SERVICE MANUAL

Mini-Split Systems

4DHP, DWM, D22C, D33C, and DMD

This manual must be left with the homeowner for future reference.

WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life.

Installation and service must be performed by a licensed professional HVAC installer (or equivalent) or service agency

(P) 507700-01

Manufactured By
Allied Air Enterprises LLC
A Lennox International, Inc. Company
215 Metropolitan Drive
West Columbia, SC 29170

Table of Contents

1. Single and Multiple Zone Outdoor Units

1.1. Model Number Identification

4 D HP 1 S 18 M - 1 P

Refrigerant Type
4 = R-410A

Series Type
D = Ductless System

Unit Type
HP = Heat Pump

Major Design Sequence
1 = 1st Generation
2 = 2nd Generation

Cooling Efficiency
B = Basic Efficiency
S = Standard Efficiency
H = High Efficiency

Nominal Cooling Capacity
18 = 1.5 tons
24 = 2 tons
30 = 2.5 tons
36 = 3 tons
48 = 4 tons

Refrigerant Circuits
S = Single Circuit
M = Multiple Circuits

Minor Design Sequence
1 = 1st Revision

Voltage
L = 115V-1 Phase-60hz
P = 208/230V-1 phase-60hz

1.2. 4DHP Single-Zone Specifications Outdoor Units (0.75 - 1.5 Ton)

Nominal Size - Tons		**0.75**		**1**		**1.5**
Outdoor Unit Model No.		**4DHP1S09S**		**4DHP1S12S**		**4DHP1S18S**
Ambient Temperature Operating Range - °F	Cooling	–13 - 122		–13 - 122		–13 - 122
	Heating	–13 - 86		–13 - 86		–13 - 86
Energy Star		Yes		Yes		Yes
Sound Data (dBA)	Cooling/Heating (115V)	52.5		52.5		- - -
	Cooling/Heating (208/230V)	55		55		60
Refrigerant (R-410A)	Charge furnished (115V)	2 lbs. 12 oz.		2 lbs. 12 oz.		- - -
	Charge furnished (208/230V)	2 lbs. 7 oz.		2 lbs. 9 oz.		4 lbs. 5 oz.
	Maximum line length with furnished charge - ft.	25		25		25
	Additional charge required per ft. - oz.	0.16		0.16		0.16
Compressor	No. and Type	(1) Rotary		(1) Rotary		(1) Rotary
	Refrigerant oil type	Ester Oil VG74		Ester Oil VG74		Ester Oil VG74
	Refrigerant oil charge - oz.	12.5		12.5		15.2
	Low ambient cut-off	–13°F		–13°F		–13°F
Connections - in.	Liquid/Gas pipe (flare)	1/4 / 3/8		1/4 / 1/2		1/4 / 1/2
	Maximum refrigerant pipe length - ft.	82		82		98
	Max. difference in level of indoor unit - ft.	33		33		66
Outdoor Fan	(No.) Diameter - in.	(1) 17		(1) 17		(1) 19
	Total air volume - cfm	1200		1200		1470
	rpm	800/750/650		800/750/650		850/750/700
Outdoor Coil	Number of rows	2		2		2
	Fins per inch	21 (115V) 18 (208/230V)		21		18
	Fin type	Hydrophilic aluminium				
	Tube outside diameter - in.	5/16		5/16		5/16
	Tube type	Rifled copper tubing				
	Net face area - ft.^{2} (115V)	4.66		4.66		- - -
	Net face area - ft.^{2} (208/230V)	4.09		4.66		5.19
	Application area - sq. ft.	130 - 195		170 - 250		260 - 375
Design Pressure	PSIG	550/340		550/340		550/340
Shipping Data	Net/Shipping weight (lbs.) (115V)	80 / 86		80 / 86		- - -
	(208/230V)	62 / 67		77 / 83		107 / 113
ELECTRICAL DATA						
Electrical Characteristics - 60 Hz - 1 Phase		115V	208/230V	115V	208/230V	208/230V
[1] Maximum Overcurrent Protection (amps)		20	15	20	15	20
[2] Minimum circuit ampacity		15	10	15	12	15
Compressor Rated load amps		9	5.5	9	6.8	10
Outdoor Fan Motor	Rated load amps	0.6	0.4	0.6	0.4	0.6
	Output - W	40	40	40	40	50

NOTE - Extremes of operating range are plus and minus 10% of line voltage.

[1] HACR type circuit breaker or fuse.

[2] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

1.3. 4DHP Single-Zone Specifications Outdoor Units (2 - 4 Ton)

Nominal Size - Tons		2	2.5	3	4
Outdoor Unit Model No.		**4DHP1S24S**	**4DHP1S30S**	**4DHP1S36S**	**4DHP1S48S**
Ambient Temperature Operating Range - °F	Cooling	–13 - 122	–13 - 122	–13 - 122	–13 - 122
	Heating	–13 - 86	–13 - 86	–13 - 86	–13 - 86
Energy Star		Yes	No	No	No
Sound Data (dBA)	Cooling/Heating	61	59	66	62.5
Refrigerant (R-410A)	Charge furnished	5 lbs. 3 oz.	5 lbs. 11 oz.	6 lbs. 12 oz.	9 lbs. 4 oz.
	Maximum line length with furnished charge - ft.	25	25	25	25
	Additional charge required per ft. - oz.	0.32	0.32	0.32	0.32
Compressor	No. and Type	(1) Rotary	(1) Rotary	Twin-Rotary	Twin-Rotary
	Refrigerant oil type	POE Oil VG74	POE Oil VG74	POE Oil VG74	Ester Oil VG74
	Refrigerant oil charge - oz.	22.7	22.7	33.8	47.3
	Low ambient cut-off	–13°F	5°F	5°F	5°F
Connections - in.	Liquid/Gas pipe (flare)	3/8 / 5/8	3/8 / 5/8	3/8 / 5/8	3/8 / 5/8
	Maximum refrigerant pipe length - ft.	164	164	213	213
	Max. difference in level of indoor unit - ft.	82	82	98	98
Outdoor Fan(s)	(No.) Diameter - in.	(1) 20	(1) 20	(1) 20	(2) 22
	Total air volume - cfm	2235	2130	2530	4470
	rpm	810/700/500	810/700/500	950	(2) 900
Outdoor Coil	Number of rows	2.6	2.6	2	2
	Fins per inch	18	18	19	18
	Fin type	Hydrophilic aluminium			
	Tube outside diameter - in.	5/16	5/16	3/8	3/8
	Tube type	Rifled copper tubing			
	Net face area - ft.[2]	8.24	8.24	8.24	6.43 (inner coil) / 6.97 (outer coil)
	Application area - sq. ft.	345 - 505	430 - 630	515 - 755	690 - 1010
Design Pressure	PSIG	550/340	550/340	550/340	550/340
Shipping Data	Net/Shipping weight (lbs.)	137 / 149	149 / 161	149 / 161	218 / 246
ELECTRICAL DATA					
Electrical Characteristics - 60 Hz - 1 Phase		208/230V	208/230V	208/230V	208/230V
	[1] Maximum Overcurrent Protection (amps)	25	30	50	50
	[2] Minimum circuit ampacity	18	20	30	35
	Compressor Rated load amps	12	15	22	23.5
Outdoor Fan Motor	Rated load amps	0.6	0.6	1.0	(2) 0.39
	Output - W	120	120	120	(2) 85

NOTE - Extremes of operating range are plus and minus 10% of line voltage.

[1] HACR type circuit breaker or fuse.

[2] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

1.4. 4DHP Multi-Zone Specifications Outdoor Units (1.5 - 2.5 Ton)

Nominal Size - Tons		**1.5**		**2.5**	
Outdoor Unit Model No.		**4DHP1S18M**		**4DHP1S30M**	
Number of Zones		**2**		**Up to 3**	
[1] **AHRI Ratings**	System Type	Ducted	Non-Ducted	Ducted	Non-Ducted
	Cooling - Btuh	18,000	18,000	27,000	28,000
	High Temperature Heating - Btuh	18,500	19,000	27,000	28,000
	Low Temperature Heating - Btuh	11,400	12,000	16,200	17,200
	SEER	18.4	22.5	18.5	23.0
	EER	11.8	12.5	11.0	12.5
	HSPF (Region IV)	9.4	10.3	9.0	10.3
	AHRI Reference Number	10062011	10062010	10062013	10062012
Energy Star		No	Yes	No	Yes
Ambient Temperature Range - °F	Cooling	–13 - 122		–13 - 122	
	Heating	–13 - 86		–13 - 86	
Sound Data (dBA)	Cooling	62		63	
	Heating	62		63	
Refrigerant	Charge furnished (R-410A)	4 lbs. 7 oz.		6 lbs. 3 oz.	
	Maximum line length with furnished charge (per zone) - ft.	25		25	
	Additional charge required per ft. - oz.	0.161		0.161	
Compressor	No. and Type	(1) Rotary		(1) Rotary	
	Refrigerant oil type	VG74		VG74	
	Refrigerant oil charge - oz.	16.9		22.7	
Connections	Liquid+Gas pipe (in.) flare	(2) 1/4 + (2) 3/8		(3) 1/4 + (3) 3/8	
	Max. length for all rooms - ft.	262		262	
	Max. length for one indoor unit - ft.	115		115	
	Max. height difference between indoor and outdoor units - ft.	49		49	
	Max. height difference between indoor units - ft.	33		33	
Outdoor Fan	(No.) Diameter - in.	(1) 19		(1) 20	
	Total air volume - cfm	1390		2130	
	Motor rpm	150/200/250/300/350/450/550/650/800/850		150/200/250/300/400/500/600/750/900/1000	
Outdoor Coil	Number of rows	2		2	
	Fins per inch	18		17	
	Fin type	Hydrophilic Aluminum			
	Tube outside diameter - in.	3/8		3/8	
	Tube type	Rifled Copper Tubing			
	Net face area - ft.[2]	5.19		8.24	
Application area - sq. ft.		260 - 375		430 - 630	
Design Pressure	PSIG	550/340		550/340	
Shipping Data	Net/Shipping weight (lbs.)	106 / 115		150 / 161	
ELECTRICAL DATA					
Electrical Characteristics - 60 Hz - 1 Phase		208/230V		208/230V	
	[2] Maximum Overcurrent Protection (amps)	25		35	
	[3] Minimum circuit ampacity	18		25	
	Compressor Rated load amps	10		20	
Outdoor Fan Motor	Rated load amps	0.74		0.9	
	Output - W	50		120	

NOTE - Per AHRI, the certified ratings for systems are valid for all combinations of indoor units with the specific outdoor units listed above and in the AHRI Directory of Certified Equipment. Please visit http://www.ahridirectory.org for further details and latest updates.

[1] Ratings are AHRI certified to AHRI Standard 1230-2010 with Addendum 2;
- Cooling Ratings - 80°F dry bulb/67°F wet bulb entering indoor coil air and 95°F dry bulb/75°F wet bulb outdoor air temperature.
- High Temperature Heating Ratings - 70°F dry bulb/60°F wet bulb entering indoor coil air and 47°F dry bulb/43°F wet bulb outdoor air temperature.
- Low Temperature Heating Ratings - 70°F dry bulb/60°F wet bulb entering indoor coil air and 17°F dry bulb/15°F wet bulb outdoor air temperature.

NOTE - Extremes of operating range are plus and minus 10% of line voltage.

[2] HACR type circuit breaker or fuse.

[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

NOTE - Adaptors are furnished for the gas pipe connections:
018 - (2) 3/8 x 1/2 in.
030 - (3) 3/8 x 1/2 in.

1.5. 4DHP Multi-Zone Specifications Outdoor Units (3 - 4 Ton)

Nominal Size - Tons		**3**		**4**	
Outdoor Unit Model No.		**4DHP1S36M**		**4DHP1S48M**	
Number of Zones		**Up to 4**		**Up to 5**	
[1] **AHRI Ratings**	System Type	Ducted	Non-Ducted	Ducted	Non-Ducted
	Cooling - Btuh	36,000	36,000	48,000	48,000
	High Temperature Heating - Btuh	36,000	36,000	50,000	48,000
	Low Temperature Heating - Btuh	22,800	24,600	33,000	29,600
	SEER	17.9	22.5	17.6	22.4
	EER	10.0	11.5	10.1	12.5
	HSPF (Region IV)	9.7	10.2	10.1	10.2
	AHRI Reference Number	10062015	10062014	10062017	10062016
Energy Star		No	No	No	Yes
Ambient Temperature Range - °F	Cooling	–13 - 122		–13 - 122	
	Heating	–13 - 86		–13 - 86	
Sound Data (dBA)	Cooling	62		64	
	Heating	62		64	
Refrigerant	Charge furnished (R-410A)	6 lbs. 10 oz.		10 lbs. 2 oz.	
	Maximum line length with furnished charge (per zone) - ft.	25		25	
	Additional charge required per ft. - oz.	0.161		0.32	
Compressor	No. and Type	(1) Rotary		(1) Twin Rotary	
	Refrigerant oil type	VG74		VG74	
	Refrigerant oil charge - oz.	33.8		47.3	
Connections	Liquid+Gas+Gas pipe (in.) flare	(4) 1/4 + (3) 3/8 + (1) 1/2		(5) 1/4 + (3) 3/8 + (2) 1/2	
	Max. length for all rooms - ft.	262		262	
	Max. length for one indoor unit - ft.	115		115	
	Max. height difference between indoor and outdoor units - ft.	49		49	
	Max. height difference between indoor units - ft.	33		33	
Outdoor Fan	(No.) Diameter - in.	(1) 20		(2) 22	
	Total air volume - cfm	2130		4500	
	Motor rpm	150/200/250/300/400/500/600/750/900/1000		150/200/250/300/400/500/600/700/800/870	
Outdoor Coil	Number of rows	2		2	
	Fins per inch	19		18	
	Fin type	Hydrophilic Aluminum			
	Tube outside diameter - in.	3/8		3/8	
	Tube type	Rifled Copper Tubing			
	Net face area - ft.[2]	8.16		6.43 (inner coil) / 6.97 (outer coil)	
Application area - sq. ft.		515 - 755		690 - 1010	
Design Pressure	PSIG	550/340		550/340	
Shipping Data	Net/Shipping weight (lbs.)	157 / 168		224 / 255	
ELECTRICAL DATA					
Electrical Characteristics - 60 Hz - 1 Phase		208/230V		208/230V	
	[2] Maximum Overcurrent Protection (amps)	45		50	
	[3] Minimum circuit ampacity	30		35	
	Compressor Rated load amps	22		21	
Outdoor Fan Motor	Rated load amps	1.3		(2) 0.39	
	Output - W	120		(2) 85	

NOTE - Per AHRI, the certified ratings for systems are valid for all combinations of indoor units with the specific outdoor units listed above and in the AHRI Directory of Certified Equipment. Please visit http://www.ahridirectory.org for further details and latest updates.

[1] Ratings are AHRI certified to AHRI Standard 1230-2010 with Addendum 2;
- Cooling Ratings - 80°F dry bulb/67°F wet bulb entering indoor coil air and 95°F dry bulb/75°F wet bulb outdoor air temperature.
- High Temperature Heating Ratings - 70°F dry bulb/60°F wet bulb entering indoor coil air and 47°F dry bulb/43°F wet bulb outdoor air temperature.
- Low Temperature Heating Ratings - 70°F dry bulb/60°F wet bulb entering indoor coil air and 17°F dry bulb/15°F wet bulb outdoor air temperature.

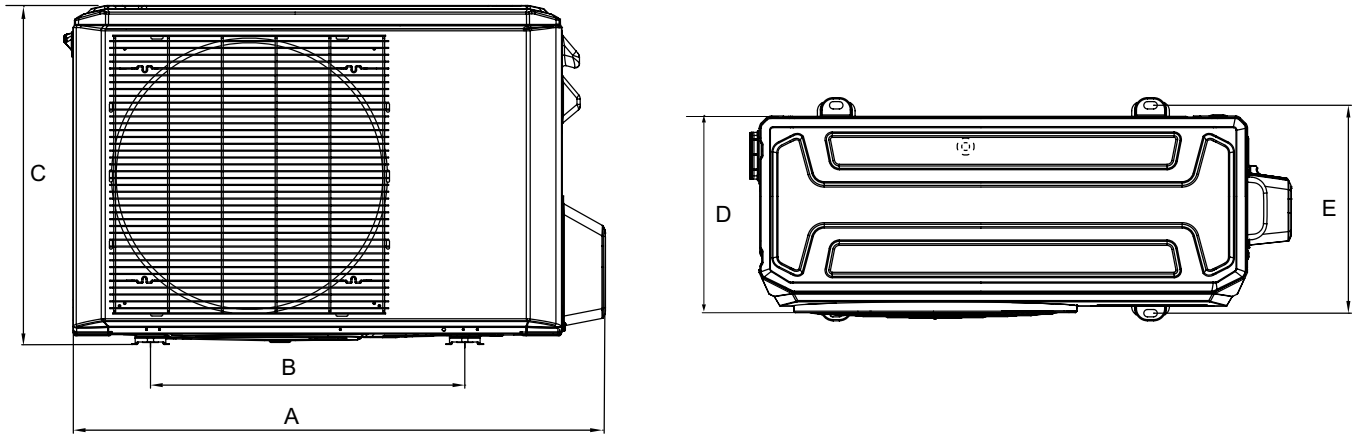
NOTE - Extremes of operating range are plus and minus 10% of line voltage.

[2] HACR type circuit breaker or fuse.

[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

NOTE - Adaptors are furnished for the gas pipe connections:
036 - (3) 3/8 x 1/2 in. and (1) 1/2 x 3/8 in.
048 - (3) 3/8 x 1/2 in., (2) 1/2 x 3/8 in., (2) 1/4 x 3/8 in. and (2) 1/2 x 5/8 in.

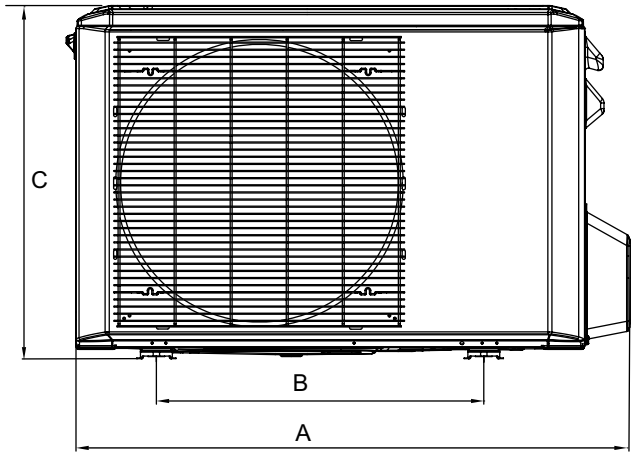
1.6. Single-Zone Outdoor Unit Dimensions

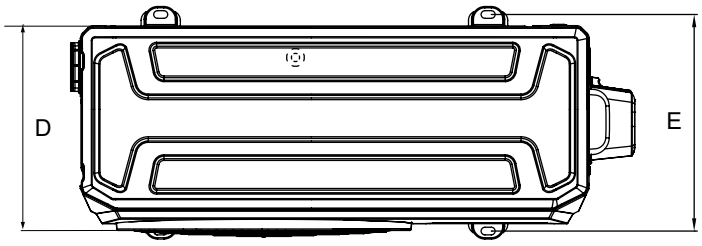


TYPICAL APPEARANCE OF UNITS

Model	Unit of Measurement	A	B	C	D	E
4DHP1S09S-*L 4DHP1S12S-*L 4DHP1S12S-*P	inches	34-1/4	20-1/4	21-7/8	13-1/8	13-3/8
	mm	870	514	556	333	340
4DHP1S09S-*P	inches	33-1/8	19-1/8	21-7/8	11-7/8	11-3/4
	mm	842	486	556	302	298
4DHP1S18S-*P	inches	36	21-1/4	27-5/8	14-1/4	13-3/4
	mm	914	540	702	362	349
4DHP1S24S-*P 4DHP1S30S-*P 4DHP1S36S-*P	inches	37-1/4	26-1/2	31-7/8	16-3/8	15-7/8
	mm	1032	673	810	416	403
4DHP1S48S-*P	inches	41-1/8	25	52-1/2	16-3/8	15-7/8
	mm	1045	635	1334	416	403

1.7. Multi-Zone Outdoor Unit Dimensions

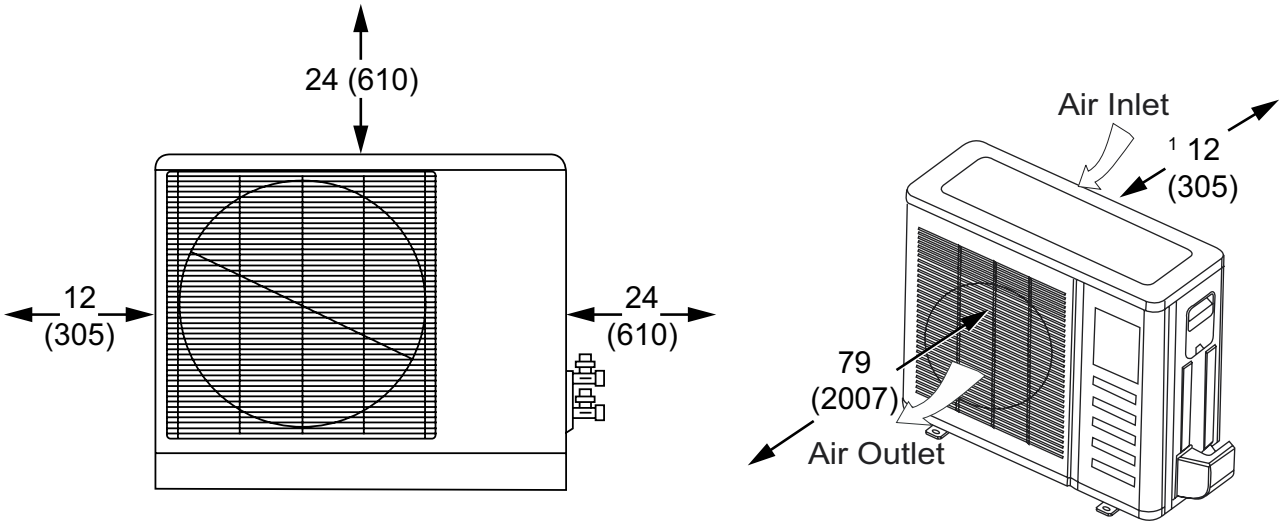




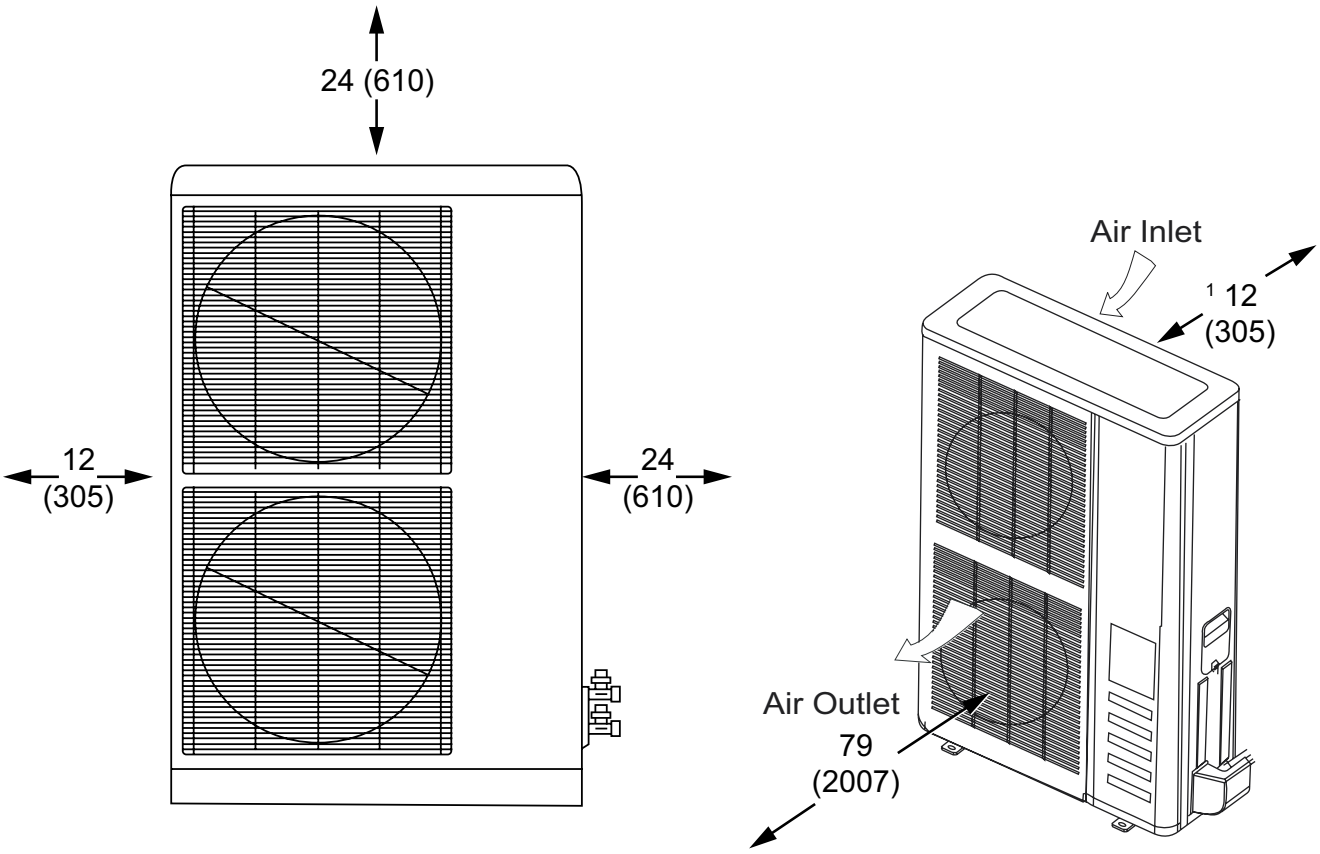
TYPICAL APPEARANCE OF UNITS

Model	Unit of Measurement	A	B	C	D	E
4DHP1S18M-*P	inches	36	21-1/4	27-5/8	13-1/4	13-3/4
	mm	914	540	702	335	350
4DHP1S30M-*P 4DHP1S36M-*P	inches	40-3/4	26-1/2	31-7/8	15-1/8	15-7/8
	mm	1035	673	810	386	403
4DHP1S48M-*P	inches	41-3/4	25	52-1/2	16-3/8	15-7/8
	mm	1060	634	1333	415	404

1.8. Outdoor Unit Clearances



[1] Minimum rear clearance can be 6 inches (152 mm) when mounted on brackets and with no obstructions on the other three sides.



[1] Minimum rear clearance can be 6 inches (152 mm) when mounted on brackets and with no obstructions on the other three sides.

2. D22C and D33C Cassette Non-Ducted Indoor Units

2.1. Model Number Identification

D 22C 1 12 S 4 - 1 P

Series Type
D = Ductless System

Unit Type
22C = 2x2 Cassette Non-Ducted Unit
33C = 3x3 Cassette Non-Ducted Unit

Major Design Sequence
1 = 1st Generation
2 = 2nd Generation

Nominal Cooling Capacity
09 = .75 tons
12 = 1 tons
18 = 1.5 tons
24 = 2 tons
30 = 2.5 tons
48 = 4 tons

Cooling Efficiency
S = Standard Efficiency

Refrigerant Type
4 = R-410A

Minor Design Sequence
1 = 1st Revision

Voltage
L = 115V-1 Phase-60hz
P = 208/230V-1 phase-60hz

2.2. D22C Indoor Unit Specifications

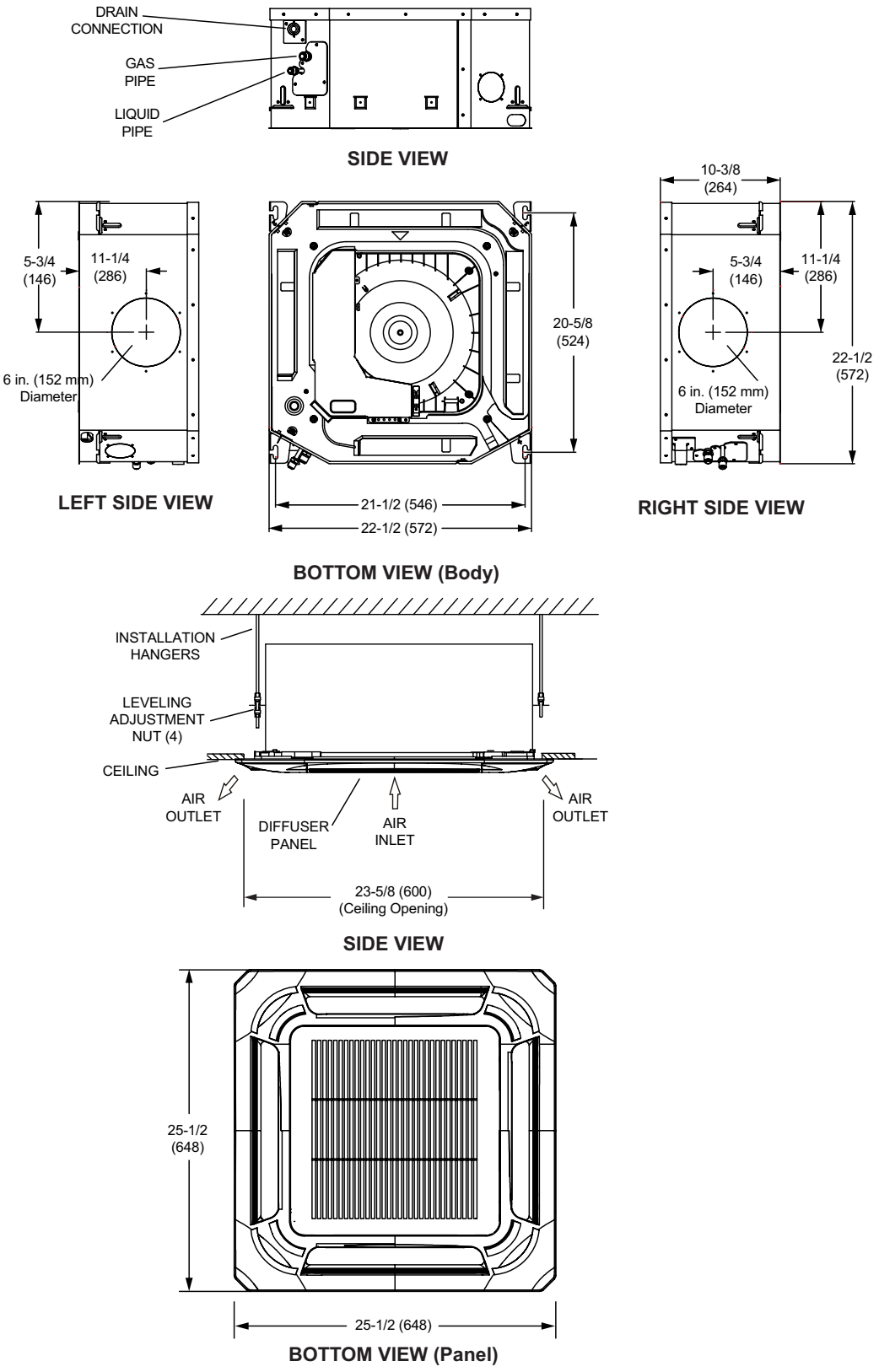
	Model No.	D22C109S4-*P	D22C112S4-*P	D22C118S4-*P
	Nominal Tons	0.75	1	1.5
Power Supply - 60 hz - 1 phase		208/230V	208/230V	208/230V
Rated load amps		0.9	1.0	1.5
Output (W)		46	46	46
Room Temperature Range (°F)	Cooling	62 - 90	62 - 90	62 - 90
	Heating	32 - 86	32 - 86	32 - 86
Air Volume - cfm (High/Medium/Low)		375/300/255	380/310/260	560/485/415
Sound Data (dBA) - Low/Medium/High		33/37/41	36/39/43	36/39/44
Piping Connections - Liquid/Gas - o.d. - flare - in.		1/4 / 3/8	1/4 / 1/2	1/4 / 1/2
Drain connection o.d. - in.		1	1	1
Net/Shipping weights - lbs.	Body	32 / 38	36 / 41	36 / 42
REQUIRED COMPONENTS - ORDERED SEPARATELY				
Cassette Panel		**1.861055**	**1.861055**	**1.861055**
Net/Shipping weights - lbs.		6 / 10	6 / 10	6 / 10

2.3. D33C Indoor Unit Specifications

Model No.		D33C124S4-*P	D33C136S4-*P	D33C148S4-*P
Nominal Tons		2	3	4
Power Supply - 60 hz - 1 phase		208/230V	208/230V	208/230V
Rated load amps		2.0	1.5	1.6
Output (W)		42	124	170
Room Temperature Range (°F)	Cooling	62 - 90	62 - 90	62 - 90
	Heating	32 - 86	32 - 86	32 - 86
Air Volume - cfm (High/Medium/Low)		700/635/575	1095/960/810	1175/1030/855
Sound Data (dBA) - Low/Medium/High		43/47/51	49/52/55	49/52/55
Piping Connections - Liquid/Gas - o.d. - flare - in.		3/8 / 5/8	3/8 / 5/8	3/8 / 5/8
Drain connection o.d. - in.		1-1/4	1-1/4	1-1/4
Net/Shipping weights - lbs.	Body	47 / 55	58 / 66	64 / 73
REQUIRED COMPONENTS - ORDERED SEPARATELY				
Cassette Panel		**1.861054**	**1.861054**	**1.861054**
Net/Shipping weights - lbs.		12 / 18	12 / 18	12 / 18

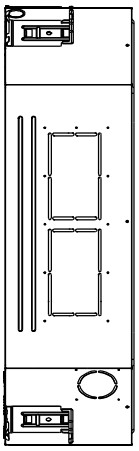
2.4. D22C Indoor Unit Dimensions

D22C109S4, D22C112S4, D22C118S4

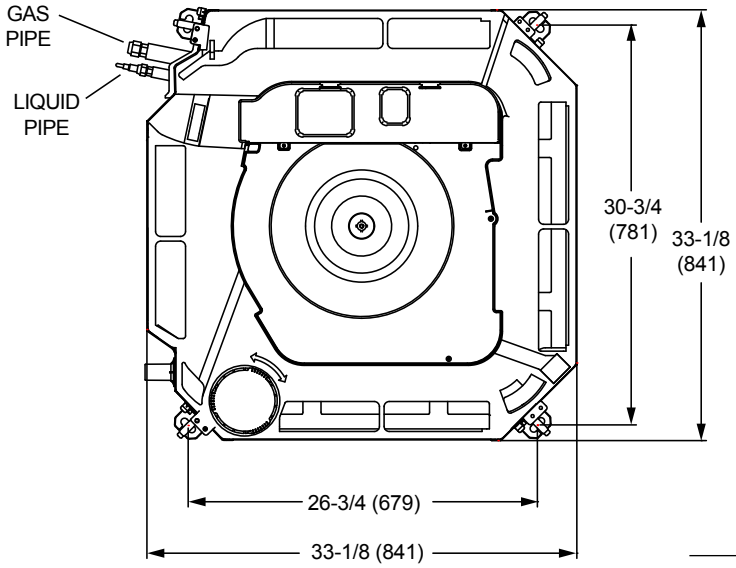


2.5. D33C Indoor Unit Dimensions

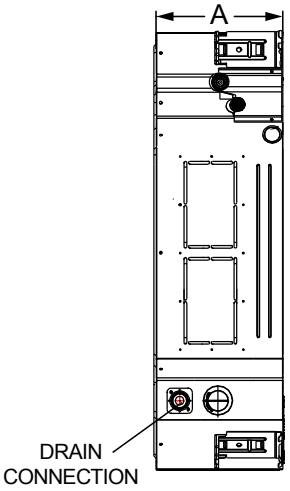
D33C124S4, D33C136S4, D33C148S4



LEFT SIDE VIEW

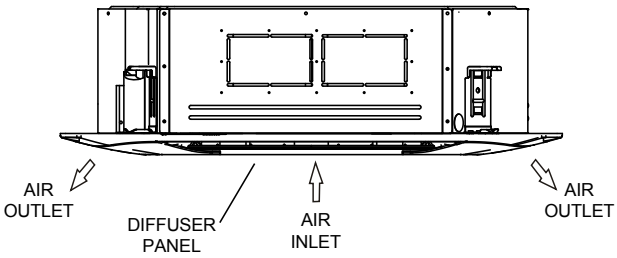


BOTTOM VIEW (Body)

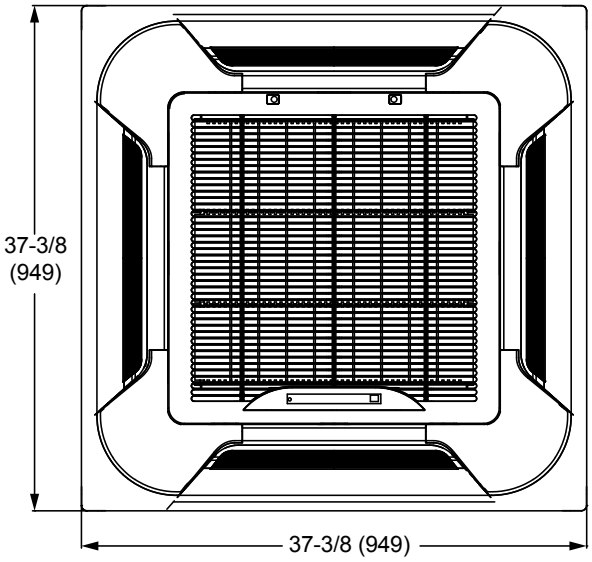


RIGHT SIDE VIEW

Size	A	
	in.	mm
024	8-1/8	206
036	9-5/8	244
048	11-1/4	286

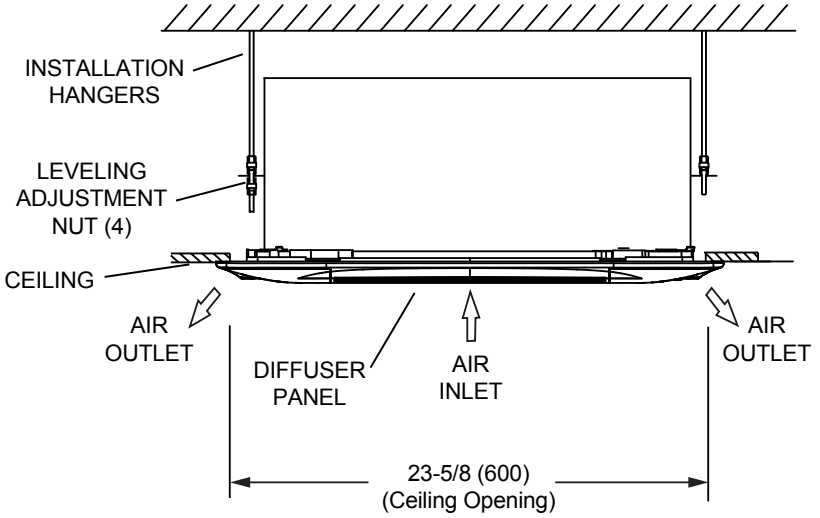


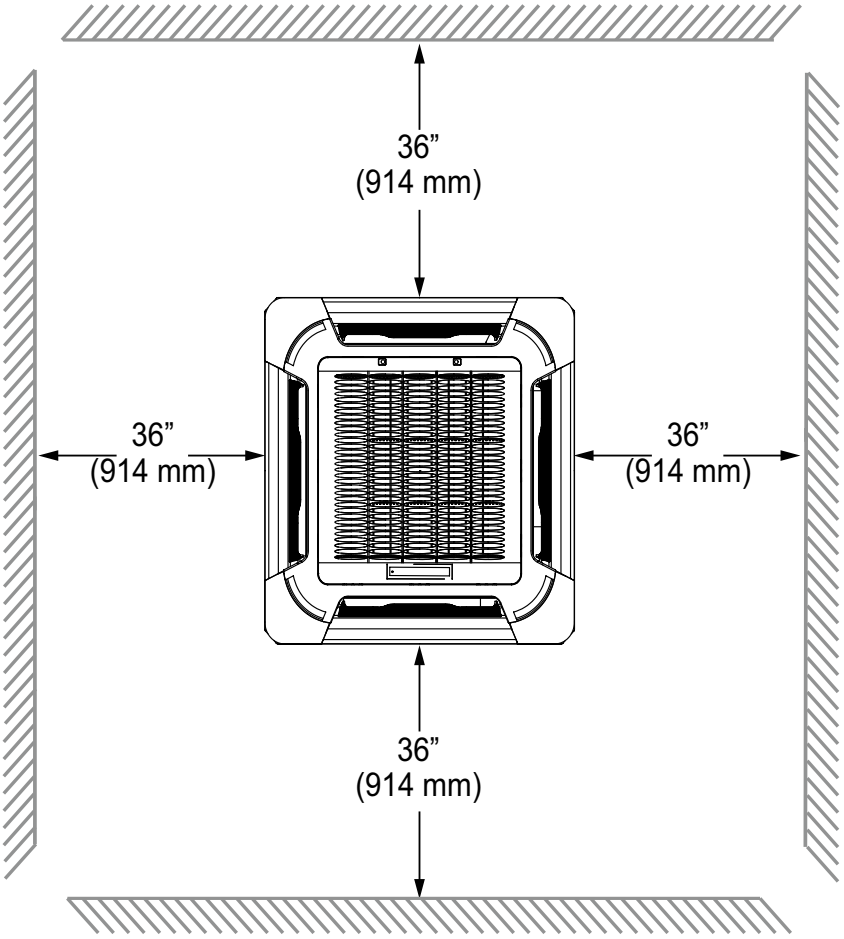
SIDE VIEW



BOTTOM VIEW (Panel)

2.6. D22C and D33C Indoor Unit Clearances





Minimum Clearance from Structural Ceiling to Drop Ceiling:
D22C109, D22C112, D22C118, D33C124 -- 10-1/4” (260 mm)
D33C136, D33C148 -- 13” (330 mm)

Minimum Clearance to Floor - 98-1/2” (2500 mm)

3. DMD Ducted Indoor Units

3.1. Model Number Identification

D MD 1 12 S 4 - 1 P

Series Type
D = Ductless System

Unit Type
MD = Medium-Static Ducted

Major Design Sequence
1 = 1st Generation
2 = 2nd Generation

Nominal Cooling Capacity
09 = .75 tons
12 = 1 tons
18 = 1.5 tons
24 = 2 tons
30 = 2.5 tons
48 = 4 tons

Cooling Efficiency
S = Standard Efficiency

Refrigerant Type
4 = R-410A

Minor Design Sequence
1 = 1st Revision

Voltage
L = 115V-1 Phase-60hz
P = 208/230V-1 phase-60hz

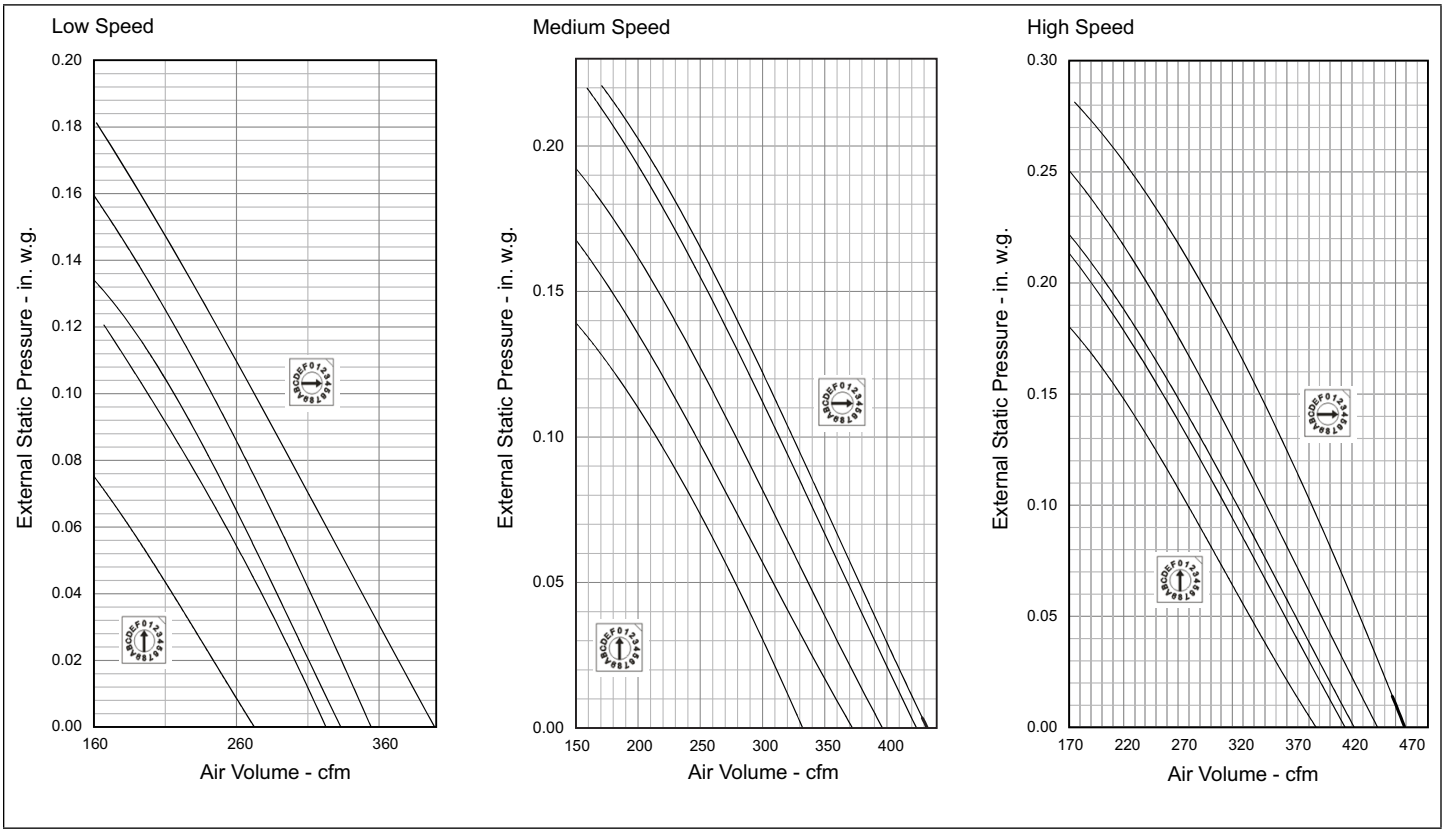
3.2. Indoor Unit Specifications

	Model No.	DMD109S4-*P	DMD112S4-*P	DMD118S4-*P
	Nominal Tons	0.75	1	1.5
Power Supply - 60 hz - 1 phase		208/230V	208/230V	208/230V
Rated load amps		0.9	1	1.5
Output (W)		55	55	90
Room Temperature Range (°F)	Cooling	62 - 90	62 - 90	62 - 90
	Heating	32 - 86	32 - 86	32 - 86
Air Volume - cfm (High/Medium/Low)		335/290/240	370/320/260	520/430/360
External Static Pressure (in. w.g)		0 - 0.18	0 - 0.18	0 - 0.28
Sound Data (dBA) - Low/Medium/High		31/35/38	31/37/44	37/39/41
Piping Connections - Liquid/Gas - o.d. - flare - in.		1/4 / 3/8	1/4 / 1/2	1/4 / 1/2
Drain connection o.d. - in.		1	1	1
Net/Shipping weights - lbs.		40 / 51	42 / 52	51 / 61

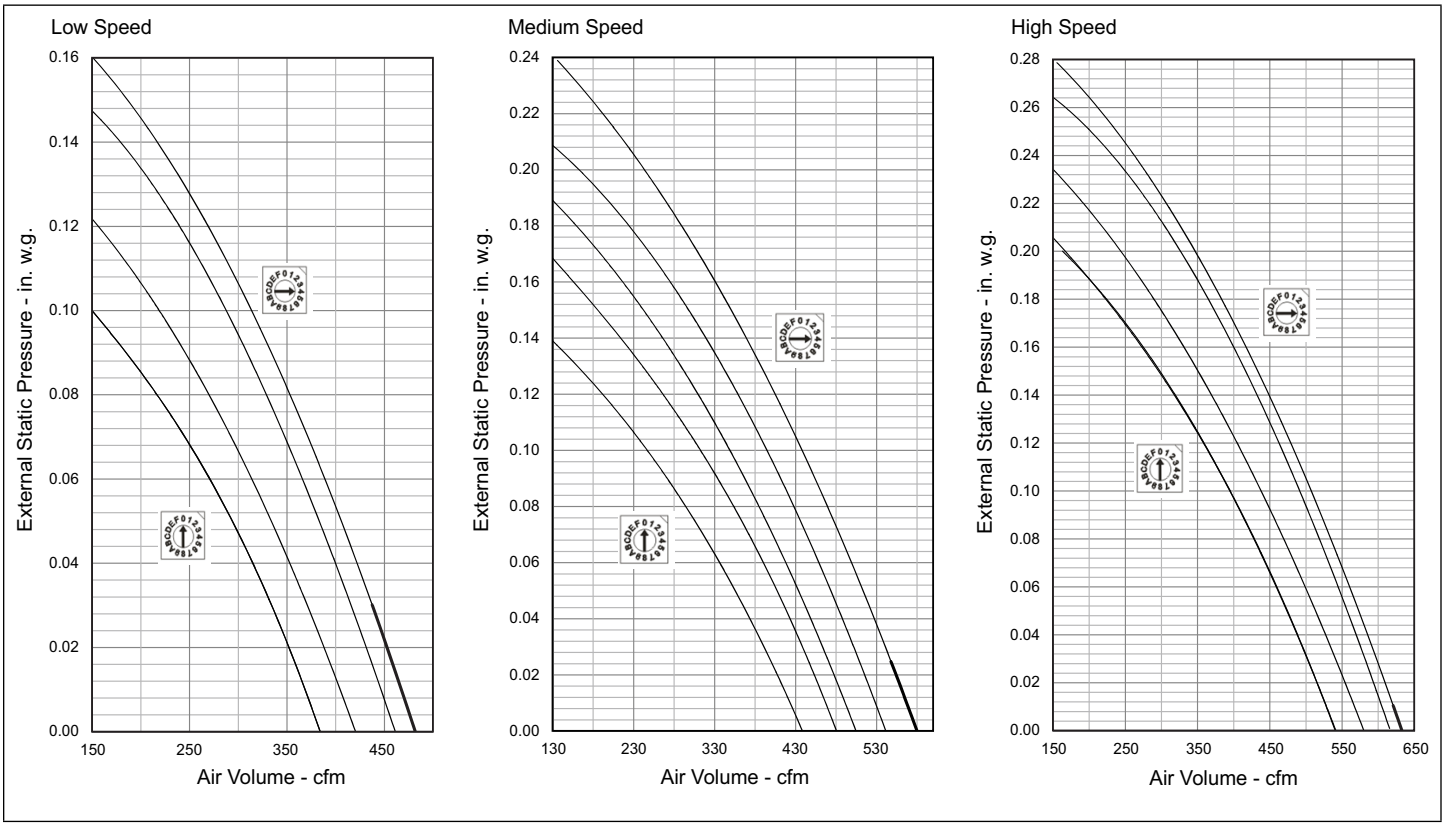
	Model No.	DMD124S4-*P	DMD136S4-*P*	DMD148S4-*P*
	Nominal Tons	2	3	4
Power Supply - 60 hz - 1 phase		208/230V	208/230V	208/230V
Rated load amps		2	1.5	1.8
Output (W)		90	150	240
Room Temperature Range (°F)	Cooling	62 - 90	62 - 90	62 - 90
	Heating	32 - 86	32 - 86	32 - 86
Air Volume - cfm (High/Medium/Low)		820/620/520	1120/940/680	1470/1180/940
External Static Pressure (in. w.g)		0 - 0.40	0 - 0.40	0 - 0.40
Sound Data (dBA) - Low/Medium/High		43/48/53	47/51/53	46/49/52
Piping Connections - Liquid/Gas - o.d. - flare - in.		3/8 / 5/8	3/8 / 5/8	3/8 / 5/8
Drain connection o.d. - in.		1	1	1
Net/Shipping weights - lbs.		58 / 69	77 / 92	95 / 114

3.3. Indoor Unit Blower Data

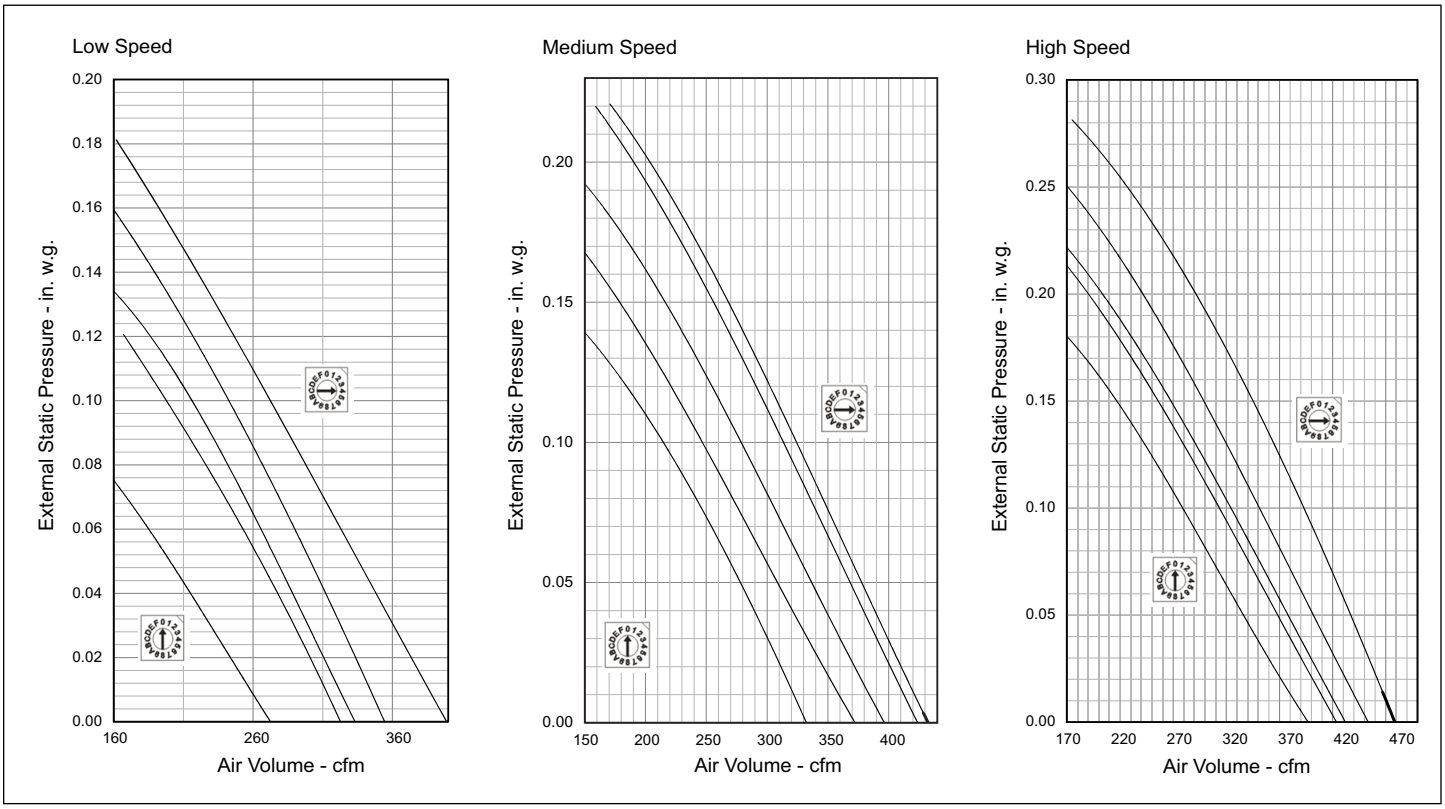
3.3.1. DMD109S4-*P and DMD112S4-*P



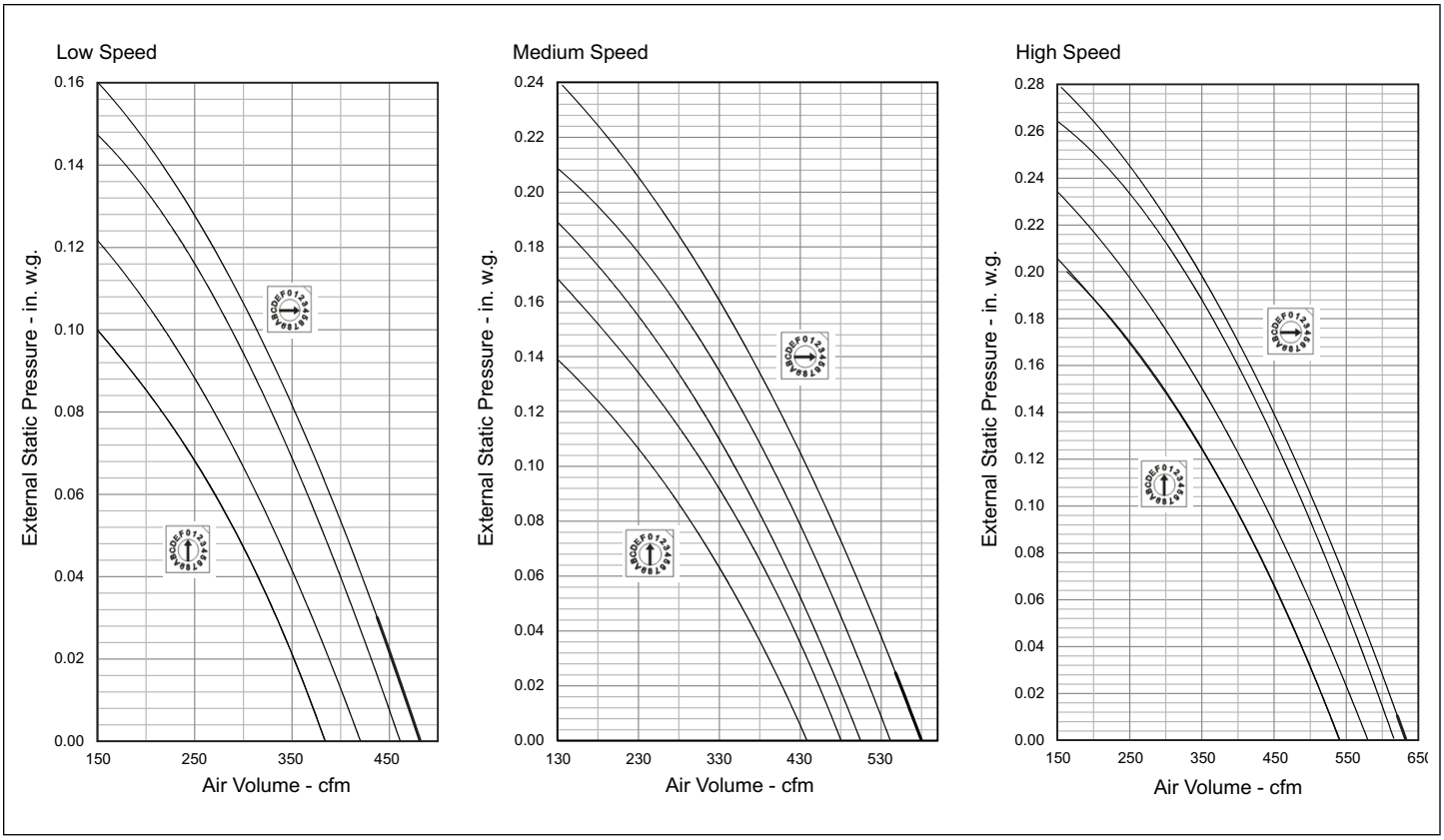
3.3.2. DMD118S4-*P



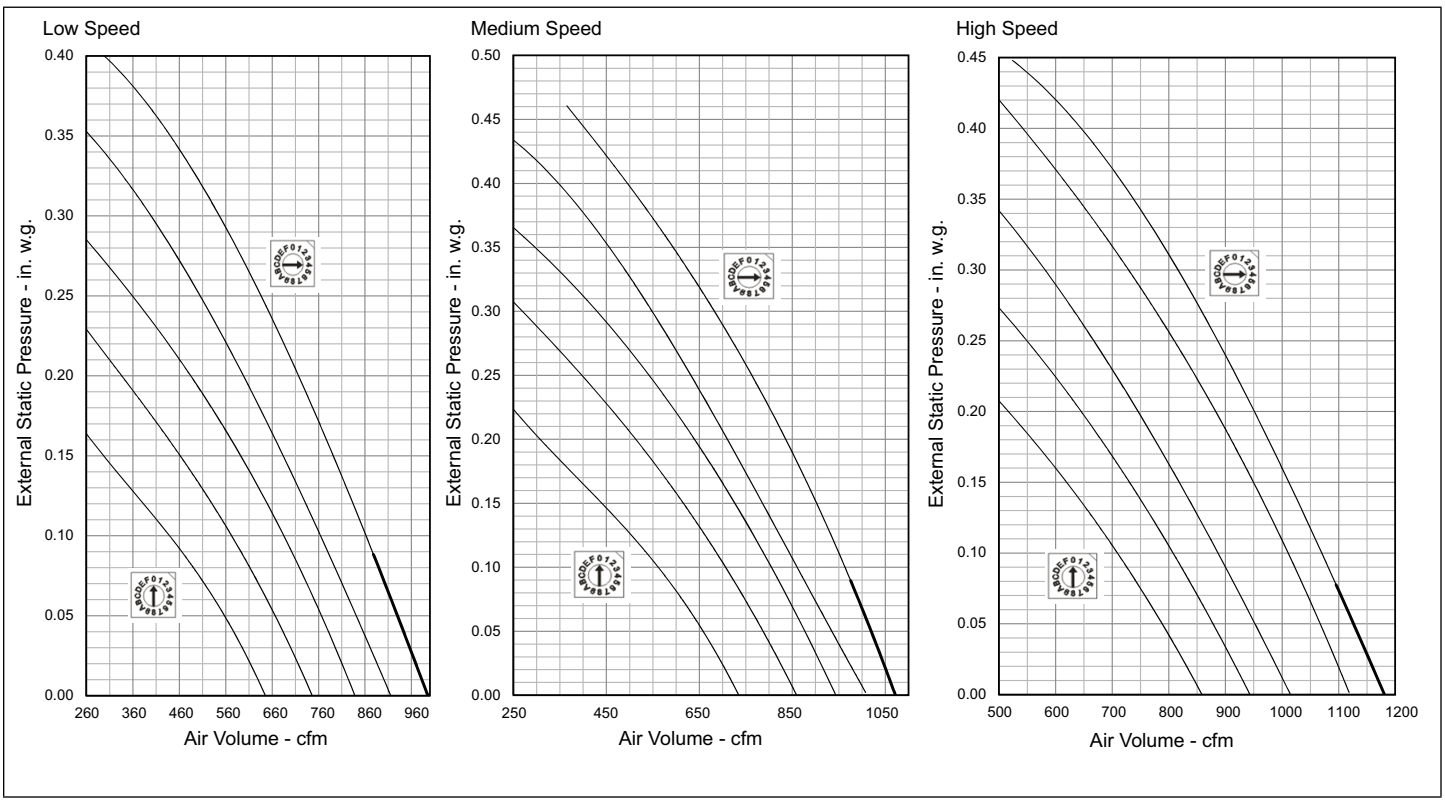
3.3.3. DMD124S4-*P



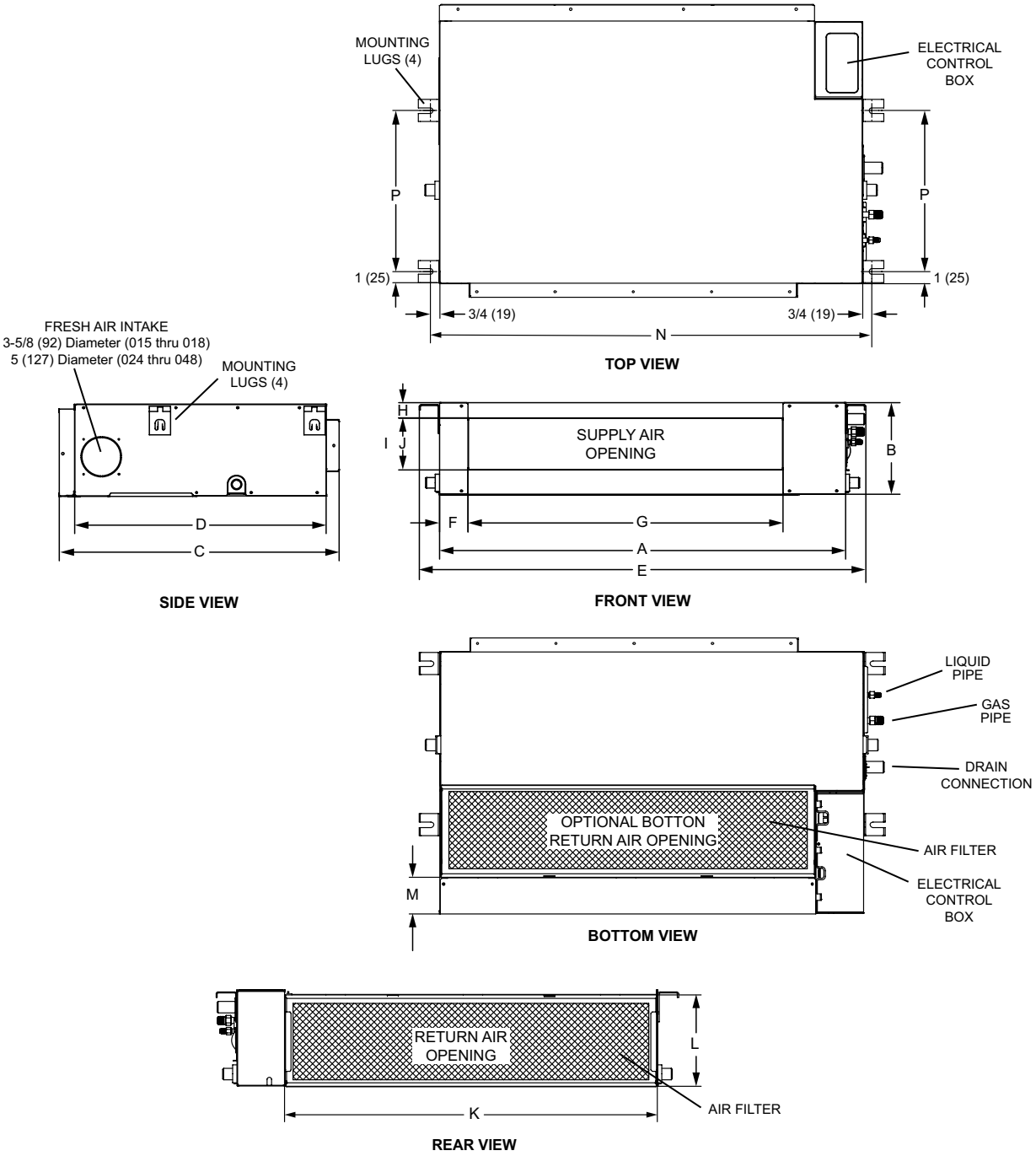
3.3.4. DMD136S4-*P



3.3.5. DMD148S4-*P



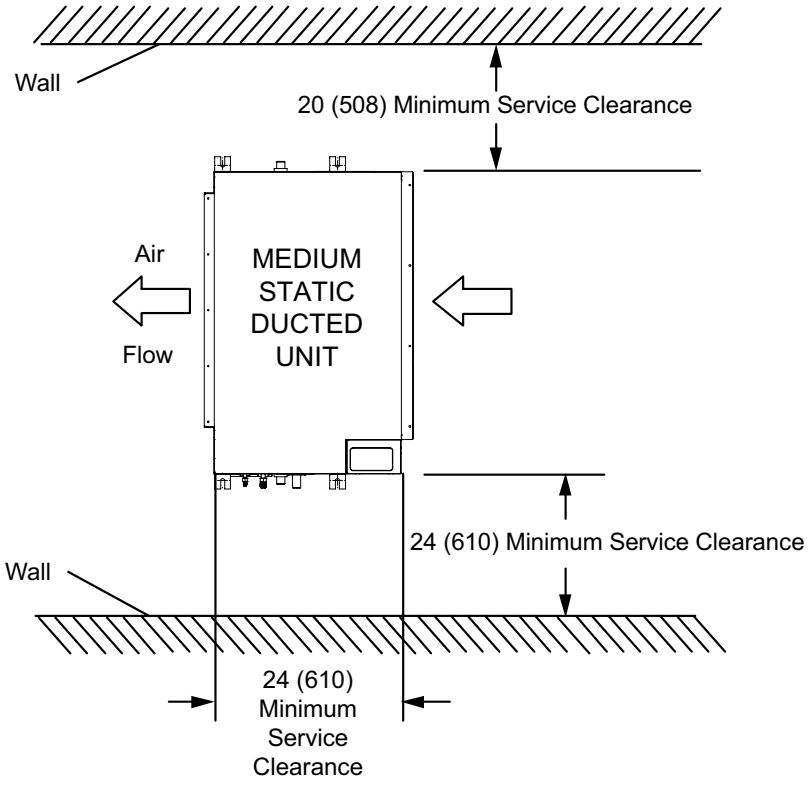
3.4. Indoor Unit Dimensions



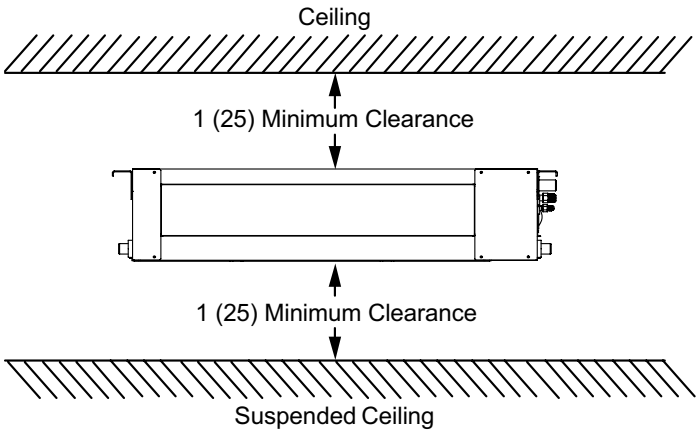
Size	A		B		C		D		E		F		G		H	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
009 thru 012	27-5/8	702	8-1/4	210	25	635	22-1/2	572	31-1/8	791	2-5/8	67	19-1/2	495	1-3/8	35
018	36-1/4	921	8-1/4	210	25	635	22-1/2	572	39-3/4	1010	2-5/8	67	28	711	1-3/8	35
024	36-1/4	921	10-5/8	270	25	635	22-1/2	572	39-3/4	1010	2-5/8	67	28	711	1-3/8	35
036	44-7/8	1140	10-5/8	270	30-1/2	775	28	711	48-1/2	1232	2-5/8	67	36-3/4	933	1-3/8	35
048	47-1/4	1200	11-7/8	302	34-1/8	867	31-1/2	800	50-3/4	1289	3-1/8	79	38-1/8	968	1-1/2	38

Size	J		K		L		M		N		P	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
009 thru 012	4-5/8	117	23-1/2	597	7-7/8	200	3-1/8	79	29-1/8	740	13-3/4	349
018	4-5/8	117	32	813	7-7/8	200	3-1/8	79	37-3/4	959	13-3/4	349
024	7	178	32	813	10-1/4	260	3/4	19	37-3/4	959	13-3/4	349
036	7	178	40-3/4	1035	10-1/4	260	3/4	19	46-1/2	1181	19-1/4	489
048	8	203	43	1092	11-3/8	289	1-3/4	44	48-7/8	1241	19-5/8	498

3.5. Indoor Unit Clearances



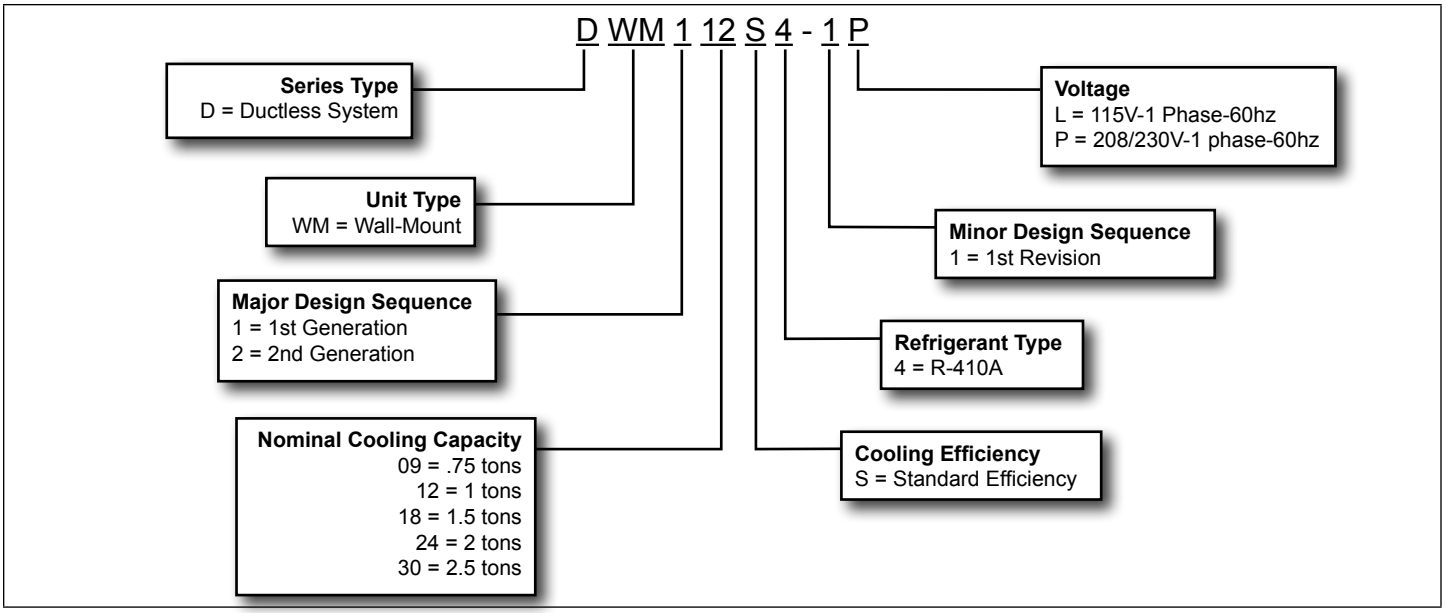
TOP VIEW



FRONT VIEW

4. DWM Wall Mounted Indoor Units

4.1. Model Number Identification



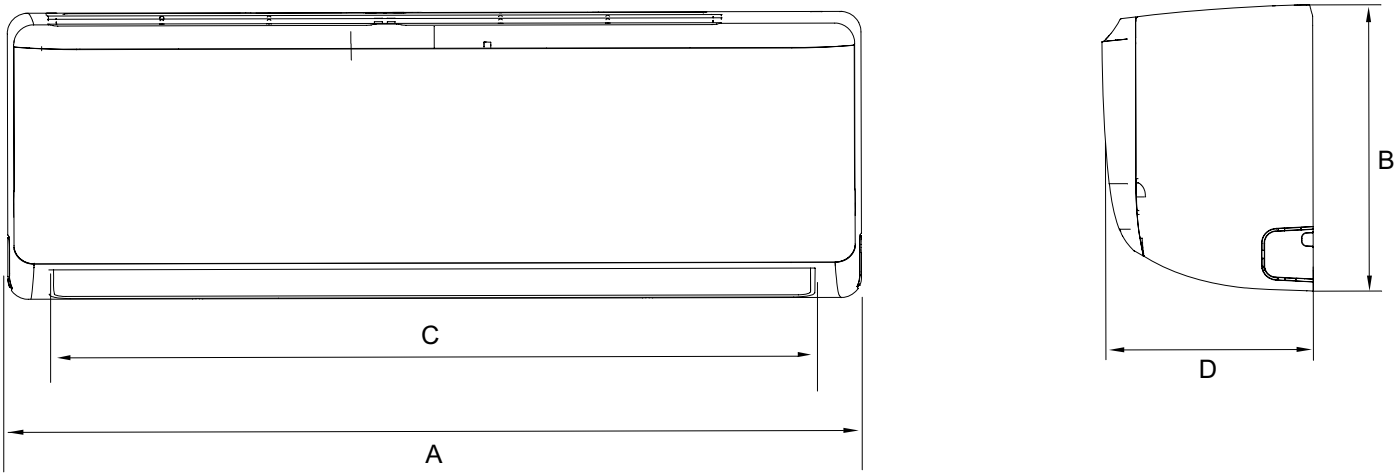
4.2. Indoor Unit Specifications (009 - 012 Ton) Units

	Model No.	DWM109S4-*L	DWM109S4-*P	DWM112S4-*L	DWM112S4-*P
	Nominal Tons	0.75	0.75	1	1
Power Supply - 60 hz - 1 phase		115V	208/230V	115V	208/230V
Rated load amps		0.25	0.06	0.25	0.06
Output (W)		20	20	20	20
Room Temperature Range (°F)	Cooling	62 - 90	62 - 90	62 - 90	62 - 90
	Heating	32 - 86	32 - 86	32 -86	32 - 86
Air Volume - cfm (High/Medium/Low)		365/265/195	370/270/195	365/265/195	370/275/200
Sound Data (dBA) - Low/Medium/High		24/33/42	26.5/33.4/41.7	24/33/42	28.6/35.8/45.1
Piping Connections - Liquid/Gas - o.d. - flare - in.		1/4 / 3/8	1/4 / 3/8	1/4 / 1/2	1/4 / 1/2
Drain connection o.d. - in.		1	1	1	1
Net/Shipping weights - lbs.		20 / 26	20 / 26	20 / 26	20 / 27

4.3. Indoor Unit Specifications (018 - 030 Ton) Units

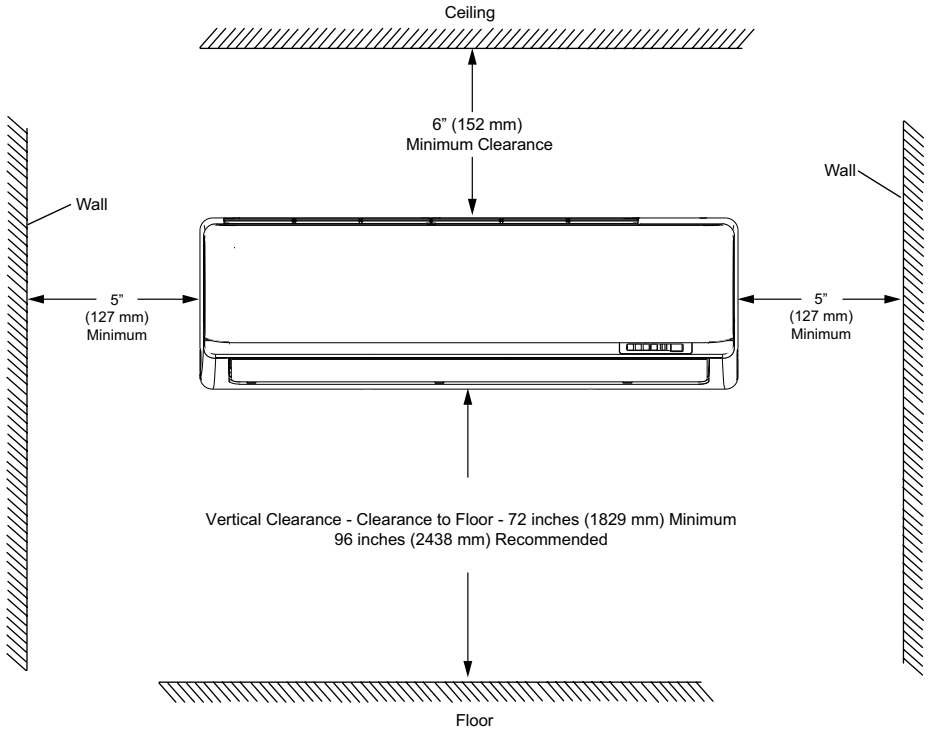
	Model No.	DWM118S4-*P	DWM124S4-*P	DWM130S4-*P*
Nominal Tons		1.5	2	2.5
Power Supply - 60 hz - 1 phase		208/230V	208/230V	208/230V
Rated load amps		0.13	0.3	0.5
Output (W)		58	60	60
Room Temperature Range (°F)	Cooling	62 - 90	62 - 90	62 - 90
	Heating	32 - 86	32 - 86	32 - 86
Air Volume - cfm (High/Medium/Low)		530/410/295	695/625/485	795/645/500
Sound Data (dBA) - Low/Medium/High		30.9/36.3/46.2	35.1/44.5/51.7	37.5/42/49
Piping Connections - Liquid/Gas - o.d. - flare - in.		1/4 / 1/2	3/8 / 5/8	3/8 / 5/8
Drain connection o.d. - in.		1	1	1
Net/Shipping weights - lbs.		27 / 35	40 / 54	40 / 51

4.4. Indoor Unit Dimensions



Size	A		B		C		D	
	in.	mm	in.	mm	in.	mm	in.	mm
DWM109S4S-*L	32-7/8	835	11	279	29-1/4	743	7-7/8	200
DWM109S4S-*L								
DWM112S4S-*L								
DWM112S4S-*L								
DWM109S4S-*P								
DWM112S4S-*P								
DWM118S4S-*P	39	991	12-3/8	314	34-3/4	883	8-5/8	210
DWM124S4S-*P	46-3/4	1187	13-1/2	343	42-1/2	1080	10-1/4	260
DWM130S4S-*P								

4.5. Indoor Unit Clearances



FRONT VIEW

5. Indoor / Outdoor Unit Combinations

5.1. 4DHP Multi-Zone System Combinations

NOTE - For multi-zone systems, the total capacity of all indoor units must be 66% to 133% of the outdoor unit capacity.

Outdoor Unit Model No.	Number of Zones	Indoor Unit Capacity					Nominal Cooling Capacity at Rated System Capacity (Btuh)					Nominal Heating Capacity at Rated System Capacity (Btuh)				
		#1	#2	#3	#4	#5	#1	#2	#3	#4	#5	#1	#2	#3	#4	#5
4DHP1S18M	[1] 1	012	- - -	- - -	- - -	- - -	9,000	- - -	- - -	- - -	- - -	9,500	- - -	- - -	- - -	- - -
	2	009	009	- - -	- - -	- - -	9,000	9,000	- - -	- - -	- - -	9,500	9,500	- - -	- - -	- - -
		009	012	- - -	- - -	- - -	8,500	10,500	- - -	- - -	- - -	9,000	11,000	- - -	- - -	- - -
		012	012	- - -	- - -	- - -	9,500	9,500	- - -	- - -	- - -	10,000	10,000	- - -	- - -	- - -
4DHP1S30M	[1] 1	018	- - -	- - -	- - -	- - -	16,600	- - -	- - -	- - -	- - -	18,000	- - -	- - -	- - -	- - -
	2	009	009	- - -	- - -	- - -	9,500	9,500	- - -	- - -	- - -	10,000	10,000	- - -	- - -	- - -
		009	012	- - -	- - -	- - -	9,500	12,000	- - -	- - -	- - -	10,000	13,000	- - -	- - -	- - -
		009	018	- - -	- - -	- - -	8,400	16,600	- - -	- - -	- - -	9,000	18,000	- - -	- - -	- - -
		012	012	- - -	- - -	- - -	12,000	12,000	- - -	- - -	- - -	13,000	13,000	- - -	- - -	- - -
		012	018	- - -	- - -	- - -	10,000	15,000	- - -	- - -	- - -	11,200	16,800	- - -	- - -	- - -
		018	018	- - -	- - -	- - -	14,000	14,000	- - -	- - -	- - -	15,000	15,000	- - -	- - -	- - -
	3	009	009	009	- - -	- - -	9,000	9,000	9,000	- - -	- - -	9,500	9,500	9,500	- - -	- - -
		009	009	012	- - -	- - -	8,667	8,667	11,667	- - -	- - -	9,500	9,500	12,000	- - -	- - -
		009	012	012	- - -	- - -	8,333	8,333	13,333	- - -	- - -	9,000	9,000	14,000	- - -	- - -
		009	009	018	- - -	- - -	8,500	10,000	10,000	- - -	- - -	8,500	11,000	11,000	- - -	- - -
		012	012	012	- - -	- - -	9,667	9,667	9,667	- - -	- - -	10,667	10,667	10,667	- - -	- - -
4DHP1S36M	2	009	009	- - -	- - -	- - -	10,000	10,000	- - -	- - -	- - -	10,500	10,500	- - -	- - -	- - -
		009	012	- - -	- - -	- - -	9,500	12,000	- - -	- - -	- - -	10,000	13,000	- - -	- - -	- - -
		009	018	- - -	- - -	- - -	9,500	17,500	- - -	- - -	- - -	10,000	18,000	- - -	- - -	- - -
		009	024	- - -	- - -	- - -	9,000	24,000	- - -	- - -	- - -	10,000	25,000	- - -	- - -	- - -
		012	012	- - -	- - -	- - -	12,000	12,000	- - -	- - -	- - -	13,000	13,000	- - -	- - -	- - -
		012	018	- - -	- - -	- - -	12,000	18,000	- - -	- - -	- - -	13,000	18,000	- - -	- - -	- - -
		012	024	- - -	- - -	- - -	11,000	23,000	- - -	- - -	- - -	12,000	24,000	- - -	- - -	- - -
		018	018	- - -	- - -	- - -	16,500	16,500	- - -	- - -	- - -	17,000	17,000	- - -	- - -	- - -
	3	009	009	009	- - -	- - -	9,333	9,333	9,333	- - -	- - -	9,667	9,667	9,667	- - -	- - -
		009	009	012	- - -	- - -	9,000	9,000	12,000	- - -	- - -	9,500	9,500	12,500	- - -	- - -
		009	009	018	- - -	- - -	8,000	8,000	16,000	- - -	- - -	8,500	8,500	17,000	- - -	- - -
		009	012	012	- - -	- - -	8,500	11,500	11,500	- - -	- - -	9,000	12,000	12,000	- - -	- - -
		009	012	018	- - -	- - -	8,000	11,000	15,000	- - -	- - -	8,500	11,500	16,000	- - -	- - -
		009	018	018	- - -	- - -	8,000	14,000	14,000	- - -	- - -	8,500	14,500	14,500	- - -	- - -
		012	012	012	- - -	- - -	11,333	11,333	11,333	- - -	- - -	12,000	12,000	12,000	- - -	- - -
		012	012	018	- - -	- - -	11,000	11,000	14,000	- - -	- - -	12,000	12,000	15,000	- - -	- - -
		012	018	018	- - -	- - -	9,333	13,333	13,333	- - -	- - -	10,000	14,500	14,500	- - -	- - -
		012	012	024	- - -	- - -	8,000	8,000	20,000	- - -	- - -	9,000	9,000	21,000	- - -	- - -
	4	009	009	009	009	- - -	9,000	9,000	9,000	9,000	- - -	9,500	9,500	9,500	9,500	- - -
		009	009	009	012	- - -	8,500	8,500	8,500	11,500	- - -	9,000	9,000	9,000	12,000	- - -
		009	009	009	018	- - -	8,000	8,000	8,000	14,000	- - -	8,500	8,500	8,500	14,000	- - -
		009	009	012	012	- - -	8,000	8,000	10,500	10,500	- - -	8,500	8,500	11,000	11,000	- - -
		009	009	012	018	- - -	7,500	7,500	9,000	14,000	- - -	8,000	8,000	9,500	14,500	- - -
		009	012	012	012	- - -	7,000	10,000	10,000	10,000	- - -	8,000	10,500	10,500	10,500	- - -
		012	012	012	012	- - -	9,500	9,500	9,500	9,500	- - -	10,000	10,000	10,000	10,000	- - -

[1] One outdoor unit may be matched with one indoor unit for single zone applications. A second indoor unit can be added at a later date for multi-zone applications.

NOTE - For multi-zone systems, the total capacity of all indoor units must be 66% to 133% of the outdoor unit capacity.

Outdoor Unit Model No.	Number of Zones	Indoor Unit Capacity					Nominal Cooling Capacity at Rated System Capacity (Btuh)					Nominal Heating Capacity at Rated System Capacity (Btuh)				
		#1	#2	#3	#4	#5	#1	#2	#3	#4	#5	#1	#2	#3	#4	#5
4DHP1S48M	2	009	018	- - -	- - -	- - -	9,500	18,000	- - -	- - -	- - -	10,000	18,000	- - -	- - -	- - -
		009	024	- - -	- - -	- - -	9,500	24,000	- - -	- - -	- - -	10,000	25,000	- - -	- - -	- - -
		012	012	- - -	- - -	- - -	12,500	12,500	- - -	- - -	- - -	13,000	13,000	- - -	- - -	- - -
		012	018	- - -	- - -	- - -	12,000	18,000	- - -	- - -	- - -	13,000	19,000	- - -	- - -	- - -
		012	024	- - -	- - -	- - -	12,000	24,000	- - -	- - -	- - -	10,000	25,000	- - -	- - -	- - -
		018	018	- - -	- - -	- - -	18,500	18,500	- - -	- - -	- - -	19,000	19,000	- - -	- - -	- - -
		018	024	- - -	- - -	- - -	17,500	22,500	- - -	- - -	- - -	18,000	23,000	- - -	- - -	- - -
		024	024	- - -	- - -	- - -	21,000	21,000	- - -	- - -	- - -	22,000	22,000	- - -	- - -	- - -
	3	009	009	009	- - -	- - -	9,500	9,500	9,500	- - -	- - -	11,000	11,000	11,000	- - -	- - -
		009	009	012	- - -	- - -	9,500	9,500	12,000	- - -	- - -	10,000	10,000	13,000	- - -	- - -
		009	009	018	- - -	- - -	9,500	9,500	18,000	- - -	- - -	10,000	10,000	19,000	- - -	- - -
		009	009	024	- - -	- - -	9,000	9,000	22,500	- - -	- - -	9,500	9,500	23,500	- - -	- - -
		009	012	012	- - -	- - -	9,500	12,500	12,500	- - -	- - -	10,000	10,000	13,000	- - -	- - -
		009	012	018	- - -	- - -	9,000	12,000	18,000	- - -	- - -	9,500	9,500	19,000	- - -	- - -
		009	012	024	- - -	- - -	9,000	12,000	21,500	- - -	- - -	9,500	12,500	22,000	- - -	- - -
		009	018	018	- - -	- - -	9,000	18,000	18,000	- - -	- - -	9,500	18,500	18,500	- - -	- - -
		009	018	024	- - -	- - -	8,500	15,500	21,000	- - -	- - -	9,000	16,000	21,500	- - -	- - -
		009	024	024	- - -	- - -	8,000	20,000	20,000	- - -	- - -	8,500	21,000	21,000	- - -	- - -
		012	012	012	- - -	- - -	12,000	12,000	12,000	- - -	- - -	13,000	13,000	13,000	- - -	- - -
		012	012	018	- - -	- - -	12,000	12,000	17,000	- - -	- - -	12,500	12,500	18,000	- - -	- - -
		012	018	018	- - -	- - -	11,000	11,000	22,000	- - -	- - -	11,500	11,500	23,000	- - -	- - -
		012	012	024	- - -	- - -	11,000	16,500	16,500	- - -	- - -	11,500	17,000	17,000	- - -	- - -
		012	018	024	- - -	- - -	10,500	15,500	21,500	- - -	- - -	11,000	16,000	22,000	- - -	- - -
		012	024	024	- - -	- - -	10,000	20,000	20,000	- - -	- - -	11,000	20,500	20,500	- - -	- - -
		018	018	018	- - -	- - -	16,000	16,000	16,000	- - -	- - -	16,500	16,500	16,500	- - -	- - -
		018	018	024	- - -	- - -	15,000	15,000	20,000	- - -	- - -	15,500	15,500	21,000	- - -	- - -

[1] One outdoor unit may be matched with one indoor unit for single zone applications. A second indoor unit can be added at a later date for multi-zone applications.

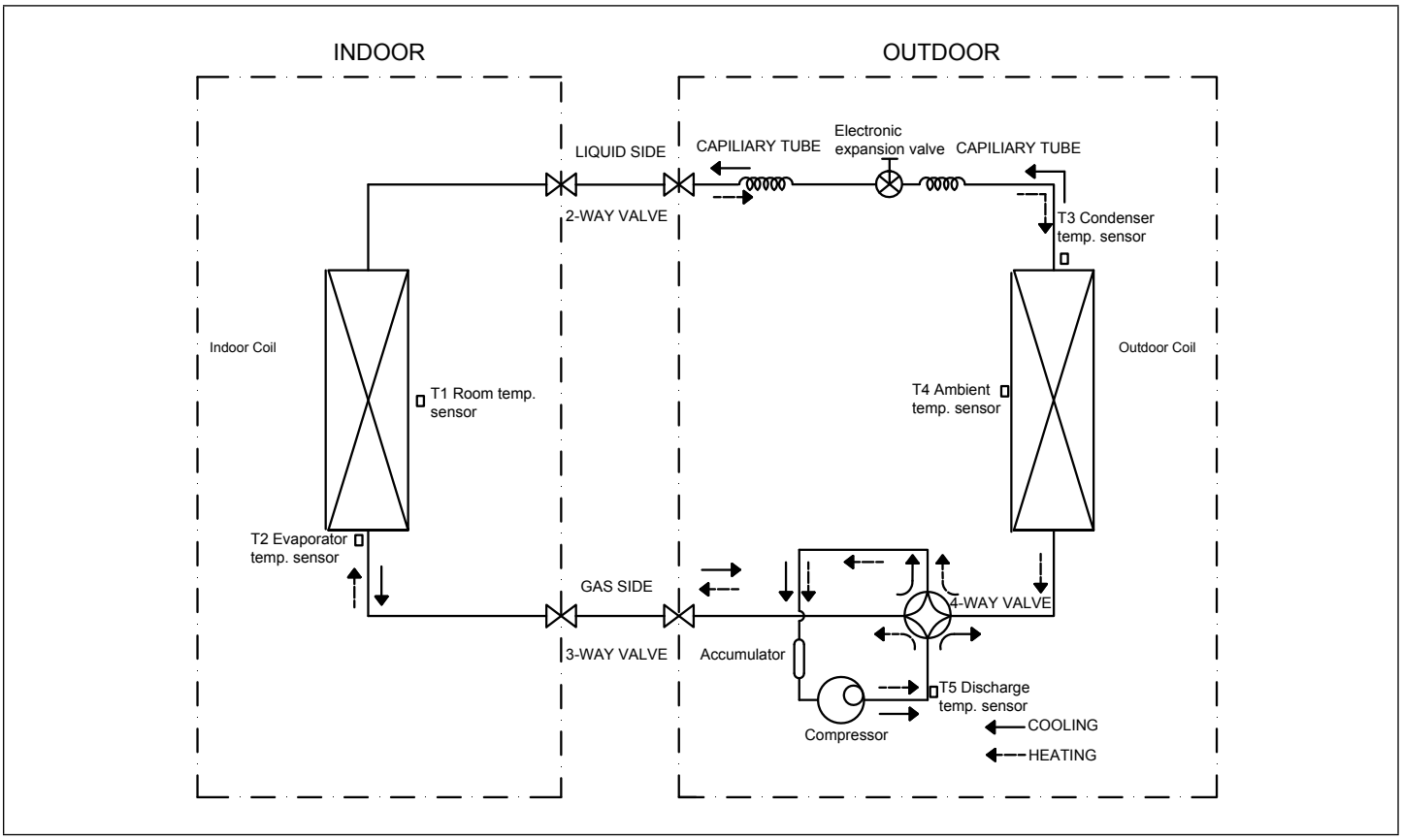
NOTE - For multi-zone systems, the total capacity of all indoor units must be 66% to 133% of the outdoor unit capacity.

Outdoor Unit Model No.	Number of Zones	Indoor Unit Capacity					Nominal Cooling Capacity at Rated System Capacity (Btuh)					Nominal Heating Capacity at Rated System Capacity (Btuh)				
		#1	#2	#3	#4	#5	#1	#2	#3	#4	#5	#1	#2	#3	#4	#5
4DHP1S48M	4	009	009	009	009	- - -	9,250	9,250	9,250	9,250	- - -	9,500	9,500	9,500	9,500	- - -
		009	009	009	012	- - -	9,000	9,000	9,000	12,000	- - -	9,500	9,500	9,500	12,500	- - -
		009	009	009	018	- - -	9,000	9,000	9,000	17,000	- - -	9,500	9,500	9,500	17,500	- - -
		009	009	009	024	- - -	8,500	8,500	8,500	20,500	- - -	9,000	9,000	9,000	21,000	- - -
		009	009	012	012	- - -	9,000	9,000	12,000	12,000	- - -	9,500	9,500	13,000	13,000	- - -
		009	009	012	018	- - -	9,000	9,000	11,000	17,000	- - -	9,500	9,500	11,500	17,500	- - -
		009	009	012	024	- - -	8,500	8,500	10,500	20,500	- - -	9,000	9,000	11,100	21,000	- - -
		009	009	018	018	- - -	8,500	8,500	15,500	15,500	- - -	9,000	9,000	16,000	16,000	- - -
		009	009	018	024	- - -	8,000	8,000	14,500	20,000	- - -	8,500	8,500	15,000	20,000	- - -
		009	012	012	012	- - -	9,000	12,000	12,000	12,000	- - -	9,500	12,500	12,500	12,500	- - -
		009	012	012	018	- - -	9,000	11,000	11,000	16,000	- - -	9,500	11,500	11,500	16,500	- - -
		009	012	012	024	- - -	8,500	10,000	10,000	20,000	- - -	9,000	10,500	10,500	20,500	- - -
		009	012	018	018	- - -	8,500	10,000	15,000	15,000	- - -	9,000	10,500	15,500	15,500	- - -
		009	018	018	018	- - -	8,000	14,000	14,000	14,000	- - -	8,500	14,500	14,500	14,500	- - -
		012	012	012	012	- - -	12,000	12,000	12,000	12,000	- - -	12,500	12,500	12,500	12,500	- - -
		012	012	012	018	- - -	11,000	11,000	11,000	16,000	- - -	11,500	11,500	11,500	16,500	- - -
		012	012	012	024	- - -	10,000	10,000	10,000	20,000	- - -	10,500	10,500	10,500	20,500	- - -
		012	012	018	018	- - -	10,000	10,000	15,000	15,000	- - -	10,500	10,500	15,500	15,500	- - -
	5	009	009	009	009	009	9,000	9,000	9,000	9,000	9,000	9,500	9,500	9,500	9,500	9,500
		009	009	009	009	012	9,000	9,000	9,000	9,000	12,000	9,500	9,500	9,500	9,500	13,000
		009	009	009	009	018	8,500	8,500	8,500	8,500	16,000	9,000	9,000	9,000	9,000	16,500
		009	009	009	009	024	7,750	7,750	7,750	7,750	19,500	8,000	8,000	8,000	8,000	20,000
		009	009	009	012	012	9,000	9,000	9,000	11,500	11,500	9,500	9,500	9,500	12,000	12,000
		009	009	009	012	018	8,000	8,000	8,000	11,000	16,000	8,500	8,500	8,500	11,500	16,500
		009	009	009	018	018	8,000	8,000	8,000	11,000	16,000	8,500	8,500	8,500	16,500	16,500
		009	009	012	012	012	8,500	8,500	11,000	11,000	11,000	9,000	9,000	12,000	12,000	12,000
		009	009	012	012	018	8,500	8,500	10,000	10,000	15,000	8,500	8,500	10,500	10,500	15,500
		009	012	012	012	012	8,000	11,000	11,000	11,000	11,000	8,500	11,500	11,500	11,500	11,500
		009	012	012	012	018	7,500	10,000	10,000	10,000	14,500	8,000	10,500	10,500	10,500	15,000
		012	012	012	012	012	10,500	10,500	10,500	10,500	10,500	11,000	11,000	11,000	11,000	11,000

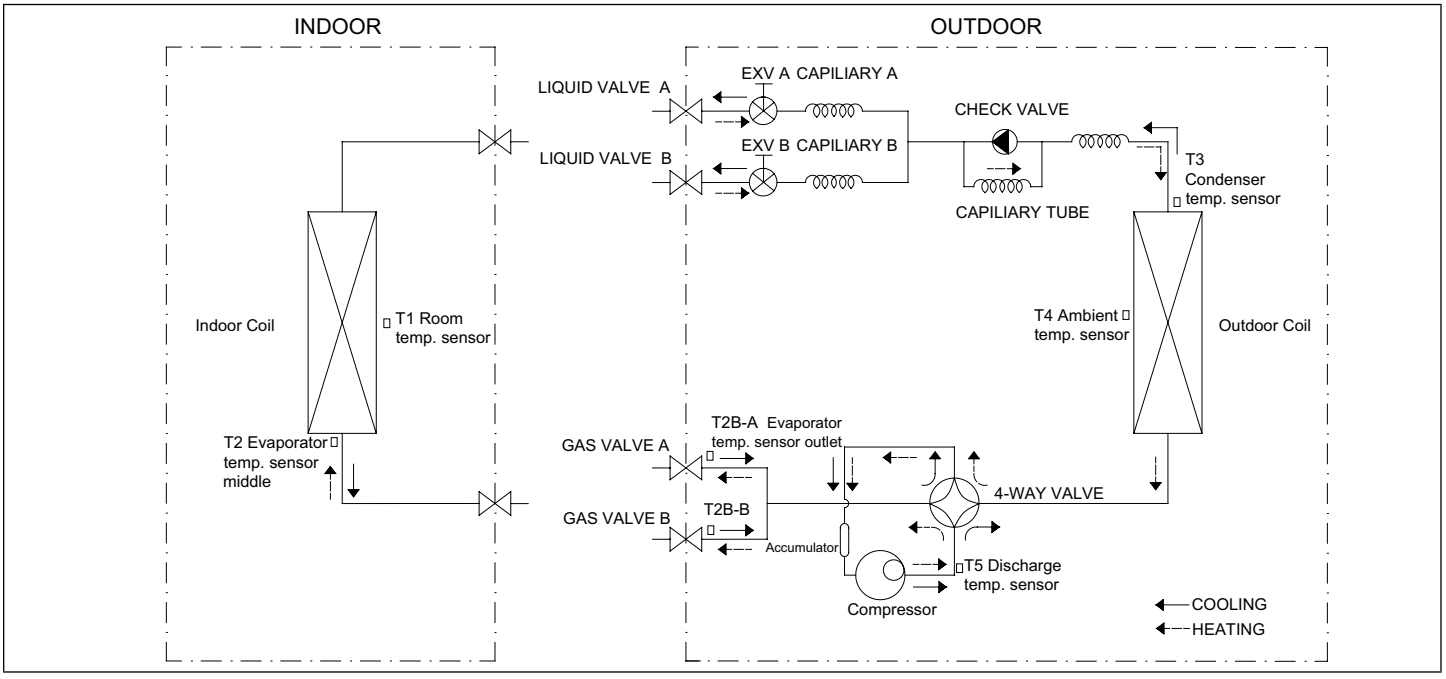
[1] One outdoor unit may be matched with one indoor unit for single zone applications. A second indoor unit can be added at a later date for multi-zone applications.

6. Refrigeration Pipe Work

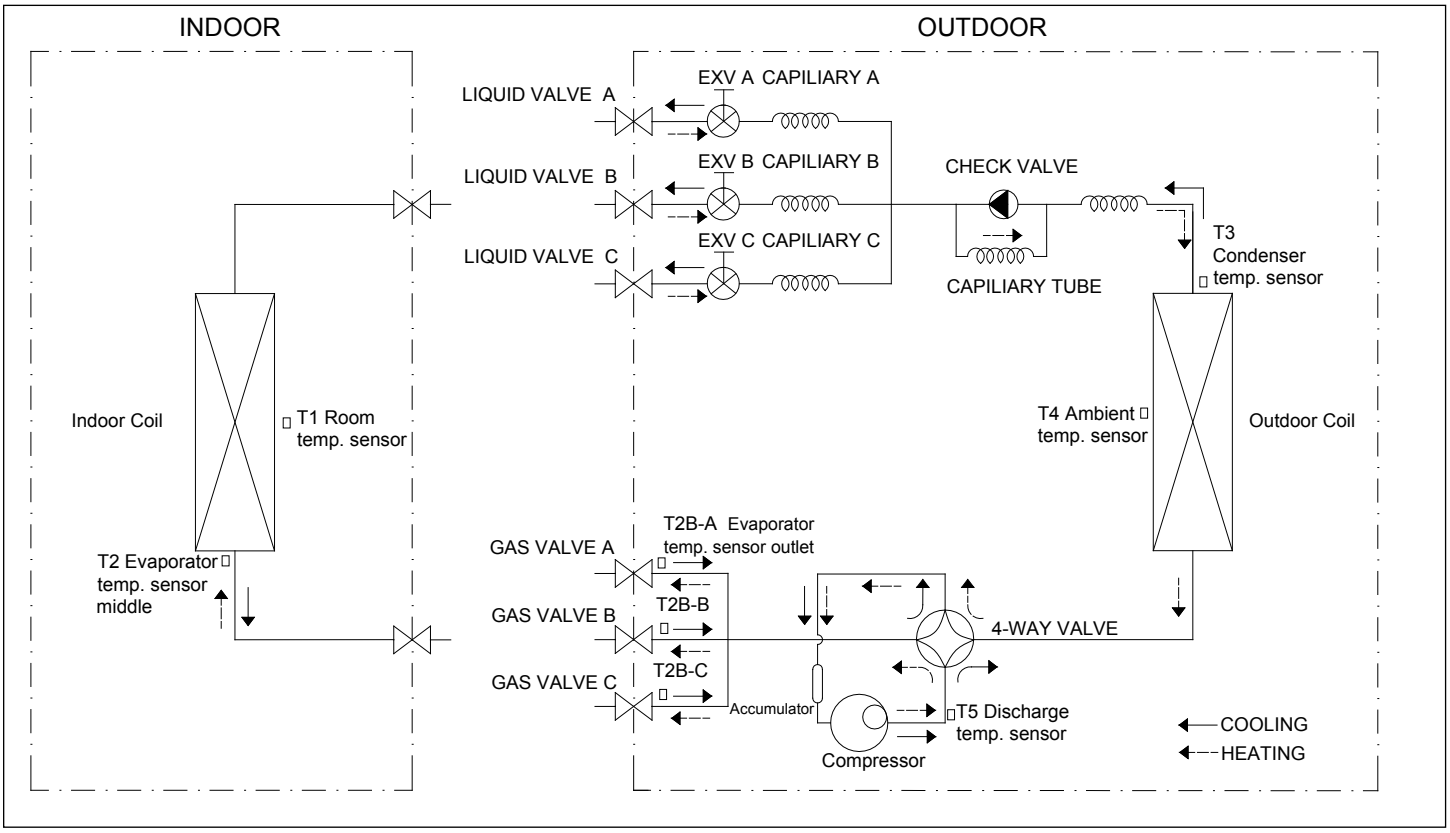
6.1. 4DHP Single-Zone Refrigerant Cycle Diagram



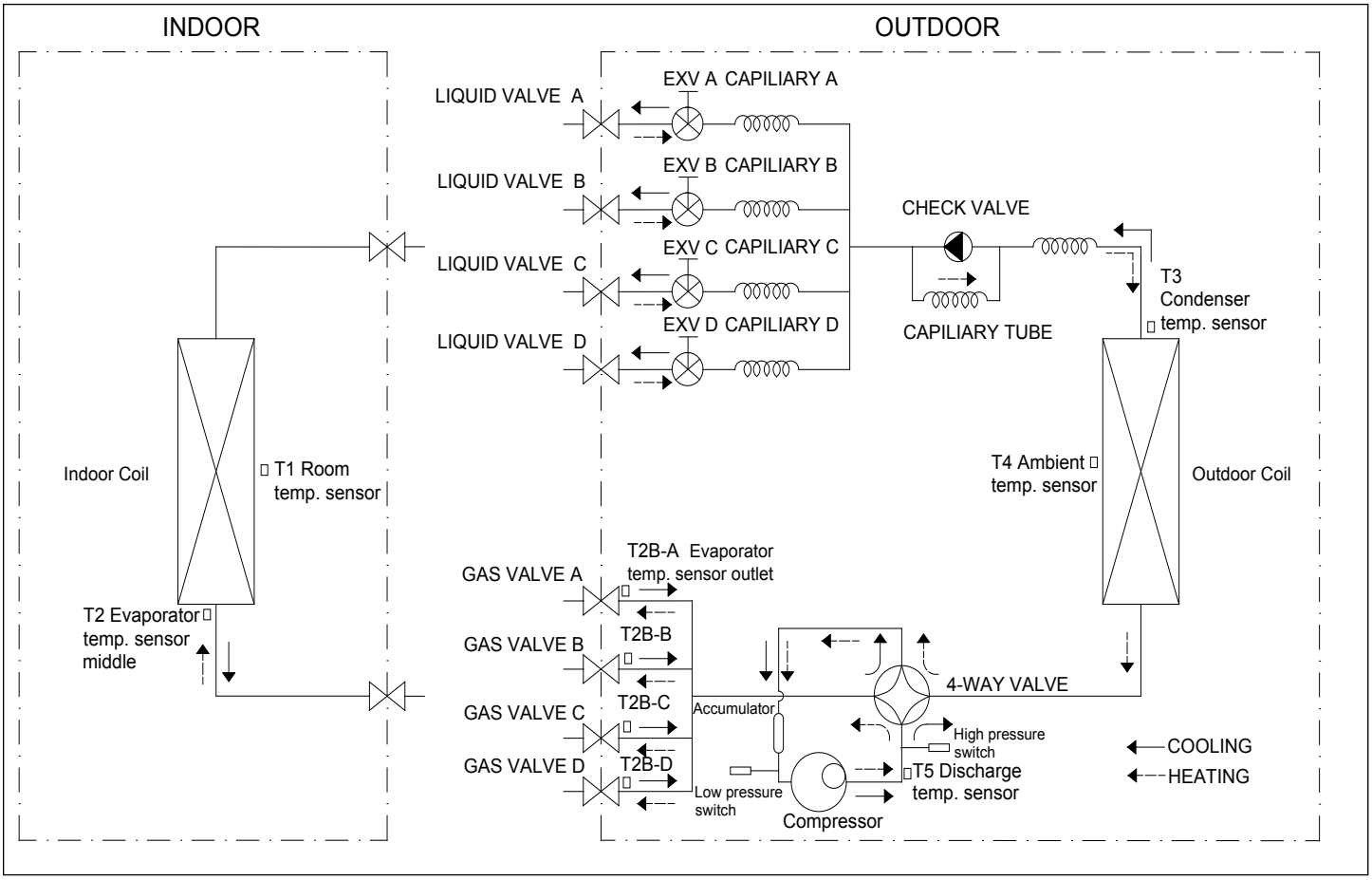
6.2. 4DHP Two-Zone Refrigerant Cycle Diagram



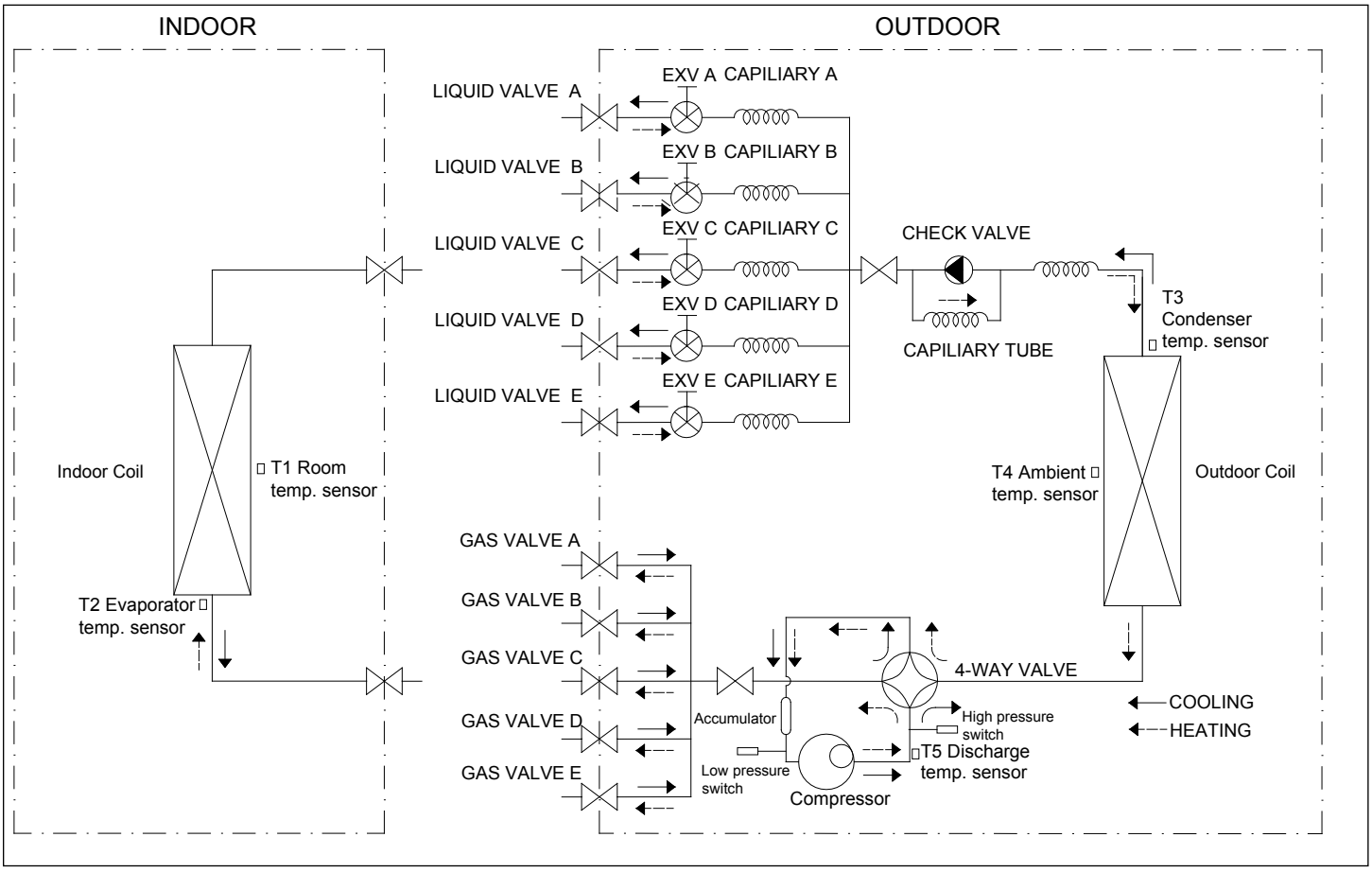
6.3. 4DHP Three-Zone Refrigerant Cycle Diagram



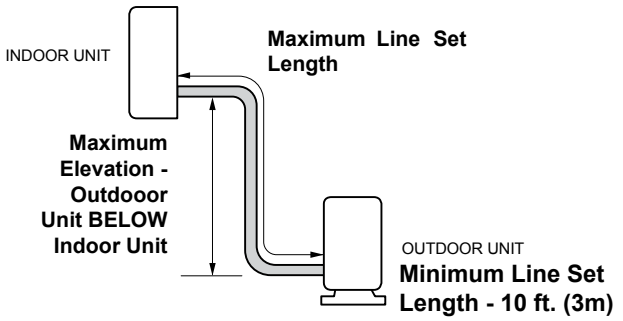
6.4. 4DHP Four-Zone Refrigerant Cycle Diagram



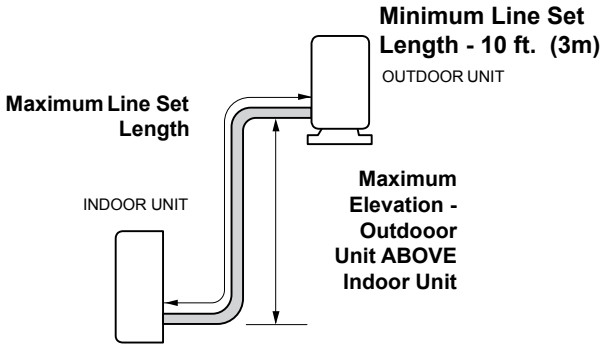
6.5. 4DHP Five-Zone Refrigerant Cycle Diagram



6.6. Single-Zone Piping Limitations



Outside Unit BELOW Indoor Unit



Outside Unit ABOVE Indoor Unit

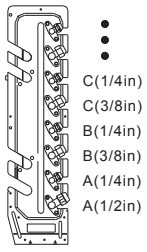
IMPORTANT

Do not allow for excess length of line sets to be left rolled up as part of the required distance, or in general. This will also cause additional performance issues.

System Size (KBtu)	Line Set Diameters (in.)		Maximum Elevation Outdoor Unit BELOW Indoor Unit ft. (m)	Maximum Elevation Outdoor Unit ABOVE Indoor Unit ft. (m)	Maximum Line Set Length ft. (m)
	Liquid	Gas			
009	1/4	3/8	40 ft. (12 m)	40 ft. (12 m)	82 ft. (25 m)
012	1/4	1/2	40 ft. (12 m)	40 ft. (12 m)	82 ft. (25 m)
018	1/4	1/2	66 ft. (20 m)	66 ft. (20 m)	98 ft. (30 m)
024	3/8	5/8	82 ft. (25 m)	82 ft. (25 m)	164 ft. (50 m)
036/048	3/8	5/8	98 ft. (30 m)	98 ft. (30 m)	213 ft. (65 m)

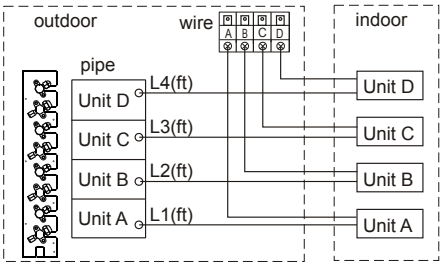
6.7. Multi-Zone Piping Limitations

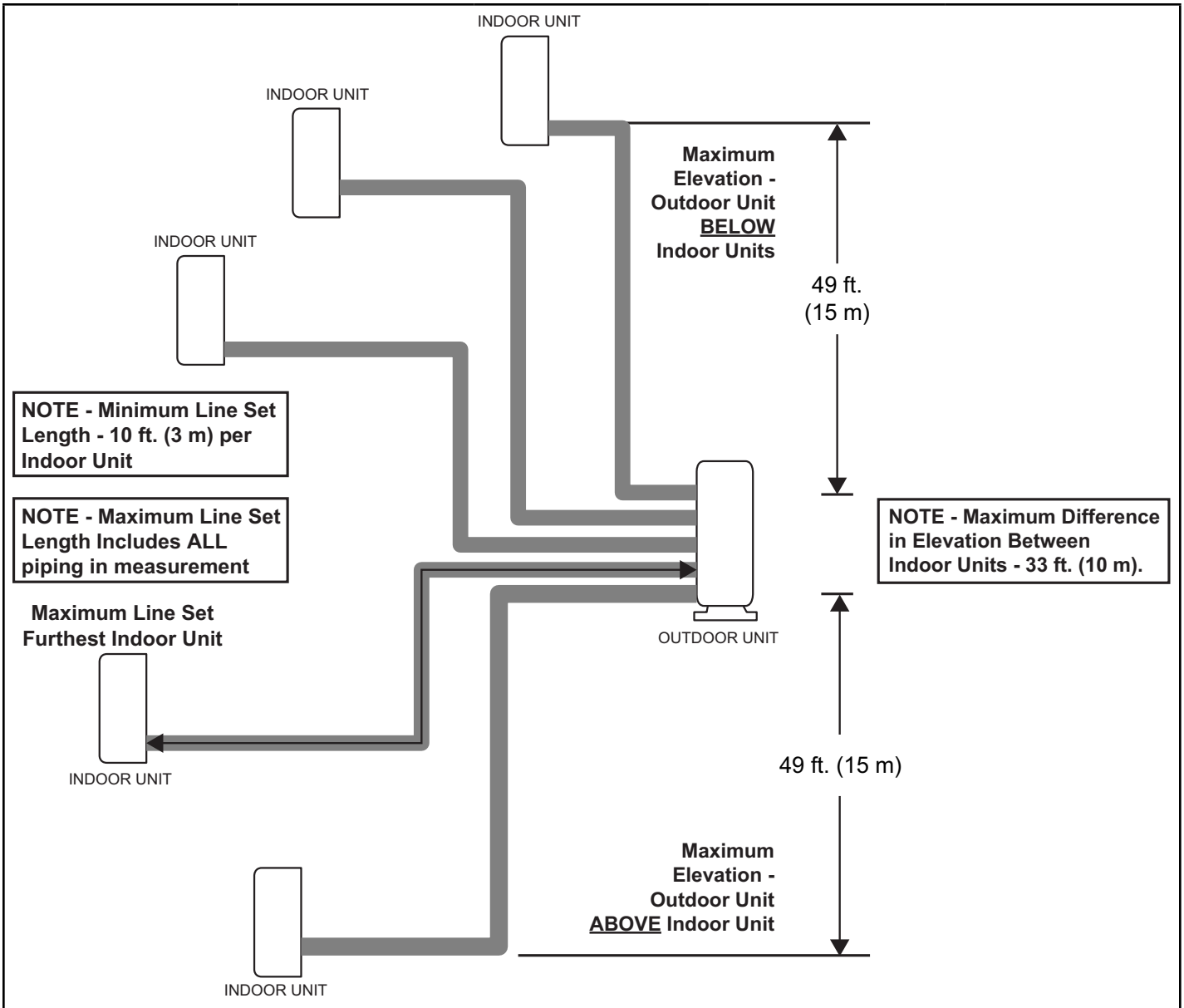
Connecting Multiple Capacity Indoor Units



Four-Zone System Example Shown Above

Pipe and Wire Each Zone Separately



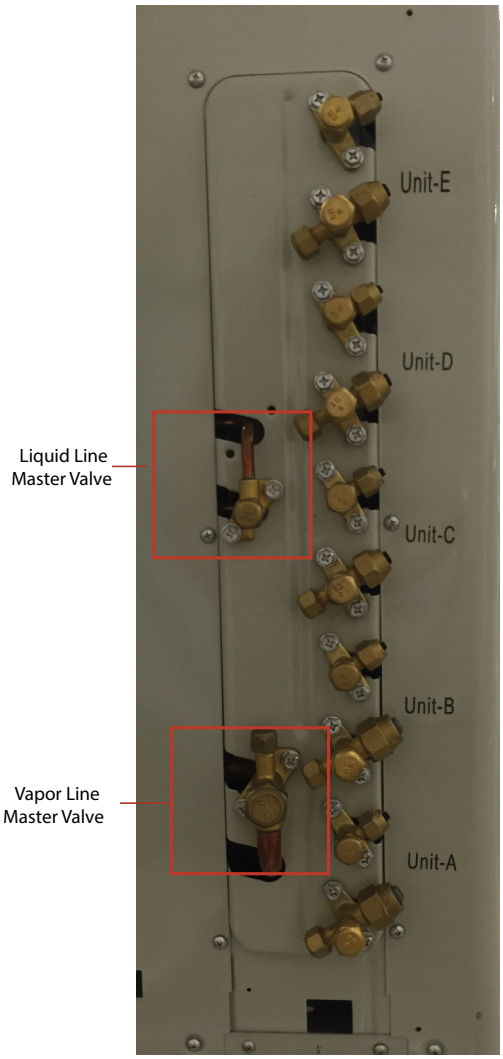


Outdoor Unit Model No.	4DHP1S18M-*P	4DHP1S30M-*P	4DHP1S36M-*P	4DHP1S48M-*P
Maximum Number of Indoor Units	Two	Three	Four	Five
Indoor Unit Connections - Liquid / Gas	(2) 1/4 / 3/8	(3) 1/4 / 3/8	(3) 1/4 / 3/8 (1)1/4 / 1/2	(3) 1/4 / 3/8 (2) 1/4 / 1/2
Total Length of All Piping	98 ft. (30 m)	148 ft. (45 m)	197 ft. (60 m)	246 (75 m)
Maximum Line Set Length - Furthest Indoor Unit	66 ft. (20 m)	82 ft. (25 m)	98 ft. (30 m)	98 ft. (30 m)

Figure 1. Multi-Zone Systems with All Indoor Unit Models

7. Master Valves (3- to 5-Zone Outdoor Units)

- 3-zone, 4-zone and 5-zone (not 2-zone) multi-zone units have a master valve on each refrigerant line.
- The master valve controls refrigerant to all of the zone-supply valves.
- Open the master valves prior to opening the zone-supply valves.



8. 4DHP Outdoor Unit Connections and Line Set Usage

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
4DHP1S18M Indoor Unit A 1/4” liq + 3/8” gas Indoor Unit B 1/4” liq + 3/8” gas	1	012 (A)	[1] 1/4 in. x 1/2 in.
	2	009 (A)	1/4 in. x 3/8 in.
		009 (B)	1/4 in. x 3/8 in.
	2	009 (B)	1/4 in. x 3/8 in.
		012 (A)	[1] 1/4 in. x 1/2 in.
	2	012 (A)	[1] 1/4 in. x 1/2 in.
		012 (B)	[1] 1/4 in. x 1/2 in.
4DHP1S30M Indoor Unit A 1/4” liq + 3/8” gas Indoor Unit B 1/4” liq + 3/8” gas Indoor Unit C 1/4” liq + 3/8” gas	1	018 (A)	[1] 1/4 in. x 1/2 in.
	2	009 (A)	1/4 in. x 3/8 in.
		009 (B)	1/4 in. x 3/8 in.
	2	009 (B)	1/4 in. x 3/8 in.
		012 (A)	[1] 1/4 in. x 1/2 in.
	2	009 (B)	1/4 in. x 3/8 in.
		018 (A)	[1] 1/4 in. x 1/2 in.
	2	012 (A)	[1] 1/4 in. x 1/2 in.
		012 (B)	[1] 1/4 in. x 1/2 in.
	2	012 (B)	[1] 1/4 in. x 1/2 in.
		018 (A)	[1] 1/4 in. x 1/2 in.
	2	018 (A)	[1] 1/4 in. x 1/2 in.
		018 (B)	[1] 1/4 in. x 1/2 in.
	3	009 (A)	1/4 in. x 3/8 in.
		009 (B)	1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
	3	009 (B)	1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		012 (A)	[1] 1/4 in. x 1/2 in.
	3	009 (C)	1/4 in. x 3/8 in.
		012 (A)	[1] 1/4 in. x 1/2 in.
		012 (B)	[1] 1/4 in. x 1/2 in.
	3	009 (B)	1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		018 (A)	[1] 1/4 in. x 1/2 in.
	3	009 (B)	1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		012 (A)	[1] 1/4 in. x 1/2 in.
4DHP1S36M Indoor Unit A 1/4” liq + 1/2” gas Indoor Unit B 1/4” liq + 3/8” gas Indoor Unit C 1/4” liq + 3/8” gas Indoor Unit D 1/4” liq + 3/8” gas	2	009 (B)	1/4 in. x 3/8 in.
		018 (A)	1/4 in. x 1/2 in.
	2	009 (B)	1/4 in. x 3/8 in.
		024 (A)	[2,3] 3/8 in. x 5/8 in.
	2	012 (A)	1/4 in. x 1/2 in.
		012 (B)	[1] 1/4 in. x 1/2 in.
	2	012 (B)	[1] 1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
	2	012 (B)	[1] 1/4 in. x 1/2 in.
		024 (A)	[2,3] 3/8 in. x 5/8 in.

[1] 3/8 x 1/2 in. gas pipe adaptor is required for line set connection to outdoor unit (furnished with outdoor unit).

[2] 1/4 x 3/8 in. liquid pipe adaptor is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

[3] 1/2 x 5/8 in. gas pipe adaptor is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
4DHP1S36M Indoor Unit A 1/4” liq + 1/2” gas Indoor Unit B 1/4” liq + 3/8” gas Indoor Unit C 1/4” liq + 3/8” gas Indoor Unit D 1/4” liq + 3/8” gas	2	018 (A)	1/4 in. x 1/2 in.
		018 (B)	[1] 1/4 in. x 1/2 in.
	3	009 (B)	1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
	3	009 (B)	1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
	3	009 (B)	1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		018 (A)	1/4 in. x 1/2 in.
	3	009 (C)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
		012 (B)	[1] 1/4 in. x 1/2 in.
	3	009 (C)	1/4 in. x 3/8 in.
		012 (B)	[1] 1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
	3	009 (C)	1/4 in. x 3/8 in.
		018 (A)	1/4 in. x 1/2 in.
		018 (B)	[1] 1/4 in. x 1/2 in.
	3	012 (A)	1/4 in. x 1/2 in.
		012 (B)	[1] 1/4 in. x 1/2 in.
		012 (C)	[1] 1/4 in. x 1/2 in.
	3	012 (C)	[1] 1/4 in. x 1/2 in.
		012 (B)	[1] 1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
	3	012 (C)	[1] 1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
		018 (B)	[1] 1/4 in. x 1/2 in.
	3	012 (B)	[1] 1/4 in. x 1/2 in.
		012 (C)	[1] 1/4 in. x 1/2 in.
		024 (A)	[2,3] 3/8 in. x 5/8 in.
	4	009 (B)	1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		009 (A)	[1] 1/4 in. x 3/8 in.
	4	009 (B)	1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
	4	009 (B)	1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		018 (A)	1/4 in. x 1/2 in.

[1] 3/8 x 1/2 in. gas pipe adaptor is required for line set connection to outdoor unit (furnished with outdoor unit).

[2] 1/4 x 3/8 in. liquid pipe adaptor is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

[3] 1/2 x 5/8 in. gas pipe adaptor is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
4DHP1S36M Indoor Unit A 1/4” liq + 1/2” gas Indoor Unit B 1/4” liq + 3/8” gas Indoor Unit C 1/4” liq + 3/8” gas Indoor Unit D 1/4” liq + 3/8” gas	4	009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
		012 (B)	[1] 1/4 in. x 1/2 in.
	4	009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		012 (B)	[1] 1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
	4	009 (D)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
		012 (B)	[1] 1/4 in. x 1/2 in.
		012 (C)	[1] 1/4 in. x 1/2 in.
	4	012 (A)	1/4 in. x 1/2 in.
		012 (B)	[1] 1/4 in. x 1/2 in.
		012 (C)	[1] 1/4 in. x 1/2 in.
		012 (D)	[1] 1/4 in. x 1/2 in.
4DHP1S48M Indoor Unit A 1/4” liq + 1/2” gas Indoor Unit B 1/4” liq + 1/2” gas Indoor Unit C 1/4” liq + 3/8” gas Indoor Unit D 1/4” liq + 3/8” gas Indoor Unit E 1/4” liq + 3/8” gas	2	009 (B)	[1] 1/4 in. x 3/8 in.
		024 (A)	[2, 3] 3/8 in. x 5/8 in.
	2	012 (B)	1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
	2	012 (B)	1/4 in. x 1/2 in.
		024 (A)	[2, 3] 3/8 in. x 5/8 in.
	2	018 (A)	1/4 in. x 1/2 in.
		018 (B)	1/4 in. x 1/2 in.
	2	018 (B)	1/4 in. x 1/2 in.
		024 (A)	[2, 3] 3/8 in. x 5/8 in.
	2	024 (A)	[2, 3] 3/8 in. x 5/8 in.
		024 (B)	[2, 3] 3/8 in. x 5/8 in.
	3	009 (A)	[1] 1/4 in. x 3/8 in.
		009 (B)	[1] 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
	3	009 (B)	[1] 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
	3	009 (B)	[1] 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		018 (A)	1/4 in. x 1/2 in.
	3	009 (B)	[1] 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		024 (A)	[2, 3] 3/8 in. x 5/8 in.
	3	009 (C)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
		012 (B)	1/4 in. x 1/2 in.

[1] 3/8 x 1/2 in. gas pipe adaptor is required for line set connection to outdoor unit (furnished with outdoor unit).

[2] 1/4 x 3/8 in. liquid pipe adaptor is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

[3] 1/2 x 5/8 in. gas pipe adaptor is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
4DHP1S48M Indoor Unit A 1/4” liq + 1/2” gas Indoor Unit B 1/4” liq + 1/2” gas Indoor Unit C 1/4” liq + 3/8” gas Indoor Unit D 1/4” liq + 3/8” gas Indoor Unit E 1/4” liq + 3/8” gas	3	009 (C)	1/4 in. x 3/8 in.
		012 (B)	1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
	3	009 (C)	1/4 in. x 3/8 in.
		012 (B)	1/4 in. x 1/2 in.
		024 (A)	[2, 3] 3/8 in. x 5/8 in.
	3	009 (C)	1/4 in. x 3/8 in.
		018 (A)	1/4 in. x 1/2 in.
		018 (B)	1/4 in. x 1/2 in.
	3	009 (C)	1/4 in. x 3/8 in.
		018 (B)	1/4 in. x 1/2 in.
		024 (A)	[2, 3] 3/8 in. x 5/8 in.
	3	009 (C)	1/4 in. x 3/8 in.
		024 (A)	[2, 3] 3/8 in. x 5/8 in.
		024 (B)	[2, 3] 3/8 in. x 5/8 in.
	3	012 (A)	1/4 in. x 1/2 in.
		012 (B)	1/4 in. x 1/2 in.
		012 (C)	[1] 1/4 in. x 1/2 in.
	3	012 (B)	1/4 in. x 1/2 in.
		012 (C)	[1] 1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
	3	012 (C)	1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
		018 (B)	[1] 1/4 in. x 1/2 in.
	3	012 (B)	1/4 in. x 1/2 in.
		012 (C)	[1] 1/4 in. x 1/2 in.
		024 (A)	[2, 3] 3/8 in. x 5/8 in.
	3	012 (B)	1/4 in. x 1/2 in.
		018 (C)	[1] 1/4 in. x 1/2 in.
		024 (A)	[2, 3] 3/8 in. x 5/8 in.
	3	012 (C)	[1] 1/4 in. x 1/2 in.
		024 (A)	[2, 3] 3/8 in. x 5/8 in.
		024 (B)	[2, 3] 3/8 in. x 5/8 in.
	3	018 (A)	1/4 in. x 1/2 in.
		018 (B)	1/4 in. x 1/2 in.
		018 (C)	[1] 1/4 in. x 1/2 in.
	3	018 (B)	1/4 in. x 1/2 in.
		018 (C)	[1] 1/4 in. x 1/2 in.
		024 (A)	[2, 3] 3/8 in. x 5/8 in.
	4	009 (A)	[1] 1/4 in. x 3/8 in.
		009 (B)	[1] 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
	4	009 (B)	[1] 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.

[1] 3/8 x 1/2 in. gas pipe adaptor is required for line set connection to outdoor unit (furnished with outdoor unit).

[2] 1/4 x 3/8 in. liquid pipe adaptor is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

[3] 1/2 x 5/8 in. gas pipe adaptor is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
4DHP1S48M Indoor Unit A 1/4” liq + 1/2” gas Indoor Unit B 1/4” liq + 1/2” gas Indoor Unit C 1/4” liq + 3/8” gas Indoor Unit D 1/4” liq + 3/8” gas Indoor Unit E 1/4” liq + 3/8” gas	4	009 (B)	[1] 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		018 (A)	1/4 in. x 1/2 in.
	4	009 (B)	[1] 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		024 (A)	[2, 3] 3/8 in. x 5/8 in.
	4	009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
		012 (B)	1/4 in. x 1/2 in.
	4	009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		012 (B)	1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
	4	009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		018 (A)	1/4 in. x 1/2 in.
		018 (B)	1/4 in. x 1/2 in.
	4	009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		018 (B)	1/4 in. x 1/2 in.
		024 (A)	[2, 3] 3/8 in. x 5/8 in.
	4	009 (D)	1/4 in. x 3/8 in.
		012 (A)	[1] 1/4 in. x 1/2 in.
		012 (B)	[1] 1/4 in. x 1/2 in.
		012 (C)	1/4 in. x 1/2 in.
	4	009 (D)	1/4 in. x 3/8 in.
		012 (B)	1/4 in. x 1/2 in.
		012 (C)	[1] 1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
	4	009 (D)	1/4 in. x 3/8 in.
		012 (C)	[1] 1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
		018 (B)	1/4 in. x 1/2 in.
	4	012 (A)	1/4 in. x 1/2 in.
		012 (B)	1/4 in. x 1/2 in.
		012 (C)	[1] 1/4 in. x 1/2 in.
		012 (D)	[1] 1/4 in. x 1/2 in.
	4	012 (B)	1/4 in. x 1/2 in.
		012 (C)	[1] 1/4 in. x 1/2 in.
		012 (D)	[1] 1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.

[1] 3/8 x 1/2 in. gas pipe adaptor is required for line set connection to outdoor unit (furnished with outdoor unit).

[2] 1/4 x 3/8 in. liquid pipe adaptor is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

[3] 1/2 x 5/8 in. gas pipe adaptor is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
4DHP1S48M Indoor Unit A 1/4” liq + 1/2” gas Indoor Unit B 1/4” liq + 1/2” gas Indoor Unit C 1/4” liq + 3/8” gas Indoor Unit D 1/4” liq + 3/8” gas Indoor Unit E 1/4” liq + 3/8” gas	5	009 (A)	[1] 1/4 in. x 3/8 in.
		009 (B)	[1] 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		009 (E)	1/4 in. x 3/8 in.
	5	009 (B)	[1] 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		009 (E)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
	5	009 (B)	[1] 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		009 (E)	1/4 in. x 3/8 in.
		018 (A)	1/4 in. x 1/2 in.
	5	009 (B)	[1] 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		009 (E)	1/4 in. x 3/8 in.
		024 (A)	[2, 3] 3/8 in. x 5/8 in.
	5	009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		009 (E)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
		012 (B)	1/4 in. x 1/2 in.
	5	009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		009 (E)	1/4 in. x 3/8 in.
		012 (B)	1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
	5	009 (D)	1/4 in. x 3/8 in.
		009 (E)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
		012 (B)	1/4 in. x 1/2 in.
		012 (C)	[1] 1/4 in. x 1/2 in.
	5	009 (D)	1/4 in. x 3/8 in.
		009 (E)	1/4 in. x 3/8 in.
		012 (B)	1/4 in. x 1/2 in.
		012 (C)	[1] 1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
	5	009 (E)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
		012 (B)	1/4 in. x 1/2 in.
		012 (C)	[1] 1/4 in. x 1/2 in.
		012 (D)	[1] 1/4 in. x 1/2 in.
	5	012 (A)	1/4 in. x 1/2 in.
		012 (B)	1/4 in. x 1/2 in.
		012 (C)	[1] 1/4 in. x 1/2 in.
		012 (D)	[1] 1/4 in. x 1/2 in.
		012 (E)	[1] 1/4 in. x 1/2 in.

[1] 3/8 x 1/2 in. gas pipe adaptor is required for line set connection to outdoor unit (furnished with outdoor unit).

[2] 1/4 x 3/8 in. liquid pipe adaptor is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

[3] 1/2 x 5/8 in. gas pipe adaptor is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

9. Power Wiring for Outdoor and Indoor Units (Diagrams)

⚠CAUTION

This unit must be properly grounded and protected by a circuit breaker. The ground wire for the unit must not be connected to a gas or water pipe, a lightning conductor or a telephone ground wire.

Do not connect power wires to the outdoor unit until all other wiring and piping connections have been completed.

Install all wiring at least 3 feet (1 m) away from televisions, radios or other electronic devices in order to avoid the possibility of interference with the unit operation.

Do not install the unit near a lighting appliance that includes a ballast. The ballast may affect remote control operation.

⚠WARNING

Isolate the power supply before accessing unit electrical terminals.

Install unit so that unit disconnect is accessible.

Follow all local and national codes, as well as this installation instruction, during installation. Do NOT overload electrical circuit, as this may lead to failure and possible fire.

Use specified wiring and cable to make electrical connections. Clamp cables securely and make sure that connections are tight to avoid strain on wiring. Insecure wiring connections may result in equipment failure and risk of fire. Wiring must be installed so that all cover plates can be securely closed.

In the U.S.A., wiring must conform with current local codes and the current National Electric Code (NEC). In Canada, wiring must conform with current local codes and the current Canadian Electrical Code (CEC).

Refer to unit nameplate for minimum circuit ampacity and maximum over-current protection size.

- All indoor units are powered by the outdoor unit.
- Communication wiring is determined by the indoor unit size. Indoor units 30k and below use one stranded 4-conductor wire to provide power and communication.
  Indoor units 36k and above use one stranded 3-conductor wire to provide power and one stranded 2-conductor wire to provide communication.

NOTE: *Multi-zone systems use indoor units sizes 24k and below.*

- Make all electrical power wiring connections at the outdoor unit.
- Use minimum of 18 GA stranded wiring.
- Connect wiring from outdoor unit to indoor unit.
- Refer to unit name plate for rated voltage.
- Be sure to reattach all electrical box covers after connections are complete.
- Follow NEC/CEC standards and all local and state codes during wiring installation.

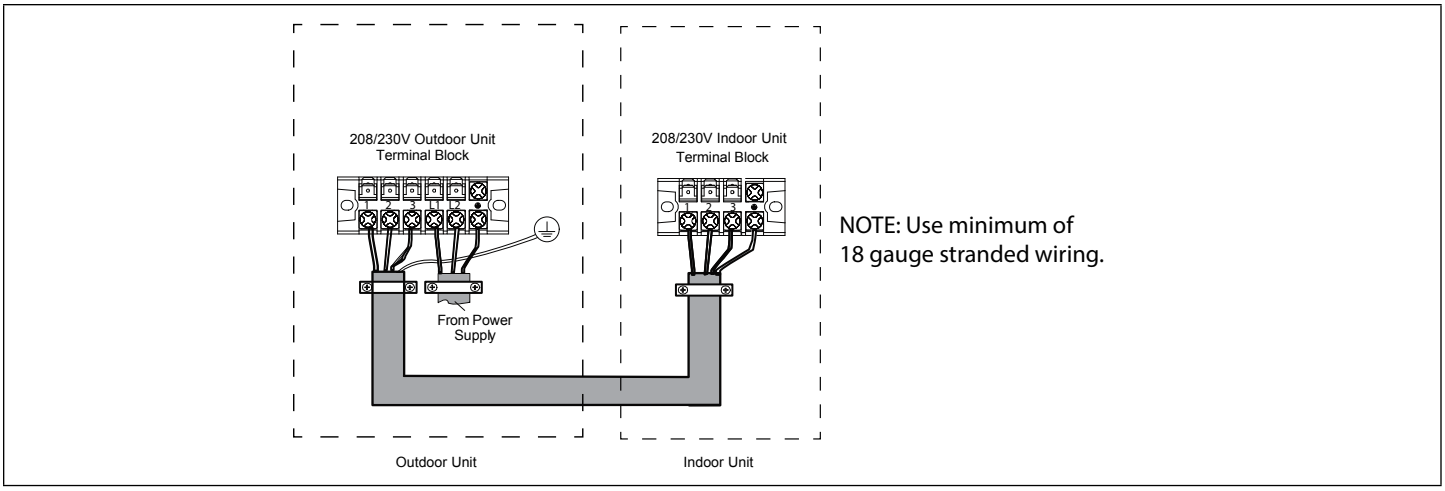


Figure 2. Single-Zone Wiring 30K and Below

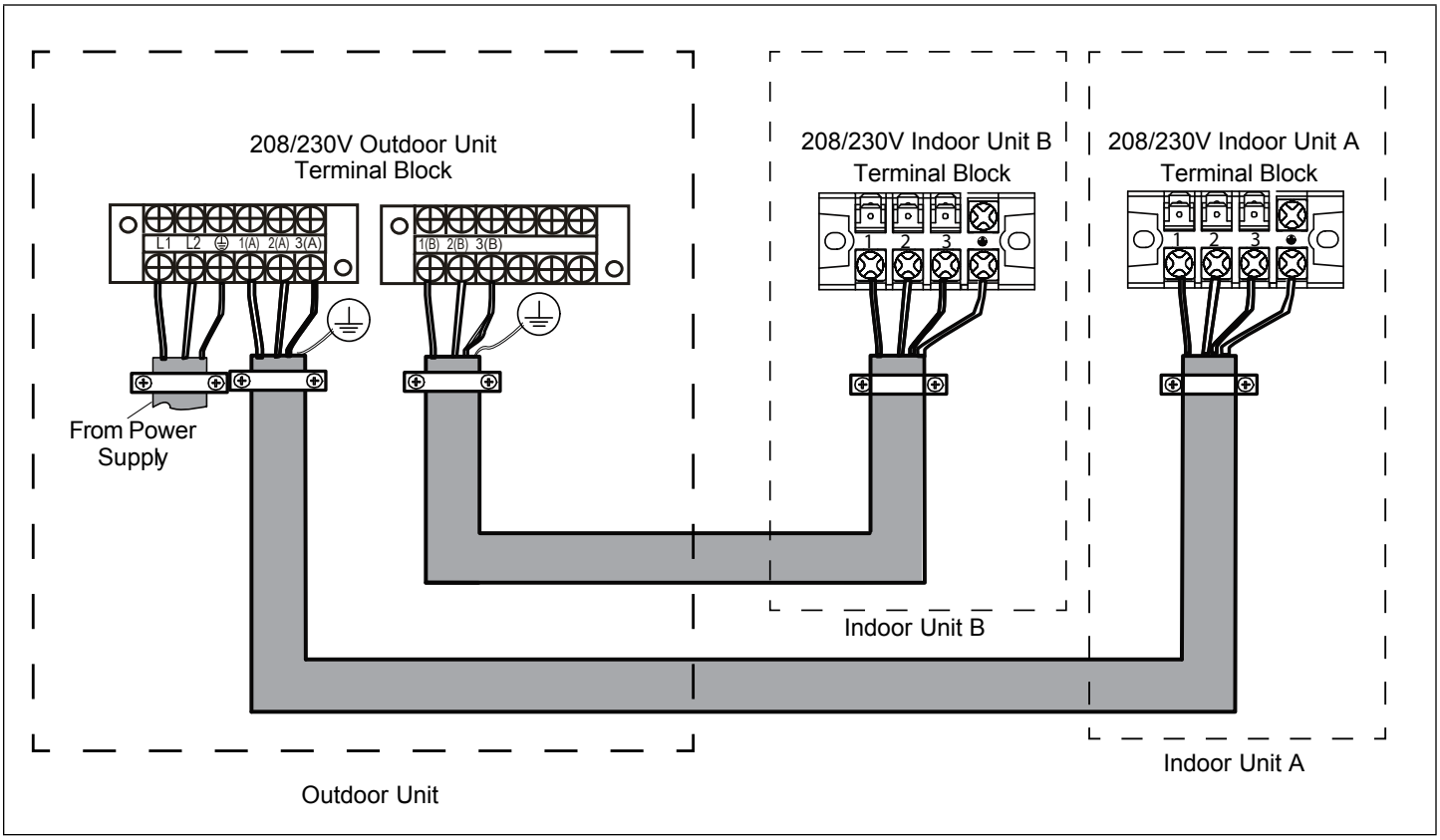


Figure 3. Multi-Zone Wiring 30K and Below

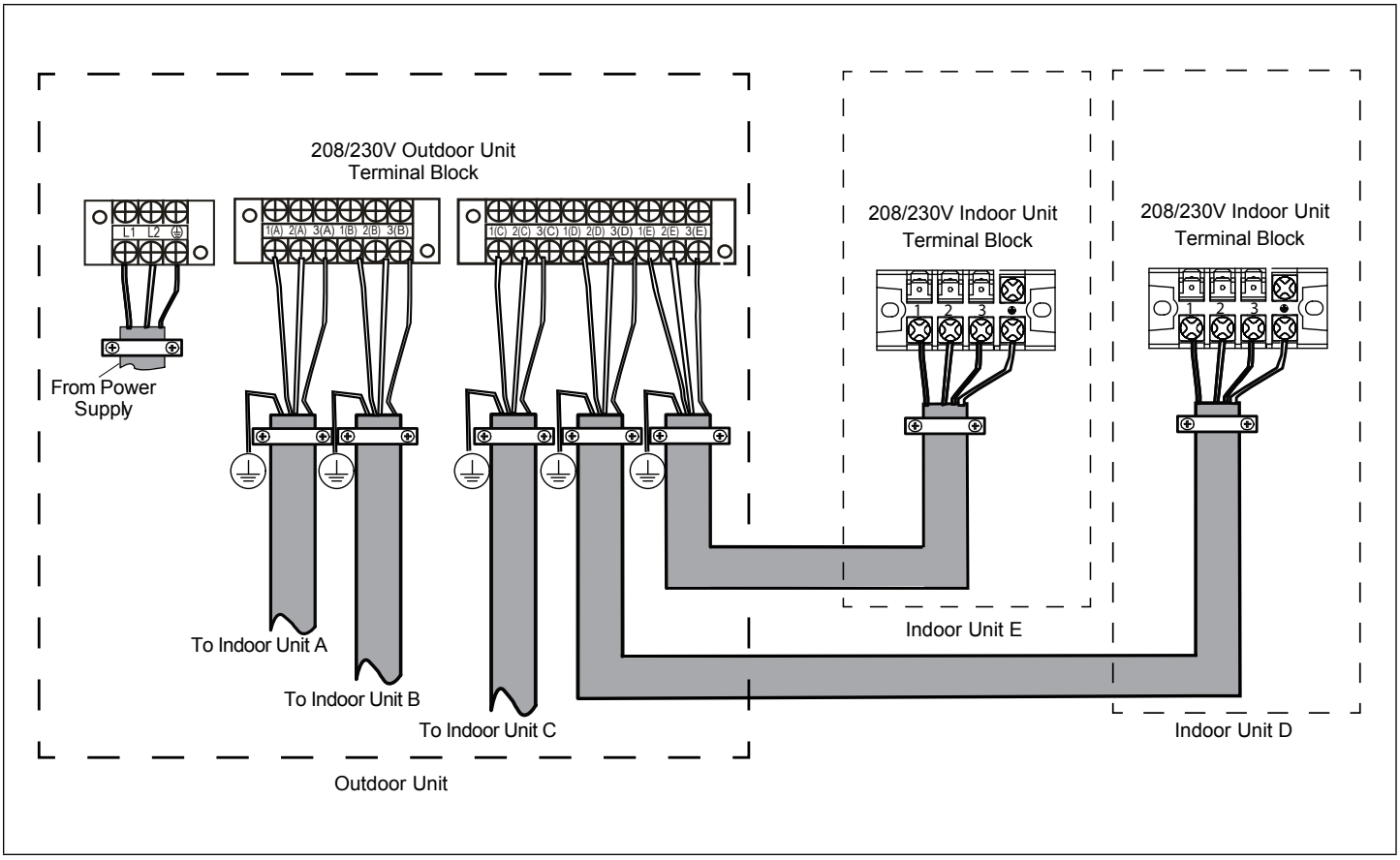


Figure 4. Multi-Zone Wiring 36K and Above

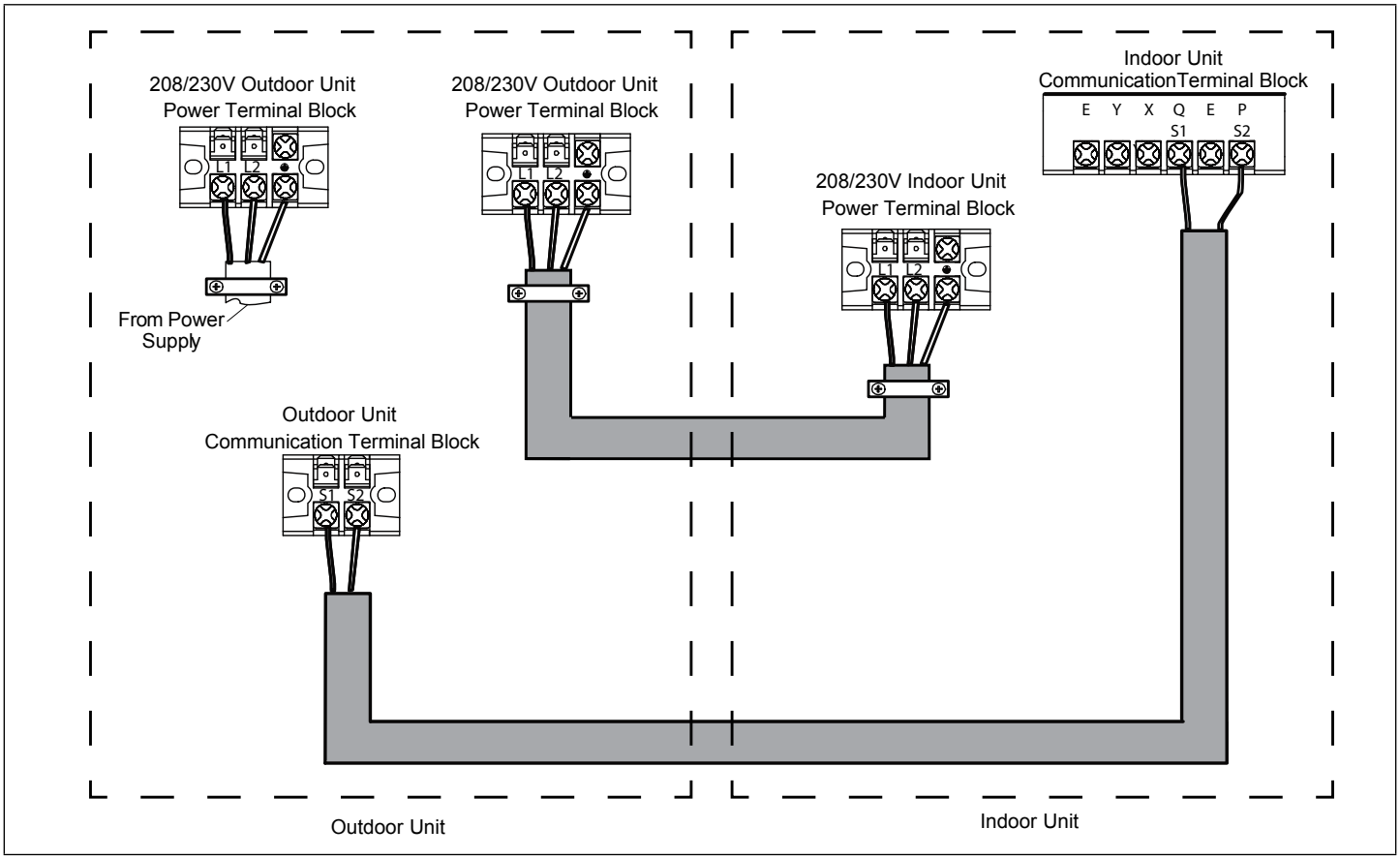


Figure 5. Communication - Single-Zone Wiring 36K and 48K Only

10. Outdoor Unit Diagrams

10.1. 4DHP Single-Zone

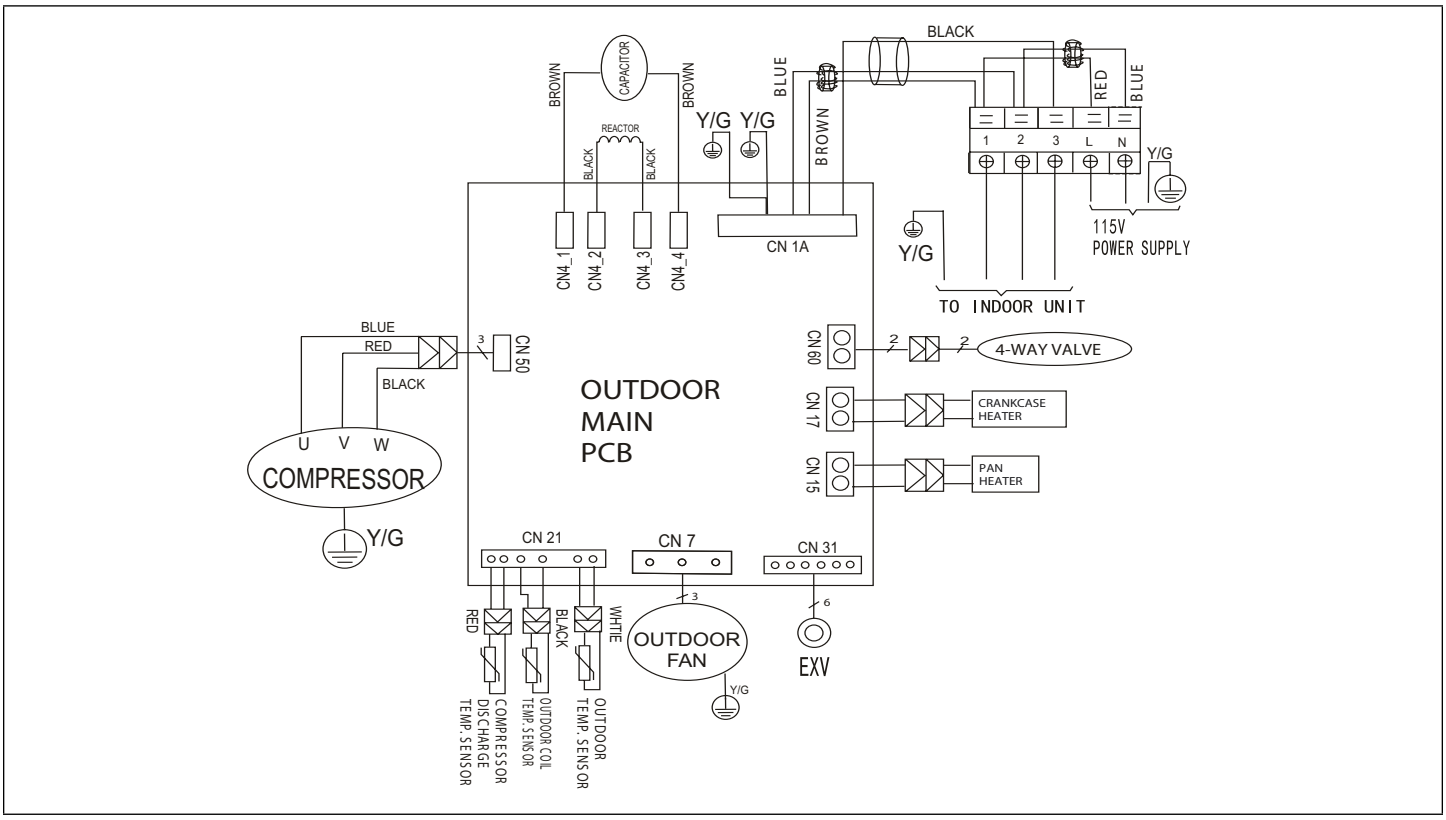


Figure 6. 115V 4DHP1S09S-*L and 4DHP1S12S-*L Outdoor Unit Wiring Diagram

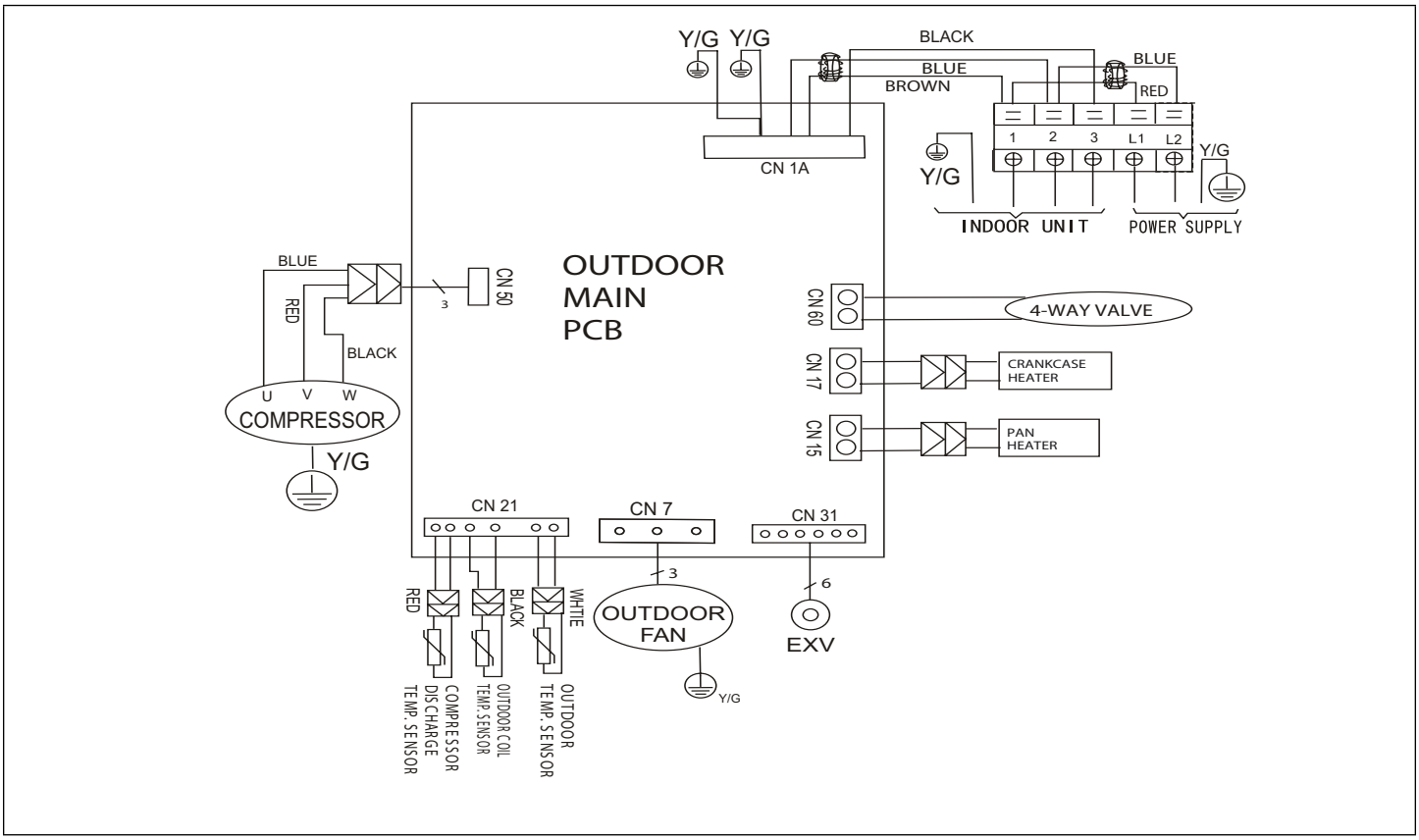


Figure 7. 208/230V 4DHP1S09S-*P and 4DHP1S12S-*P Outdoor Unit Wiring Diagram

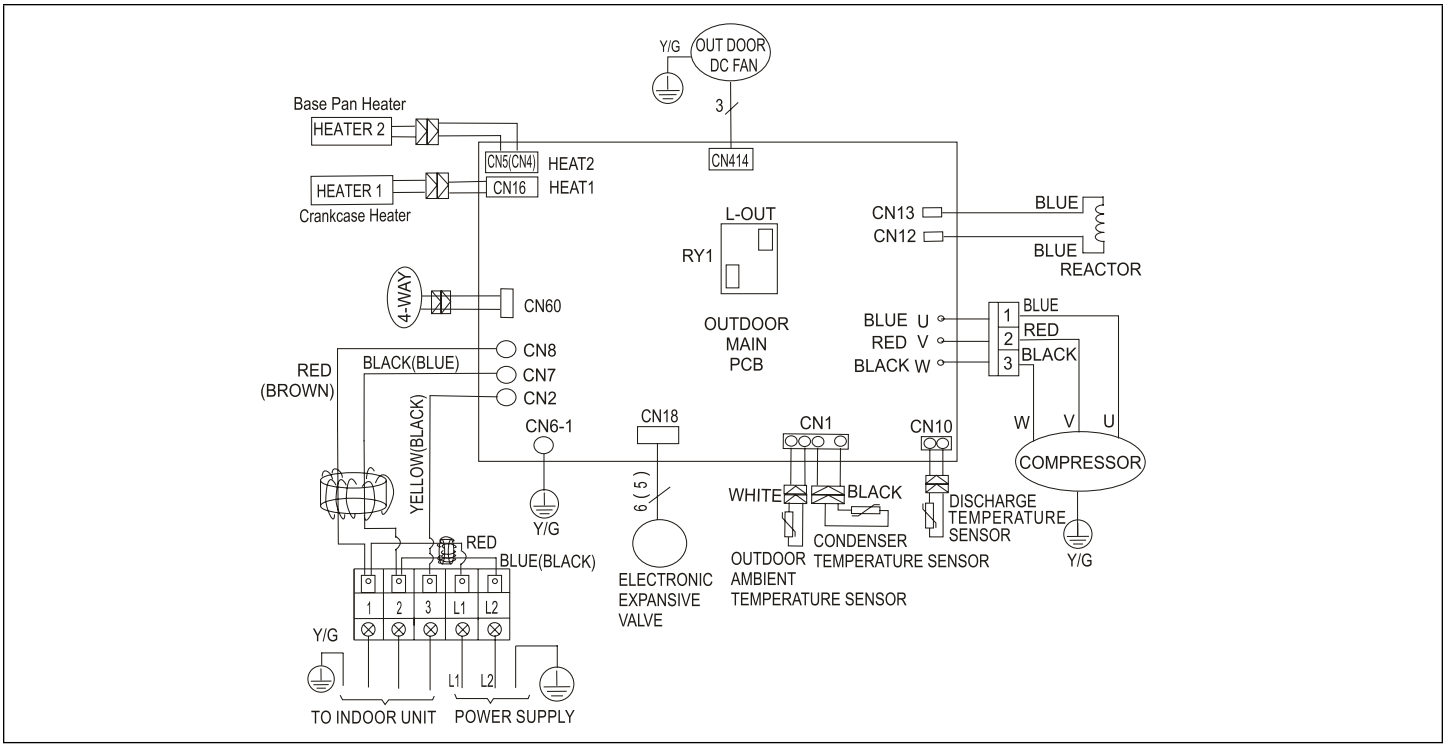
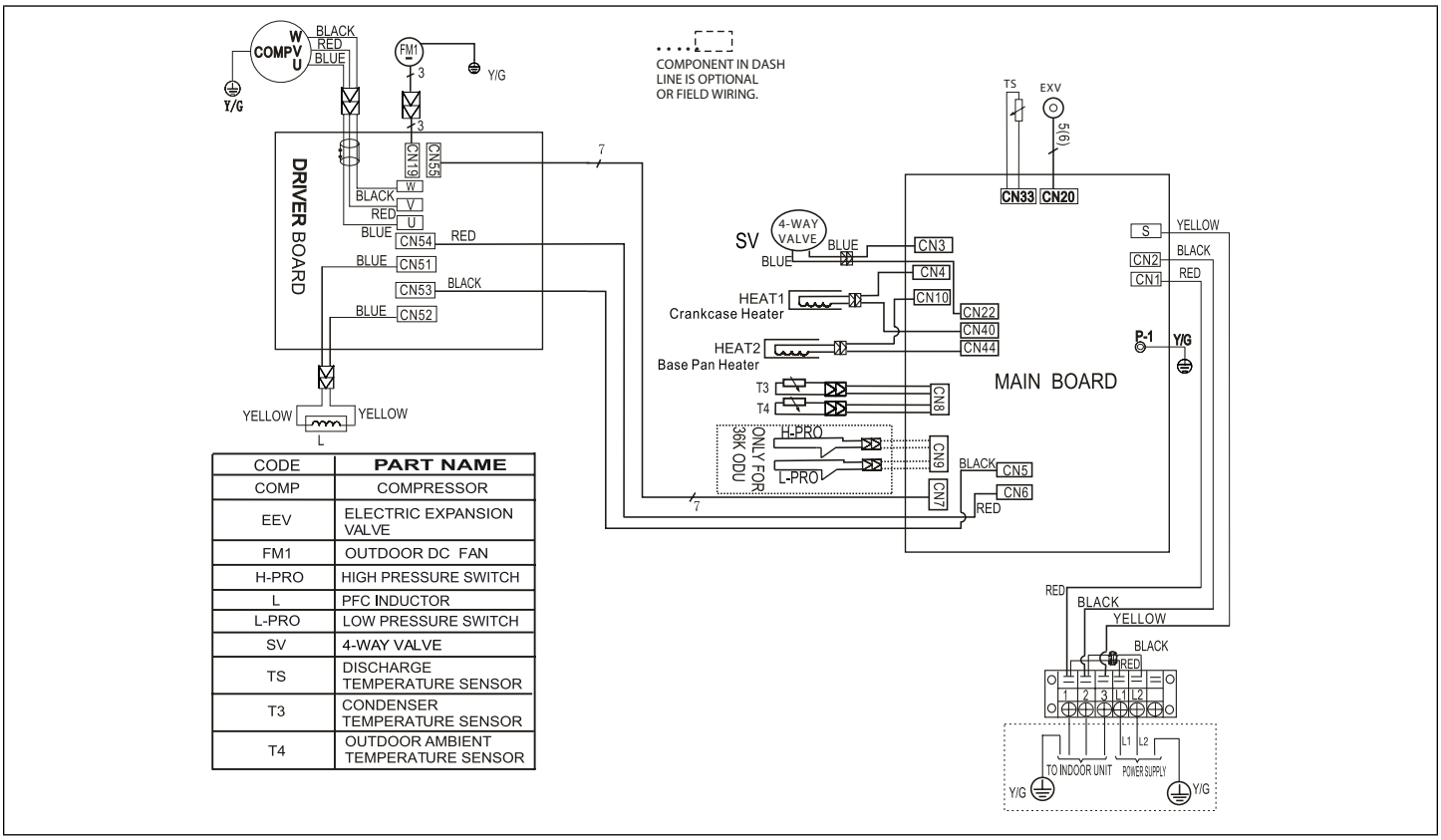
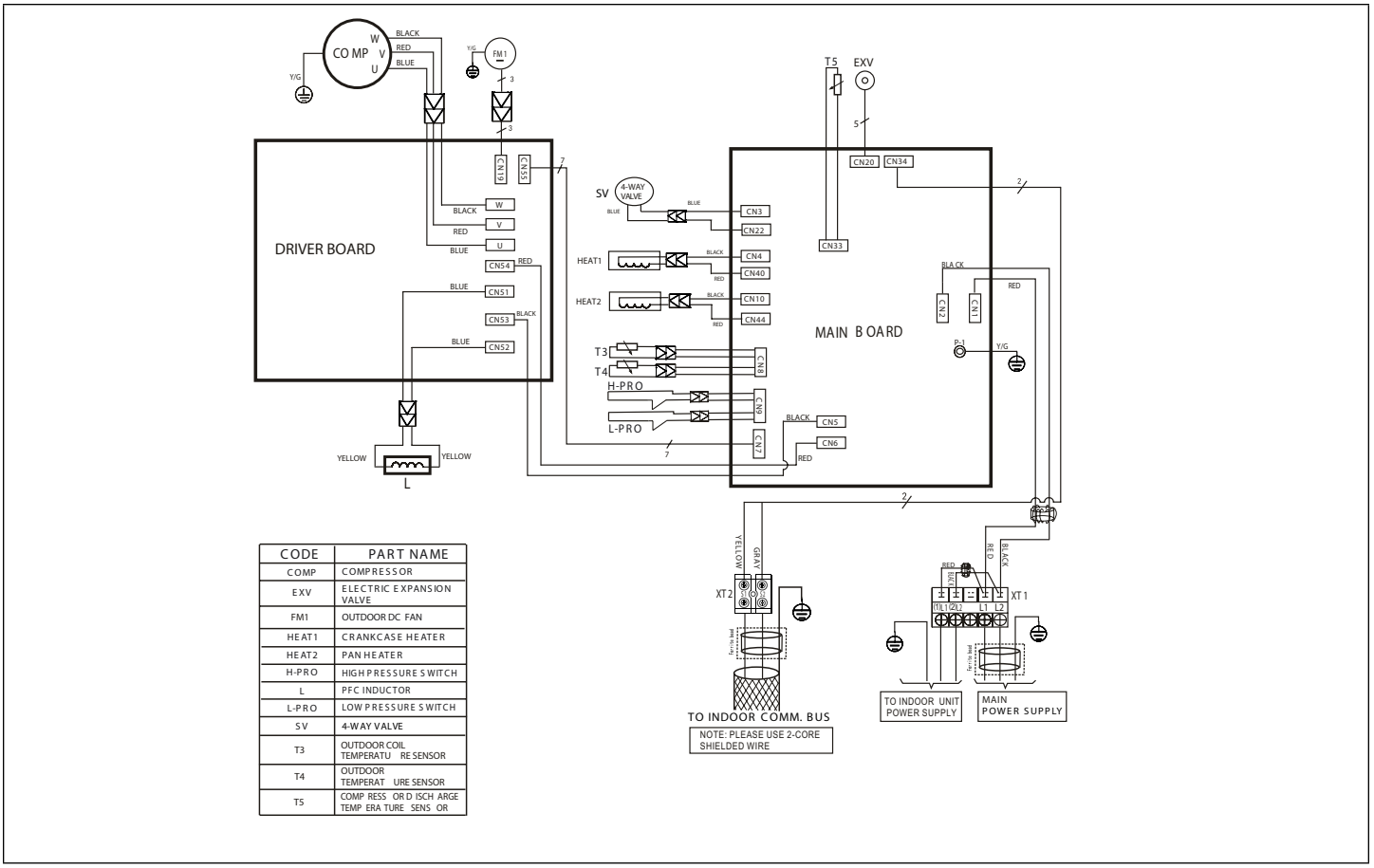


Figure 8. 208/230V 4DHP1S18S-*P and 4DHP1S24S-*P Outdoor Unit Wiring Diagram



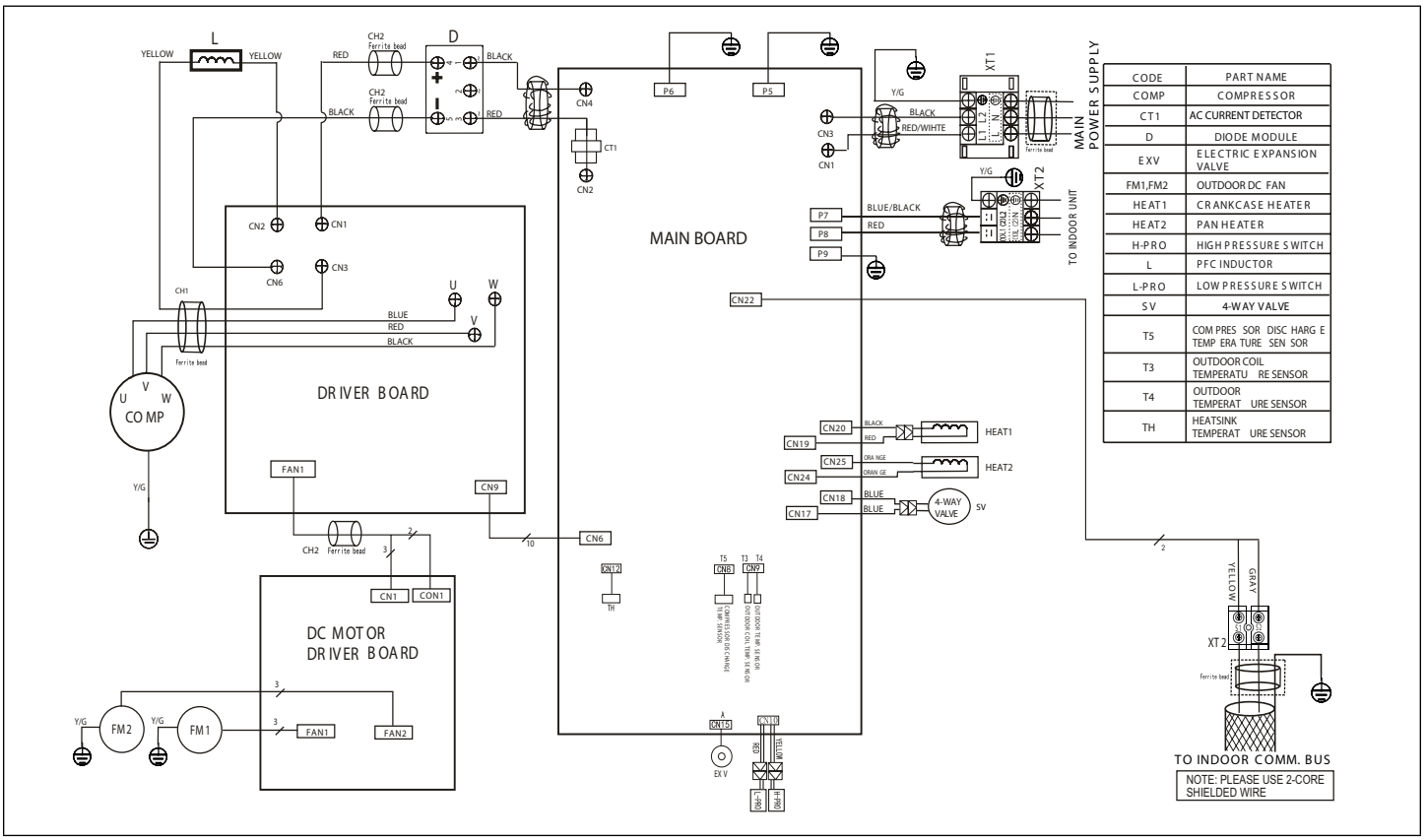
CODE	PART NAME
COMP	COMPRESSOR
EEV	ELECTRIC EXPANSION VALVE
FM1	OUTDOOR DC FAN
H-PRO	HIGH PRESSURE SWITCH
L	PFC INDUCTOR
L-PRO	LOW PRESSURE SWITCH
SV	4-WAY VALVE
TS	DISCHARGE TEMPERATURE SENSOR
T3	CONDENSER TEMPERATURE SENSOR
T4	OUTDOOR AMBIENT TEMPERATURE SENSOR

Figure 9. 208/230V 4DHP1S30S-*P Outdoor Unit Wiring Diagram



CODE	PART NAME
COMP	COMPRESSOR
EXV	ELECTRIC EXPANSION VALVE
FM1	OUTDOOR DC FAN
HEAT1	CRANKCASE HEATER
HEAT2	PAN HEATER
H-PRO	HIGH PRESSURE SWITCH
L	PFC INDUCTOR
L-PRO	LOW PRESSURE SWITCH
SV	4-WAY VALVE
T3	OUTDOOR COIL TEMPERATU RE SENSOR
T4	OUTDOOR TEMPERAT URE SENSOR
T5	COMP RESS OR D ISCH ARGE TEMP ERA TURE SENS OR

Figure 10. 208/230V 4DHP1S36S-*P Outdoor Unit Wiring Diagram



CODE	PART NAME
COMP	COMPRESSOR
CT1	AC CURRENT DETECTOR
D	DIODE MODULE
EXV	ELECTRIC EXPANSION VALVE
FM1,FM2	OUTDOOR DC FAN
HEAT1	CRANKCASE HEATER
HEAT2	PAN HEATER
H-PRO	HIGH PRESSURE SWITCH
L	PFC INDUCTOR
L-PRO	LOW PRESSURE SWITCH
SV	4-WAY VALVE
T5	COM PRES SOR DISC HARG E TEMP ERA TURE SEN SOR
T3	OUTDOOR COIL TEMPERATU RE SENSOR
T4	OUTDOOR TEMPERAT URE SENSOR
TH	HEATSINK TEMPERAT URE SENSOR

Figure 11. 208/230V 4DHP1S48S-*P Outdoor Unit Wiring Diagram

10.2. 4DHP Multi-Zone

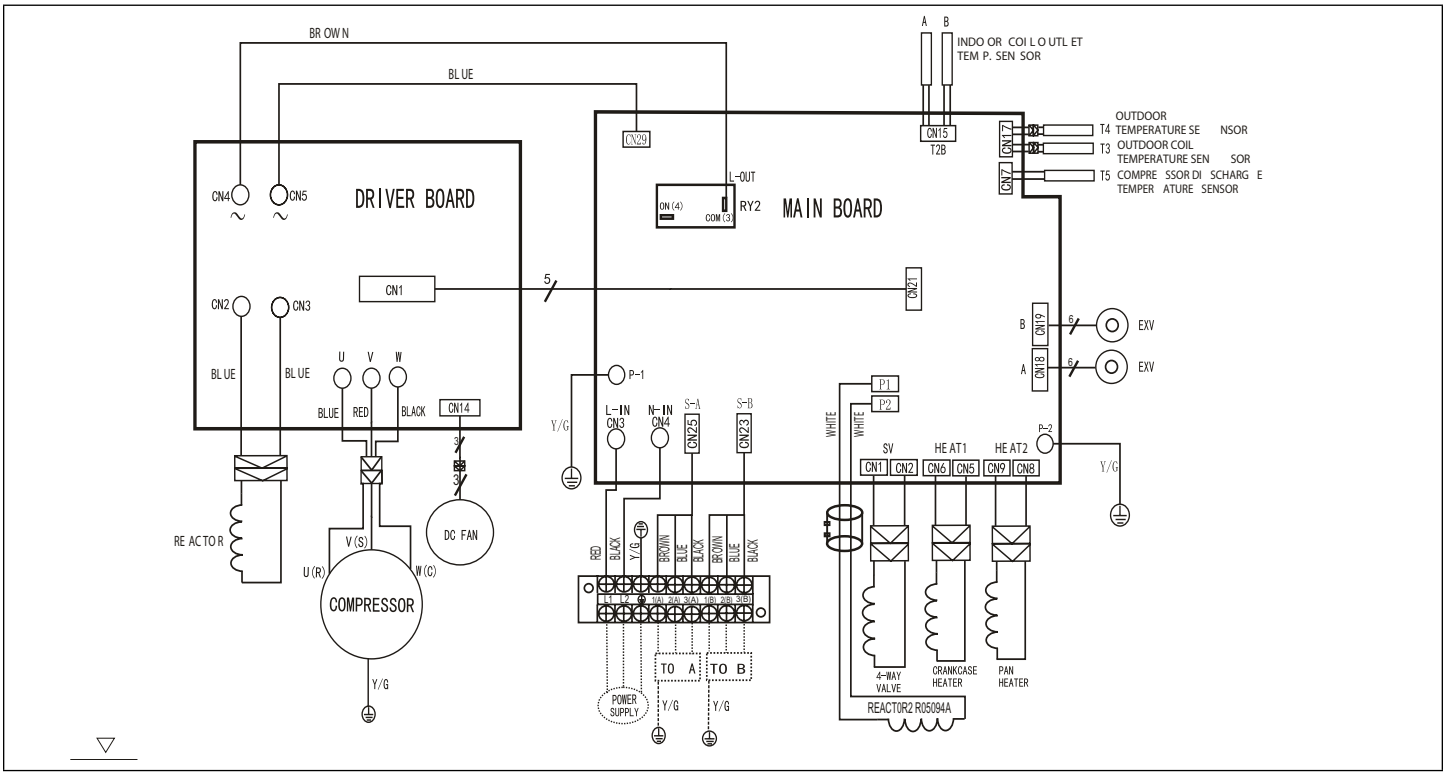


Figure 12. 4DHP1S18M-*P Outdoor Unit Wiring Diagram

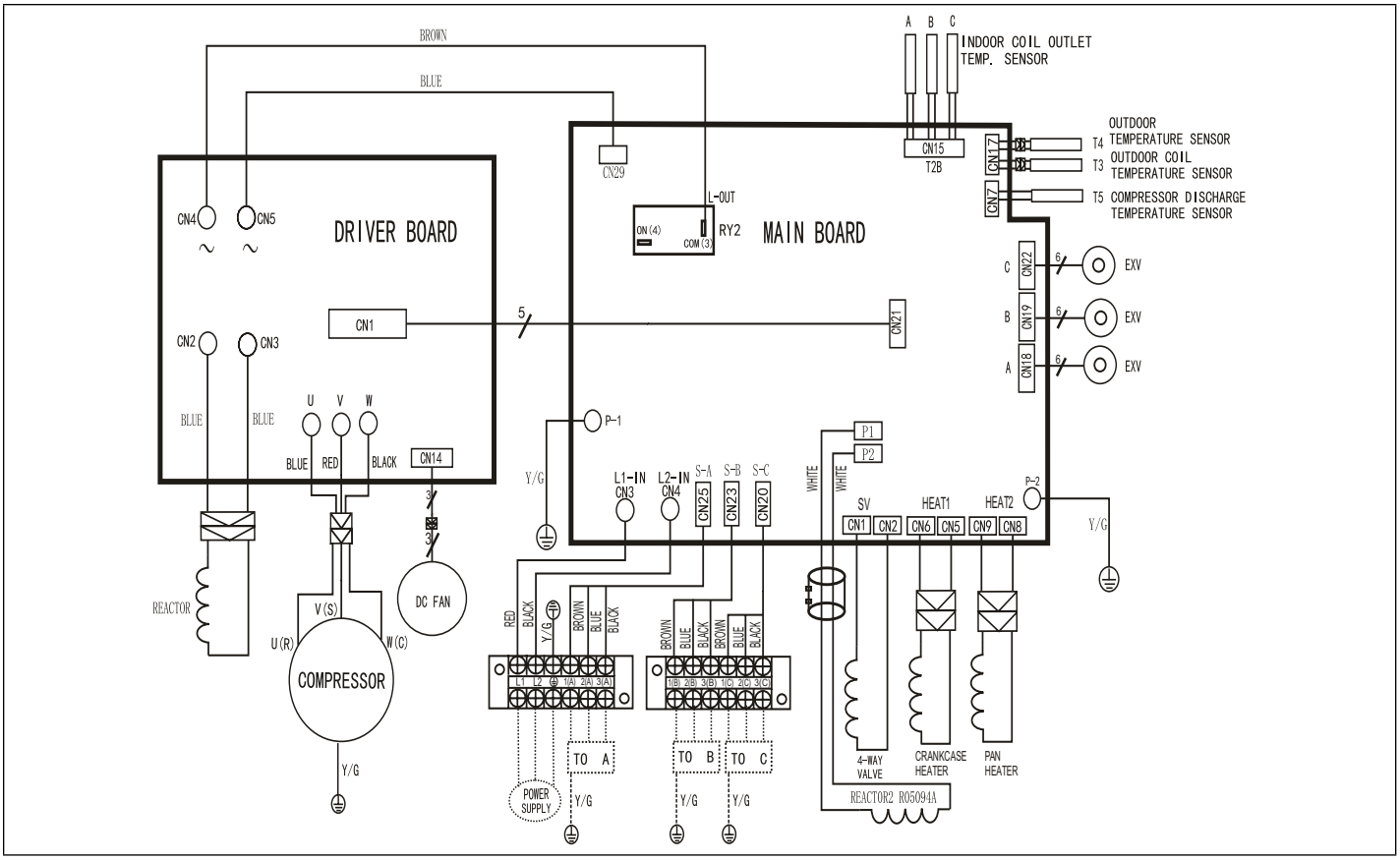
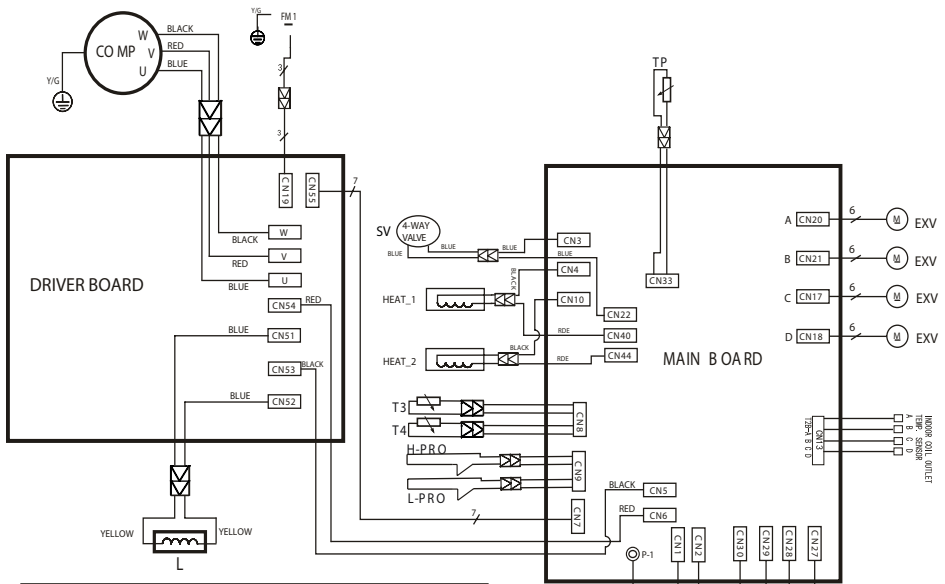
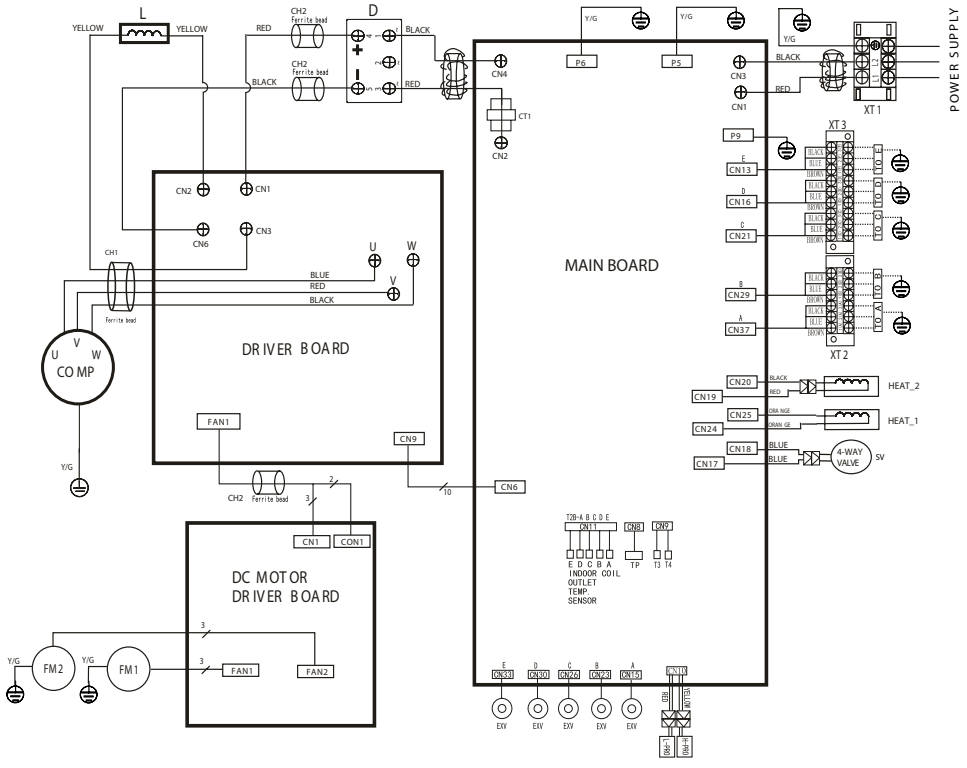


Figure 13. 4DHP1S30M-*P Outdoor Unit Wiring Diagram



CODE	PART NAME	CODE	PART NAME
COMP	COMPRESSOR	L	PFC INDUCTOR
SV	4-WAY VALVE	L-PRO	LOW PRESSURE SWITCH
EXV	ELECTRIC EXPANSION VALVE	TP	COMPRESSOR D ISCHARGE TEMPERAT URE SENSOR
FM1	OUTDOOR DC FAN	T2B	INDOOR COIL OUTLET TEMPERAT URE SENSOR
HEAT_1	CRANKCASE HEATER	T3	OUTDOOR COIL TEMPERATU RE SENSOR
HEAT_2	PAN HEATER	T4	OUTDOOR TEMPERAT URE SENSOR
H-PRO	HIGH PRESSURE SWITCH		

Figure 14. 4DHP1S36M-*P Outdoor Unit Wiring Diagram



CODE	PART NAME
COMP	COMPRESSOR
CT1	AC CURRENT DETECTOR
D	DIODE MODULE
EXV	ELECTRIC EXPANSION VALVE
FM1, FM2	OUTDOOR DC FAN
HEAT_1	CRANKCASE HEATER
HEAT_2	PAN HEATER
H-PRO	HIGH PRESSURE SWITCH
L	PFC INDUCTOR
L-PRO	LOW PRESSURE SWITCH
SV	4-WAY VALVE
TP	COMP RESS OR D ISCHA RGE TEMP ERA TURE SENS OR
T3	OUTDOOR COIL TEMPERATU RE SENSOR
T4	OUTDOOR TEMPERAT URE SENSOR
T2B	INDOOR COIL TEMPER ATUR E SEN SOR
XT	TERMINAL STRIP

Figure 15. 4DHP1S48M-*P Outdoor Unit Wiring Diagram

11. Indoor Unit Diagrams

11.1. DWM Indoor Unit

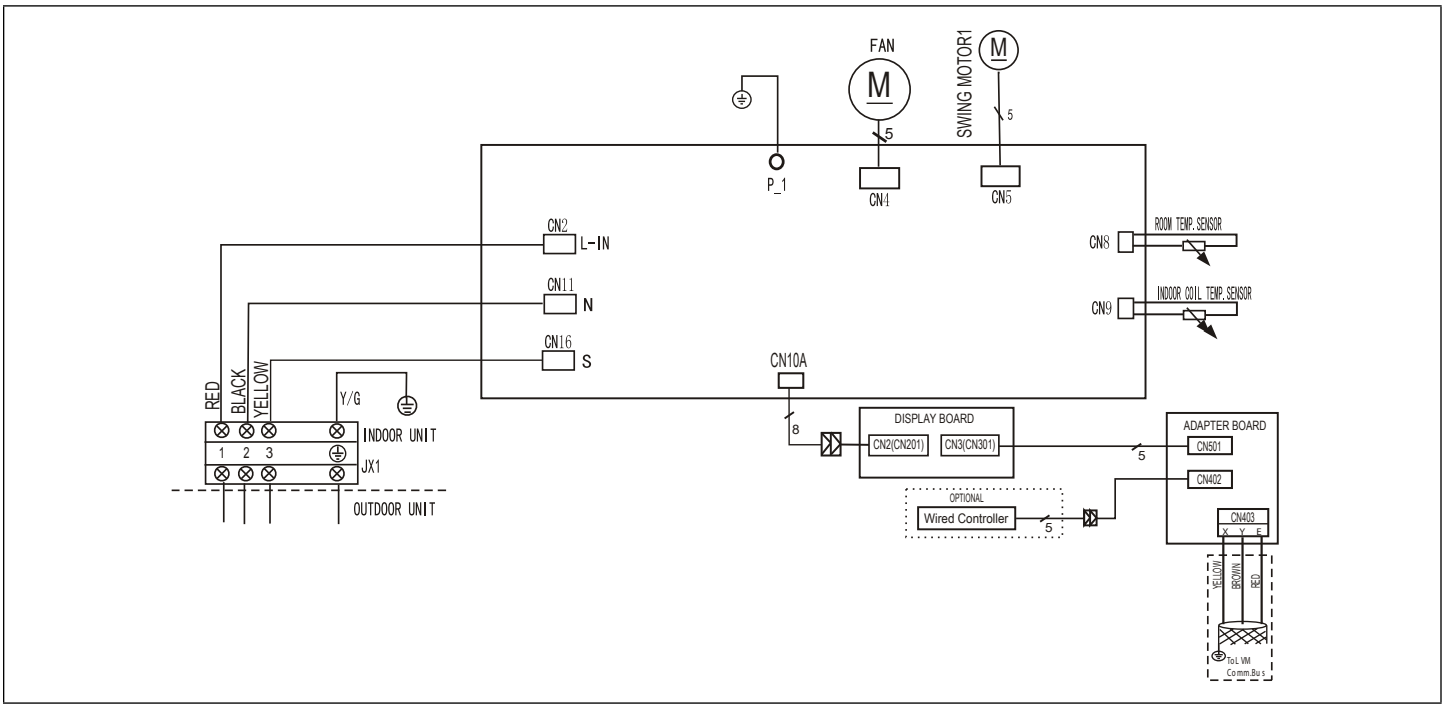


Figure 16. DWM Unit Wiring Diagram

11.2. D22C Indoor Unit

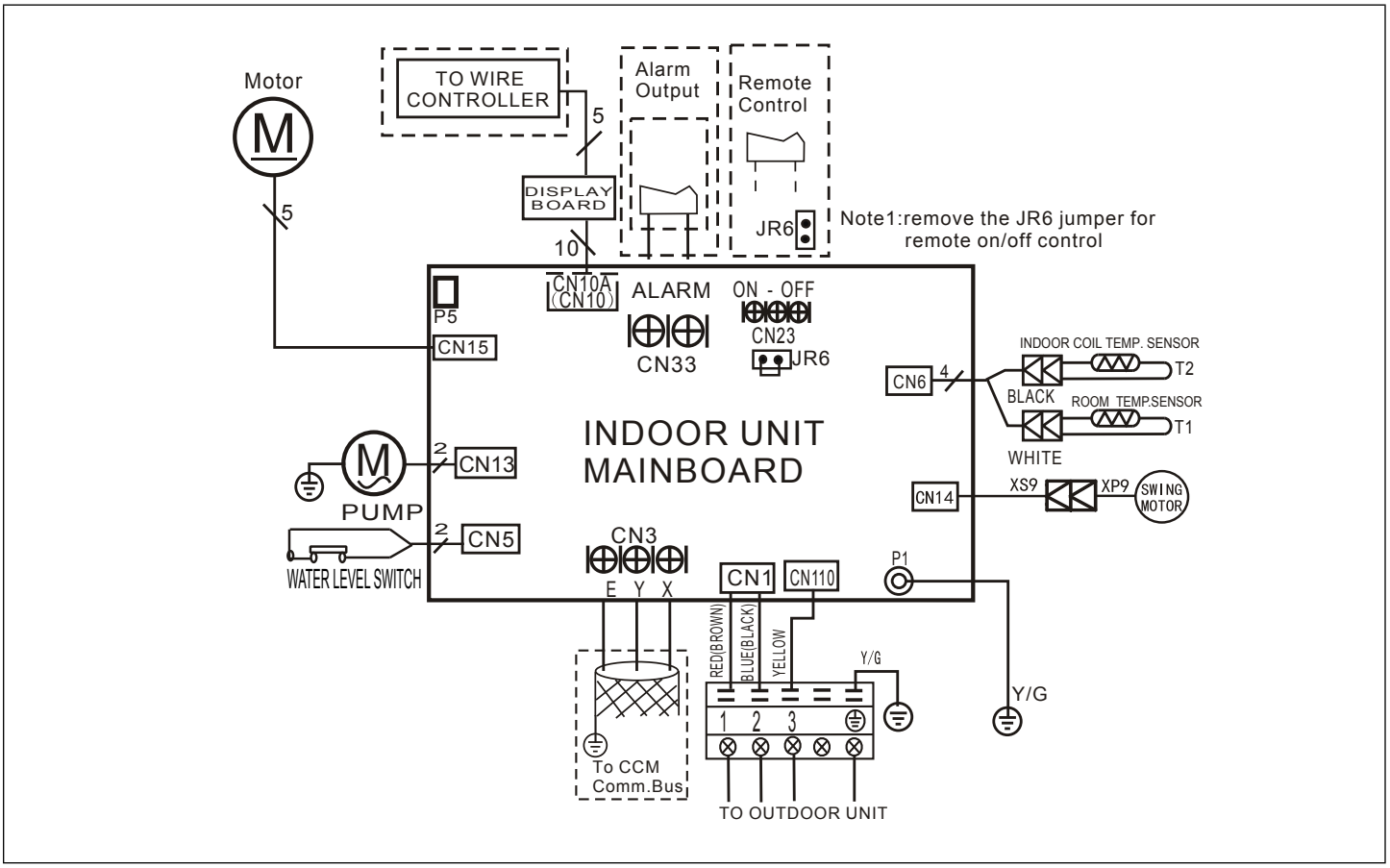


Figure 17. D22C109S4-1P, D22C112S4-1P and D22C118S4-1P Unit Wiring Diagram

11.3. D33C Indoor Unit

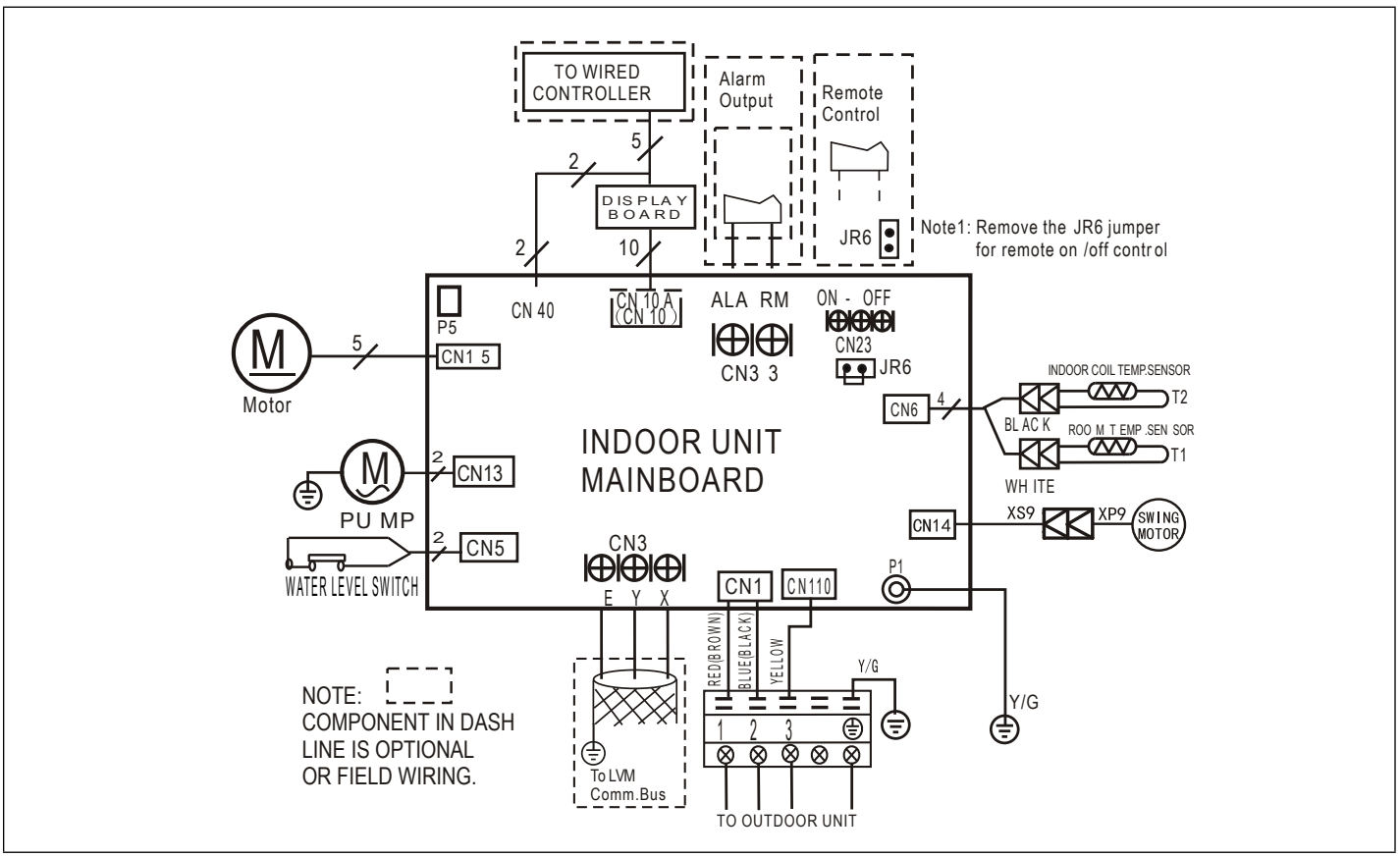


Figure 18. D33C124S4-*P Unit Wiring Diagram

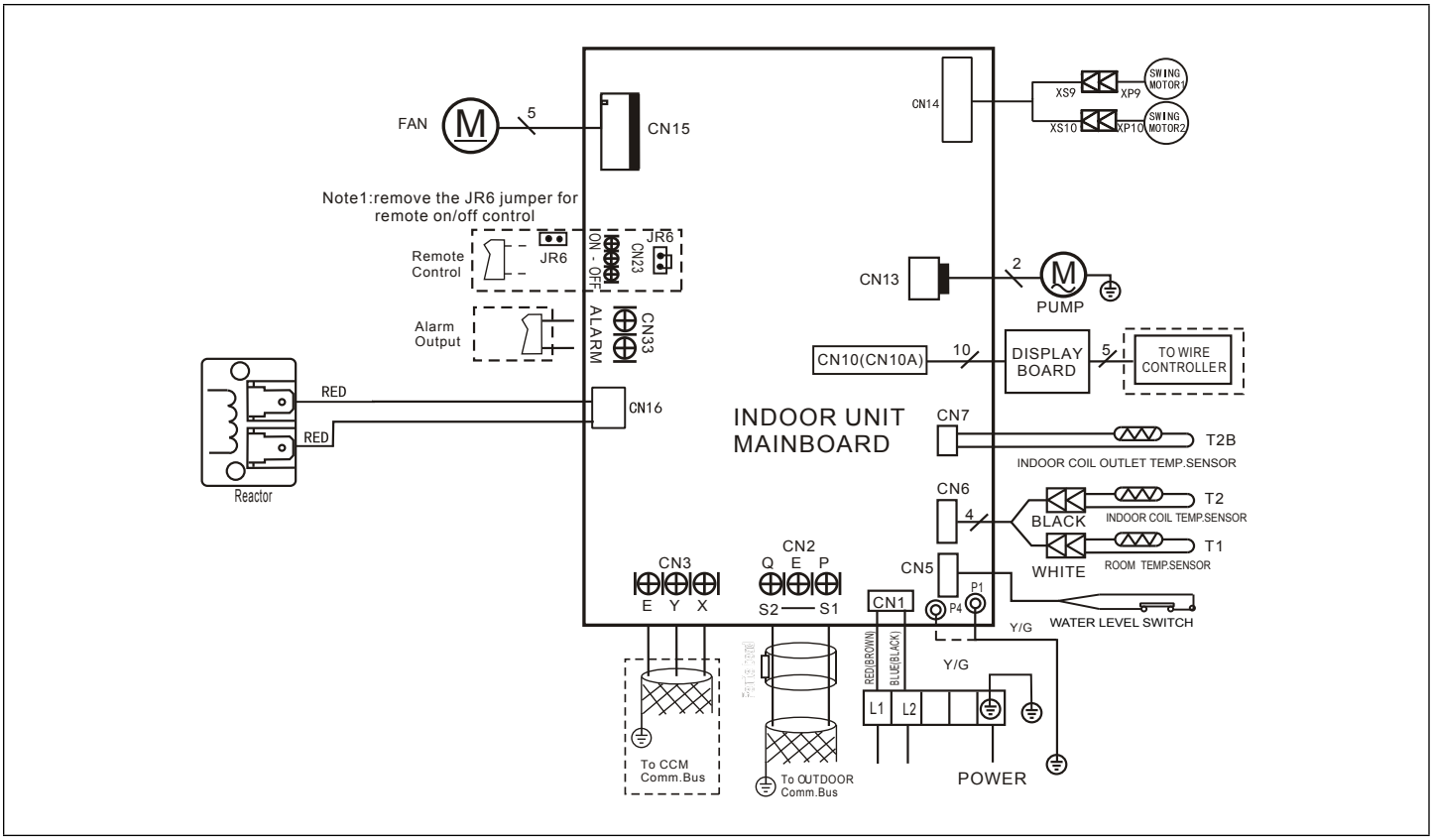


Figure 19. D33C136S4-*P and D33C148S4-*P Unit Wiring Diagram

11.4. DMD Indoor Units

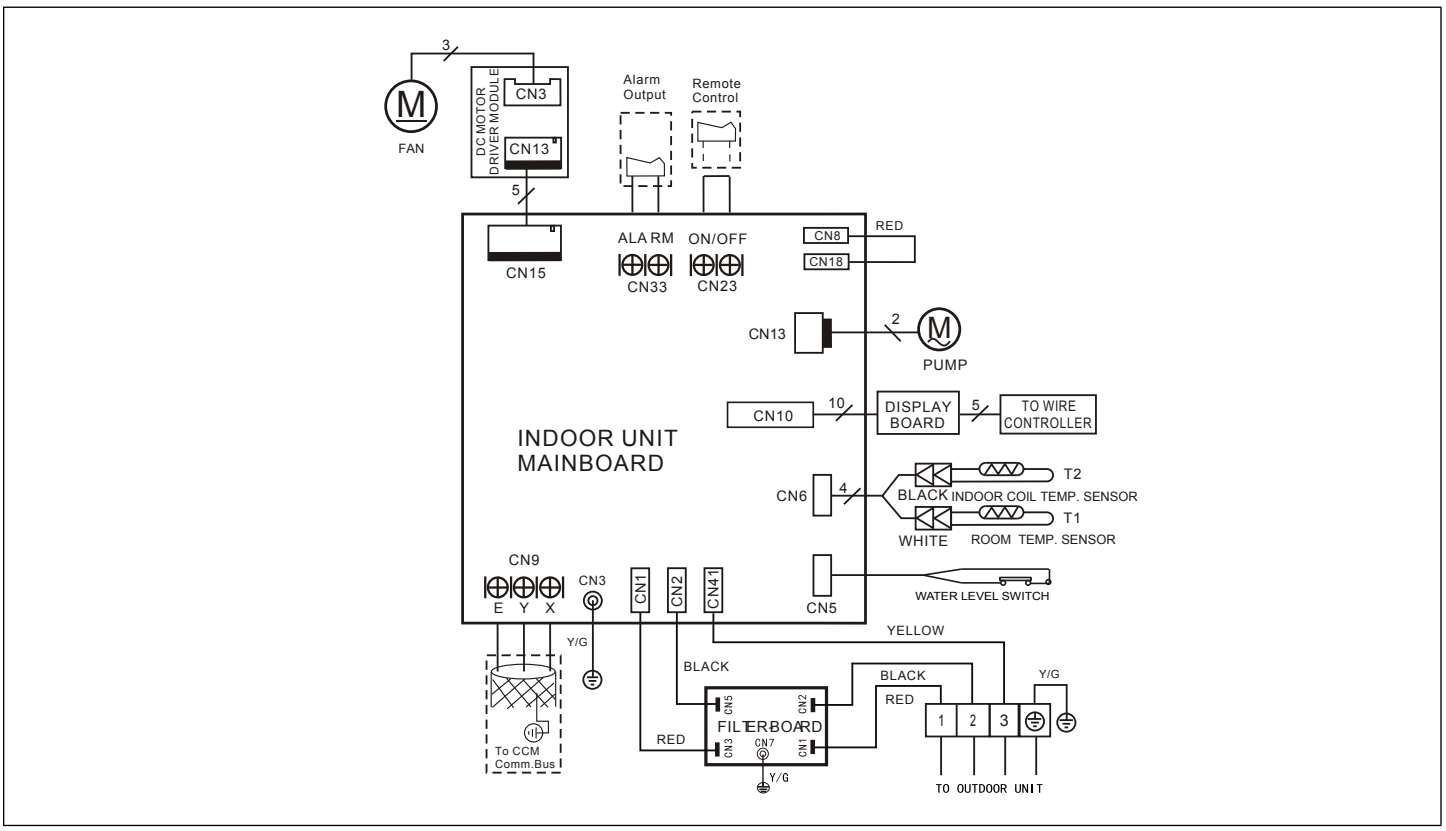


Figure 20. DMD109S4-1P, DMD112S4-1P, DMD118S4-1P Ducted Units Wiring Diagram

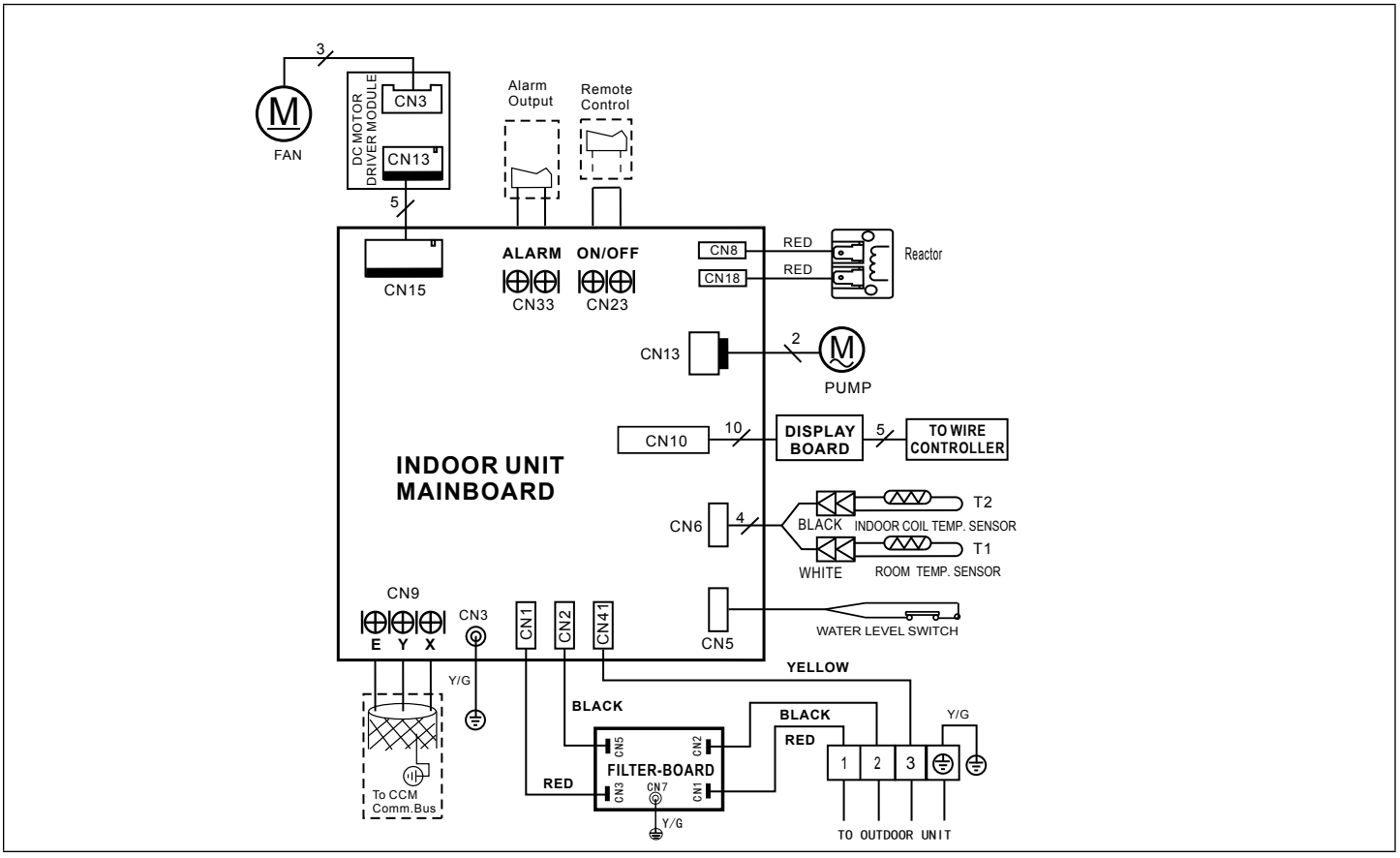


Figure 21. DMD124S4-1P Ducted Units Wiring Diagram

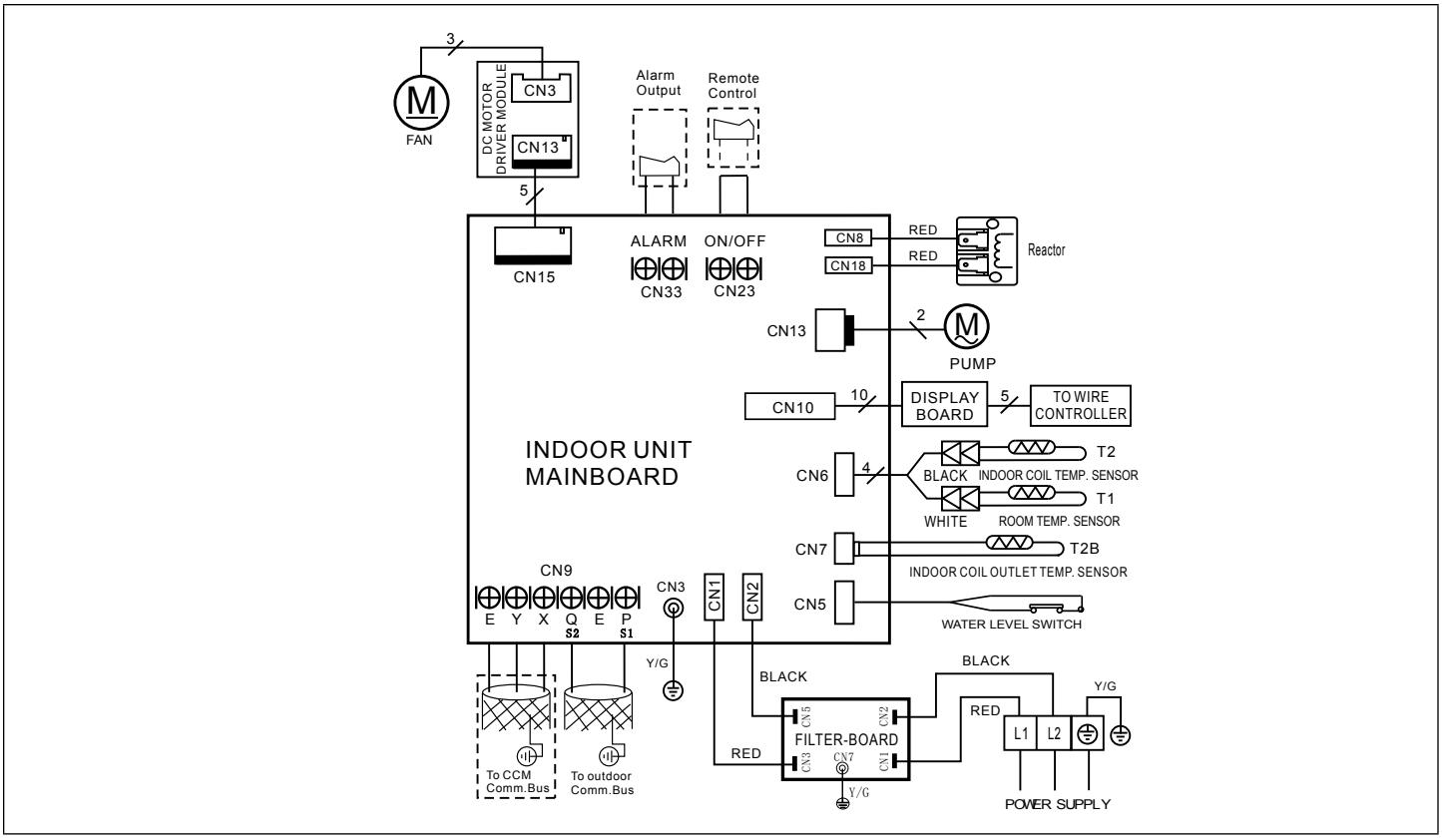


Figure 22. DMD136S4-1P & DMD148S4-1P Ducted Units Wiring Diagram

12. Control Board Photos

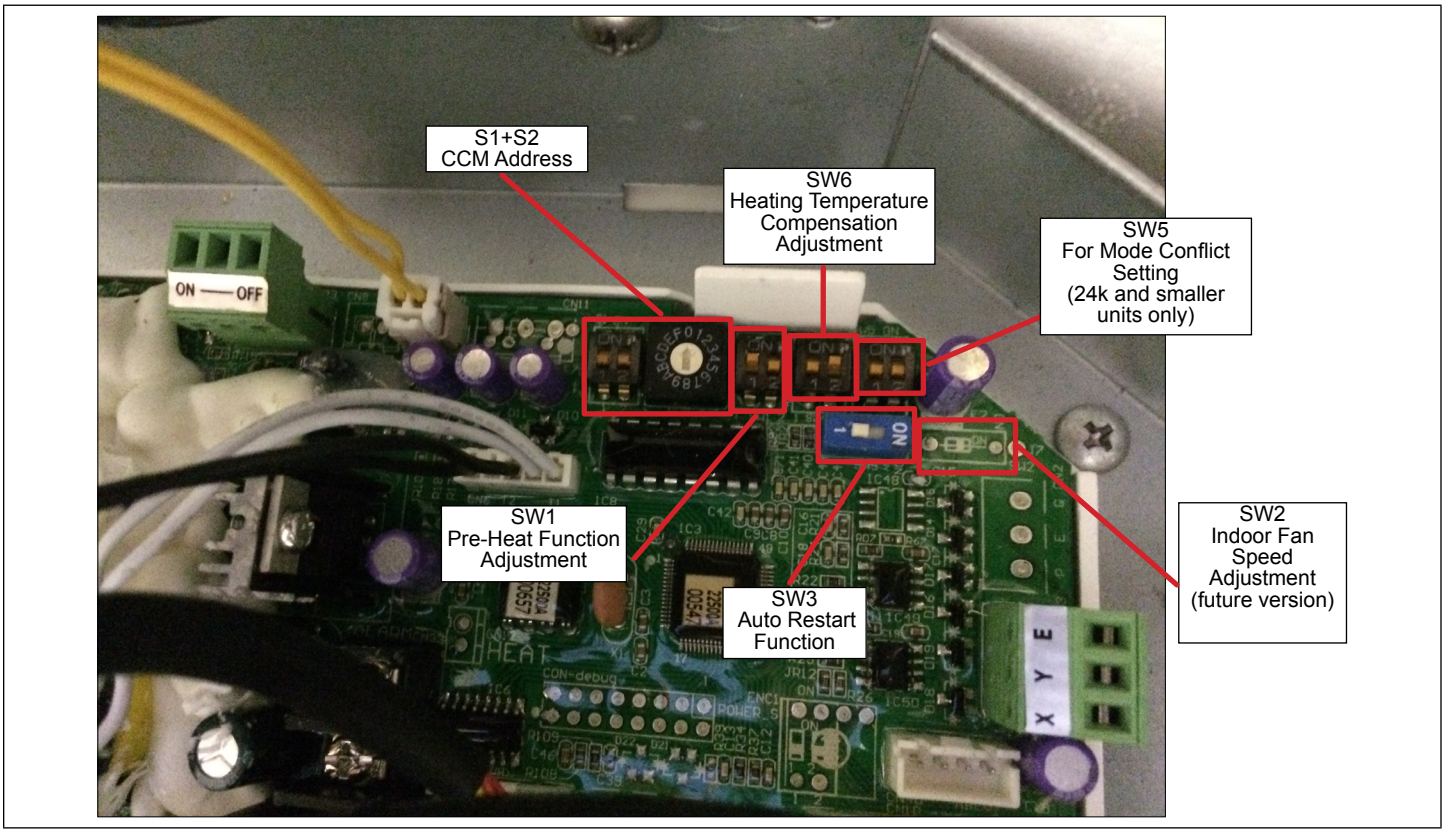


Figure 23. D22C Main Control Image

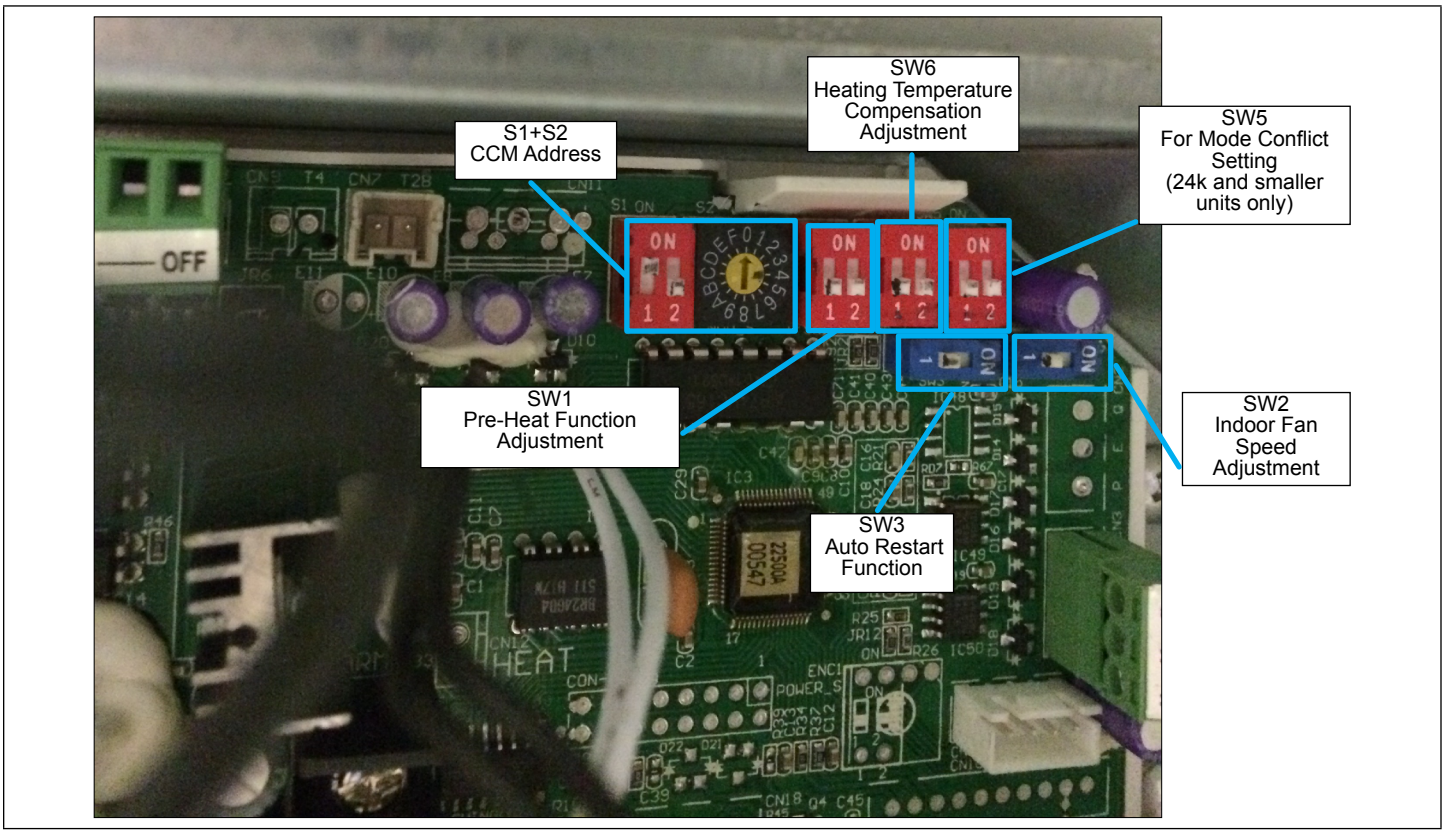


Figure 24. D33C Main Control Image

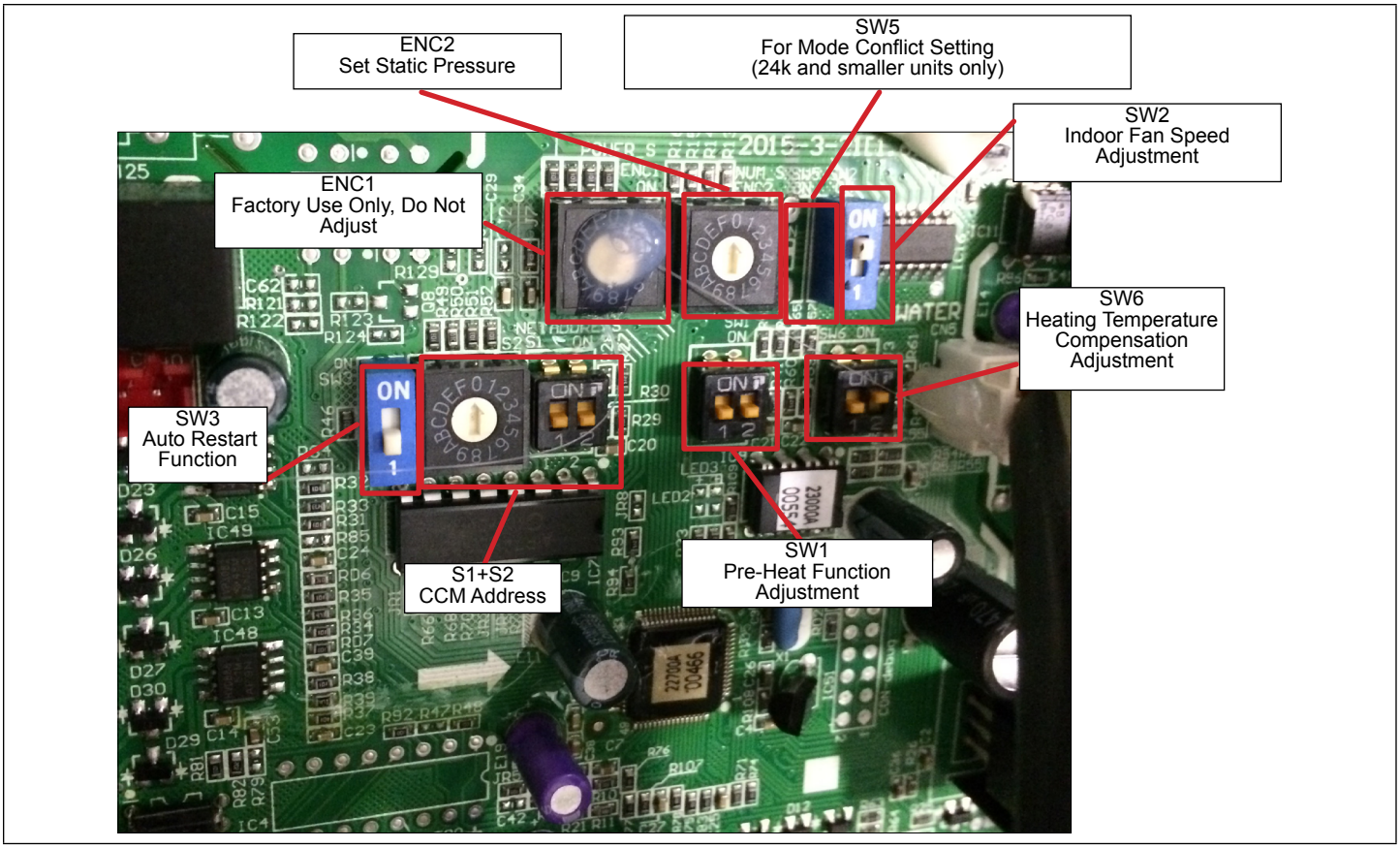


Figure 25. DMD Main Control Image

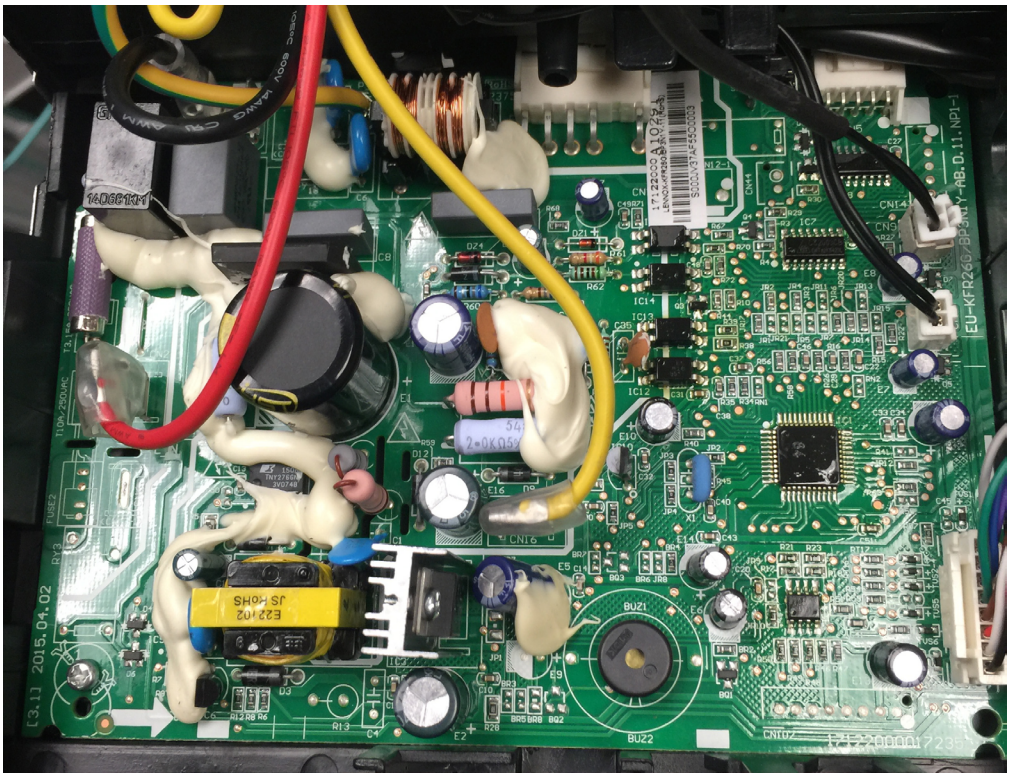


Figure 26. DWM Main Control Image

Figure 27. DWM Receiver Control Image (No Operation Switches on Main Control)

13. Condensate Pipe Work Installation

13.1. Outdoor Unit Condensate Piping

Condensate formed during the heating and defrost processes must be drained from heat pump units. Drain holes are provided in the base of the units to ensure proper drainage. Heat pumps must be raised when installed on a concrete pad or the ground to allow drainage to occur. If the heat pump unit is installed on wall mounting brackets, insert the provided drain connector into one of the 1 inch (25 mm) drain holes and attached a field-provided insulated drain hose to the connector. Use field-provided rubber plugs to cover any unused drain holes.

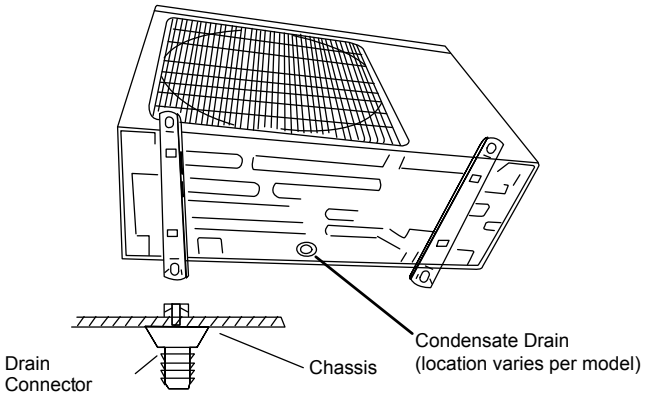


Figure 28. Condensate Drainage Requirement

13.2. Indoor Unit Gravity Drain

CAUTION

Make sure that drain piping is properly routed and insulated in order to prevent both leaks and condensation.

IMPORTANT

Drain should have a slope of at least ¼ inch per foot and should be approved corrosion-resistant pipe. You must confirm operation of every drain and pump in the system as part of the commissioning procedure.

1. Make a water-tight connection between the field-provided condensate drain extension and the provided flexible drain piping.
2. Confirm proper slope (not less than 1/4 inch per foot) and routing of condensate lines to ensure moisture is drained away from the indoor unit.

3. Drain should be as short as possible and should not have any droops or kinks that would restrict condensate flow and shall be approved resistant pipe. There must be a 2-inch space between the end of the condensate drain and the final termination point (ground, open drain, etc.) to ensure that the line will drain freely.
4. After the system installation is complete, the condensate drain line must be checked for leaks and proper drainage. If a field-provided condensate pump has been installed, it must be checked to ensure proper operation. This check is part of the commissioning sequence.

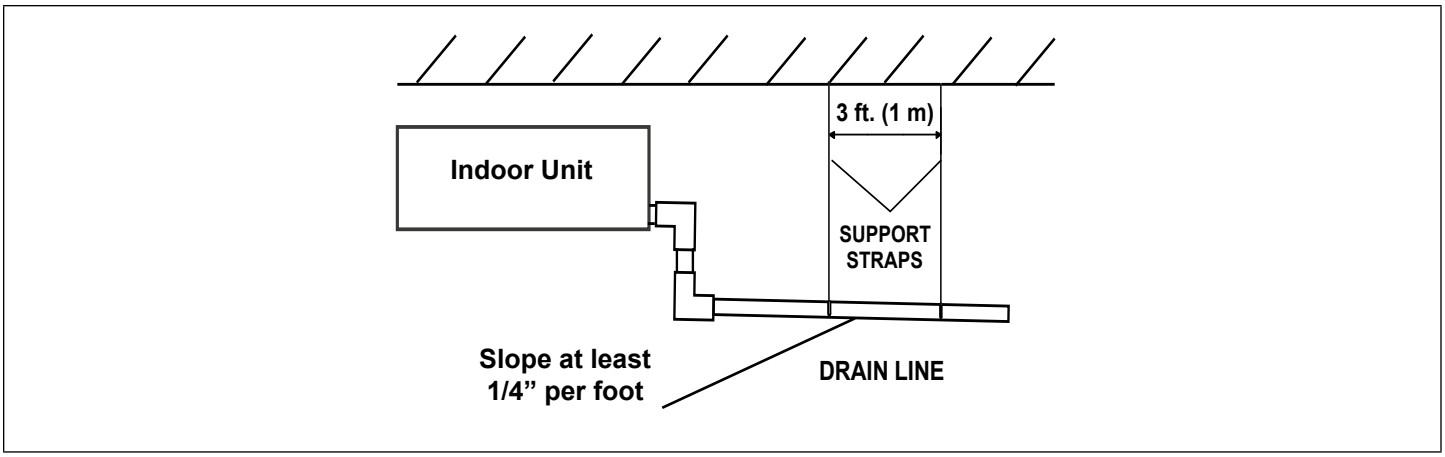


Figure 29. Single Indoor Unit Suspended from Ceiling using a Properly Sloped Gravity Drain

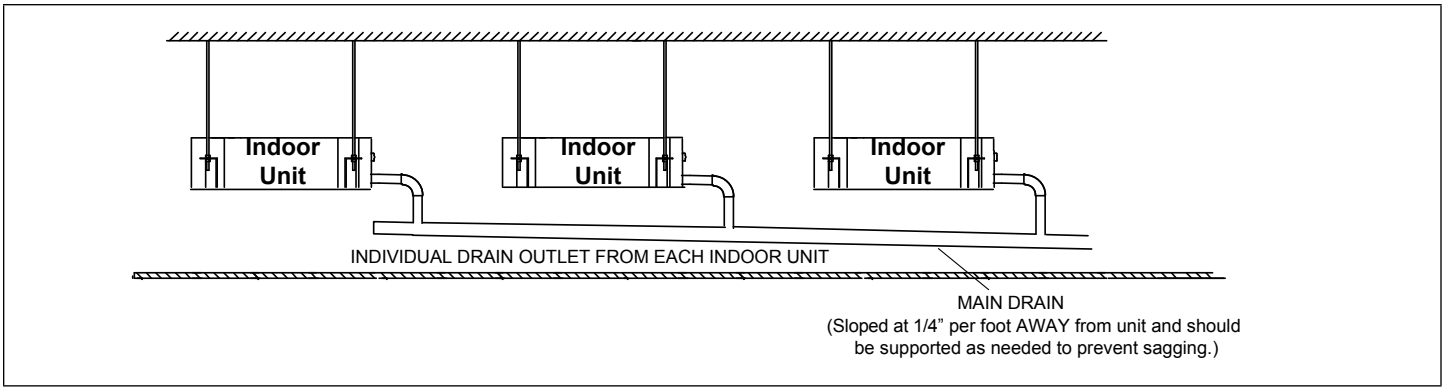


Figure 30. Condensate Drain Multiple Indoor Units Suspended from Ceiling Using a Single Properly Sloped Gravity Drain

13.3. Indoor Unit Lift Pump

13.3.1. Condensate Piping Requirements - DMD and D22C/D33C

13.3.1.1 DMD

CAUTION

Make sure that drain piping is properly routed and insulated in order to prevent both leaks and condensation.

IMPORTANT

Drain should have a slope of at least ¼ inch per foot and should be approved corrosion-resistant pipe. You must confirm operation of every drain and pump in the system as part of the commissioning procedure.

1. Use a field-provided hose clamp to secure the drain line stub on the side of the unit chassis to a field-supplied 1" (25 mm) drain line. See figure below.

NOTE: *Take care not to over-tighten the hose clamps this may damage the drain line stub.*

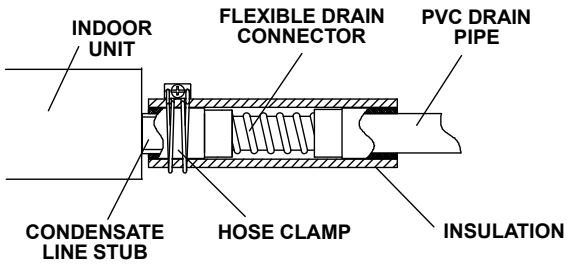


Figure 31. Condensate Piping Connection

2. Make a water-tight connection between the field-provided condensate drain line and the flexible condensate connector. Use 1-1/2” OD / 1-1/4” ID PVC pipe for the drain line.
3. See figure for applications including an indoor unit using the internal drain pump.
4. In all cases, drain should be as short as possible and should not have any droops or kinks that would restrict condensate flow and shall be constructed using an approved pipe. **There must be a 2-inch (51 mm) space between the end of the condensate drain and the final termination point (ground, open drain, etc.) to ensure that the line will drain freely.**

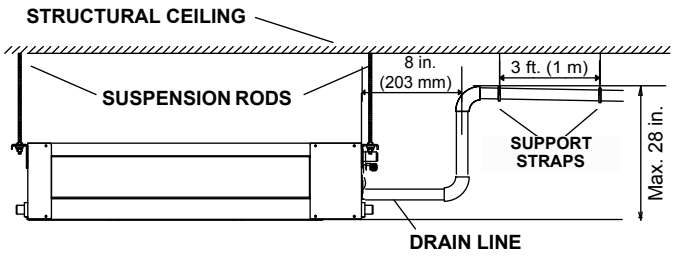


Figure 32. Condensate Drain with Pump

5. **After system installation is complete, the condensate drain line must be checked for leaks and the condensate pumps must be checked to ensure proper operation. This check is part of the start-up process which must be done by the installing contractor.** Turn the condensate drain pan test cover latch counterclockwise to open the cover and access the drain pan. See figure below. Funnel enough water to engage the pump into the drain pan through a flexible tube.
6. Operate the system in the cooling mode. If the internal pump is being used, ensure that the pump is operating and the water in the pan is draining freely. If the internal pump is not being used, pour the water into the drain pan and confirm that it has flowed freely out of the pan and out of the drain termination. If a leak is found, shut down power to the unit at once and do not restore power to the unit until the problem has been resolved.
7. Return the test cover and turn the latch clockwise to re-lock it.

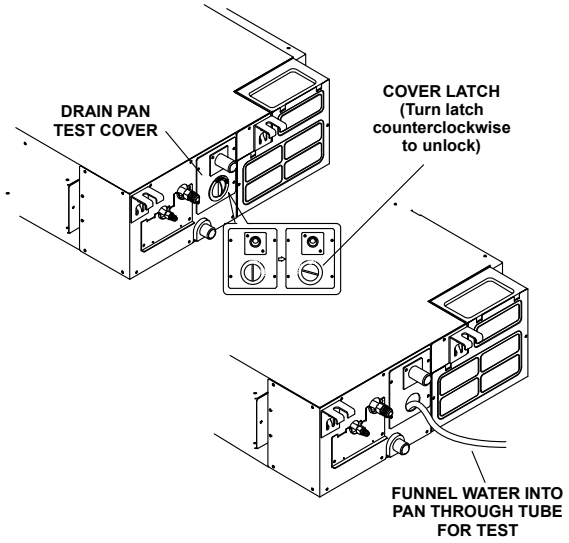


Figure 33. Condensate Drain Test

13.3.1.2 D22C and D33C

CAUTION

Make sure that drain piping is properly routed and insulated in order to prevent both leaks and condensation.

IMPORTANT

Drain should have a slope of at least ¼ inch per foot and should be approved corrosion-resistant pipe. You must confirm operation of every drain and pump in the system as part of the commissioning procedure.

1. Use a field-provided hose clamp to secure the drain line stub on the side of the cassette base to a field-supplied 1" (25 mm) drain line.

NOTE: *Take care not to over-tighten the hose clamp as this may damage the drain line stub.*

2. See figure below for applications using the unit's internal condensate pump to provide lift into a drain. Ensure that the main drain line is properly sloped (no less than 1/4 inch per foot (18 mm per m)).
3. Drain should be as short as possible and should not have any droops or kinks that would restrict condensate flow and shall be approved resistant pipe.

NOTE: *There must be a 2-inch (51 mm) space between the end of the condensate drain and the final termination point (ground, open drain, etc.) to ensure that the line will drain freely.*

After system installation is complete, the condensate drain line must be checked for leaks and the condensate pumps must be checked to ensure proper operation. This check is part of the commissioning sequence. Pour water into the evaporator drain pan to ensure proper condensate drainage. See figure right. If a leak is found, shut down power to the unit at once and do not restore power to the unit until the problem has been resolved.

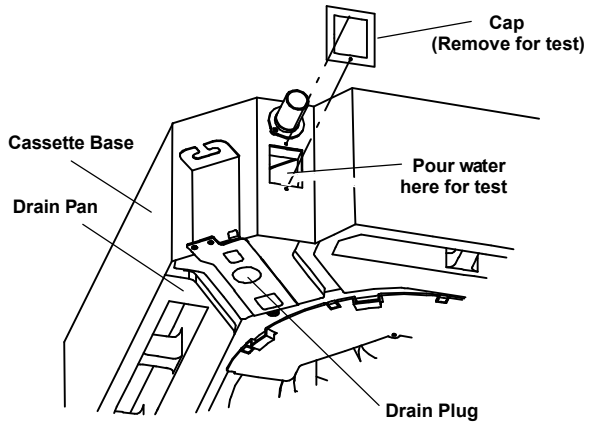


Figure 34. Condensate Drain Test

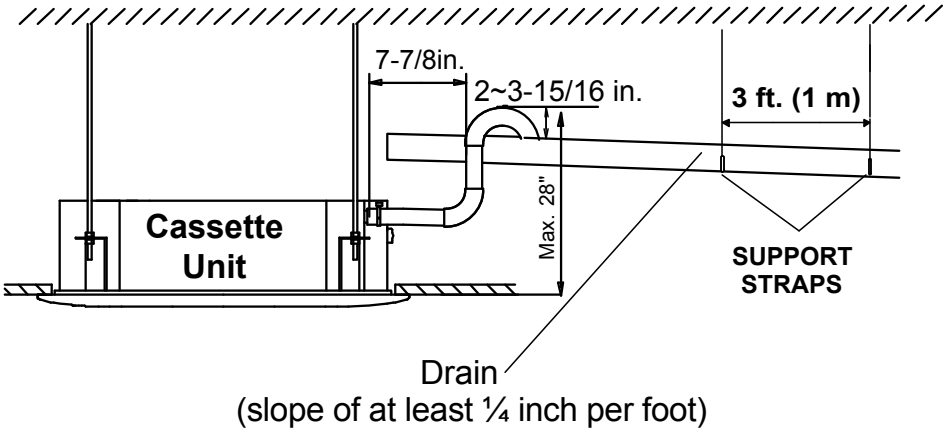
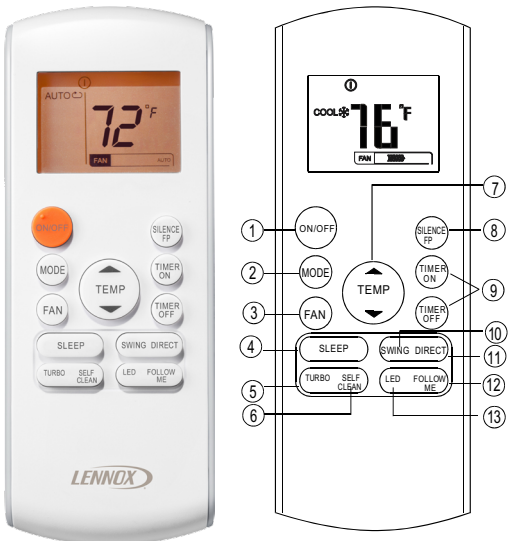


Figure 35. Indoor Unit Condensate Drain

14. Controls

14.1. 1.861056 Wireless Remote



Furnished with Wall-Mounted Indoor Units, Cassette Indoor Units and Ceiling/Floor Indoor Units.

NOTE: *Can be ordered separately for ducted indoor units.*

- Complete remote control of system. Maximum operating range is 25 ft.
- Operates on two AAA 1.5V batteries (furnished).
- Wireless remote control holder furnished. Holder can be mounted on a wall for easy access. Mounting screws furnished.

14.1.1. Buttons

ON/OFF

Turns system on and off.

MODE

Select system operation modes. Push button to cycle through each setting.

AUTO → COOL → DRY → HEAT → FAN

FAN

Select fan speed. Push button to cycle through each setting.

AUTO → LOW → MED → HIGH

NOTE: *Not available in AUTO or DRY modes.*

SLEEP

Enables the system to automatically increase cooling or decrease heating (in 2°F increments) per hour for the first 2 hours, then maintain a steady temperature for 5 hours.

NOTE: *To cancel, push the "MODE", "FAN SPEED" or "ON/OFF" buttons.*

NOTE: *SLEEP mode is only available when the unit is in COOL, HEAT or AUTO mode.*

TURBO

Enables the unit to reach the preset temperature during cooling or heating operation in the shortest time.

SELF CLEAN

Automatically cleans and dries the evaporator coil at the end of the cooling season, preventing any odors or mildew.

UP/DOWN ▲ ▼

Increase or decrease the indoor temperature in one degree increments (maximum 86°F, minimum 62°F).

NOTE: *Temperature cannot be adjusted in FAN mode.*

NOTE: *Press and hold and buttons together for 3 seconds to alternate the temperature display between the °C and °F scale.*

SILENCE/FP

- Silence - Operates the compressor at low frequency and low fan speed to reduce operating sound levels to a minimum.

- FP - Only available during heating operation. Unit will operate at a set temperature of 46°F.

NOTE: *To cancel, push the "ON/OFF", "SLEEP", "FP", "MODE", "FAN SPEED", "UP/DOWN" buttons.*

TIMER ON / TIMER OFF

- TIMER ON (initiates an auto-on time sequence) and TIMER OFF (initiates an auto-off time sequence) can be used separately or together.
- Each press of the button increases the time in 30 minute increments up to 10 hours. Above 10 hours each press of the button will increase the auto-timed setting by 60 minutes up to 24 hours.

NOTE: *To cancel, set timer to 0.0 or turn remote off and on.*

SWING

Used to stop or start horizontal louver auto swing feature.

DIRECT

- Used to change the louver movement and set the desired up/down air flow direction.
- The louver angle changes 6° for each press of the button.

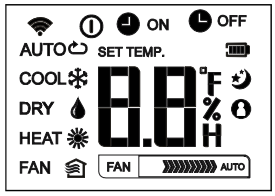
FOLLOW ME

Allows remote temperature sensing of the room at the remote control location.

LED

Turns the LCD display backlight on the indoor unit on or off.

14.1.2. Operation



Mode display

AUTO COOL DRY HEAT FAN

Displayed when data transmitted.

Displayed when remote controller is ON.

Battery display (low battery detection)

ON Displayed when TIMER ON time is set.

OFF Displayed when TIMER OFF time is set.

Show set temperature or room temperature, or time under TIMER setting.

Displayed in Sleep Mode operation.

Indicated that the air conditioner is operating in Follow me mode

Fan speed indication

FAN Low speed

FAN Medium speed

FAN High speed

FAN AUTO Auto fan speed

Note - During unit operation only the active functions will be shown on the display.

Auto

1. Press the **MODE** button to select Auto.
2. Press the **UP/DOWN** button to set the desired temperature. The temperature can be set within a range of
3. Press the **ON/OFF** button to start the air conditioner.

Cooling /Heating/Fan

1. Press the **MODE** button to select **COOL, HEAT or FAN** mode.
2. Press the **UP/DOWN** buttons to set the desired temperature.
3. Press the **FAN** button to select the fan speed in four steps- Auto, Low, Med,or High.
4. Press the **ON/OFF** button to start the air conditioner.

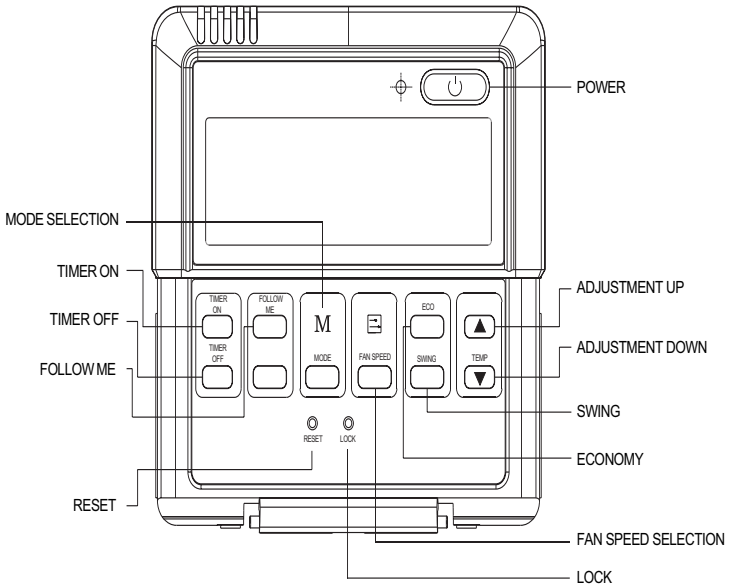
Dehumidifying

1. Press the **MODE** button to select **DRY** mode.
2. Press the **UP/DOWN** buttons to set the desired temperature.
3. Press the ON/OFF button to start the air conditioner.

Timer ON/OFF

1. Press the **TIMER ON** or **TIMER OFF** button. The remote controller shows TIMER ON or TIMER OFF icon, the previous Auto-on time setting and the signal "H" will be shown on the LCD display area.
2. Push the **TIMER ON** or **TIMER OFF** button again to set desired time. Each time you press the button, the time increases by 30 minutes between 0 and 10 hours and by 60 minutes between 10 and 24 hours.
3. After setting the **TIMER ON** or **TIMER OFF** there will be a one second delay before the remote control transmits the signal to the unit. After approximately 2 seconds, the signal "H" will disappear and the set temperature will re-appear on the LCD display window.

14.2. 1.861057 Wired Remote



Furnished with Ducted Indoor Units.

NOTE: *Can be ordered separately for non-ducted indoor units.*

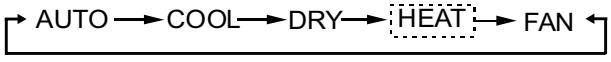
Features

- Backlight - Allows easy operation in a dark room. The controller lights when any button is pressed and remains lit during control access.
- Permanent Memory - Maintains clock, fan speed and mode of operation settings following power outages.
- Dimensions (H x W x D) - 4-3/4 x 4-3/4 x 7/8 in.
- Additional hardware is furnished for installation.
- Wiring - Controller uses 5-wire shielded cable (not furnished) for easy low voltage connection to the indoor unit.

14.2.1. Buttons

Mode

Select system operation modes. Push button to cycle through each setting.

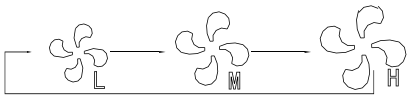


Power Button

Turns system on and off.

FAN SPEED Button

Selects fan speed. Each button press cycles through the following settings on display.



TIMER ON / TIMER OFF Buttons

- TIMER ON (initiates an auto-on time sequence) and TIMER OFF (initiates an auto-off time sequence) can be used separately or together.
- Each press of the button increases the time in 30 minute increments up to 10 hours. Above 10 hours each press of the button will increase the auto-timed setting by 60 minutes up to 24 hours.

NOTE: *To cancel, set timer to 0.0.*

UP/DOWN Buttons ▲▼

Increase or decrease the indoor temperature in two degree increments (maximum 88°F, minimum 62°F).

NOTE: *Temperature cannot be adjusted in FAN mode.*

NOTE: *Press and hold and buttons together for 3 seconds to alternate the temperature display between the °C and °F scale.*

SWING Button

Used to stop or start horizontal louver auto swing feature.

ECONOMY Button

Maintains the most comfortable temperature and saves energy.

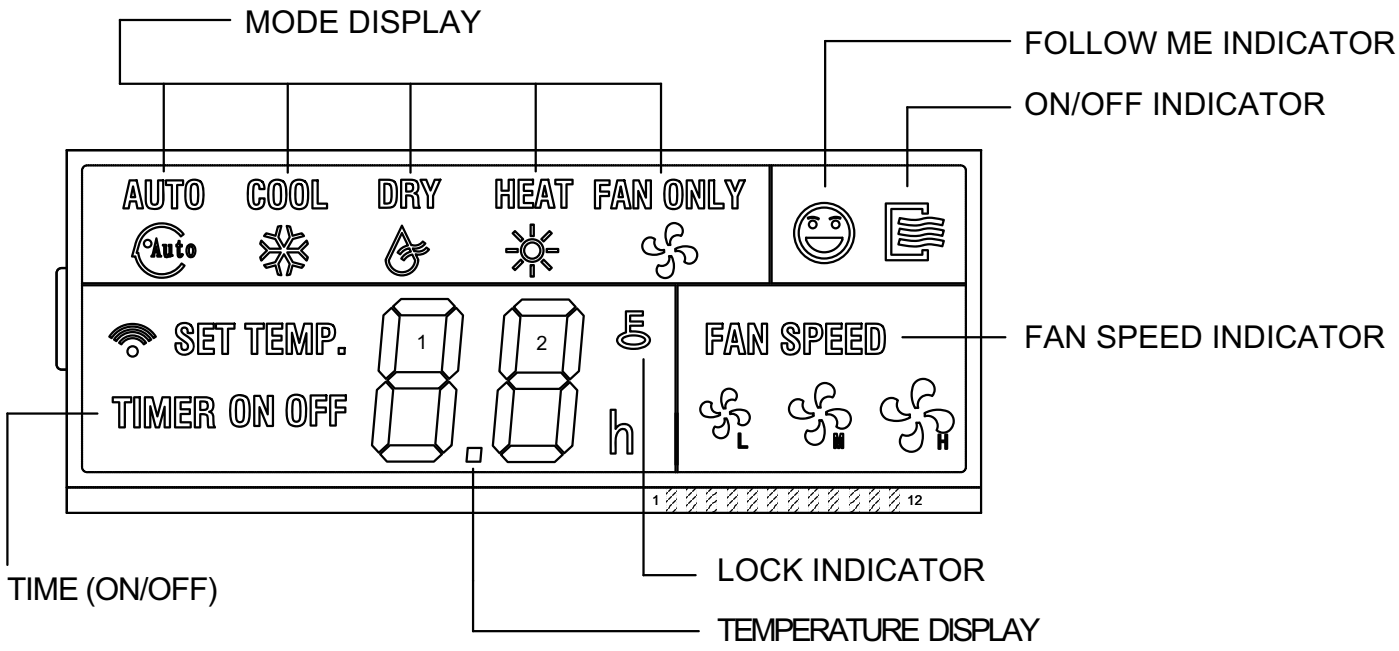
RESET Button (Recessed)

Resets Controller to factory settings. Recessed to prevent tampering.

LOCK Button (Recessed)

Locks Controller buttons to prevent tampering with settings.

14.2.2. Display



15. Connection to Centralized Controller

15.1. Set Indoor Unit Address for Centralized Control

All indoor units connected to a centralized controller must have a unique address. Use the S1 dip switch and the S2 dial switch to set the address for each indoor unit. The table below shows how to set the unique addresses.

All indoor units are factory set to “0”. To change the address to “1”, move the dial switch to the 1 position, do not adjust the dip switches. To change the address to “35”, move dip switch 1 to the UP position and move the dial switch to the 3 position.

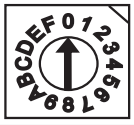
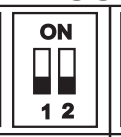
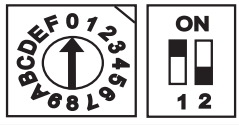
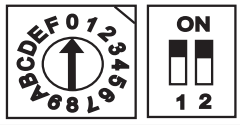
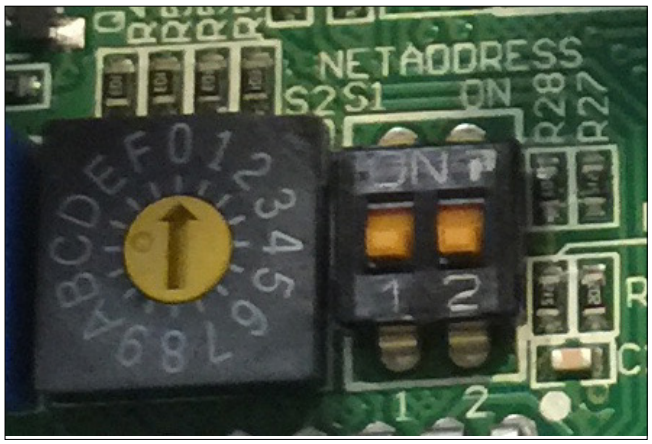
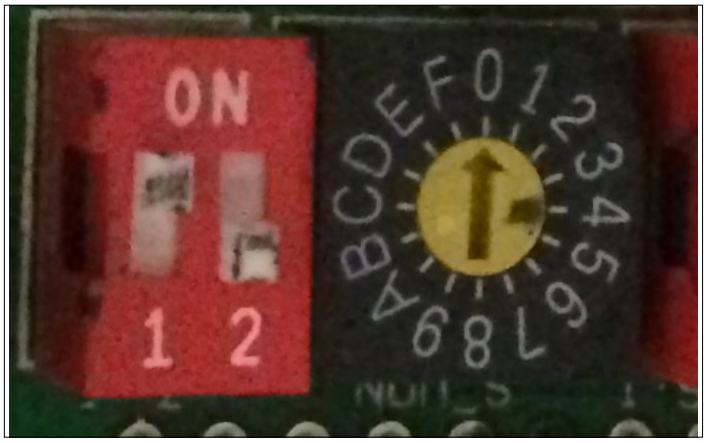
FOR SETTING ADDRESS				
S1+S2				
RANGE	0 ~ F	0 ~ F	0 ~ F	0 ~ F
ADDRESS	0 ~ 15	16 ~ 31	32 ~ 47	48 ~ 63
DIP SWITCH HANDLES	LEFT - DOWN RIGHT - DOWN	LEFT - DOWN RIGHT - UP	LEFT - UP RIGHT - DOWN	LEFT - UP RIGHT - UP
FACTORY SETTING	✓			

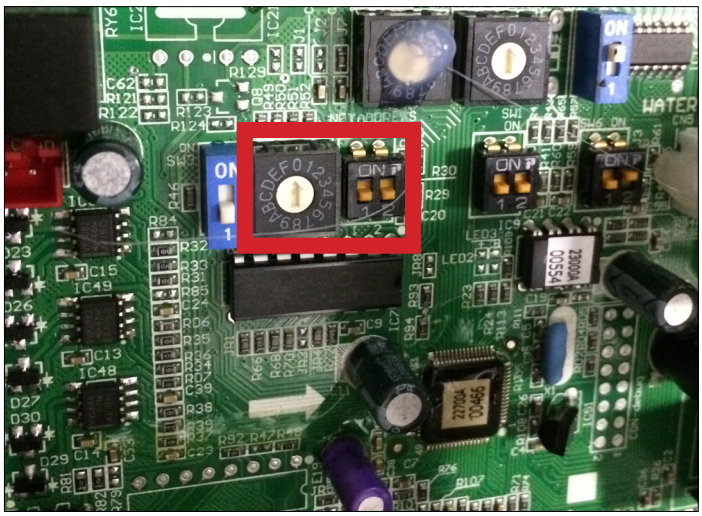
Figure 36. Dip Switches



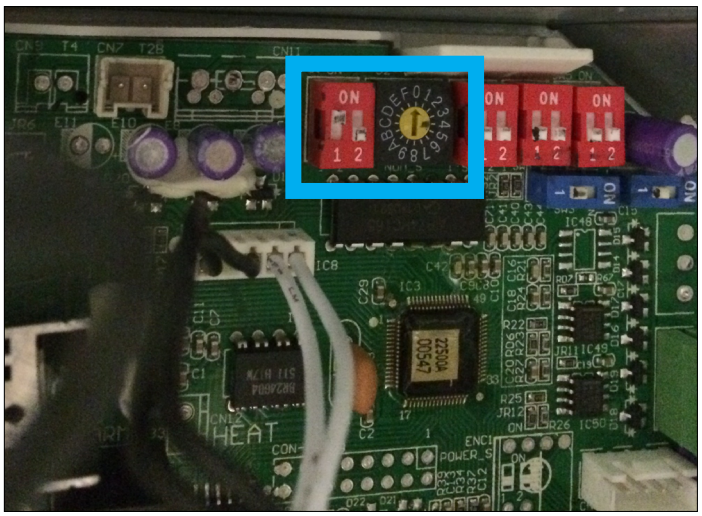
Indoor Unit Address is 0
Both dip switch handles are DOWN, dial points to 0.



Indoor Unit Address is 32
Dip switch 1 is UP and dip switch 2 is DOWN, dial points to 0.



DMD Switch Location



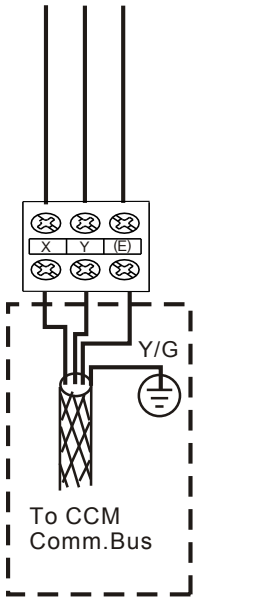
D33C Switch Location

Switch location and color varies for each indoor unit. Two examples are shown above.

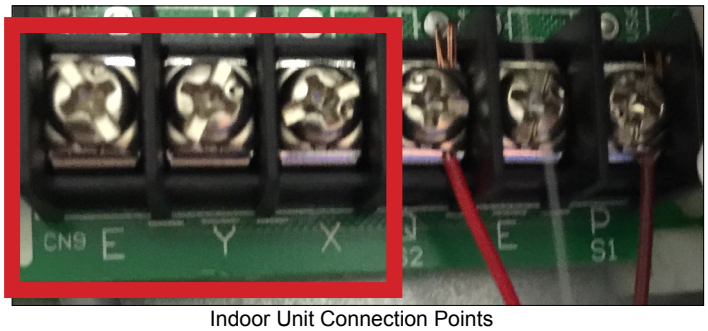
Figure 37. Dip Switch Settings

15.2. Indoor Unit Connection Points for Centralized Controller

Mini-split indoor units can be connected to a centralized controller or a BACnet or Lonworks gateway using the XYE terminals on the indoor unit main board.



Indoor Unit Connection Points
Typical Wiring Diagram

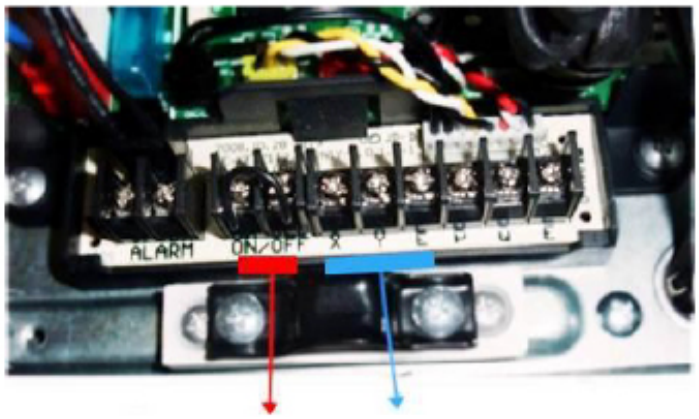


Indoor Unit Connection Points
Typical

Figure 38. Connection Points

16. Indoor Unit Connection Points for ON/OFF Device

Mini-split indoor units can be connected to an external device such as a fire alarm system using two dry contacts on the indoor unit main board. These dry contacts allow the external device to turn the indoor unit on or off.



Remote on-off ports Central control ports

Figure 39. Indoor Unit Connection Points (Typical)

17. Indoor Unit Connection Points for Alarm Device

Mini-split indoor units can be connected to an alarm device such as a light or buzzer using two dry contacts on the indoor unit main board.

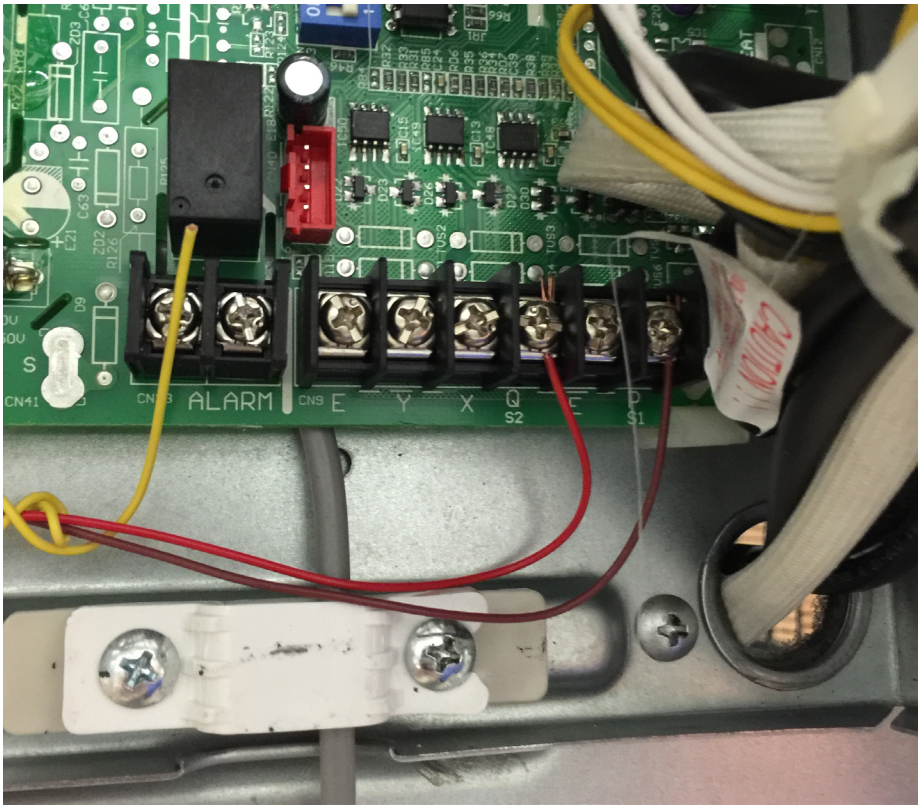


Figure 40. Indoor Unit Connection Points (Typical)

18. Start-Up

18.1. Adding Refrigerant - Single-Zone Systems

The outdoor unit is factory-charged with refrigerant. Calculate the additional refrigerant required according to the diameter and the length of the liquid pipe between the outdoor unit and indoor unit connections.

Be sure to add the proper amount of additional refrigerant. Failure to do so may result in reduced performance.

NOTE: *Interconnecting pipe work between outdoor and indoor units must be 10 ft. or longer.*

NOTE: *Do not remove refrigerant for line lengths less than 25 ft. R-410A is a blended refrigerant. If you must remove charge, it is necessary to remove the entire charge and weigh in the new charge.*

Table 1. Adding Refrigerant

System Size (KBtu)	Pipe Length	Amount of Refrigerant to add
09	>25 ft. (7.5m)	0.161 oz/ft (15g/m)
12	>25 ft. (7.5m)	0.161 oz/ft (15g/m)
18	>25 ft. (7.5m)	0.161 oz/ft (15g/m)
24	>25 ft. (7.5m)	0.322 oz/ft (30g/m)
36	>25 ft. (7.5m)	0.322 oz/ft (30g/m)
48	>25 ft. (7.5m)	0.322 oz/ft (30g/m)

18.2. Adding Refrigerant - Multi-Zone Systems

The outdoor unit is factory-charged with refrigerant. Calculate the additional refrigerant required according to the length of the liquid pipe (one way) between the outdoor unit and indoor unit connections.

Be sure to add the proper amount of additional refrigerant. Failure to do so may result in reduced performance.

NOTE: *Interconnecting pipe work between outdoor and indoor units must be 10 ft. or longer.*

NOTE: *Do not remove refrigerant for line lengths less than 25 ft. R-410A is a blended refrigerant. If you must remove charge, it is necessary to remove the entire charge and weigh in the new charge.*

Table 2. Adding Refrigerant

System	Pre-charge Pipe Length	Amount of Refrigerant to add
Two-port	50 ft. (15 m)	0.16 oz ((L1 ft + L2 ft) - 50 ft) 0.005 kg ((L1 m + L2 m) - 15 m)
Three-port	75 ft. (23 m)	0.16 oz ((L1 ft + L2 ft + L3 ft) - 75 ft) 0.005 kg ((L1 m + L2 m + L3 m) - 23 m)
Four-port	100 ft. (30 m)	0.16 oz ((L1 ft + L2 ft + L3 ft + L4 ft) - 100 ft) 0.005 kg ((L1 m + L2 m + L3 m + L4 m) - 30 m)
Five-port	125 ft. (38 m)	0.16 oz ((L1 ft + L2 ft + L3 ft + L4 ft + L5 ft) - 125 ft) 0.005 kg ((L1 m + L2 m + L3 m + L4 m + L5 m) - 38 m)

18.3. Outdoor Unit Spot 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.

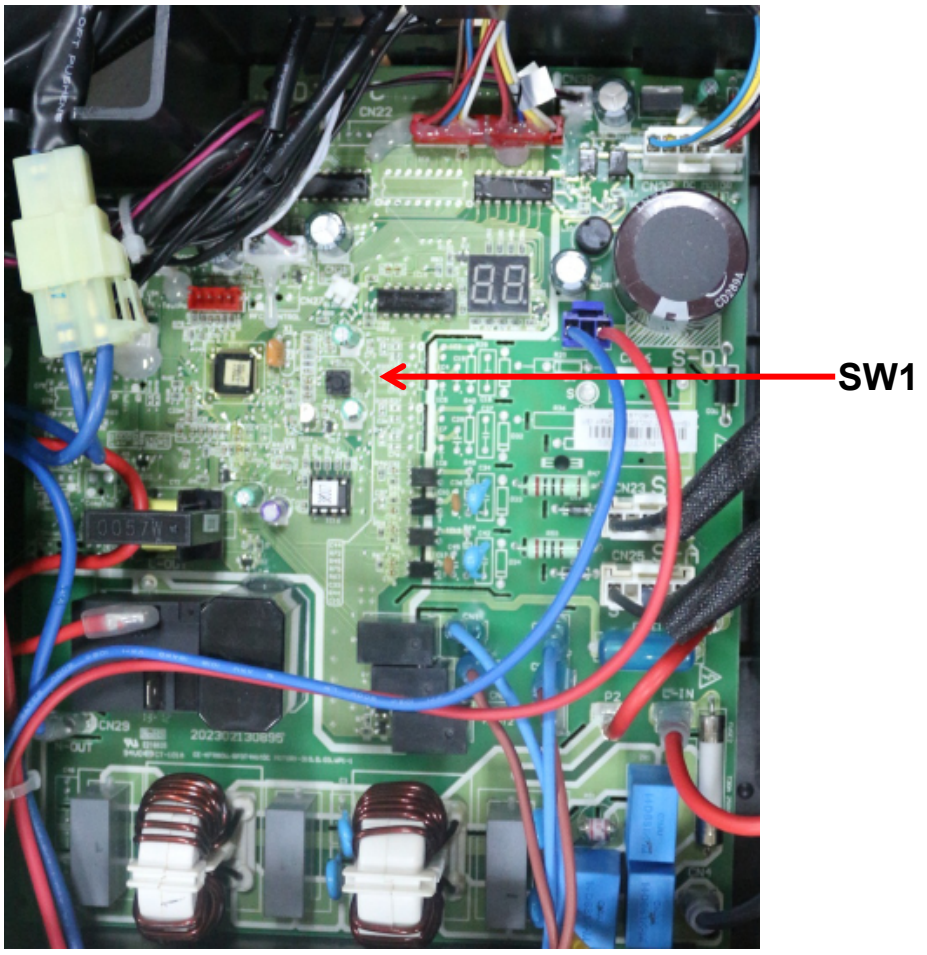


Figure 41. SW1 Location

Table 3. Status Indicators

	Display	Remark		
0	Normal Display	Display running frequency, running state or malfunction code		
1	Quantity of indoor units in good connection	Actual data		
			Display	Number of indoor units
			1	one
			2	two
			3	three
			4	four
			5	five
2	Outdoor unit running mode	Off: 0, Fan only: 1, Cooling: 2, Heating: 3, Forced cooling: 4		
3	Indoor unit A capacity	The capacity unit is horse power. If the indoor unit is not connected, the digital display tube will show: "——" (9K:1HP,12K:1.2HP,18K:1.5HP)		
4	Indoor unit B capacity			
5	Indoor unit C capacity			
6	Indoor unit D capacity			
7	Indoor unit E capacity			

Table 3. Status Indicators

	Display	Remark		
8	Indoor unit A capacity demand code	Norm code*HP (9K:1HP,12K:1.2HP,18K:1.5HP)		
9	Indoor unit B capacity demand code			
10	Indoor unit C capacity demand code			
11	Indoor unit D capacity demand code			
12	Indoor unit E capacity demand code			
13	Outdoor unit amendatory capacity demand code	Forced cooling:7		
14	The frequency corresponding to the total indoor units amendatory capacity demand			
15	The frequency after the frequency limit			
16	The frequency sending to compressor control chip			
17	Indoor unit A evaporator outlet temp.(T2BA)	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	Indoor unit B evaporator outlet temp.(T2BB)			
19	Indoor unit C evaporator outlet temp.(T2BC)			
20	Indoor unit D evaporator outlet temp.(T2BD)			
21	Indoor unit E evaporator outlet temp.(T2BE)			
22	Indoor unit A room temp.(T1A)	If the temp. is lower than 0 degree, the digital display tube will show “0”.If the temp. is higher than 50 degree, the digital display tube will show “50”. If the indoor unit is not connected, the digital display tube will show: “——”		
23	Indoor unit B room temp.(T1B)			
24	Indoor unit C room temp.(T1C)			
25	Indoor unit D room temp.(T1D)			
26	Indoor unit E room temp.(T1E)			
27	Indoor unit A evaporator temp.(T2A)	If the temp. is lower than -9 degree, the digital display tube will show “-9”.If the temp. is higher than 70 degree, the digital display tube will show “70”. If the indoor unit is not connected, the digital display tube will show: “——”		
28	Indoor unit B evaporator temp.(T2B)			
29	Indoor unit C evaporator temp.(T2C)			
30	Indoor unit D evaporator temp.(T2D)			
31	Indoor unit E evaporator temp.(T2E)			
32	Condenser pipe temp.(T3)			
33	Outdoor ambient temp.(T4)			
34	Compressor discharge temp.(TP)	The display value is between 30~129 degree. If the temp. is lower than 30 degree, the digital display tube will show “30”.If the temp. is higher than 99 degree, the digital display tube will show single digit and tens digit. For example, the digital display tube show “0.5”,it means the compressor discharge temp. is 105 degree.)		
35	AD value of current	The display value is hex number. For example ,the digital display tube show “Cd”, it means AD value is 205.		
36	AD value of voltage			
37	EXV open angle for indoor unit A	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 indoor unit B			
39	EXV open angle for indoor unit C			
40	EXV open angle for indoor unit D			
41	EXV open angle for indoor unit E			
42	Frequency limit symbol	Bit7	Frequency limit caused by IGBT radiator	The display value is hex number. For example, the digital display tube shows 2A,then Bit5=1, Bit3=1, Bit1=1. It means frequency limit caused by T4, T3 and current.
		Bit6	Frequency limit caused by PFC	
		Bit5	Frequency limit caused by T4.	
		Bit4	Frequency limit caused by T2.	
		Bit3	Frequency limit caused by T3.	
		Bit2	Frequency limit caused by T5.	
		Bit1	Frequency limit caused by current	
		Bit0	Frequency limit caused by voltage	
43	Average value of T2	(Sum T2 value of all indoor units)/(number of indoor units in good connection)		
44	Outdoor unit fan motor state	Off:0, High speed:1, Med speed:2, Low speed:3 Breeze:4, Super breeze:5		
45	The last error or protection code	00 means no malfunction and protection		
46	Indoor unit F capacity	Not used		

Table 3. Status Indicators

	Display	Remark
47	Indoor unit F capacity demand code	Not used
48	Indoor unit F evaporator outlet temp.(T2BF)	Not used
49	Indoor unit F room temp.(T1F)	Not used
50	Indoor unit F evaporator temp.(T2F)	Not used
51	EXV open angle for F indoor unit	Not used

18.4. Outdoor Unit Digital Display Tube

There is a digital display tube in outdoor PCB. Digital display tube display function

Table 4. Operation Display

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

18.5. Dry Mode Operation - DWM

18.5.1. Procedure

1. Press the **MODE** button to select **DRY** mode.
2. Press the **UP/ DOWN** button to select the desired temperature. The temperature setting range is from 62°F to 86°F in one degree increments.

NOTE: *The blower is preset at a low speed and cannot be changed therefore it will get cold and most likely will over shoot the temperature setting by 6-10 degrees depending on the room size or other various factors. Also the* ***Follow Me*** *mode does not operate in this mode.* ***The Follow Me*** *mode is only available when a return air sensor is utilized. Typically in most cases the* ***Follow Me*** *mode will not be sufficient to remove excessive humidity.*

In addition, the outdoor units do not have a humidistat installed therefore they are unable to determine humidity levels. This product is not recommend as a main source for dehumidification.

18.5.2. Dry Mode Operation Sequence

When in dry mode operation the unit is actually in cooling mode with a low speed blower operation. The compressor will stop when the room temperature is two degrees Celsius lower than the temperature setting.

However there is a temperature compensation for cooling mode that is two degrees Celsius. So the unit will stop when the temperature is four degrees Celsius lower than the room temperature settings.

NOTE: *Four degrees Celsius is equivalent to 8°F difference.*

18.6. Test Run - DWM

Only perform test run after you have completed the following steps:

- Electrical Safety Checks – Confirm that the unit’s electrical system is safe and operating properly
- Gas Leak Checks – Check all flare nut connections and confirm that the system is not leaking
- Confirm that gas and liquid (high and low pressure) valves are fully open.

18.6.1. Test Run Instructions

You should perform the Test Run for at least 30 minutes.

1. Connect power to the unit.
2. Press the ON/OFF button on the remote controller to turn it on.
3. Press the mode button to scroll through the following functions, one at a time:
   - COOL - Select lowest possible temperature.
   - HEAT - Select highest possible temperature.
4. Let each function run for 5 minutes, and perform the following checks:

18.6.2. Before Test Run

Table 5. Test Run Checklist

Checks	Pass	Fail
No electrical leakage		
Unit is properly grounded		
All electrical terminals properly covered		
Indoor and outdoor units are solidly installed		
All pipe connection points do not leak		
Water drains properly from drain hose		
All piping is properly insulated		
Unit performs COOL function properly		
Unit performs HEAT function properly		
Indoor unit louvers rotate properly		
Indoor unit responds to remote controller		

18.7. Double-Check Pipe Connections

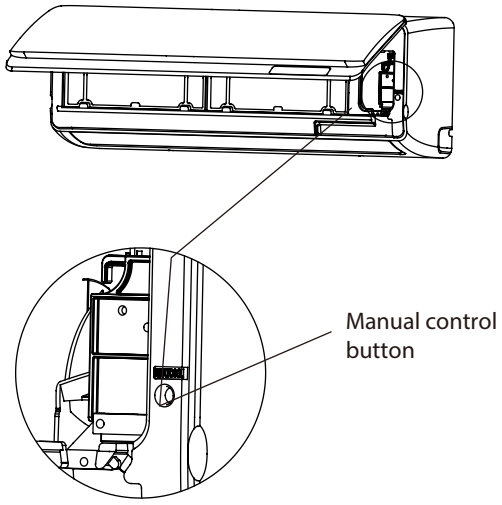
During operation, the pressure of the refrigerant circuit will increase. This may reveal leaks that were not present during your initial leak check. Take time during the Test Run to double-check that all refrigerant pipe connection points do not have leaks.

- Using remote control, return unit to the normal operating temperature.
- Using insulation tape, wrap the indoor refrigerant pipe connections that you left uncovered during the indoor unit installation process.

18.8. Ambient Temperature is Below 63°F (17°C)

You can't use the remote controller to turn on the COOL function when the ambient temperature is below 17°C. In this instance, you can use the MANUAL CONTROL button to test the COOL function.

- Lift the front panel of the indoor unit, and raise it until it clicks in place.
- The MANUAL CONTROL button is located on the right-hand side of the unit. Press it 2 times to select the COOL function.
- Perform Test Run as normal.



19. Quick Reference Guide - Error Codes

Table 6. Single-Zone 009/012 115VAC/208-230VAC

LED Display (LED 1: Blue)	Error Description
Slow Flash	Standby
On	Normal operation
Fast Flash	Outdoor unit error.
Slow flash -- flashing at 1Hz. Fast flash - flashing at 2Hz.	

Table 7. Single-Zone 018/030 208-230VAC

Main Control	IPM Control (comp. driver)		Error Description
Blue LED	Red LED	Green LED	
Slow Flash	OFF	ON	Stand-by
ON	ON	OFF	Normal operation
Fast Flash	OFF	ON	Could be one of the following: • Indoor and outdoor unit communication error. • Outdoor unit temperature sensor error. • Outdoor unit EEPROM error • Compressor top temperature switch is open.
Fast Flash	ON	ON	DC bus voltage is too high or to low protection.
Fast Flash	Fast Flash	ON	Driver EEPROM error.
Fast Flash	Fast Flash	OFF	Driver chip start-up failure.
Fast Flash	ON	Fast Flash	Could be one of the following: • Driver phase loss protection • Driver zero speed protection • PWM synchronization failure.
Fast Flash	OFF	Fast Flash	IGBT over-current or IPM over-current
Fast Flash	Fast Flash	Fast Flash	Control chip communication error.
Slow flash - Flashing at 1Hz Fast flash- Flashing at 2Hz			

Table 8. Multi-Zone Outdoor Unit

Display	Error Description
E0	Outdoor unit EEPROM error.
E2	Communication error between outdoor unit and all indoor units.
E3	Communication error between outdoor unit main control and IPM control.
E4	Temperature sensor error (outdoor coil, outdoor ambient , compressor discharge and indoor unit coil outlet temperature sensors.
E5	High and low voltage protection.
E8	Outdoor DC fan speed error.
F1	Indoor unit #1 coil outlet temperature sensor error.
F2	Indoor unit #2 coil outlet temperature sensor error.
F3	Indoor unit #3 coil outlet temperature sensor error.
F4	Indoor unit #4 coil outlet temperature sensor error.
F5	Indoor unit #5 coil outlet temperature sensor error.
F6	Indoor unit #6 coil outlet temperature sensor error.
P1	High pressure switch open
P2	Low pressure switch open
P3	Outdoor compressor current overload sensed.
P4	High temperature sensed at compressor discharge line.
P5	High temperature sensed at outdoor coil.
P6	Inverter module (IPM) error.

Table 9. Indoor Unit Fault Codes (09/24)

Running Light Short Flashes	State of Timer Light	Display	Description
1 time	OFF	E0	Indoor unit EEPROM error
2 times	OFF	E1	Communication error between indoor and outdoor units
4 times	OFF	E3	Indoor fan speed error
5 times	OFF	E4	Indoor return air temperature sensor error
6 times	OFF	E5	Indoor coil temperature sensor error
7 times	OFF	EC	Low refrigerant
8 times	OFF	EE	High water level alarm
1 time	ON	F0	Outdoor current overload sensed
2 times	ON	F1	Outdoor ambient temperature sensor error
3 times	ON	F2	Outdoor coil temperature sensor error
4 times	ON	F3	Compressor discharge temperature sensor error
5 times	ON	F4	Outdoor unit EEPROM error
6 times	ON	F5	Outdoor unit fan speed error
1 time	Flash	P0	Inverter module IPM error
2 times	Flash	P1	High or low voltage protection
4 times	Flash	P3	Outdoor unit low temperature lockout
5 times	Flash	P4	Compressor drive error
6 times	Flash	--	Mode conflict
7 times	Flash	P6	Compressor high- or low-pressure switch open.

Table 10. Indoor Unit Fault Codes (09/30-48)

Running Light Short Flashes	State of Timer Light	Display	Description
1 time	OFF	E0	Indoor unit EEPROM error
2 times	OFF	E1	Communication error between indoor and outdoor units
4 times	OFF	E3	Indoor fan speed error
5 times	OFF	E4	Indoor return air temperature sensor error
6 times	OFF	E5	Indoor coil temperature sensor error
7 times	OFF	EC	Low refrigerant
8 times	OFF	EE	High water level alarm
1 time	ON	F0	Outdoor current overload sensed
2 times	ON	F1	Outdoor ambient temperature sensor error
3 times	ON	F2	Outdoor coil temperature sensor error
4 times	ON	F3	Compressor discharge temperature sensor error
5 times	ON	F4	Outdoor unit EEPROM error
6 times	ON	F5	Outdoor unit fan speed error
1 time	Flash	P0	Inverter module IPM error
2 times	Flash	P1	High or low voltage protection
4 times	Flash	P3	Outdoor unit low temperature lockout
5 times	Flash	P4	Compressor drive error
7 times	Flash	P6	Compressor high- or low-pressure switch open.
8 times	Flash	P7	Outdoor IGBT temperature sensor error

20. Single-Zone Outdoor Unit LED Locations

Single-zone outdoor units display flash codes on the main board. The main board is accessed through the top of the unit. Indoor units will display more detailed error codes. See “19. Quick Reference Guide - Error Codes” on page 68 for error codes.

These outdoor units do not have a SW1 spot check push button switch. Diagnostic is performed through a series of blue, red and green LEDs.

NOTE: *The control on all single-zone outdoor units is mounted with all LEDs down and cannot be seen unless the control is removed.*

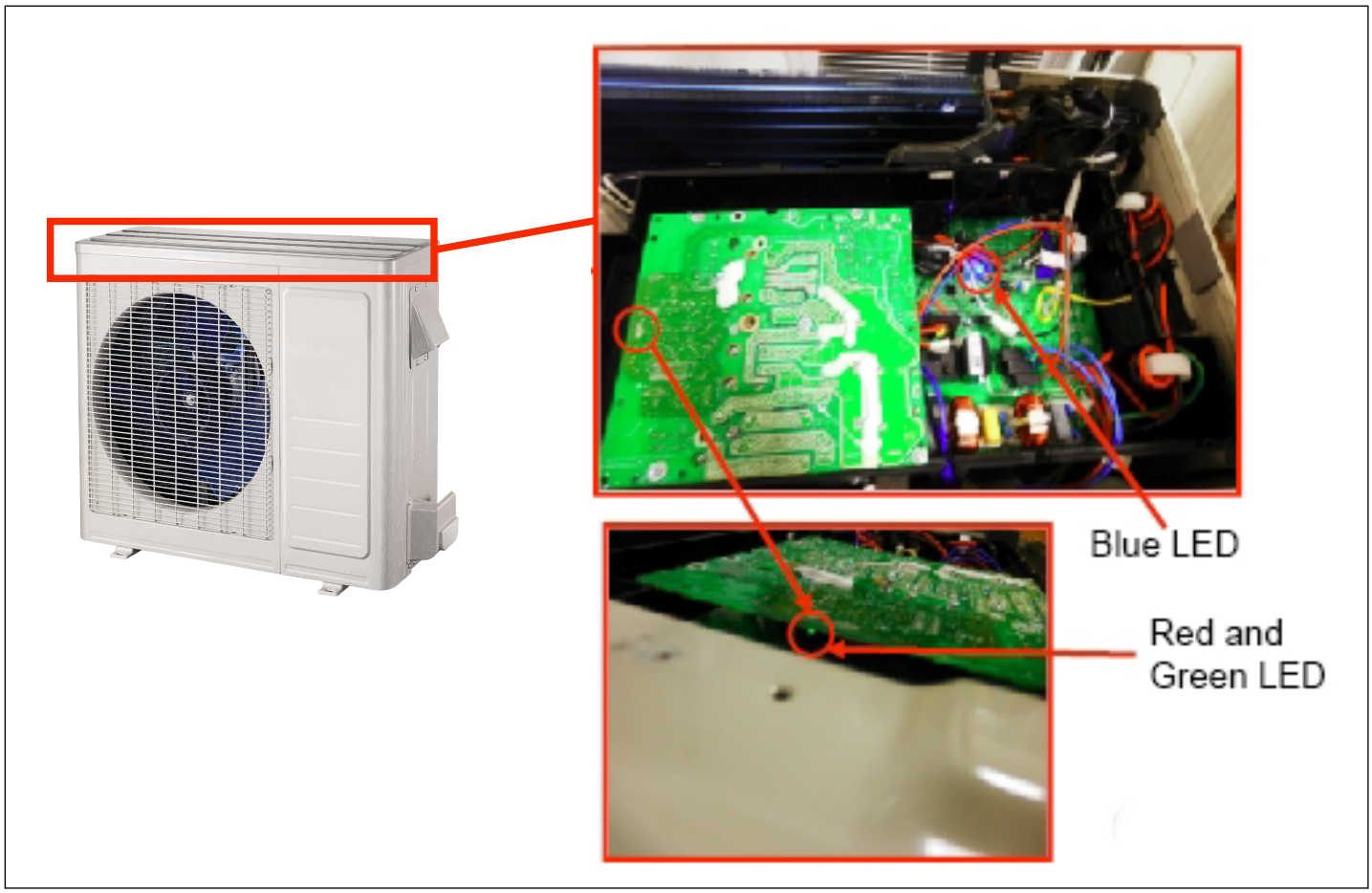
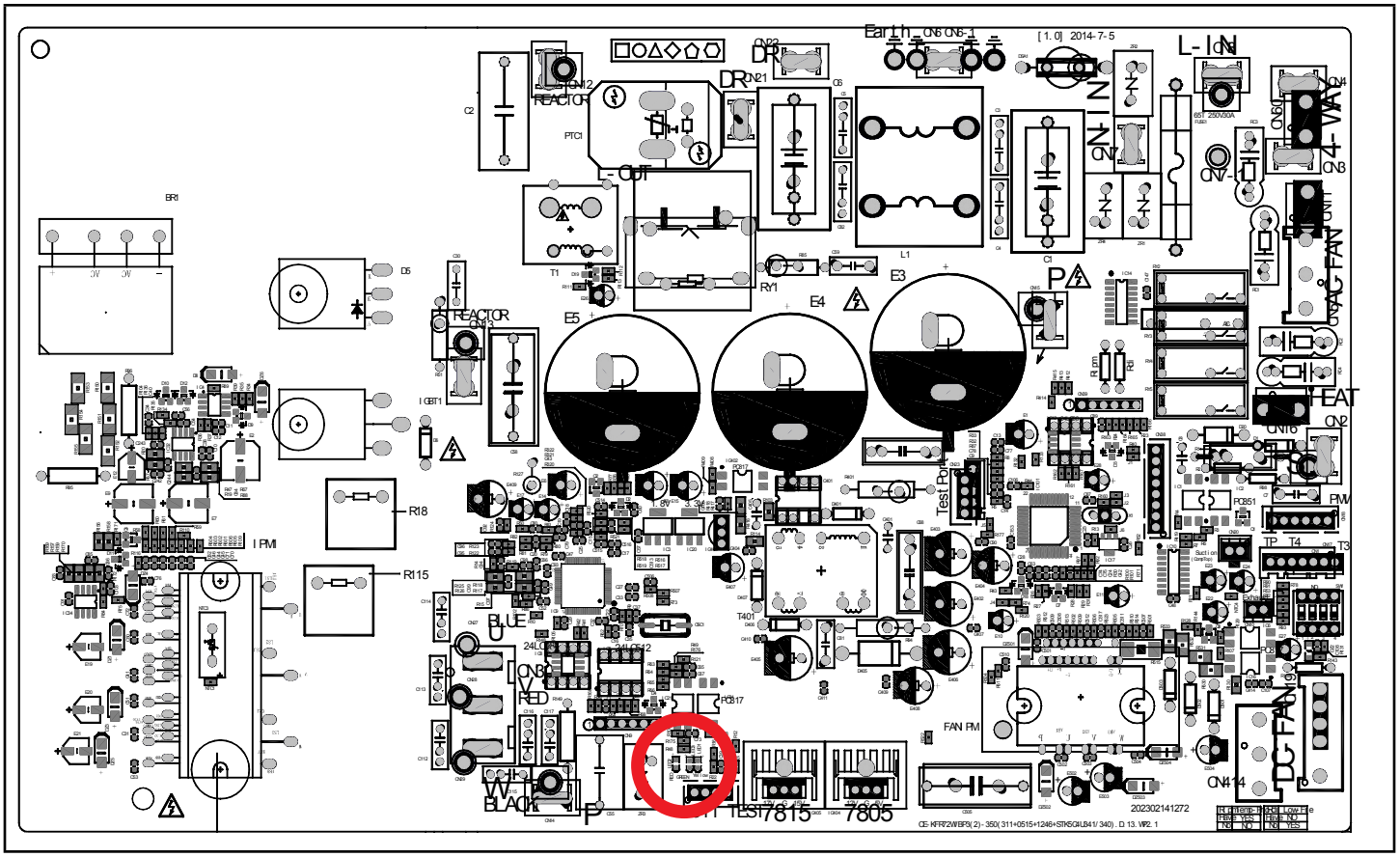


Figure 42. Typical Location of Outdoor Unit LEDs



Typical LED Location - 4DHP1S09S-1L and 4DHP1S12S-1L

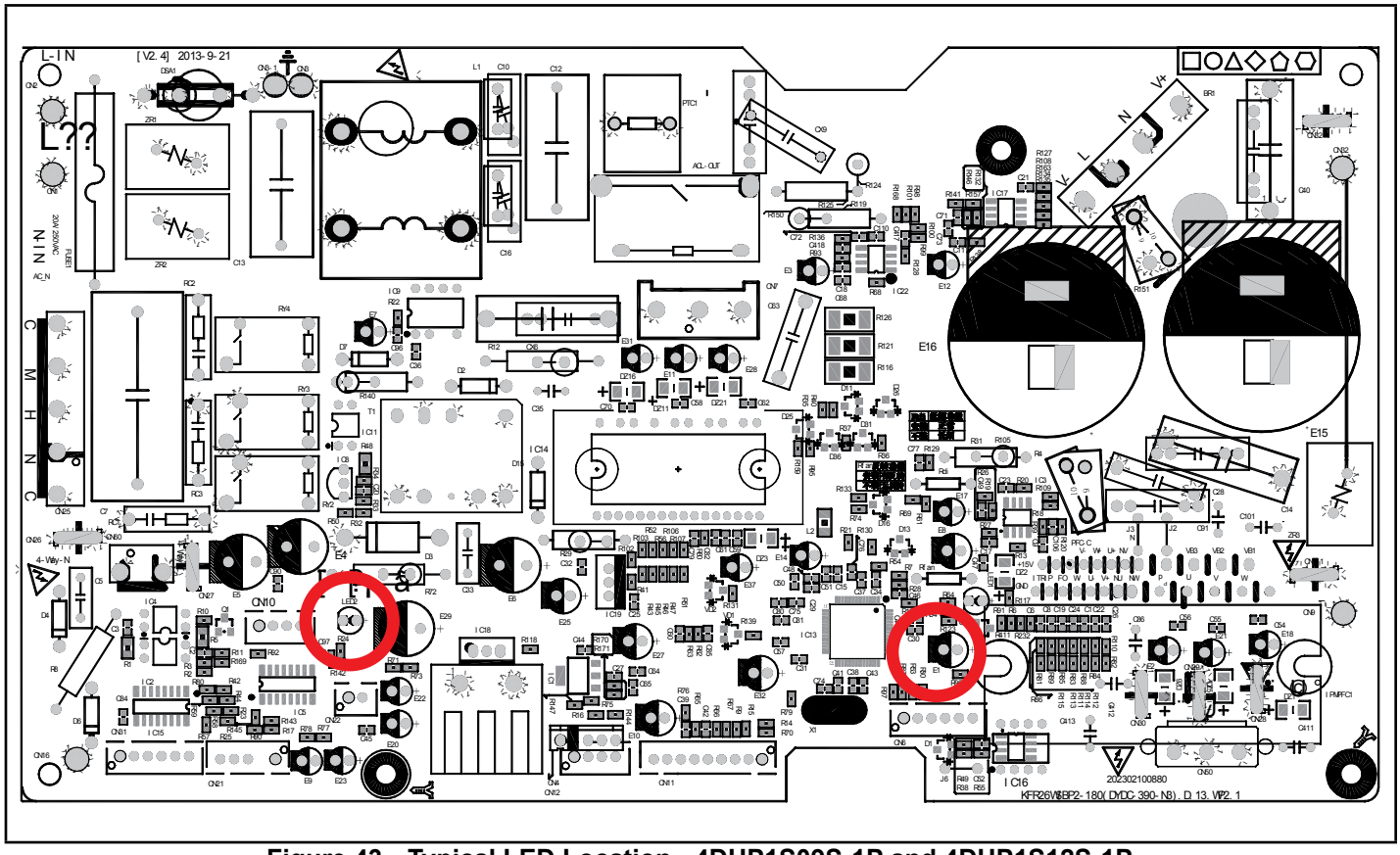


Figure 43. Typical LED Location - 4DHP1S09S-1P and 4DHP1S12S-1P

21. Multi-Zone Outdoor Unit LEDs and SW1 Locations

Push the switch SW1 to check the states of the unit when it is operational. The digital display will toggle through he states when SW1 is pressed.

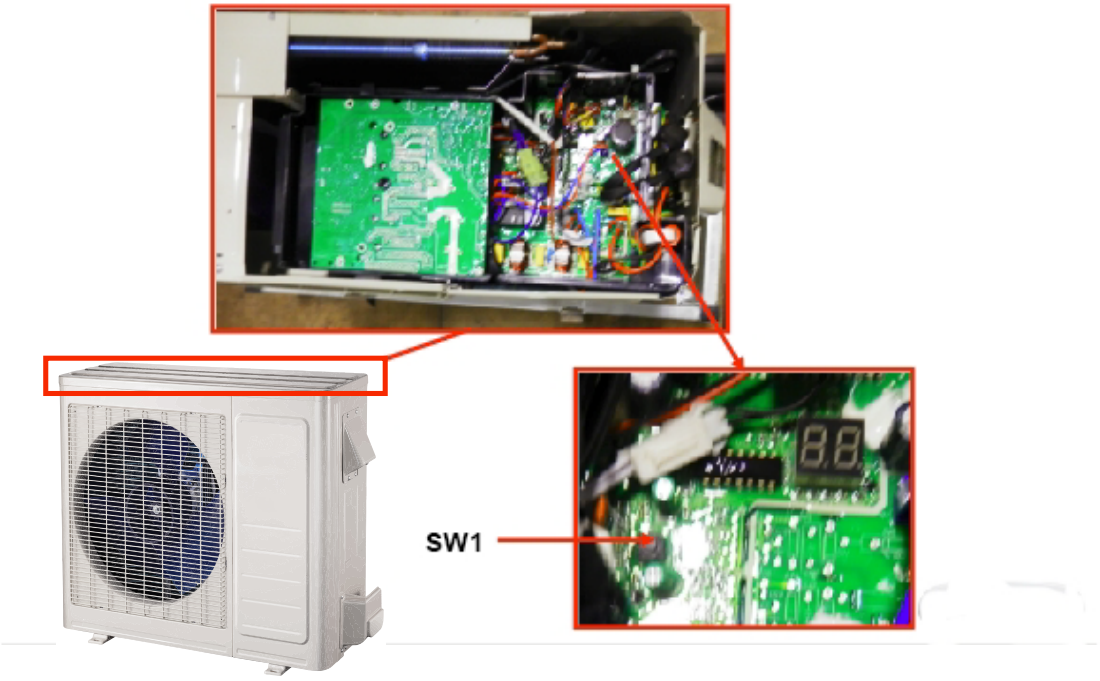


Figure 44. Typical Location of LEDs and SW1 - 18K and 30K Multi-Zone Outdoor Units

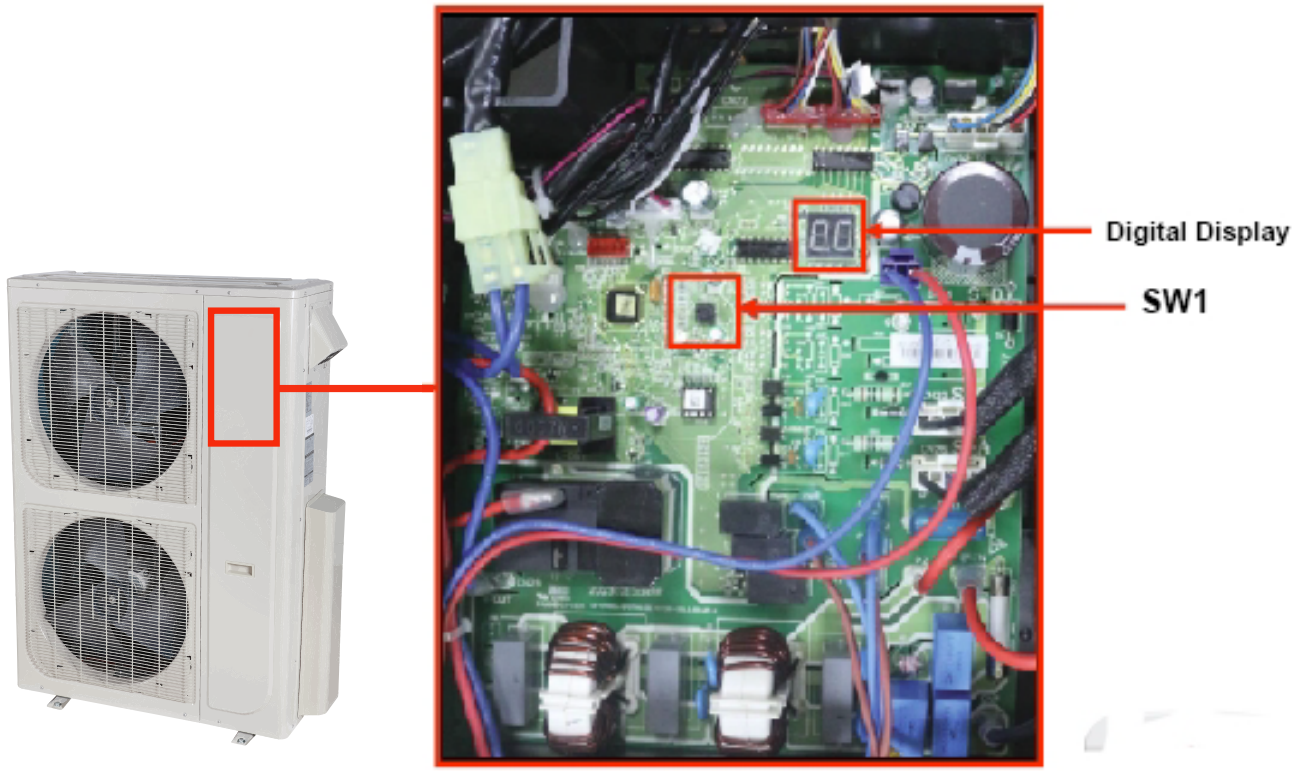
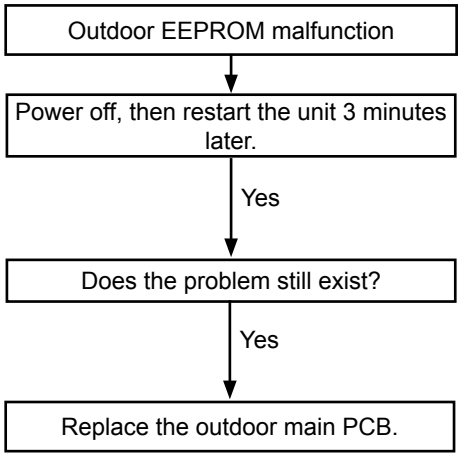
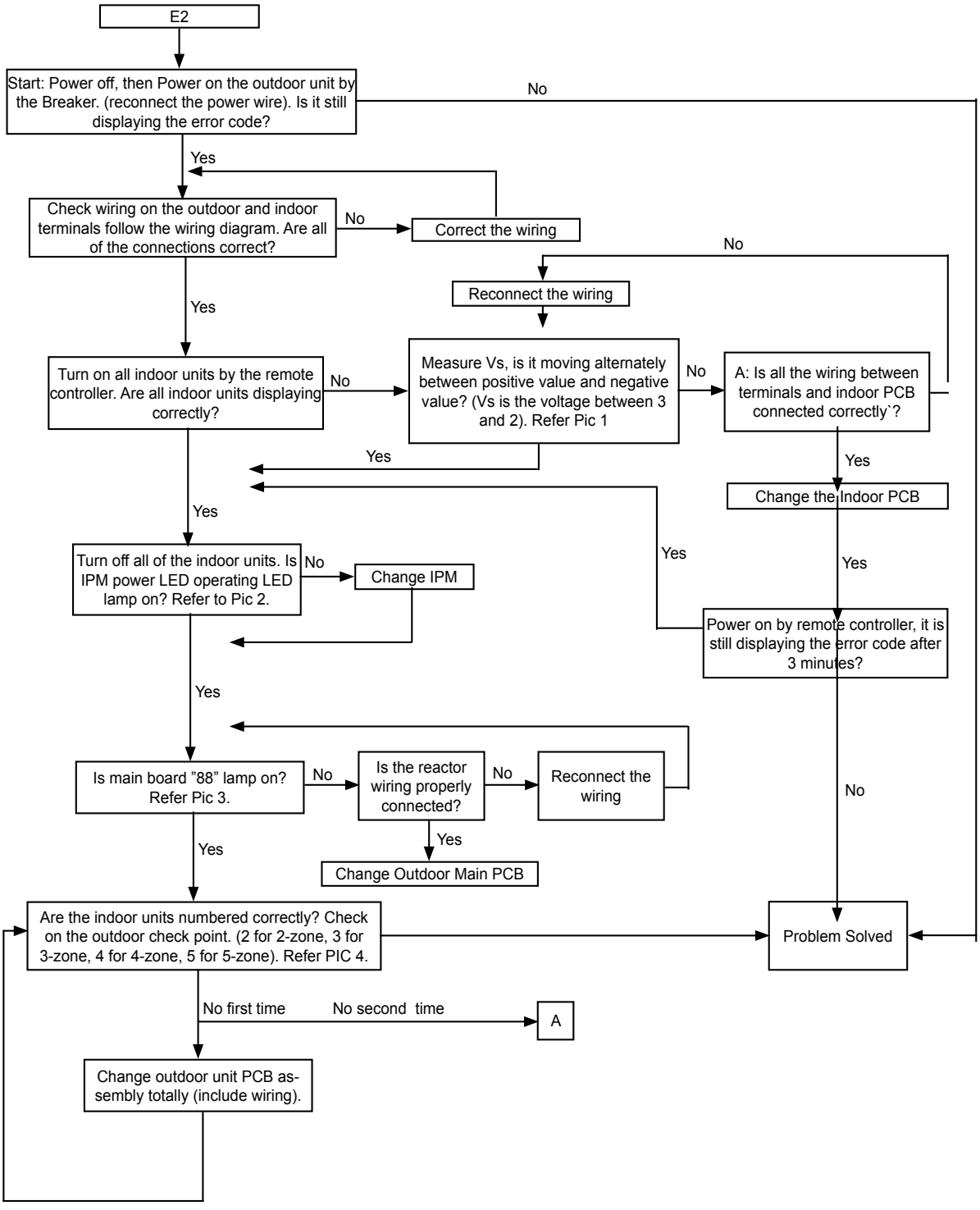


Figure 45. Typical Location of LEDs and SW1 - 36K and 48K Multi-Zone Outdoor Units

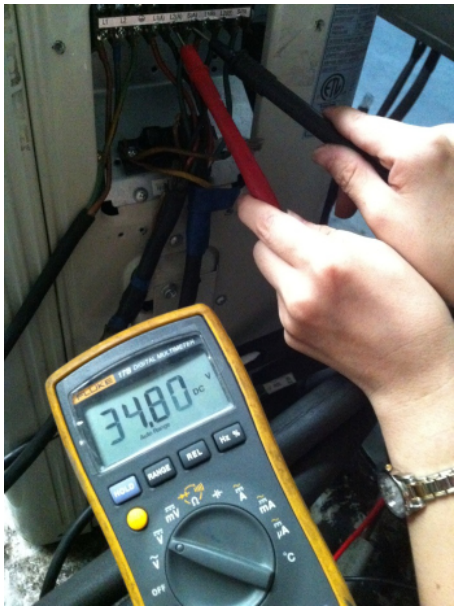
22. Troubleshooting Outdoor Unit Error Codes

Error Code:	E0
Description:	Outdoor EEPROM malfunction.
General Note:	PCB main chip does not receive feedback from EEPROM chip. EEPROM: a read-only memory whose contents can be erased and reprogrammed using a pulsed voltage. For the location of EEPROM chip, please refer to the photo.
	

Error Code:	E2
Description:	Communication malfunction between outdoor unit and all indoor units.
General Note:	Indoor unit does not receive the communication from outdoor unit for 120 seconds or outdoor unit does not receive the communication from any one indoor unit for 180 seconds.

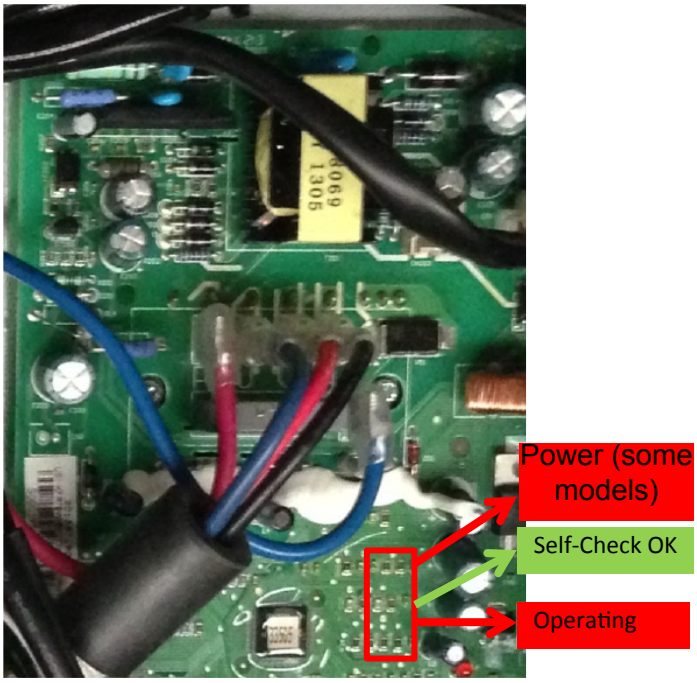


Error Code:	E2 (continued)



Use a multimeter to test the DC voltage between 2 port and 3 port of outdoor unit. The red pin of multimeter connects with 2 port while the black pin is for 3 port.

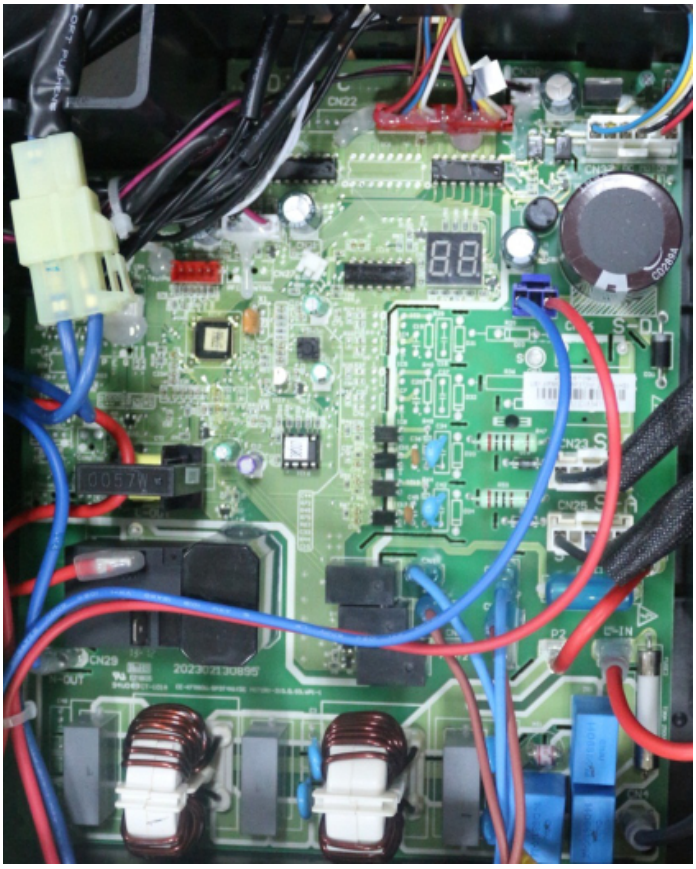
When unit is normal running, the voltage will move alternately between positive value and negative value.



IPM (for 2-zone/3-zone)

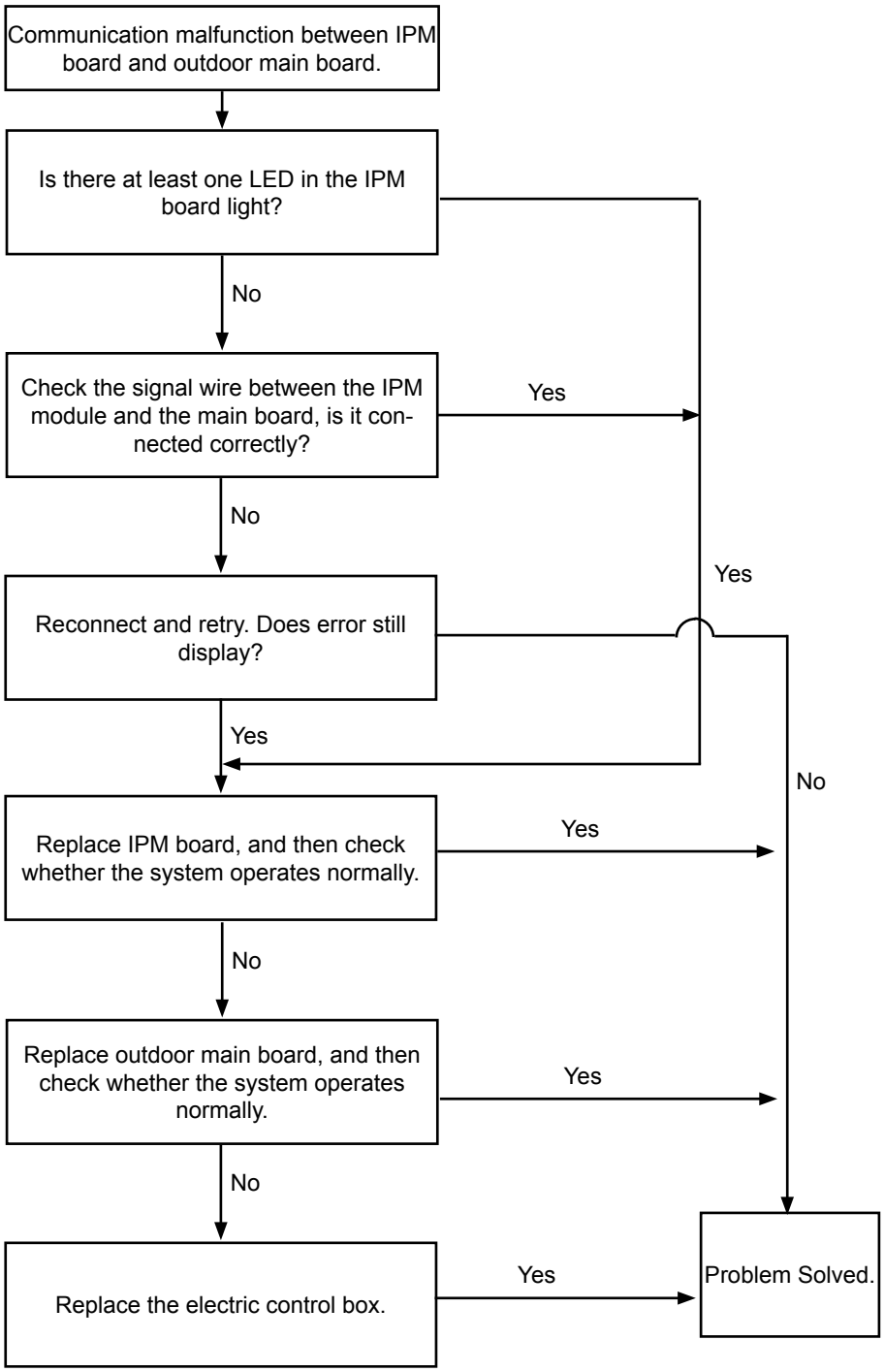
Main board LED when power on and unit standby.

Error Code:	E2 (continued)

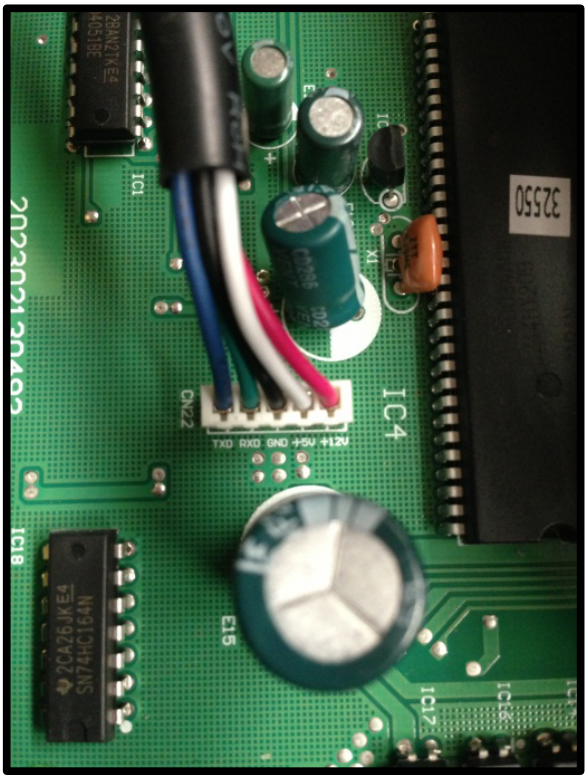


Check point button, press 1 time to check how many indoor units are connected.

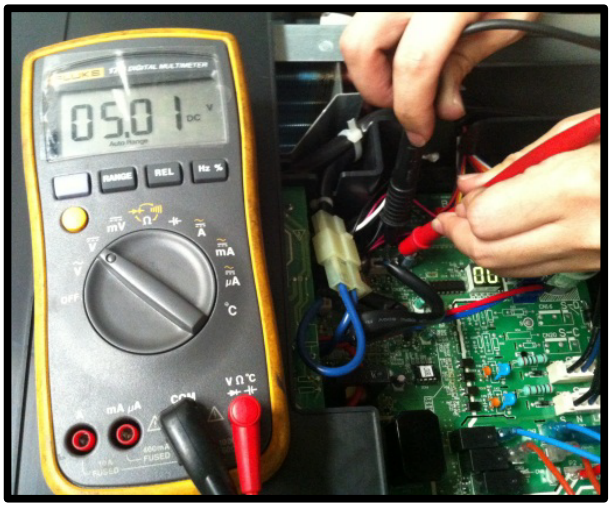
Error Code:	E3
Description:	Communication error between outdoor unit main control and IPM.
General Note:	PCB main chip does not receive feedback from IPM during 60 seconds.

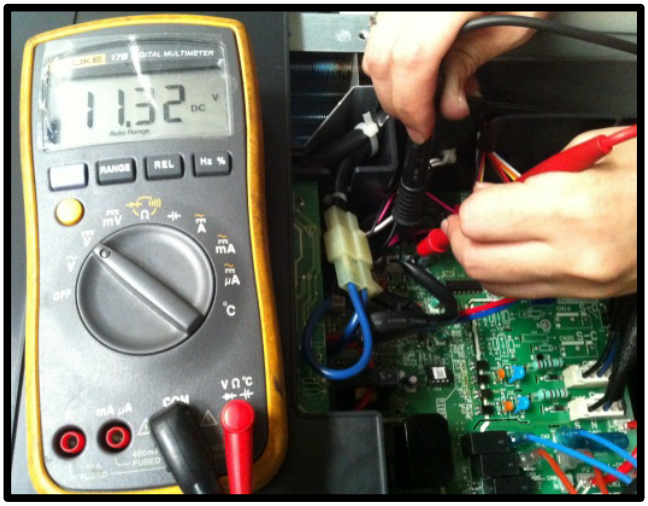


Error Code:	E3 (continued)

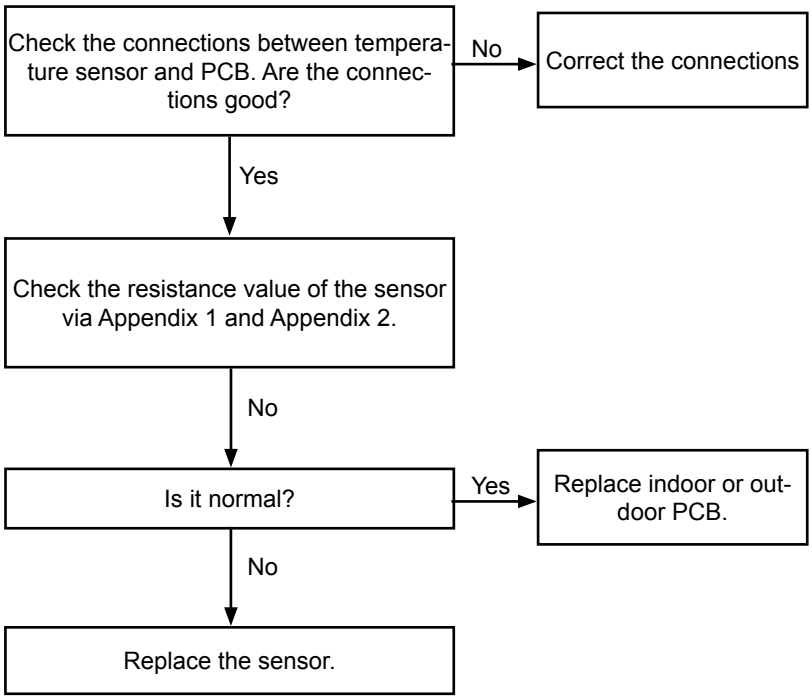


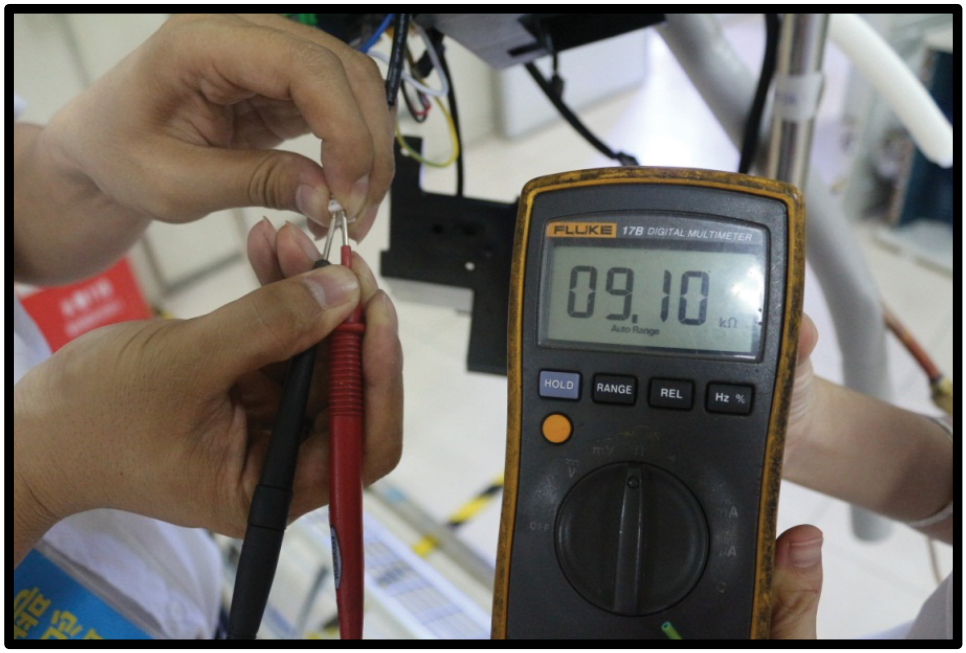
NOTE - Use a multimeter to test the DC voltage between black pin and white pin of signal wire. The normal value should be around 5V.
Use a multimeter to test the DC voltage between black pin and red pin of signal wire. The normal value should be around 12V.



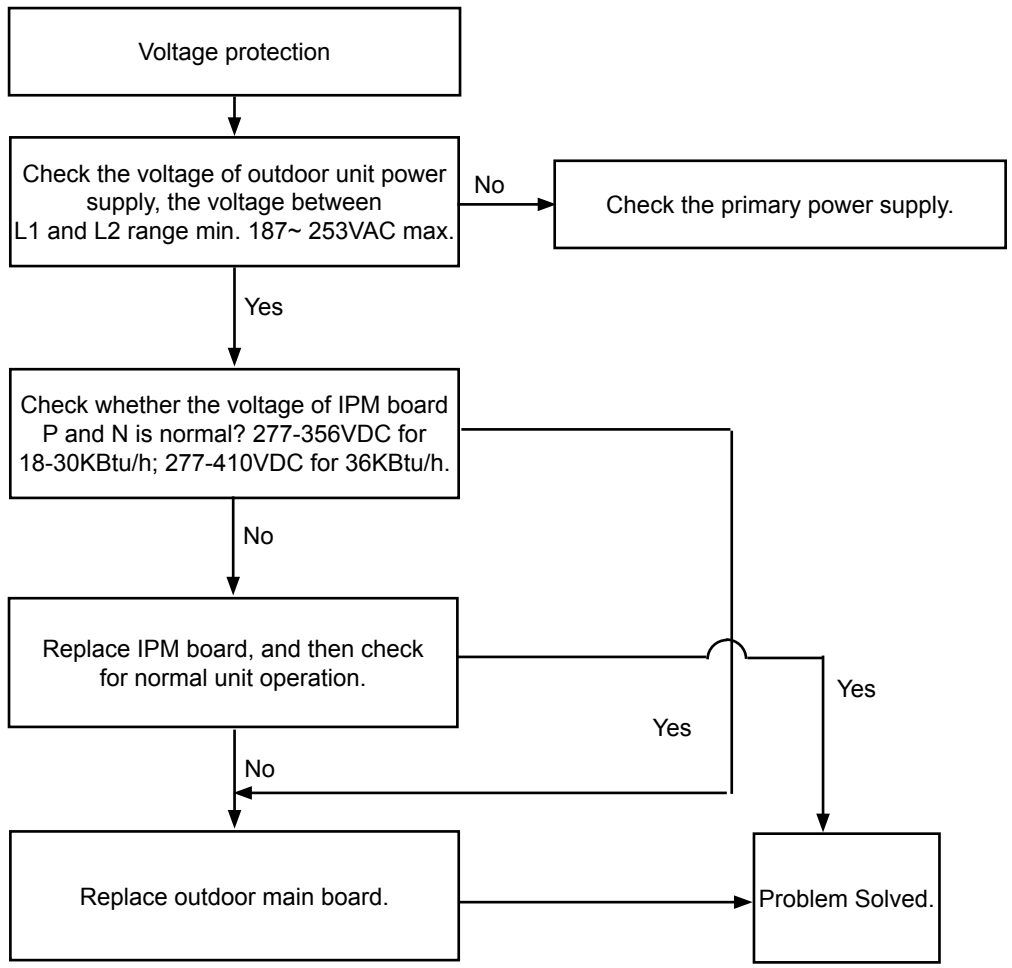


Error Code:	E4
Description:	Temp. sensor error - outdoor coil sensor (T3), outdoor ambient sensor (T4), compressor discharge sensor (T5), indoor unit coil outlet temp. sensor (T2)
General Note:	Error displays if voltage is lower than 0.06V or higher than 4.94V.

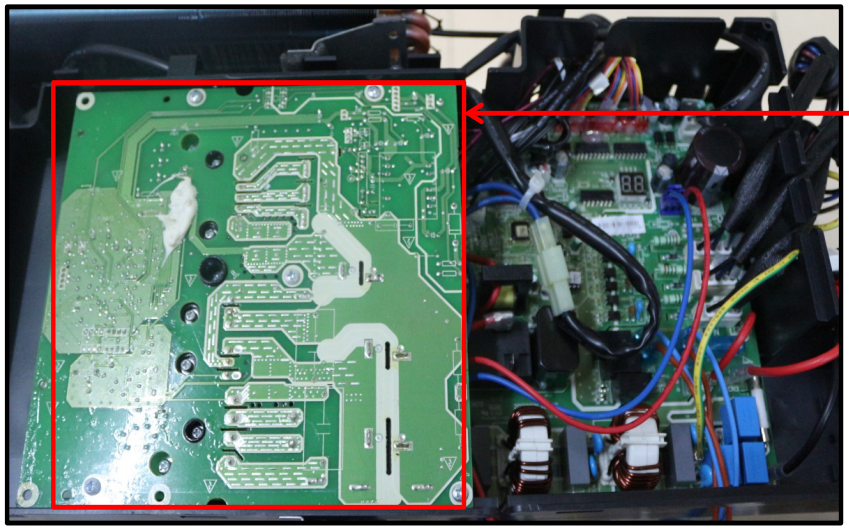




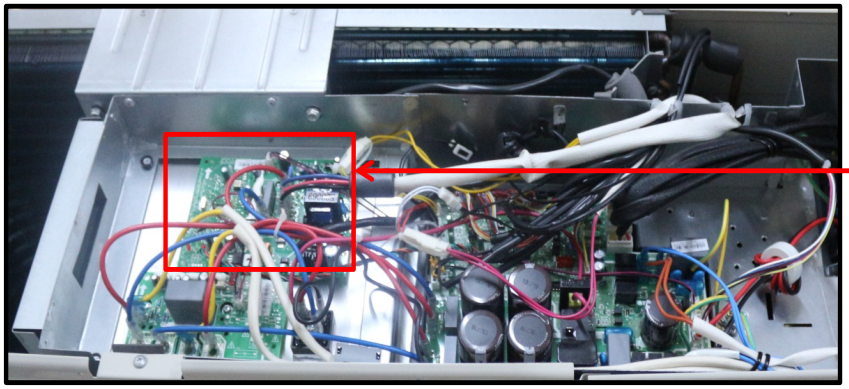
Error Code:	E5
Description:	High or low voltage protection
General Note:	An abnormal voltage rise or drop is detected by checking the specified voltage detection circuit.



Error Code:	E5 (continued)



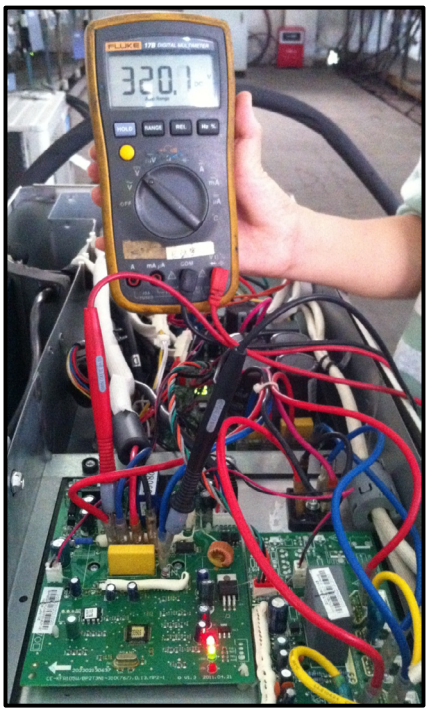
IPM (for 2-zone and 3-zone)



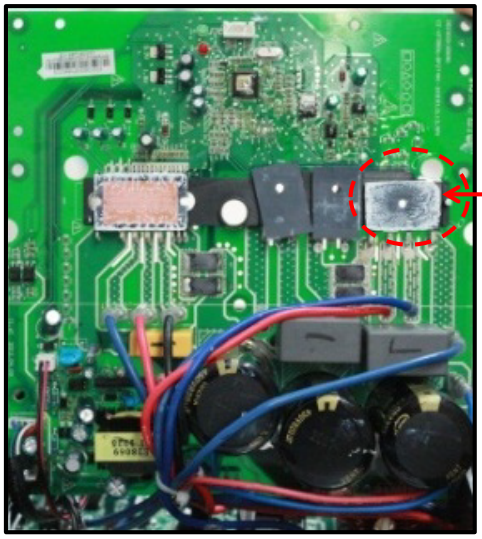
IPM (for 4-zone)

P-N (for 2-zone and 3-zone)

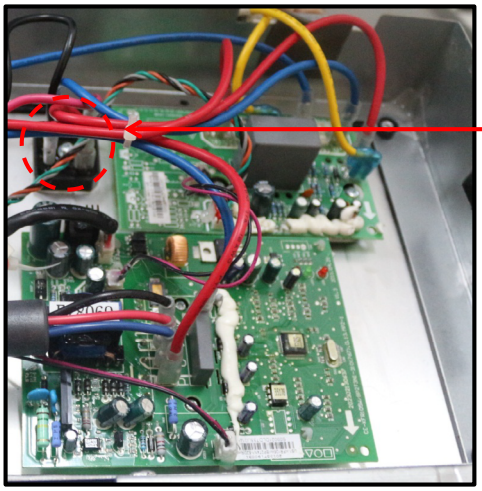
Error Code:	E5 (continued)



P-N (for 4-zone)

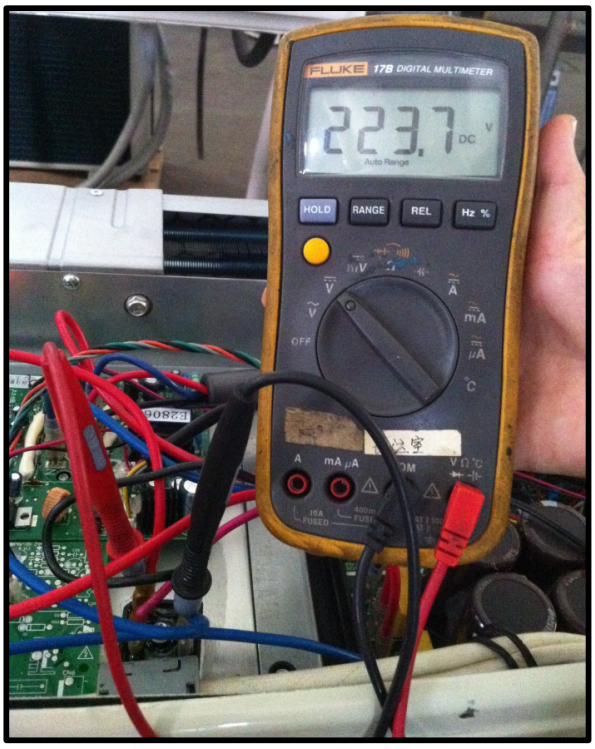


Bridge rectifier for 2-zone and 3-zone



Bridge rectifier for 4-zone

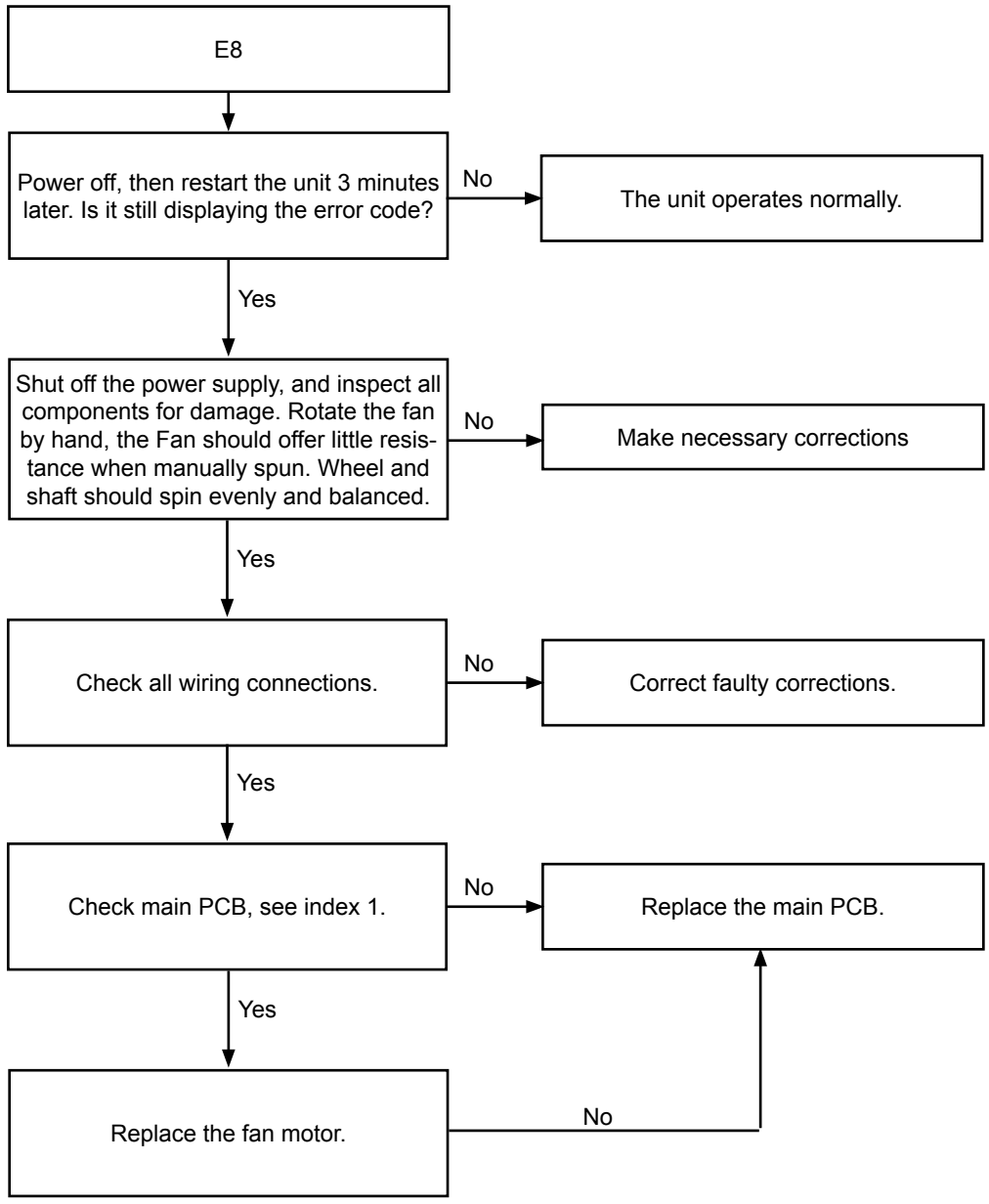
Error Code:	E5 (continued)



Remark:

Measure the DC voltage between + and - port. The normal value should be 190V~250V.

Error Code:	E8
Description:	Outdoor DC fan motor speed error.
General Note:	When outdoor fan speed is too low (300RPM) or too high(2400RPM) for a certain time, the unit will stop and the LED will display the failure.



Error Code:	E8 (continued)

DC fan motor(control chip is inside fan motor)

Power on and while the unit is in standby, measure the voltage between pin1-pin3, pin4-pin3 at fan motor connector.

If the value of the voltage is not in the range shown in below table, the PCB faulty and should be replaced.

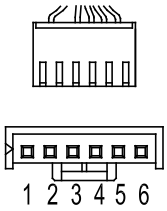
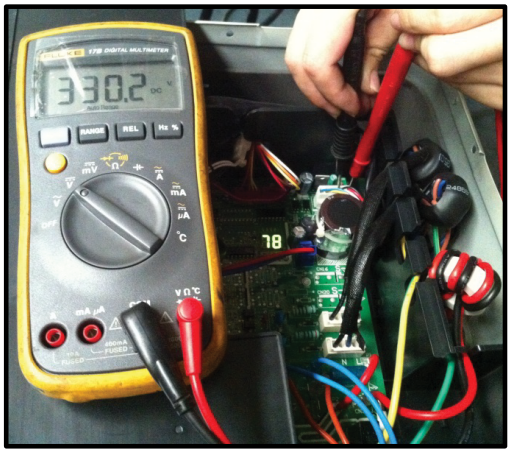


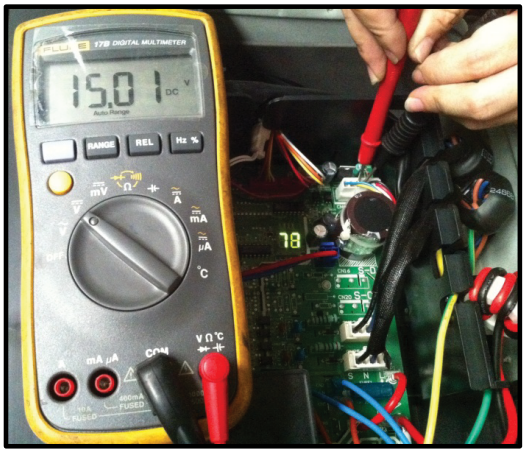
Table 11. DC Motor Voltage Input and Output

No.	Color	Signal	Voltage
1	Red	Vs/Vm	200~380V
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

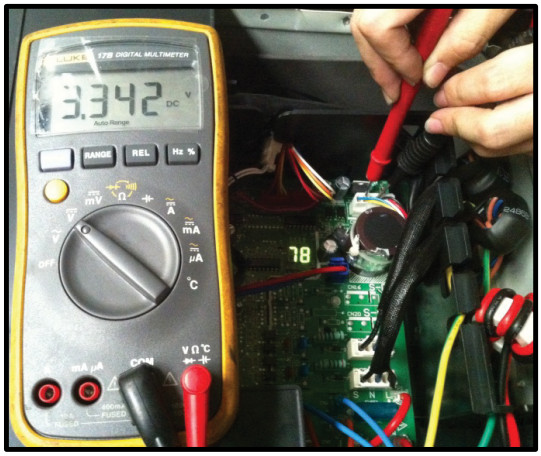
Vs



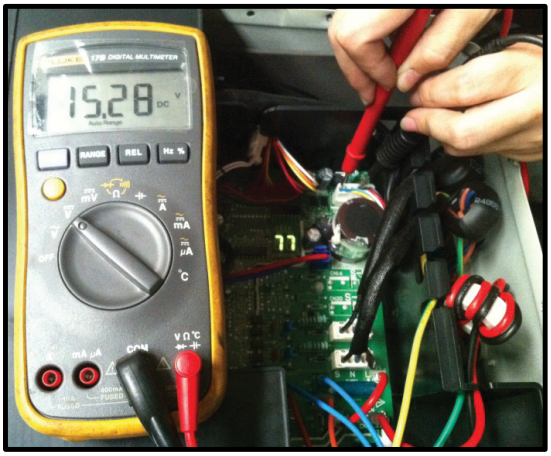
Vcc



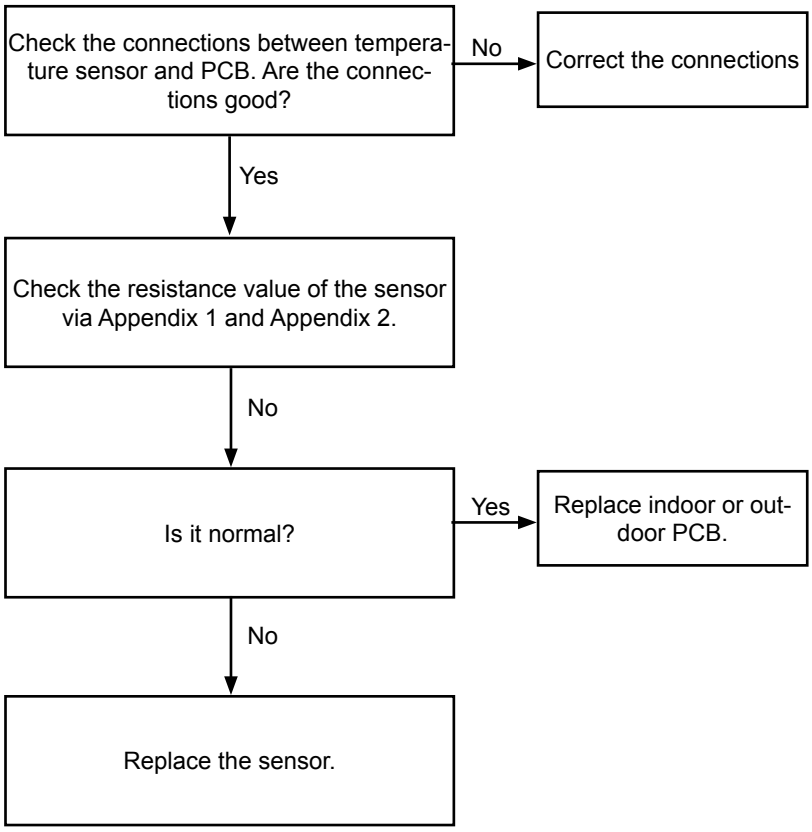
Vsp

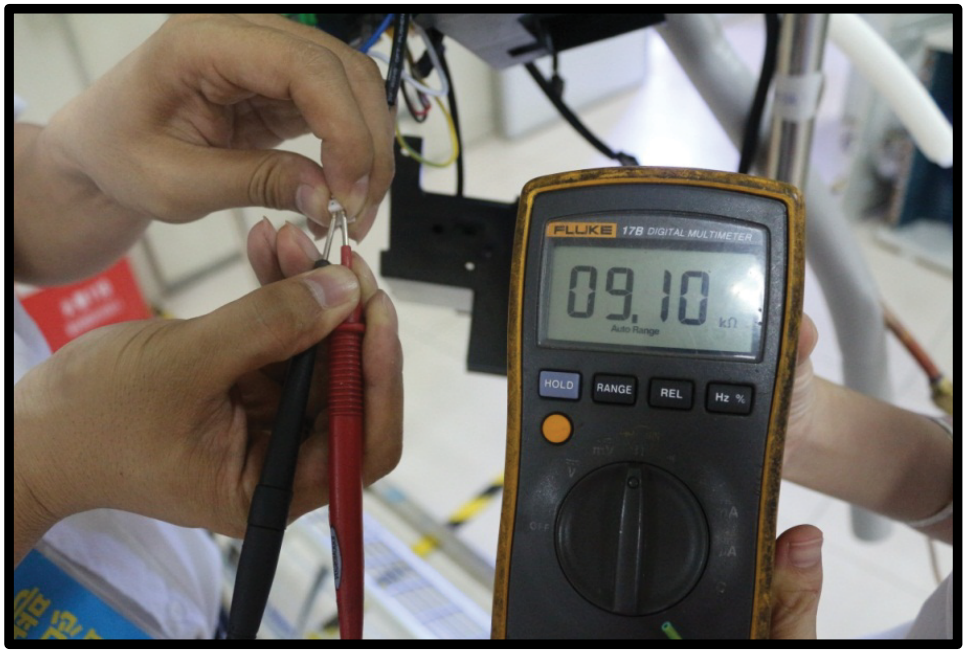


FG

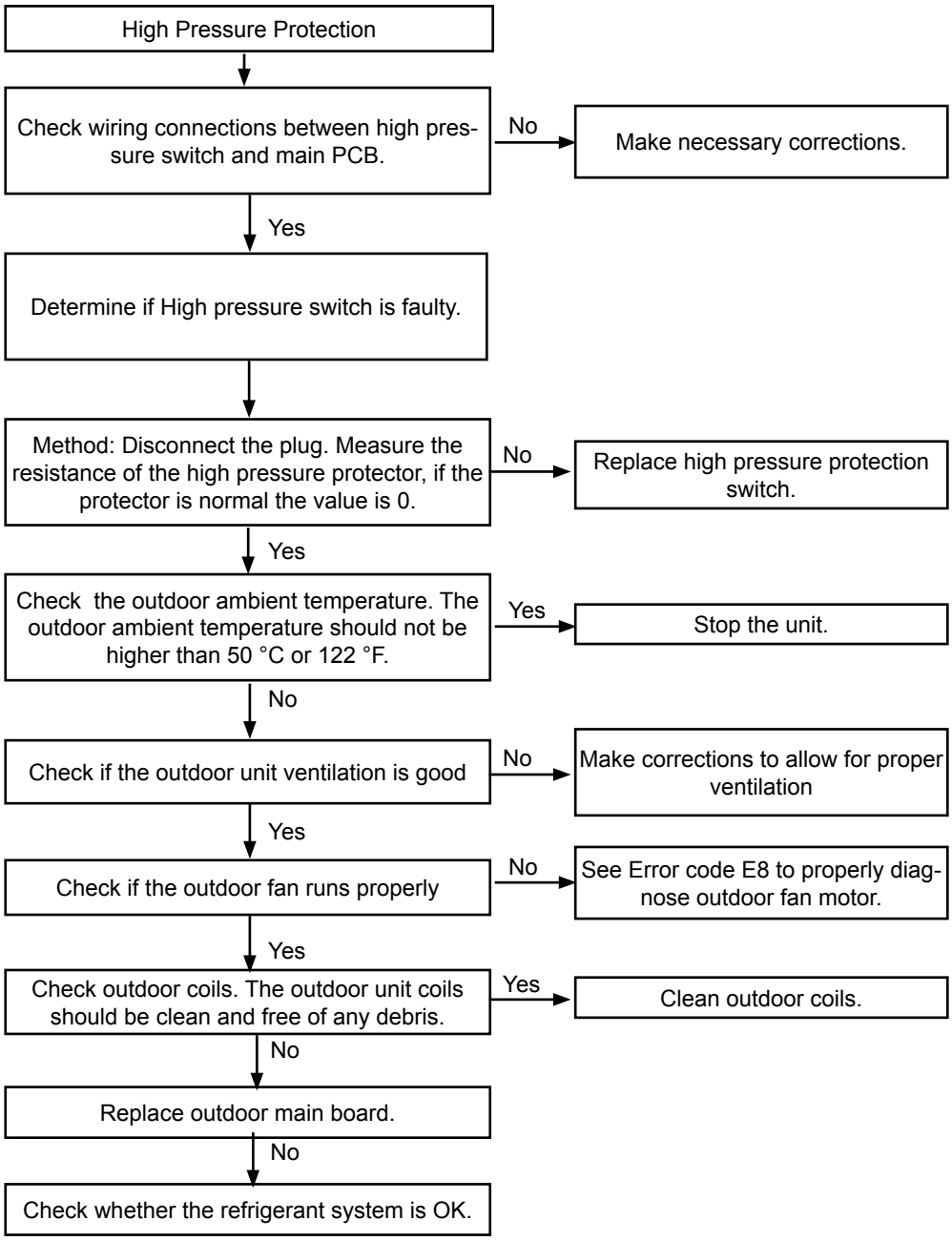


Error Code:	F1, F2, F3, F4 , F5 and F6
Description:	Indoor unit #1, #2, #3, #4 , #5 or #6 coil outlet temp. sensor error
General Note:	If the sampling voltage is not 5V, the LED will display the failure.

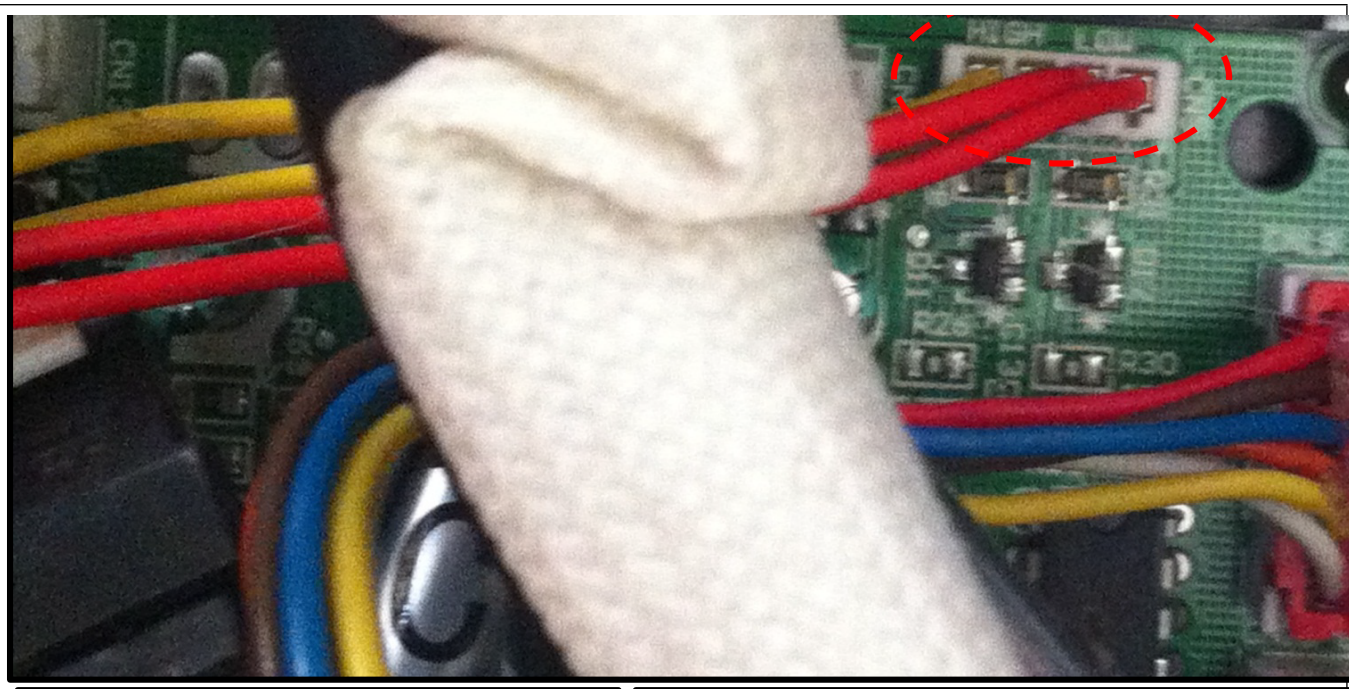


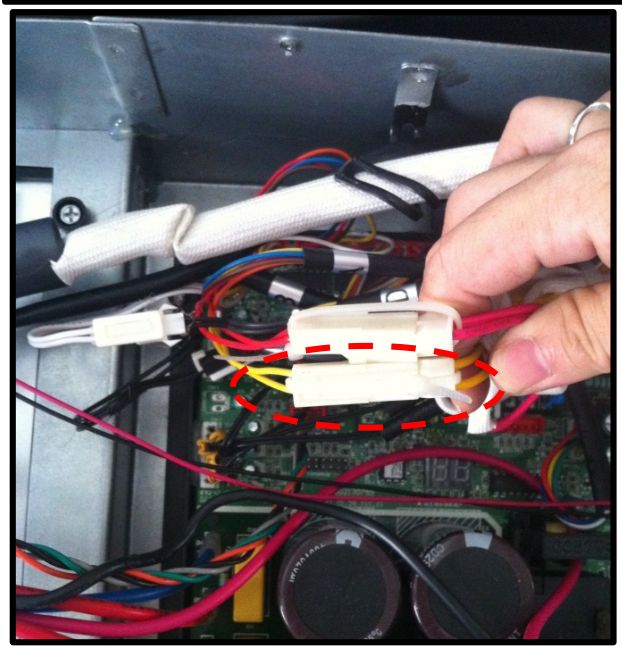


Error Code:	P1
Description:	High pressure switch open.
General Note:	If the sampling voltage is not 5V, the LED will display the failure.

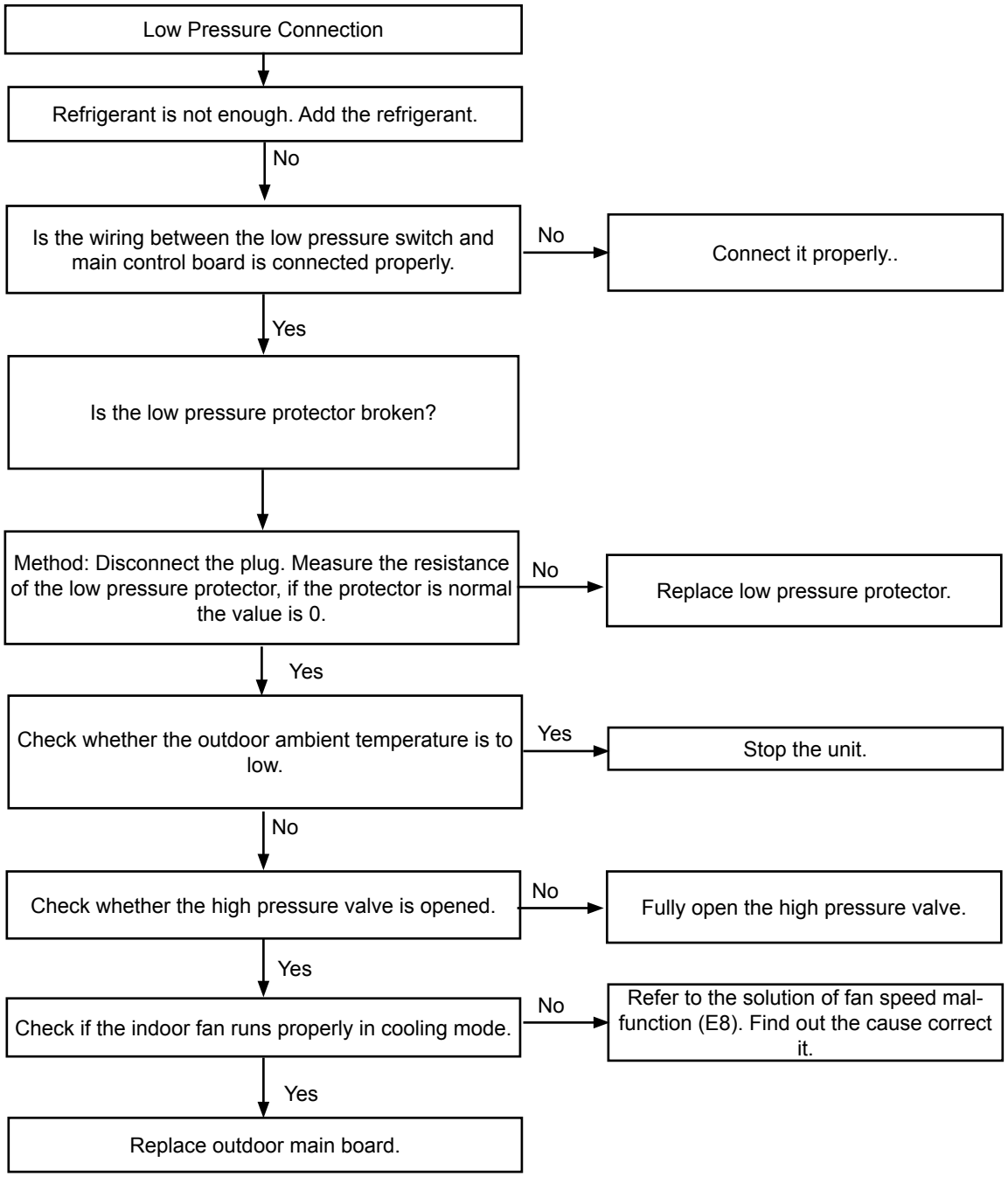


Error Code:	P1 (continued)

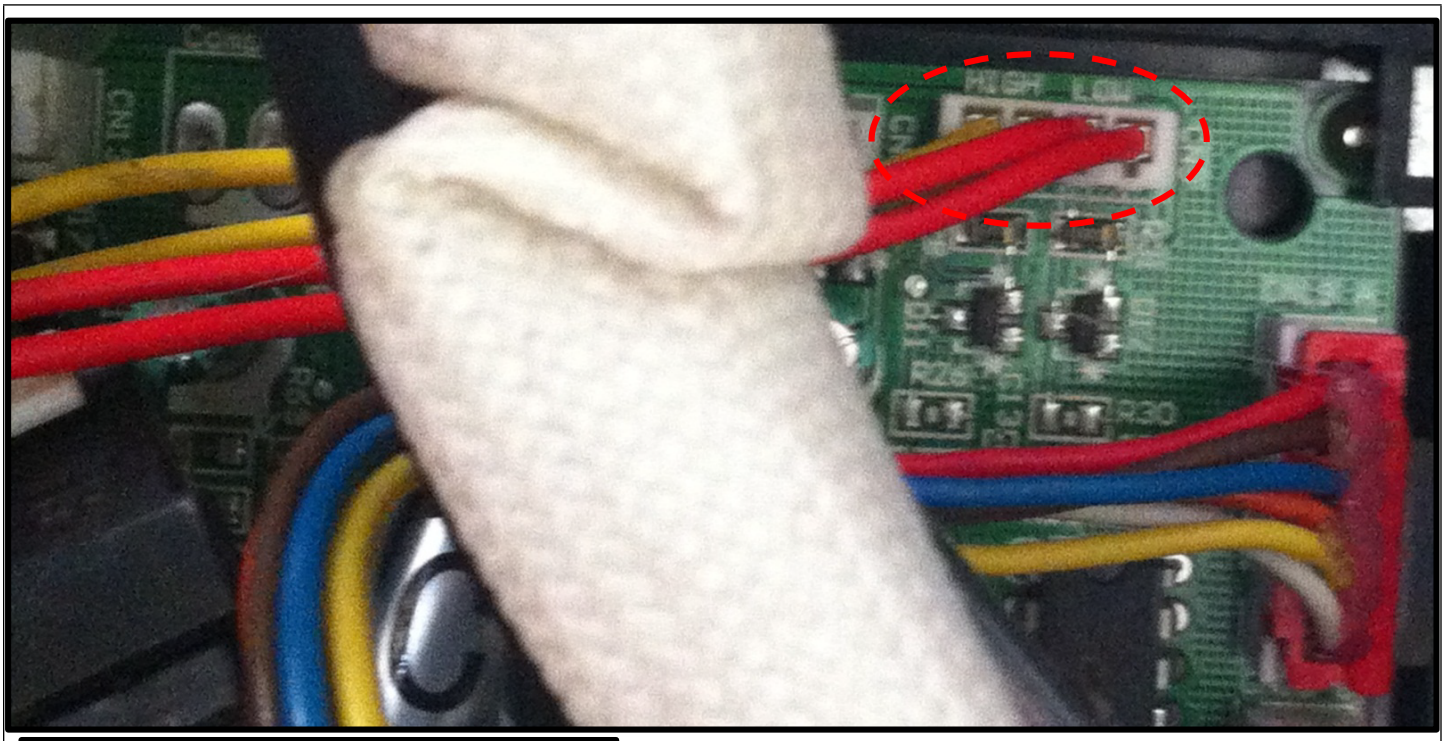


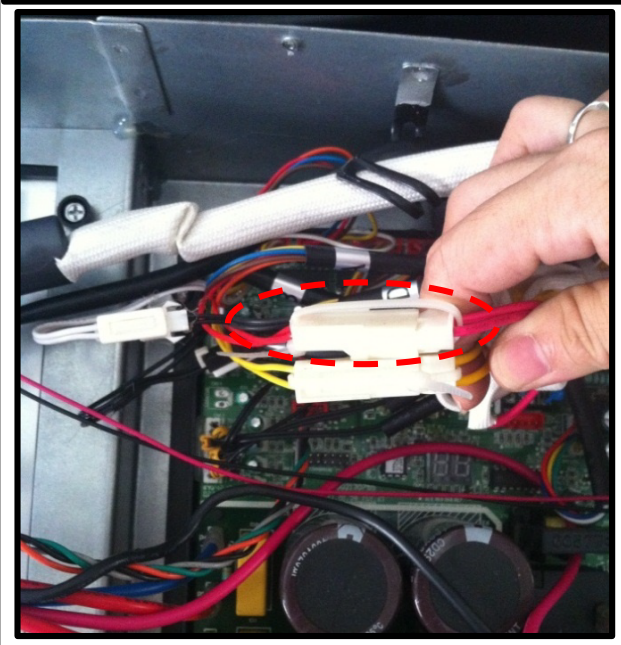


Error Code:	P2
Description:	Low pressure switch open.
General Note:	If the sampling voltage is not 5V, the LED will display the failure.

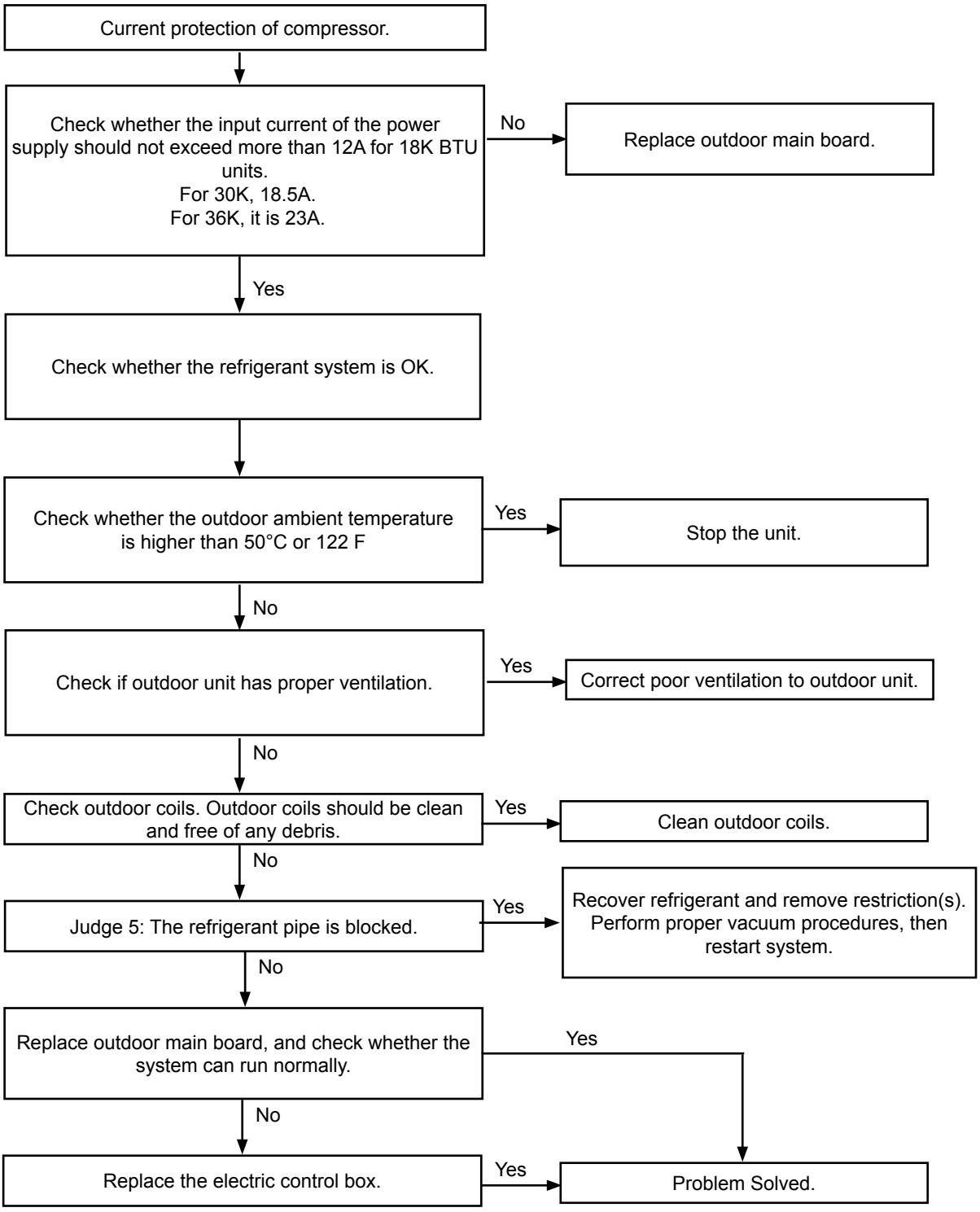


Error Code:	P2 (continued)



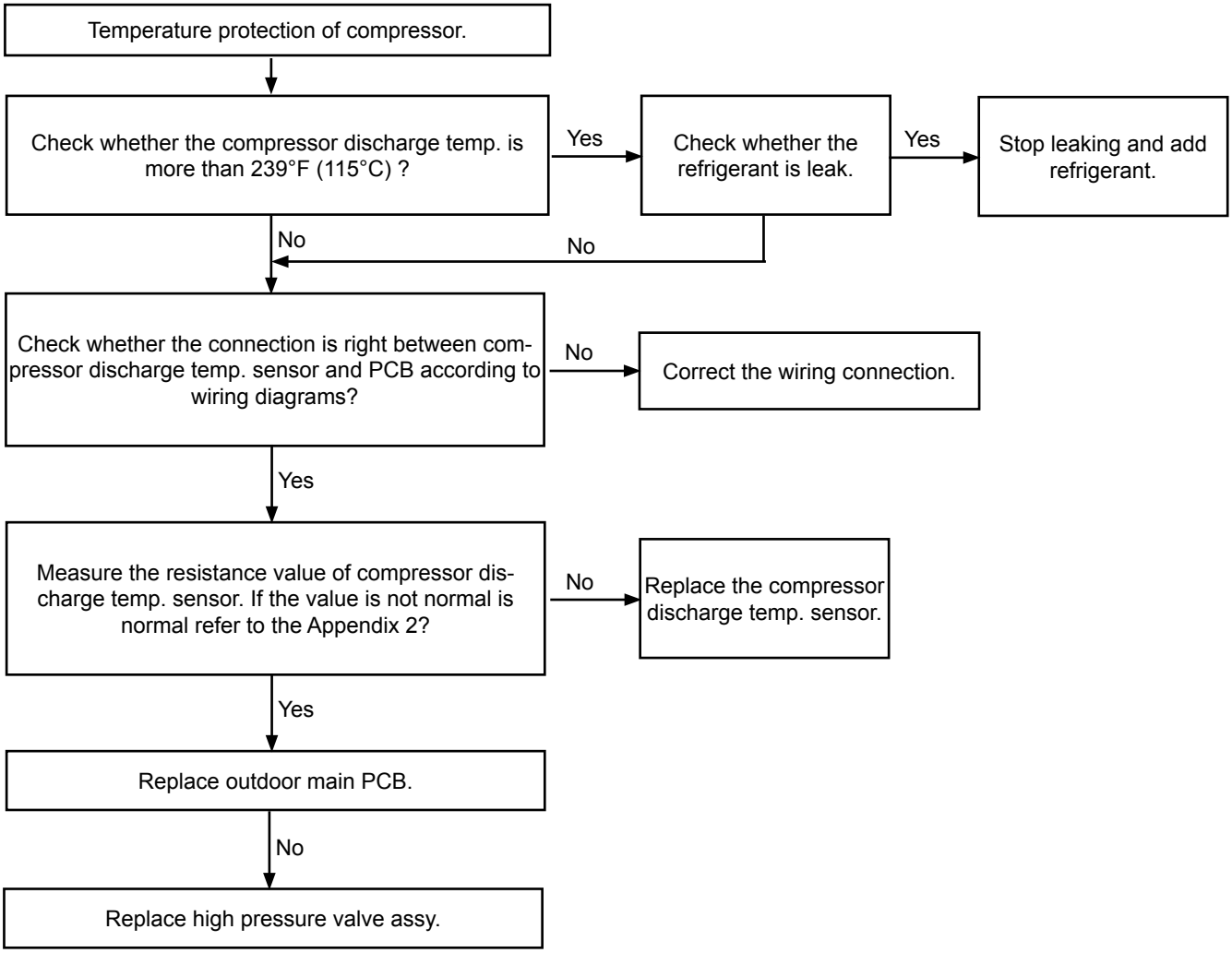


Error Code:	P3
Description:	Outdoor compressor current overload sensed
General Note:	If the outdoor current exceeds the current limit value, the LED will display the failure.

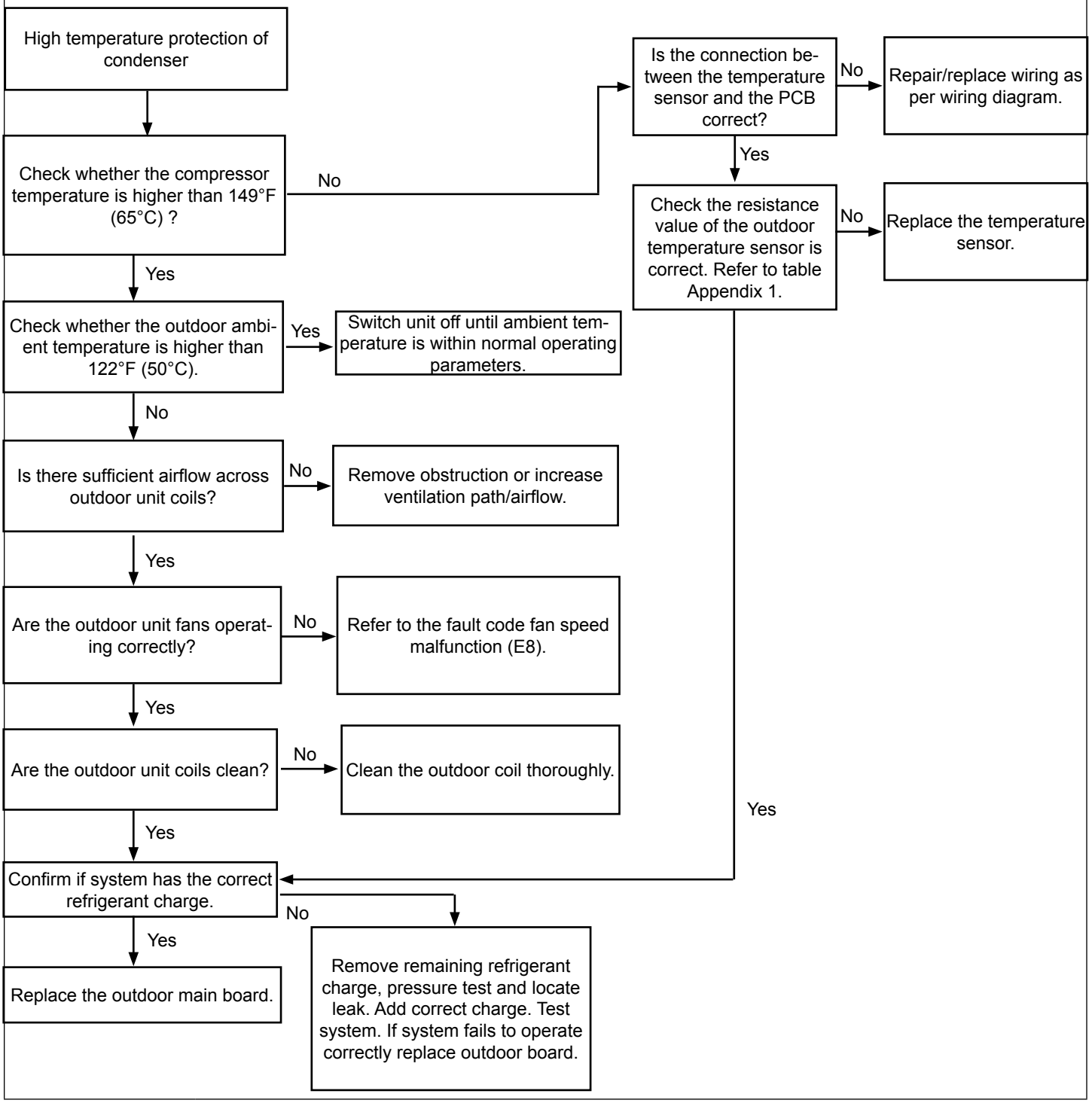


Error Code:	P3 (continued)

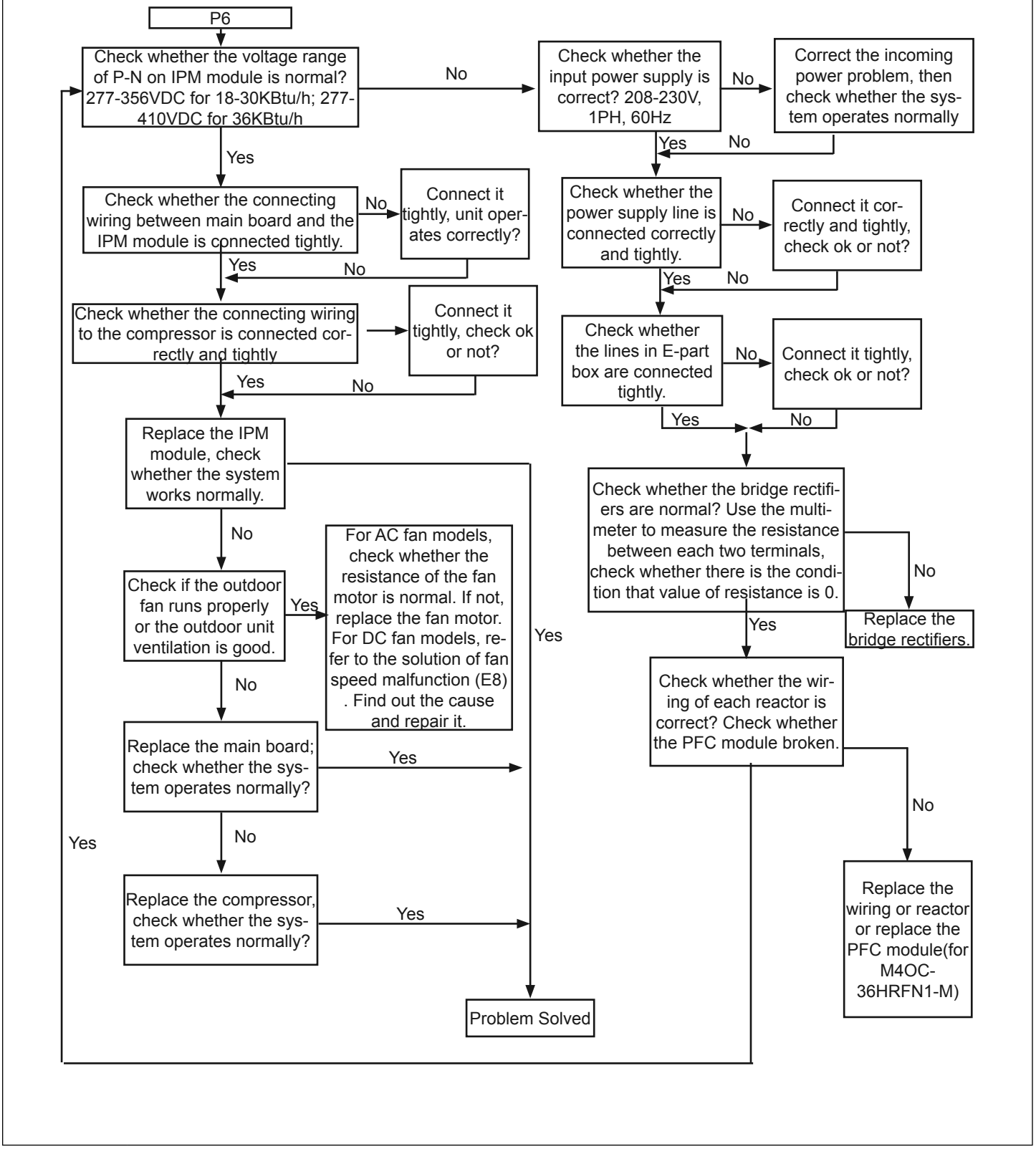
Error Code:	P4
Description:	High temperature sensed at compressor discharge line.
General Note:	When the compressor discharge temperature(T5) is more than 239°F (115°C) for 10 seconds, the compressor will stop and restart till T5 is less than 194°F (90°C).



Error Code:	P5
Description:	High temperature sensed at outdoor coil.
General Note:	When outdoor pipe temperature is more than 149°F (65°C), the unit will stop, and unit runs again when outdoor pipe temperature is less than 125.6°F (52°C).



Error Code:	P6
Description:	Inverter module (IPM) error.
General Note:	When the voltage signal that IPM sends to the compressor drive chip is abnormal, the display LED will show “P6” and unit will turn off.



23. Indoor Unit Indicators and Controls

For a list of applicable error codes for the indoor units, refer to “19. Quick Reference Guide - Error Codes” on page 68. All indoor units provide error code information with either a digital LED display or with flash codes.

23.1. Cassette Unit Display

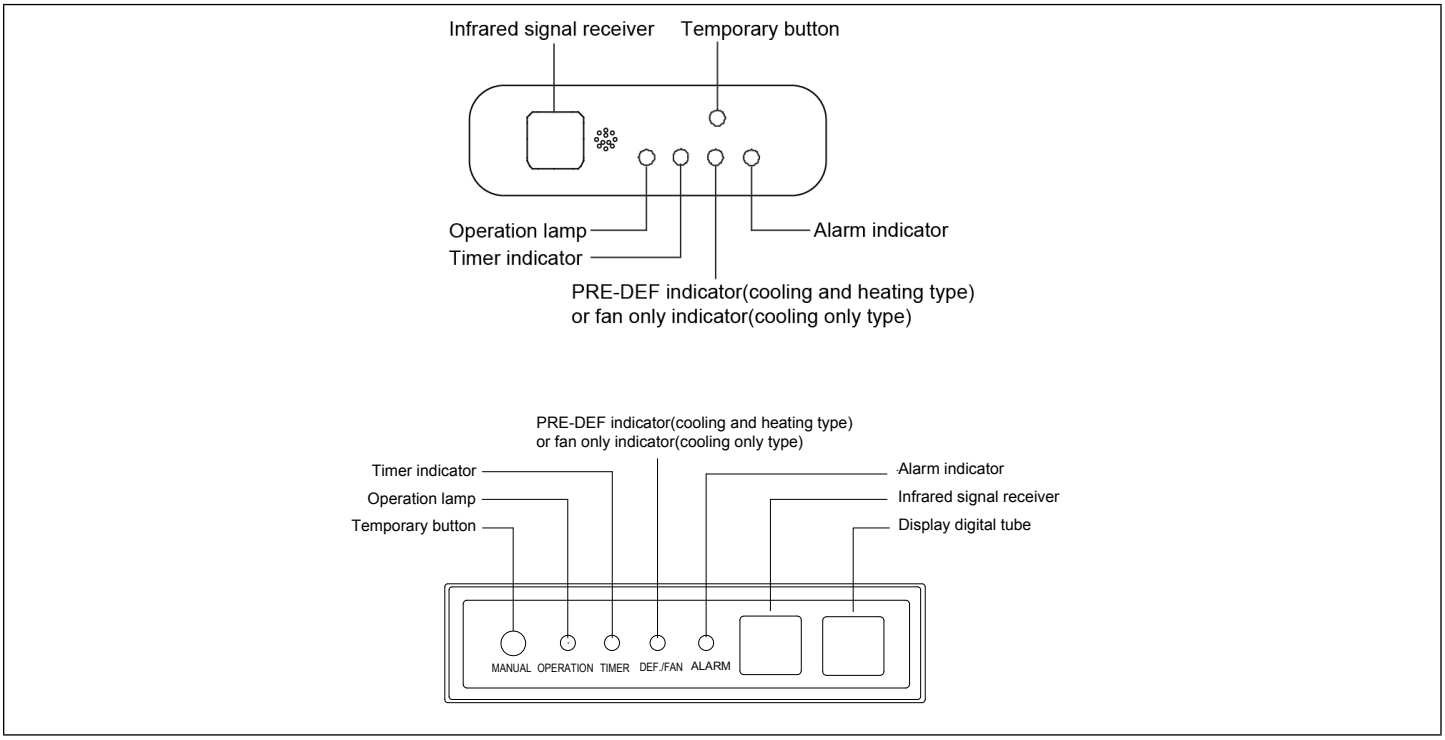
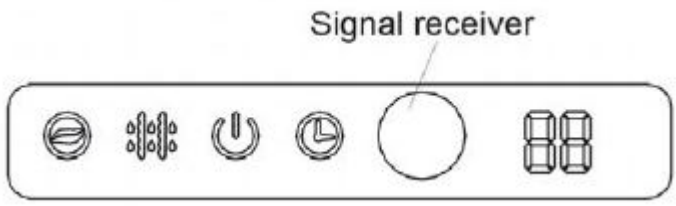


Figure 46. Cassette Unit Display

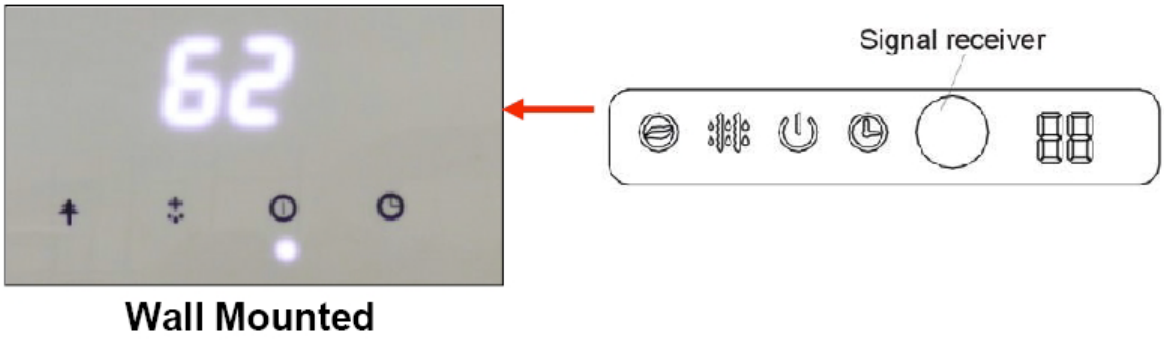
23.2. Ducted Unit Display



	ION indication lamp (optional function): This lamp illuminates when clean air feature is activated.
	Defrost Indication Lamp (for cooling and heating models only): Lights up when the air conditioner starts defrosting automatically or when the warm air controls feature is activated in heating operation.
	Operation Indication Lamp: This lamp illuminates when the air conditioner is in operation.
	Timer Indication Lamp: Lights up during timer operation.
	Temperature Indicator: Displays the temperature settings when the air conditioner is operational. Also displays error codes.

Figure 47. Ducted Unit Display

23.3. Wall-Mounted Unit Displays

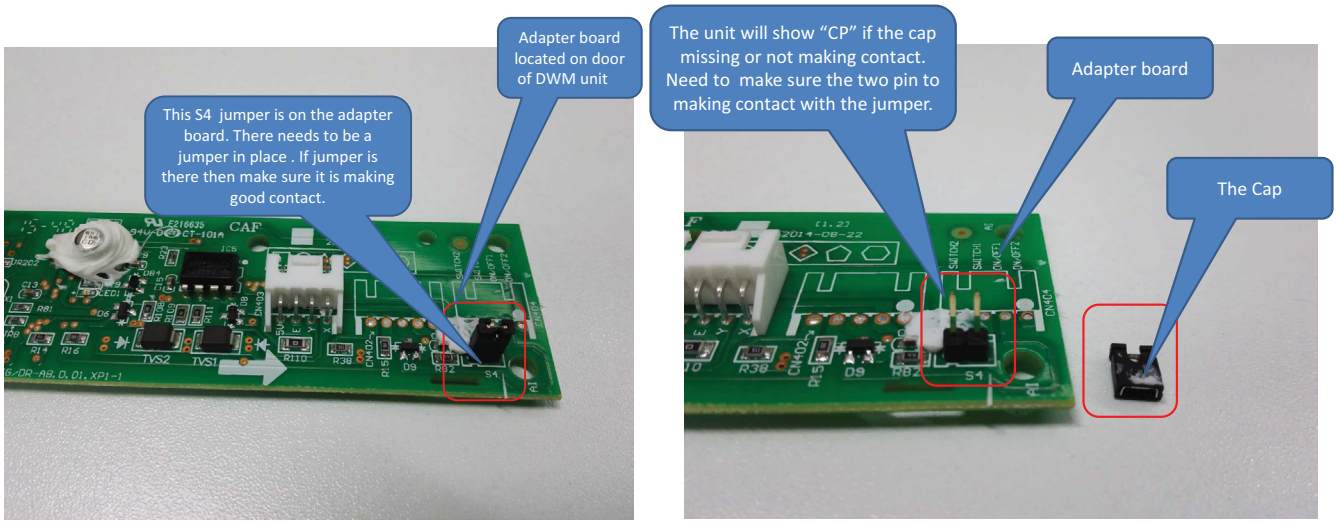


	ION indication lamp (optional function): This lamp illuminates when clean air feature is activated.
	Defrost Indication Lamp (for cooling and heating models only): Lights up when the air conditioner starts defrosting automatically or when the warm air controls feature is activated in heating operation.
	Operation Indication Lamp: This lamp illuminates when the air conditioner is in operation.
	Timer Indication Lamp: Lights up during timer operation.
	Temperature Indicator: Displays the temperature settings when the air conditioner is operational. Also displays error codes.

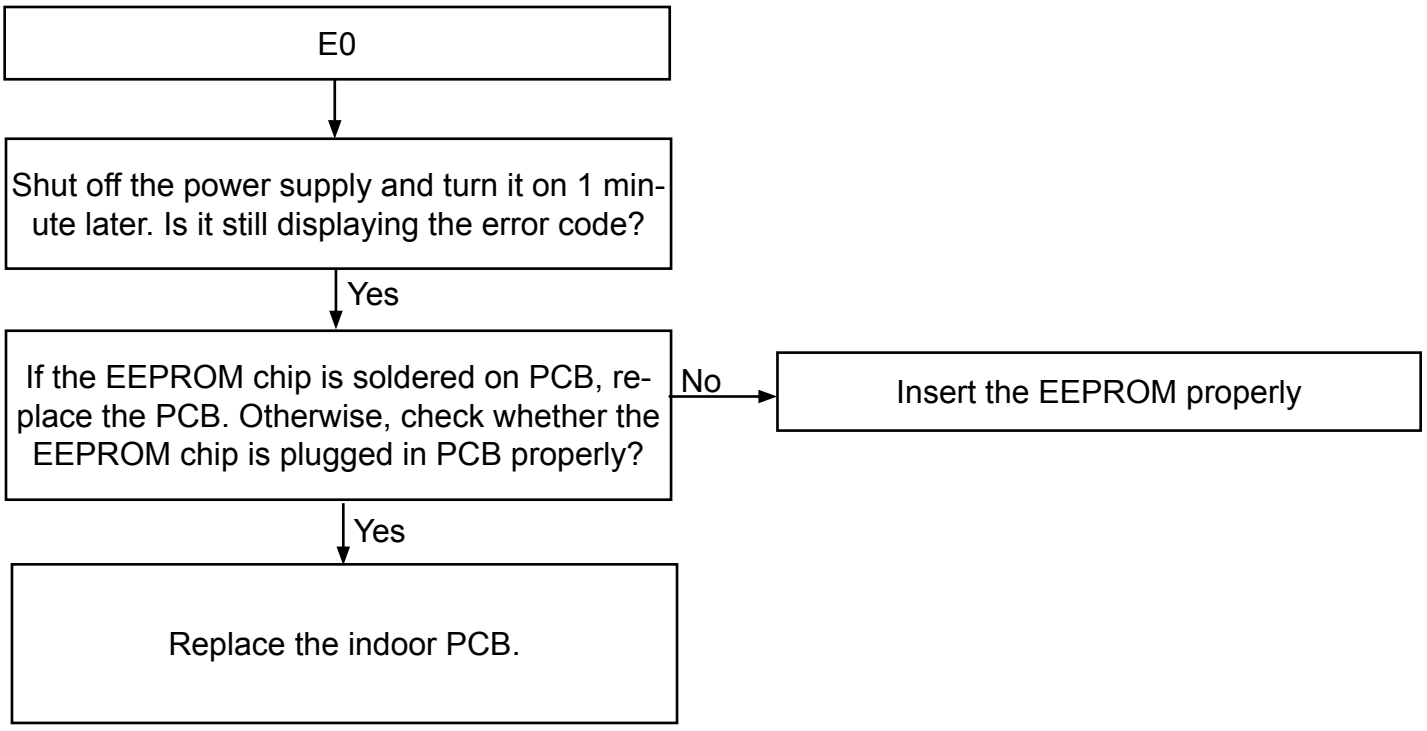
Figure 48. Wall-Mounted Unit Display

24. Troubleshooting Indoor Unit Error Codes

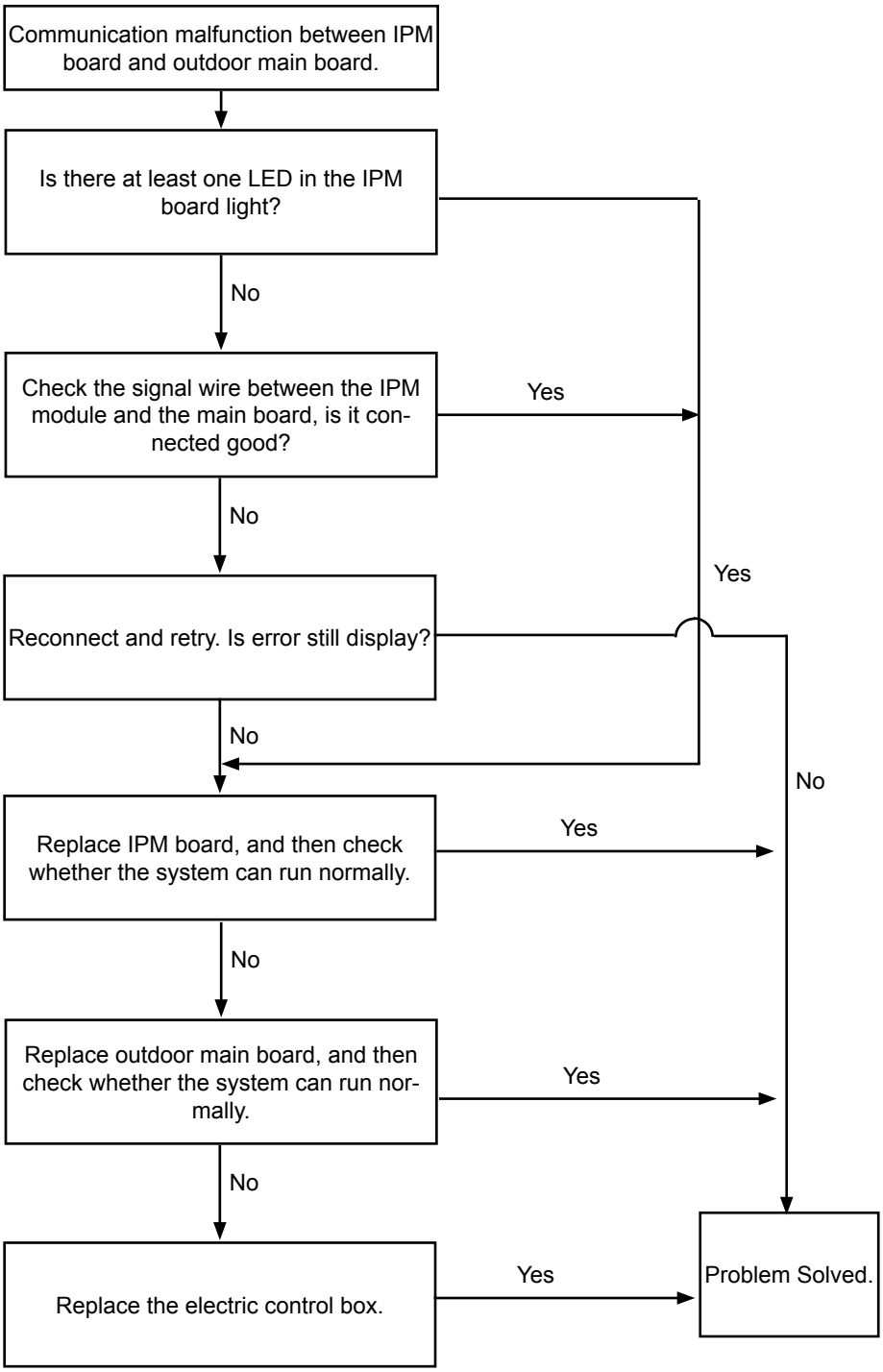
Error Code:	CP
Description:	DWM models only.
General Note:	None.



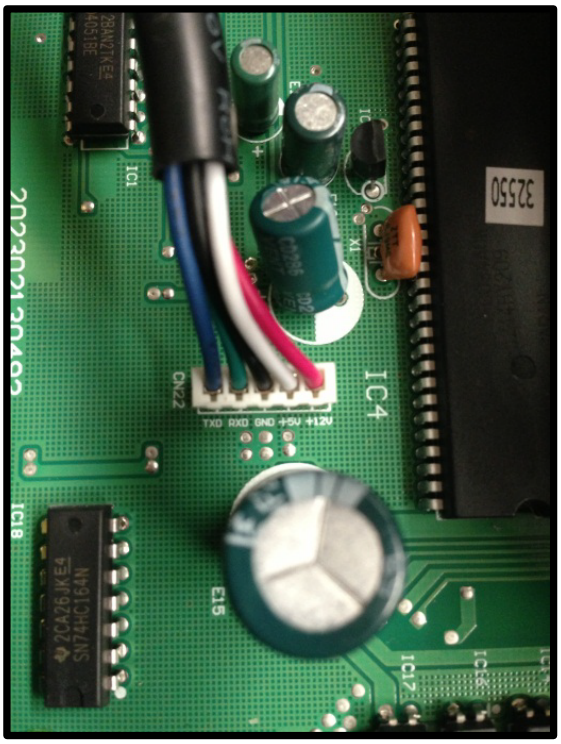
Error Code:	E0
Description:	Indoor Unit EEPROM malfunction.
General Note:	PCB main chip does not receive feedback from EEPROM chip.



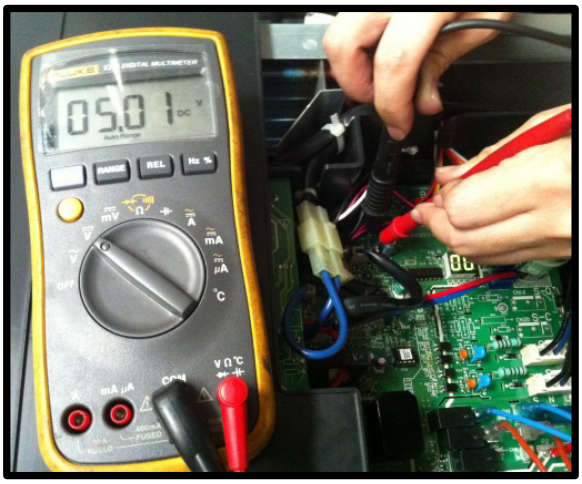
Error Code:	E1
Description:	Communication malfunction between indoor unit and outdoor unit.
General Note:	PCB main chip does not receive feedback from IPM module during 60 seconds.

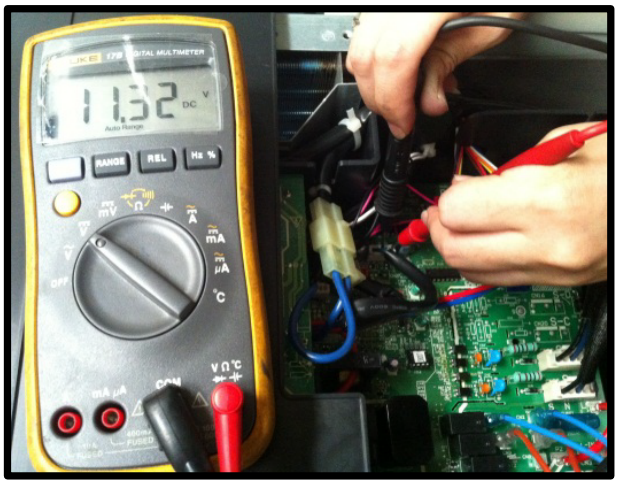


Error Code:	E1 (continued)

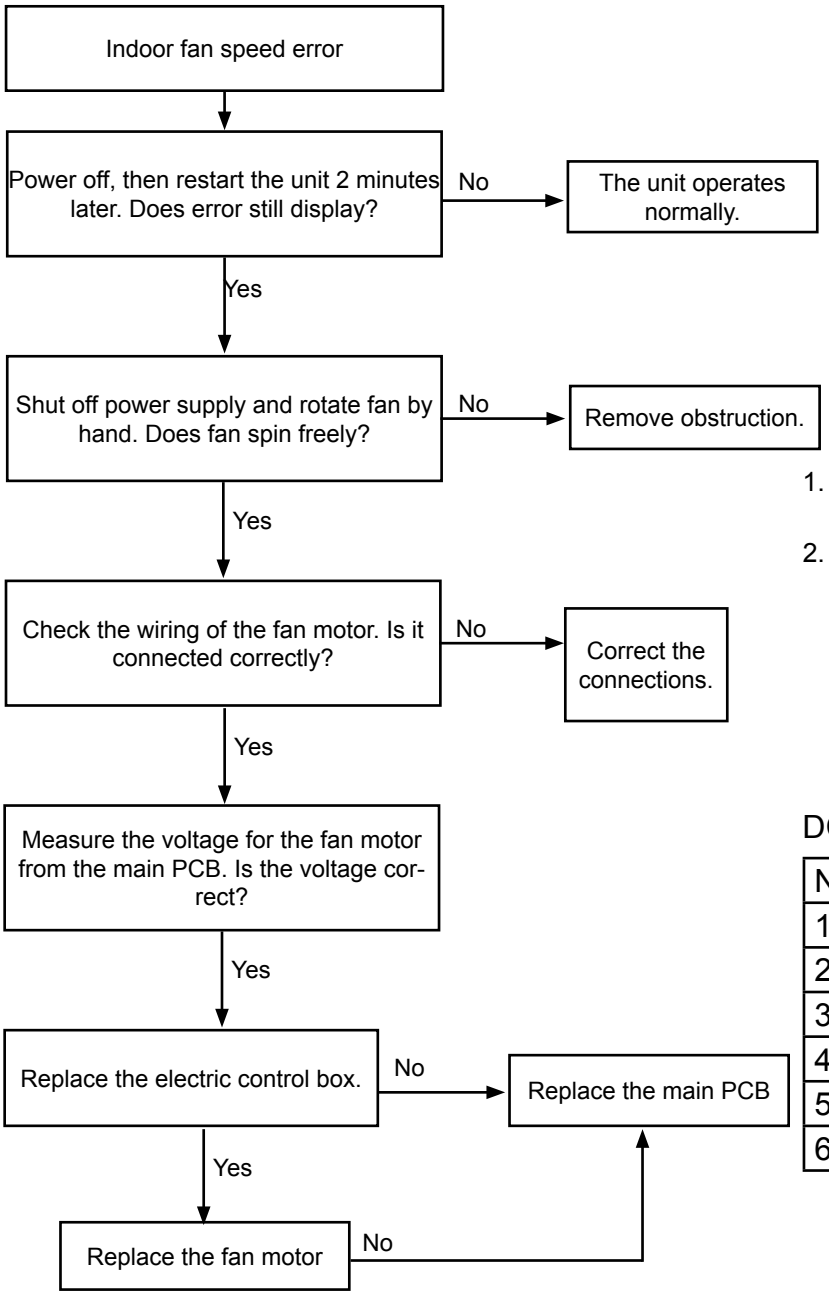


NOTE - Use a multimeter to test the DC voltage between black pin and white pin of signal wire. The normal value should be around 5V.
Use a multimeter to test the DC voltage between black pin and red pin of signal wire. The normal value should be around 12V.





Error Code:	E3
Description:	Indoor fan speed error.
General Note:	When indoor fan speed runs too low (300RPM) for a certain time, the unit will stop and the LED will display the error.

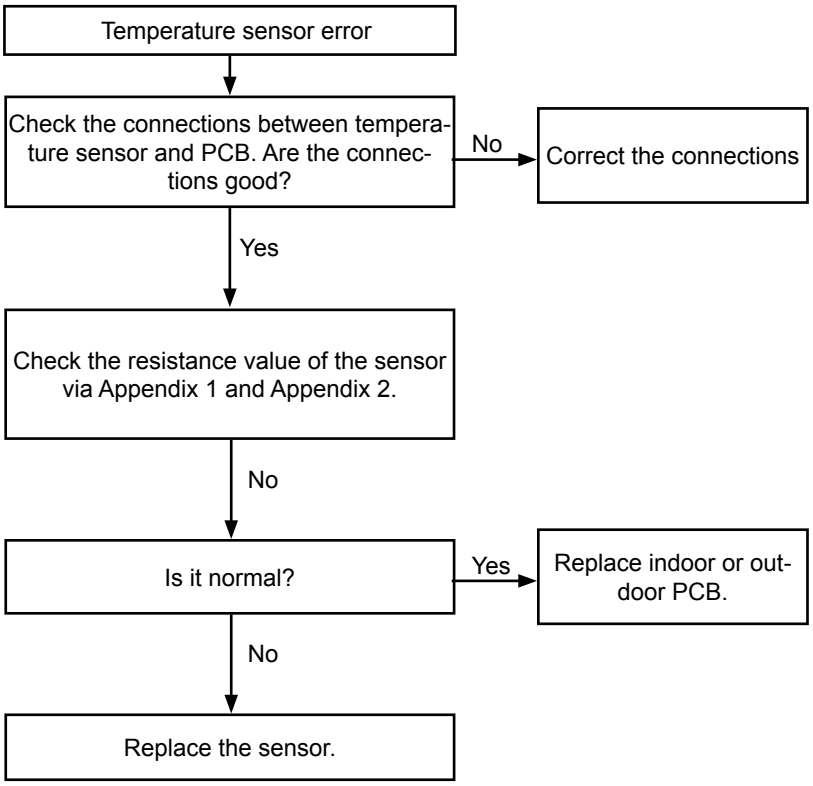


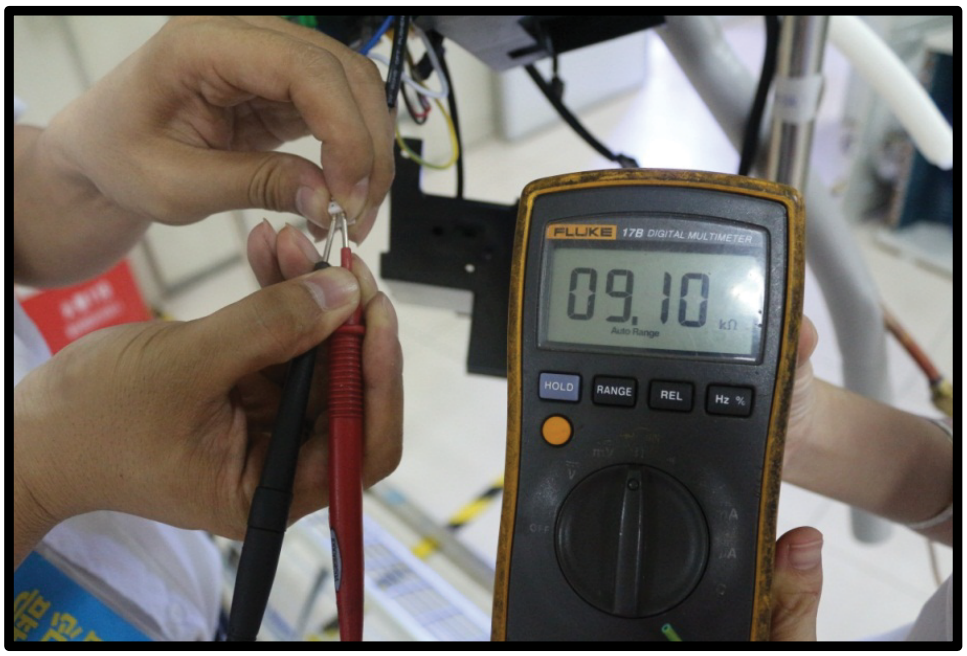
1. Indoor DC fan motor (Control Chip is in Fan Motor)
2. Turn power on and while the unit is on standby, measure the voltage between pin1 and pin3 as well as between pin4 and pin3 in fan motor connector. If the value of the voltage is not within the range shown in the following table, the PCB may be experiencing problems and need to be replaced.

DC Motor Voltage Input and Output

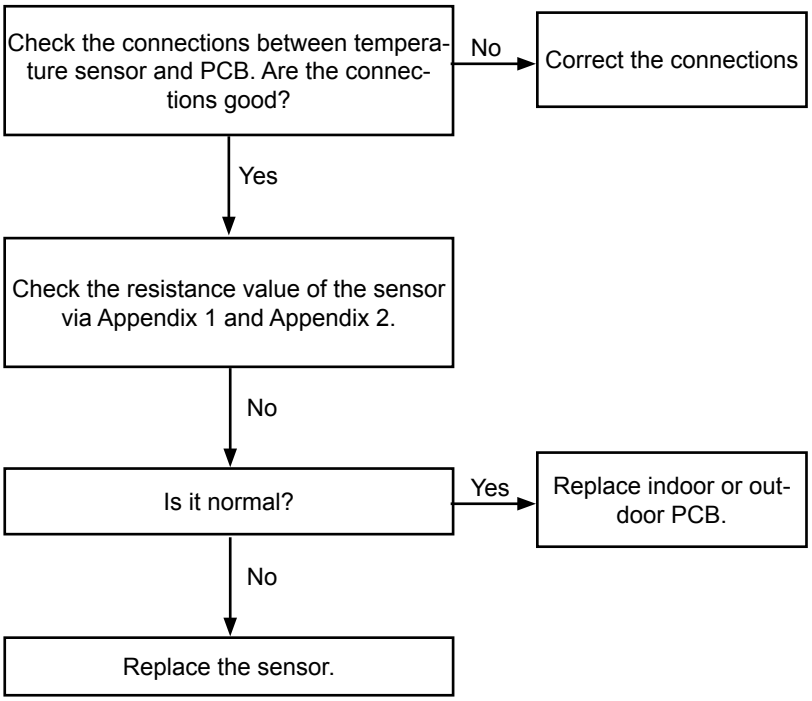
NO.	Color	Signal	Voltage
1	Red	Vs/Vm	200~380V
2	---	---	---
3	Black	GND	0V
4	White	Vcc	13.5~16.5V
5	Yellow	Vsp	0~6.5V
6	Blue	FG	13.5~16.5V

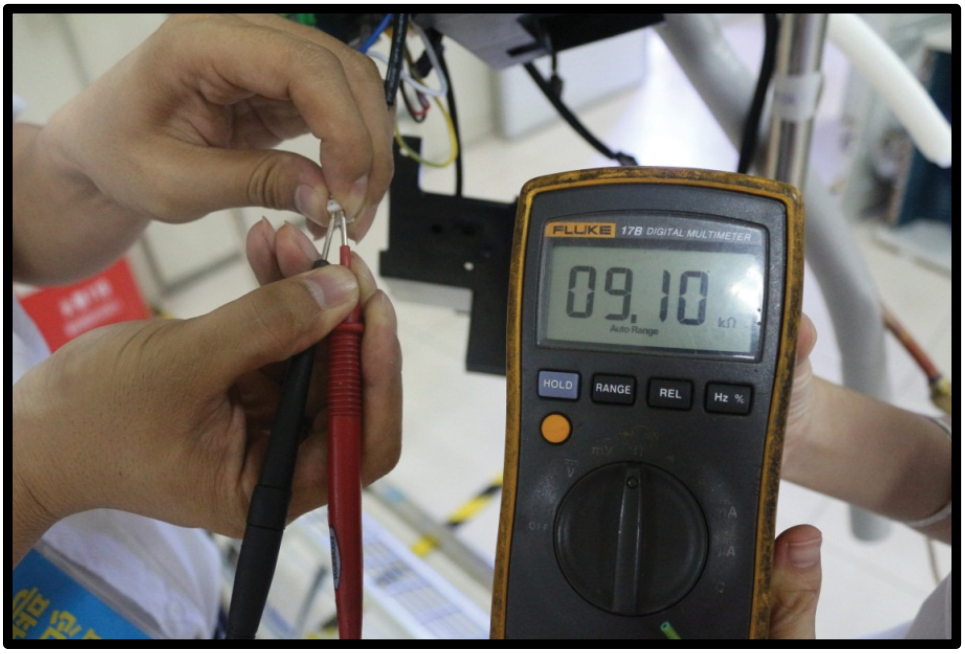
Error Code:	E4
Description:	Indoor return air temperature sensor error.
General Note:	If the voltage is lower than 0.06V or higher than 4.94V, the LED will display the error.



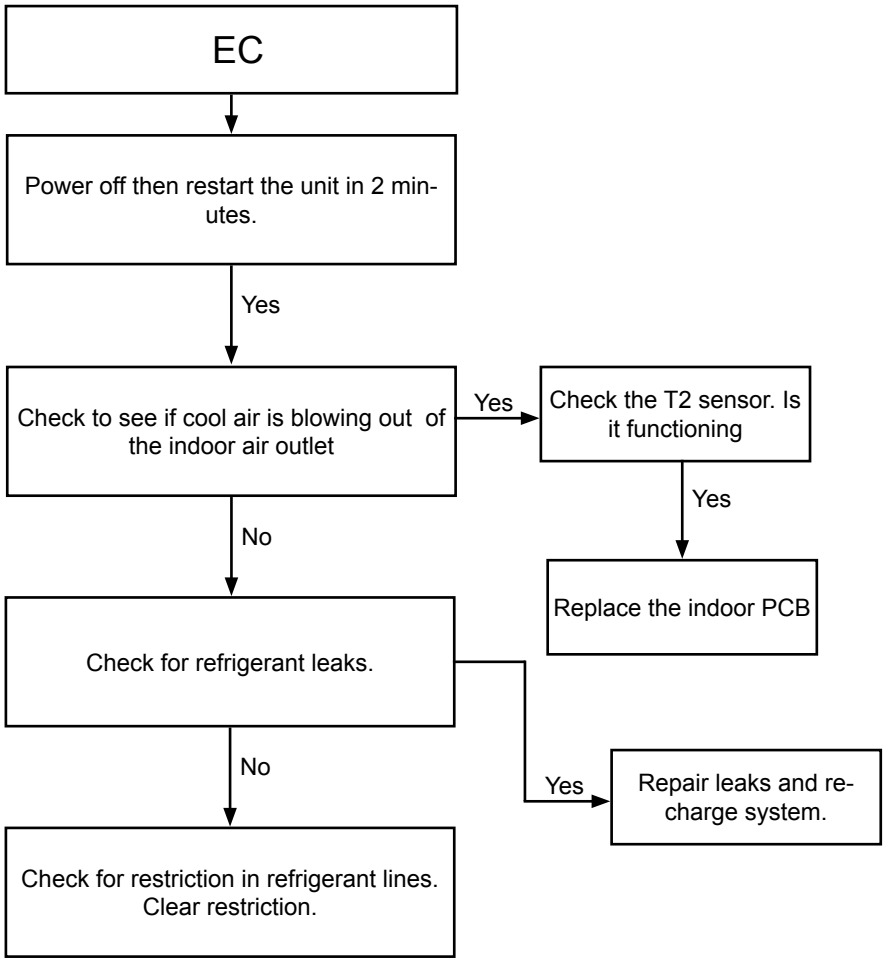


Error Code:	E5
Description:	Indoor Coil Temperature Sensor Error
General Note:	If the voltage is lower than 0.06V or higher than 4.94V, the LED will display the error.

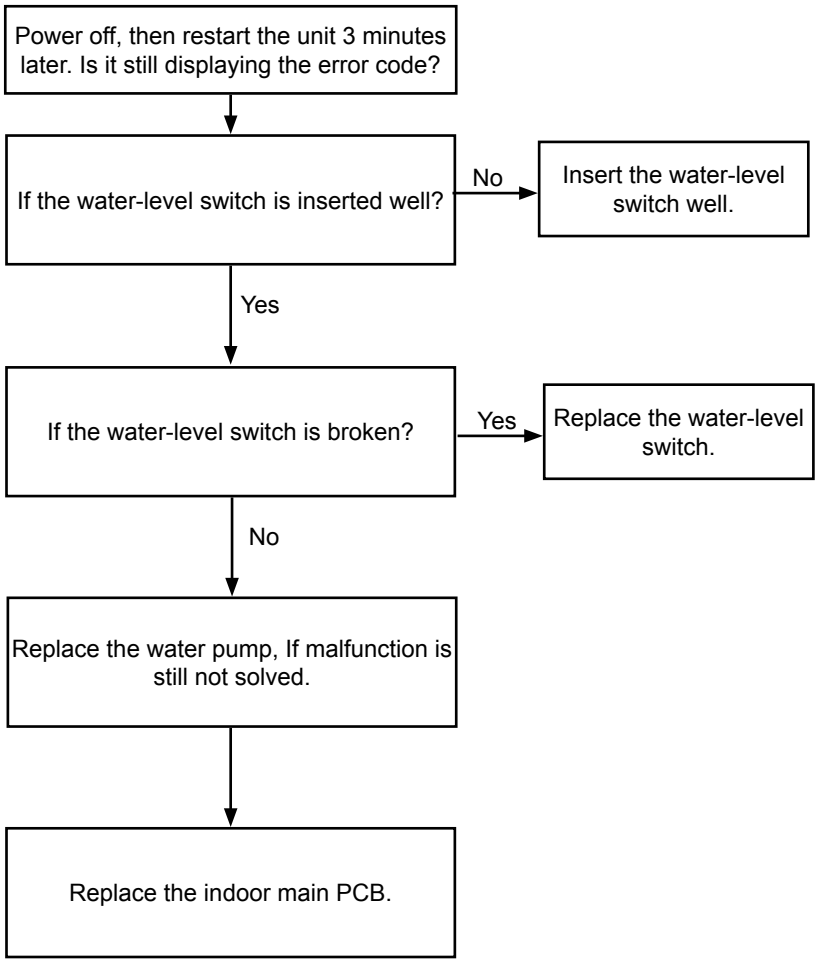




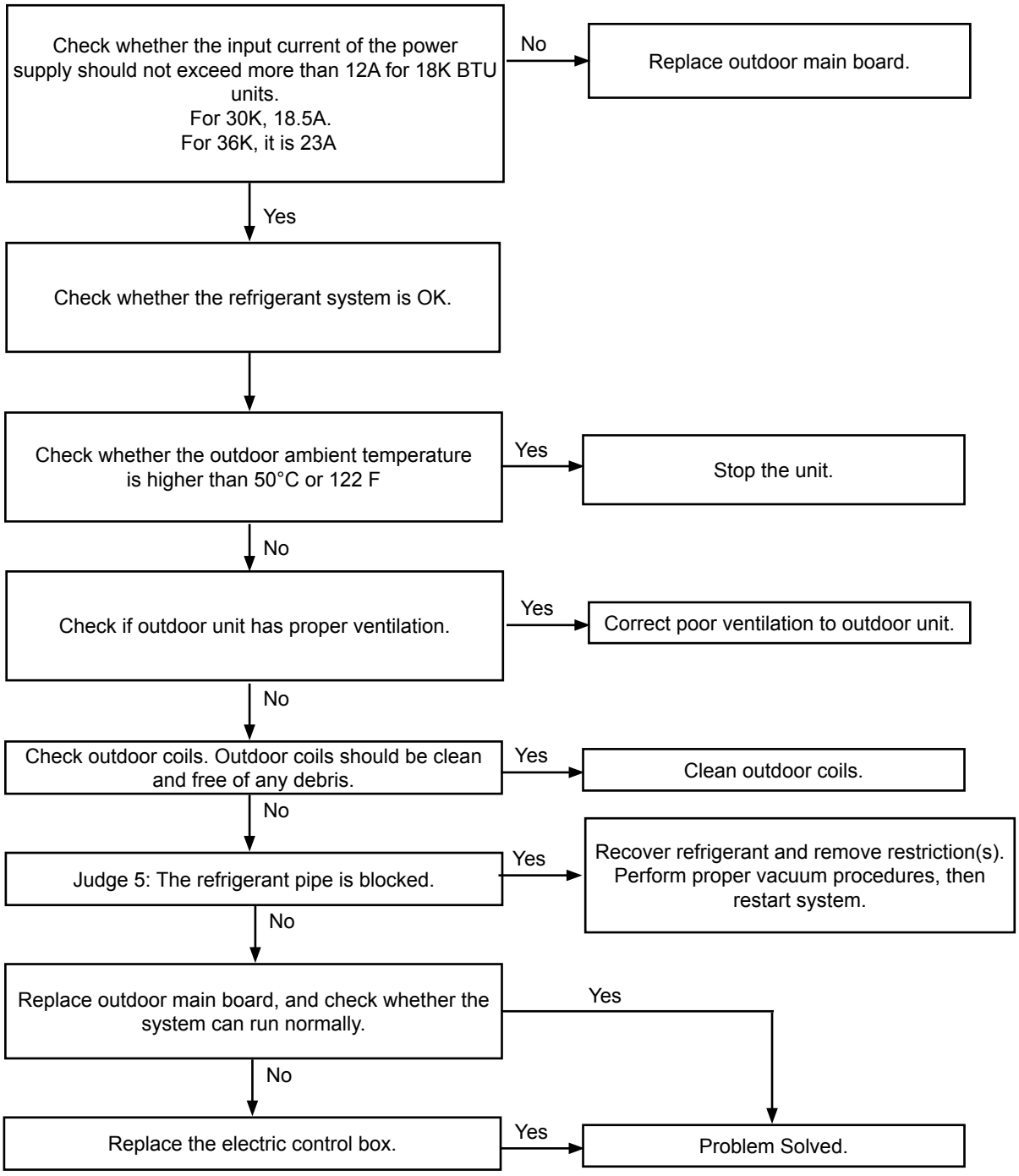
Error Code:	EC
Description:	Low Refrigerant Error
General Note:	The system monitors the value of evaporator coil sensor T2 for the first 5 minutes after startup. If the temperature of T2 drops per this formula three times in the first 5 minutes of operation, the system shuts down and the error code displays. For this formula “Tcool” = the T2 temperature at startup. T2 < Tcool - 3.6°F (2°C)



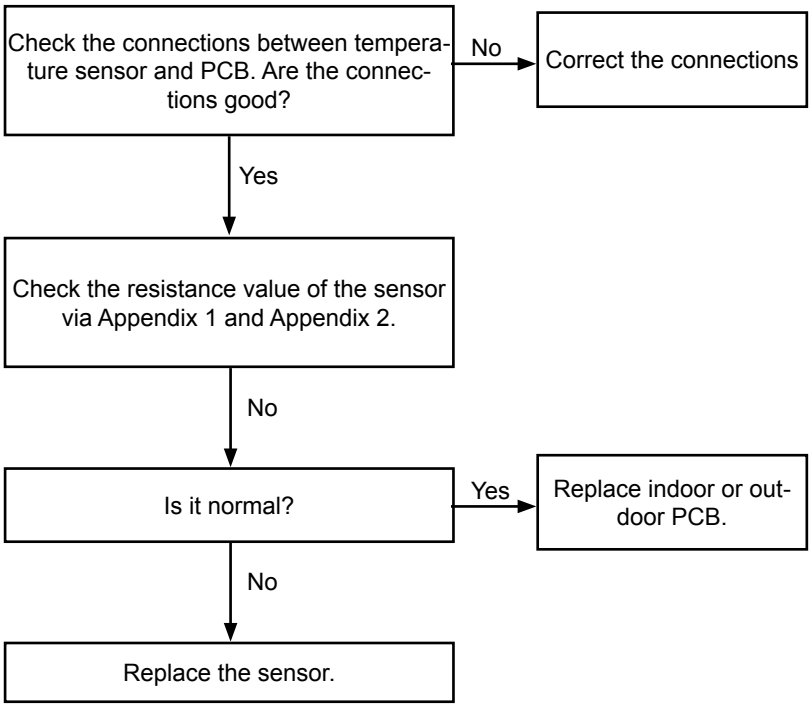
Error Code:	EE
Description:	Water-level alarm malfunction. (For D22C, D33C and DMD units)
General Note:	If the sampling voltage is not 5V, the LED will display the failure.

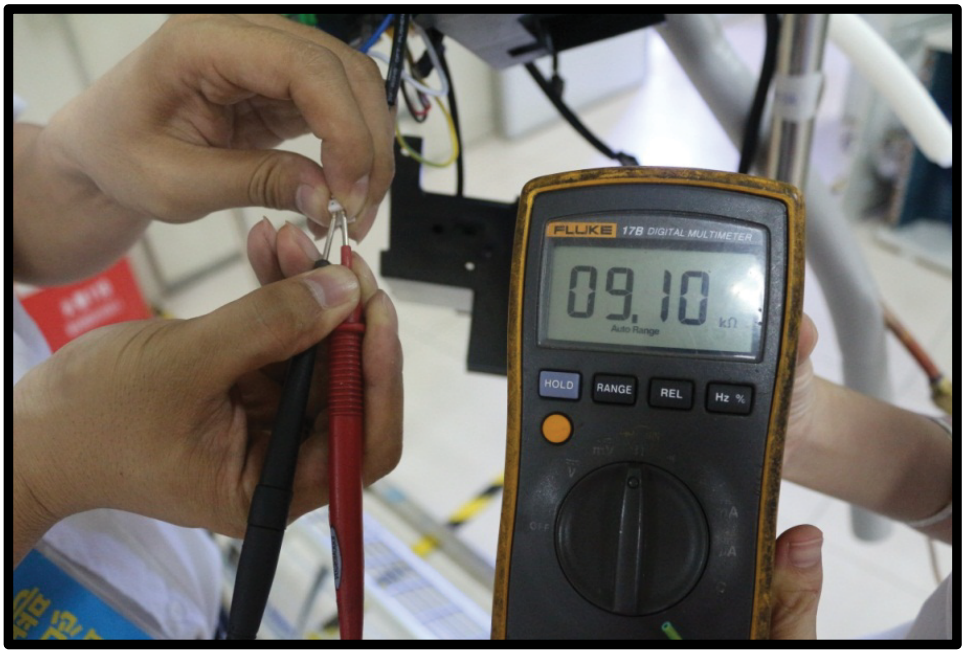


Error Code:	F0
Description:	Outdoor compressor current overload sensed
General Note:	If the outdoor current exceeds the current limit value, the LED will display the failure.

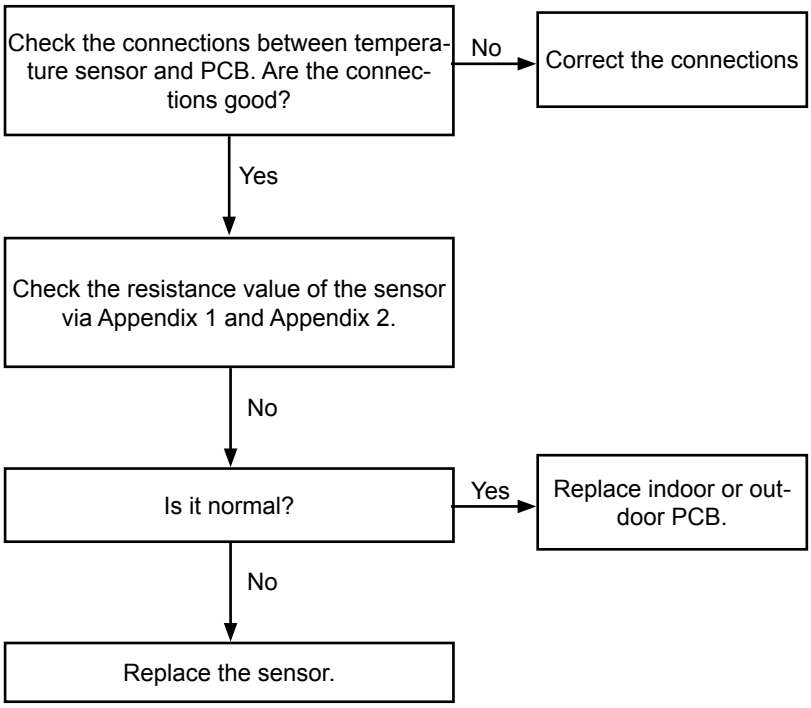


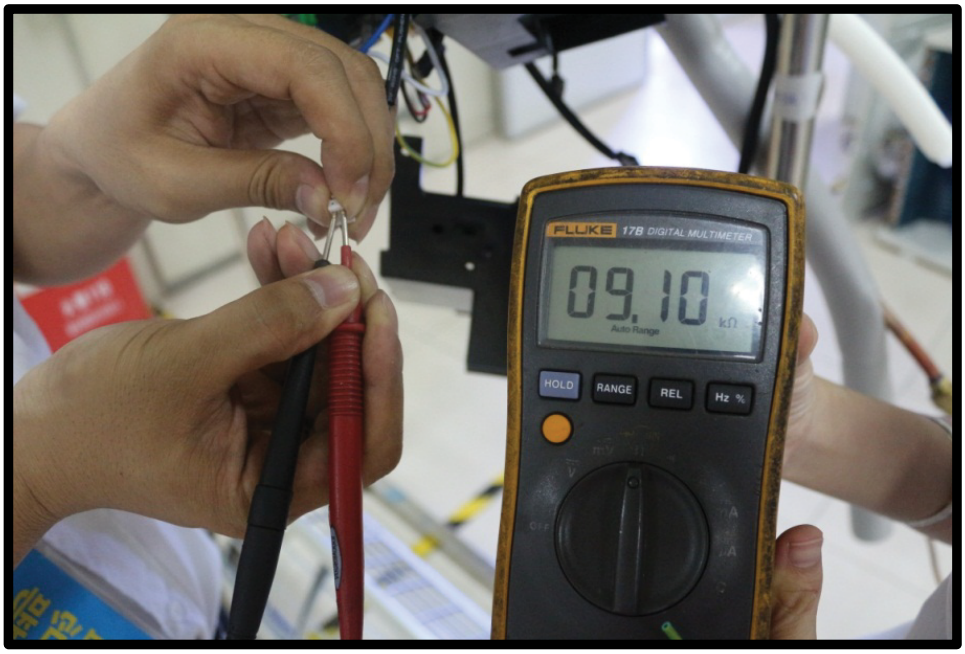
Error Code:	F1
Description:	Outdoor Temperature Sensor T4 Error.
General Note:	If the voltage is lower than 0.06V or higher than 4.94V, the LED will display the error.



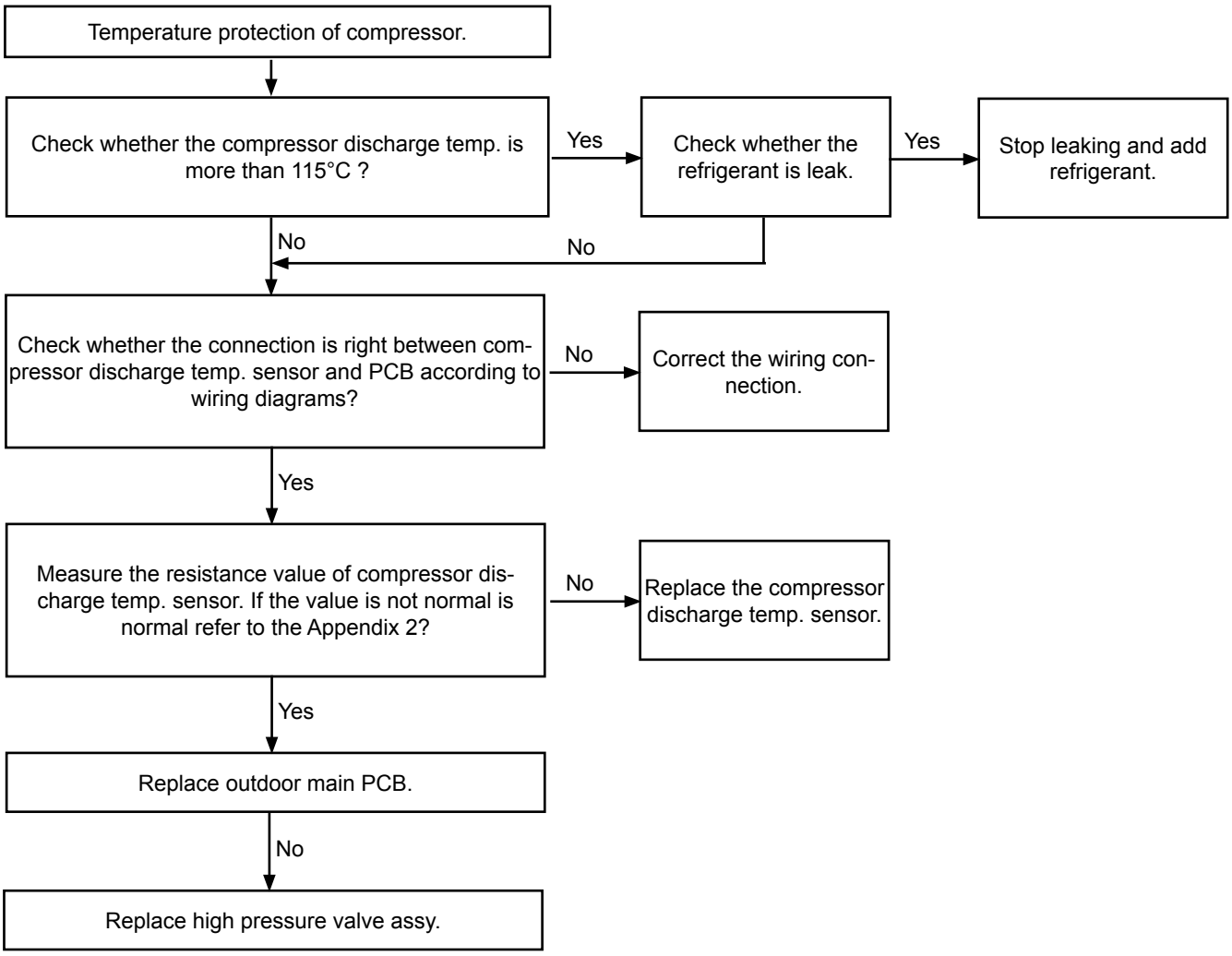


Error Code:	F2
Description:	Faulty Outdoor Coil Temperature Sensor T3/T5.
General Note:	If the voltage is lower than 0.06V or higher than 4.94V, the LED will display the error.

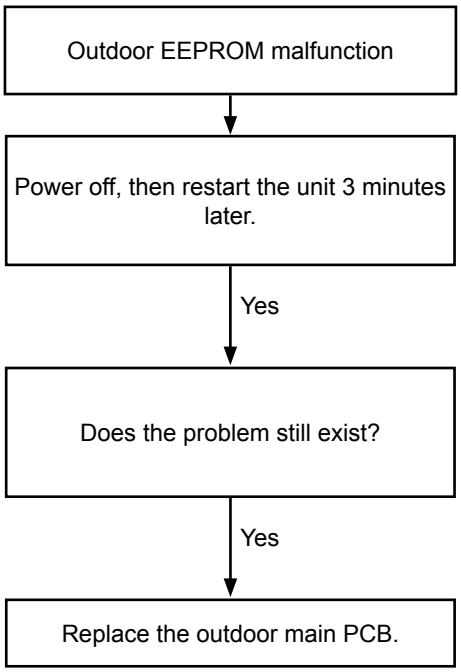


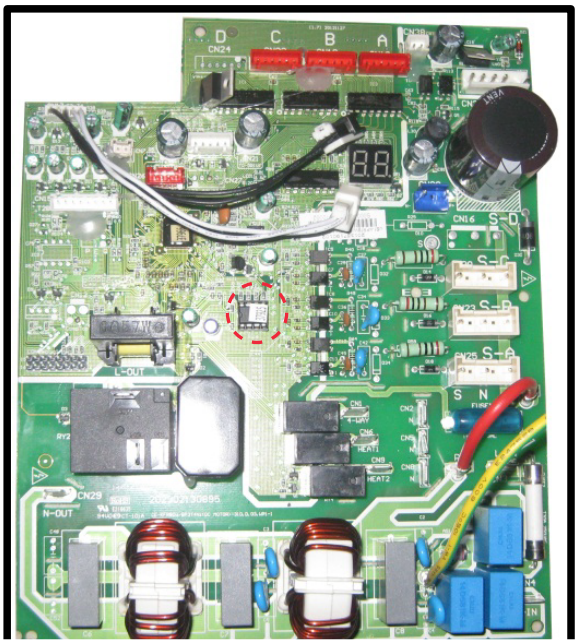


Error Code:	F3
Description:	Compressor discharge temperature sensor error
General Note:	When the compressor discharge temperature(T5) is more than 115°C for 10 seconds, the compressor will stop and restart till T5 is less than 90°C.

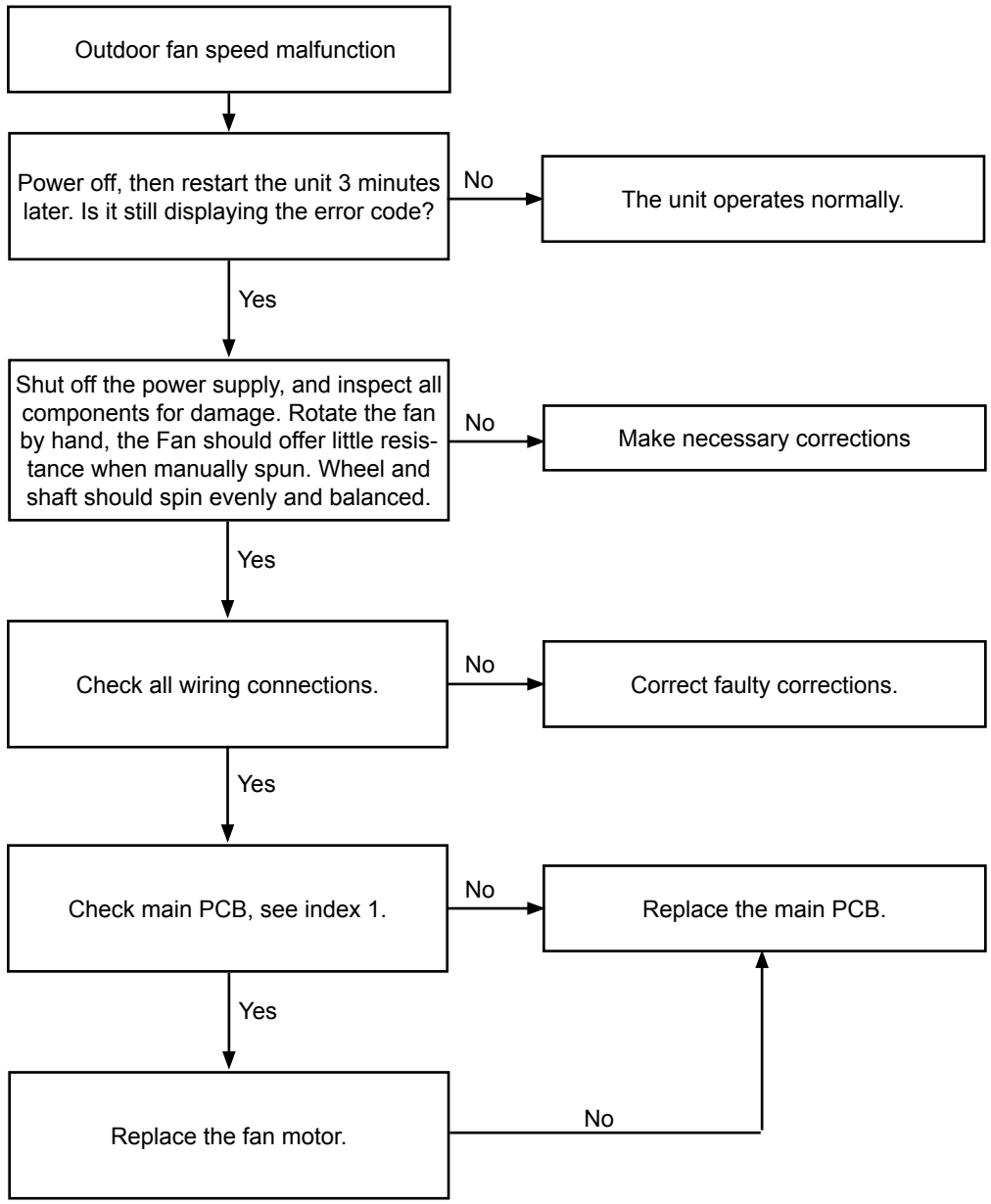


Error Code:	F4
Description:	Outdoor EEPROM error.
General Note:	PCB main chip does not receive feedback from EEPROM chip. EEPROM: a read-only memory whose contents can be erased and reprogrammed using a pulsed voltage. For the location of EEPROM chip, please refer to the below photos.

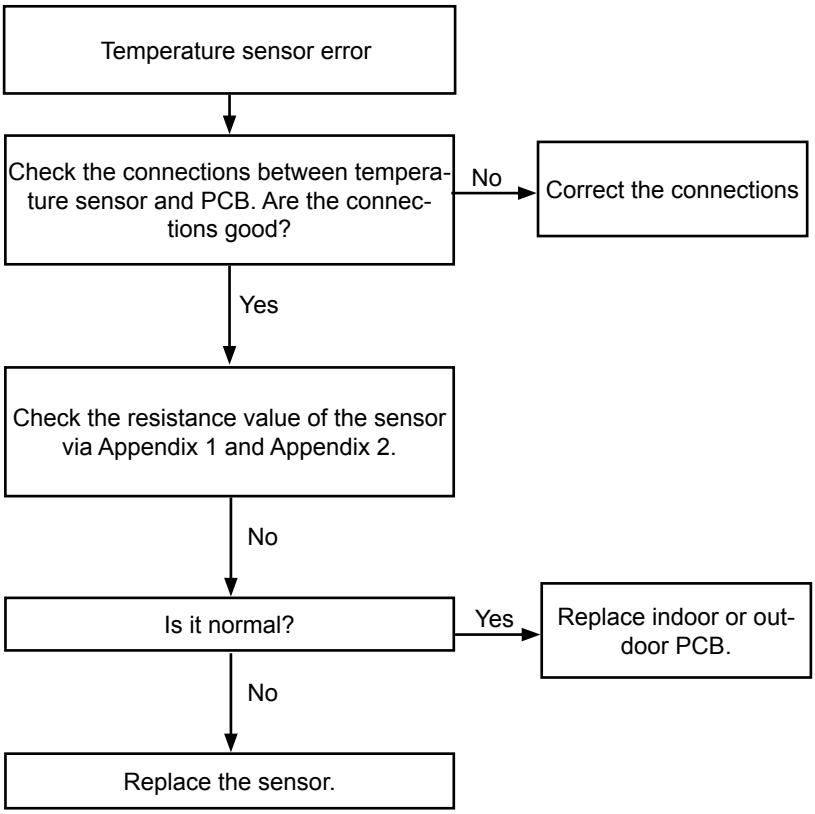


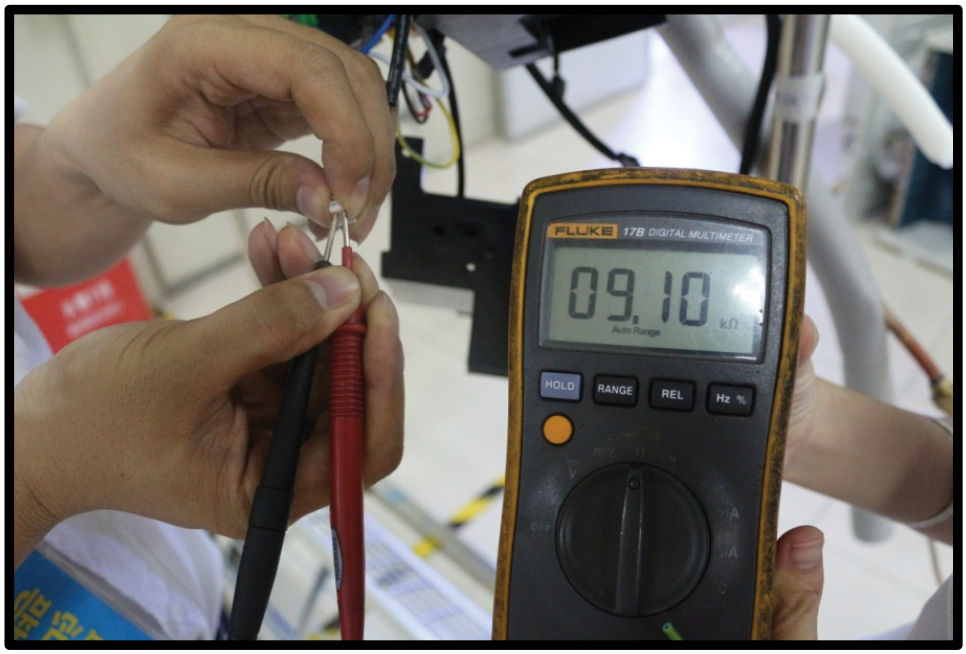


Error Code:	F5
Description:	Outdoor unit fan speed error
General Note:	When outdoor fan speed keeps too low (300RPM) or too high(2400RPM) for certain time, the unit will stop and the LED will display the failure.

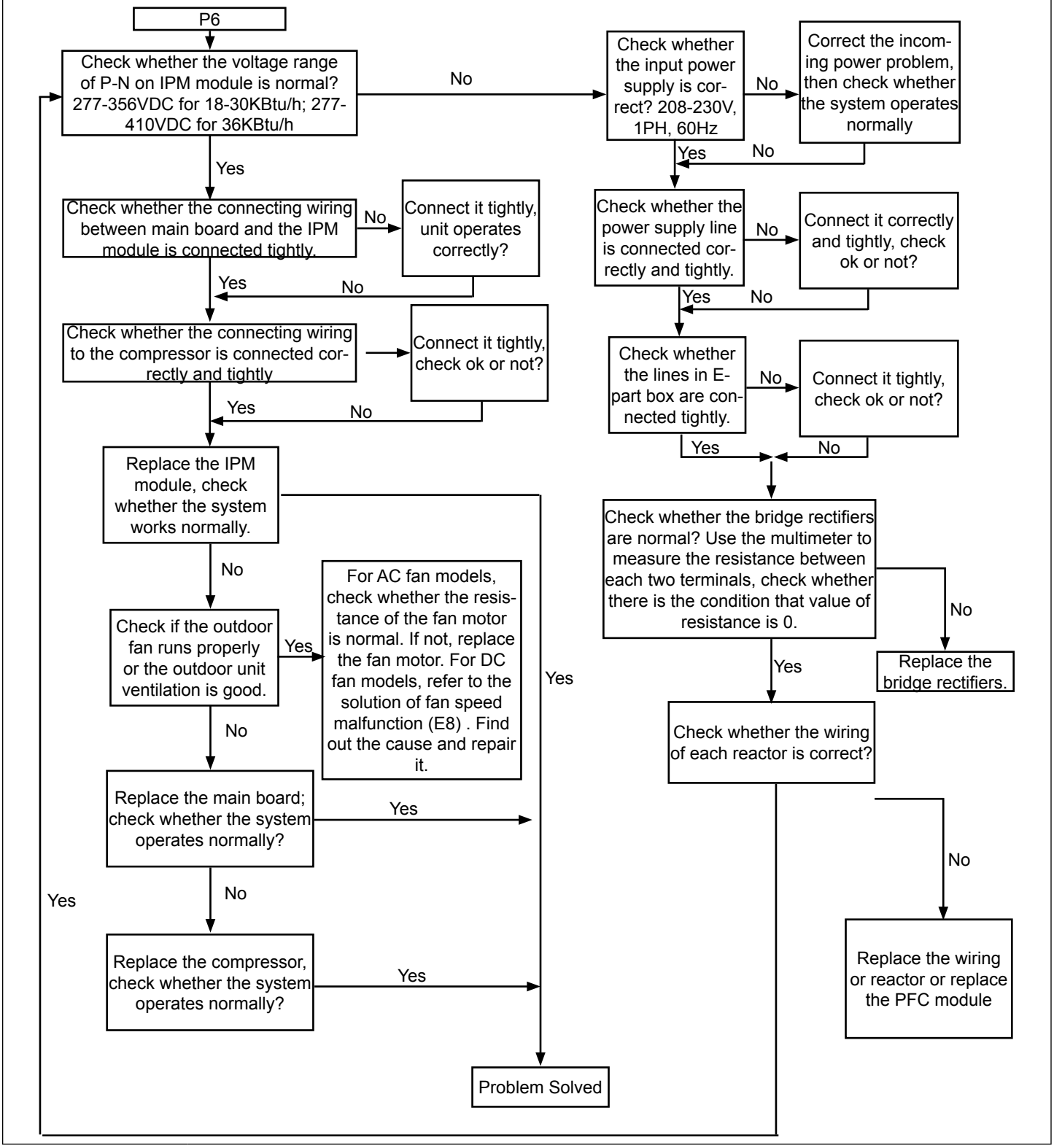


Error Code:	F6
Description:	Indoor Unit Evaporator Outlet Coil Temperature Sensor Faulty
General Note:	If the voltage is lower than 0.06V or higher than 4.94V, the LED will display the error.

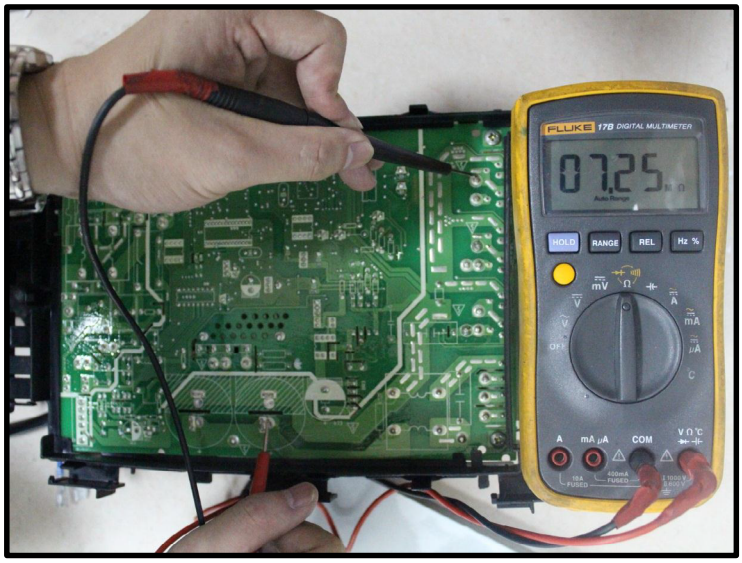




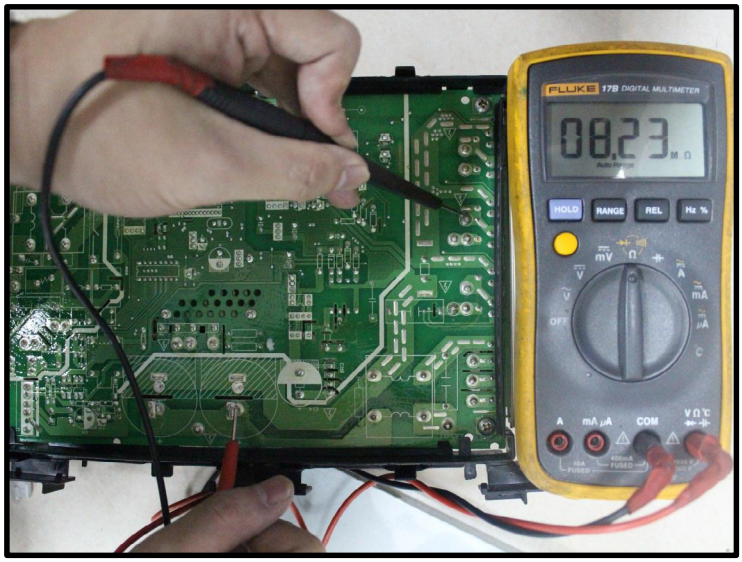
Error Code:	P0
Description:	IPM module or IGBT over current protection.
General Note:	When the voltage signal that IPM sends to the compressor drive chip is abnormal, the display LED will show “P6” and unit will turn off.



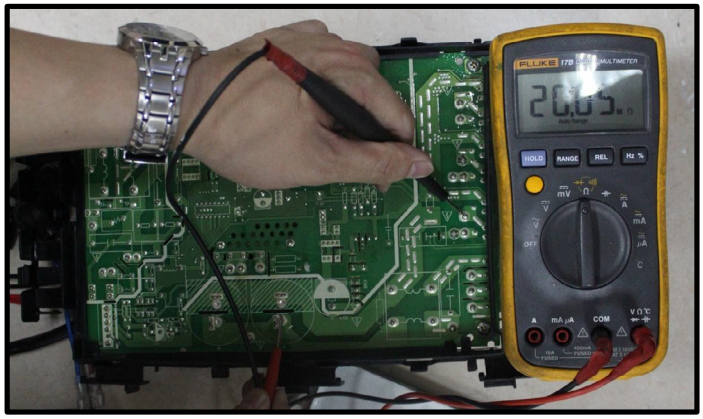
Error Code:	P0 (continued)



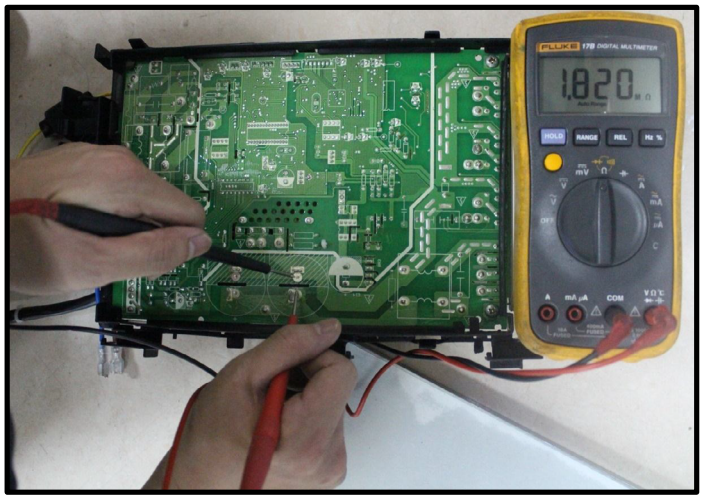
P-U



P-V

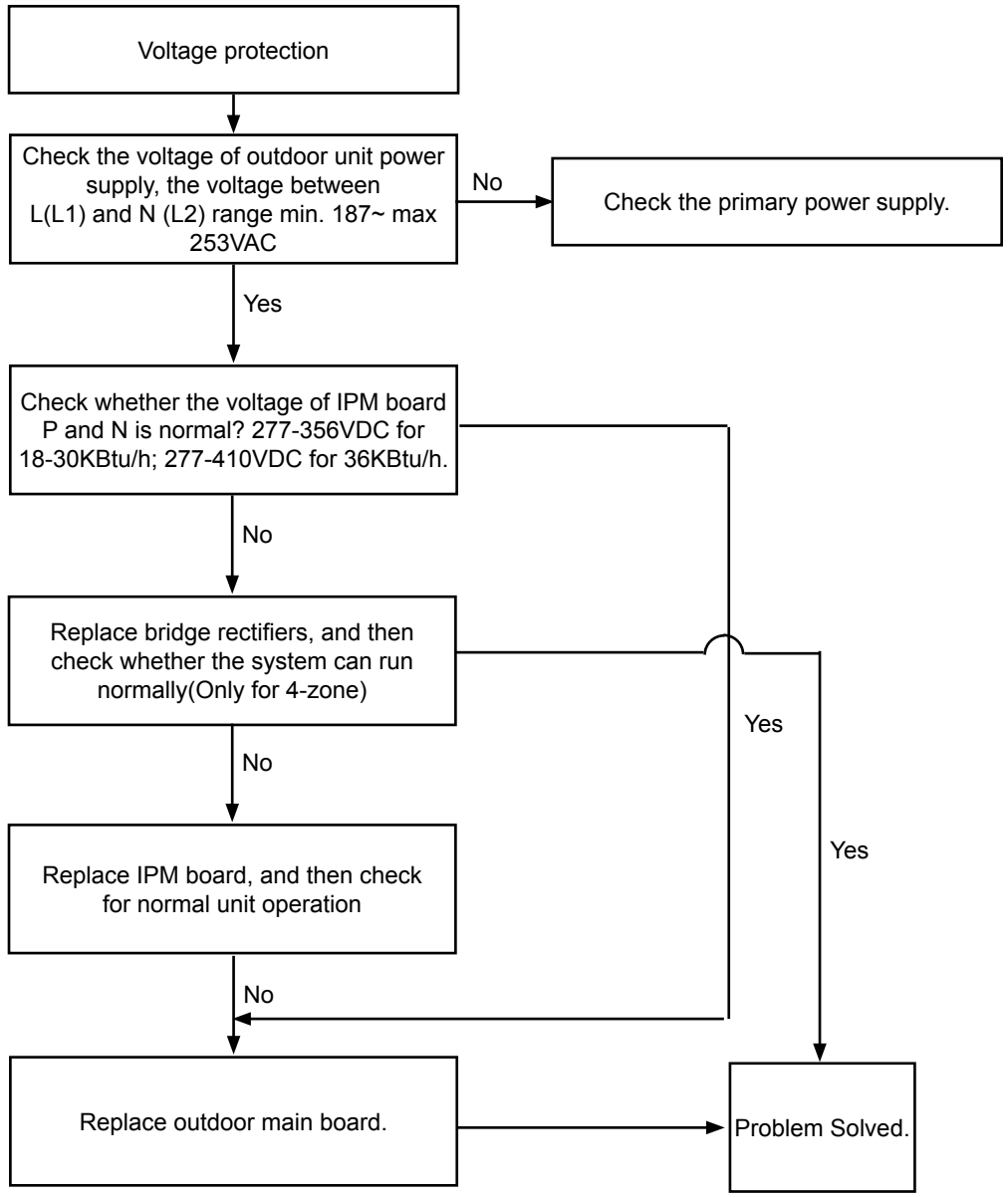

FLUKE 179 DIGITAL MULTIMETER
20.05
HOLD
RANGE
REL
Hz %
COM

P-W

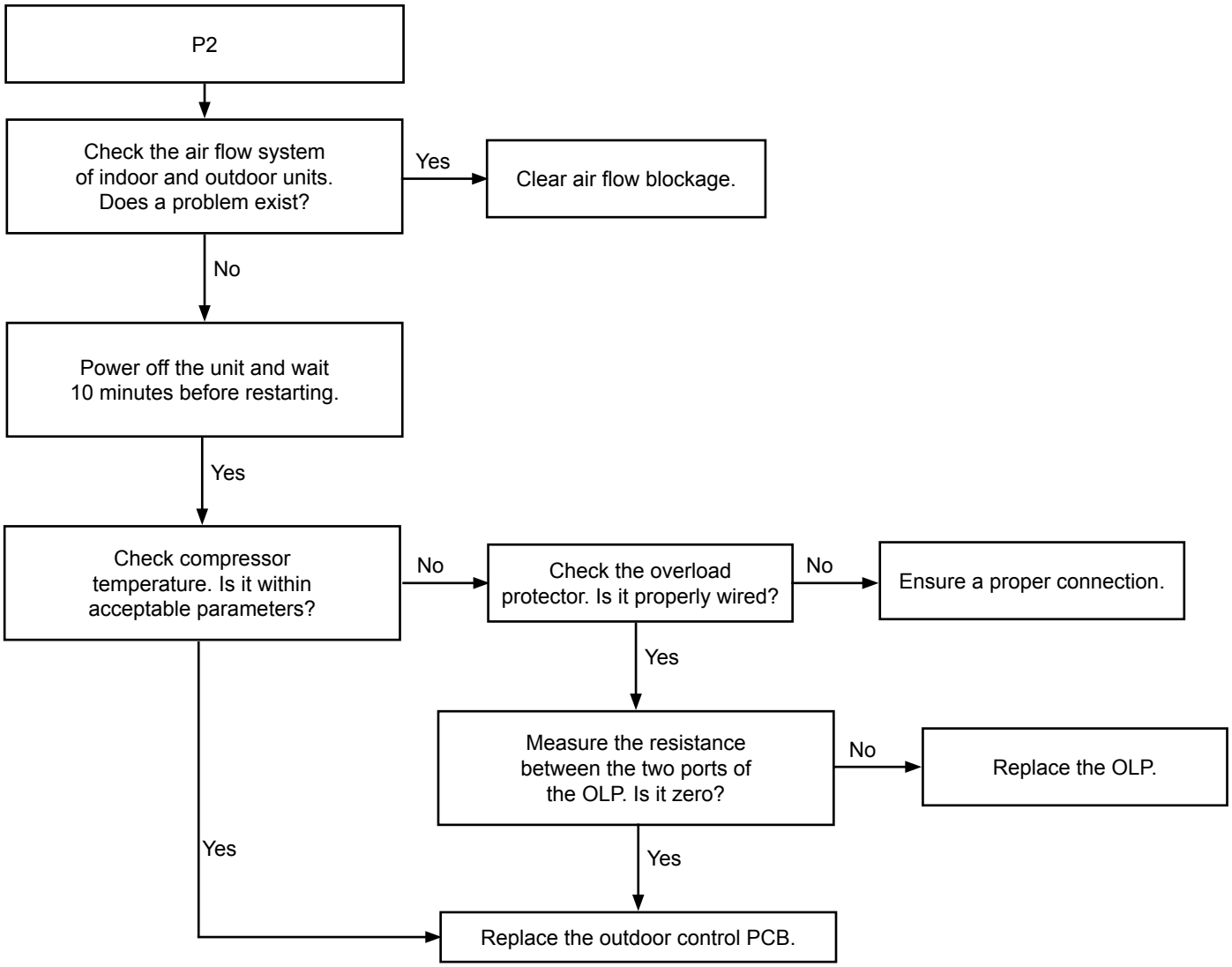

FLUKE 179 DIGITAL MULTIMETER
1.820
HOLD
RANGE
REL
Hz %
COM

P-N

Error Code:	P1
Description:	High or Low voltage protection
General Note:	An abnormal voltage rise or drop is detected by checking the specified voltage detection circuit.

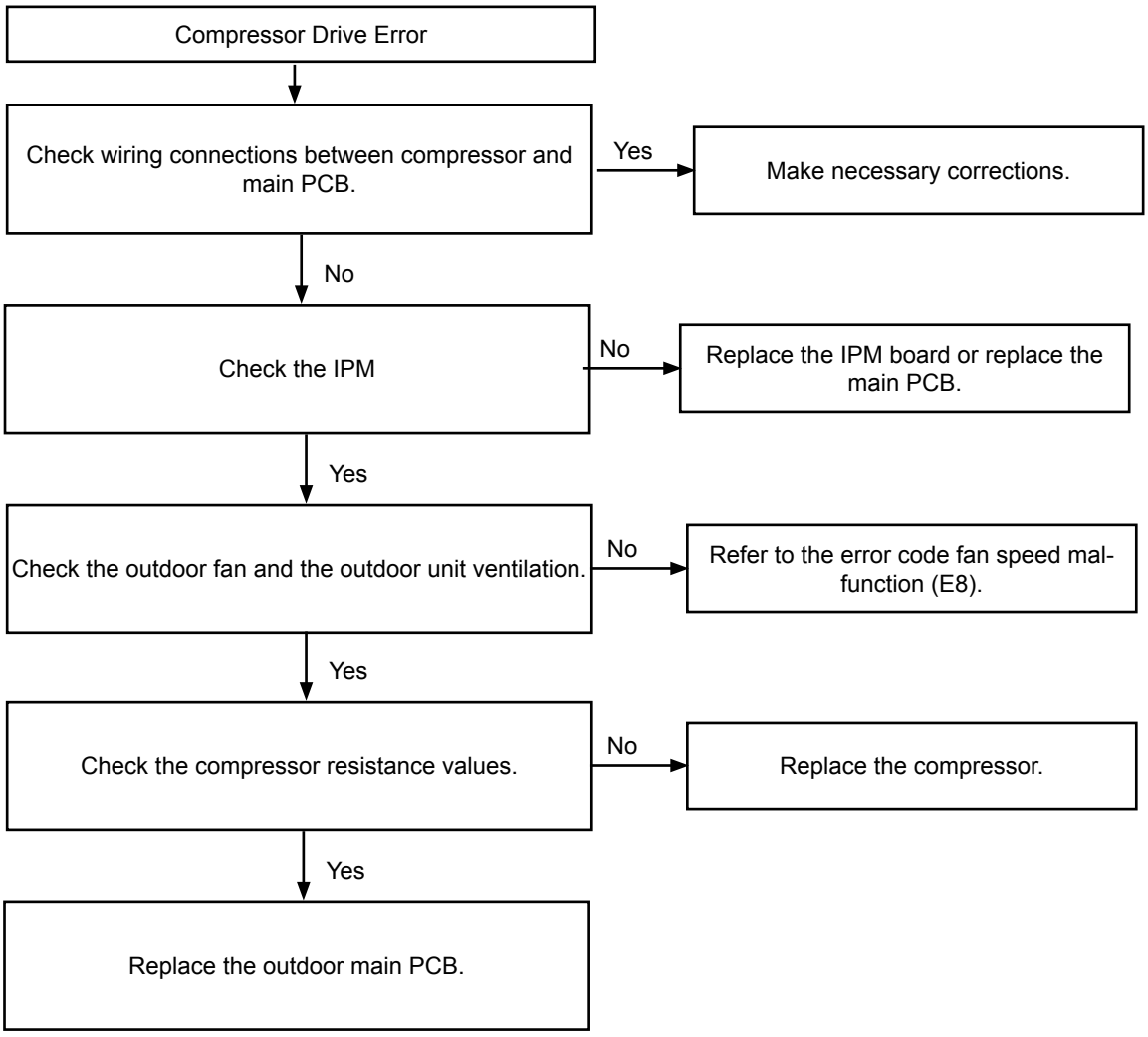


Error Code:	P2
Description:	Compressor top high temperature protection (OLP)
General Note:	If the sampling voltage is not 5V, the LED will display the P2 error code.



Error Code:	P3
Description:	Outdoor unit low temperature lockout.
General Note:	The outdoor unit will lockout if when in heating mode, when the outdoor temperature is lower than -13°F (-25°C) for 1 hour, the indoor unit display error code. The outdoor unit will resume operation when either: The OUTDOOR temperature is higher than -7.6°F (-22°C) for 10 minutes and compressor has been stopped for 1 hour or Outdoor temperature is higher than 23°F (-5°C) for 10 minutes

Error Code:	P4
Description:	Compressor drive error
General Note:	An abnormal inverter compressor drive is detected by a special detection circuit, including communication signal detection, voltage detection, compressor rotation speed signal detection and etc



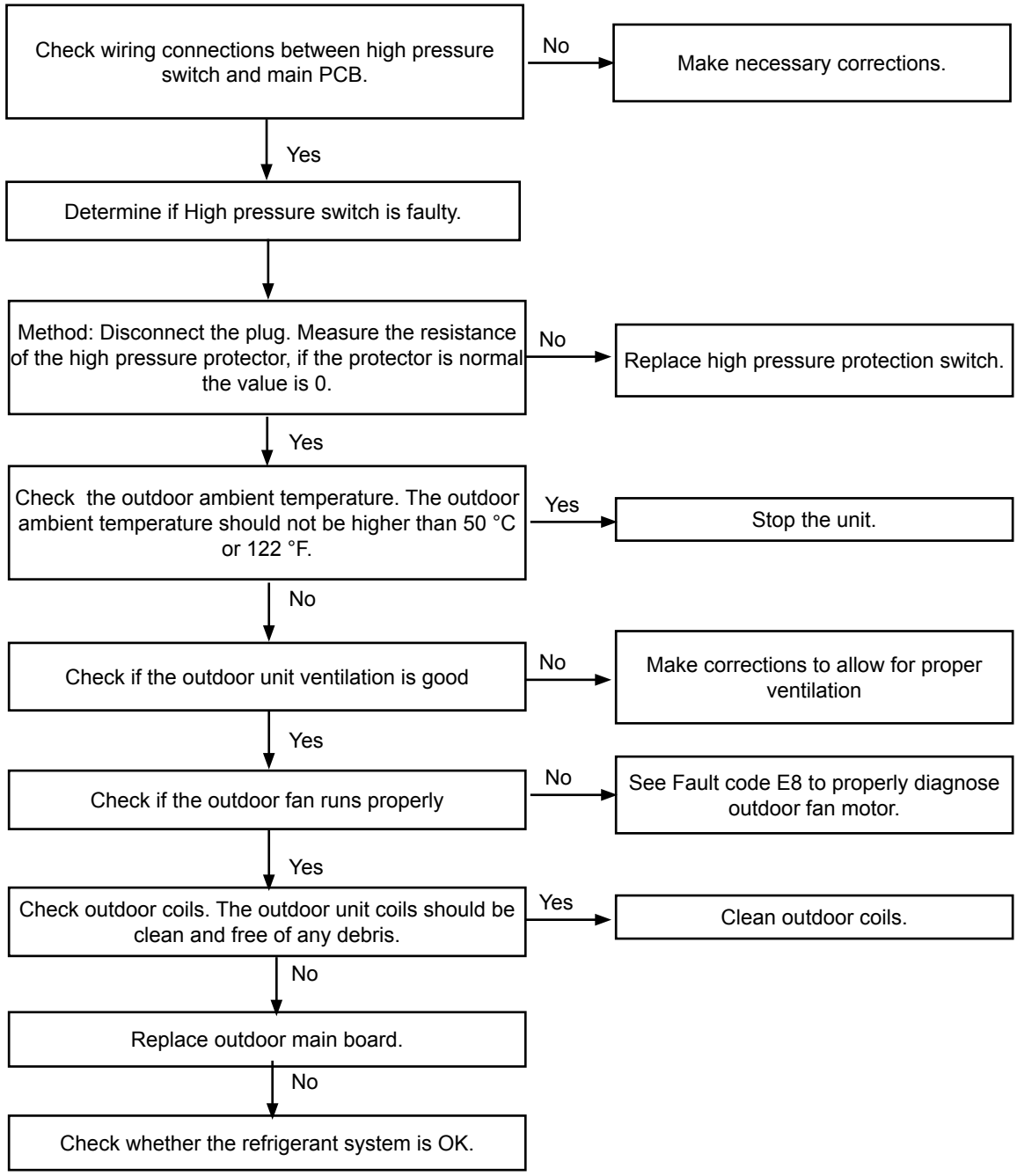
Error Code:	P5
Description:	Mode conflict.
General Note:	The indoor units cannot work cooling mode and heating mode at the same time. Heating mode has priority. • Suppose indoor unit A working in cooling mode or fan mode, and indoor unit B is set to heating mode, then A will change to off and B will work in heating mode. • Suppose indoor unit A working in heating mode, and indoor unit B is set to cooling mode or fan mode, then B will change to stand by and A will be no change.

	Cooling mode	**Heating mode**	**Fan**	**Off**
Cooling Mode	No	Yes	No	No
Heating Mode	Yes	No	Yes	No
Fan	No	Yes	No	No
Off	No	No	No	No

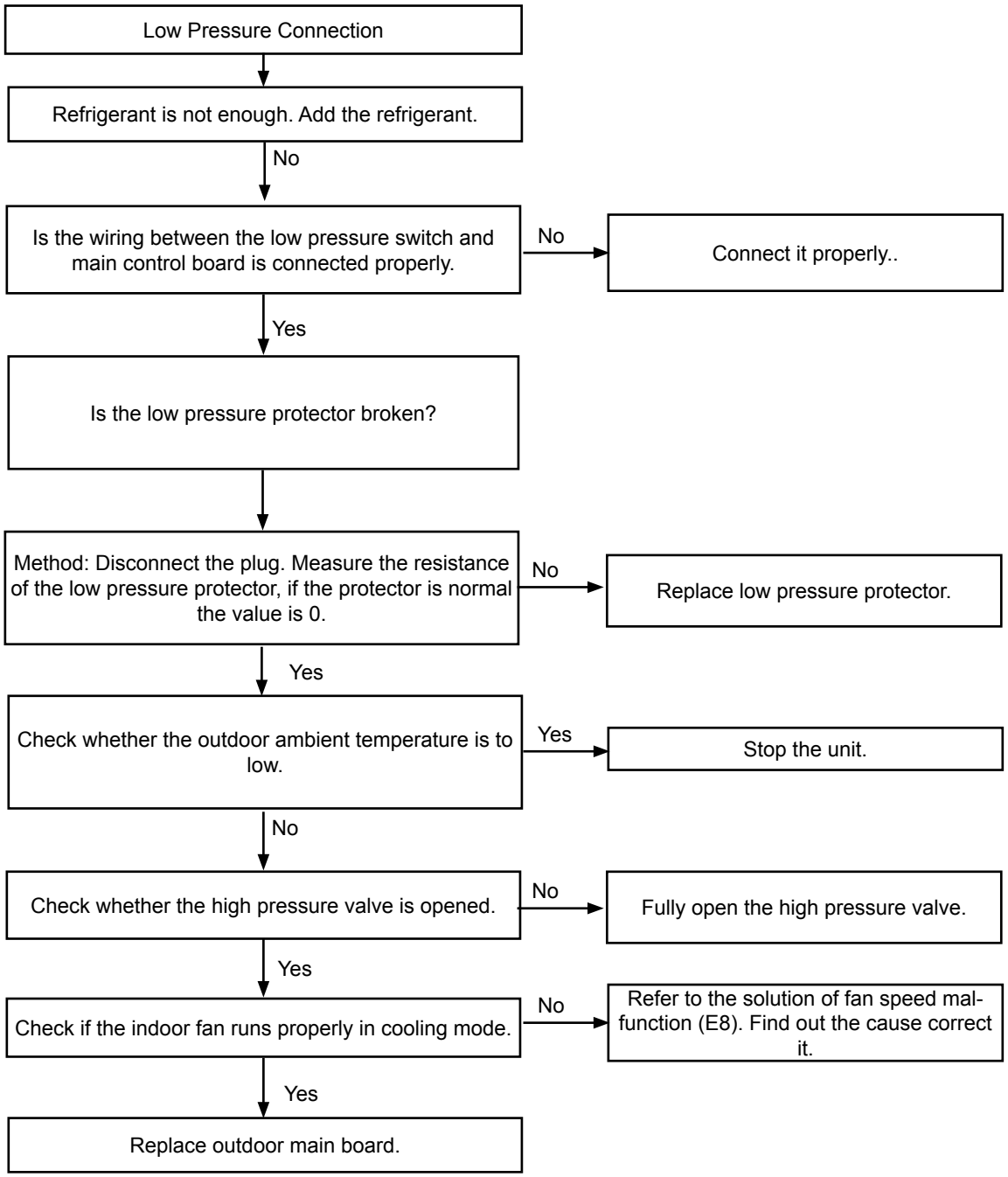
No = No mode conflict.

Yes = Mode conflict

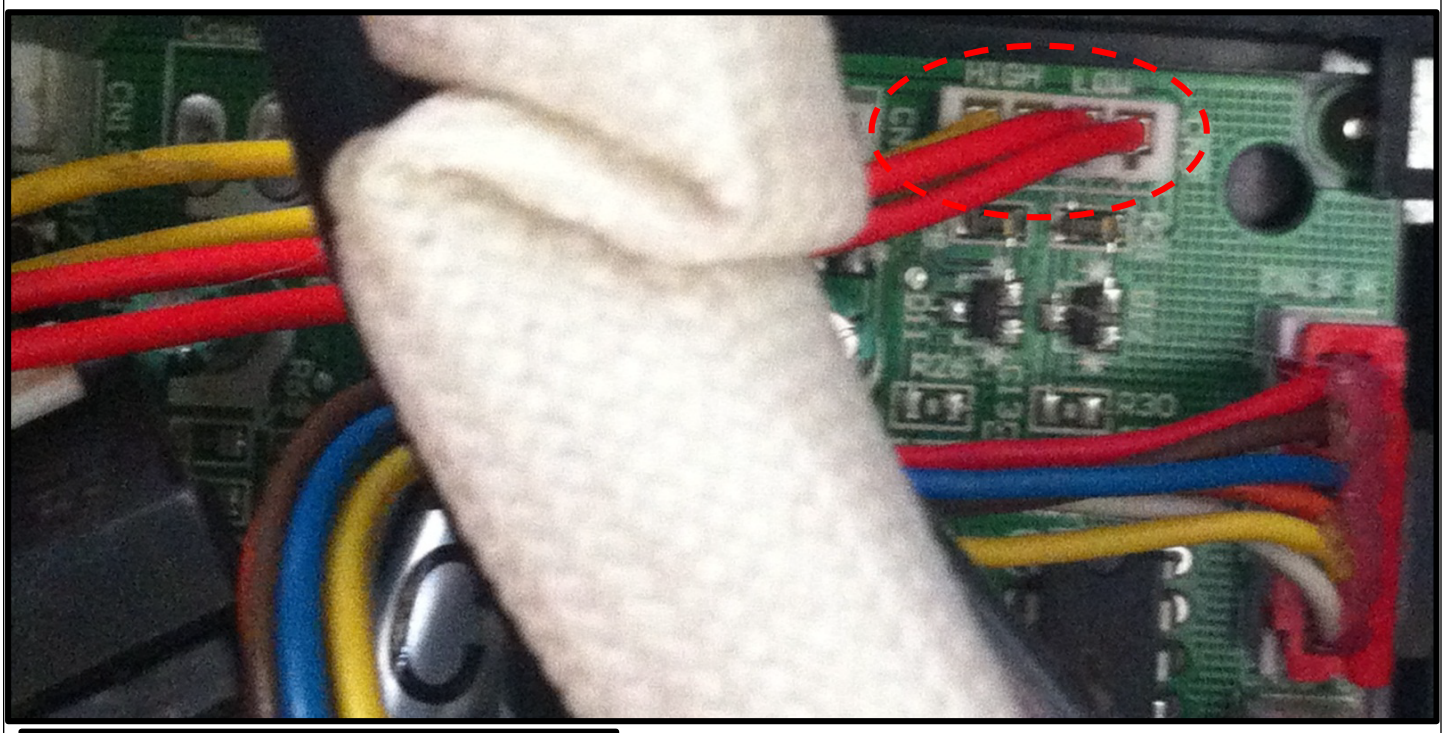
Error Code:	P6
Description:	Compressor high-pressure or low-pressure switch open
General Note:	If the sampling voltage of pressure switch is not 5V, the LED will display the failure. Test each pressure switch separately following these flow charts.

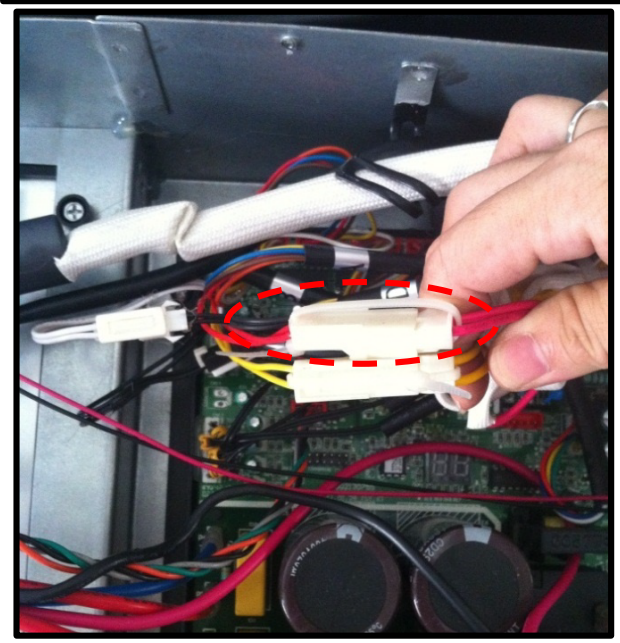


Error Code:	P6 (continued)



Error Code:	P6 (continued)





25. Temperature Sensor Resistance Values

Table 12. Temperature Sensor Resistance Value Table (°F/°C--K)

°F	°C	K Ohm	°F	°C	K Ohm	°F	°C	K Ohm	°F	°C	K Ohm
-4	-20	115.266	68	20	12.6431	140	60	2.35774	212	100	0.62973
-2.2	-19	108.146	69.8	21	12.0561	141.8	61	2.27249	213.8	101	0.61148
-0.4	-18	101.517	71.6	22	11.5	143.6	62	2.19073	215.6	102	0.59386
1.4	-17	96.3423	73.4	23	10.9731	145.4	63	2.11241	217.4	103	0.57683
3.2	-16	89.5865	75.2	24	10.4736	147.2	64	2.03732	219.2	104	0.56038
5	-15	84.219	77	25	10	149	65	1.96532	221	105	0.54448
6.8	-14	79.311	78.8	26	9.55074	150.8	66	1.89627	222.8	106	0.52912
8.6	-13	74.536	80.6	27	9.12445	152.6	67	1.83003	224.6	107	0.51426
10.4	-12	70.1698	82.4	28	8.71983	154.4	68	1.76647	226.4	108	0.49989
12.2	-11	66.0898	84.2	29	8.33566	156.2	69	1.70547	228.2	109	0.486
14	-10	62.2756	86	30	7.97078	158	70	1.64691	230	110	0.47256
15.8	-9	58.7079	87.8	31	7.62411	159.8	71	1.59068	231.8	111	0.45957
17.6	-8	56.3694	89.6	32	7.29464	161.6	72	1.53668	233.6	112	0.44699
19.4	-7	52.2438	91.4	33	6.98142	163.4	73	1.48481	235.4	113	0.43482
21.2	-6	49.3161	93.2	34	6.68355	165.2	74	1.43498	237.2	114	0.42304
23	-5	46.5725	95	35	6.40021	167	75	1.38703	239	115	0.41164
24.8	-4	44	96.8	36	6.13059	168.8	76	1.34105	240.8	116	0.4006
26.6	-3	41.5878	98.6	37	5.87359	170.6	77	1.29078	242.6	117	0.38991
28.4	-2	39.8239	100.4	38	5.62961	172.4	78	1.25423	244.4	118	0.37956
30.2	-1	37.1988	102.2	39	5.39689	174.2	79	1.2133	246.2	119	0.36954
32	0	35.2024	104	40	5.17519	176	80	1.17393	248	120	0.35982
33.8	1	33.3269	105.8	41	4.96392	177.8	81	1.13604	249.8	121	0.35042
35.6	2	31.5635	107.6	42	4.76253	179.6	82	1.09958	251.6	122	0.3413
37.4	3	29.9058	109.4	43	4.5705	181.4	83	1.06448	253.4	123	0.33246
39.2	4	28.3459	111.2	44	4.38736	183.2	84	1.03069	255.2	124	0.3239
41	5	26.8778	113	45	4.21263	185	85	0.99815	257	125	0.31559
42.8	6	25.4954	114.8	46	4.04589	186.8	86	0.96681	258.8	126	0.30754
44.6	7	24.1932	116.6	47	3.88673	188.6	87	0.93662	260.6	127	0.29974
46.4	8	22.5662	118.4	48	3.73476	190.4	88	0.90753	262.4	128	0.29216
48.2	9	21.8094	120.2	49	3.58962	192.2	89	0.8795	264.2	129	0.28482
50	10	20.7184	122	50	3.45097	194	90	0.85248	266	130	0.2777
51.8	11	19.6891	123.8	51	3.31847	195.8	91	0.82643	267.8	131	0.27078
53.6	12	18.7177	125.6	52	3.19183	197.6	92	0.80132	269.6	132	0.26408
55.4	13	17.8005	127.4	53	3.07075	199.4	93	0.77709	271.4	133	0.25757
57.2	14	16.9341	129.2	54	2.95896	201.2	94	0.75373	273.2	134	0.25125
59	15	16.1156	131	55	2.84421	203	95	0.73119	275	135	0.24512
60.8	16	15.3418	132.8	56	2.73823	204.8	96	0.70944	276.8	136	0.23916
62.6	17	14.6181	134.6	57	2.63682	206.6	97	0.68844	278.6	137	0.23338
64.4	18	13.918	136.4	58	2.53973	208.4	98	0.66818	280.4	138	0.22776
66.2	19	13.2631	138.2	59	2.44677	210.2	99	0.64862	282.2	139	0.22231

26. Discharge Temperature Sensor Resistance Values

Table 13. Discharge Temperature Sensor Table (°C--K)

°F	°C	K Ohm	°F	°C	K Ohm	°F	°C	K Ohm	°F	°C	K Ohm
-4	-20	542.7	68	20	68.66	140	60	13.59	212	100	3.702
-2.2	-19	511.9	69.8	21	65.62	141.8	61	13.11	213.8	101	3.595
-0.4	-18	455.9	71.6	22	59.98	143.6	62	12.21	215.6	102	3.392
1.4	-17	455.9	73.4	23	59.98	145.4	63	12.21	217.4	103	3.392
3.2	-16	430.5	75.2	24	57.37	147.2	64	11.79	219.2	104	3.296
5	-15	406.7	77	25	54.89	149	65	11.38	221	105	3.203
6.8	-14	384.3	78.8	26	52.53	150.8	66	10.99	222.8	106	3.113
8.6	-13	363.3	80.6	27	50.28	152.6	67	10.61	224.6	107	3.025
10.4	-12	343.6	82.4	28	48.14	154.4	68	10.25	226.4	108	2.941
12.2	-11	325.1	84.2	29	46.11	156.2	69	9.902	228.2	109	2.86
14	-10	307.7	86	30	44.17	158	70	9.569	230	110	2.781
15.8	-9	291.3	87.8	31	42.33	159.8	71	9.248	231.8	111	2.704
17.6	-8	275.9	89.6	32	40.57	161.6	72	8.94	233.6	112	2.63
19.4	-7	261.4	91.4	33	38.89	163.4	73	8.643	235.4	113	2.559
21.2	-6	247.8	93.2	34	37.3	165.2	74	8.358	237.2	114	2.489
23	-5	234.9	95	35	35.78	167	75	8.084	239	115	2.422
24.8	-4	222.8	96.8	36	34.32	168.8	76	7.82	240.8	116	2.357
26.6	-3	211.4	98.6	37	32.94	170.6	77	7.566	242.6	117	2.294
28.4	-2	200.7	100.4	38	31.62	172.4	78	7.321	244.4	118	2.233
30.2	-1	190.5	102.2	39	30.36	174.2	79	7.086	246.2	119	2.174
32	0	180.9	104	40	29.15	176	80	6.859	248	120	2.117
33.8	1	171.9	105.8	41	28	177.8	81	6.641	249.8	121	2.061
35.6	2	163.3	107.6	42	26.9	179.6	82	6.43	251.6	122	2.007
37.4	3	155.2	109.4	43	25.86	181.4	83	6.228	253.4	123	1.955
39.2	4	147.6	111.2	44	24.85	183.2	84	6.033	255.2	124	1.905
41	5	140.4	113	45	23.89	185	85	5.844	257	125	1.856
42.8	6	133.5	114.8	46	22.89	186.8	86	5.663	258.8	126	1.808
44.6	7	127.1	116.6	47	22.1	188.6	87	5.488	260.6	127	1.762
46.4	8	121	118.4	48	21.26	190.4	88	5.32	262.4	128	1.717
48.2	9	115.2	120.2	49	20.46	192.2	89	5.157	264.2	129	1.674
50	10	109.8	122	50	19.69	194	90	5	266	130	1.632
51.8	11	104.6	123.8	51	18.96	195.8	91	4.849			
53.6	12	99.69	125.6	52	18.26	197.6	92	4.703			
55.4	13	95.05	127.4	53	17.58	199.4	93	4.562			
57.2	14	90.66	129.2	54	16.94	201.2	94	4.426			
59	15	86.49	131	55	16.32	203	95	4.294		B(25/50)=3950K	
60.8	16	82.54	132.8	56	15.73	204.8	96	4.167			
62.6	17	78.79	134.6	57	15.16	206.6	97	4.045		R(90°C)=5KΩ±3%	
64.4	18	75.24	136.4	58	14.62	208.4	98	3.927			
66.2	19	71.86	138.2	59		210.2	99	3.812			

27. Temperature Sensor Identification Table

Table 14. Temperature Sensor Identification Table

Sensor Number	Sensor Name
T1	ID Return Air
T2	Indoor Coil
T3	Outdoor Coil
T4	OD ambient temp
T5	Compressor Discharge

28. Component Troubleshooting

28.1. Compressor Check

Measure the resistance value of each winding by using the tester. This can also be used to check for shorted compressor windings, and identifying terminals when they are no longer legible.

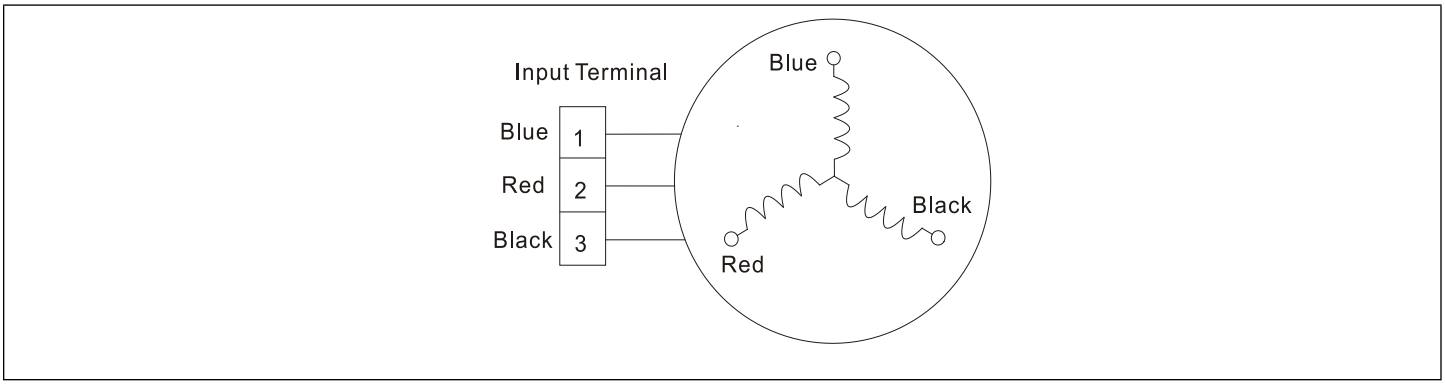


Figure 49. Compressor Terminals

Table 15. Model / Compressor Cross-Reference

ODU Model #	Compressor Model #	Blue - Red	Blue - Black	Red - Blue
4DHP1S09S-1L	ASM98D32UFZ	2.25 Ω		
4DHP1S12S-1L	ASM98D32UFZ	2.25 Ω		
4DHP1S09S-1P	ASN98D22UFZ	1.57 Ω		
4DHP1S12S-1P	ASM98D32UFZ	2.25 Ω		
4DHP1S18S-1P	ASM135D23UFZ	1.65 Ω		
4DHP1S24S-1P	ATF235D22UMT	0.75 Ω		
4DHP1S30S-1P	ATF250D22UMT	0.75 Ω		
4DHP1S36S-1P	ATF310D43UMT	0.65 Ω		
4DHP1S48S-1P	ATQ420D1UMU	0.378 Ω		
4DHP1S18M-1P	ATM150D23UFZ	1.72 Ω		
4DHP1S30M-1P	ATF235D22UMT	0.75 Ω		
4DHP1S36M-1P	ATF310D43UMT	0.65 Ω		
4DHP1S48M-1P	ATQ360D1UMU	0.37 Ω		

28.2. IPM Check

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

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.

Table 16. Normal Resistance Values

Digital Tester		Normal Resistance Value	Digital Tester		Normal Resistance Value
(+)Red	(-)Black		(+)Red	(-)Black	
P	N	∞ (Several MΩ)	U	N	∞ (Several MΩ)
	U		V		
	V		W		
	W		(+)Red		

Figure 50. Testing

28.3. AC Fan Motor

Measure the resistance value of each winding by using the tester

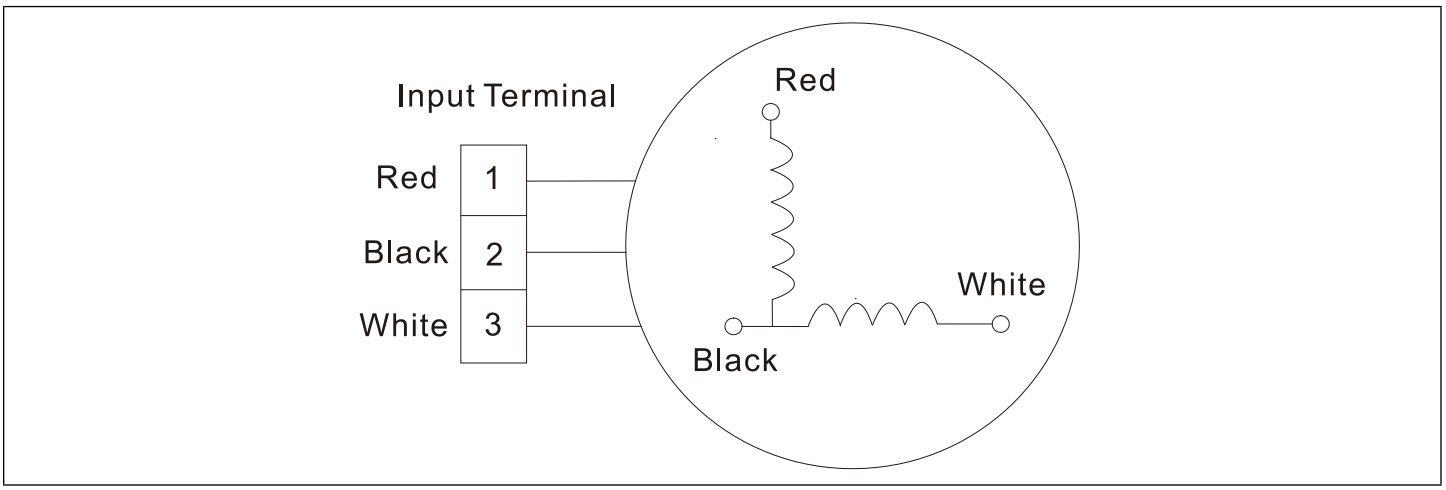


Figure 51. Terminals

Table 17. Resistance Value

Position	Resistance Value			
	RPG20B		RPG28H	
Black - Red	381Ω±8% (20°C) (Brand: Weiling)	342Ω±8% (20°C) (Brand: Dayang)	183.6Ω±8% (20°C) (Brand: Weiling)	180Ω±8% (20°C) (Brand: Wolong)
White - Black	267Ω±8% (20°C) (Brand: Weiling)	253Ω±8% (20°C) (Brand: Dayang)	206Ω±8% (20°C) (Brand: Weiling)	190Ω±8% (20°C) (Brand: Wolong)

Measure the resistance value of each winding by using the tester

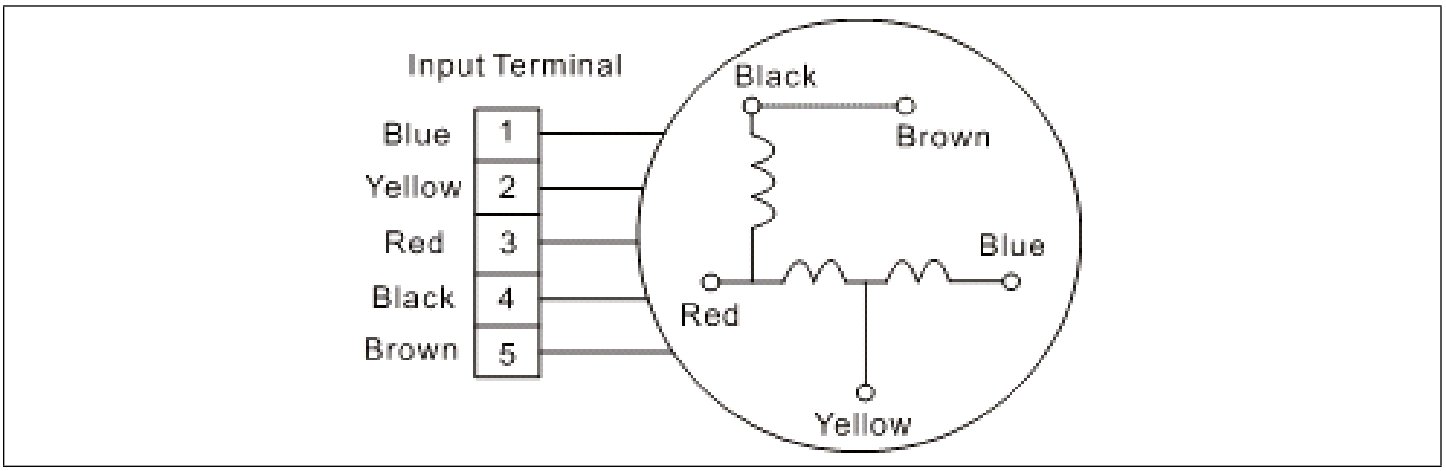


Figure 52. Terminals

Table 18. Resistance Value

Position	Resistance Value						
	YDK70-6FB	YDK180-8GB	YSK27-4G	YSK68-4B	YDK45-6B	YSK25-6L	YDK53-6FB(B)
Black - Red	56Ω±8% (20°C)	24.5Ω±8% (20°C)	317Ω±8% (20°C)	145Ω±8% (20°C)	345Ω±8% (20°C)	627Ω±8% (20°C)	88.5Ω±8% (20°C)
Red - Yellow	76Ω±8% (20°C)	19Ω±8% (20°C)	252Ω±8% (20°C)	88Ω±8% (20°C)	150Ω±8% (20°C)	374.3Ω±8% (20°C)	138Ω±8% (20°C)
Yellow - Blue	76Ω±8% (20°C)	19Ω±8% (20°C)	252Ω±8% (20°C)	88Ω±8% (20°C)	150Ω±8% (20°C)	374.3Ω±8% (20°C)	138Ω±8% (20°C)

28.4. Four-Way Valve

a. 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 needs to be replaced.

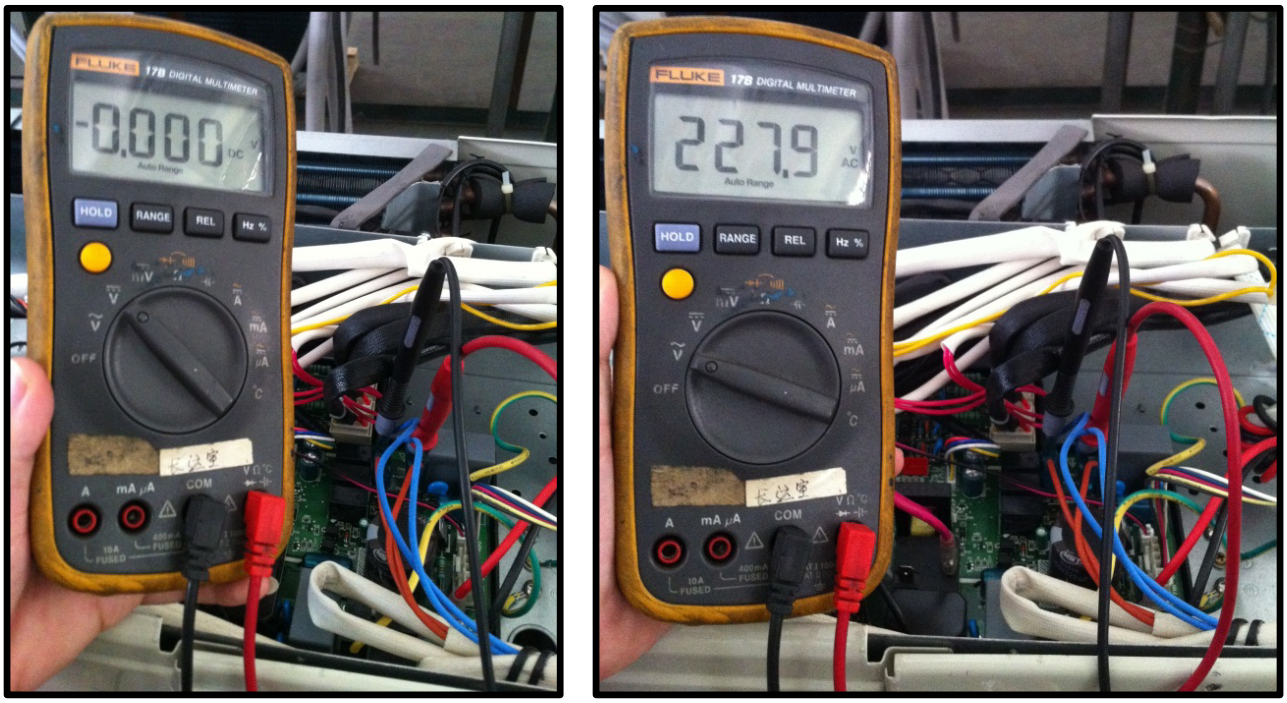


Figure 53. Measure Voltage

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

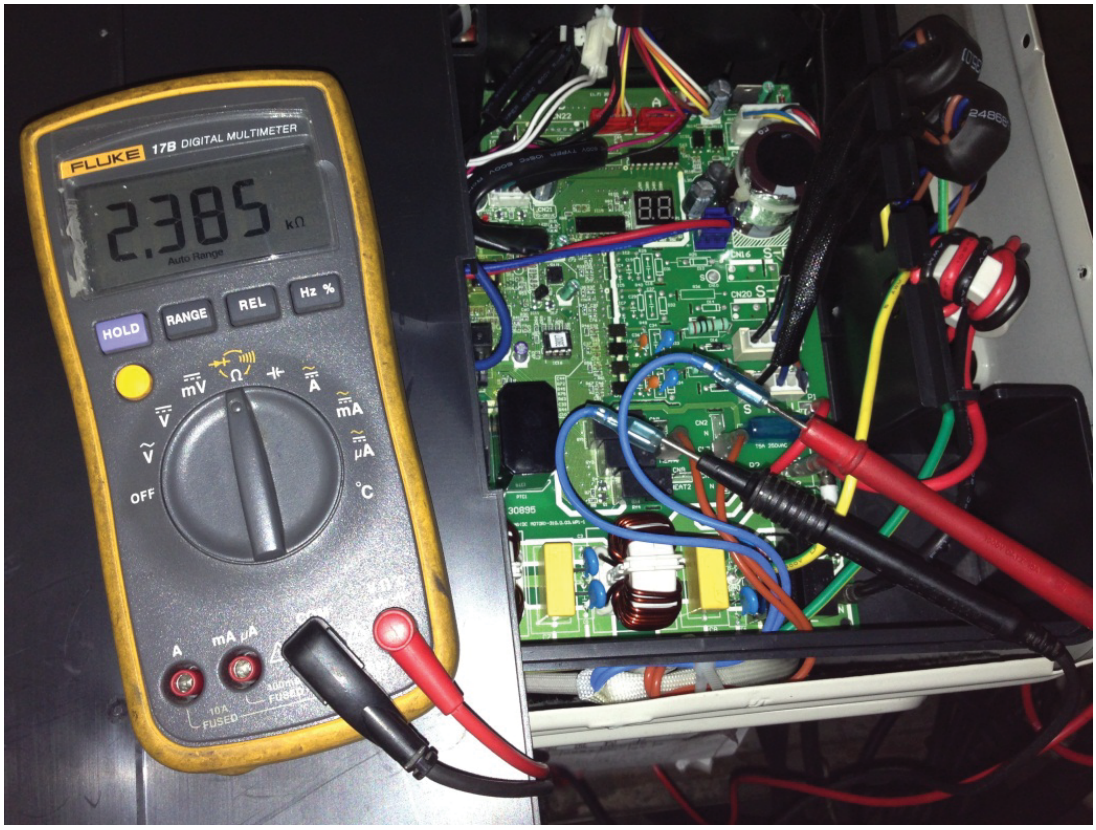


Figure 54. Measure Resistance

28.5. EXV Check

Disconnect the connectors.

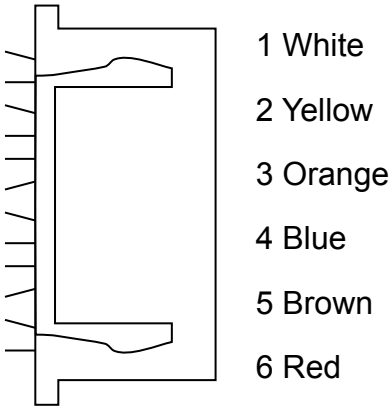


Figure 55. Connector Pin-Out

Table 19. Resistance

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

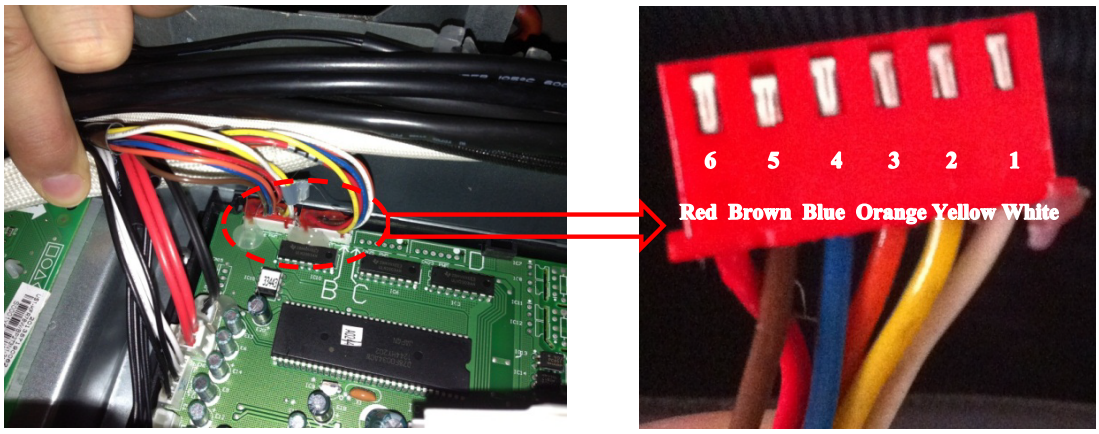


Figure 56. Connector Pin-Out

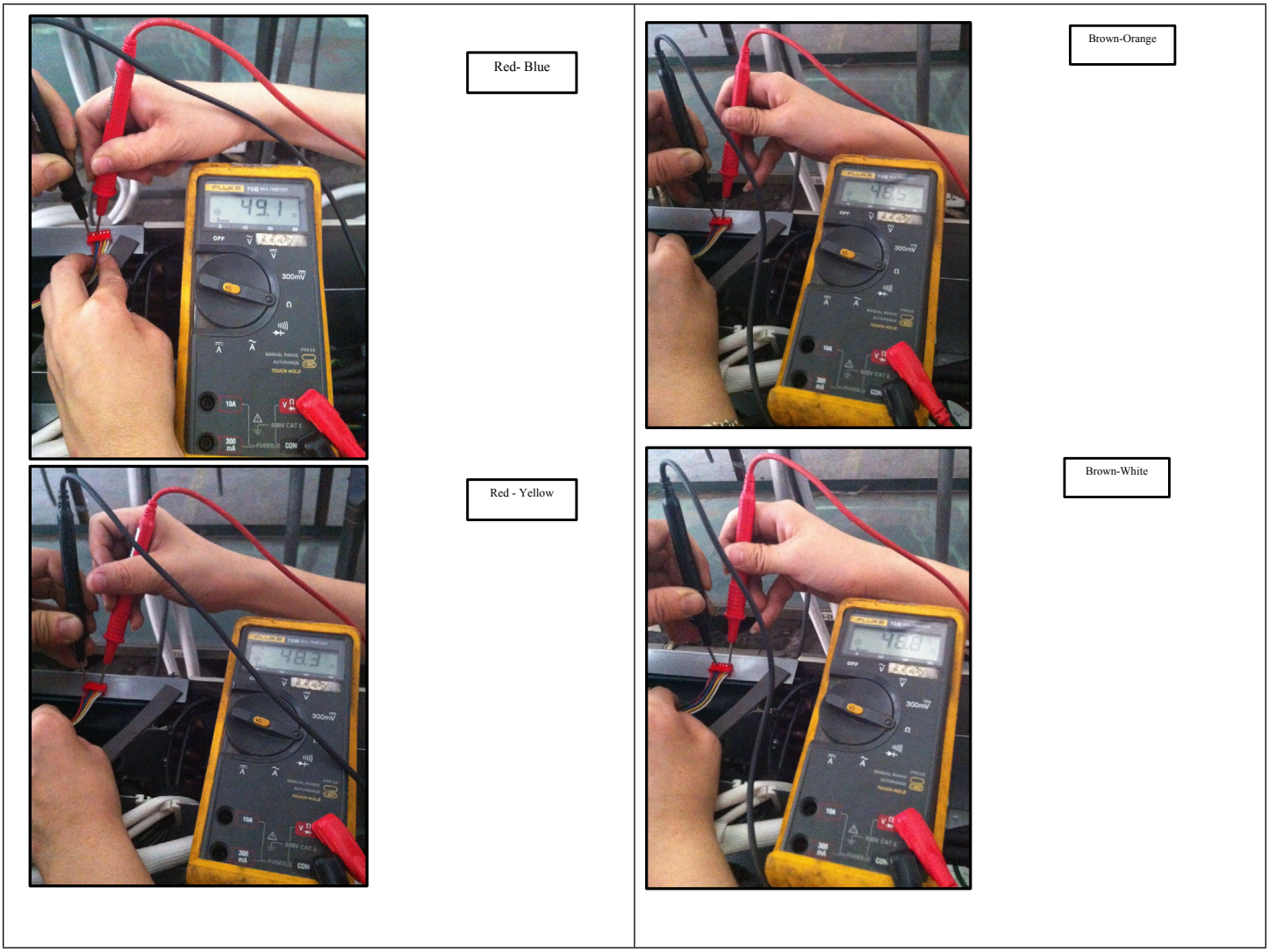


Figure 57. Connector Pin-Out

29. Component Protection

29.1. Fan Motor

Fan Speed is out of control (DC fan motor - When outdoor fan speed is lower than 300 RPM or higher than 24000 RPM for 60 seconds, the whole unit stops and LED displays failure.

29.2. Inverter Module Protection

Inverter module protection itself has a protection function against current, voltage and temperature, If these protections happened, the corresponding code will display on indoor unit LED and A/C will stop. The unit will recover three minute delay after the protection disappeared.

29.3. Low Voltage Protection

If the low voltage protection occurs and not resumes within 3 minutes, it will keep the protection always after restart the machine.

29.4. Compressor Current Limit Protection

If the low voltage protection occurs and not resumes within 3 minutes, it will keep the protection always after restart the machine.

30. Specifications and Operations

Table 20. Electronic Functions Abbreviations

T1	Indoor ambient temperature
T2	Coil temperature of indoor heat exchanger
T2B	Coil temperature of indoor heat exchanger outlet. (located in outdoor unit)
T3	Pipe temperature of outdoor heat exchanger
T4	Outdoor ambient temperature
T5	Compressor discharge temperature

Table 21. Electronic Control Working Environment

Input voltage: 230V
Input power frequency: 60Hz
Indoor fan normal working amp. is less than 1A
Outdoor fan normal working amp is less than 1.5A
Four-way valve normal working amp is less than 1A

Table 22. Main Protection

Three minutes delay at restart for compressor	
	One minute delay for the first time start-up and three minutes delay for others
Temperature protection of compressor discharge	
	When the compressor discharge is getting higher, the running frequency will be limited as below rules:
	If 215.6°F (102°C) < T5 < 244.4°F (115°C), decrease the frequency to the lower level every two minutes until to F1.
	If T5 < 244.4°F (115°C) for ten seconds, the compressor will stop and restart till T5 < 194°F (90°C)

Table 23. Indoor/Outdoor Units Communication Protection

If the indoor units cannot receive the feedback signal from the outdoor units for two minutes, the unit will stop and display failure.	
High Condenser Col Temp Protection	When T3>149°F (65°C) for three seconds, the compressor will stop while the indoor fan and outdoor fan will continue.
	When T3<125.6°F (52°C), the protection will release and the compressor will restart after three minutes.
Outdoor Unit Anti-Freezing Protection	When T2B< 32°F (0°C) for 250 seconds, the indoor unit capacity demand will be zero and resume to normal when T2B> 50°F (10°C).
Running Rules	1. If the compressor frequency keeps lower than RET_OIL_FREQ1_ADD for RET_OIL_TIME1_ADD,the AC will rise the frequency to RET_OIL_FREQ2_ADD for RET_OIL_TIME2_
	2. During the oil return process, the EXV will keep 300p while the indoor units will keep the current running mode.

Table 24. Compressor Preheating Functions

Preheating permitting condition	If T4 (outdoor ambient temperature)< 37.4°F (3°C) and newly powered on or if T4<37.4°F (3°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 T4>41°F (5°C) or the capacity demand isn't zero, preheating function will stop.

Table 25. Compressor Crankcase Heater

Preheating permitting condition	When T4< 37.4°F (3°C) within 5 seconds of being plugged in, the crankcase heater will be active.
	When T4< 37.4°F (3°C) and the compressor is not running for 3 hours, the crankcase heater will be active.
Preheating Release Condition	If T4>41°F (5°C) or the indoor has capacity demand, the crankcase heater will stop work.

30.1. Capacity Request Calculations

Total capacity Request=Σ(Norm code × HP) /10× modify rate+ correction.

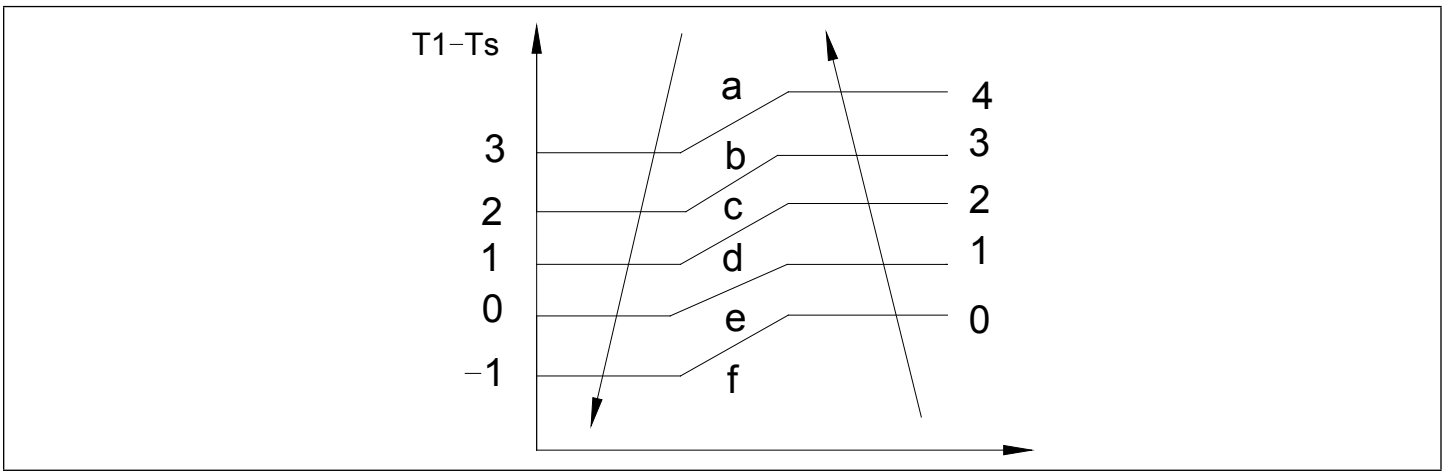


Figure 58. Cooling Mode

Capacity Area	a	b	c	d	e	f
Norm Code (N)	3	2	1.5	1	.5	0

Model	9K	12K	18K
HP	1.0	1.2	1.5

NOTE: *The final result is integer.*

Plus all the indoor capacity request together, then modify it by T4.

When there is only one indoor unit:

	Outdoor Temperature (T4)		
Cooling	>29°C	18°C to 29°C	<17°C
	>84.2°F	64.4°F to 84.2°F	<62.6°F
Modify Rate	100%	60%	40%

When there is more than one indoor unit:

	Outdoor Temperature (T4)		
Cooling	>25°C	17°C - 25°C	<17°C
	>77°F	62.6°F - 77°F	<62.6°F
Modify Rate	100%	80%	40%

NOTE: *The final result is integer.*

In low ambient cooling mode, modify rate is fixed as 40%.

According to the final capacity request to confirm he operating frequency, as following table.

Frequency (Hz)	0	COOL_ F1	COOL_ F2	... ...	COOL_ 15	COOL_ 16
Amendatory capacity demand	0	1	2	... ...	15	16

Meanwhile the maximum running frequency will be adjusted according to the outdoor ambient temp.

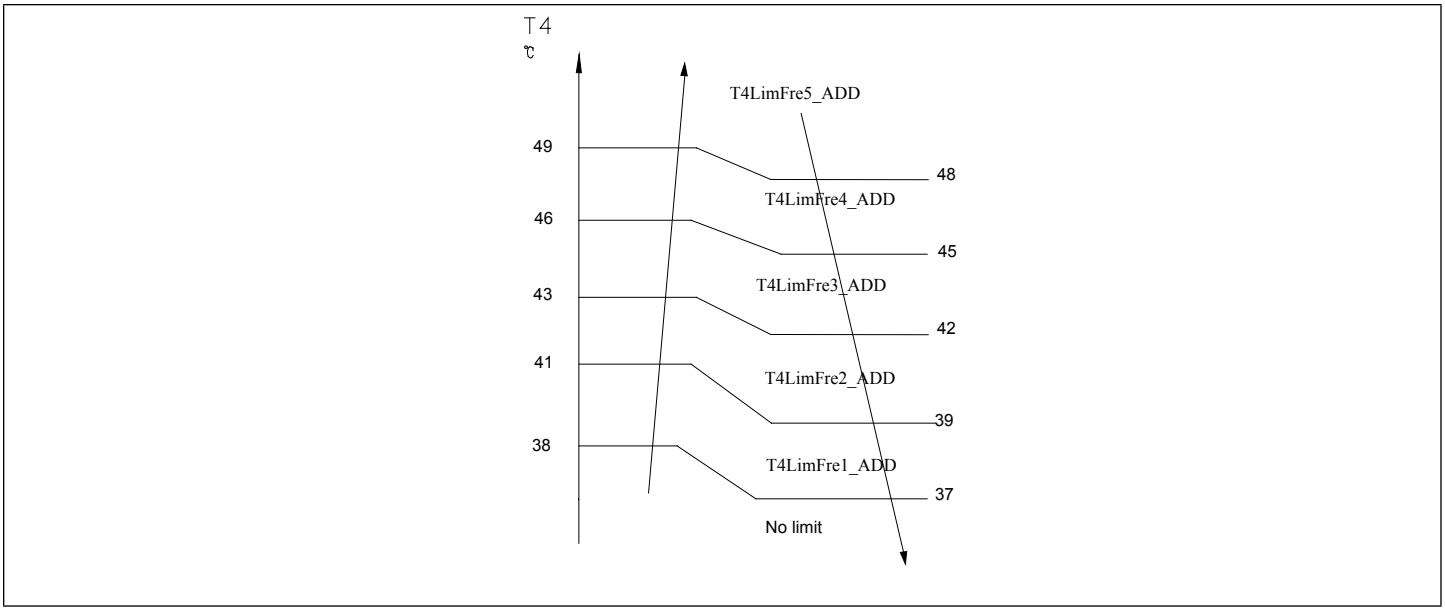
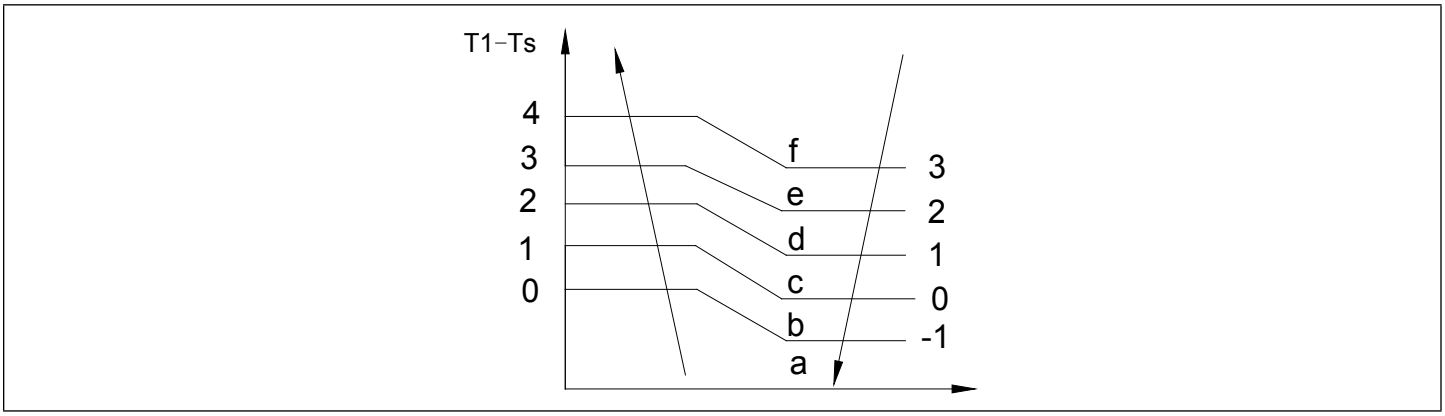


Figure 59. Heating Mode

Heating Mode

Plus all the indoor capacity request together, then multiply it by T4.

When there is only one indoor unit:



Capacity Area	a	b	c	d	e	f
Norm Code (N)	3	2	1.5	1	.5	0

Model	9K	12K	18K
HP	1.0	1.2	1.5

Outdoor Temperature (T4)				
Heating	<0°C	<12°C	12°C to 17°C	≥17°C
	<32°F	<53.6°F	53.6°F to 77°F	≥62.6°F
Modify Rate	120%	80%	40%	20%

When there more than one indoor unit:

Outdoor Temperature (T4)				
Heating	<0°C	<12°C	12°C to 17°C	≥17°C
	<32°F	<53.6°F	53.6°F to 62.6°F	≥62.6°F
Modify Rate	120%	100%	80%	60%

NOTE: *The final result is integer.*

Then modify it according to T2 average (correction):

NOTE: *Average value of T2: Sum T2 value of all indoor units)/ (indoor units number). According to the final capacity request to confirm the operating frequency, as following table. Heating capacity improved in low ambient heating.*

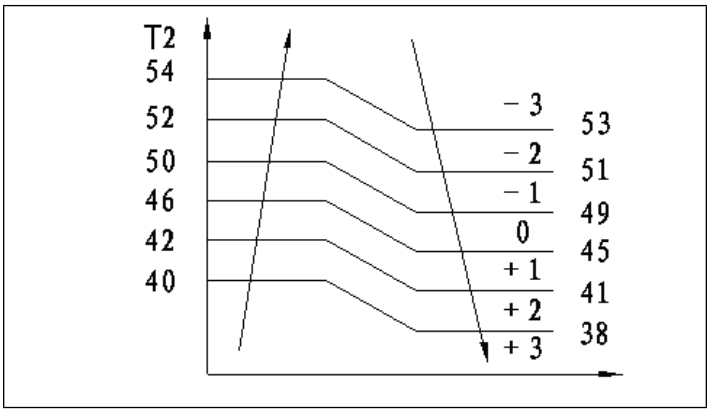
In heating mode, when T2<T2_ExitT4LowFre_ADD , and T4<-4°C, there is frequency elevation: elevated frequency= Recent frequency * 110%

When T2> T2_ExitT4LowFre_ADD-2 and T4>-6, the highest frequency can't exceed F17

When T2> T2_ExitT4LowFre_ADD-4 and T4>-8, the highest frequency can't exceed F18

When T2> T2_ExitT4LowFre_ADD-6 and T4>-10, the highest frequency can't exceed F19

In the other conditions, the highest frequency is F20.



Frequency (Hz)	0	HEAT_ F1	HEAT_ F2	... ...	HEAT_ 15	HEAT_ 16
Amendatory capacity demand	0	1	2	... ...	15	16

30.2. Defrost Control

For defrost calculations:

T3 = Outdoor coil temperature sensor

T30 = Minimum value of T3 during 10 to 15 minutes of runtime time period.

Defrost mode begins when any one of the following conditions are met:

1. After 29 minutes of runtime
   T3 < 19.4°F (-7°C) and T3 + 4.5°F (2.5°C) ≤ T30
2. After 35 minutes of runtime
   T3 < 23°F (-5°C) and T3 + 5.4°F (3°C) ≤ T30
3. After 40 minutes of runtime
   T3 < -11.2°F (-24°C) for 3 minutes
4. After 120 minutes of runtime
   T3 < 5°F (-15°C)

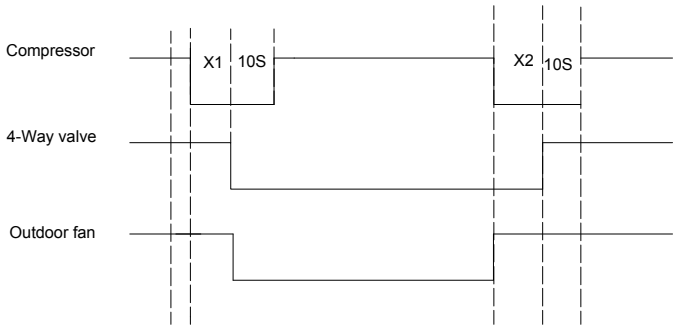
30.3. Defrost Theory

Defrost will be initiated if any one of the following is reached, in the following sequence:

1. After 29 minutes of run-time T3 is less than 19.4°F AND T3+4.5°F is less than or equal to T30, then defrost will initialize.
2. After 35 minutes of run-time, T3 is lower than 23°F AND T3+5.4°F is less than 30°F.
3. After 40 minutes of run-time of T3 being lower than 11.2°F.
4. After 2 hours of run-time if T3 is lower than 5°F.

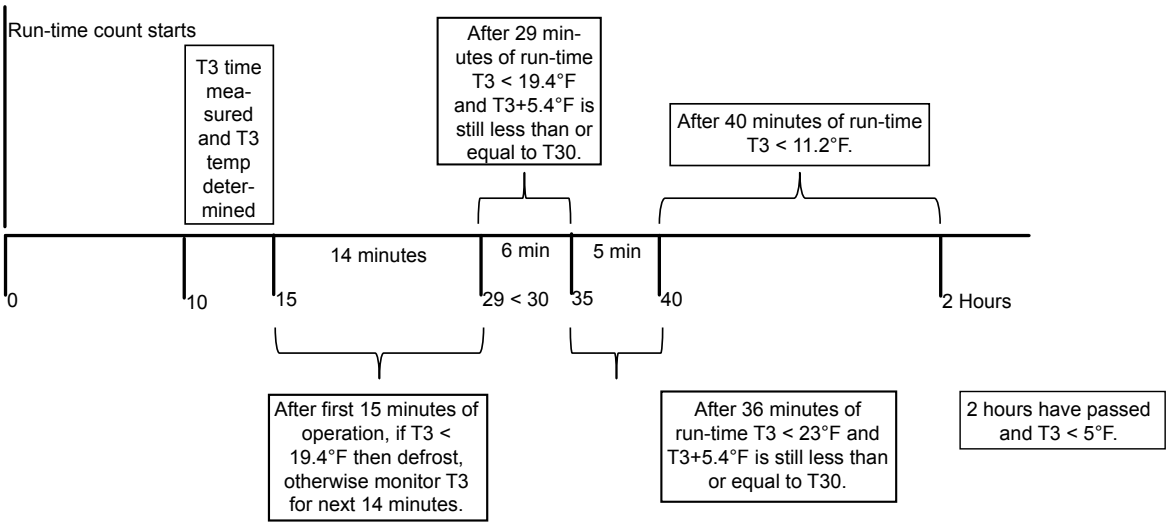
Defrost mode ends when any of the following conditions are met.

1. T3 > 64.4°F (18°C)
2. T3 remains > 43.4 °F (8°C) for 80 seconds
3. System has been in defrost mode for 10 minutes



30.4. Defrost Termination

Defrost will terminate if:
T2 is greater than 64.4°F.
T3 is between 64.4°F and 43.4°F for 80 seconds.
System has been in defrost for 10 minutes.

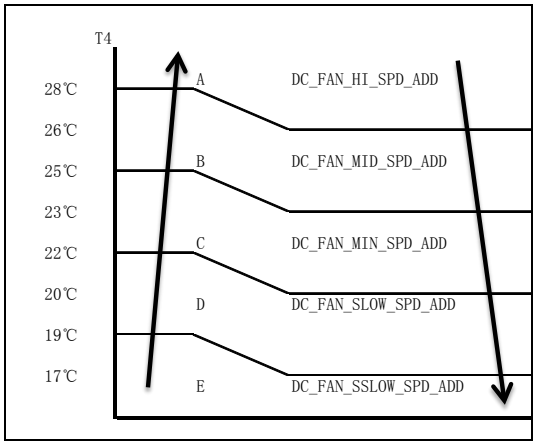


This formula depends on humidy. The higher the humidity, the more frequent the defrost cycles. With no humidity, there will be less frost build-up. Defrost is a function of humidity.

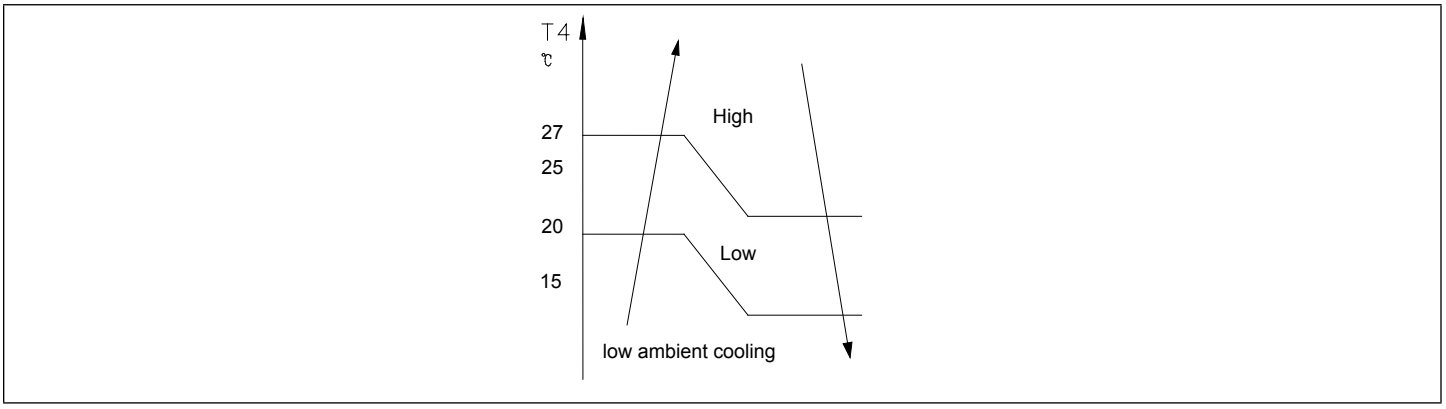
30.5. Outdoor Fan Control

30.5.1. Cooling Mode

Normally the system will choose the running fan speed according to ambient temperature:



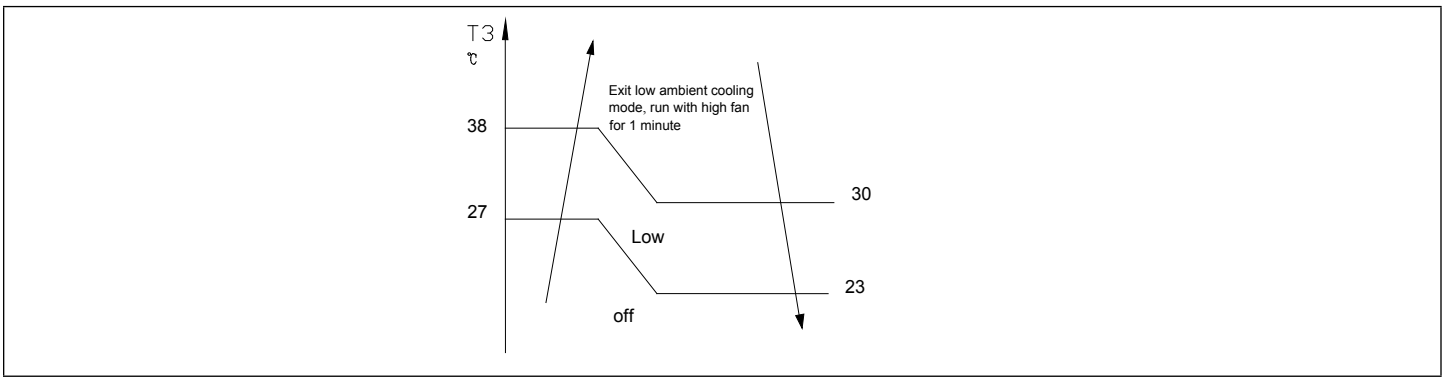
When low ambient cooling is valid:



Outdoor fan speed control logical (low ambient cooling).

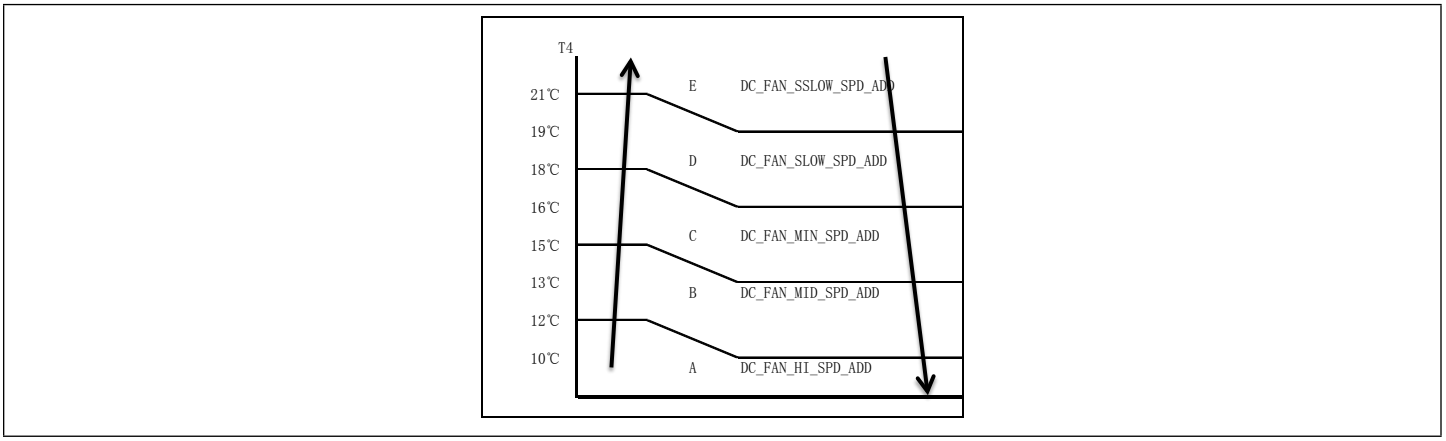
When T4 <15°C (59°F) and T3 < 30°C (86°F), the unit will enter into low ambient cooling mode. The outdoor fan will choose speed according to T3.

When T3≥38°C (100.4°F) or when T4≥20°C (68°F), the outdoor fan will choose the speed according to T4 again.



30.5.2. Heating Mode

Normally the system will choose the running fan speed according to ambient temperature:



30.6. Four-Way Valve Control

In heating mode, four-way valve is opened. In defrosting, four-way valve operates in according to defrosting action. In other modes, four-way valve is closed. When the heating mode to other modes, the four-way valve is off after compressor is off for 2 minutes. Failure or protection (not including discharge temperature protection, high and low pressure protection), four-way valve immediately shuts down.

30.7. Electronic Expansion Valve (EXV) Control

a. EXV will be fully closed when turning on the power. Then EXV will be standby with 350P open and will open to target angle after compressor starts.

b. EXV will close with -160P when compressor stops. Then EXV will be standby with 350P open and will open to target angle after compressor starts.

c. The action priority of the EXVs is A-B-C-D.

d. Compressor and outdoor fan start operation only after EXV is initialized.

30.7.1. Cooling mode

The initial open angle of EXV is 250P, adjustment range is 100-350p. When the unit start to work for 3 minutes, the outdoor will receive indoor units(of capacity demand) T2B information and calculate the average of them. After comparing each indoor's T2B with the average, the outdoor gives the following modification commands: If the T2B>average, the relevant valve needs more 16p open; If the T2B= average, the relevant valve's open range remains; If the T2B<average, the relevant valve needs more 16p close.

This modification will be carried out every 2 minutes.

30.7.2. Heating mode

The initial open angle of EXV is 250P, adjustment range is 100-350p. When the unit start to work for 3 minutes, the outdoor will receive indoor units (of capacity demand) T2 information and calculat From Subject Received Size Categories

After comparing each indoor's T2 with the average, the outdoor gives the following modification commands: If the T2>average+2, the relevant valve needs more 16p close;

If average+2≥the T2≥ average-2, the relevant valve's open range remains;

If the T2<average-2, the relevant valve needs more 16p open.

This modification will be carry out every 2 minutes.

31. Index

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