
	Packing (W*D*H)	mm	1120x435x1100			
	Net/Gross weight	Kg	86/90			
Refrigerant type		g	R410A/2700g			

Design pressure		MPa	4.2/1.5
Refrigerant piping	Liquid side/ Gas side	mm(inch)	4 X Ø6.35/Ø9.52(1/4"/3/8")
	Max. refrigerant pipe length (each indoor unit)	m	20
	Max. difference in level (each indoor unit)	m	8
Connection wiring			NO
Plug type			NO
Thermostat type			Remote control
Operation temp		°C	17-30
Ambient temp (cooling/heating)		°C	0-50/-15-24

Model			M50A-36HRDN1				
Indoor unit combination			Single	Double	Treble	Quadplex	Quintuple
Power supply		Ph-V-Hz	220-240V~ 50Hz, 1Ph				
Cooling	Capacity	Btu/h	7000~18000	14000~36000	21000~42000	28000~47000	36000
		kW	2,05~5,28	4,10~10,55	6,15~12,31	8,21~13,77	10,55
	Input	W	1330~1780	1730~3400	2230~3790	2350~3890	3420
	Rated current	A	5.8~7.8	7.5~15.0	9.8~16.5	10.3~17.0	15.8
	EER	W/W	-----	-----	-----	-----	3.1 / B
Heating	Capacity	Btu/h	7000~18000	14000~37000	21000~43000	28000~47000	41000
		kW	2,05~5,28	4,69~10,84	6,15~12,60	8,21~13,77	12,02
	Input	W	1650~2500	2430~3420	2960~3520	3090~3650	3400
	Rated current	A	7.2~11.0	10.6~15.1	12.9~15.6	13.4~16.0	15.8
	COP	W/W	-----	-----	-----	-----	3.5 / B
Max. input consumption		W	4900				
Max. current		A	22.5				
Starting current		A	----				
Compressor	Model		TNB306FPGMC-L				
	Type		ROTARY				
	Brand		MITSUBISHI				
	Capacity	Btu/h	33642				
	Input	W	3080				
	Rated current(RLA)	A	13.5				
	Locked rotor Amp(LRA)	A	--				
	Thermal protector		--				
	Thermal protector position		--				
	Capacitor	uF	- -				
	Refrigerant oil/oil charge	ml	FV50S / 1100				
Outdoor fan motor	Model		YDK250-6C				
	Brand		Welling				
	Input	W	320/-/240				
	Capacitor	uF	10				
	Speed	r/min	760 / -- / 625				
Outdoor coil	a.Number of rows		2				
	b.Tube pitch(a)x row pitch(b)	mm	22x19.05				
	c.Fin spacing	mm	1,5				
	d.Fin type (code)		Hydrophilic aluminium				
	e.Tube outside dia.and type	mm	Ø7.94,inner groove tube				
	f.Coil length x height x width	mm	895x902x38.1				
	g.Number of circuits		8				
Outdoor air flow		m ³ /h	3800				
Outdoor noise level		dB(A)	65				
Outdoor unit	Dimension(W*D*H)	mm	990x345x965				

	Packing (W*D*H)	mm	1120x435x1100
	Net/Gross weight	Kg	86.5/91
Refrigerant type		g	R410A/3000g
Design pressure		MPa	4.2/1.5
Refrigerant piping	Liquid side/ Gas side	mm(inch)	5X Ø6.35/Ø9.52(1/4"/3/8")
	Max. refrigerant pipe length (each indoor unit)	m	20
	Max. difference in level (each indoor unit)	m	8
Connection wiring			NO
Plug type			NO
Thermostat type			Remote control
Operation temp		°C	17-30
Ambient temp (cooling/heating)		°C	0-50/-15-24

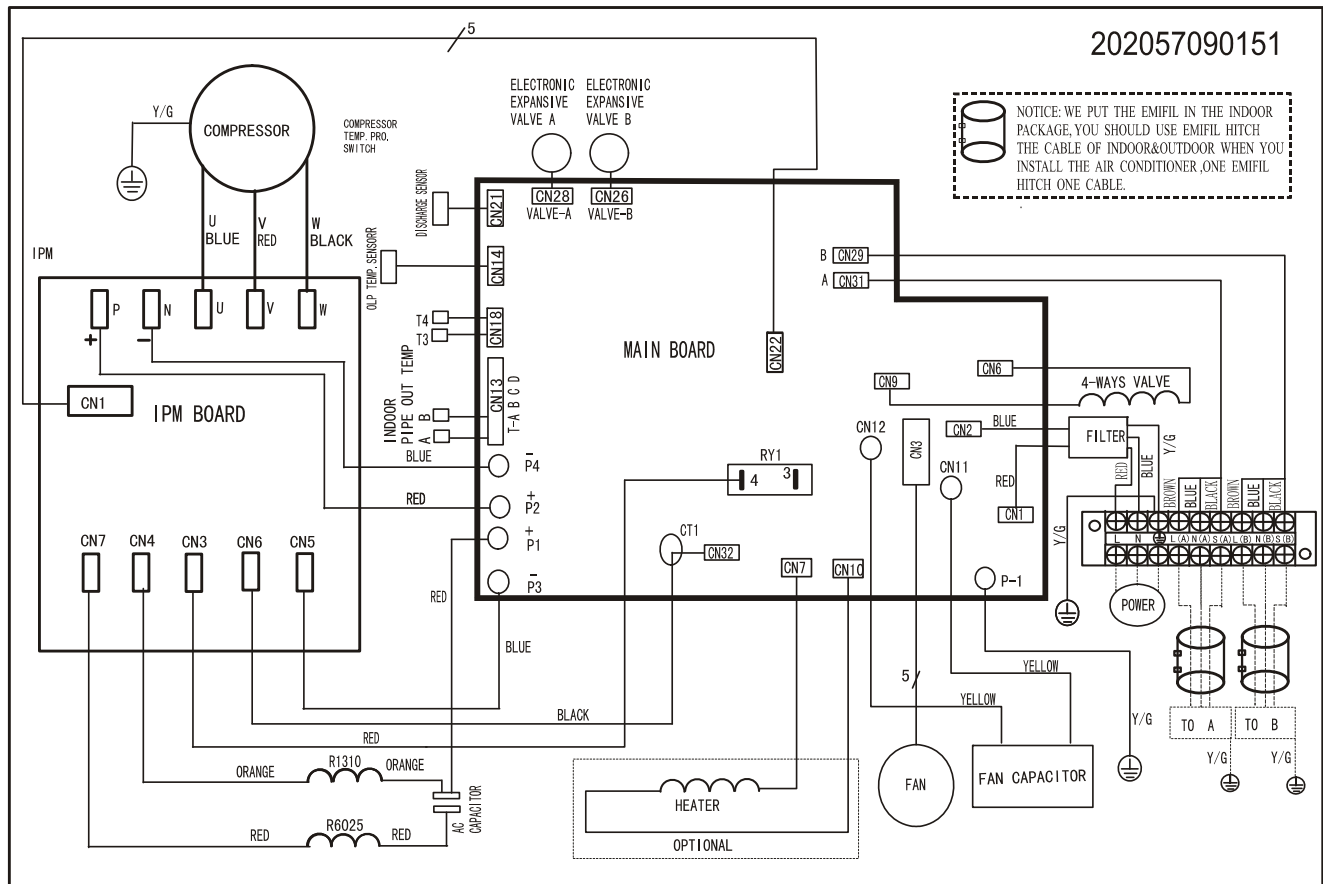
4. Dimensions



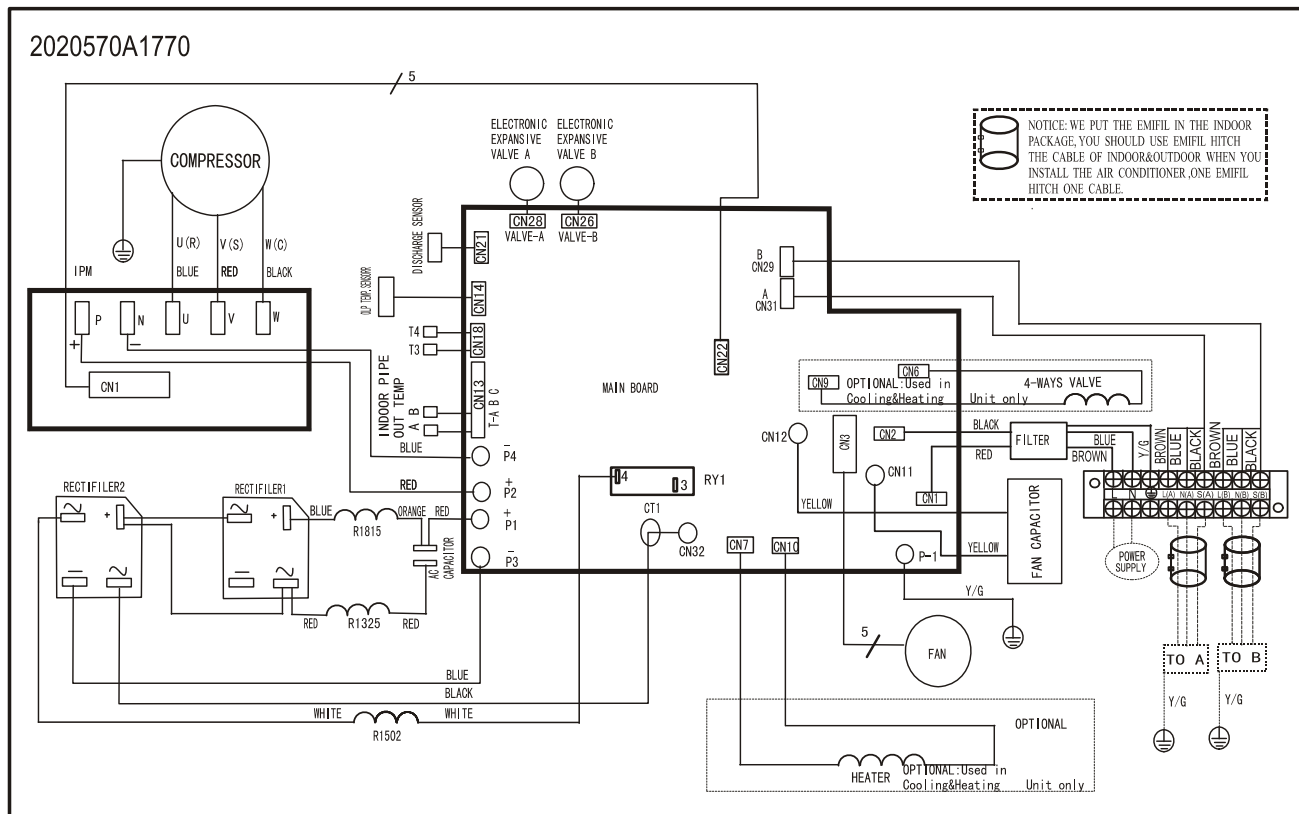
MODEL	W	D	H	W1	A	B
M2OC-14HRDN1	760	285	590	823	530	290
M2OC1-18HRDN1	845	320	700	908	560	335
M3OC1-21HRDN1	845	320	700	908	560	335
M3OC1-27HRDN1	845	320	700	908	560	335
M4OC1-27HRDN1	900	315	860	980	590	333
M4OC-36HRDN1	990	345	965	1075	624	366
M5OA-36HRDN1	990	345	965	1075	624	366

5. Wiring Diagram

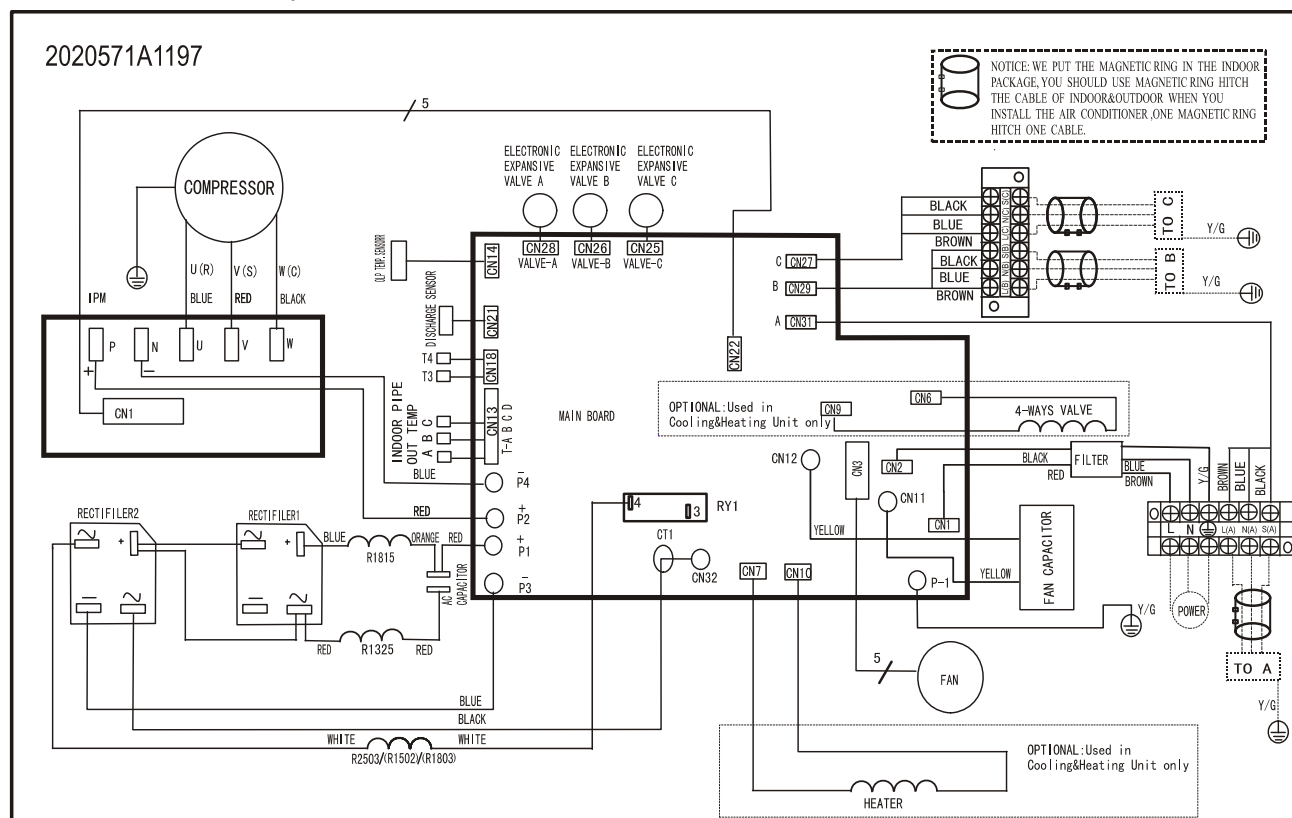
5.1 M2OC-14HRDN1



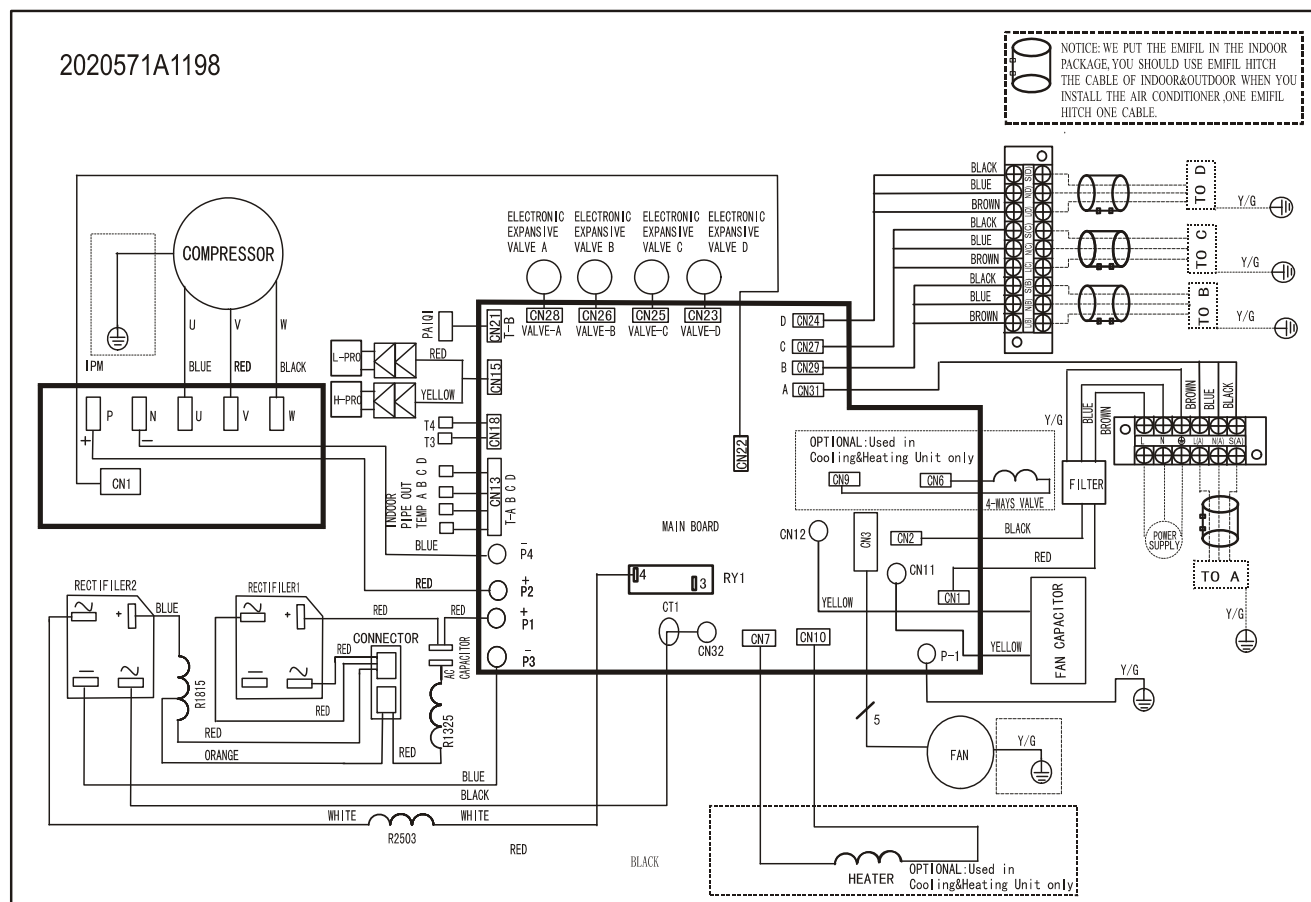
5.2 M2OC1-18HRDN1



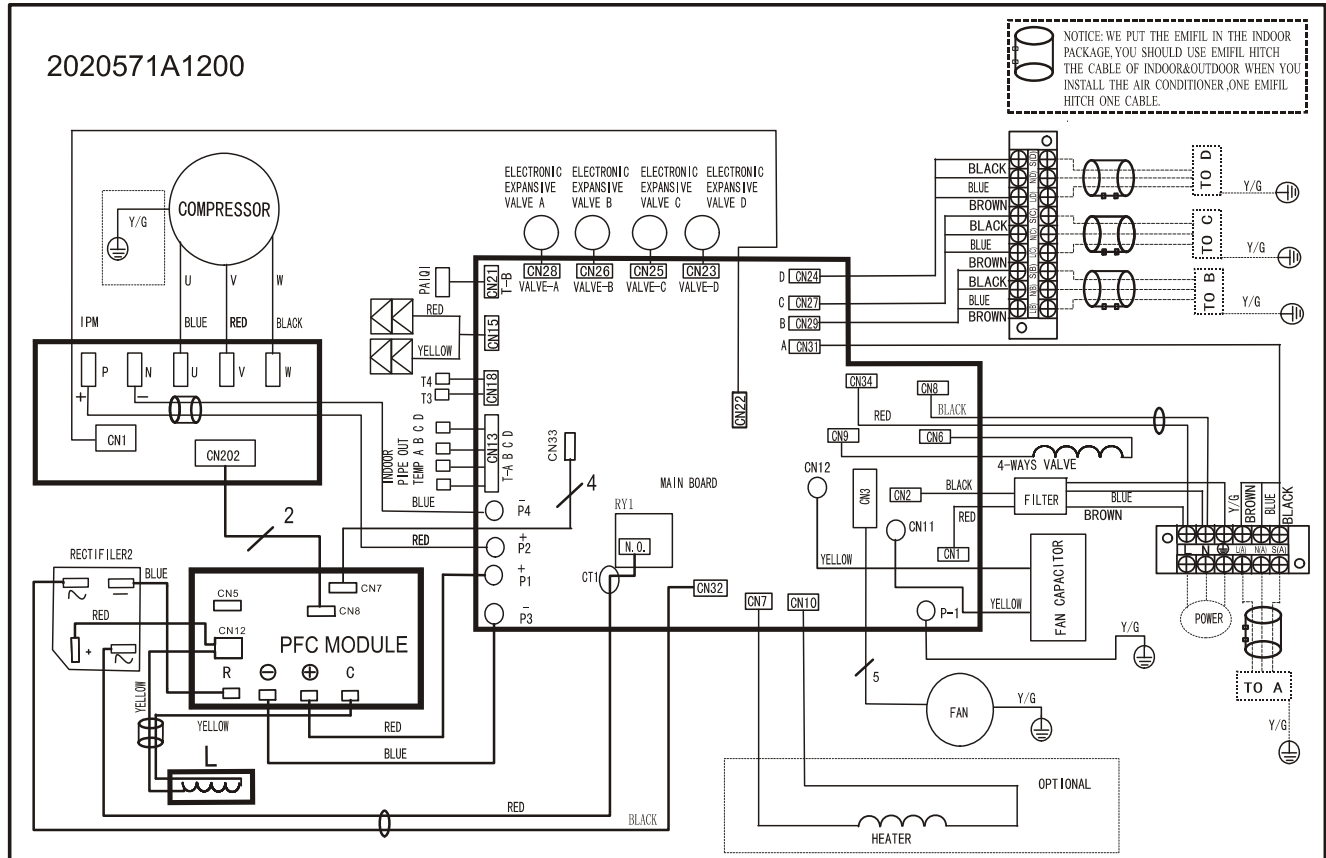
5.3 M3OC1-21HRDN1, M3OC1-27HRDN1



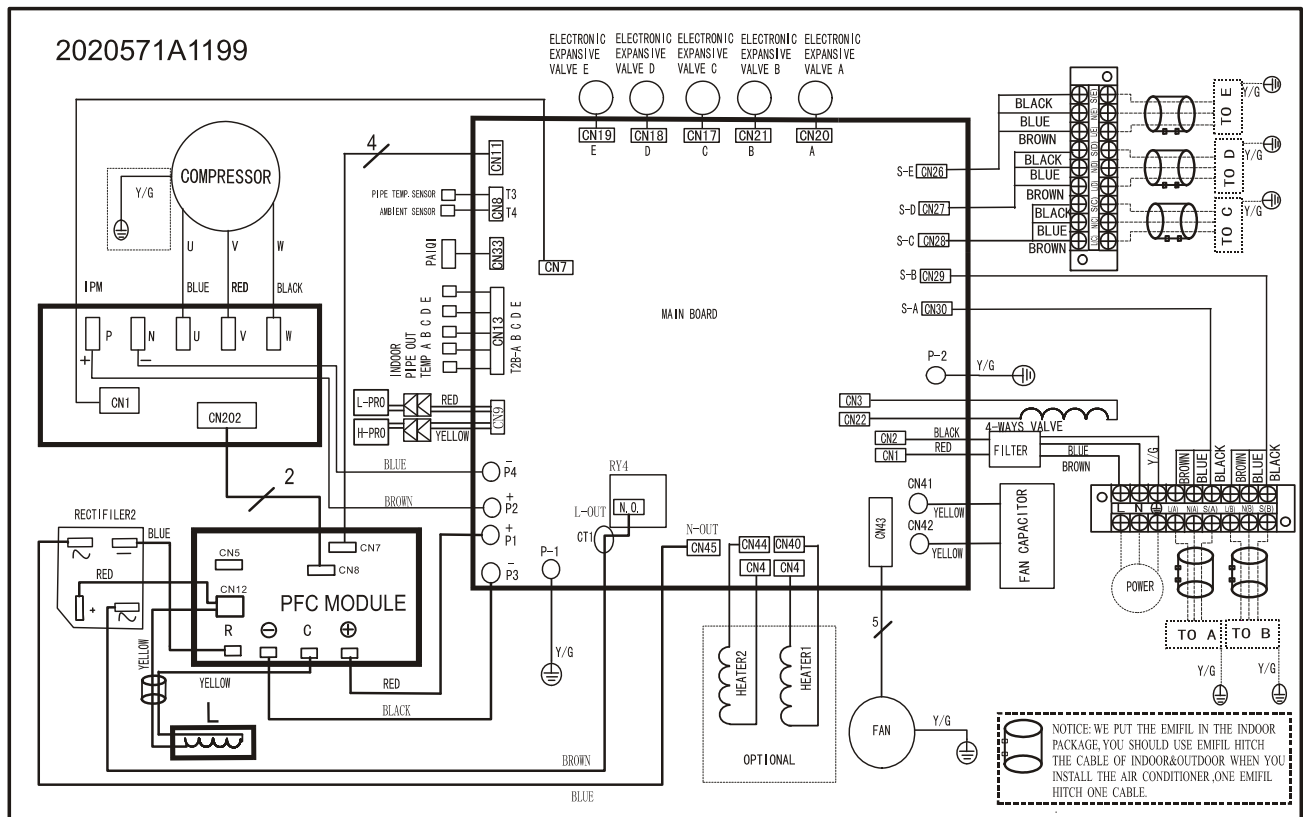
5.4 M4OC1-27HRDN1



5.5 M4OC-36HRDN1

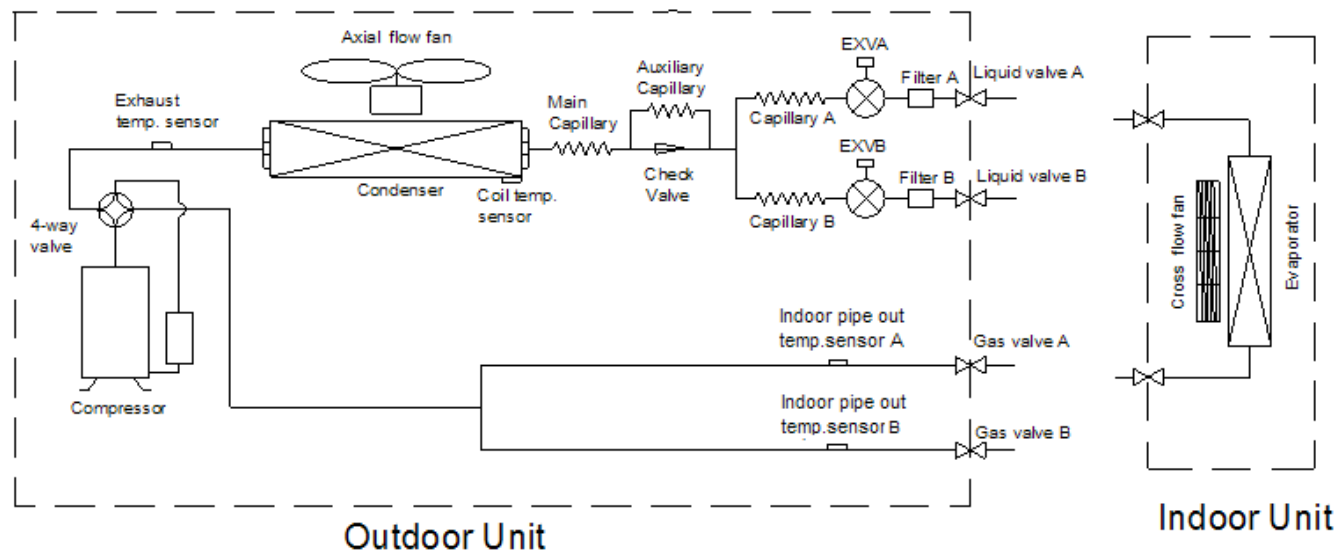


5.6 M5OA-36HRDN1

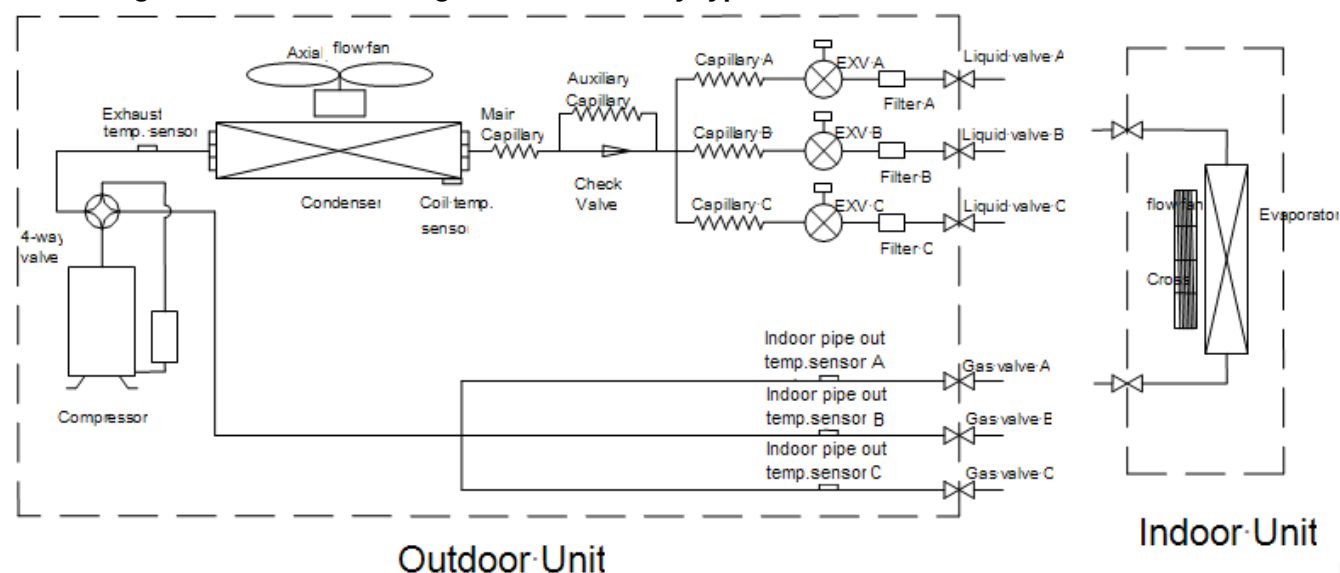


6. Refrigeration Cycle Diagram

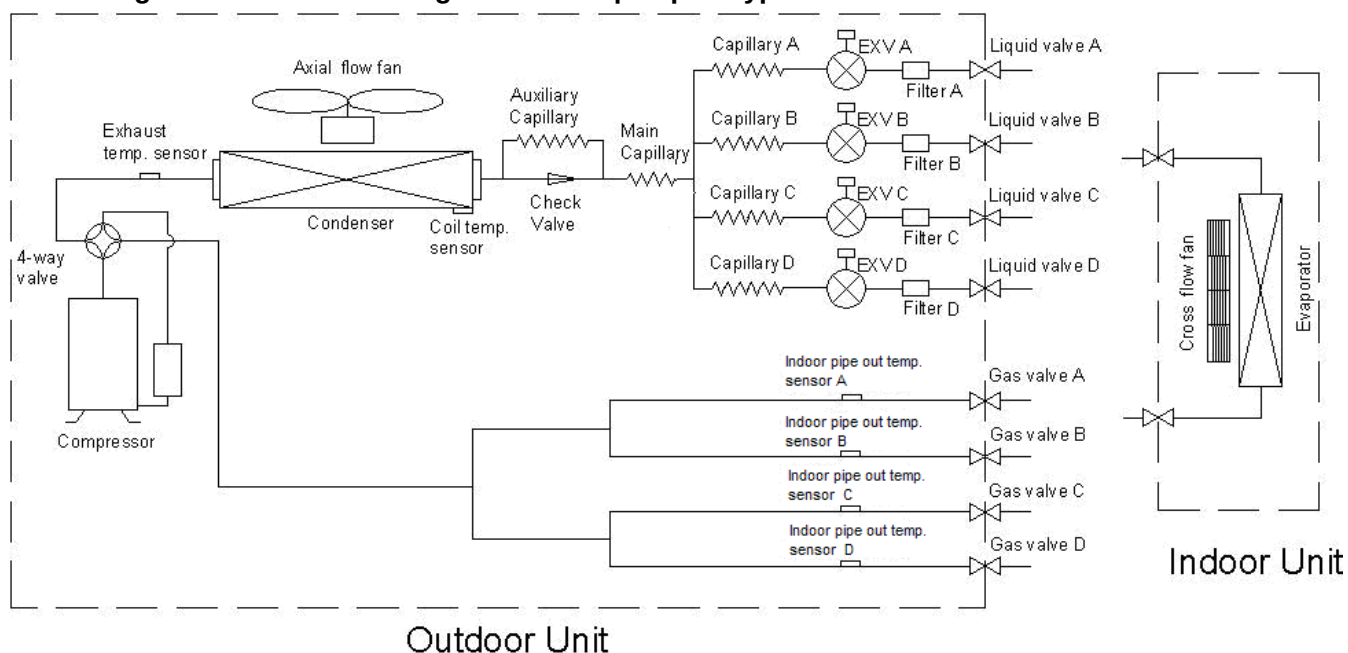
6.1 Refrigeration circuit drawing of inverter binary type



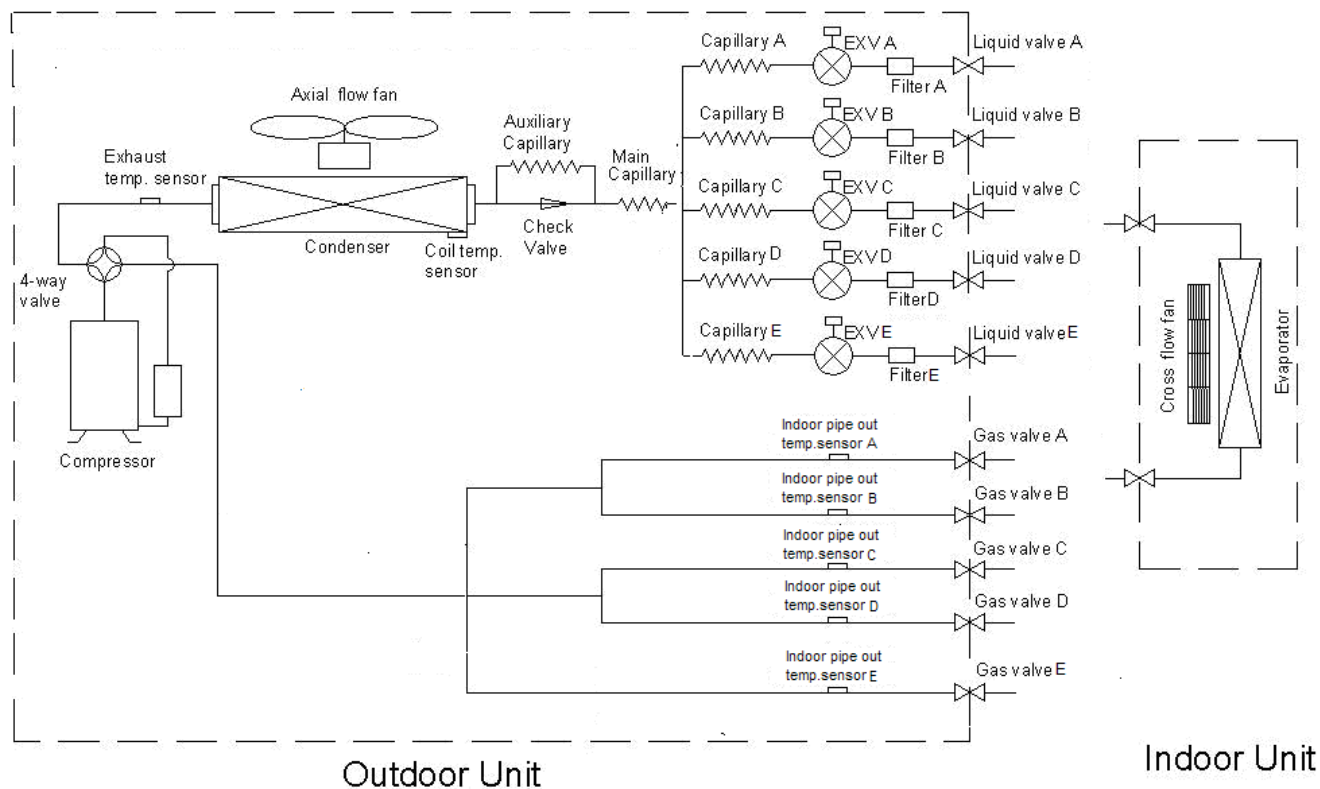
6.2 Refrigeration circuit drawing of inverter trinary type



6.3 Refrigeration circuit drawing of inverter quadplex type



6.4 Refrigeration circuit drawing of inverter quintuple type



7. Indoor units combination

7.1 Indoor unit combination for M2OC-14HRDN1

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 ceiling & floor unit.

7.2 Indoor unit combination for M2OC1-18HRDN1

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.

7.3 Indoor unit combination for M3OC1-21HRDN1

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.

7.4 Indoor unit combination for M3OC1-27HRDN1

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.

7.5 Indoor unit combination for M4OC1-27HRDN1

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			

7.6 Indoor unit combination for M4OC-36HRDN1

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	

7.7 Indoor unit combination for M5OA-36HRDN1

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			

8. Electronic control function

8.1 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.

8.2 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.

8.3 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 display the running frequency,
- In defrosting mode, The LED displays “dF” or alternative 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.

8.4 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 M50A-36HRDN1 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 M50A-36HRDN1 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)	

26	E indoor unit room temp.(T _{1E})	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: “ — — ”		
27	A indoor unit evaporator outlet temp.(T _{2BA})			
28	B indoor unit evaporator outlet temp.(T _{2BB})			
29	C indoor unit evaporator outlet temp.(T _{2BC})			
30	D indoor unit evaporator outlet temp.(T _{2BD})			
31	E indoor unit evaporator outlet temp.(T _{2BE})			
32	Condenser pipe temp.(T ₃)			
33	Outdoor ambient temp.(T ₄)			
34	Compressor discharge temp.(T _p)	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.)		
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 T _p .	
		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		

8.4.1 Frequency of compressor:

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

8.4.2 Running mode:

Display	Corresponding mode
0	Off
1	Cooling mode
2	Heating mode

8.4.3 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.

8.4.4 Number of indoor unit

Display	Number of indoor unit
1	1
2	2
3	3

8.4.5 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		

8.4.6 Opening degree of electronic expansion valve:

Opening degree equals the display data times 8

8.5 Protection

8.5.1 Three minutes delay at restart for compressor.

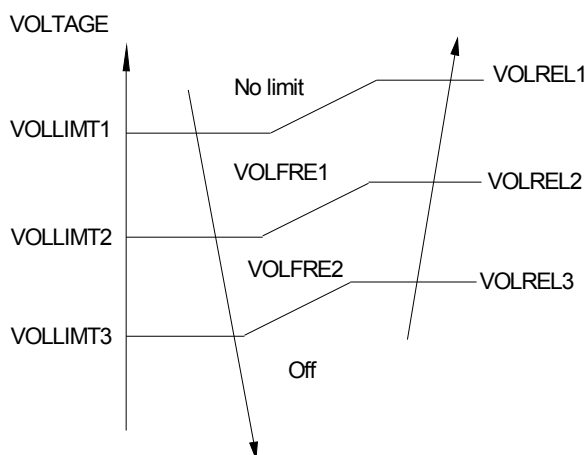
8.5.2 Temperature protection of compressor discharge.

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

----If $102^{\circ}\text{C} < T5 < 115^{\circ}\text{C}$, decrease the frequency to the lower level every 2 minutes till to F1.

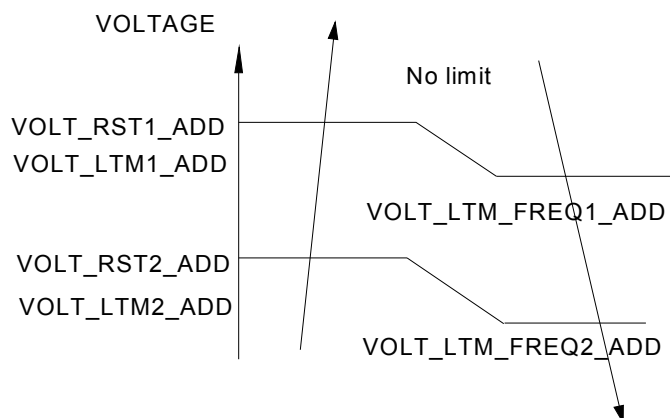
---If $T5 > 115^{\circ}\text{C}$ for 10 seconds, the compressor will stop and restart till $T5 < 90^{\circ}\text{C}$.

8.5.3 Under voltage protection



Mode	VOLLIMIT1(V)	VOLLIMIT2(V)	VOLLIMIT3(V)	VOLREL1(V)	VOLREL2(V)	VOLREL3(V)	VOLFRE1(Hz)	VOLFRE2(Hz)
M2OC-14HRDN1	220	200	80	250	210	100	62	54
M2OC1-18HRDN1	230	200	120	260	210	135	62	54
M3OC1-21HRDN1	245	220	80	265	240	100	78	45
M3OC1-27HRDN1	245	220	120	265	240	135	78	45
M4OC1-27HRDN1	221	210	80	260	225	100	53	44
M4OC-36HRDN1	200	185	80	210	195	100	54	42

For M5OA-36HRDN1,



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.

8.5.4 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 M5OA-36HRDN1.**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. 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_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_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 M5OA-36HRDN1 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.		

8.5.5 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.

8.5.6 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.

8.5.7 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 $T2B > 10^{\circ}\text{C}$.

8.5.8 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 M4OC-36HRDN1, RECOILINFRE=45Hz, RECOILFRE=48Hz, $T_e=120$, $T_f=180$; For M5OA-36HRDN1, 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 M5OA-36HRDN1 model), the frequency will not be limited by the compressor discharge temp. and the

current. For M5OA-36HRDN1 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.

8.5.9 Compressor preheating functions

---Preheating permitting condition:

If $T_4(\text{outdoor ambient temperature}) < 3^\circ\text{C}$ 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.

8.5.10 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 M5OA-36HRDN1, $T_4 \geq 8^\circ\text{C}$)

9. Troubleshooting

9.1 Indoor unit error code explanation:

NEOLA series +PREMIER series +OASIS series:

Display	Operation lamp flash times	Timer lamp	Failure
E0	1	X	EEPROM error
E1	2	X	Communication malfunction between outdoor unit and indoor units
E2	3	X	Zero crossing detection error
E3	4	X	Indoor fan speed out of control
E4	5	X	Open or short circuit of T1 temperature sensor
E5	6	X	Open or short circuit of T2 temperature sensor
F1	2	O	Open or short circuit of T4 temperature sensor
F2	3	O	Open or short circuit of T3 temperature sensor
F3	4	O	Open or short circuit of T5 temperature sensor
F4	5	O	Outdoor EEPROM parameter error
F5	6	O	Outdoor fan speed out of control
F6	7	O	Open or short circuit of T2B temperature sensor
P0	1	☆	IPM error
P1	2	☆	Over voltage or too low voltage protection
P2	3	☆	Temperature protection of compressor top.
P3	4	☆	The protection of the outdoor temperature(too low)
P4	5	☆	The location of the compressor protection
P5	6	☆	Mode conflict

O (light) X (off) ☆ (flash)

Cassette/Ceiling &Floor series:

Operation	Timer	Defrost	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.

Duct:

Operation	Timer	Defrost	Alarm	LED STATUS	DISPLAY DIGITAL TUBE
★	X	X	X	Indoor room temp. sensor open or short-circuit	E0
X	X	★	X	Indoor pipe temp. sensor open or short-circuit	E1
X	★	X	X	Indoor and outdoor communication error	E2
X	X	X	★	Water level alarm	E3
★	★	X	X	EEPROM error	E4
★	X	X	●	Inverter module protection	E5
★	●	X	X	Outdoor sensor open or short circuit	E6
★	●	★	X	Outdoor fan speed out of control	E7
★	●	X	●	Outdoor voltage protection	P0
★	★	★	★	Compressor top temp. protection	P3
★	◎	X	X	Compressor position. protection	P4
★	X	●	X	Mode conflict	P5

★ flash at 5Hz, ● light, X extinguished ◎flash at 0.5Hz

9.2 Outdoor unit error code explanation:

For units(except M5OA-36HRDN1 model)

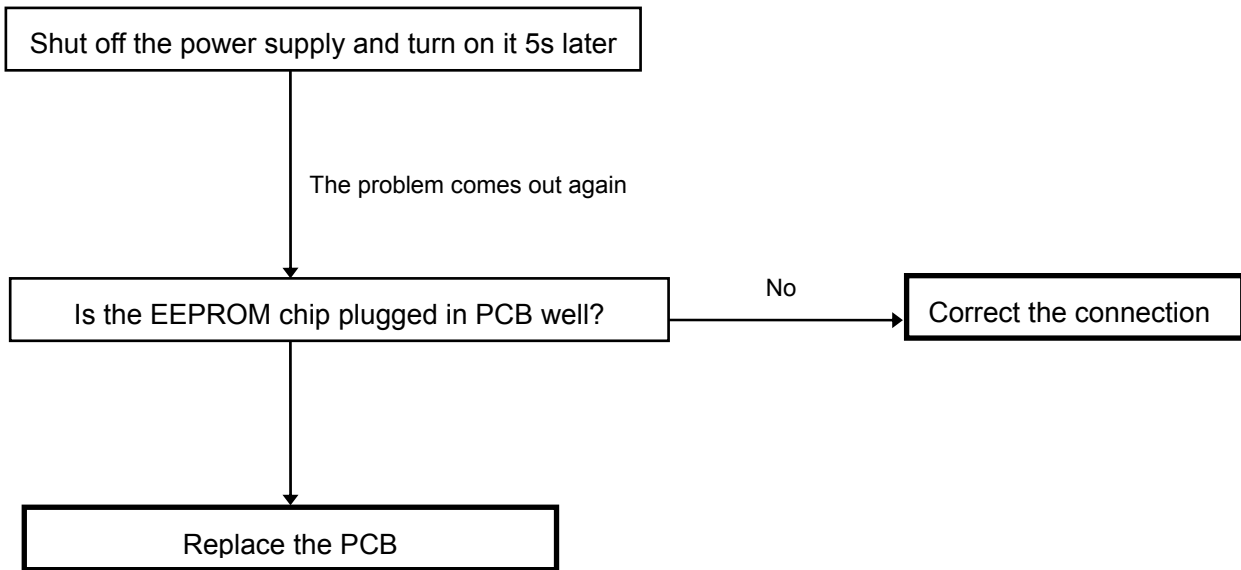
Display	LED STATUS
E0	EEPROM error
E1	No A Indoor unit coil outlet temp. sensor or connector of sensor is defective
E2	No B Indoor unit coil outlet temp. sensor or connector of sensor is defective
E3	No C Indoor unit coil outlet temp. sensor or connector of sensor is defective
E6	No D Indoor unit coil outlet temp. sensor or connector of sensor is defective
E4	Open or short circuit of outdoor unit temperature sensor
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 M4OC-36HRDN1, it only means compressor discharge temp.protection.
P1	High pressure protection(only for M4OC1-27HRDN1, M4OC-36HRDN1)
P2	Low pressure protection(only for M4OC1-27HRDN1, M4OC-36HRDN1)
P3	Compressor current protection
P4	Inverter module protection
P6	Condenser high-temperature protection

For M5OA-36HRDN1 model

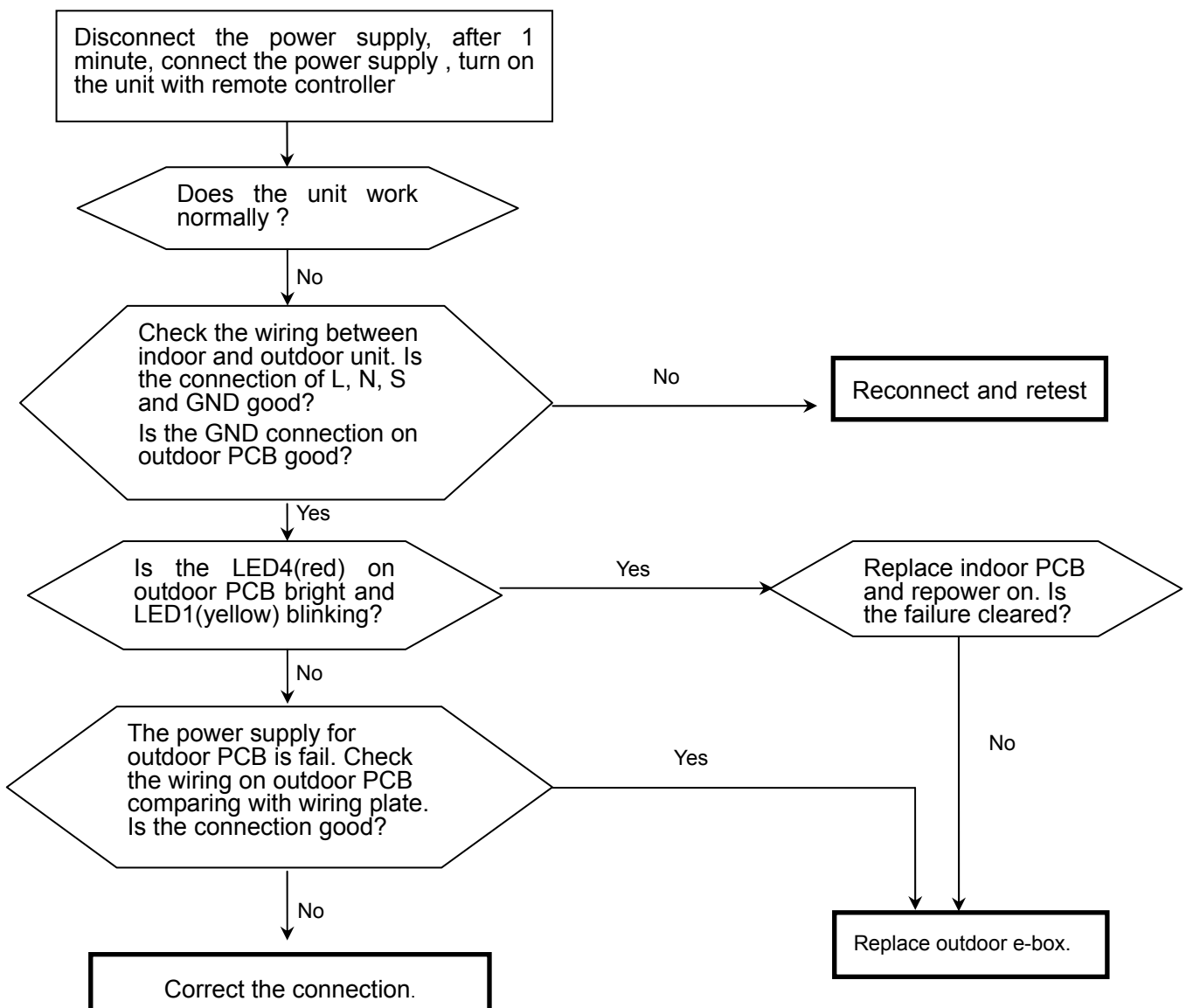
Display	LED STATUS
E0	EEPROM error
E2	Communication malfunction between outdoor unit and indoor units
E3	Communication malfunction between outdoor main chip and compressor control chip.
E4	Outdoor unit temp. sensor or connector of temp. sensor is defective
E5	Compressor voltage protection
E6	PFC module 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

9.3 Trouble shooting

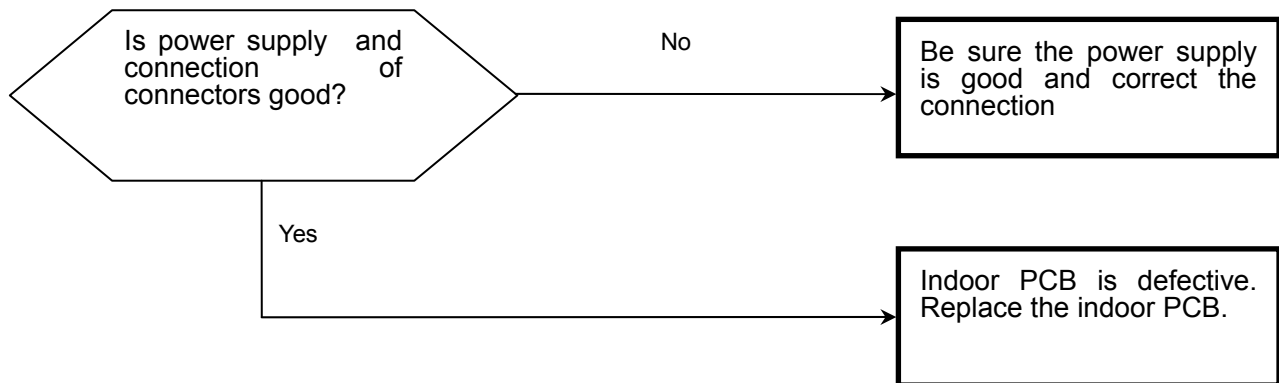
9.3.1 EEPROM parameter error diagnosis and solution



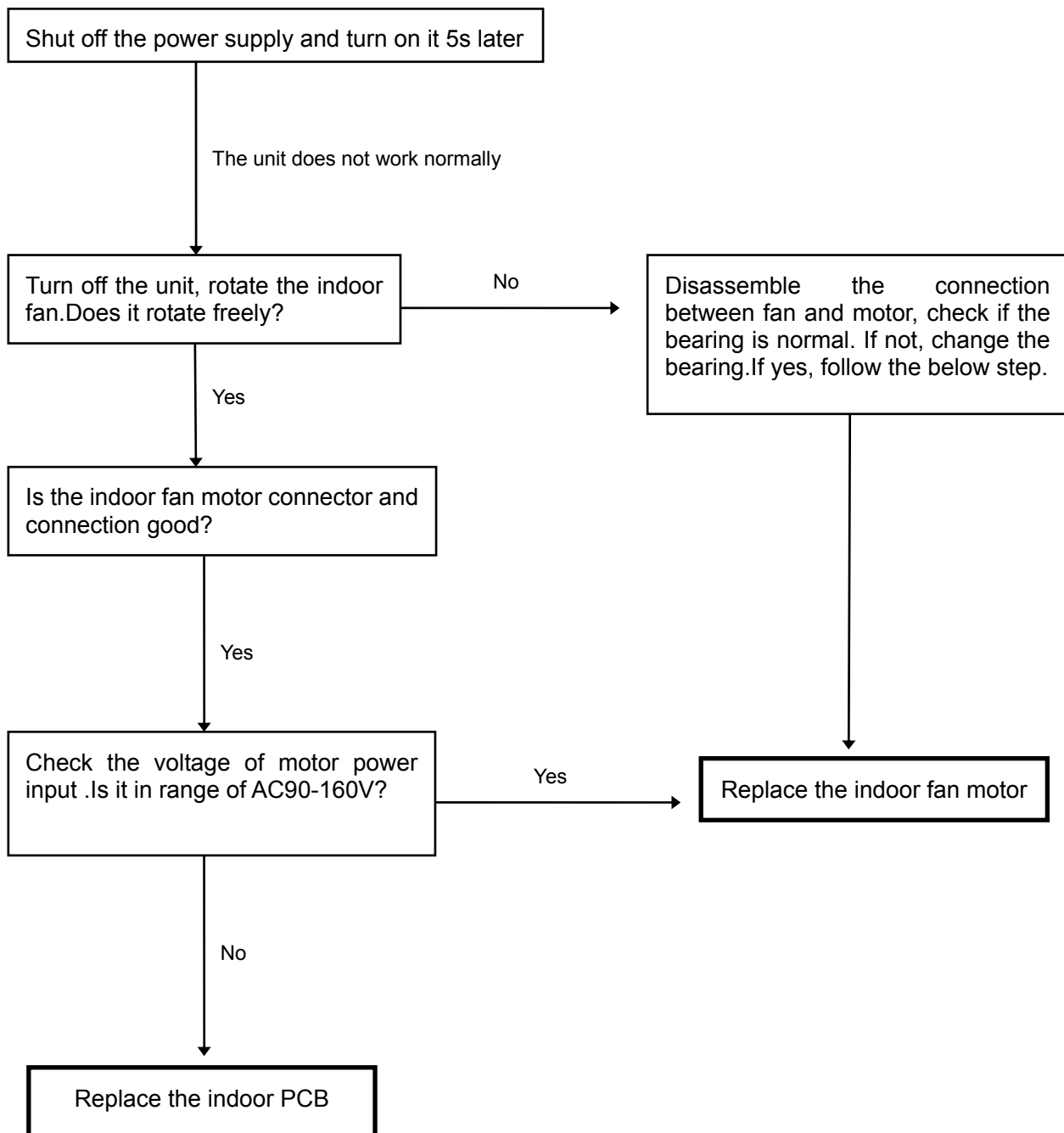
9.3.2 Indoor / outdoor units communication protection (Only for M5OA-36HRDN1 model)

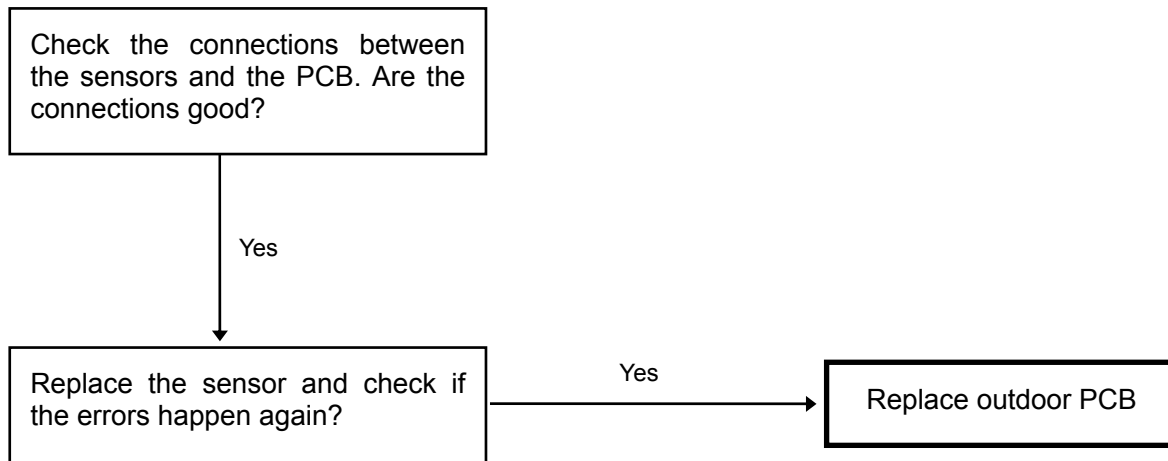
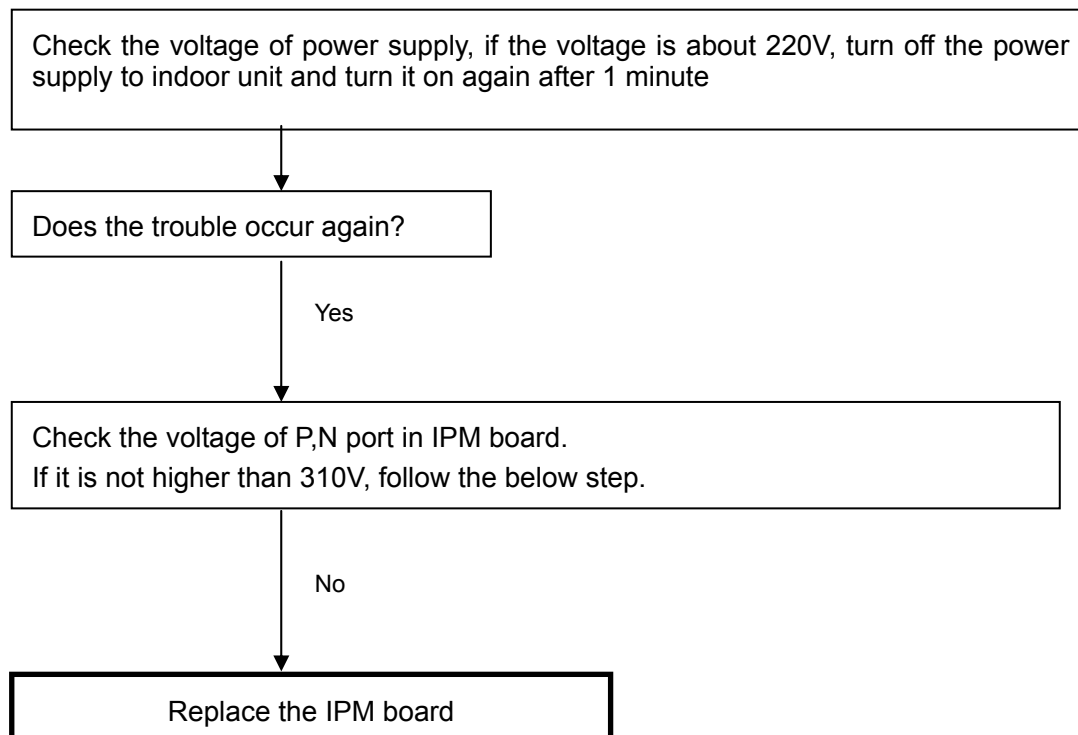


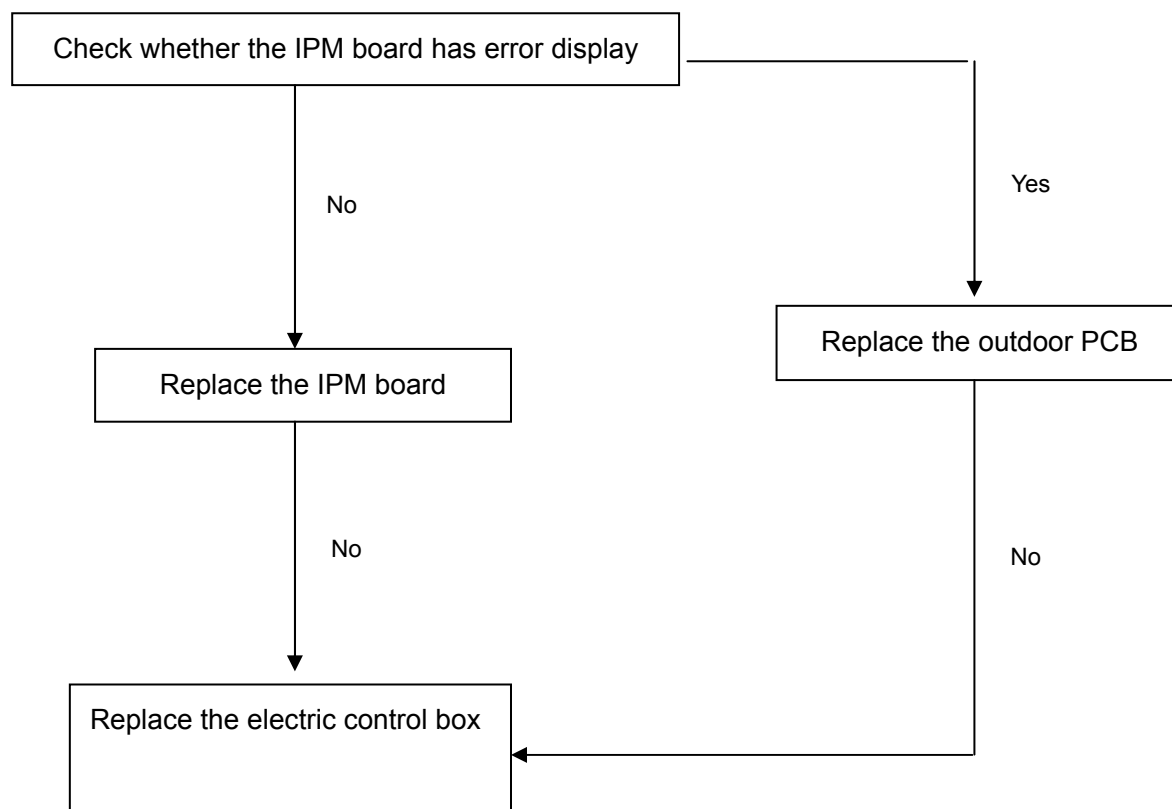
9.3.3 Zero-crossing signal error



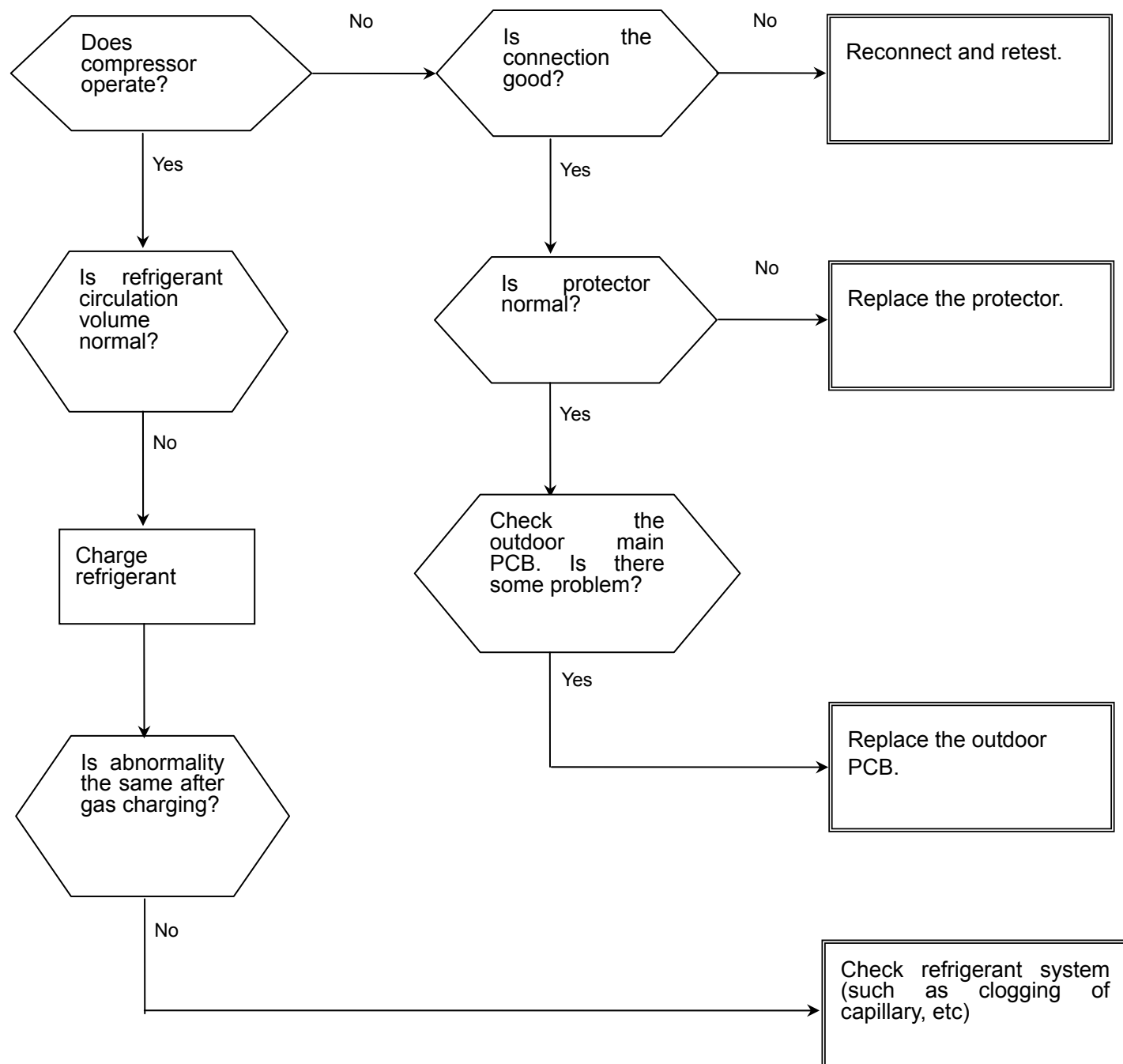
9.3.4 Fan speed out of control diagnosis



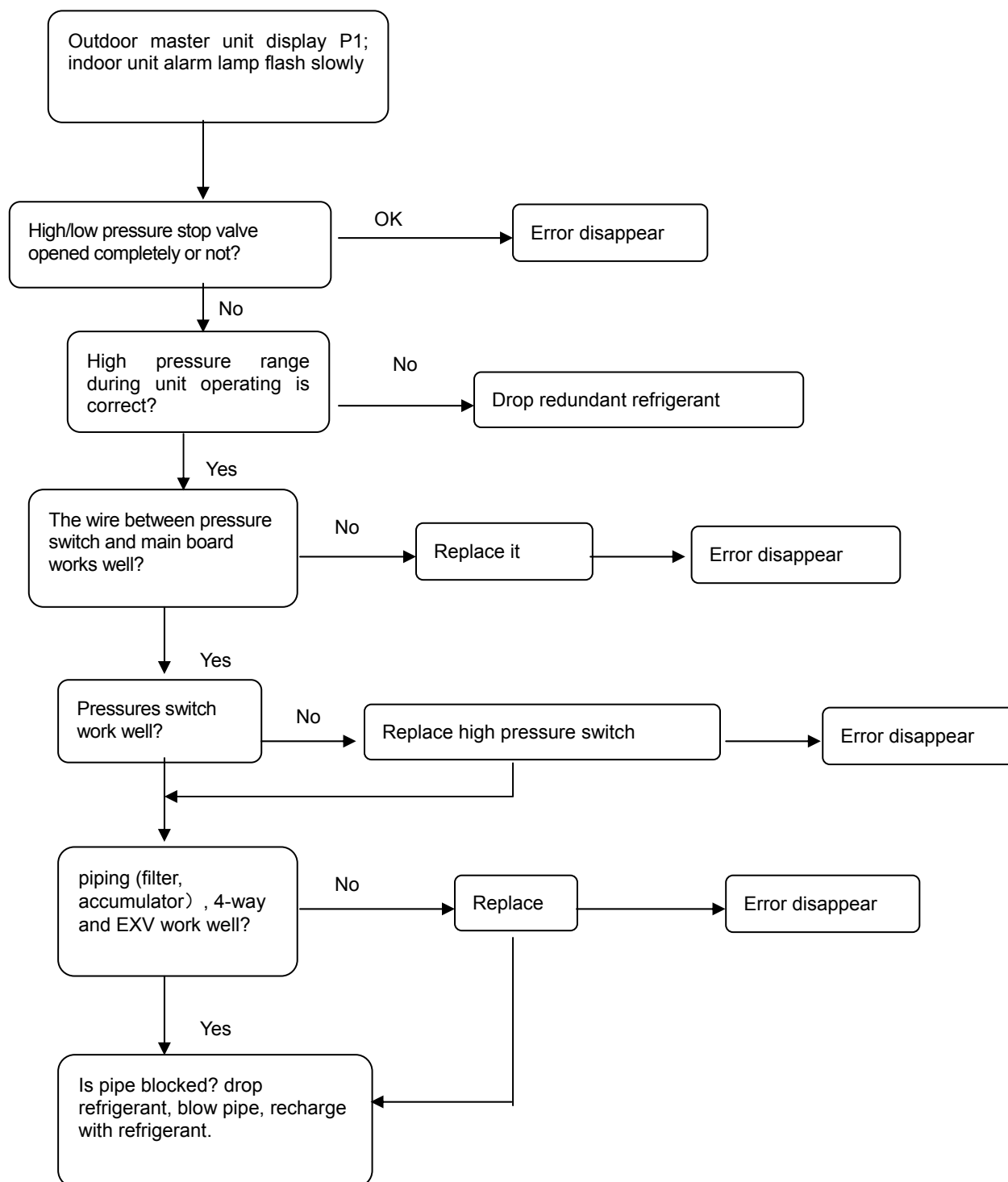
9.3.5 Open or short circuit of temperature sensor diagnosis and solution.**9.3.6 Compressor voltage protection**

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

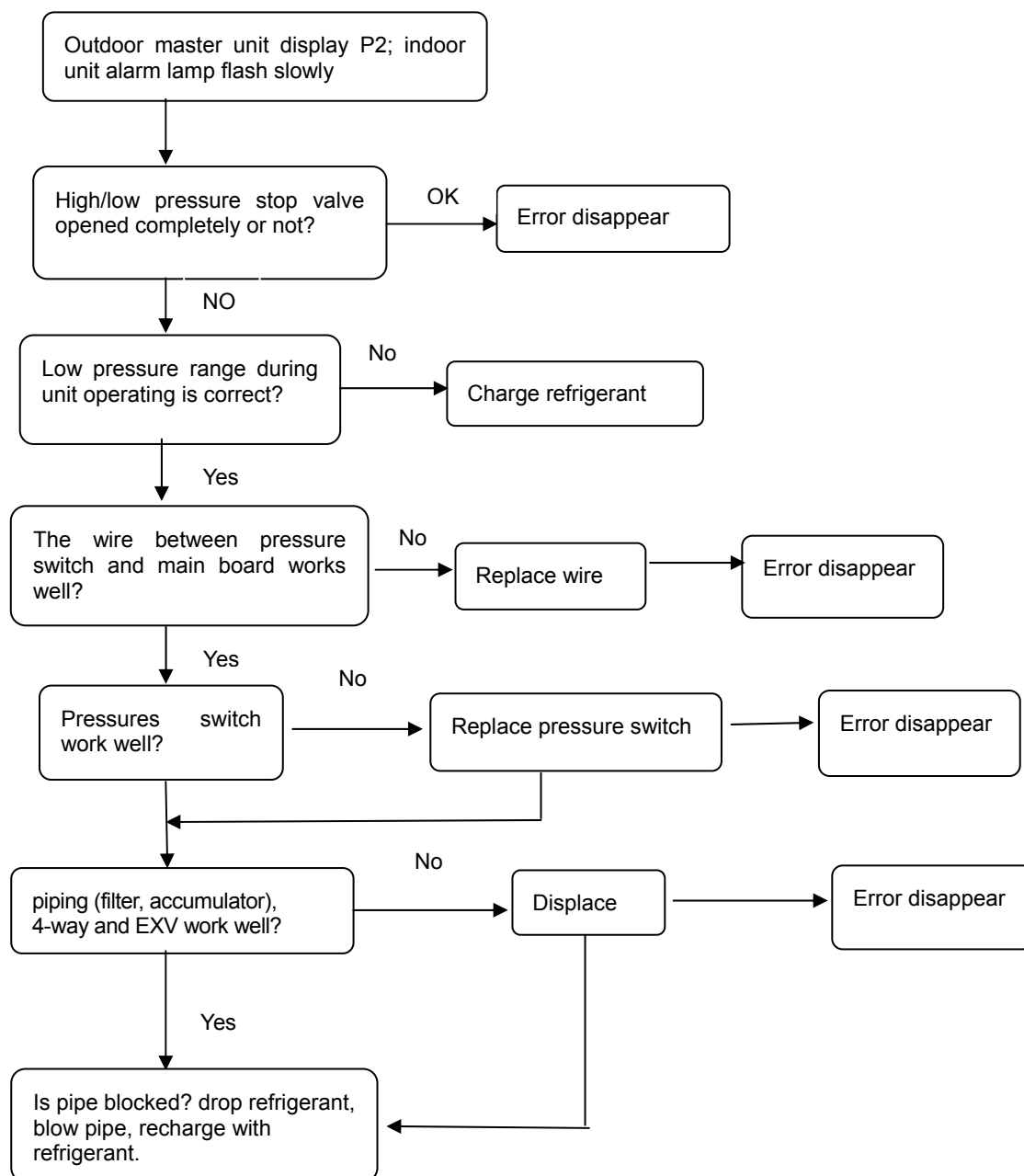
9.3.8 Temperature protection of compressor discharge or compressor top.

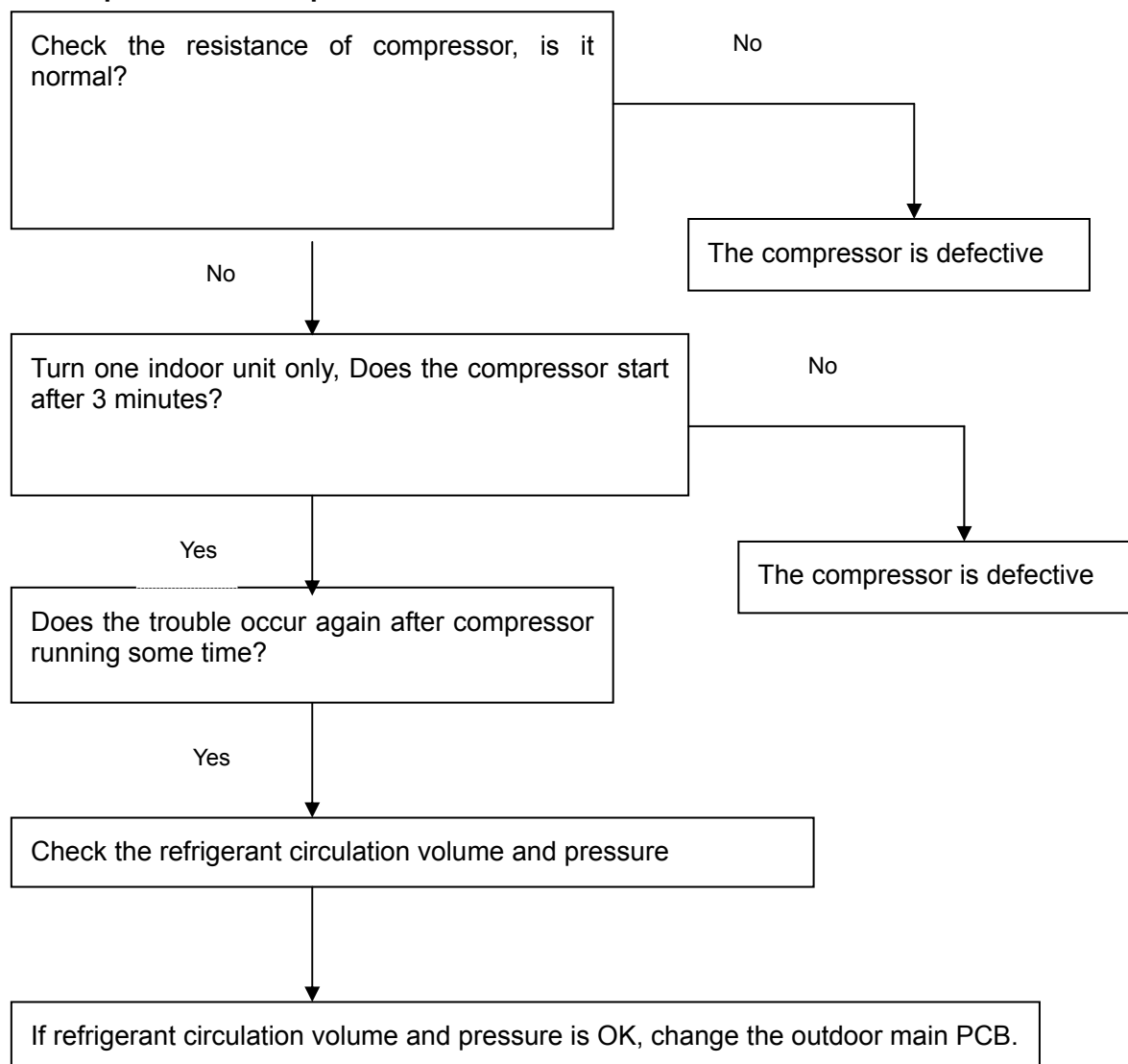


9.3.9 High pressure protection

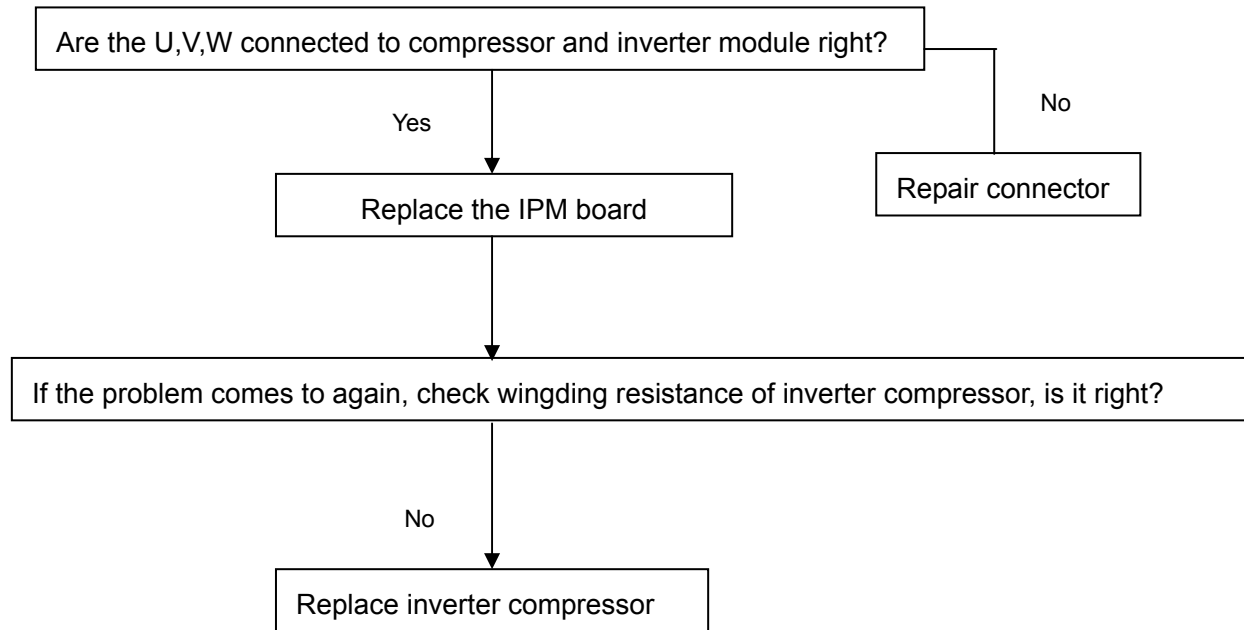


9.3.10 Low pressure protection



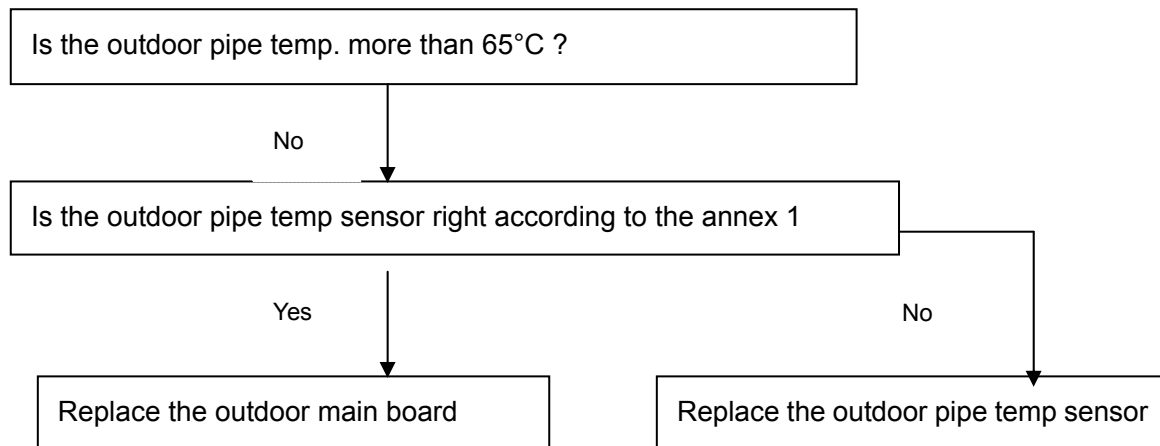
9.3.11 Compressor current protection

9.3.12 Inverter module protection

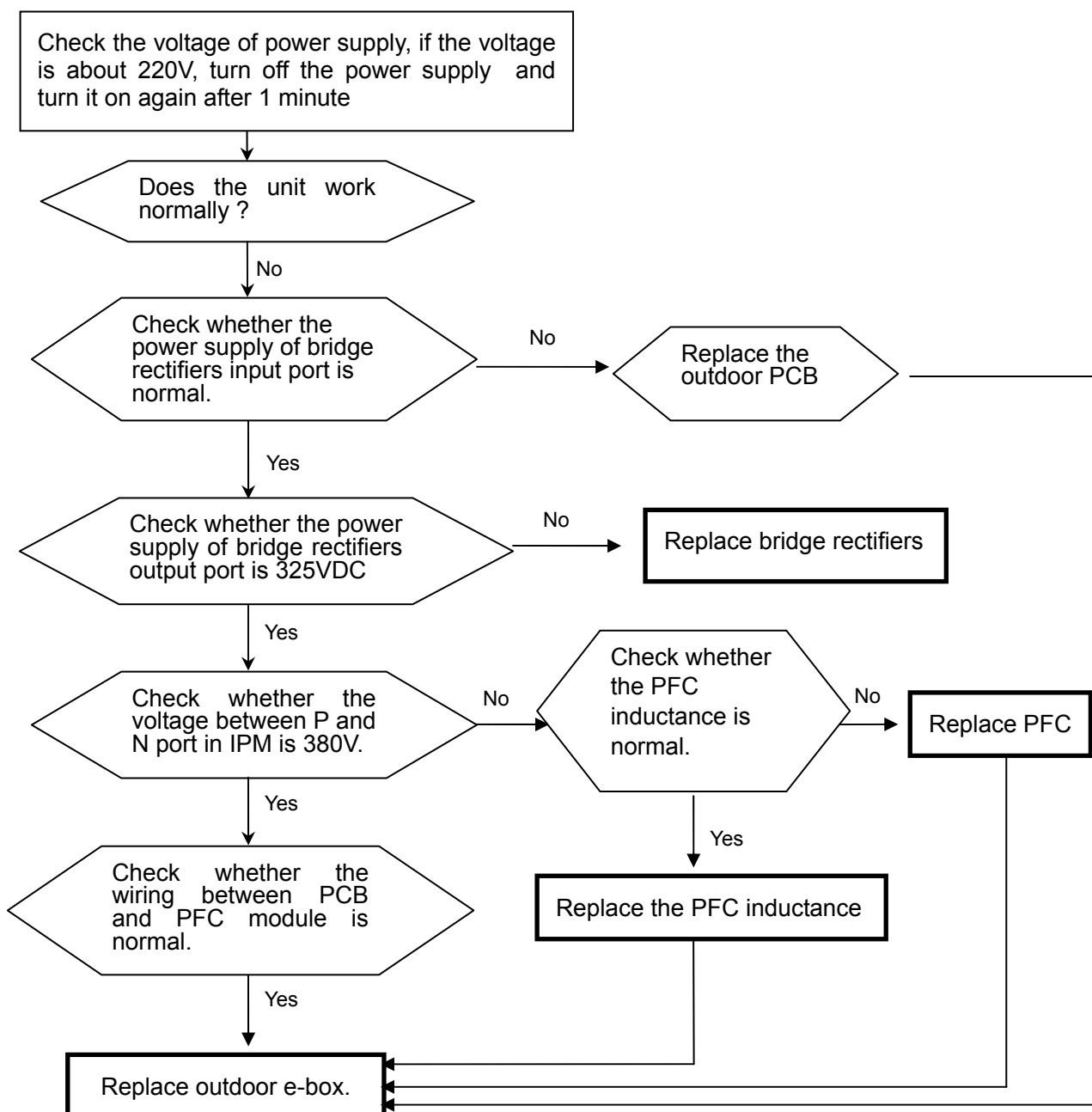


9.3.13 Condenser high-temperature protection

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.



9.3.14 PFC module protection



Annex 1

Characteristic of temp. sensor

Temp. □	Resistance KΩ		Temp. □	Resistance KΩ		Temp. □	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:

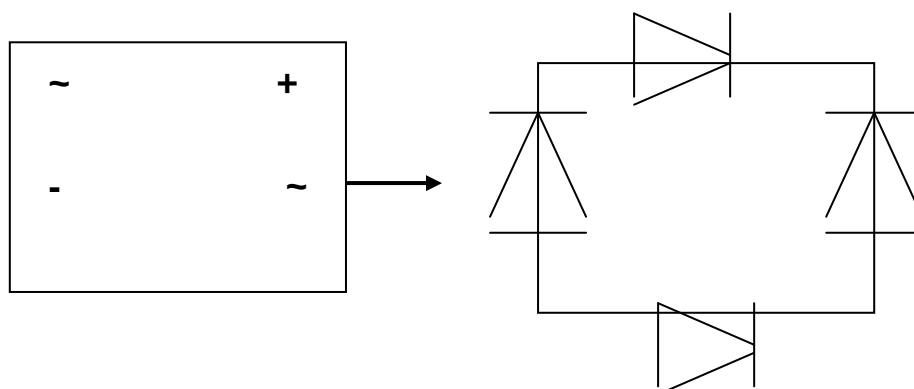
- a) Rectifier : Input :220-230V(AC), output :310V(DC)
 b) Inverter module: U,V, W 3ph.

	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
	~		