MINI-SPLIT SYSTEMS SERVICE MANUAL
Indoor and Outdoor Unit Information

CORP1602-L9
8/2020
Supersedes 6/2019

Please refer to Corp1816-L7 for indoor and outdoor unit error codes and component diagnostics.

MWMA, MWMB and 3WMB036

MCFA and MCFB

MPA, MPB and MLA Multi-Zone

MPA, MPB, MLA and 3PB Single Zone

M22A, M33A and M33B

MMDA and MMDB

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Indoor Unit Information

1. M22A, M33A and M33B Cassette Non-Ducted Indoor Units

1.1. Model Number Identification

CASSETTE NON-DUCTED INDOOR UNITS

M 22 A 012 S 4 - 1 P

Series Type
M = Mini-Split

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

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

Nominal Cooling Capacity
009 = .75 tons
012 = 1 tons
018 = 1.5 tons
024 = 2 tons
036 = 3 tons
048 = 4 tons

Cooling Efficiency
S = Standard Efficiency

Refrigerant Type
4 = R-410A

Minor Design Sequence
1 = 1st Revision
2 = 2nd Revision

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

1.2. M22A Indoor Unit Specifications

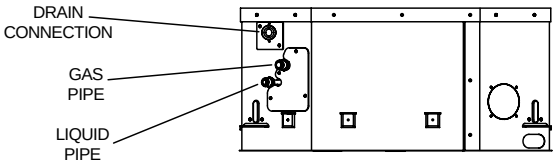
	Model No.	M22A009S4-*P	M22A012S4-*P	M22A018S4-*P
	Nominal Tons	0.75	1	1.5
Power Supply - 60 hz - 1 phase		208/230V	208/230V	208/230V
Rated load amps		0.9	1.0	1.5
Output (W)		46	46	46
Room Temperature Range (°F)	Cooling	62 - 90	62 - 90	62 - 90
	Heating	32 - 86	32 - 86	32 - 86
Air Volume - cfm (High/Medium/Low)		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		13X04 (M0STAT62Q-1)	13X04 (M0STAT62Q-1)	13X04 (M0STAT62Q-1)
Net/Shipping weights - lbs.		6 / 10	6 / 10	6 / 10

1.3. M33A and M33B Indoor Unit Specifications

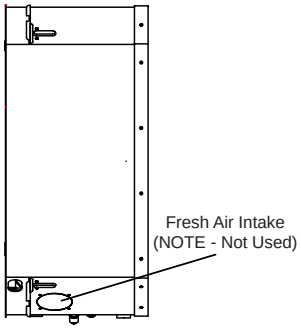
Model No.		M33A024S4-*P	M33A036S4-*P	M33A048S4-*P** and M33B048S4-*P
Nominal Tons		2	3	4
Power Supply - 60 hz - 1 phase		208/230V	208/230V	208/230V
Rated load amps		2.0	1.5	1.6
Output (W)		42	124	170
Room Temperature Range (°F)	Cooling	62 - 90	62 - 90	62 - 90
	Heating	32 - 86	32 - 86	32 - 86
Air Volume - 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		**13X05** (M0STAT63Q-1)	**13X05** (M0STAT63Q-1)	**13X05** (M0STAT63Q-1)
Net/Shipping weights - lbs.		12 / 18	12 / 18	12 / 18

**MPA only

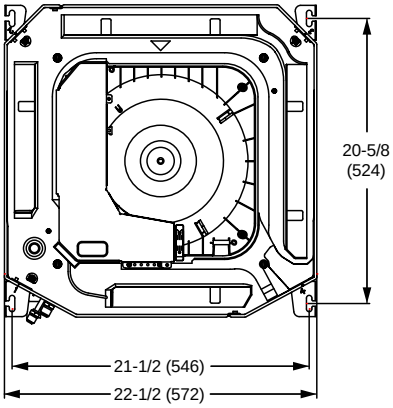
1.4. M22A Indoor Unit Dimensions



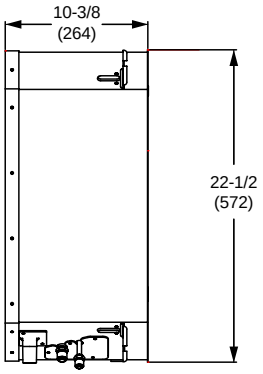
SIDE VIEW



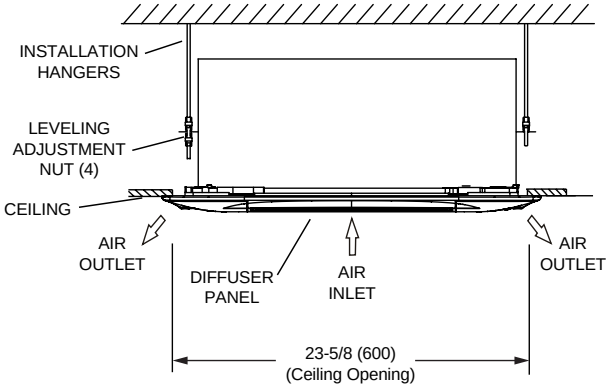
LEFT SIDE VIEW



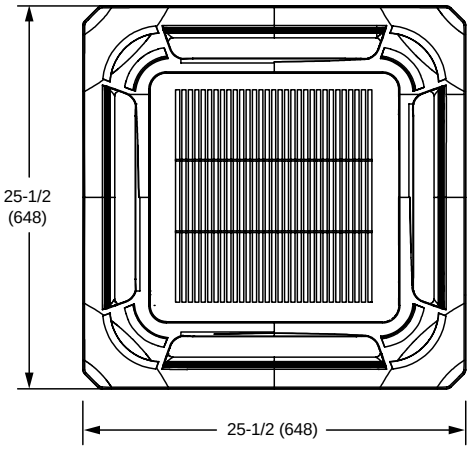
BOTTOM VIEW (Body)



RIGHT SIDE VIEW



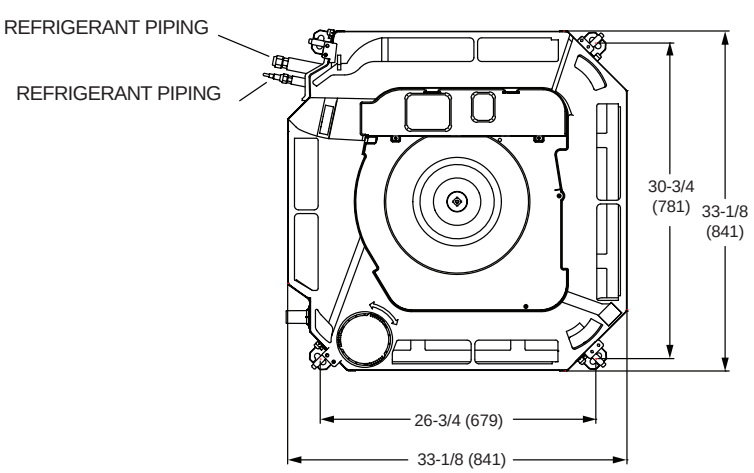
SIDE VIEW



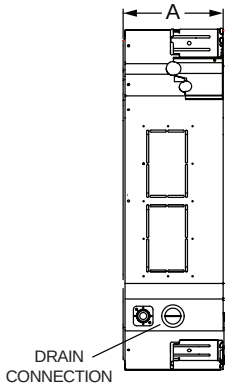
BOTTOM VIEW (Panel)

1.5. M33A and M33B Indoor Unit Dimensions

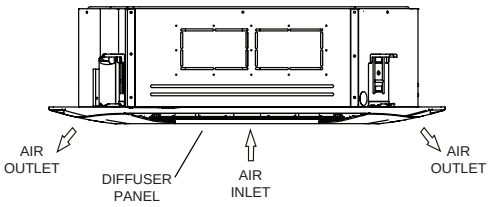
M33A024S4, M33A036S4, M33A048S4 and M33B048S4



BOTTOM VIEW (Body)

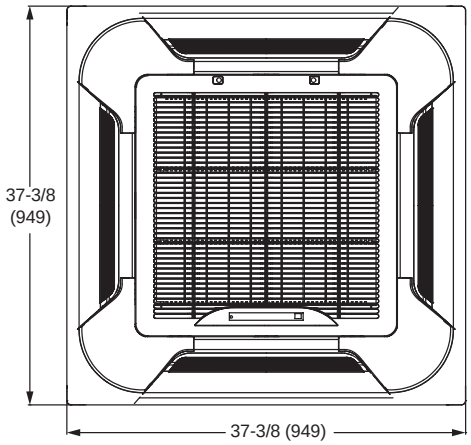


RIGHT SIDE VIEW



SIDE VIEW

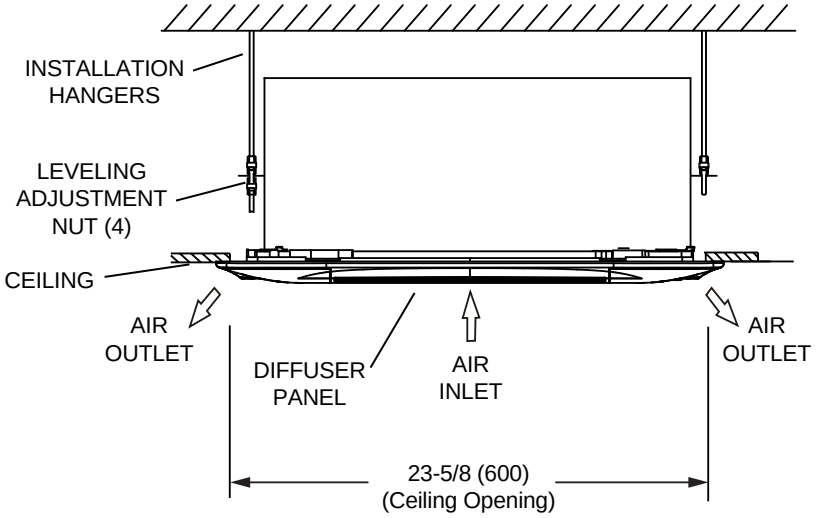
Size	A	
	in.	mm
024	8-1/8	206
036	9-5/8	244
048	11-1/4	286

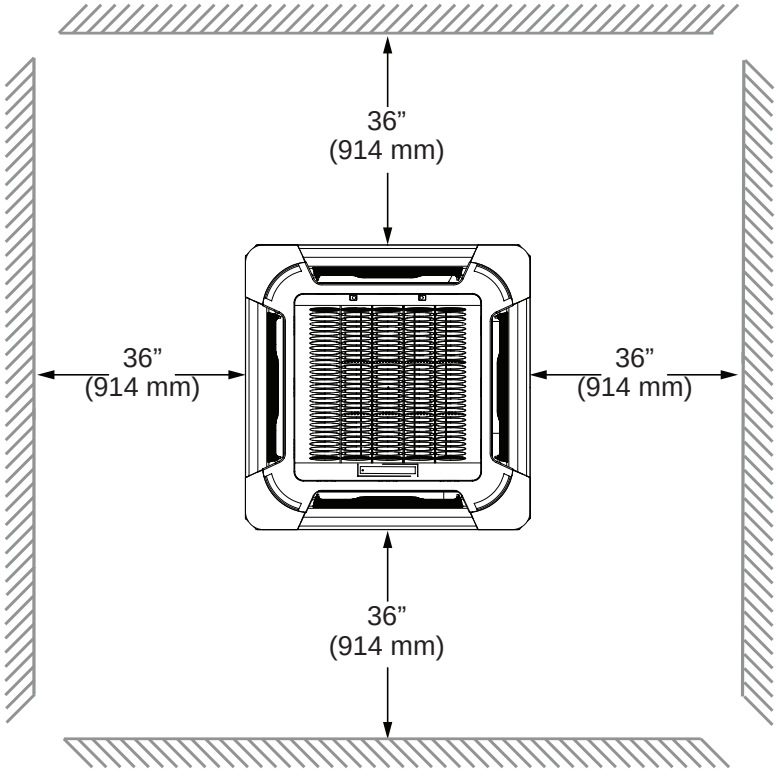


BOTTOM VIEW (Panel)

***NOTE**: M22 does not have a LED display. Only LED lights for troubleshooting*

1.6. M22A, M33A and M33B Indoor Unit Clearances





Minimum Clearance from Structural Ceiling to Drop Ceiling:

M22A009, M22A012, M22A018 and M22A024 -- 10-1/4” (260 mm)

M33A036, M33A048 and M33B048 -- 13” (330 mm)

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

2. MMDA and MMDB Ducted Indoor Units

NOTE: *It is recommended that Medium Static Ducted Indoor Units not be installed in unconditioned spaces with temperatures above 100°F.*

2.1. Model Number Identification

M MD A 012 S 4 - 1 P

Series Type
M = Mini-Split

Unit Type
MD = Medium Static Ducted Unit

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

Nominal Cooling Capacity
009 = .75 tons
012 = 1 tons
018 = 1.5 tons
024 = 2 tons
036 = 3 tons
048 = 4 tons

Cooling Efficiency
S = Standard Efficiency

Refrigerant Type
4 = R-410A

Minor Design Sequence
1 = 1st Revision
2 = 2nd Revision

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

2.2. Indoor Unit Specifications

	Model No.	MMDA009S4-*P	MMDA012S4-*P	MMDA018S4-*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

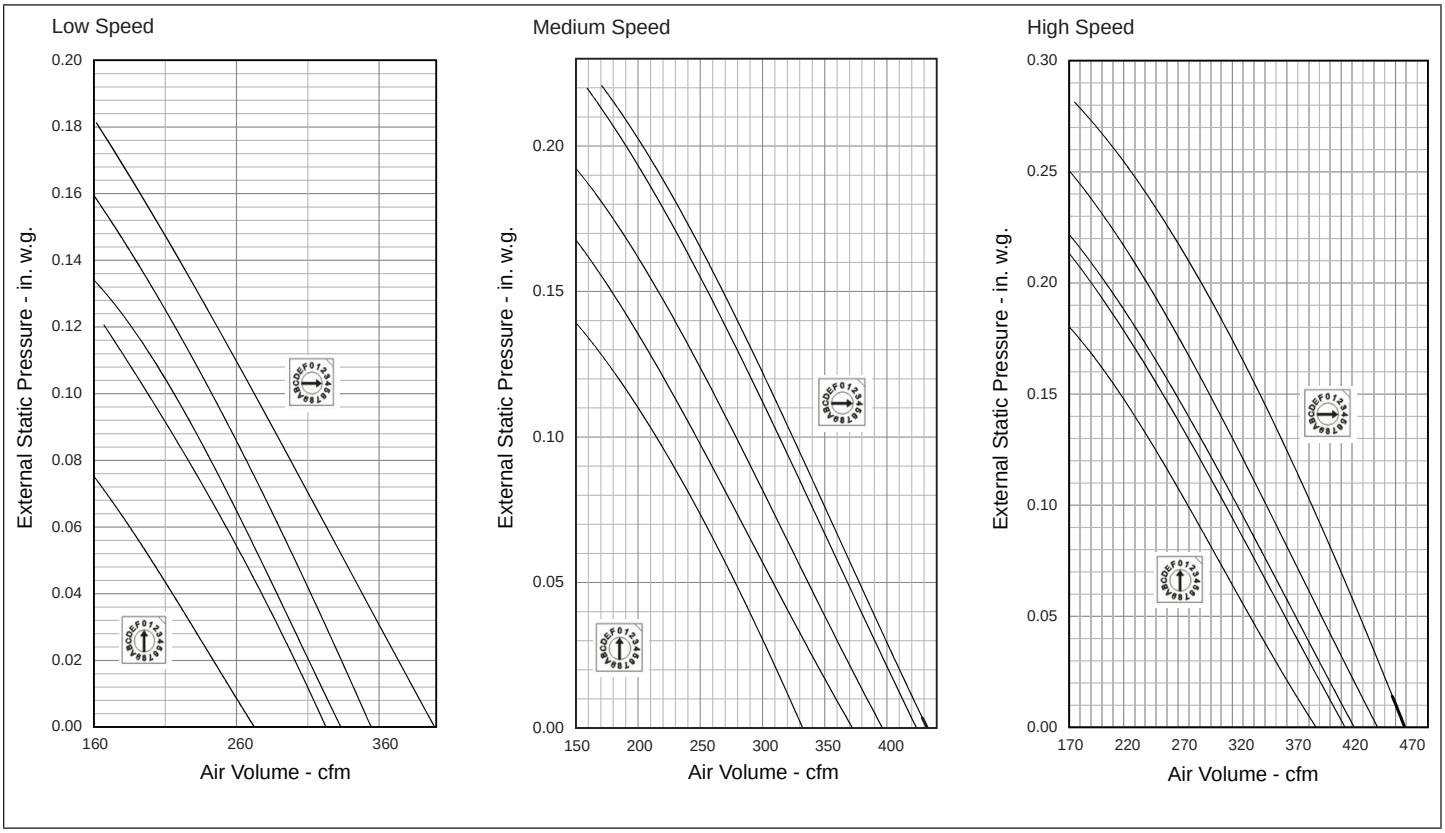
	Model No.	MMDA024S4-*P	MMDA036S4-*P*	MMDA048S4-*P*
	Nominal Tons	2	3	4
Power Supply - 60 hz - 1 phase		208/230V	208/230V	208/230V
Rated load amps		2	1.5	1.8
Output (W)		90	150	240
Room Temperature Range (°F)	Cooling	62 - 90	62 - 90	62 - 90
	Heating	32 - 86	32 - 86	32 - 86
Air Volume - cfm (High/Medium/Low)		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

	Model No.	MMDB009S4	MMDB012S4	MMDB018S4
	Nominal Tons	0.75	1	1.5
Power Supply - 60 hz - 1 phase		208/230V	208/230V	208/230V
Rated load amps		1.11	1.11	1.2
Output (W)		55	55	160
Room Temperature Range (°F)	Cooling	62 - 90	62 - 90	62 - 90
	Heating	32 - 86	32 - 86	32 - 86
Air Volume - cfm (High/Medium/Low)		355/285/175	355/285/175	530/450/370
External Static Pressure (in. w.g)		0 - 0.16	0 - 0.16	0 - 0.40
Sound Data (dBA) - Low/Medium/High		25/32/38	26/33.5/38	35/37/39
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.		38 / 49	38 / 49	54 / 66

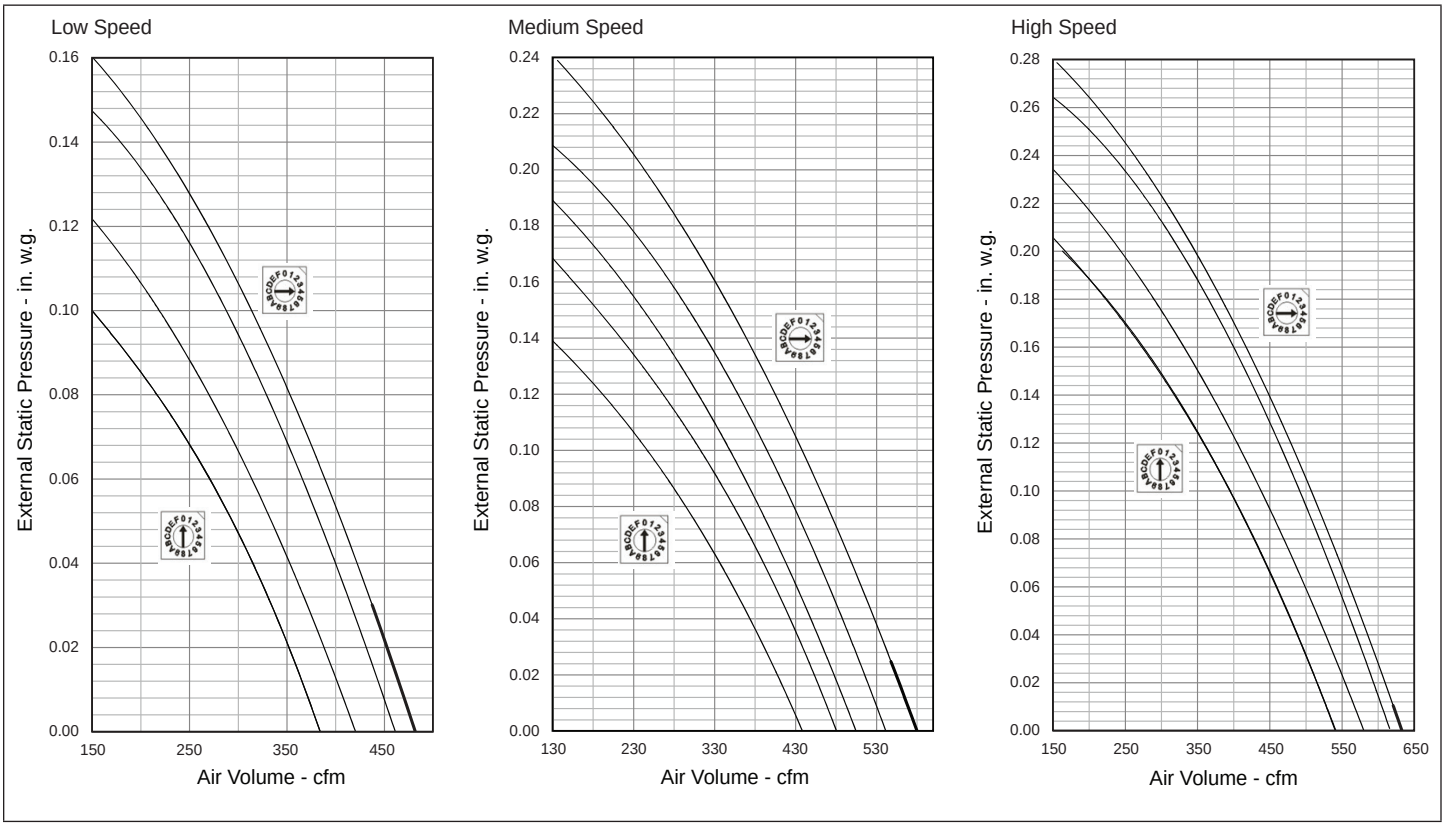
	Model No.	MMDB024S4	MMDB036S4	MMDB048S4
	Nominal Tons	2	3	4
Power Supply - 60 hz - 1 phase		208/230V	208/230V	208/230V
Rated load amps		1.5	1.6	2
Output (W)		160	300	560
Room Temperature Range (°F)	Cooling	62 - 90	62 - 90	62 - 90
	Heating	32 - 86	32 - 86	32 - 86
Air Volume - cfm (High/Medium/Low)		775/695/435	1080/910/705	1230/1030/715
External Static Pressure (in. w.g)		0 - 0.64	0 - 0.64	0 - 0.64
Sound Data (dBA) - Low/Medium/High		36/41/44	39/42.5/45.5	46/48.5/50.5
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.		87 / 103	106 / 122	120 / 142

2.3. Indoor Unit Blower Data

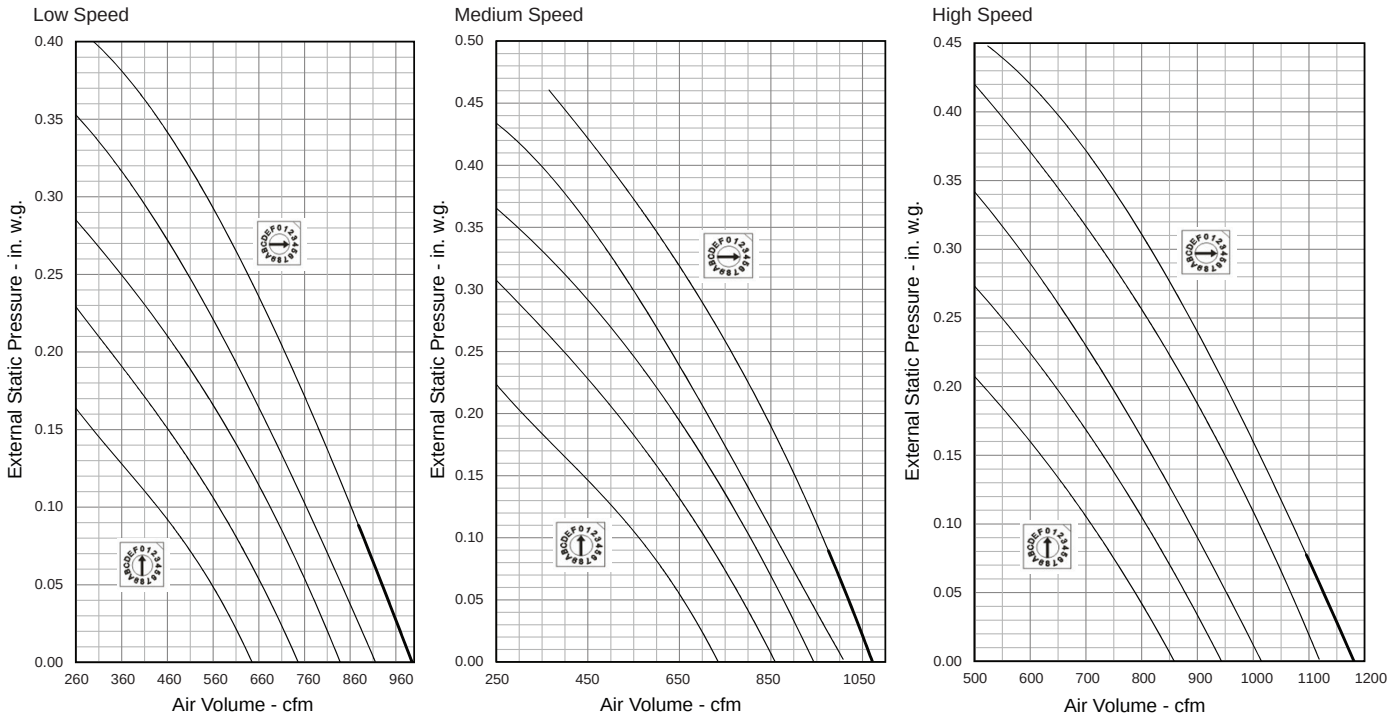
2.3.1. MMDA009S4 and MMDA012S4



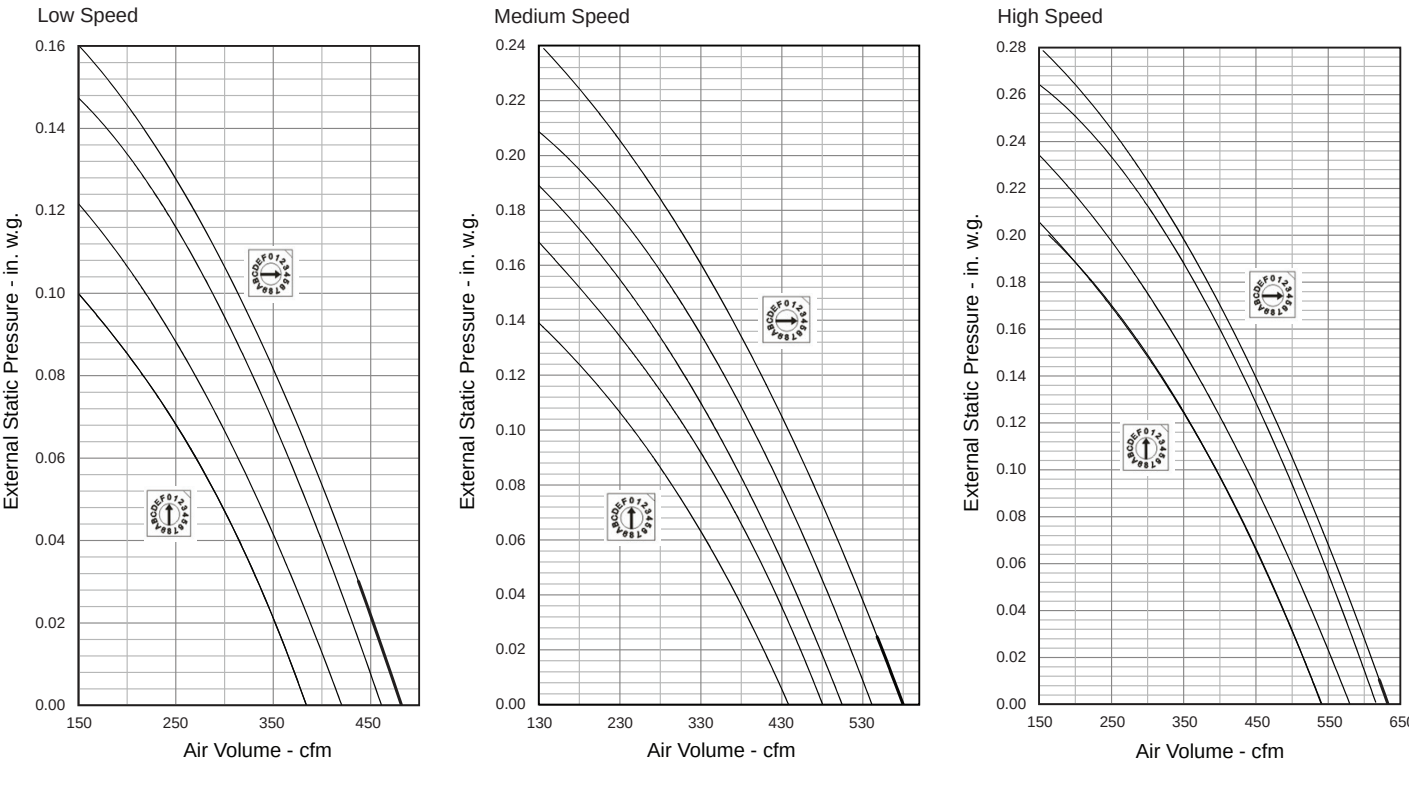
2.3.2. MMDA018S4



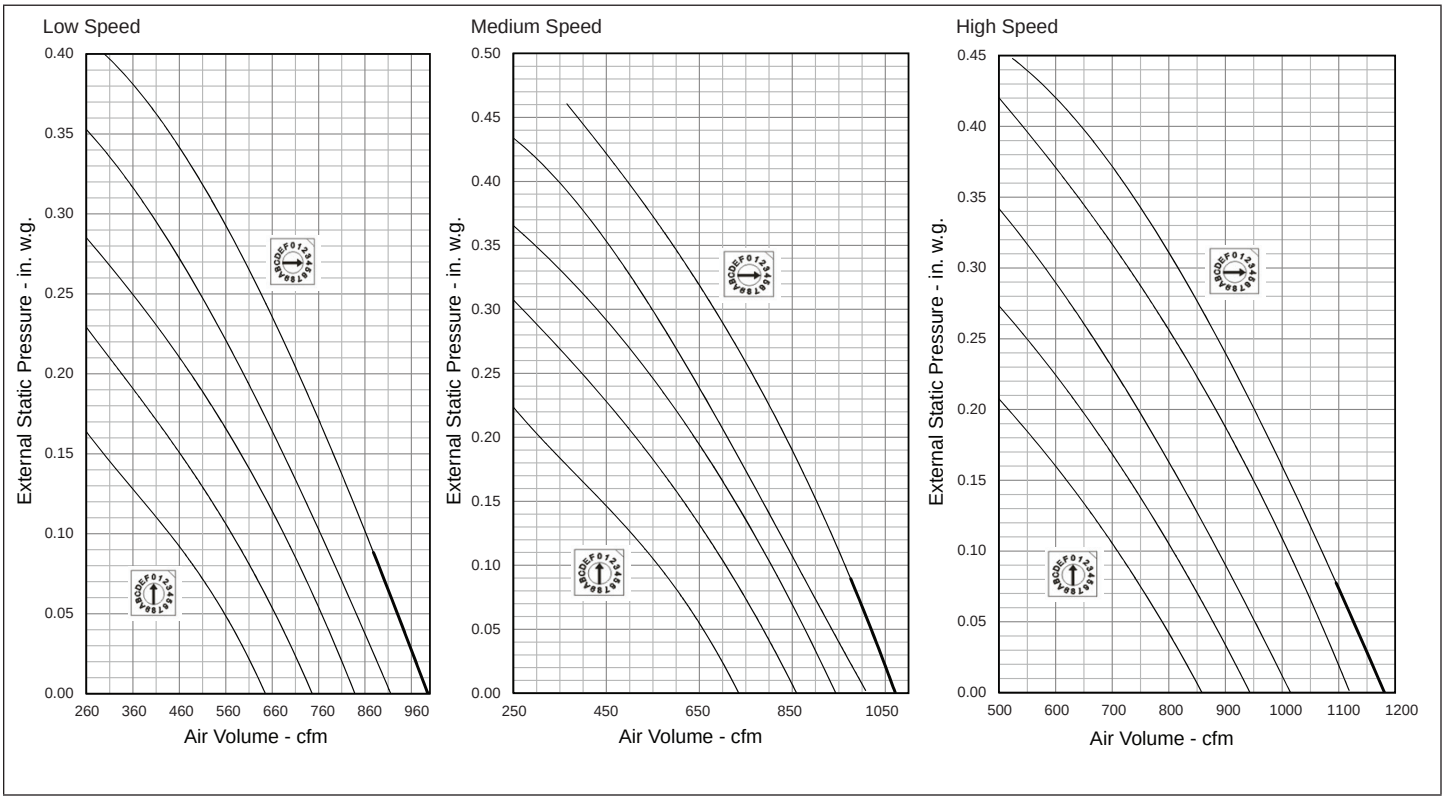
2.3.3. MMDA024S4



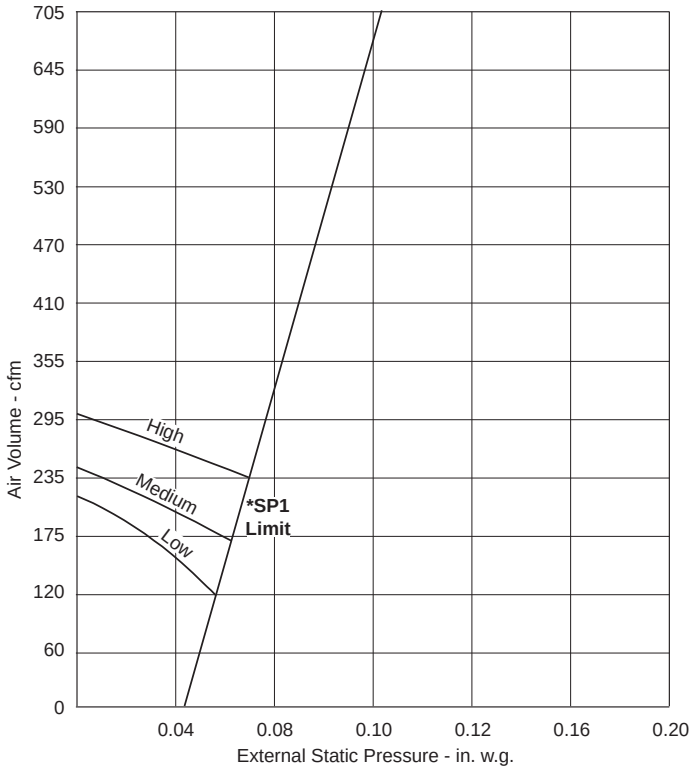
2.3.4. MMDA036S4



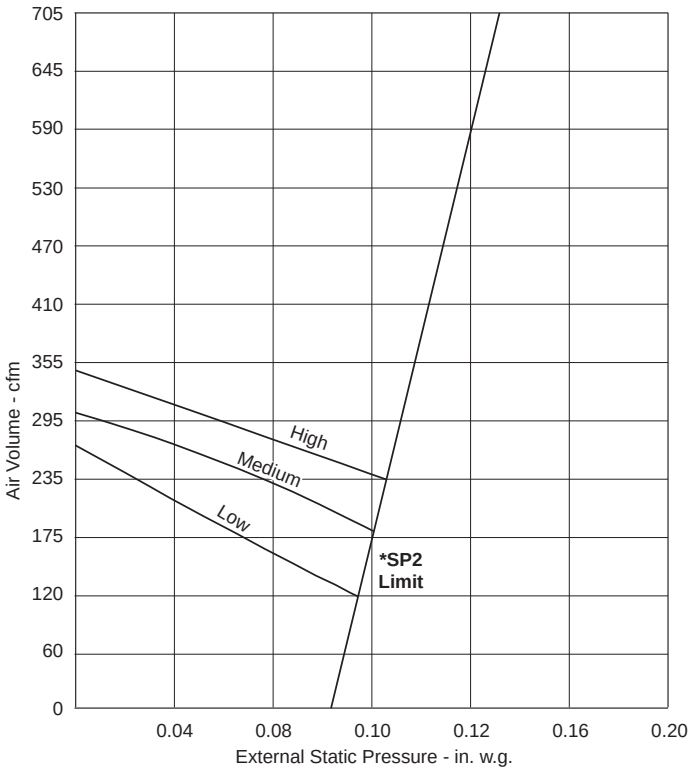
2.3.5. MMDA048S4



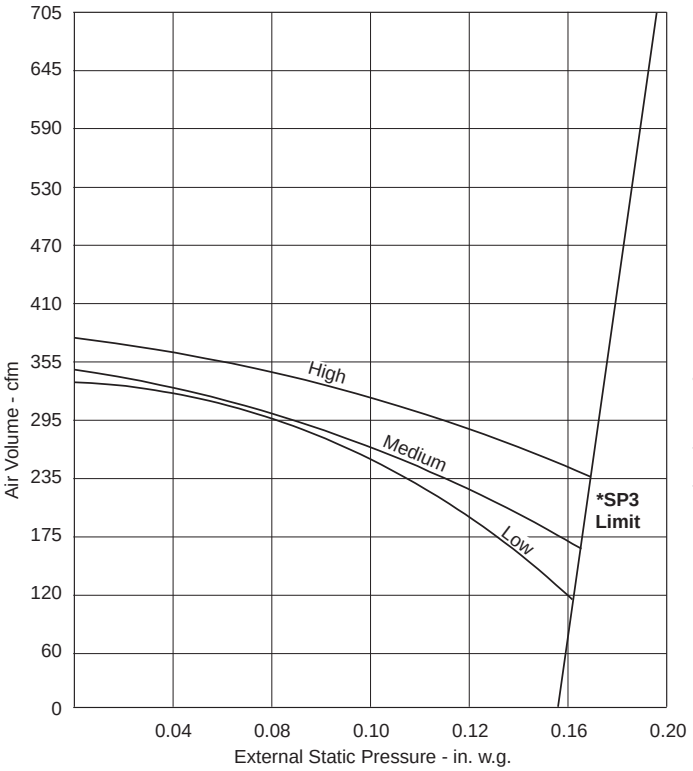
2.3.6. MMDB009S4



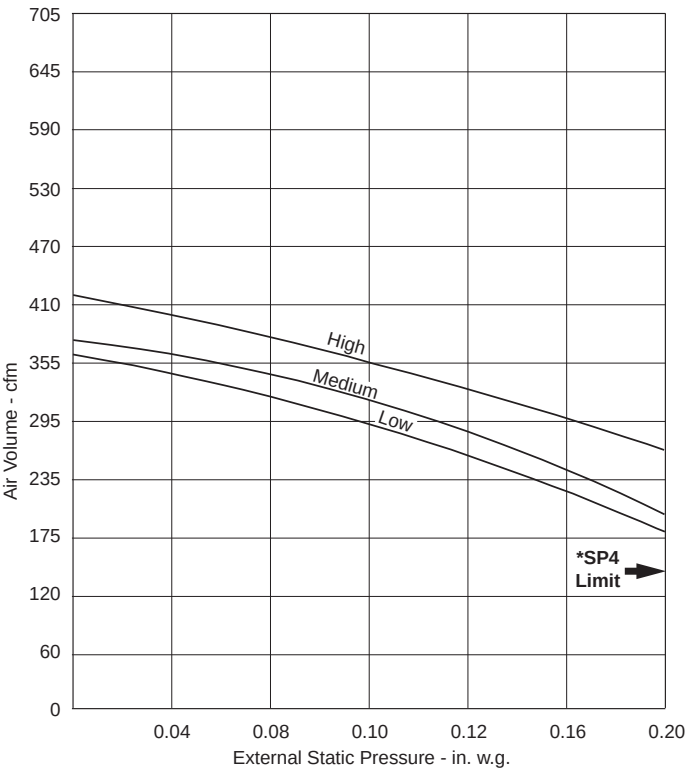
**SP1 Limit airflow rate setting on the controller.*



**SP2 Limit airflow rate setting on the controller.*

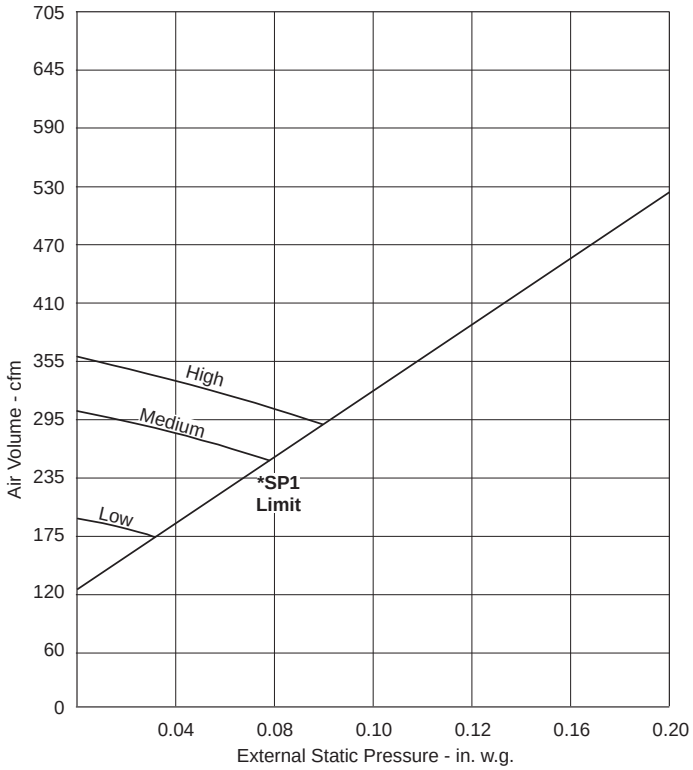


**SP3 Limit airflow rate setting on the controller.*

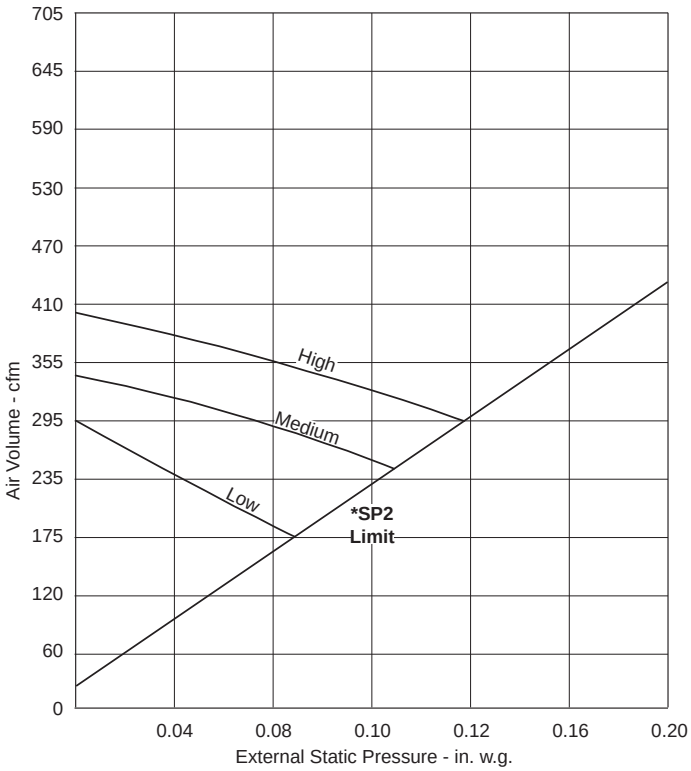


**SP4 Limit airflow rate setting on the controller.*

2.3.7. MMDB012S4



**SP1 Limit airflow rate setting on the controller.*



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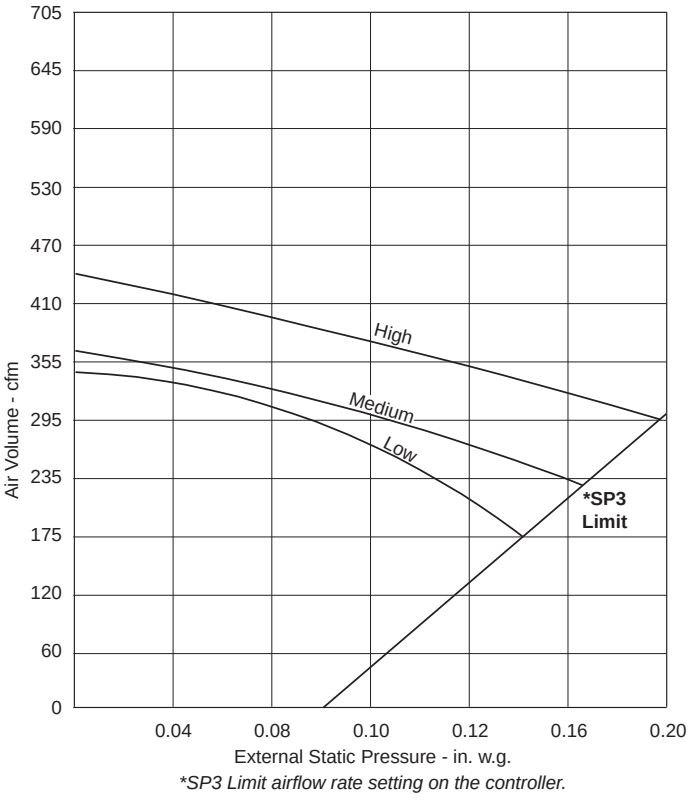
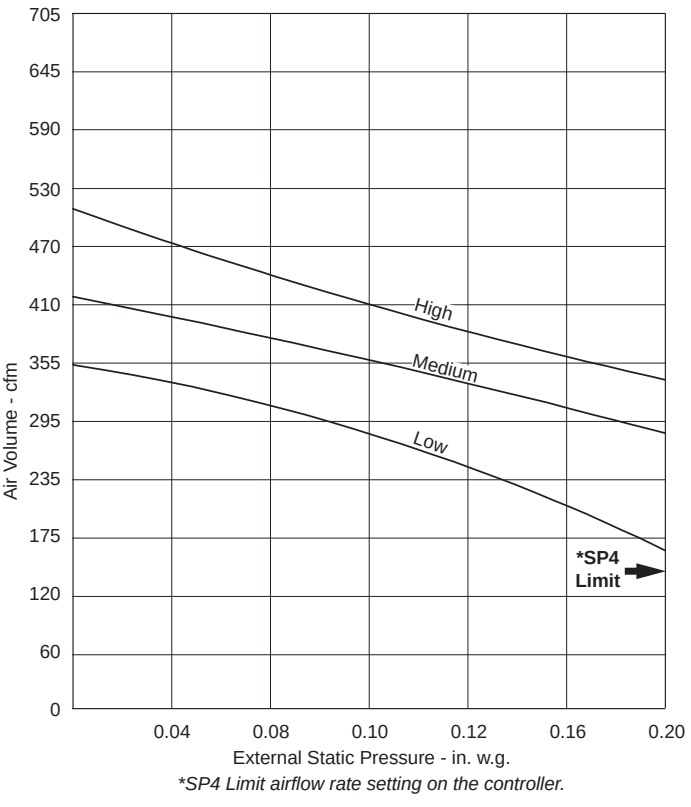
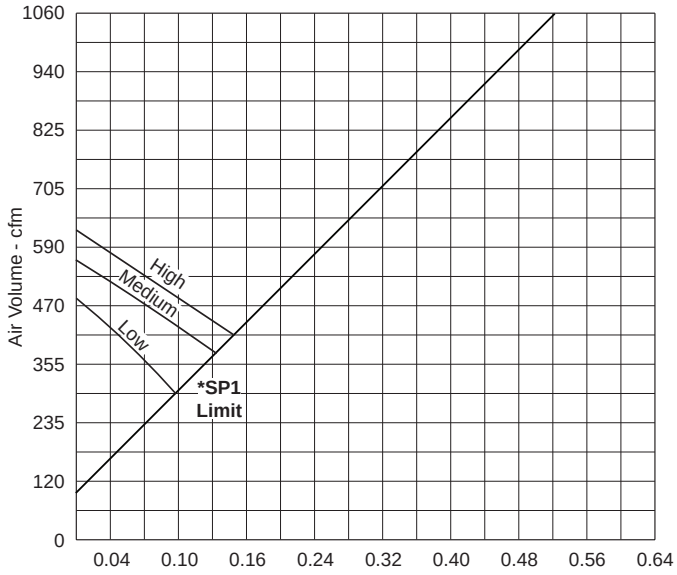


**SP3 Limit airflow rate setting on the controller.*

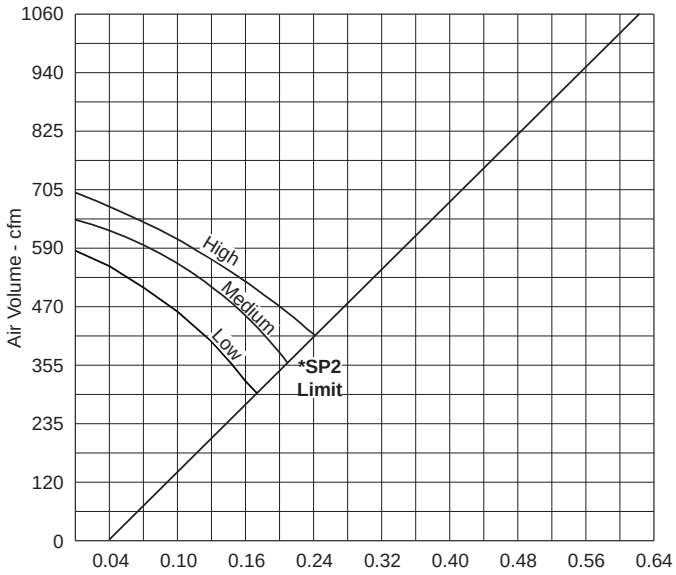


**SP4 Limit airflow rate setting on the controller.*

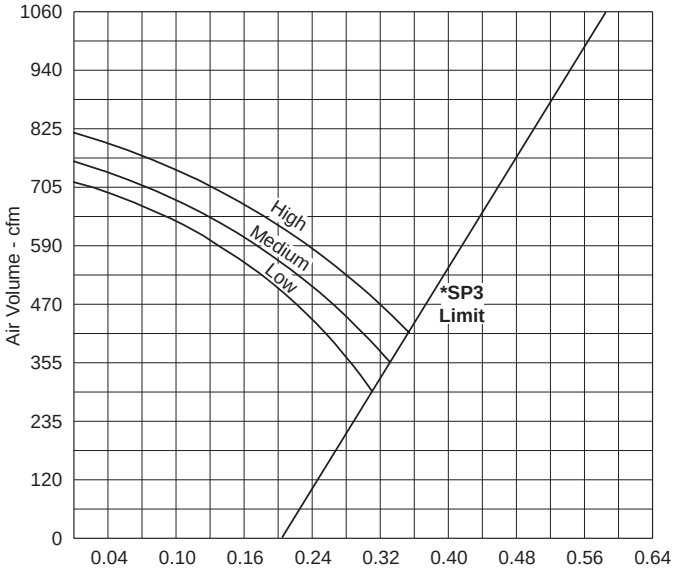
2.3.8. MMDB018S4



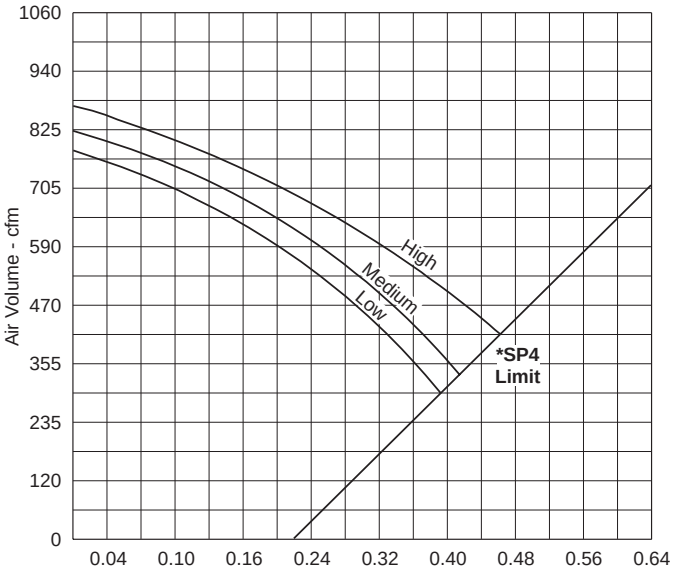
**SP1 Limit airflow rate setting on the controller.*



**SP2 Limit airflow rate setting on the controller.*

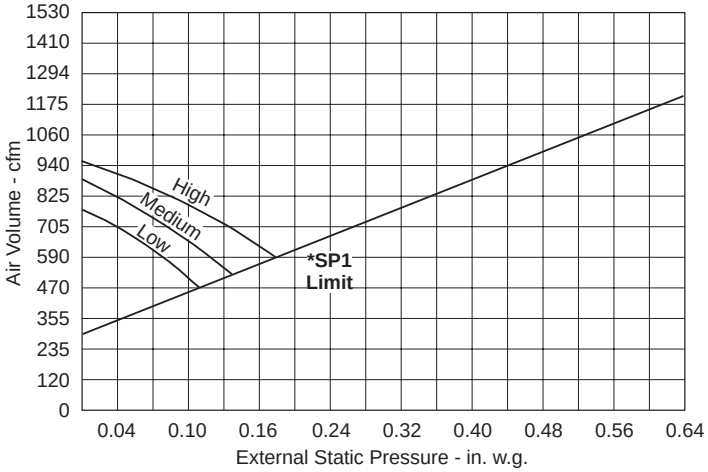


**SP3 Limit airflow rate setting on the controller.*

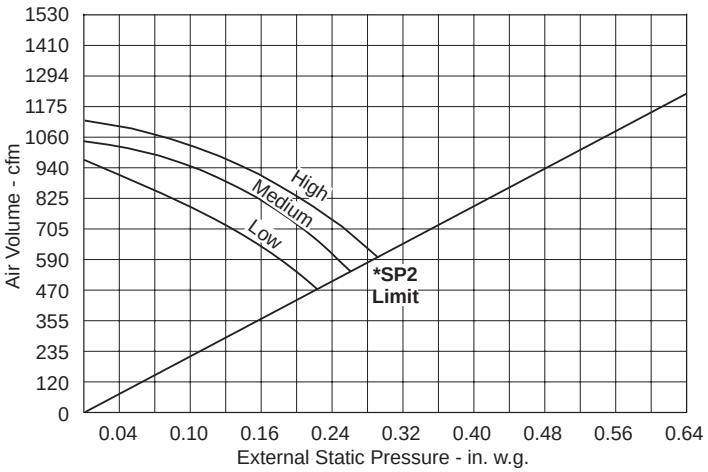


**SP4 Limit airflow rate setting on the controller.*

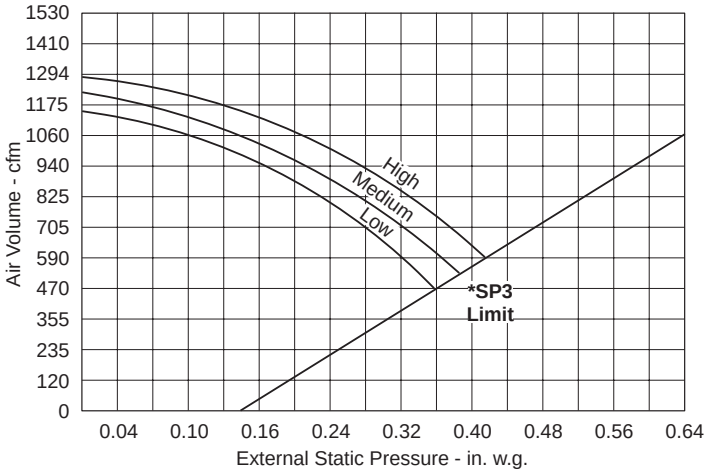
2.3.9. MMDB024S4



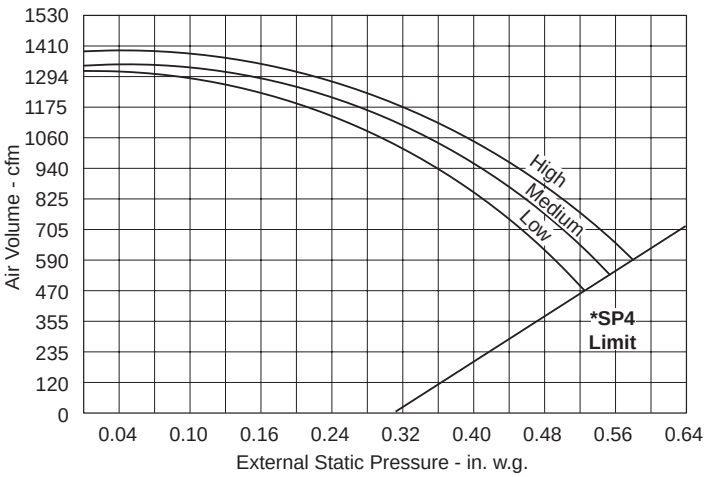
**SP1 Limit airflow rate setting on the controller.*



**SP2 Limit airflow rate setting on the controller.*

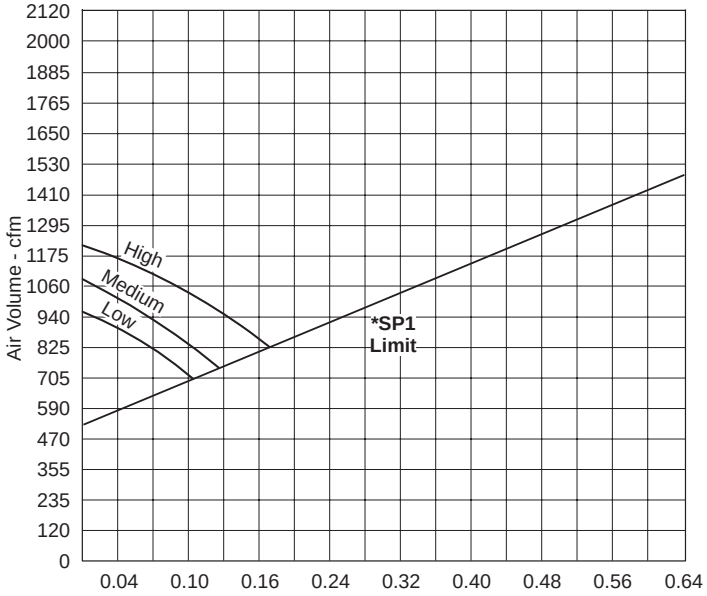


**SP3 Limit airflow rate setting on the controller.*

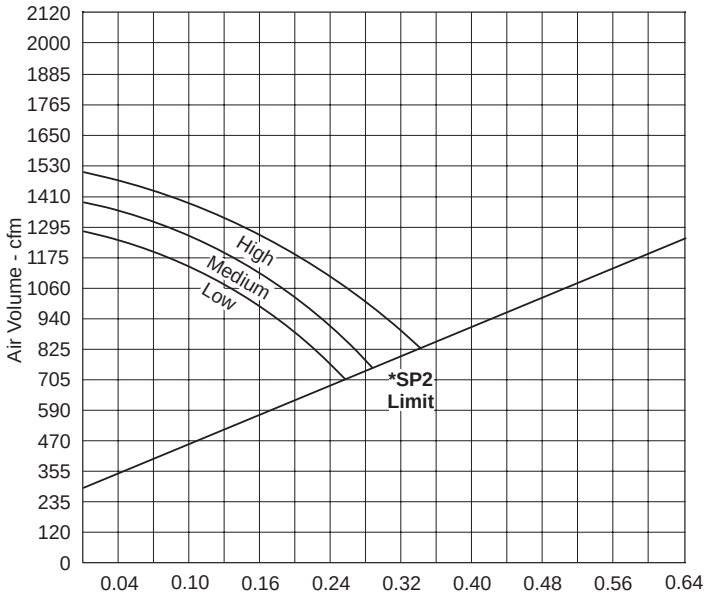


**SP4 Limit airflow rate setting on the controller.*

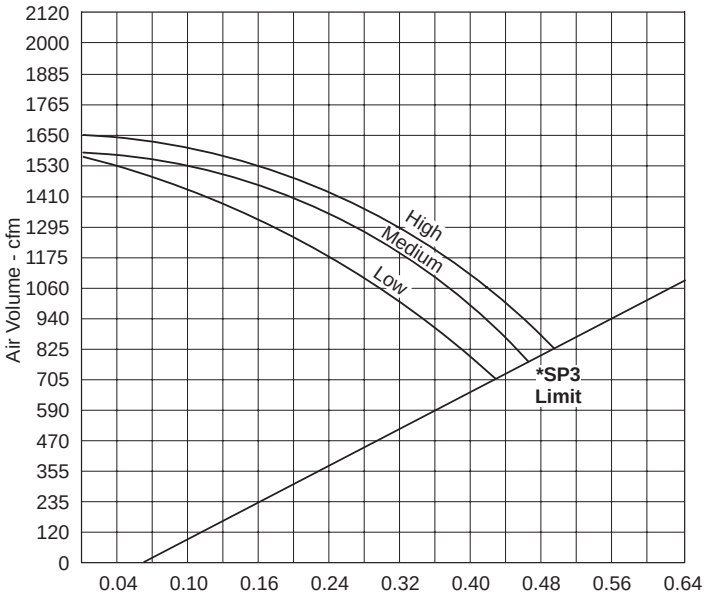
2.3.10. MMDB036S4



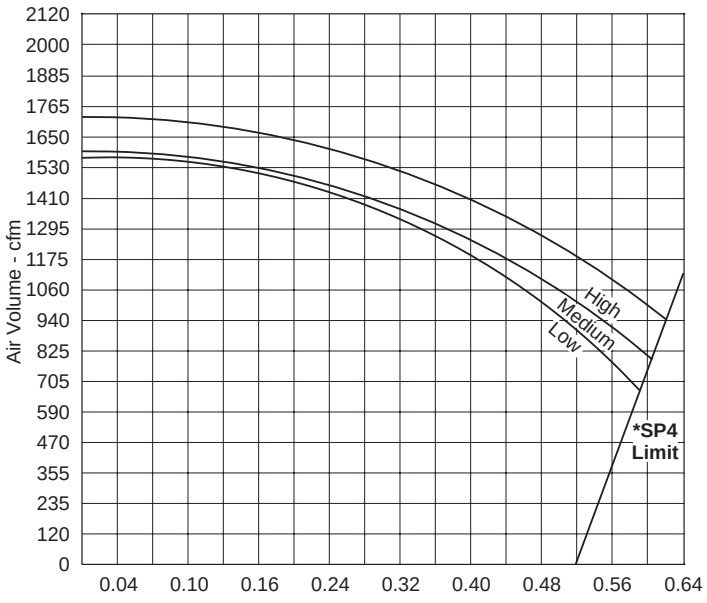
**SP1 Limit airflow rate setting on the controller.*



**SP2 Limit airflow rate setting on the controller.*

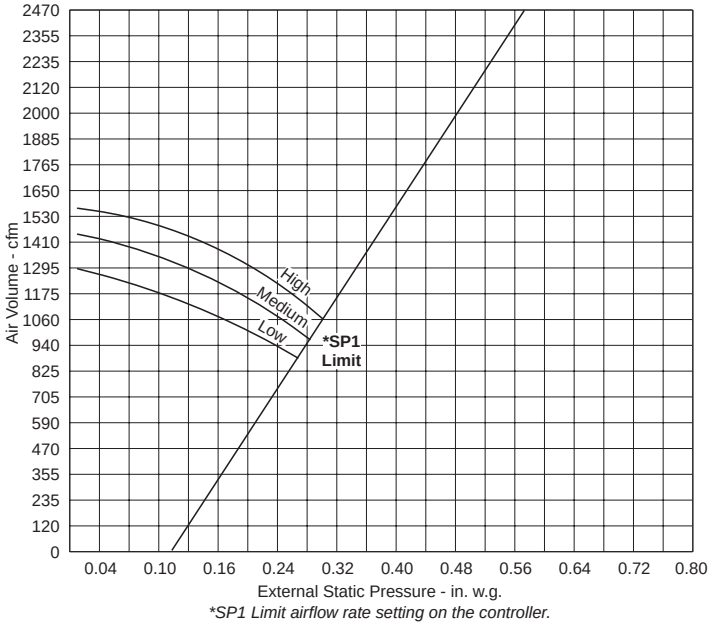


**SP3 Limit airflow rate setting on the controller.*

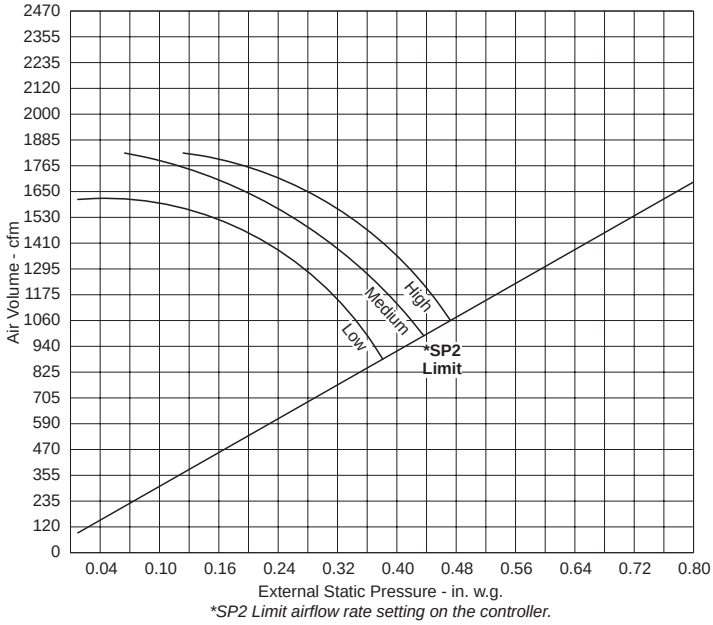


**SP4 Limit airflow rate setting on the controller.*

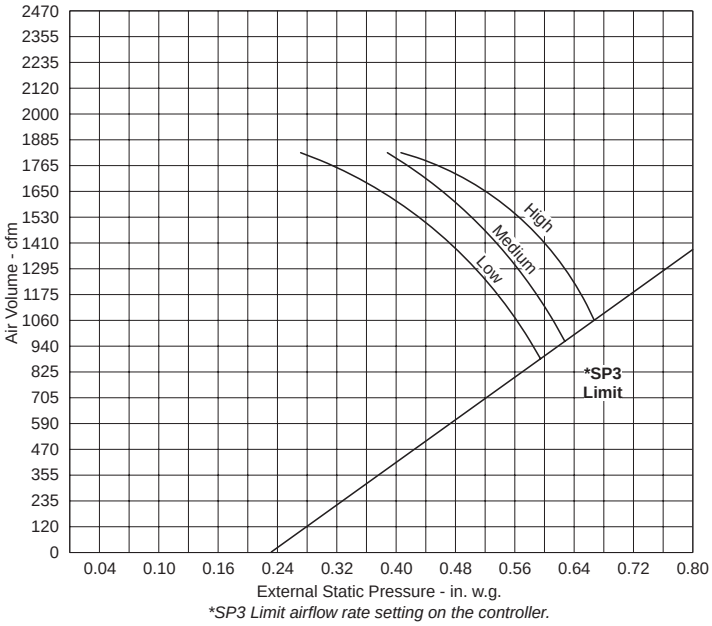
2.3.11. MMDB048S4



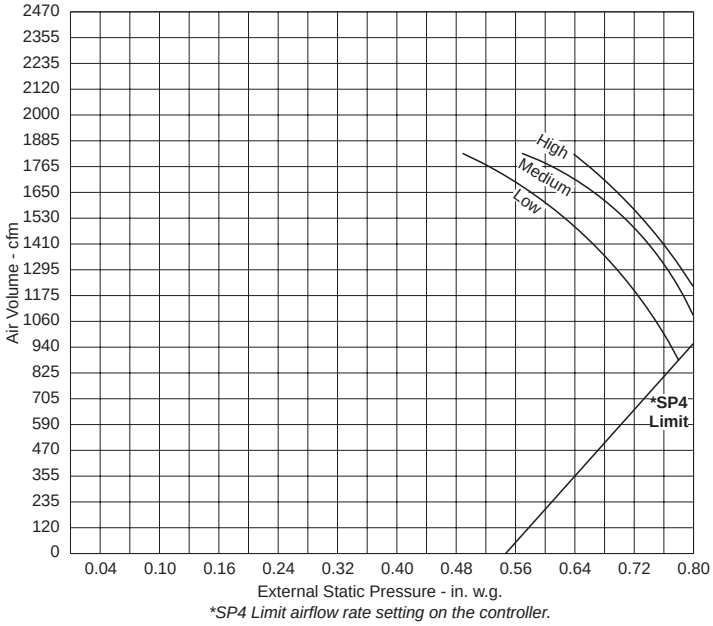
**SP1 Limit airflow rate setting on the controller.*



**SP2 Limit airflow rate setting on the controller.*

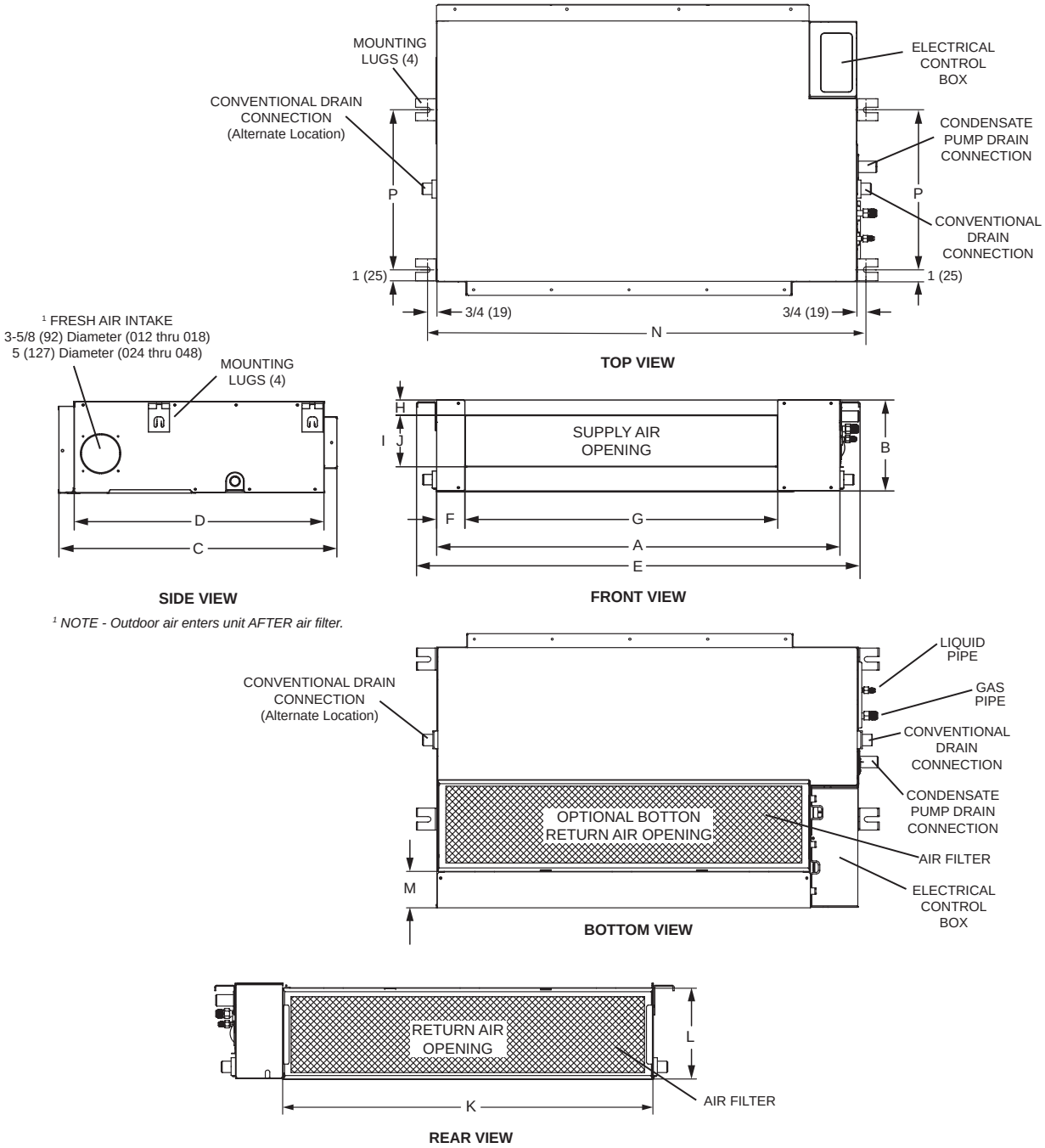


**SP3 Limit airflow rate setting on the controller.*



**SP4 Limit airflow rate setting on the controller.*

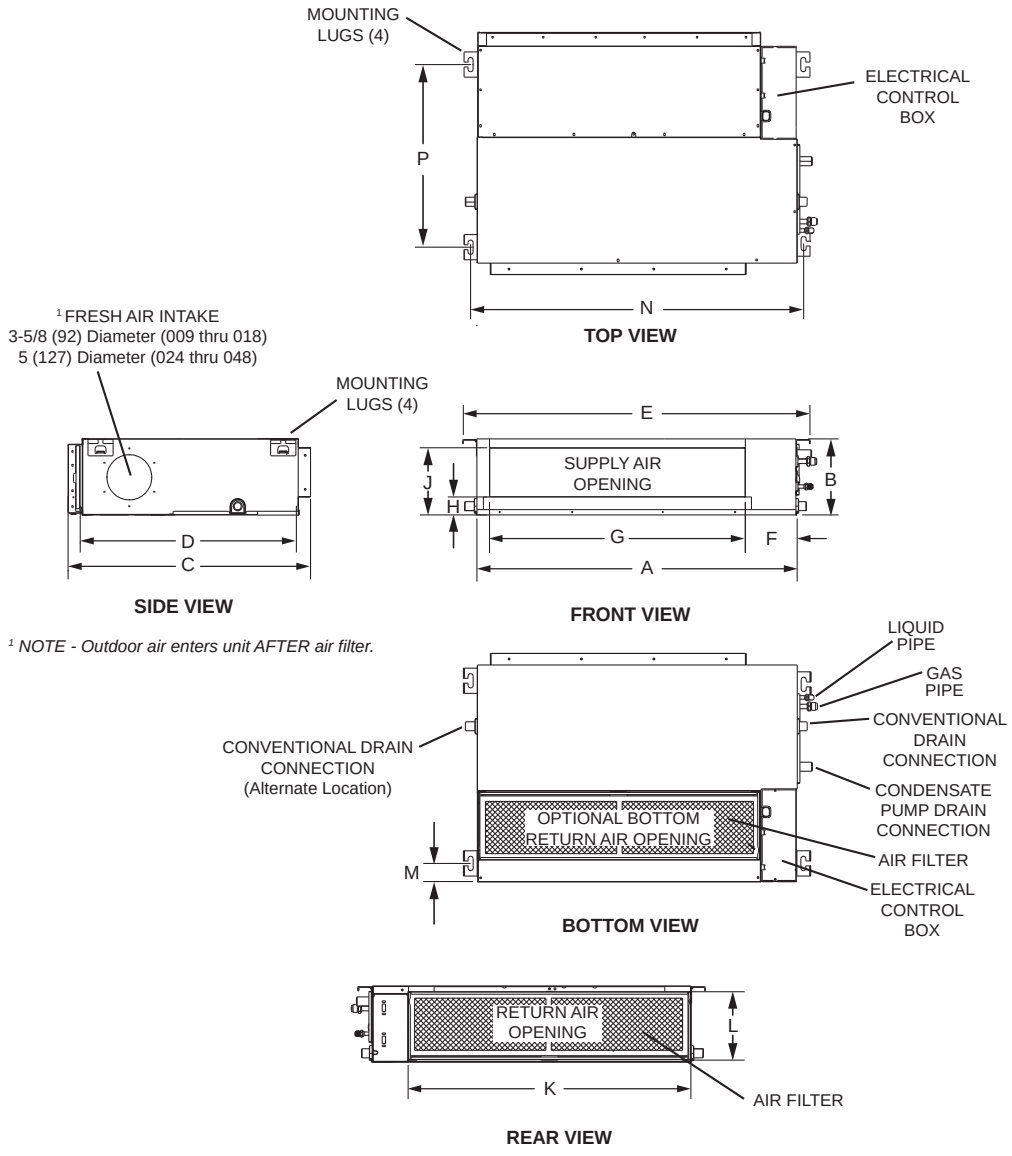
2.4. MMDA Indoor Unit Dimensions



MMDA 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

MMDA 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

2.5. MMDB Indoor Unit Dimensions

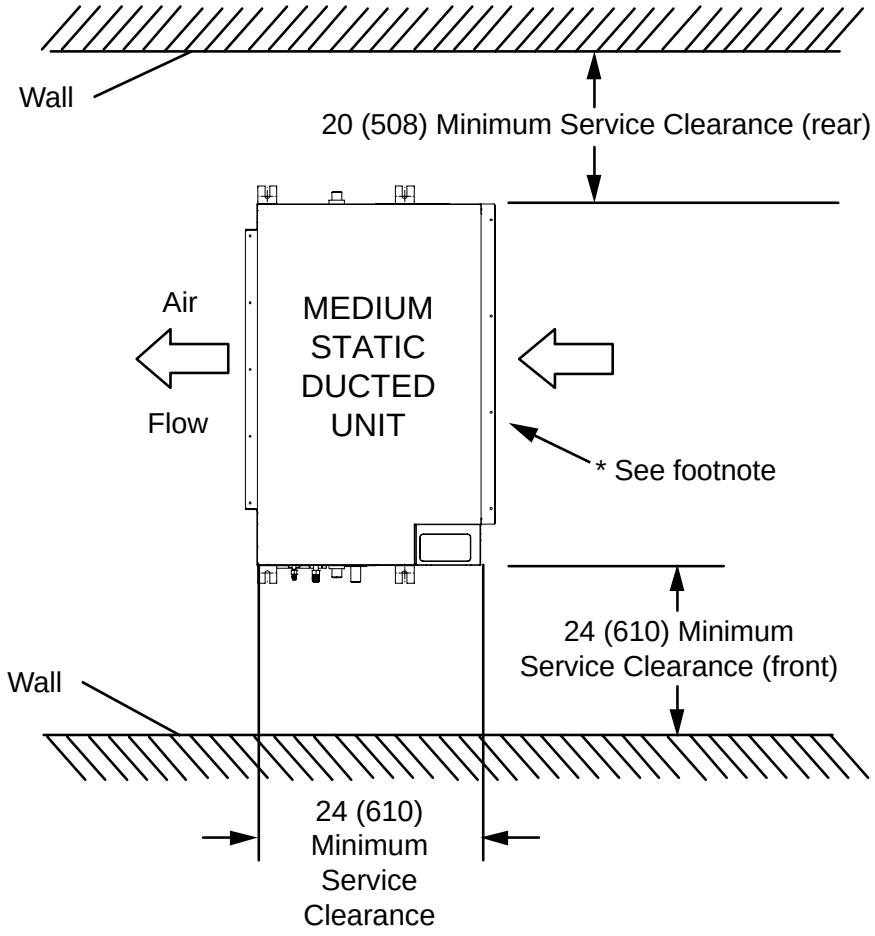


Size	A		B		C		D		E		F		G		H	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
009 thru 012	27-5/8	702	7-7/8	200	19-7/8	505	17-3/4	451	30-3/4	781	5-3/8	137	21-1/8	537	1-1/8	29
018	34-5/8	879	8-1/4	210	26-1/2	673	23-5/8	600	37-7/8	962	5-1/2	140	27-3/4	705	2	51
024	43-1/4	1099	9-3/4	248	30-1/2	775	27-1/2	699	46-1/2	1181	5-1/2	140	36-1/2	927	2	51
036	53-1/2	1359	9-3/4	249	30-1/2	775	27-1/2	699	56-3/4	1441	5-1/2	140	46-3/4	1187	2	51
048	47-1/4	1200	11-7/8	302	34-3/8	873	31-1/2	800	50-1/2	1283	4-7/8	124	41-1/8	1045	2	51

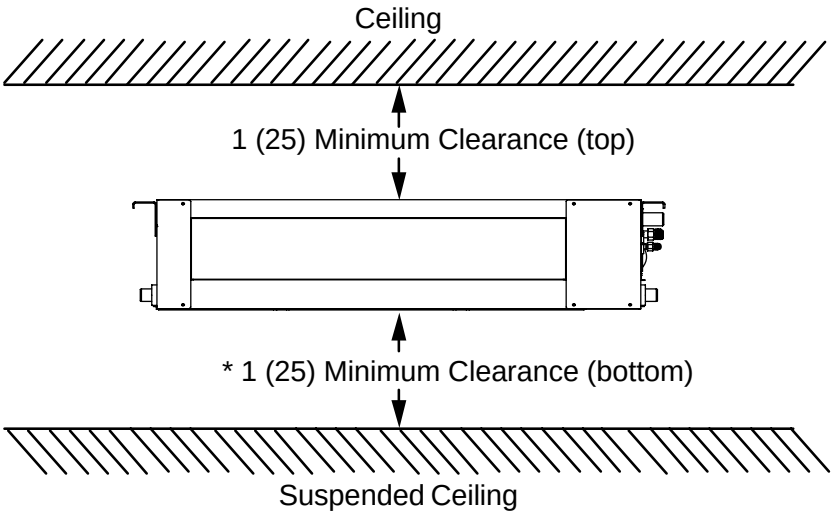
Size	J		K		L		M		N		P	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
009 thru 012	6	152	23-5/8	600	7-3/8	187	2	51	29-1/8	740	14-1/8	359
018	5-3/8	137	30-3/4	781	7-1/2	191	1-5/8	41	36-1/4	921	20	508
024	6-7/8	175	39-3/8	1000	9	229	1/4	6	44-7/8	1140	23-1/2	597
036	6-7/8	175	49-5/8	1260	9	229	1/4	6	55-1/8	1400	23-1/2	597
048	9	229	43-3/8	1102	11	279	1/4	6	48-7/8	1241	27-1/2	699

Figure 1. MMDB Indoor Ducted Unit Dimensions - Inches (mm)

2.6. MMDA and MMDB Indoor Unit Clearances



TOP VIEW



*** NOTE - Bottom unit clearance can be 1 inch (25 mm), but allow 12 inches for filter removal on end return air applications**

FRONT VIEW

3. MWMA, MWMB and 3WMB-036 Wall Mounted Indoor Units

3.1. Model Number Identification

M WM A 012 S 4 - 1 P

Series Type
M = Mini-Split

Unit Type
WM = Wall-Mounted Non-Ducted Unit

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

Nominal Cooling Capacity
009 = .75 tons
012 = 1 tons
018 = 1.5 tons
024 = 2 tons
030 = 2.5 tons

Cooling Efficiency
S = Standard Efficiency

Refrigerant Type
4 = R-410A

Minor Design Sequence
1 = 1st Revision
2 = 2nd Revision

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

---

3 WM B 036 S 4 - 1 P

Series Type
3 = 3 ton indoor unit for
3PB/3WMB Wall-Mount system

Unit Type
WM = Wall-Mounted Non-Ducted Unit

Major Design Sequence
B = 2nd Generation

Nominal Cooling Capacity
036 = 3 tons

Cooling Efficiency
S = Standard Efficiency

Refrigerant Type
4 = HFC-410A

Minor Design Sequence
1 = 1st Revision

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

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

* Indicates could be minor revision 1 or 2.	Model No.	MWMA009S4-*L MWMB009S4-*L	MWMA009S4-*P	MWMA012S4-*L MWMB012S4-*L	MWMA012S4-*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

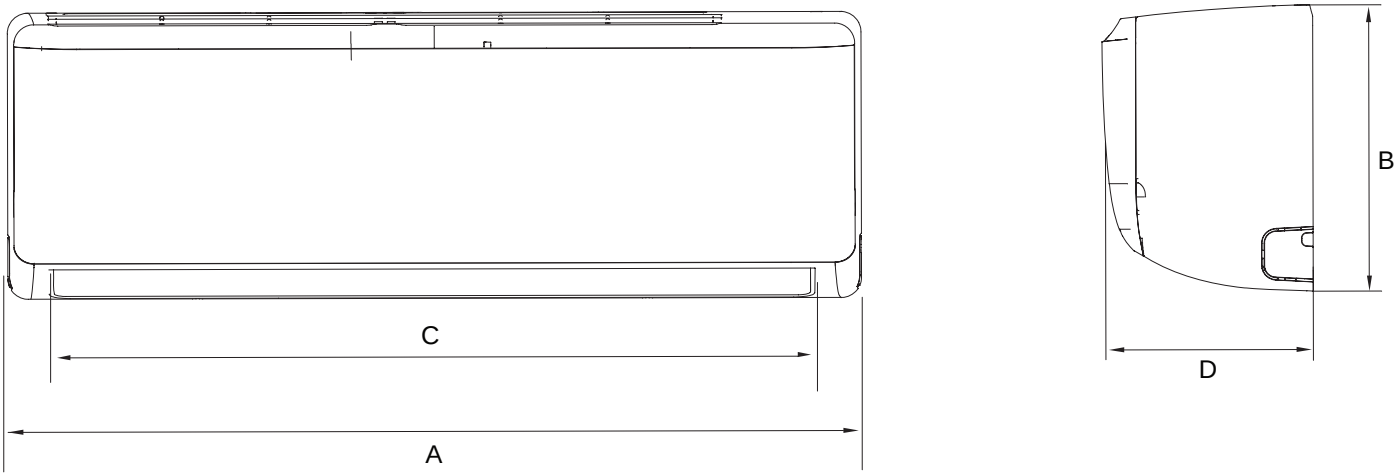
3.3. Indoor Unit Specifications (018 - 030 Ton) Units

* Indicates could be minor revision 1 or 2.	Model No.	MWMA018S4-*P	MWMA024S4-*P	MWMA030S4-*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

3.4. Indoor Unit Specifications (3WMB)

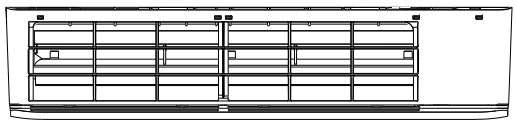
	Indoor Unit Model No.	3WMB036S4
	Nominal Tons	3
	Power Supply - 60 hz - 1 phase	208/230V
	Rated load amps	0.5
Output (W)		60
Room Temperature Range (°F)	Cooling	62 - 90
	Heating	32 - 86
Air Volume - cfm (High/Medium/Low)		794/647/500
Sound Data (dBA) - Low/Medium/High		38/44/48.5
Piping Connections - Liquid/Gas - o.d. - flare - in.		3/8 / 5/8
Drain connection o.d. - in.		0.69
Shipping Data	Net/Shipping weights - lbs.	40 / 50

3.5. Indoor Unit Dimensions (MWMA, WMMB and 3WMB)

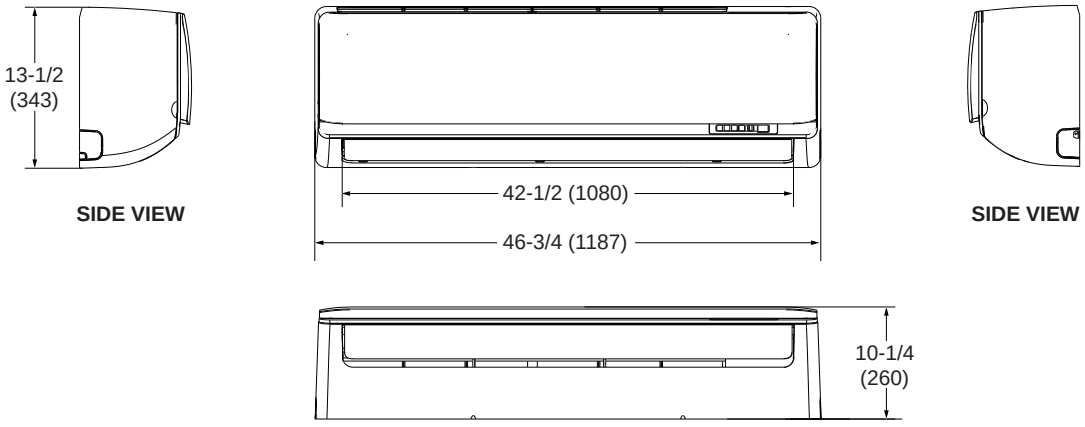


Size	A		B		C		D	
	in.	mm	in.	mm	in.	mm	in.	mm
MWMA009S4S-*L	32-7/8	835	11	279	29-1/4	743	7-7/8	200
MWMB009S4S-*L								
MWMA012S4S-*L								
MWMB012S4S-*L								
MWMA009S4S-*P								
MWMA012S4S-*P								
MWMA018S4S-*P	39	991	12-3/8	314	34-3/4	883	8-5/8	210
MWMA024S4S-*P	46-3/4	1187	13-1/2	343	42-1/2	1080	10-1/4	260
MWMA030S4S-*P								
MWMB030S4S-*P								

3WMB036S4



TOP VIEW

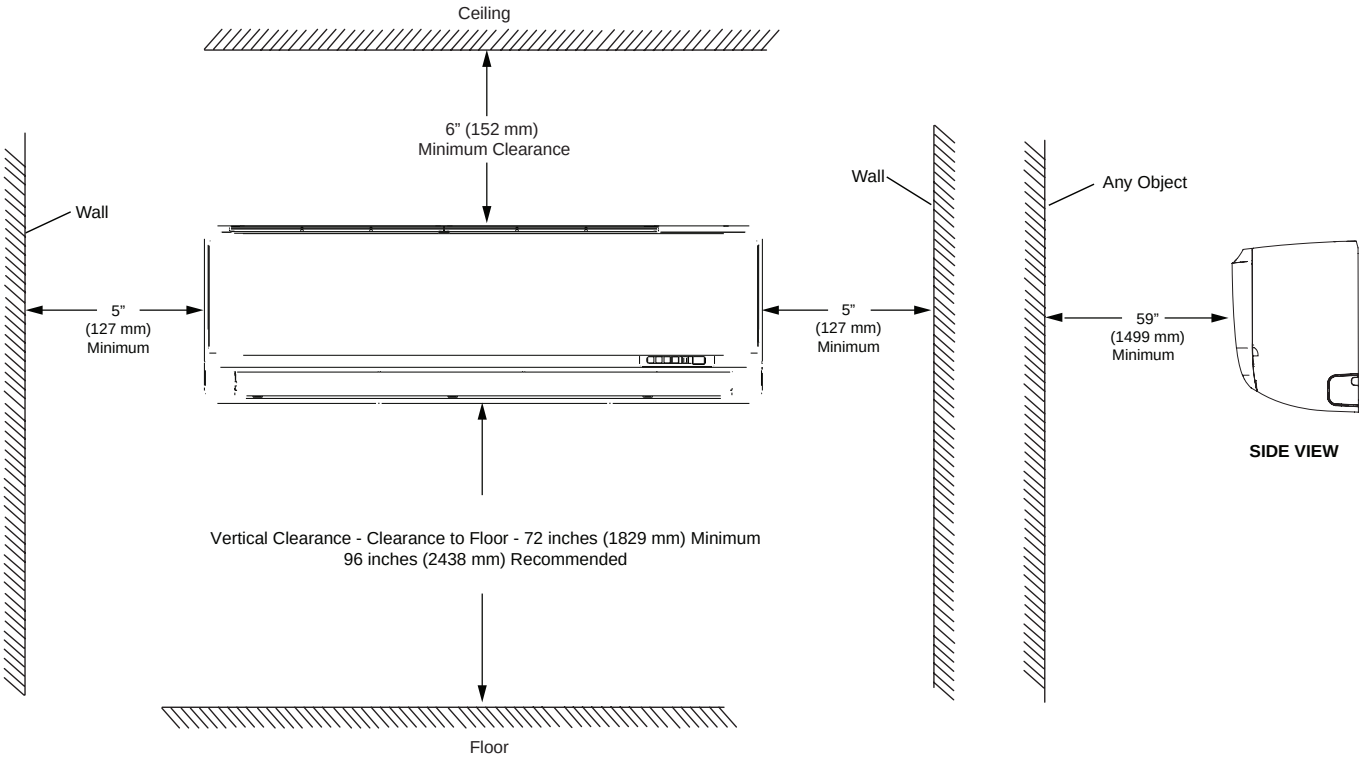


SIDE VIEW **SIDE VIEW**

BOTTOM VIEW

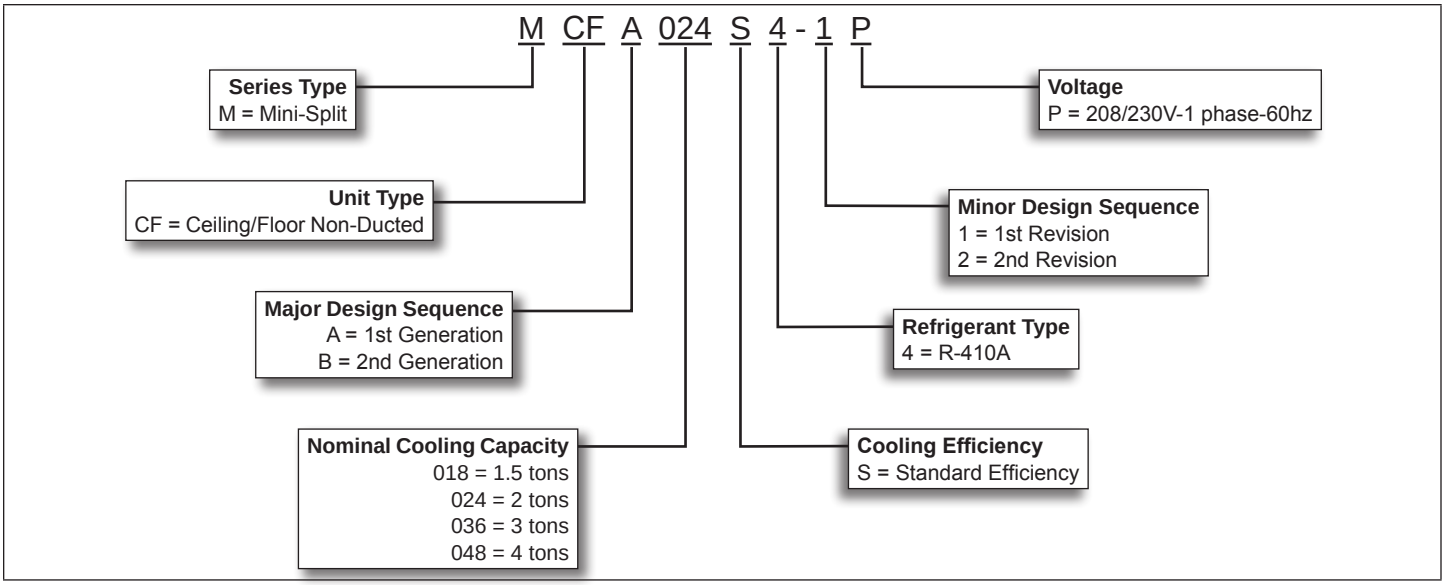
Figure 2. Indoor Unit Dimensions - Inches (mm)

3.6. Indoor Unit Clearances (All Models and Sizes)



4. MCFA and MCFB Ceiling / Floor Indoor Units

4.1. Model Number Identification

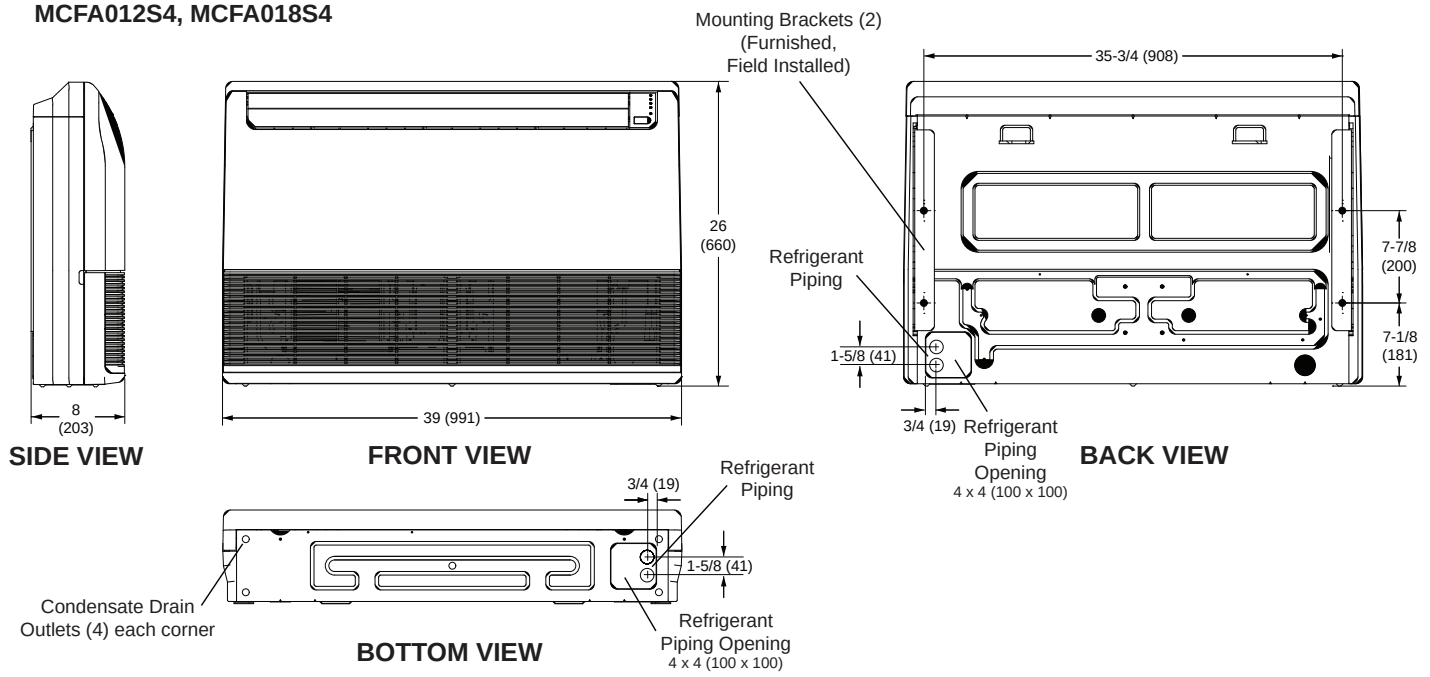


4.2. Indoor Unit Specifications (018 - 048 Ton) Units

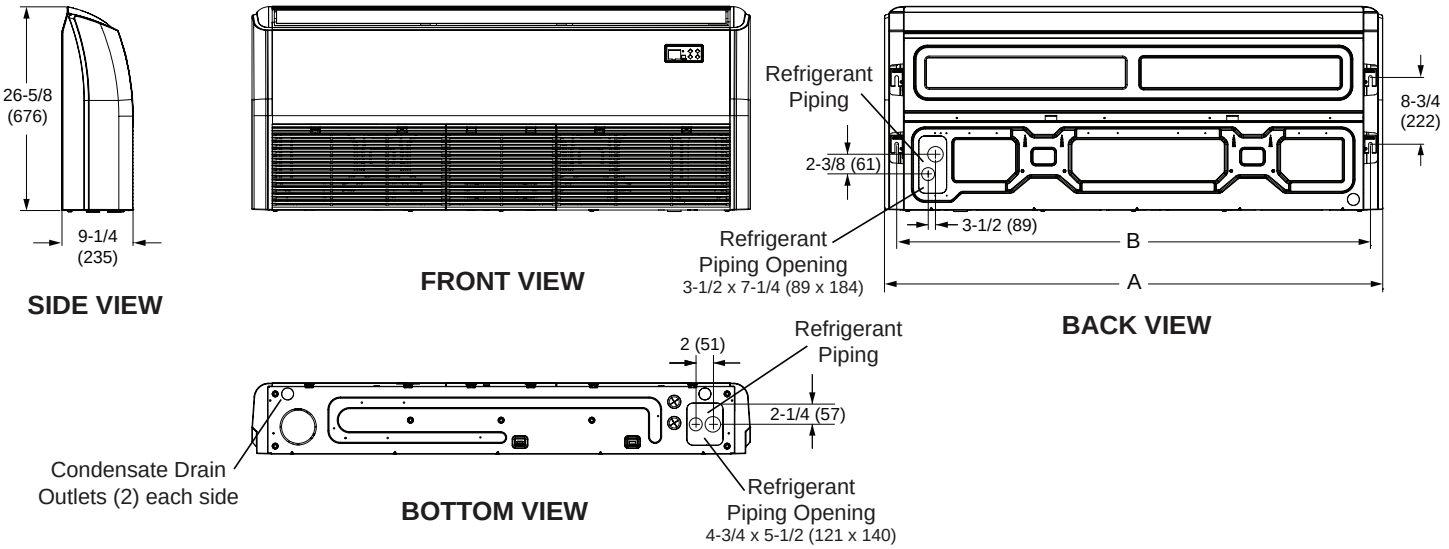
	Model No.	MCFB018S4-*P	MCFA024S4-*P	MCFA036S4-*P	MCFA048S4-*P
	Nominal Tons	1.5	2	3	4
Power Supply - 60 hz - 1 phase		208/230V	208/230V	208/230V	208/230V
Rated load amps		1.5	2	1.5	1.8
Output (W)		55	55	115	(2) 90
Room Temperature Range (°F)	Cooling	62 - 90	62 - 90	62 - 90	62 - 90
	Heating	32 - 86	32 - 86	32 - 86	32 - 86
Air Volume - cfm (High/Medium/Low)		580/520/465	760/710/600	1035/915/640	1350/1120/1000
Sound Data (dBA) - Low/Medium/High		39/44/47	42/48/53	43/49/54	52/54/57
Piping Connections - Liquid/Gas - o.d. - flare - in.		1/4 / 1/2	3/8 / 5/8	3/8 / 5/8	3/8 / 5/8
Drain connection o.d. - in.		1	1	1	1
Net/Shipping weights - lbs.		55 / 66	59 / 70	69 / 82	84 / 97

4.3. Indoor Unit Dimensions

MCFA012S4, MCFA018S4



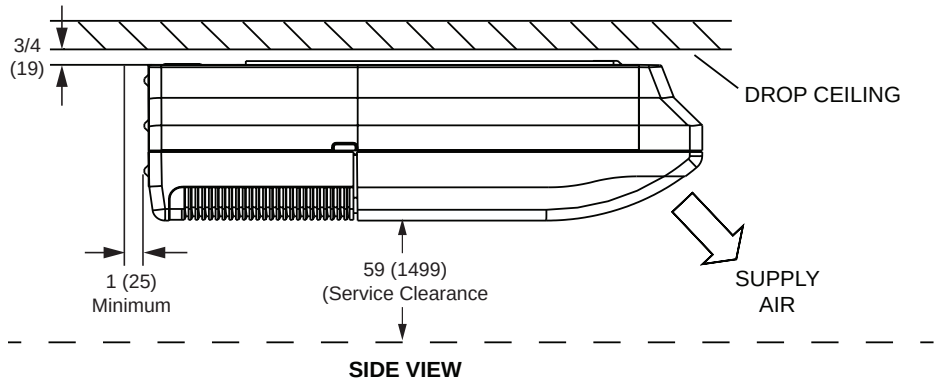
MCFB018S4, MCFA024S4, MCFA036S4, MCFA048S4



Model No.	A		B	
	in.	mm	in.	mm
MCFA024S4S-*P	42-1/8	1070	39	991
MCFA036S4S-*P	50-5/8	1286	47-3/8	1203
MCFA048S4S-*P	65	1651	61-3/4	1568
MCFB018S4S-*P	42-1/8	1070	39	991

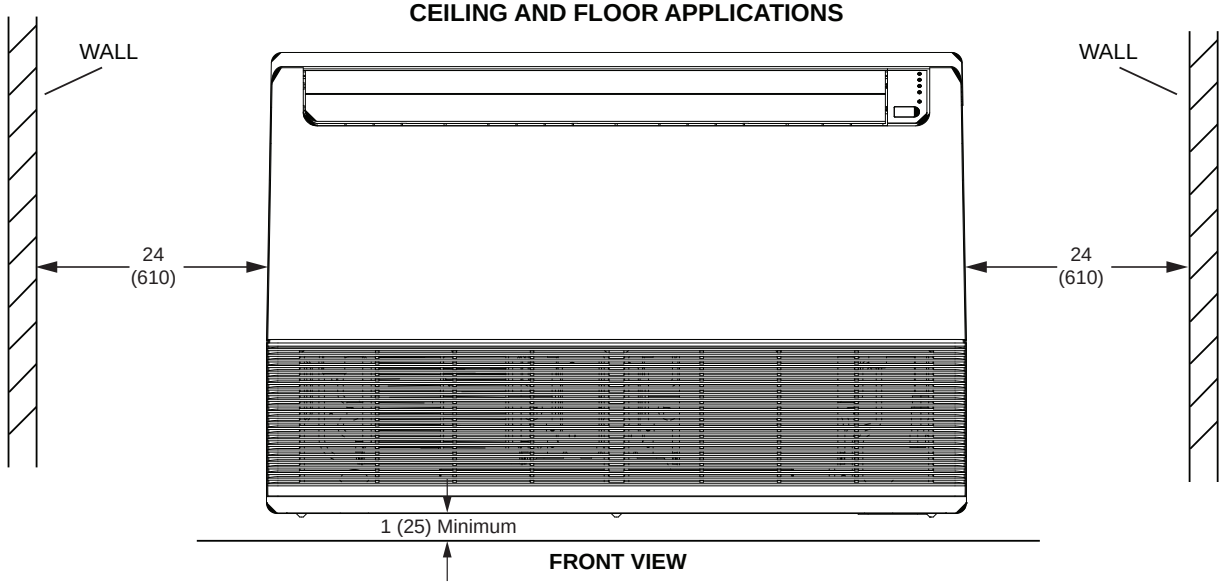
4.4. Indoor Unit Clearances

CEILING APPLICATIONS



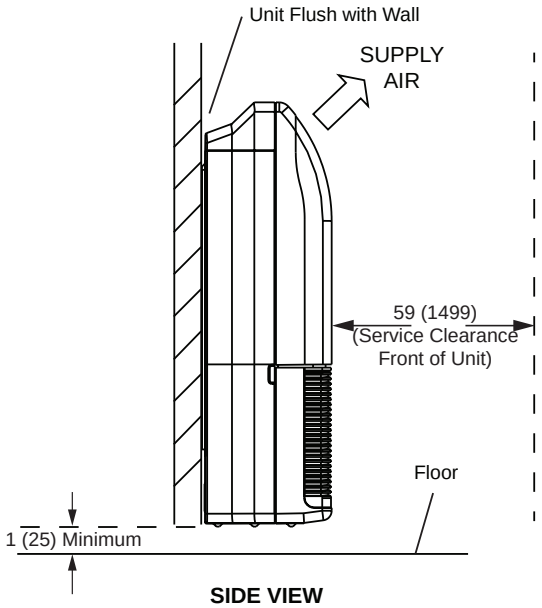
SIDE VIEW

CEILING AND FLOOR APPLICATIONS



FRONT VIEW

FLOOR APPLICATIONS



SIDE VIEW

5. Power and Communication Wiring for Systems

⚠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).

5.1. Overview

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

- All indoor units are powered by the outdoor unit.
- Make all electrical power wiring connections at the outdoor unit.
- Size outdoor unit power per local code and power requirements.
- Connect wiring between indoor and outdoor terminals.
- 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.

See “Table 1. Single Zone Mini-Split Wiring Guide” on page 30 and “Table 2. Multi-Zone Installation Wiring Requirements” on page 31 for wiring requirements.

5.2. Wire Gauge

Table 1. Single Zone Mini-Split Wiring Guide

Systems	System Capacity	System Voltage	Number of Conductors	Wire Type	Wire Gauge
Indoor to Outdoor Wiring (Communication/ Power) 1, 2, 3 and GND	09K and 12K	115VAC	4	Stranded	16AWG*4 Stranded, unshielded
Outdoor to Main Power L, N and GND	09K and 12K	115VAC	3	Stranded	MCA: 15A 14AWG*3
Indoor to Outdoor Wiring (Communication/Power) 1, 2, 3 and GND	09K and 12K	208/230 VAC	4	Stranded	16AWG*4 Stranded, unshielded
Outdoor to Main Power L1, L2 and GND	09K and 12K	208/230 VAC	3	Stranded	MCA: 9A 16AWG*3
Indoor to Outdoor Wiring (Communication/Power) 1, 2, 3 and GND	18K	208/230 VAC	4	Stranded	16AWG*4 Stranded, unshielded
Outdoor to Main Power L1, L2 and GND	18K	208/230 VAC	3	Stranded	MCA: 18A 14AWG*3
Indoor to Outdoor Wiring (Communication/Power) 1, 2, 3 and GND	24K	208/230 VAC	4	Stranded	16AWG*4 Stranded, unshielded
Outdoor to Main Power L1, L2 and GND	24K	208/230 VAC	3	Stranded	MCA: 20A 12AWG*3
Indoor to Outdoor Wiring (Communication/Power) 1, 2, 3 and GND	30K	208/230 VAC	4	Stranded	16AWG*4 Stranded, unshielded
Outdoor to Main Power L1, L2 and GND	30K	208/230 VAC	3	Stranded	MCA: 20A 12AWG*3
Indoor to Outdoor Wiring (Power only) L1, L2 and GND	36K	208/230 VAC	3	Stranded	16AWG*3 Stranded, unshielded
Indoor to Outdoor Wiring (Communication only) (S1, S2 and GND)	36K	208/230 VAC	3	Stranded (shielded)	24AWG*3
Outdoor to Main Power L1, L2 and GND	36K	208/230 VAC	3	Stranded	MCA: 30A 10AWG*3
Indoor to Outdoor Wiring (Power only) L1, L2 and GND	48K	208/230 VAC	3	Stranded	16AWG*3 Stranded, unshielded
Indoor to Outdoor Wiring (Communication only) (S1, S2 and GND)	48K	208/230 VAC	3	Stranded (shielded)	24AWG*3
Outdoor to Main Power L1, L2 and GND	48K	208/230 VAC	3	Stranded	MCA: 35A 8AWG*3

Table 2. Multi-Zone Installation Wiring Requirements

System and Terminal Designations	System Capacity	System Voltage	Number of Conductors	Wire Type	Wire Gauge / MCA
Indoor to Outdoor Unit					
Indoor to Outdoor Wiring (Communication/Power) 1, 2, 3 and GND	09K and 12K	208/230VAC	4	Stranded and unshielded	16AWG
Outdoor to Main Power L1, L2 and GND	09K and 12K	208/230VAC	3	Stranded and unshielded	16AWG / 9A
Indoor to Outdoor Wiring (Communication/Power) 1, 2, 3 and GND	18K	208/230VAC	4	Stranded and unshielded	16AWG
Outdoor to Main Power L1, L2 and GND	18K	208/230VAC	3	Stranded and unshielded	14AWG / 18A
Indoor to Outdoor Wiring (Communication/Power) 1, 2, 3 and GND	24K	208/230VAC	4	Stranded and unshielded	16AWG
Multi-Zone Outdoor Unit to Main Power					
Outdoor to Main Power L1, L2 and GND	18K	208/230VAC	3	Stranded and unshielded	14AWG / 18A
Outdoor to Main Power L1, L2 and GND	30K	208/230VAC	3	Stranded and unshielded	12AWG / 25A
Outdoor to Main Power L1, L2 and GND	36K	208/230VAC	3	Stranded and unshielded	10AWG / 30A
Outdoor to Main Power L1, L2 and GND	48K	208/230VAC	3	Stranded and unshielded	8AWG / 35A
MCA = Minimum Circuit Amps					

5.3. Terminal Connections

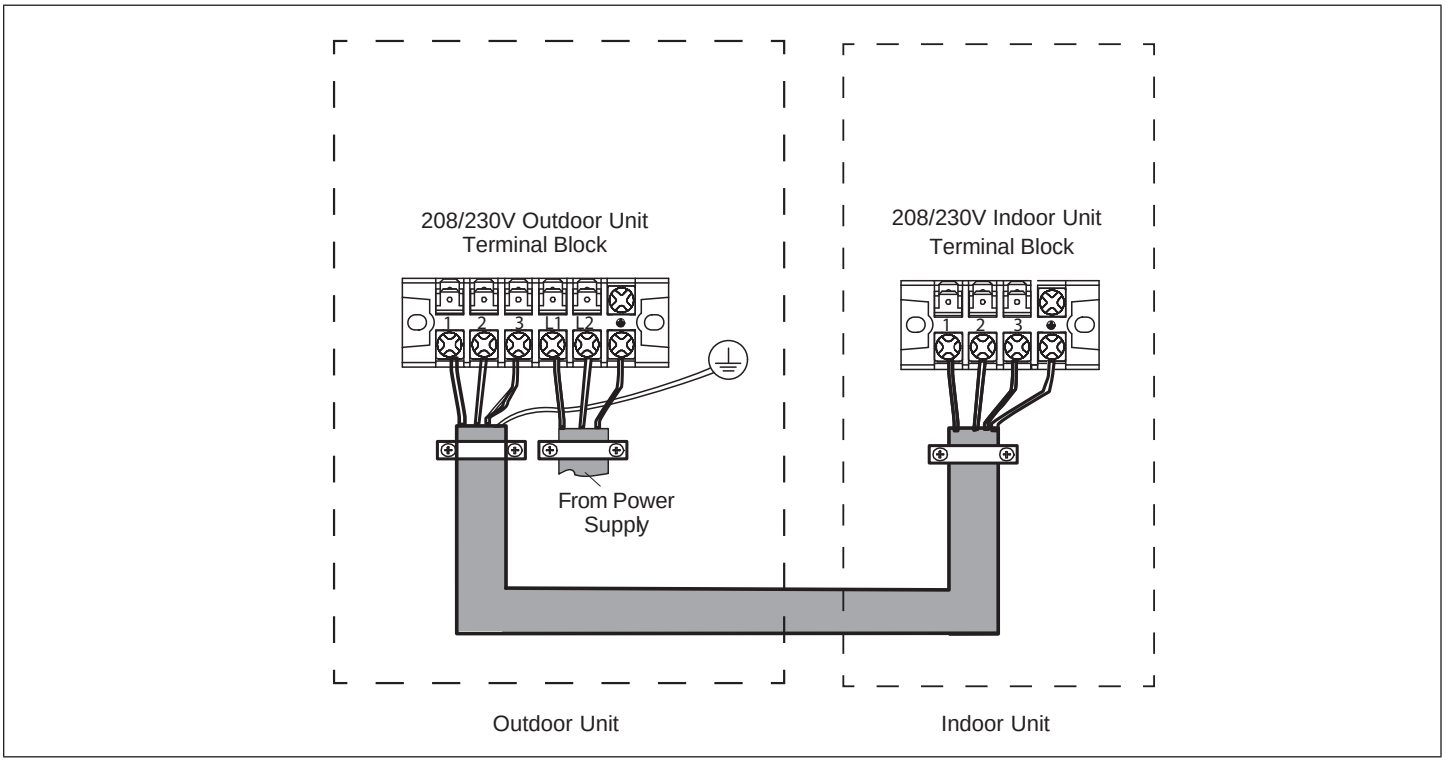


Figure 3. Single-Zone Wiring 30K and Below

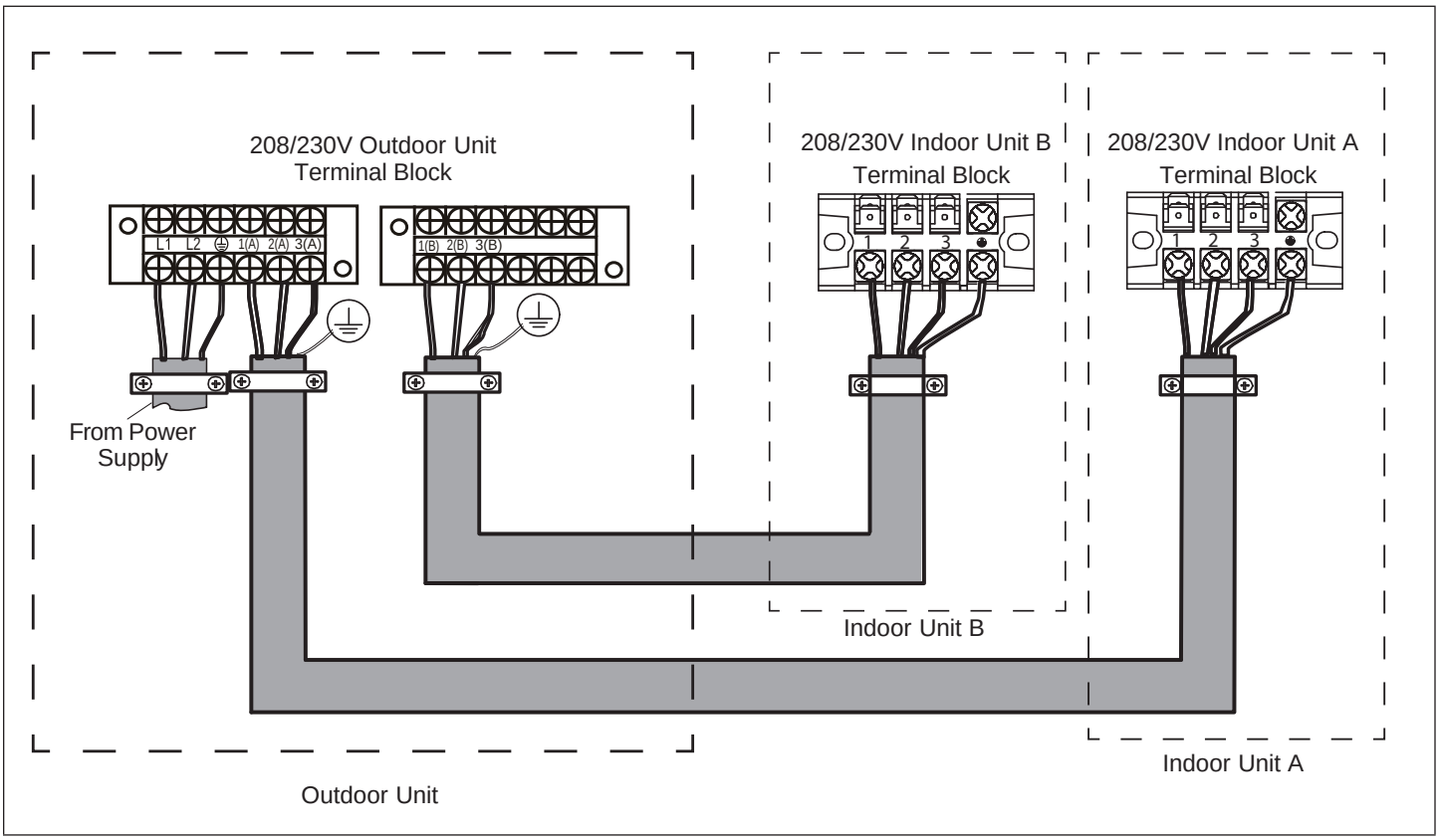


Figure 4. Multi-Zone Wiring 24K and Below

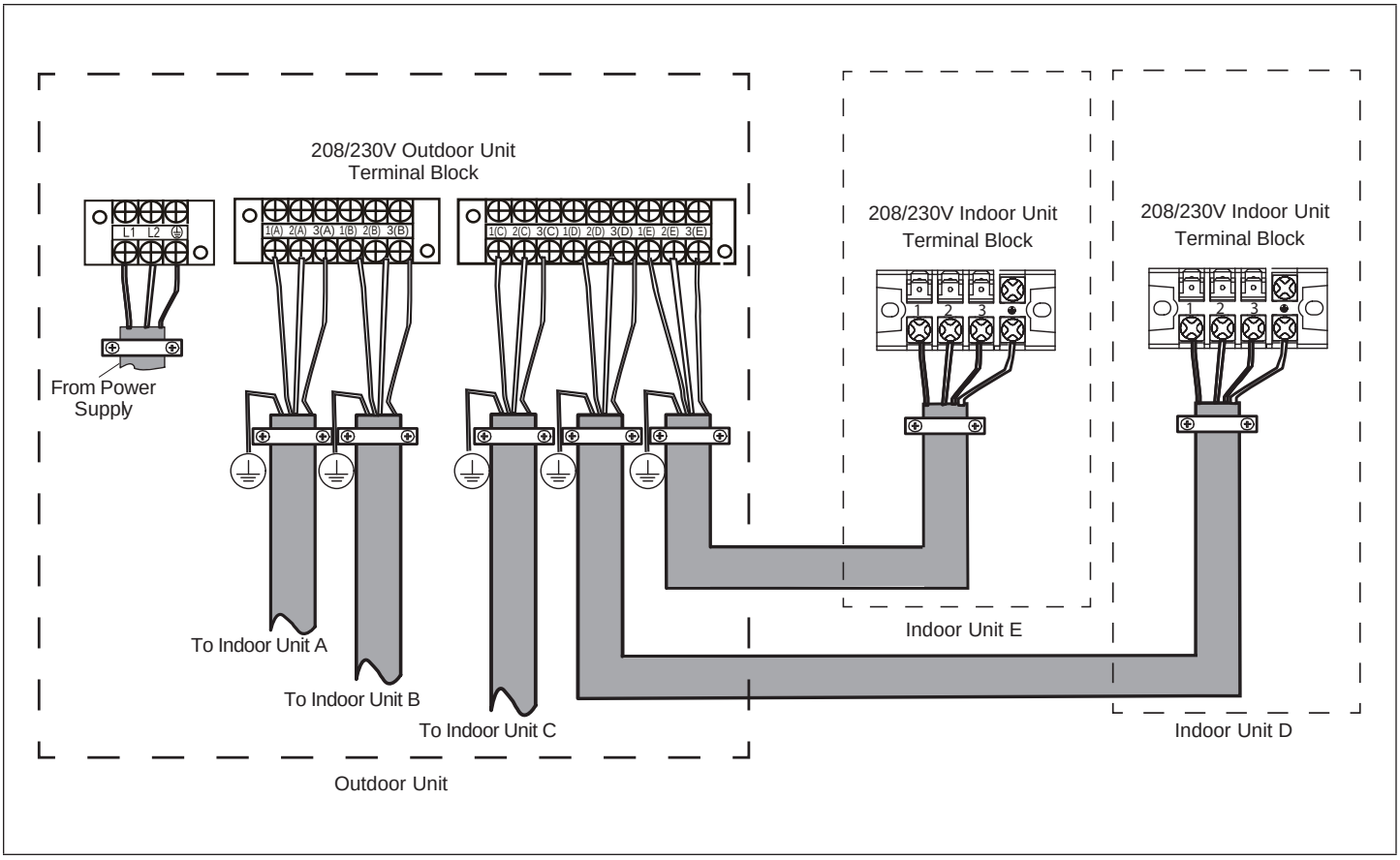


Figure 5. Multi-Zone Wiring

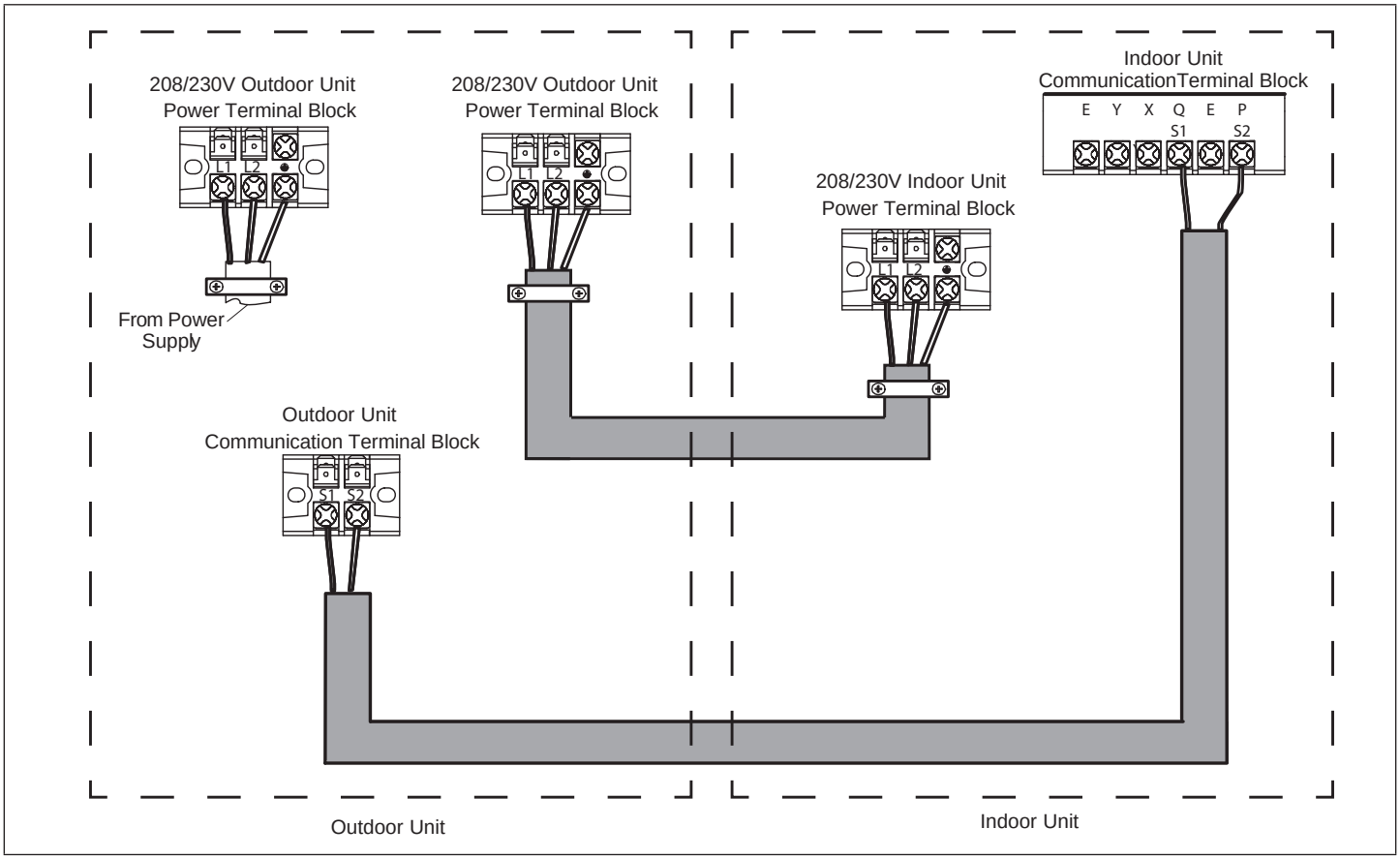


Figure 6. Communication - Single-Zone Wiring 36K and 48K Only

6. Indoor Unit Diagrams

6.1. MWMA and MWMB Indoor Unit

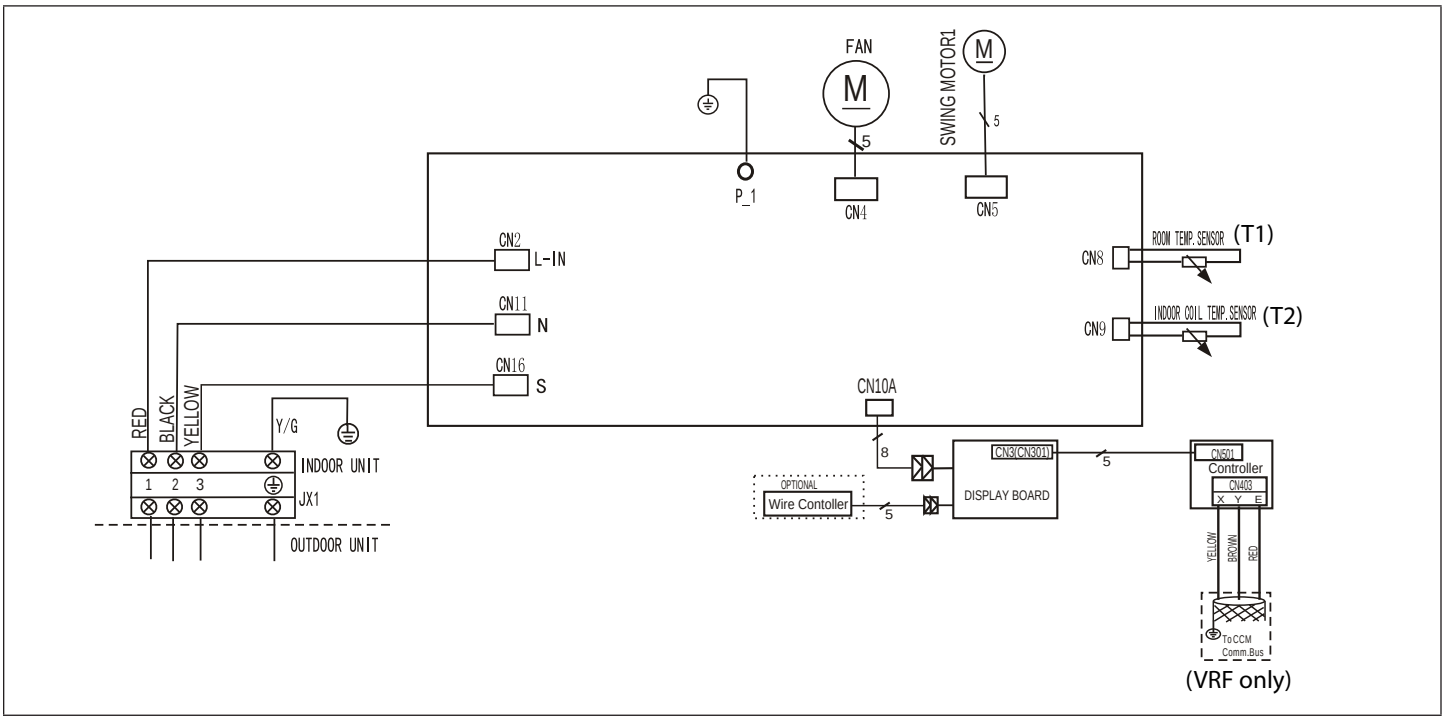


Figure 7. MWMA , MWMB and 3WMB036S4-1P Unit Wiring Diagram

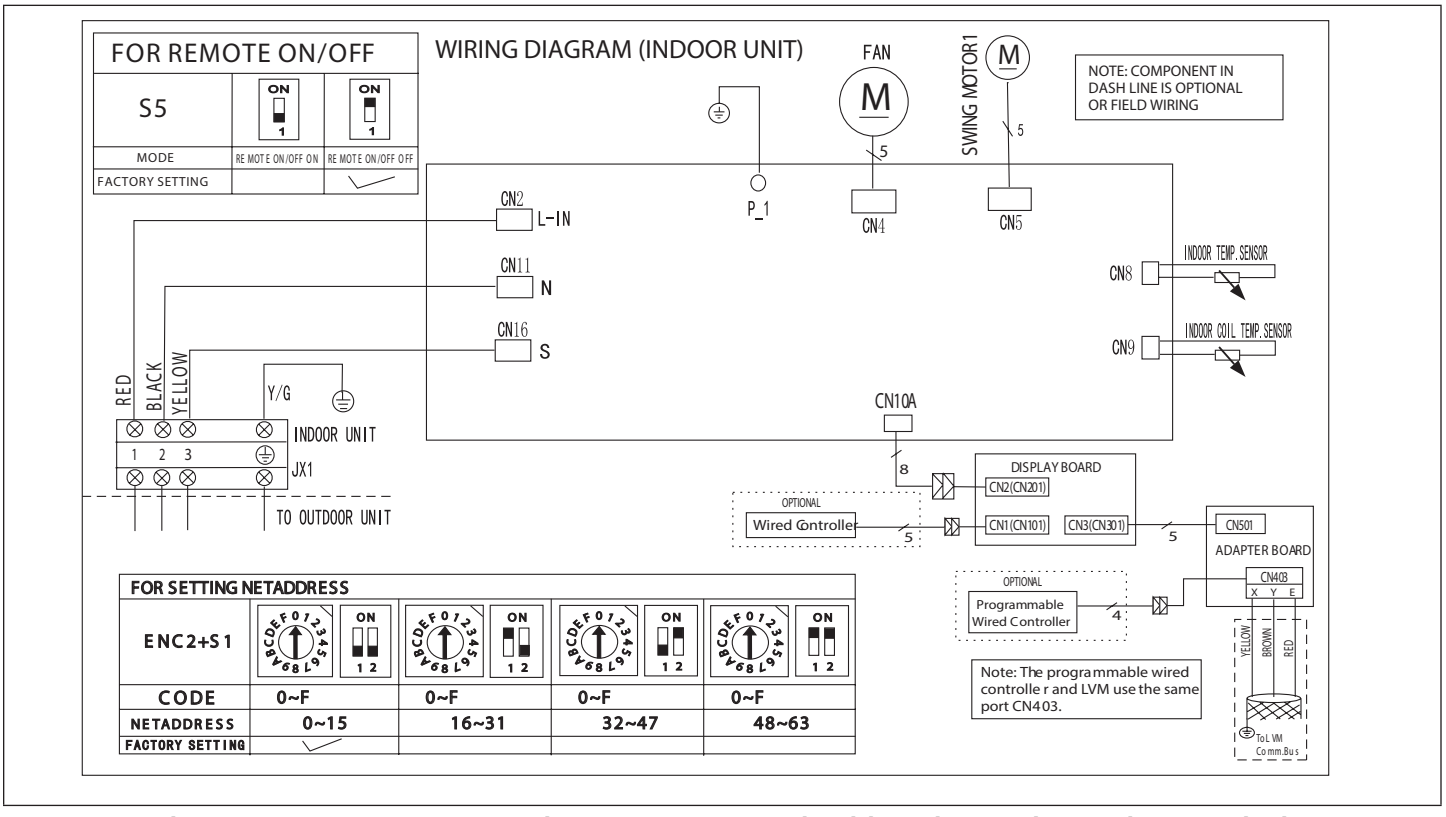


Figure 8. MWMA , MWMB and 3WMB036S4-1P Unit Wiring Diagram (Second Generation)

6.3. M22A Indoor Unit

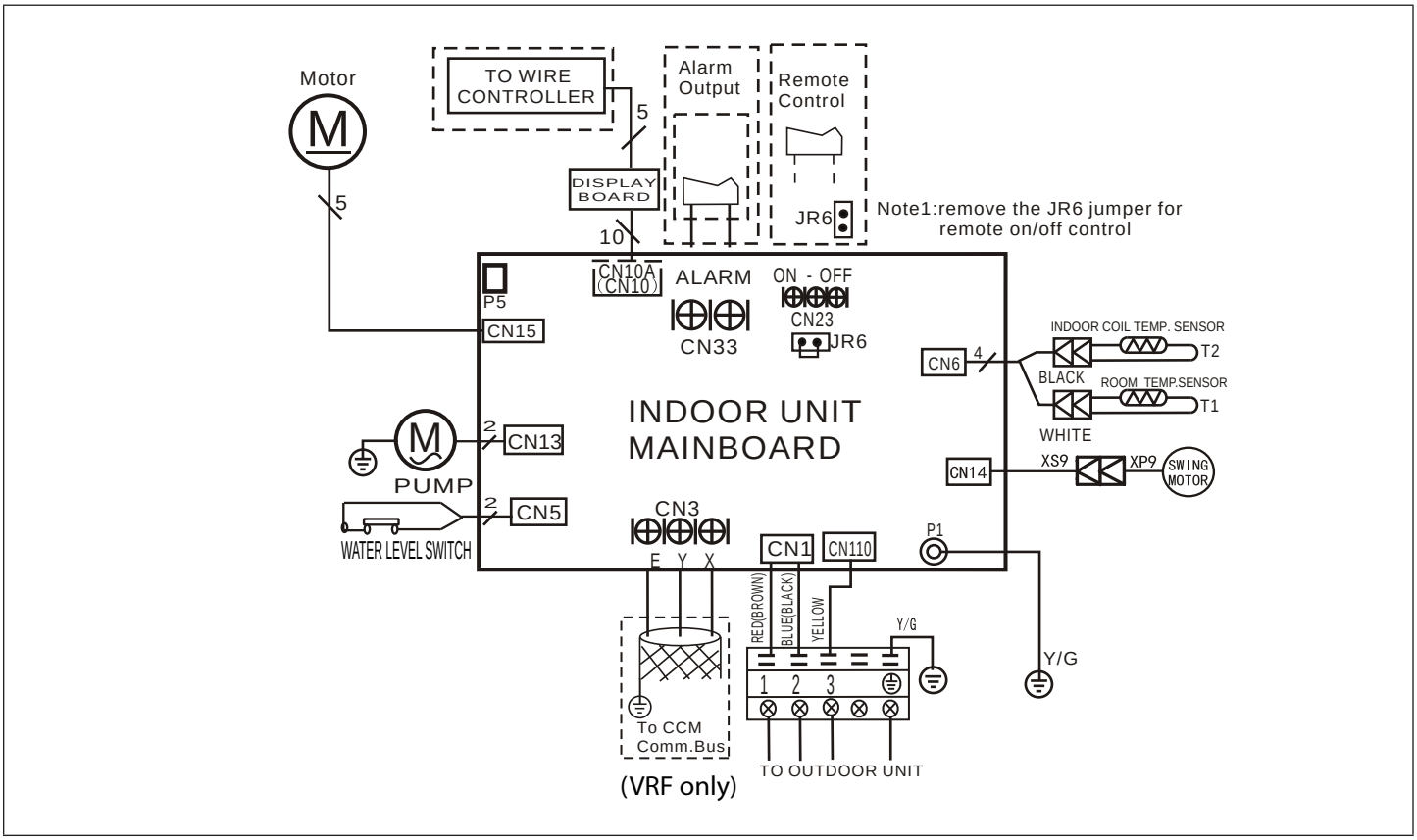


Figure 9. M22A009S4-1P, M22A012S4-1P and M22A018S4-1P Unit Wiring Diagram

6.4. M33A and M33B Indoor Unit

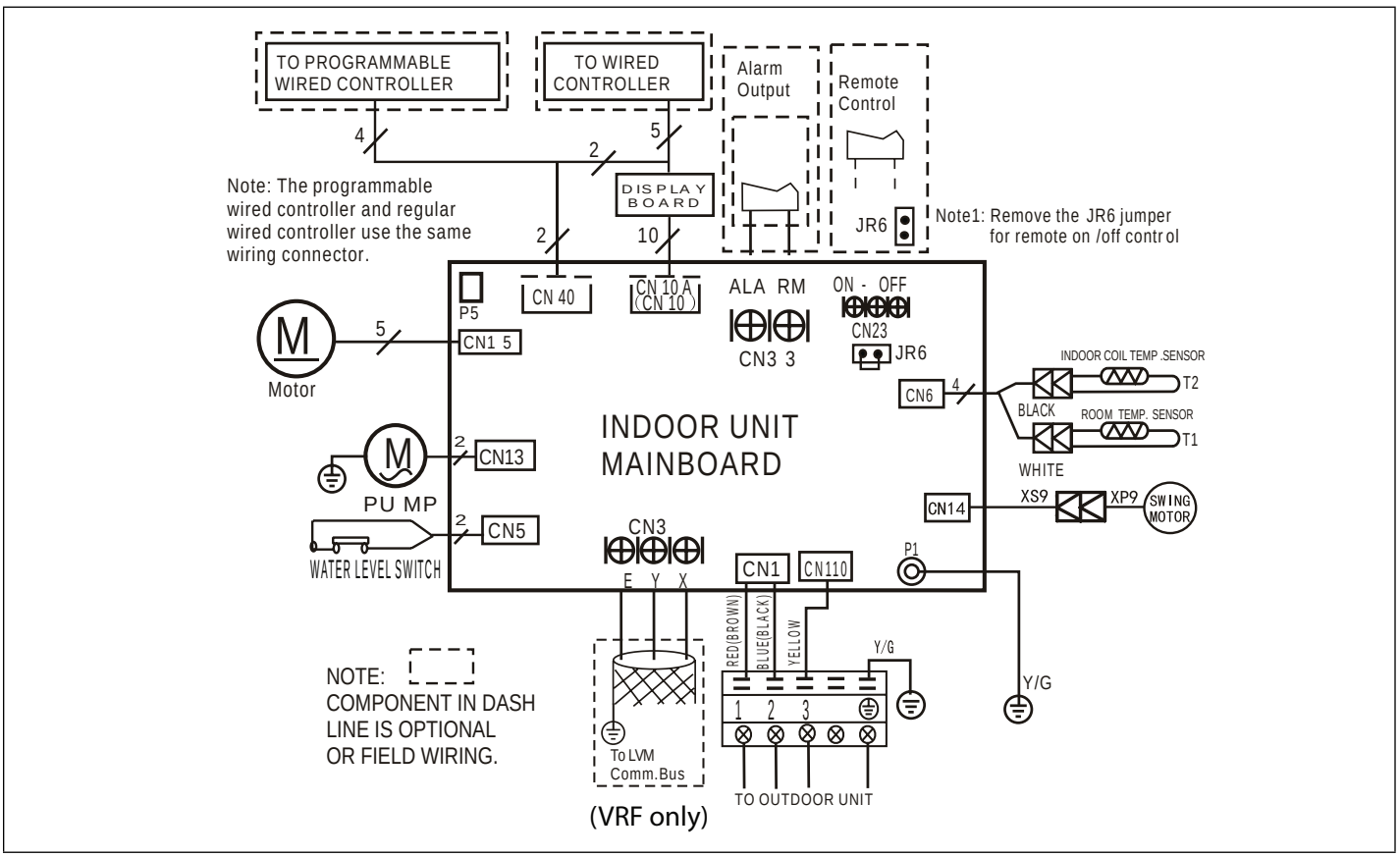


Figure 10. M33A024S4-*P Unit Wiring Diagram

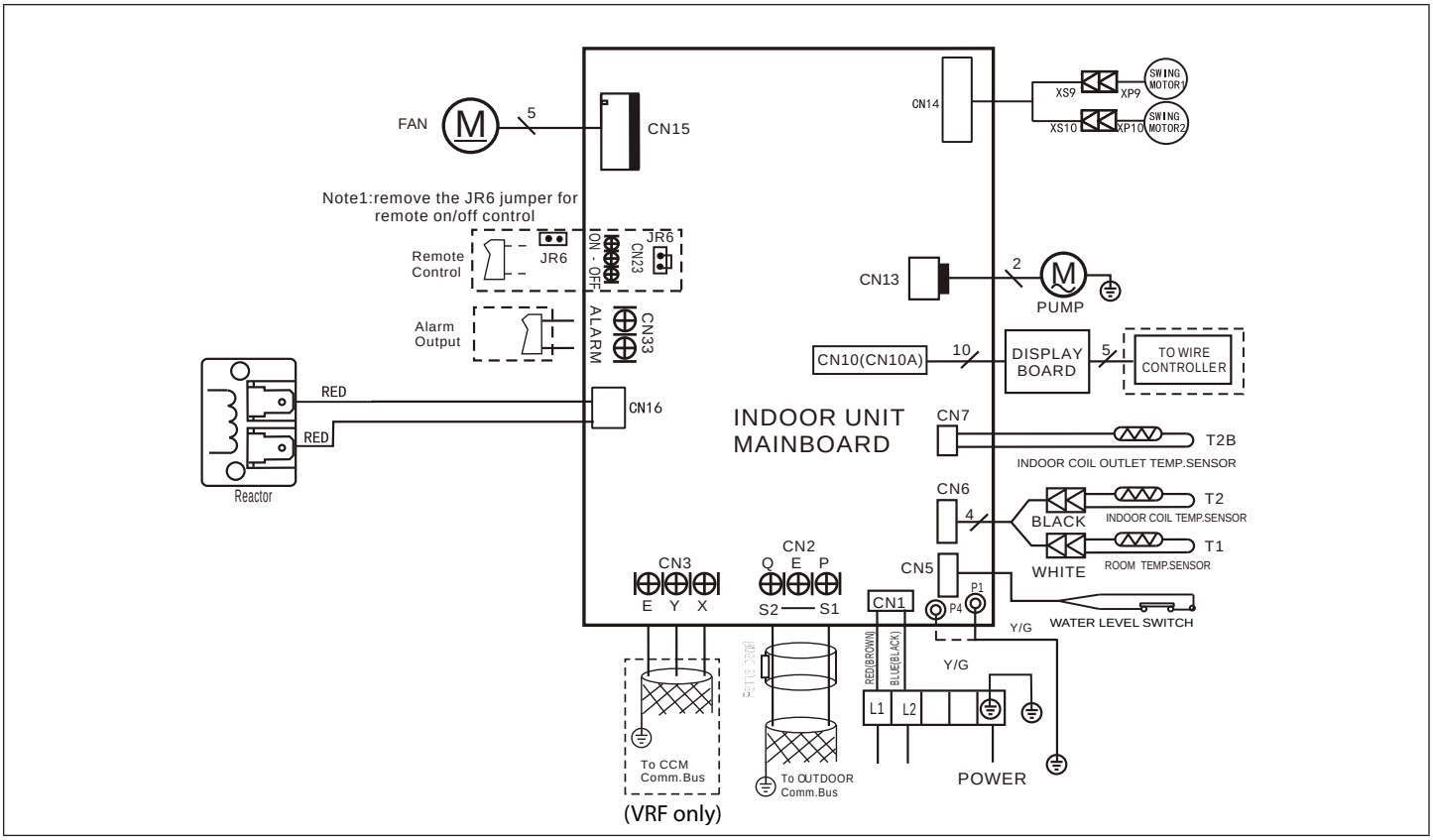


Figure 11. M33A036S4-*P, M33A048S4-*P and M33B048S4-*P Unit Wiring Diagram

6.5. MMDA Indoor Units

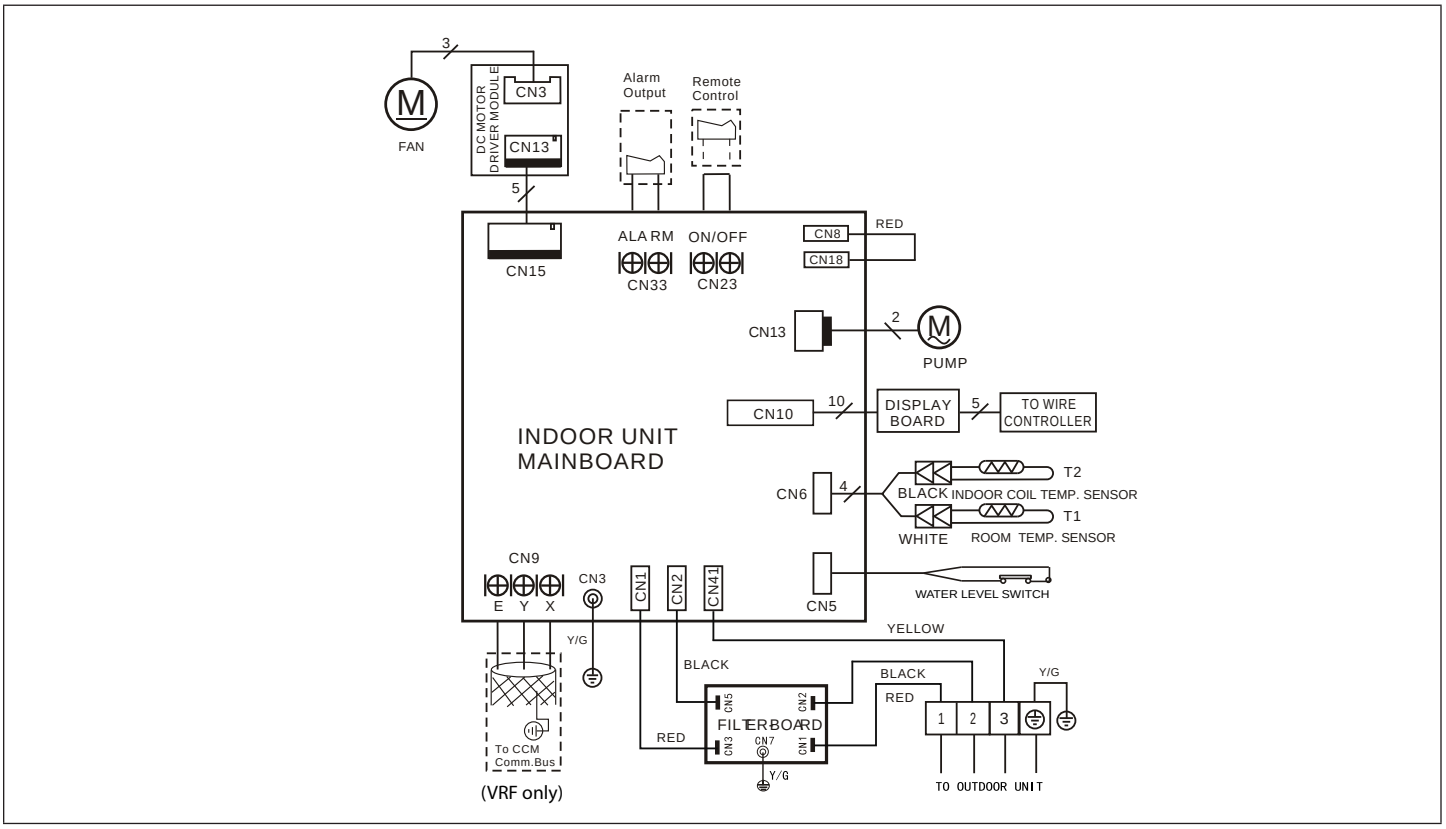


Figure 12. MMDA009S4-1P, MMDA012S4-1P, MMDAA018S4-1P Ducted Units Wiring Diagram

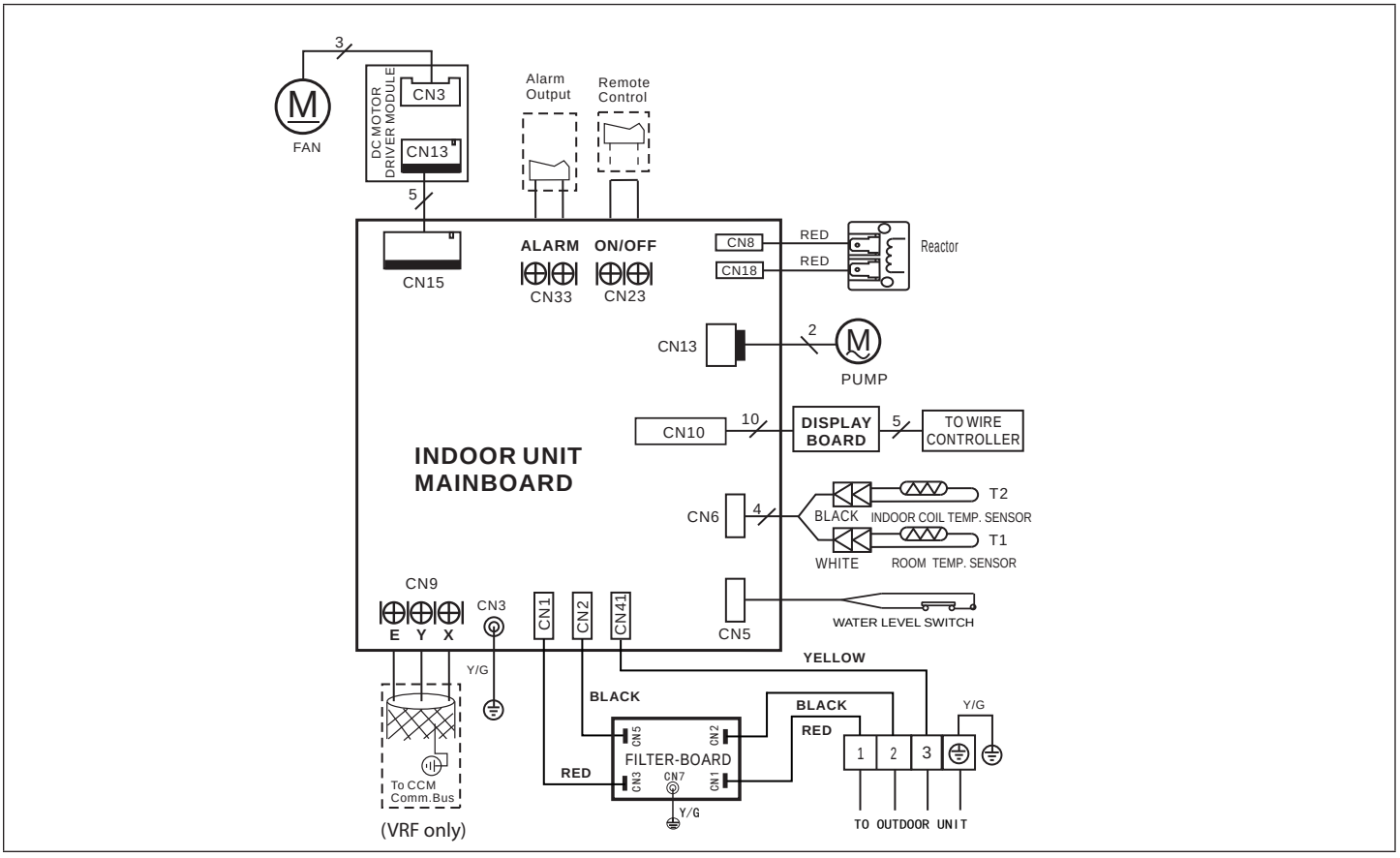


Figure 13. MMDA024S4-1P Ducted Units Wiring Diagram

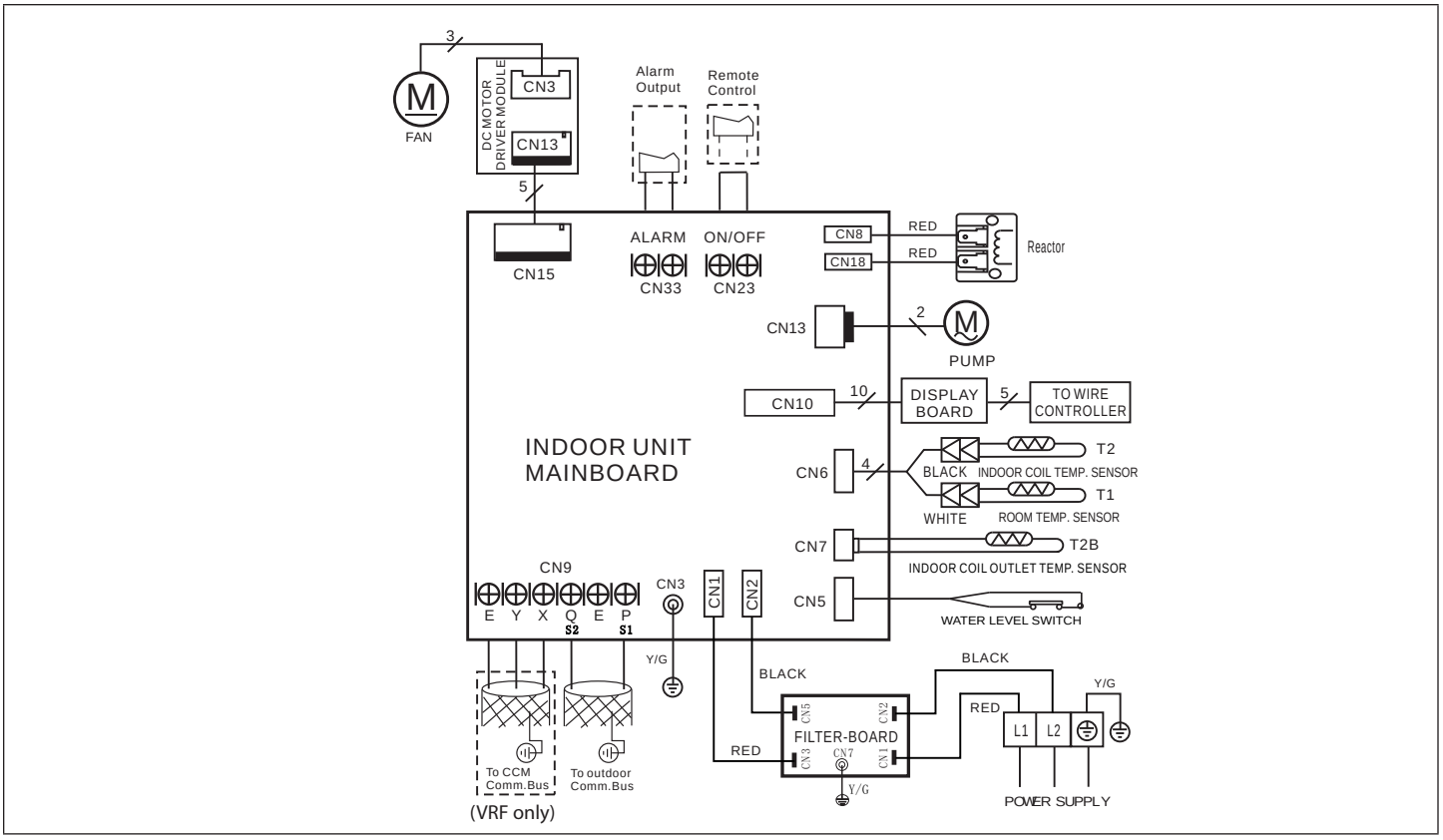


Figure 14. MMDA036S4-1P & MMDA048SA-1P Ducted Units Wiring Diagram

6.6. MMDB Indoor Units

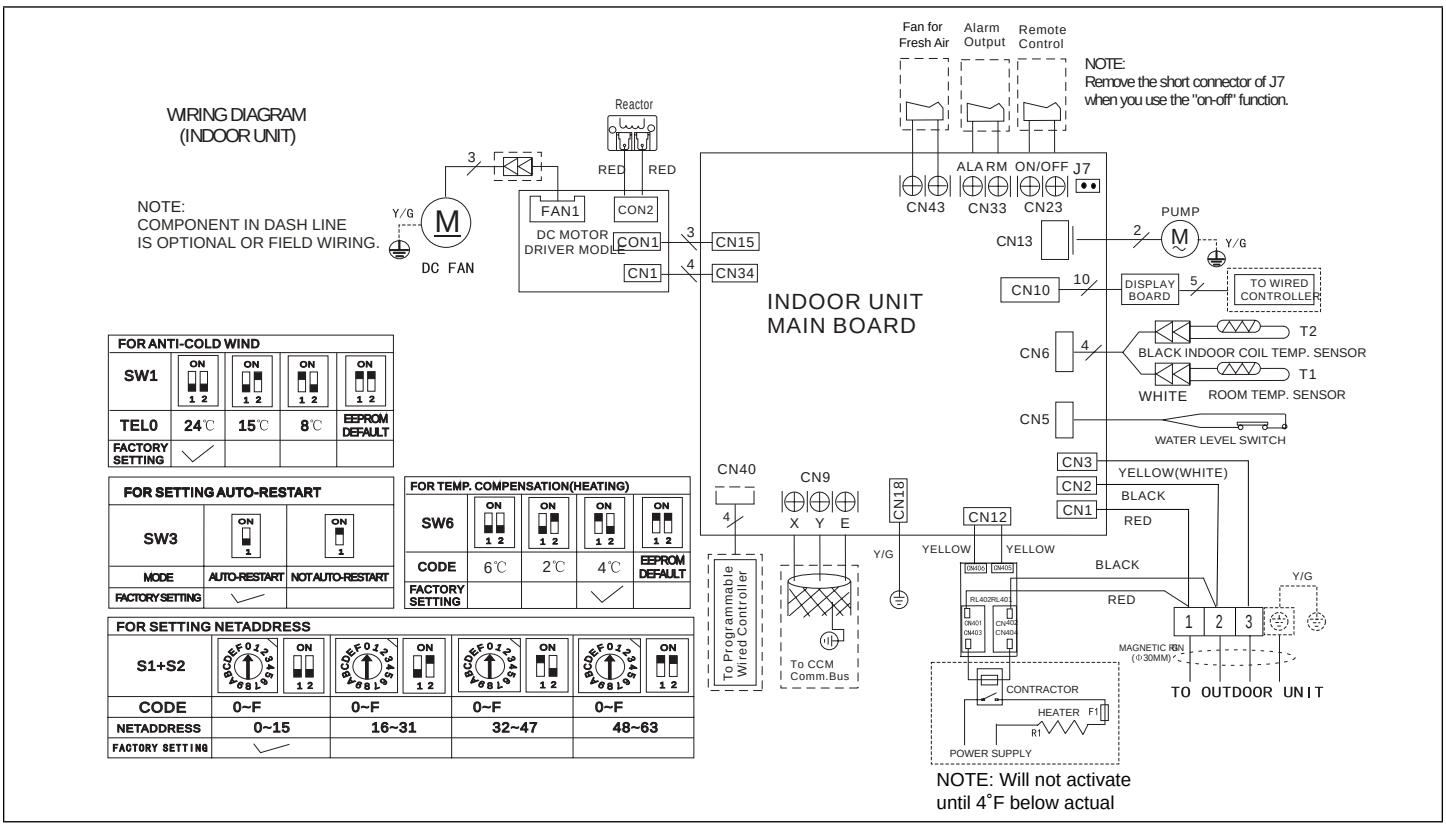


Figure 15. MMDB009S4-*P, MMDB012S4-*P, MMDB018S4-*P and MMDB024S4-*P Ducted Units Wiring Diagram

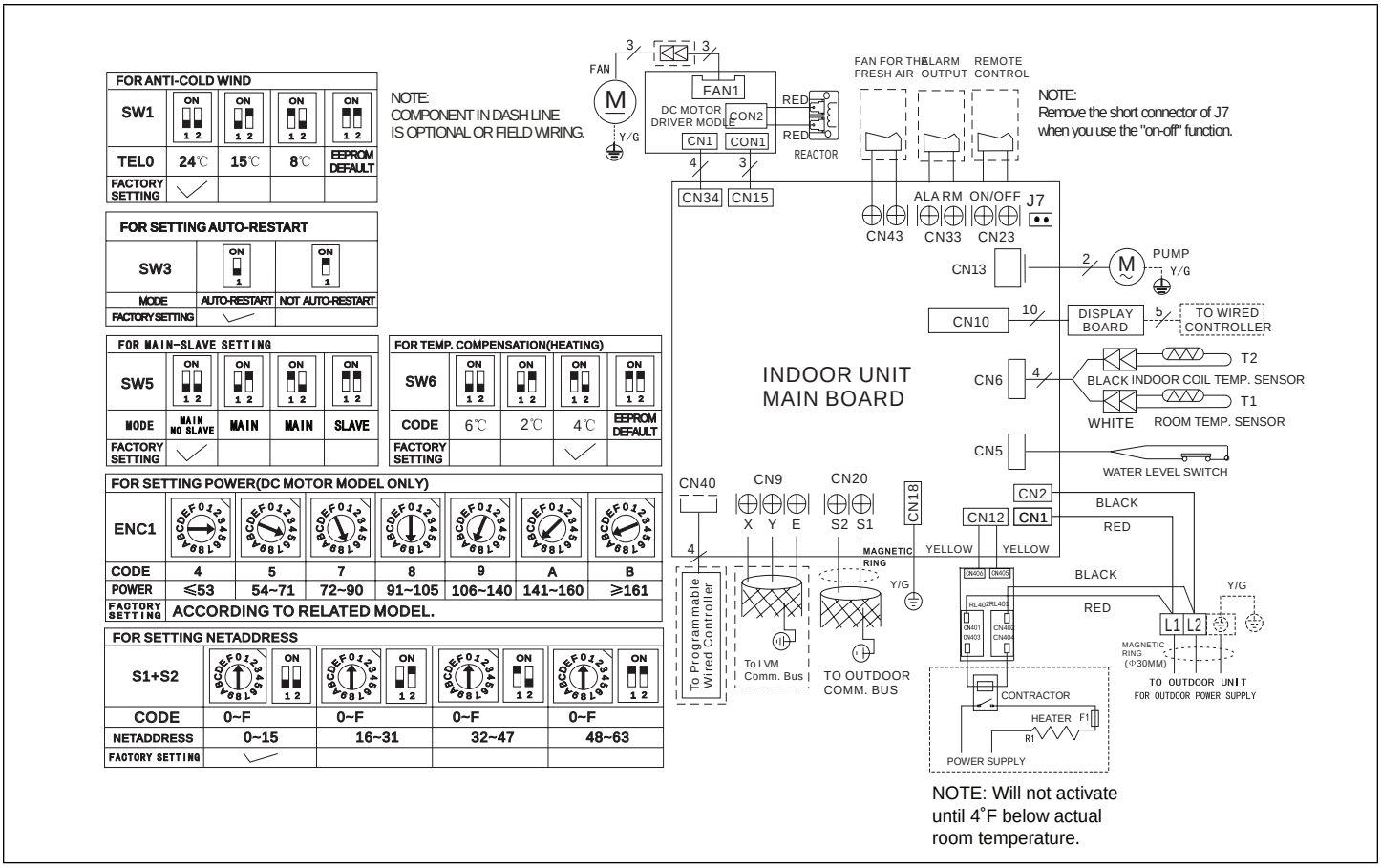


Figure 16. MMDB036S4-*P and MMDB048S4-*P Ducted Units Wiring Diagram

6.7. MCFA and MCFB Indoor Units

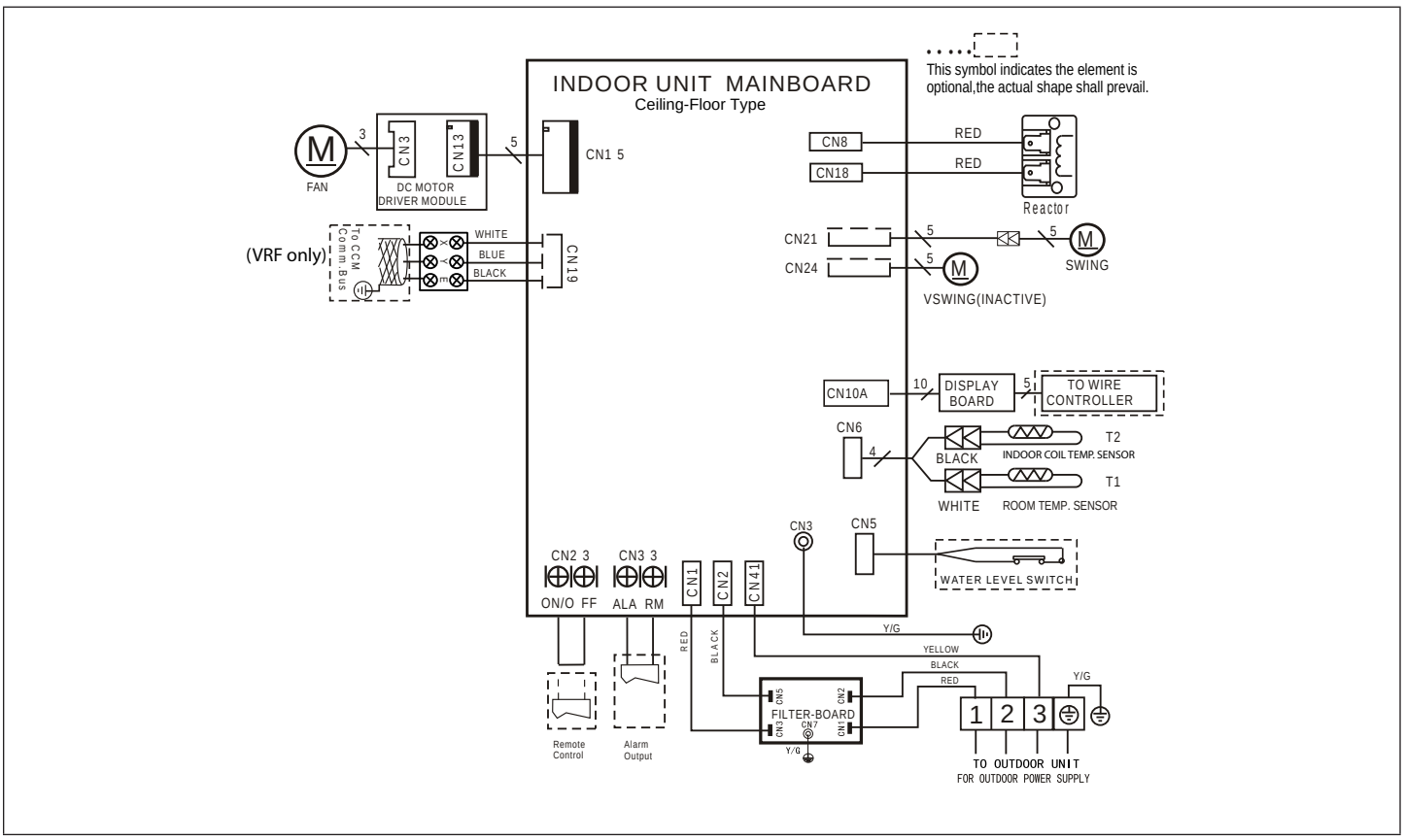


Figure 17. MCFA012-18S4-1P Unit Wiring Diagram - Discontinued Spring 2016

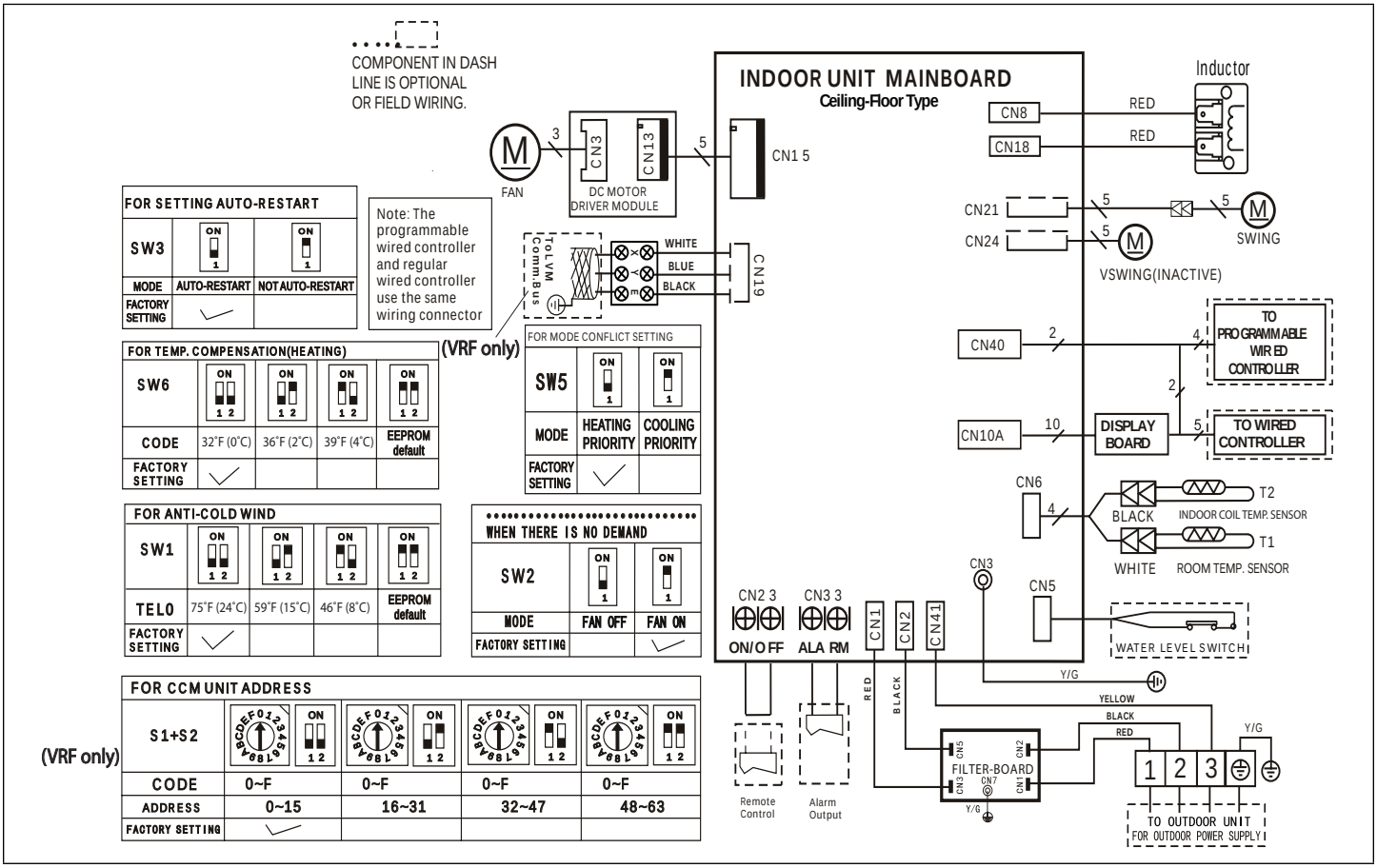


Figure 18. MCFB018S4-*P Unit Wiring Diagram

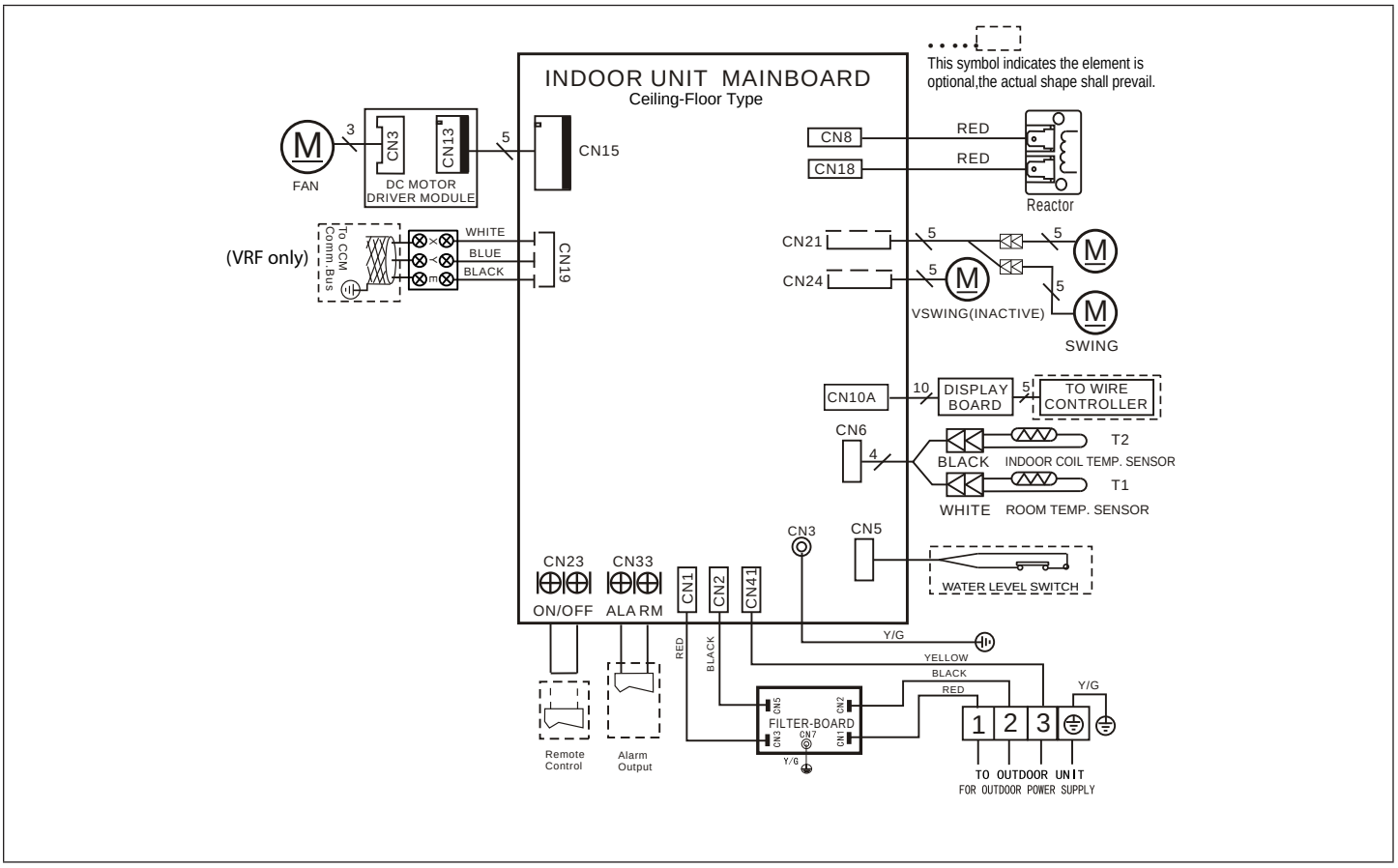


Figure 19. MCFA024S4-1P Unit Wiring Diagram

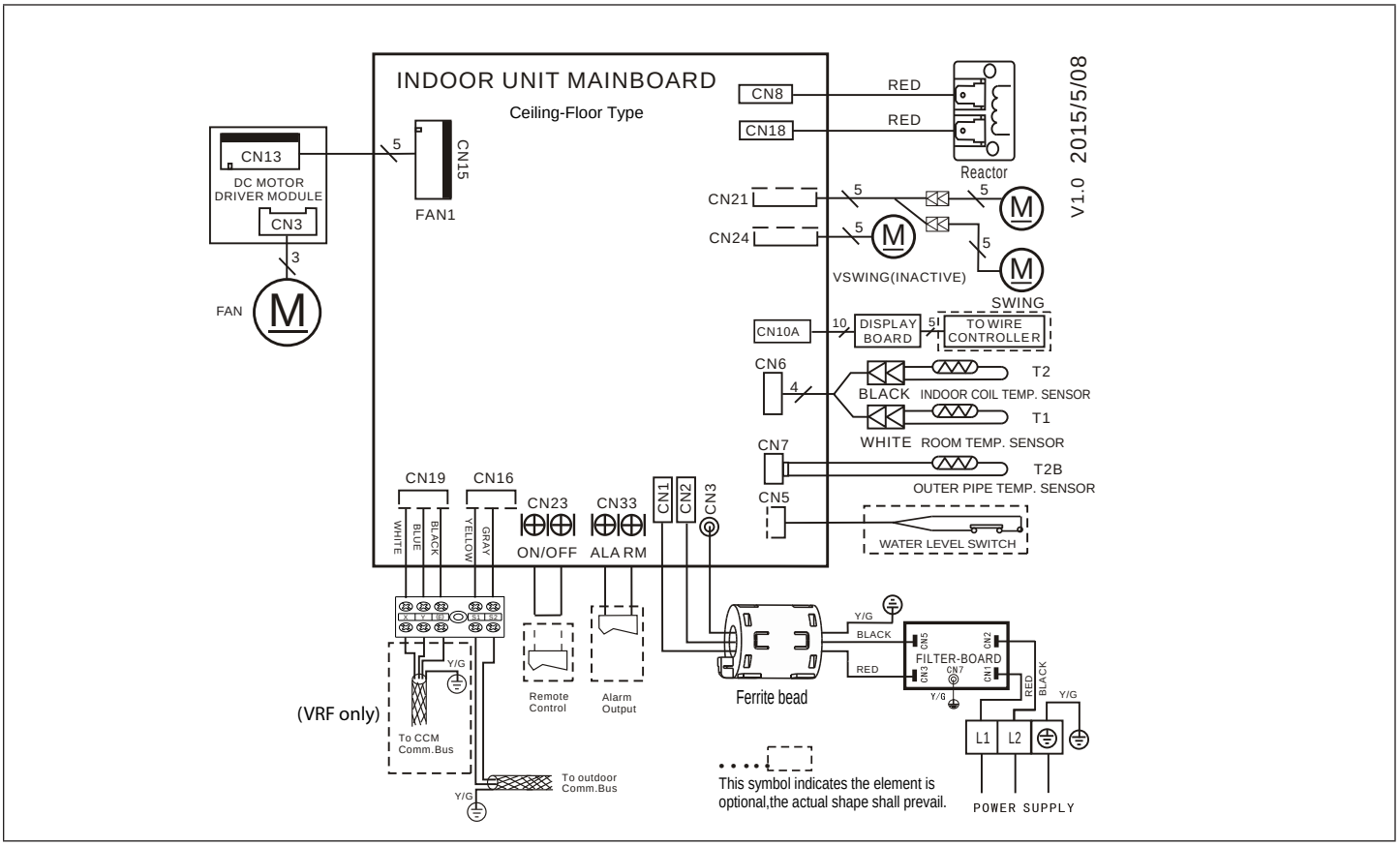


Figure 20. MCFA036S4-1P Unit Wiring Diagram

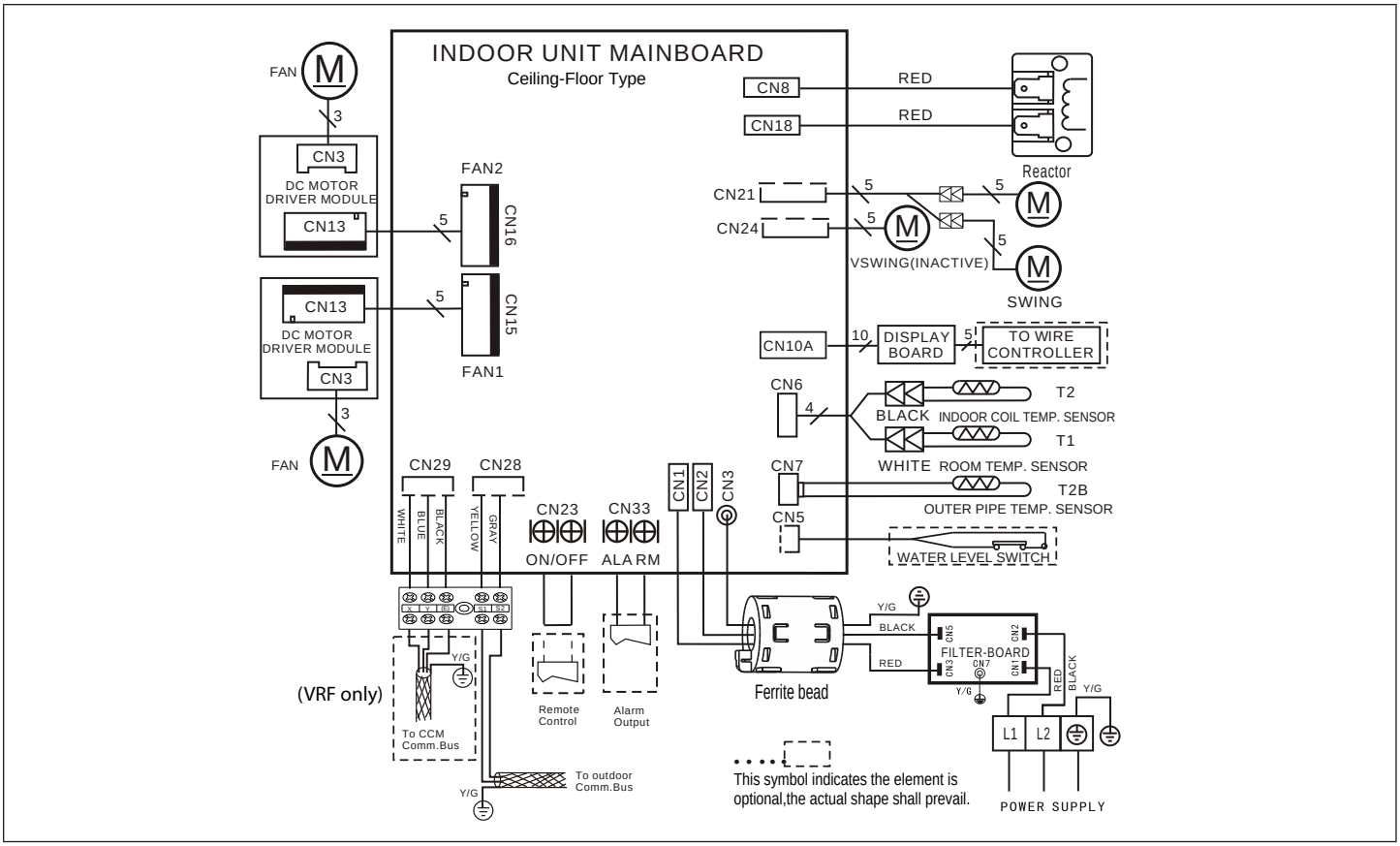


Figure 21. MCFA048S4-1P Unit Wiring Diagram

6.8. MPA Accessory Diagrams

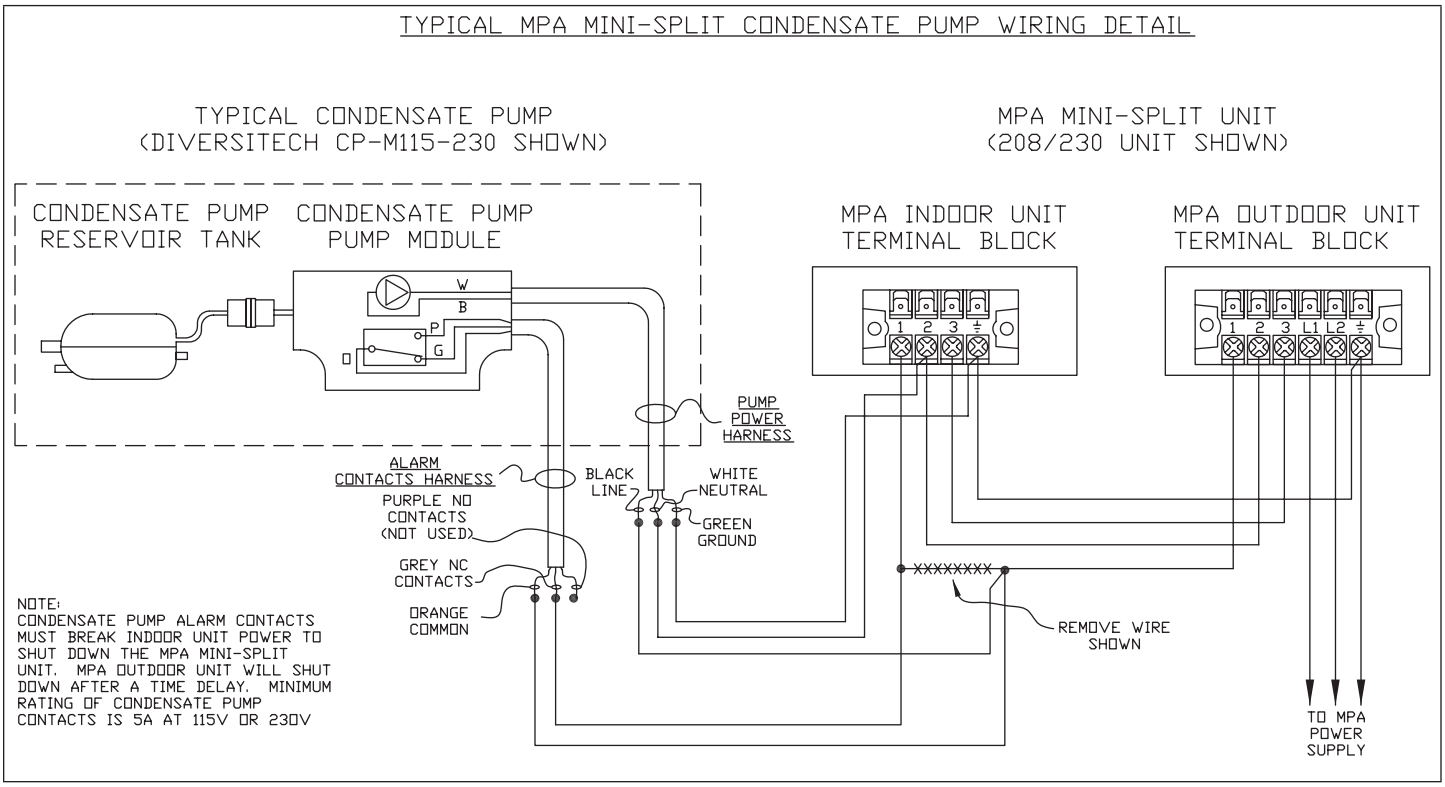


Figure 22. MPA Condensate Pump Powered by MPA Wiring Diagram

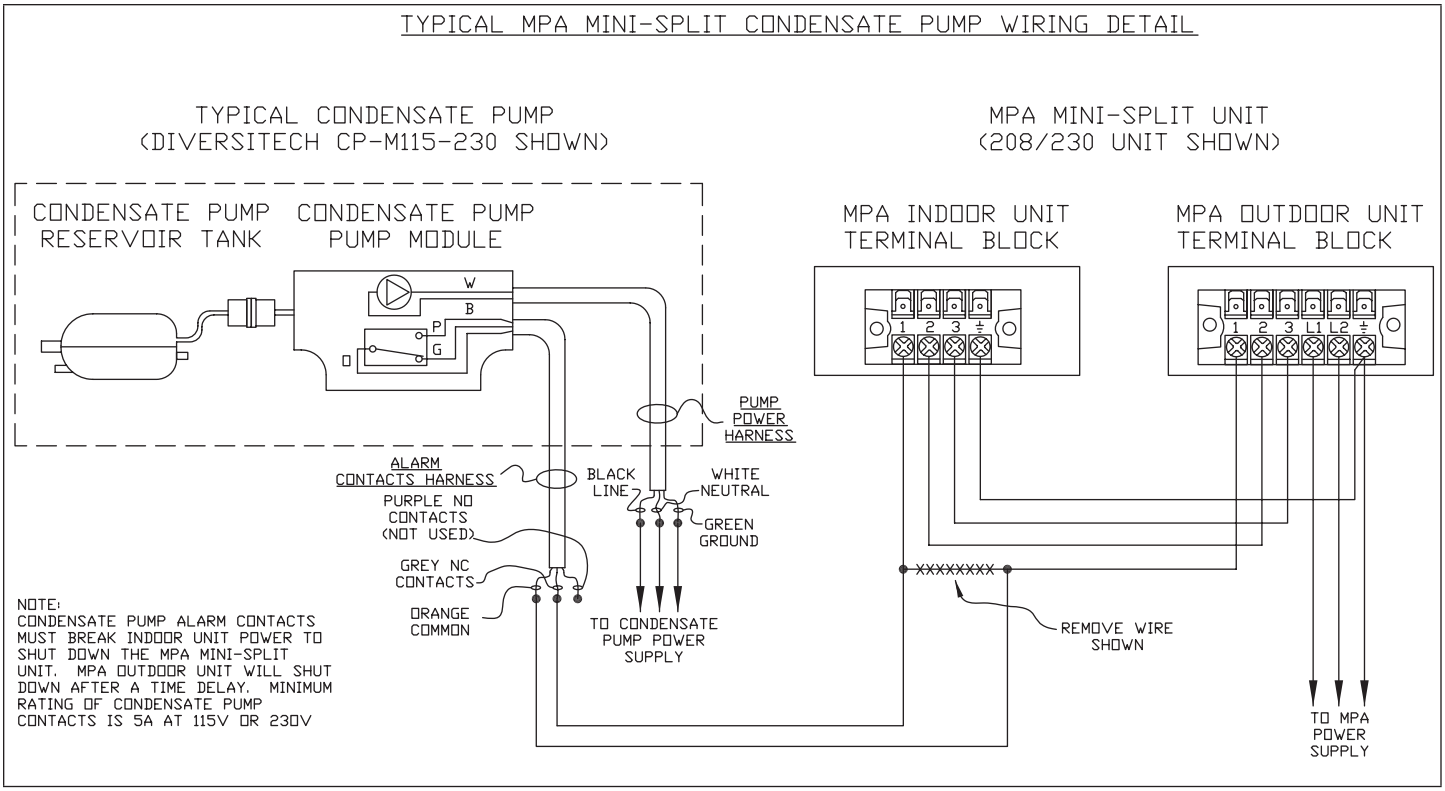


Figure 23. MPA Condensate Pump Powered by Separate Source Wiring Diagram

7. Control Board Photos

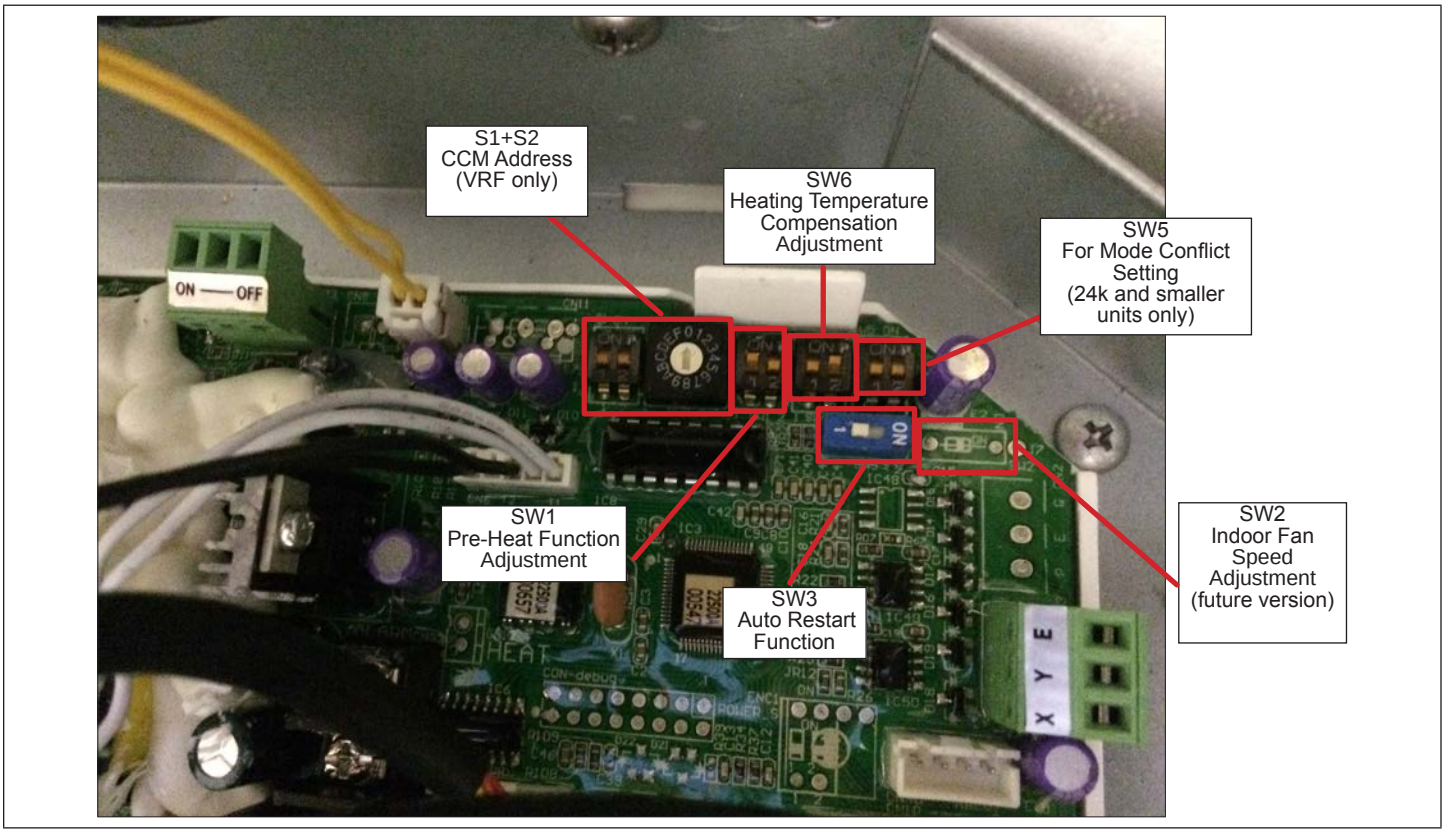


Figure 24. M22A Main Control Image

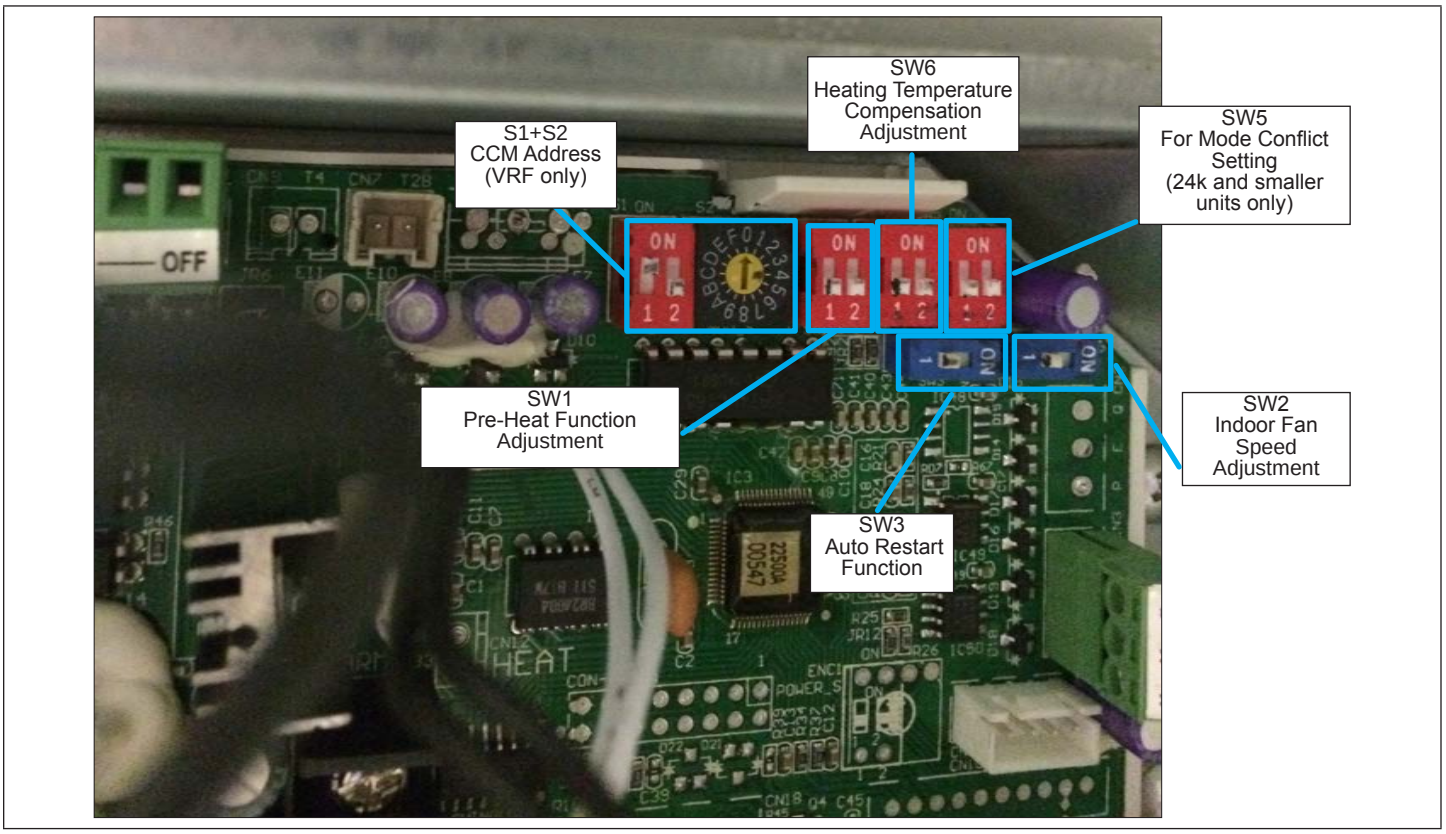


Figure 25. M33A and M33B Main Control Image

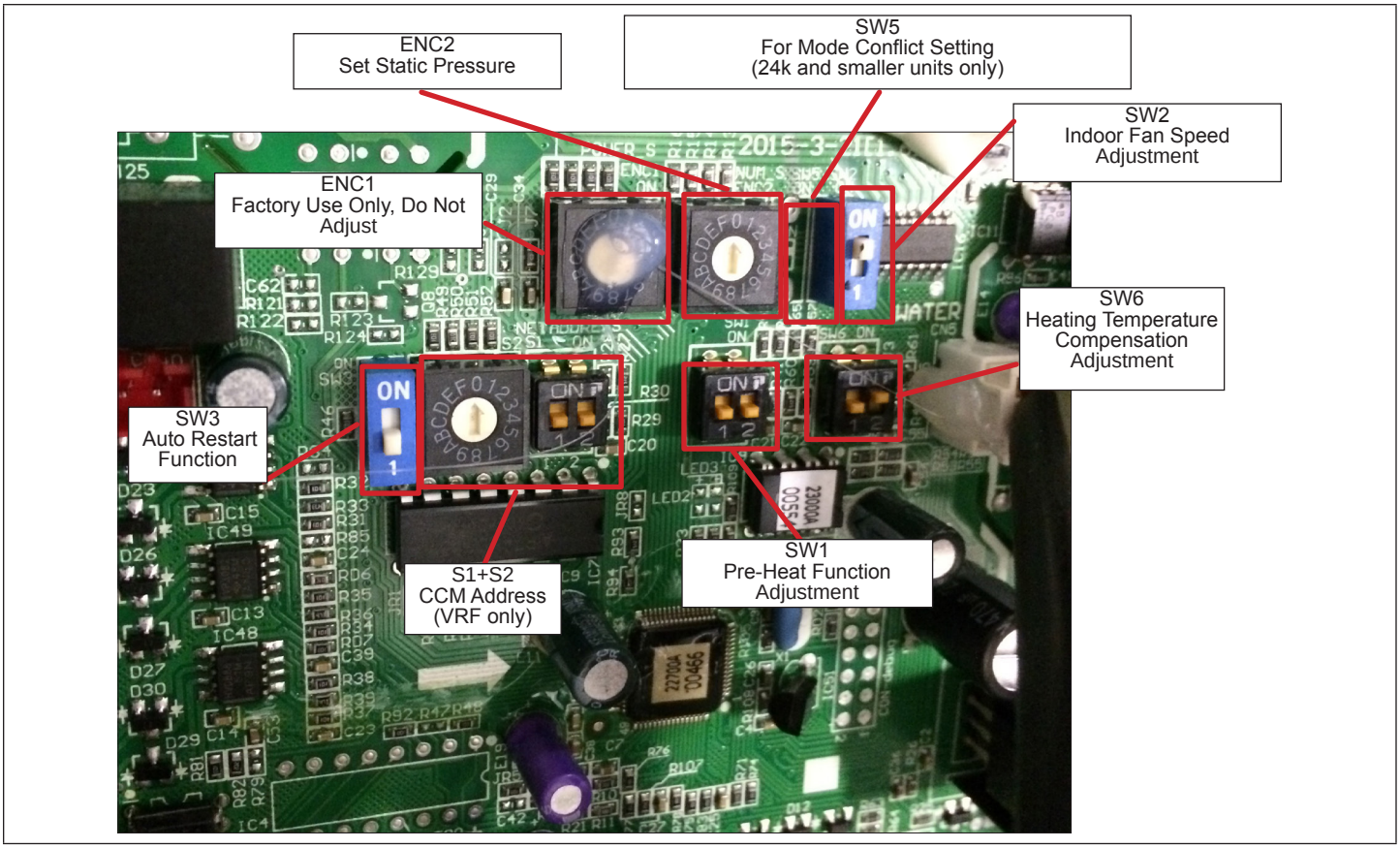


Figure 26. MMDA Main Control Image

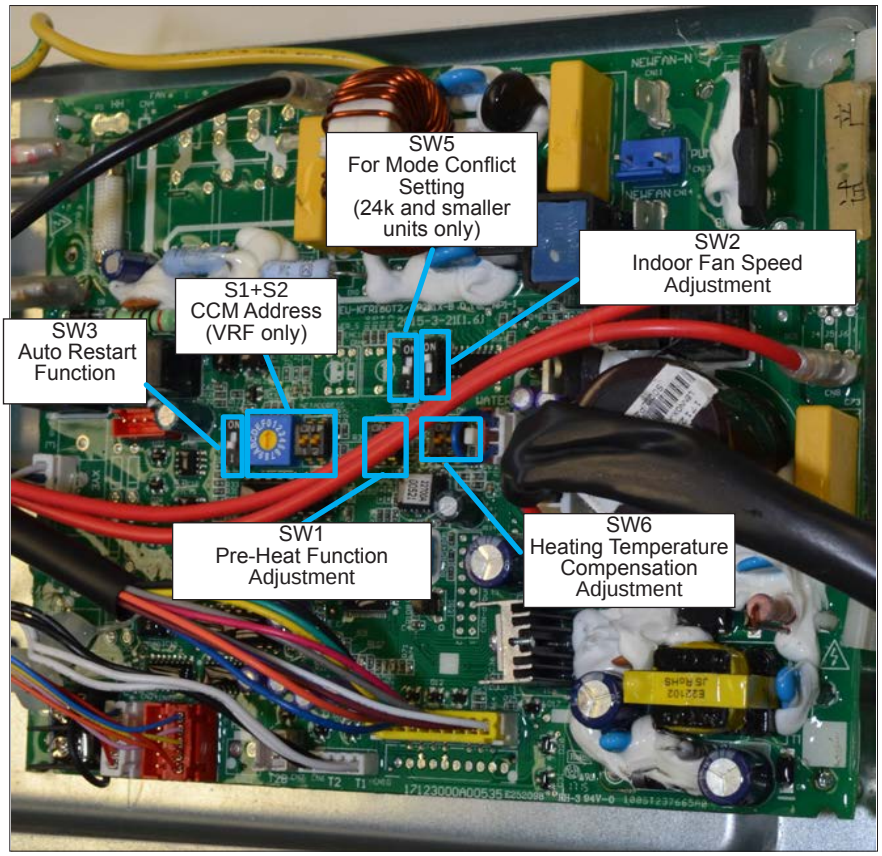


Figure 27. MCFA and MCFB Main Control Image

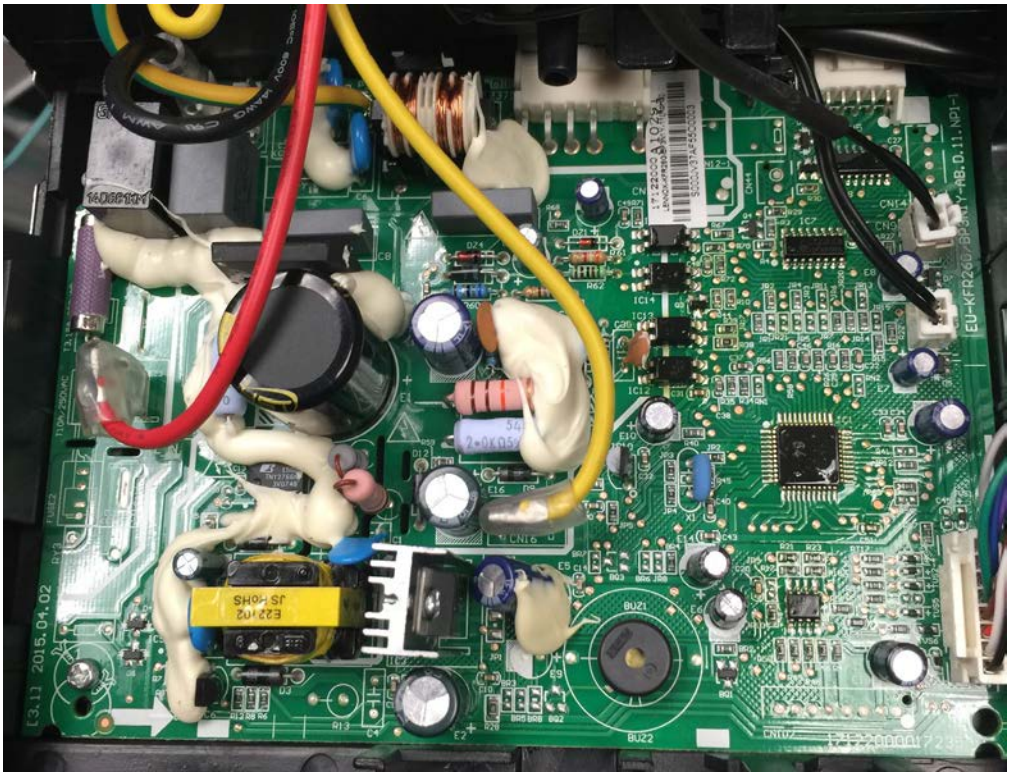


Figure 28. MWMA and MWMB Main Control Image

Figure 29. MWMA and MWMB Receiver Control Image (No Operation Switches on Main Control)

7.1. 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.

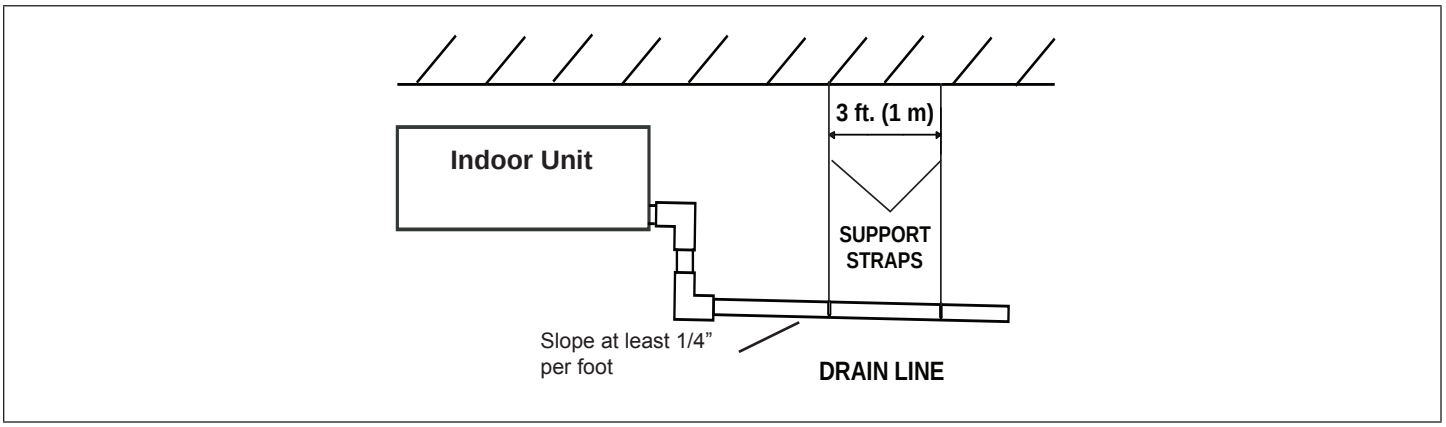


Figure 30. Single Indoor Unit Suspended from Ceiling using a Properly Sloped Gravity Drain

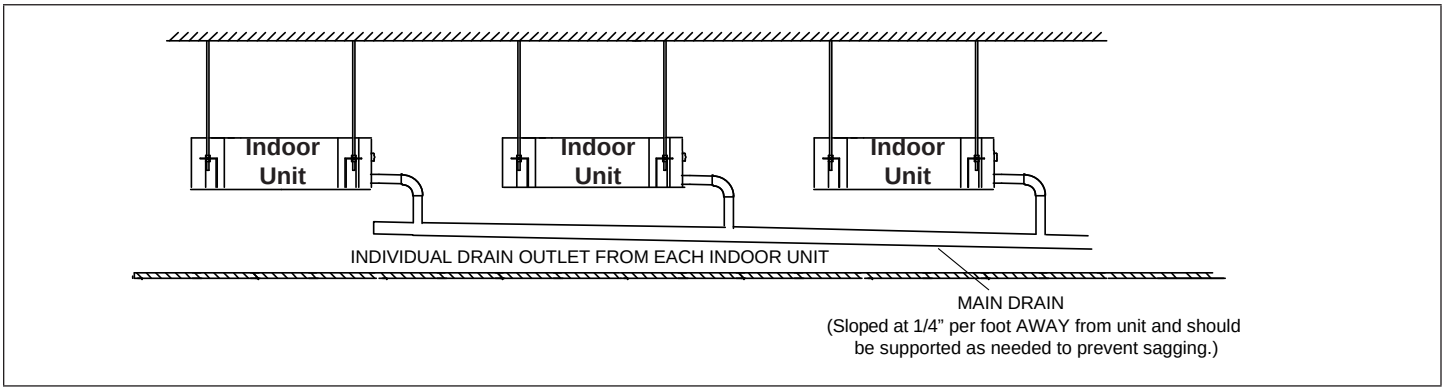


Figure 31. Condensate Drain Multiple Indoor Units Suspended from Ceiling Using a Single Properly Sloped Gravity Drain

7.2. Indoor Unit Lift Pump

7.2.1. Condensate Piping Requirements - MMDA and M22A/M33A/M33B

MMD, M22 and M33 factory pumps have a 27 inch condensate pump lift.

7.2.1.1 MMDA

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.*

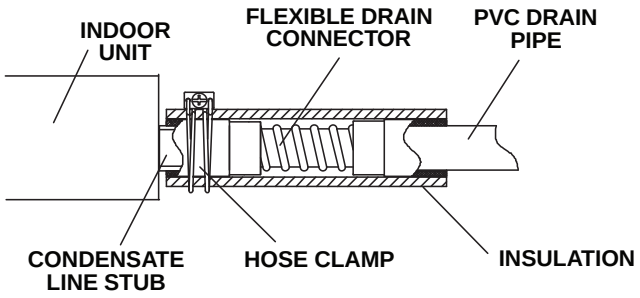


Figure 32. Condensate Piping Connection

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.

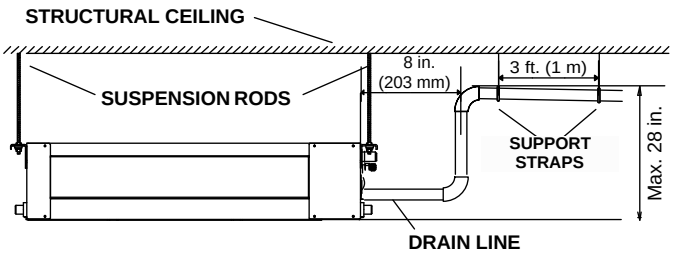


Figure 33. Condensate Drain with Pump

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.

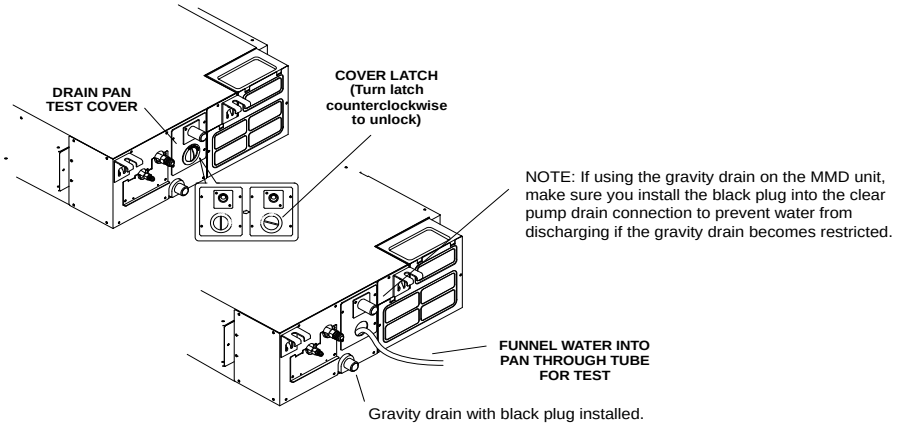


Figure 34. Condensate Drain Test

7.2.1.2 M22A, M33A and M33B

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.

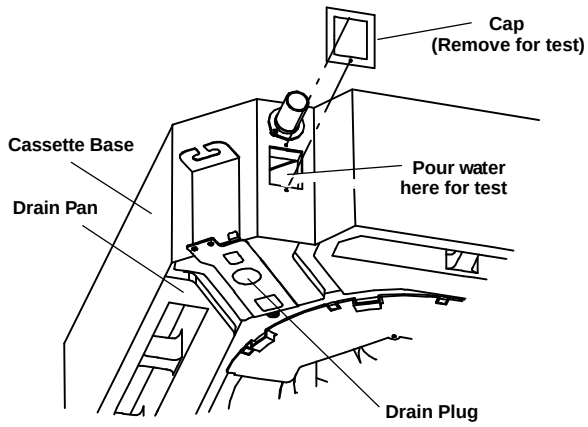


Figure 35. Condensate Drain Test

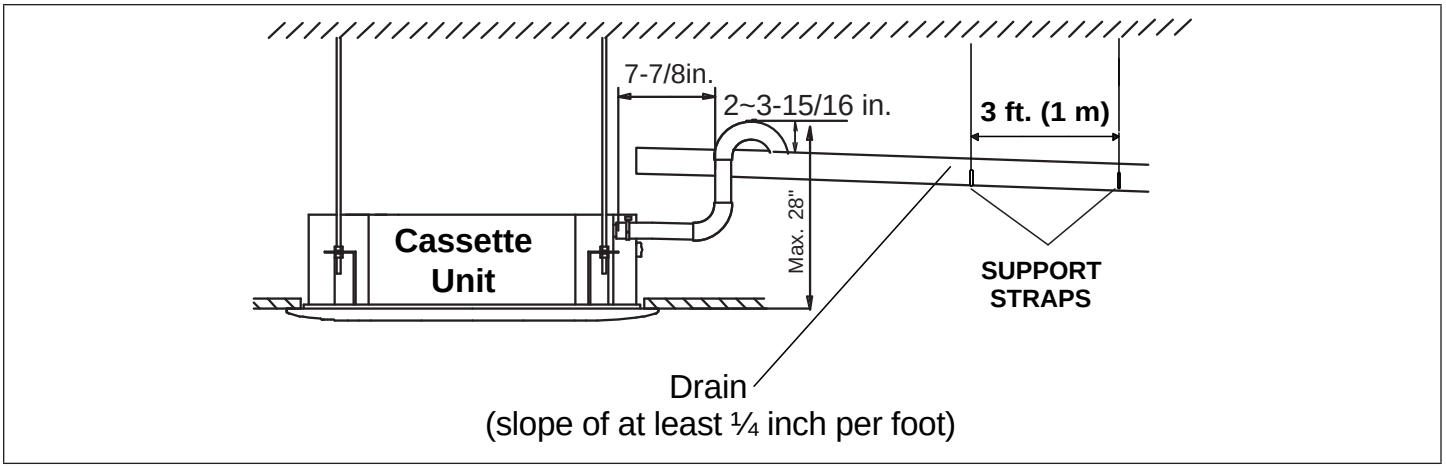


Figure 36. Indoor Unit Condensate Drain

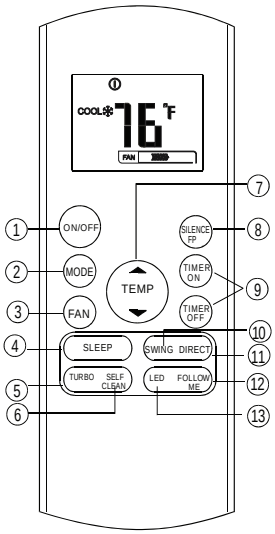
8. Controls

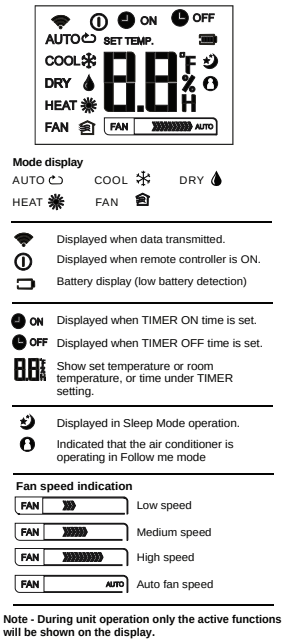
8.1. M0STAT60Q-1 Wireless Remote

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.





8.1.1. Buttons

Table 3. Button Functions

Button	Function
ON/OFF	Turns system on and off.
MODE AUTO → COOL → DRY → HEAT → FAN	Select system operation modes. Push button to cycle through each setting. ***NOTE:*** *Auto mode not recommend due to conflict error messages can accrue with use of mulit-zone systems.*
FAN AUTO → LOW → MED → HIGH	Select fan speed. Push button to cycle through each setting. ***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 after a total of 7 hours the unit shuts off until the ON button is pressed. ***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. ***NOTE:*** *Does not work on multi-zone units because it shuts the compressor off after the operation.*
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	***NOTE:*** • 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 must be with in 26 feet and pointing towards the indoor unit. If wired controller used then you must push the follow me button as well for it to work. This will put the temp sensing at the wireless remote and not the mini split T1 return air sensor.
LED	Turns the LCD display backlight on the indoor unit on or off.

Table 3. Button Functions

Button	Function
AUTO (For more information concerning this mode of operation, see “8.1.2. Auto Mode Operation” on page 52.)	Not for multi-zone use. You will get an conflict error message. If auto mode is used with a multi zone then you will get a conflict error code on the zone that is cooling and that zone will go into standby mode. 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	***NOTE:*** *This will drive the room temperature down a minimum of 6 to 8 degrees below room temperature using this operation. Not recommend for this use.* 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.

8.1.2. Auto Mode Operation

a. In Auto mode, the unit will select running mode (cooling/heating/fan) automatically according to ΔT(ΔT =T1-Ts) (TS is room temp).

Table 4. Auto Mode Operation

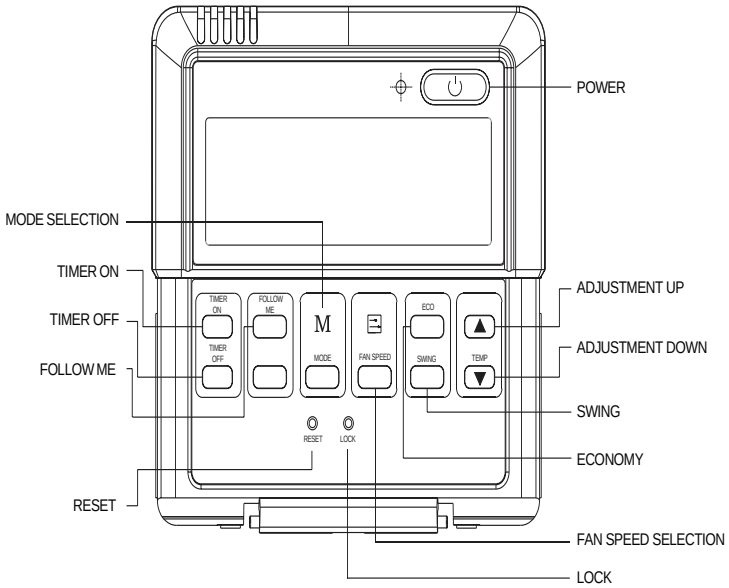
ΔT=T1-Ts	Running mode
ΔT> 2°C or 3.6°F	Cooling
-2< ΔT ≤2°C or 3.6°F	Fan
ΔT≤ -2°C or 3.6°F	Heating

b. Temperature setting range is 17~30°C.(62.6 - 86°F)

c. Indoor fan will run auto fan speed under corresponding mode

d. If the machine switches mode between heating and cooling, compressor will keep stopping for 15 minutes and then decide mode according to ΔT.

8.2. M0STAT61Q-1 Wired Remote



Furnished with Ducted Indoor Units.

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

Features

- 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, 20 foot (6.1 meters) cable length provided, for easy low voltage connection to the indoor unit.

8.2.1. Buttons

NOTE: *Auto mode not recommended for multi-zone systems due to mode conflict error.*

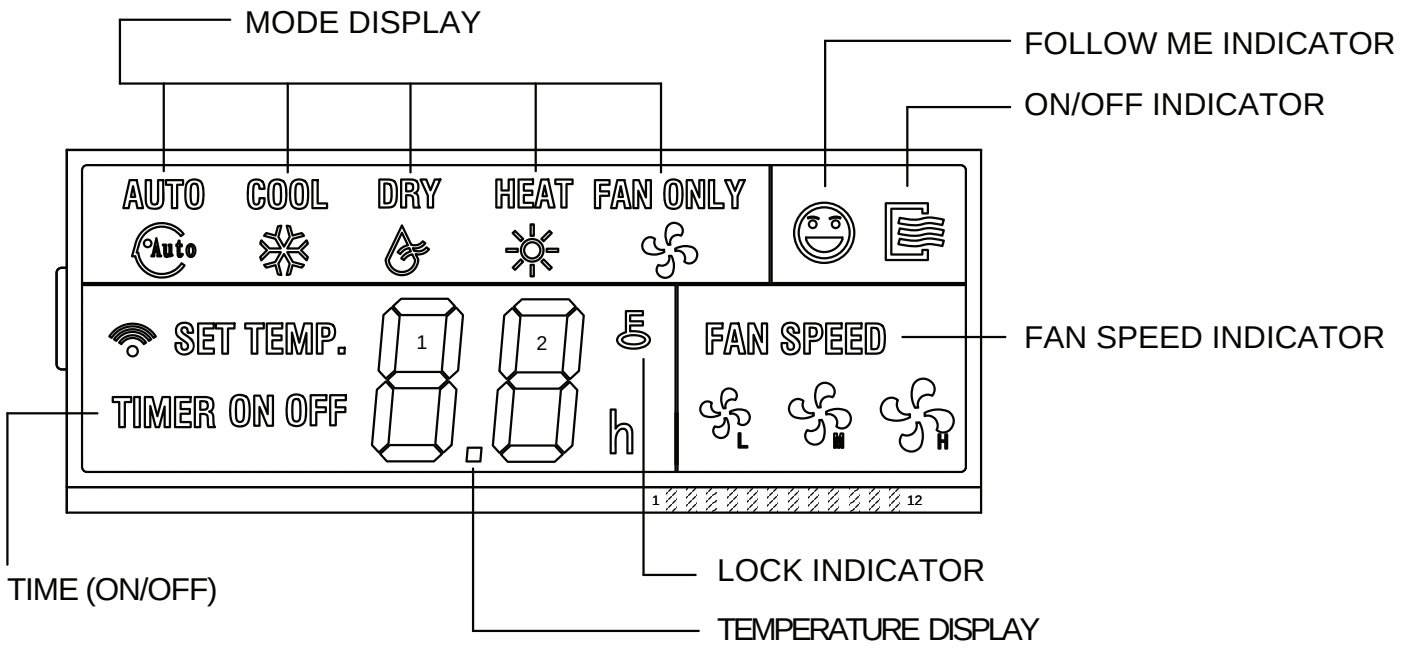
Table 5. Button Functions

Button	Function
Mode AUTO → COOL → DRY → HEAT → FAN	Select system operation modes. Push button to cycle through each setting. ***NOTE:*** *Auto mode not recommend for multi zone due to mode conflict error.*
Power Button	Turns system on and off.
FAN SPEED Button L M H	Selects fan speed. Each button press cycles through the following settings on display. ***NOTE:*** *Fan speed can be adjusted out of auto mode only.*
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.*
UP/DOWN ▲ ▼	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.*

Table 5. Button Functions

Button	Function
SWING	Used to stop or start horizontal louver auto swing feature.
FOLLOW ME	Allows remote temperature sensing of the room at the remote control location. You must push the follow me button as well for it to work.
ECONOMY	Maintains the most comfortable temperature and saves energy.
RESET (Recessed)	Resets Controller to factory settings. Recessed to prevent tampering.
LOCK (Recessed)	Locks Controller buttons to prevent tampering with settings.

8.2.2. Display



9. Connection to Centralized Controller

9.1. Set Indoor Unit Address for Centralized Control (Used with VRF Only)

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

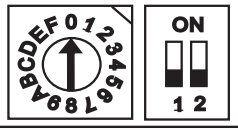
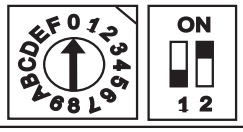
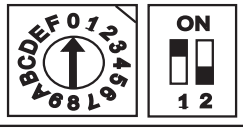
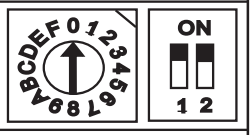
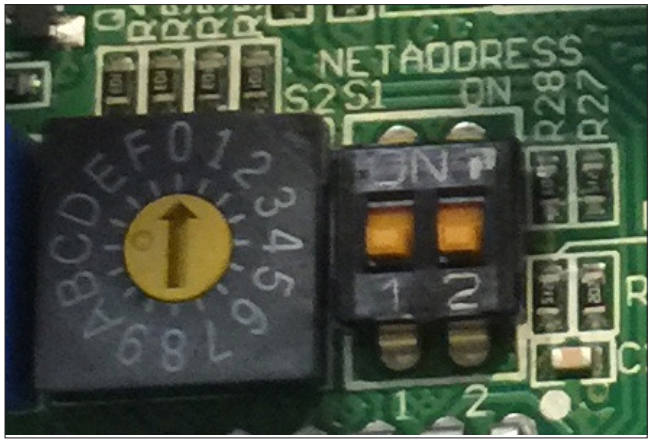
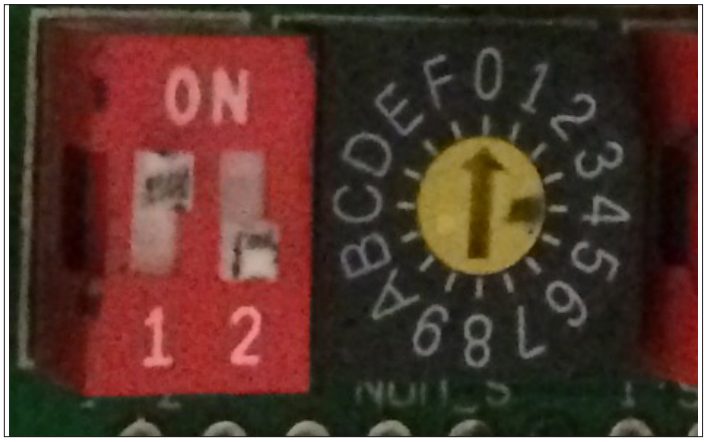
S1+S2				
RANGE	0 ~ F	0 ~ F	0 ~ F	0 ~ F
ADDRESS	0 ~ 15	16 ~ 31	32 ~ 47	48 ~ 63
DIP SWITCH HANDLES	LEFT - DOWN RIGHT - DOWN	LEFT - DOWN RIGHT - UP	LEFT - UP RIGHT - DOWN	LEFT - UP RIGHT - UP
FACTORY SETTING	✓			

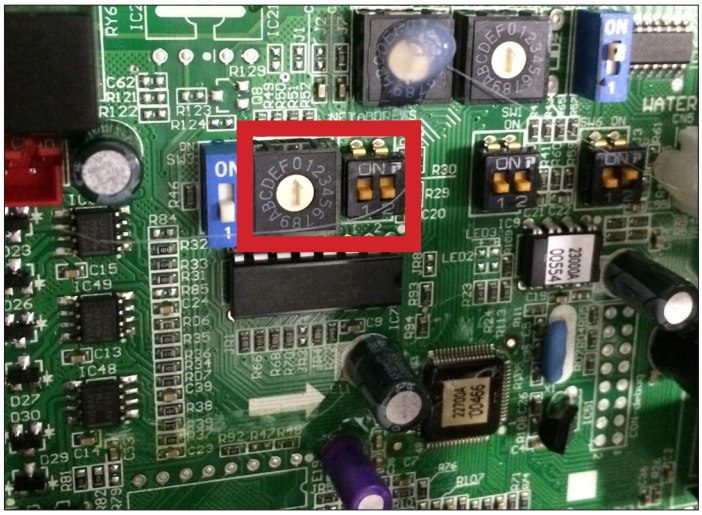
Figure 37. Dip Switches



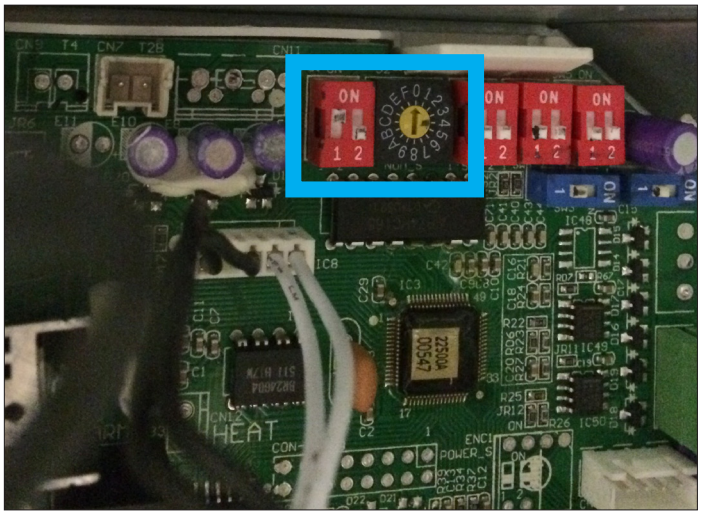
Indoor Unit Address is 0
Both dip switch handles are DOWN, dial points to 0.



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



MMDA Switch Location



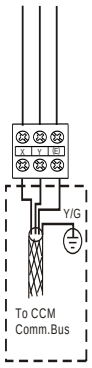
M33A Switch Location

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

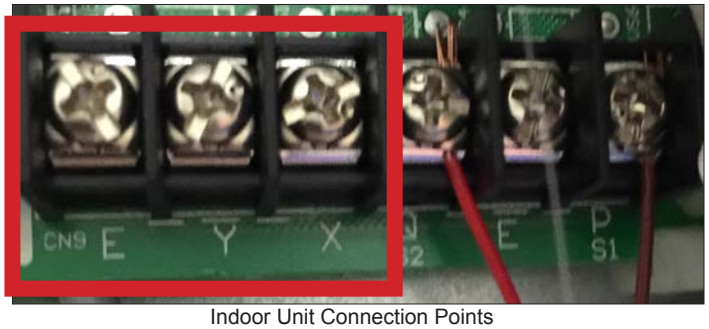
Figure 38. Dip Switch Settings

9.2. Indoor Unit Connection Points for Centralized Controller

Mini-split indoor units can be connected to a centralized controller (e.g. Lennox VRF Manager - LVM or Trane Tracer) 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 39. Connection Points

10. 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.

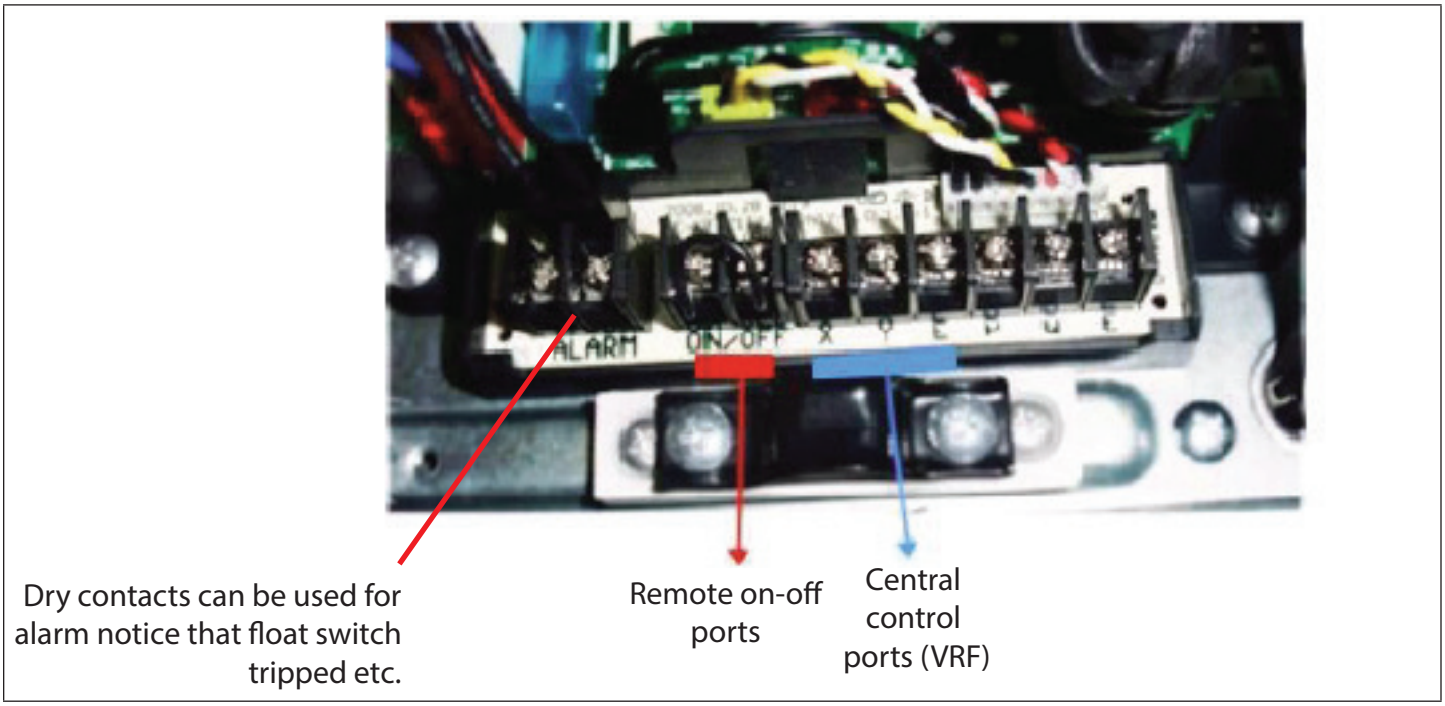


Figure 40. Indoor Unit Connection Points (Typical)

11. 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.

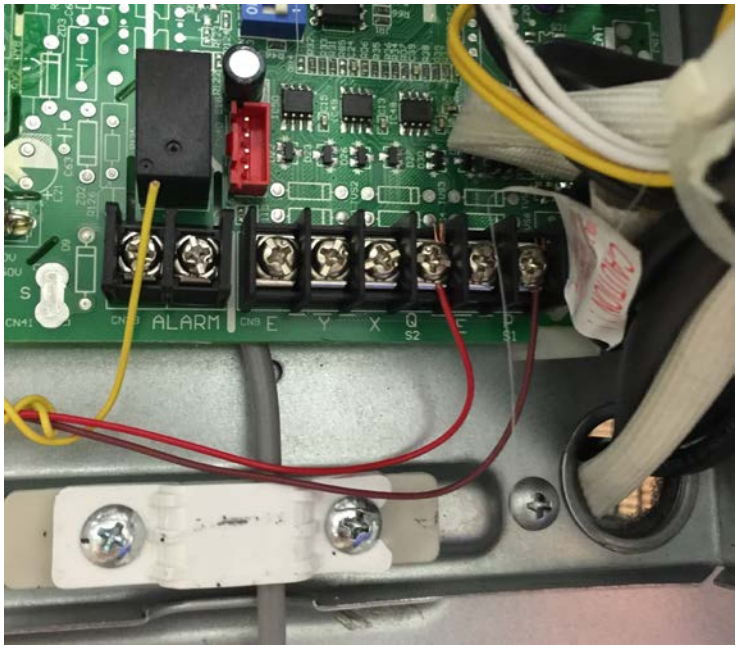


Figure 41. Indoor Unit Connection Points (Typical)

11.1. Connecting Cables

The power cord connection should be selected according to the following specifications.

Table 6. Wire Gauge

Unit	Gauge
1 drive 2 type (18K outdoor unit)	14
1 drive 3 type (27K outdoor unit).	14
1 drive 4 type (36K outdoor unit)	12
1 drive 5 type (48K outdoor unit)	10

11.2. Dry Mode Operation - MWMA and MWMB

11.2.1. 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.*

NOTE: *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. Note, this well over shoot the temperature by 6-8 degrees below what was set for dry mode.*

NOTE: *Using this mode will over shoot the temp by 6-8 degrees below what was set for dry mode mode.*

11.2.2. 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.*

11.3. Test Run - MWDA and MWMB

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.

11.3.1. 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:

11.3.2. Before Test Run

Table 7. 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		

11.4. Double-Check Pipe Connections

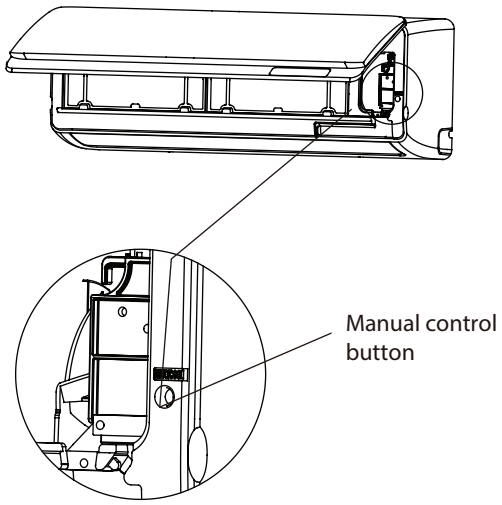
During operation, the pressure of the refrigerant circuit will increase. This may reveal leaks that were not present during your initial leak check. Take time during the Test Run to double-check that all refrigerant pipe connection points do not have leaks.

- 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.

11.5. 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.
- Push the button once and unit is in auto mode. Temperature is set at 75°F with no changing of set temperature..

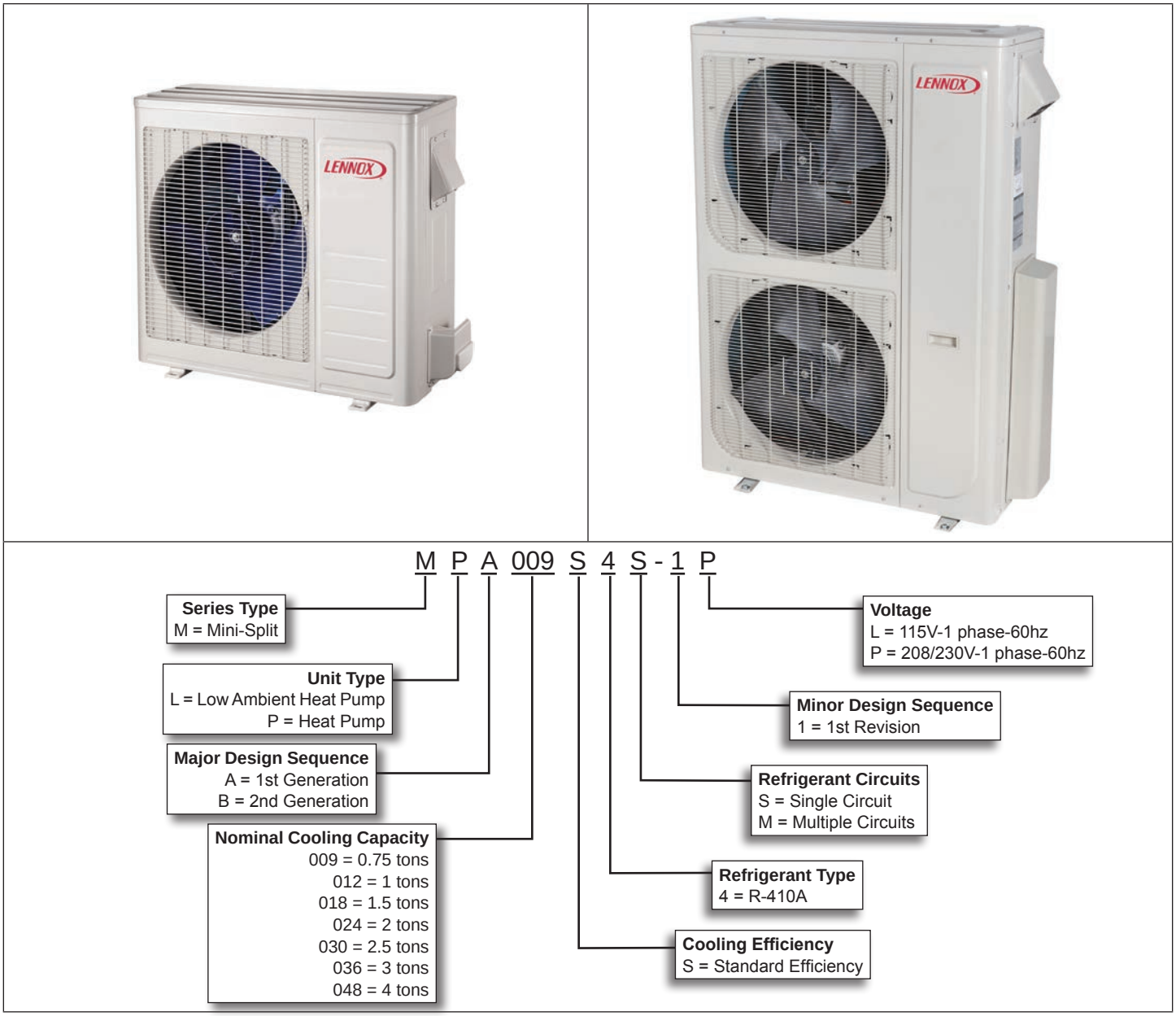


Outdoor Unit Information

1. Single and Multiple Zone Outdoor Units

NOTE: *Outdoor units can only be installed in an unenclosed outdoor environment.*

1.1. Model Number Identification



1.2. MPA Single-Zone Specifications (0.75 - 1.5 Ton)

Nominal Size - Tons			**0.75**		**1**		**1.5**
Outdoor Unit Model No.			**MPA009S4S**		**MPA012S4S**		**MPA018S4S**
Ambient Temperature Operating Range - °F		Cooling	5 - 122		5 - 122		5 - 122
		Heating	–13 - 86		–13 - 86		–13 - 86
Sound Data (dBA)		Cooling (115V)	51		52		- - -
		Cooling (208/230V)	53		54		61
		Heating (115V)	54		54		- - -
		Heating (208/230V)	55		57		62
Refrigerant	Charge furnished (R-410A)		2 lbs. 12 oz.		2 lbs. 12 oz.		4 lbs. 3 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.		98		98		98
	Max. difference in level of indoor unit - ft.		40		40		66
Outdoor Fan		(No.) Diameter - in.	(1) - 16.5		(1) - 16.5		(1) - 18
		Total air volume - cfm (115V)	1180		1180		- - -
		Total air volume - cfm (208/230V)	1120		1180		1470
		rpm (115V)	850		850		- - -
		rpm (208/230V)	800		800		800
Outdoor Coil		Number of rows	2		2		3
		Fins per inch	21		21		18
		Fin type	Hydrophilic aluminium				
		Tube outside diameter - in.	1/4		1/4		1/4
		Tube type	Rifled copper tubing				
		Net face area - ft.[2]	4.72		4.72		5.42
Design Pressure		PSIG	550/340		550/340		550/340
Shipping Data		Net/Shipping weight (lbs.)	83 / 88		83 / 88		111 / 120
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	15	15	15	15
	Compressor Rated load amps		9	5.3	10	5.7	9.5
Outdoor Fan Motor		Rated load amps	0.6	0.42	0.6	0.42	0.5
		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. MPA Single-Zone Specifications (2.0 - 4.0 Ton)

Nominal Size - Tons		2	2.5	3	4
Outdoor Unit Model No.		**MPA024S4S**	**MPA030S4S**	**MPA036S4S**	**MPA048S4S**
Ambient Temperature Operating Range - °F	Cooling	5 - 122	5 - 122	5 - 122	5 - 122
	Heating	–13 - 86	–13 - 86	–13 - 76	–13 - 76
Sound Data (dBA)	Cooling	59	59	62	63
	Heating	63	61	65	65
Refrigerant	Charge furnished (R-410A)	5 lbs. 3 oz.	6 lbs. 10 oz.	7 lbs. 13 oz.	9 lbs. 8 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	Twin-Rotary	Rotary	Twin-Rotary	Twin-Rotary
	Refrigerant oil type	Ester Oil VG74	FY50S	FV50S	FV50S
	Refrigerant oil charge - oz.	27.7	36.1	36.1	47.3
	Low ambient cut-off	–13°F	–13°F	–13°F	–13°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	(No.) Diameter - in.	(1) - 22	(1) - 22	(1) - 22	(2) - 20
	Total air volume - cfm	2355	2530	2940	4240
	rpm	850/750/700	950/800/750	950	860
Outdoor Coil	Number of rows	2.6	2.6	2.6	2
	Fins per inch	18	16	14	16
	Fin type	Hydrophilic aluminium			
	Tube outside diameter - in.	1/4	1/4	3/8	5/16
	Tube type	Rifled copper tubing			
	Net face area - ft.^{2}	8.12	7.79 / 4.75	8.16 / 4.75	14.14
Design Pressure	PSIG	550/340	550/340	550/340	550/340
Shipping Data	Net/Shipping weight (lbs.)	134 / 144	158 / 170	161 / 183	220 / 251
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	14	22	23.5
Outdoor Fan Motor	Rated load amps	0.7	1.0	1.0	(2) 0.7
	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. MPB Single-Zone Specifications (0.75 - 1.5 Ton)

Nominal Size - Tons			**0.75**		**1**		**1.5**
Outdoor Unit Model No.			**MPB009S4S**		**MPB012S4S**		**MPB018S4S**
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.

1.5. MPB Single-Zone Specifications (2 - 4 Ton)

Nominal Size - Tons		2	2.5	3	4
Outdoor Unit Model No.		**MPB024S4S**	**MPB030S4S**	**MPB036S4S**	**MPB048S4S**
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.

1.6. 3P8 Single-Zone Specifications

SPECIFICATIONS - 3PB OUTDOOR UNIT **3 TON**

	Outdoor Unit Model No.		**3PB036S4S**
	Nominal Tons		3
	Ambient Temperature Operating Range - °F	Cooling	–13 - 122
		Heating	–13 - 86
	Energy Star		No
	Sound Data (dBA)	Cooling/Heating	59
	Refrigerant (R-410A)	Charge furnished	7 lbs. 8 oz.
	Maximum line length with furnished charge - ft.		25
	Additional charge required per ft. - oz.		0.32
Compressor	No. and Type		(1) Rotary
	Refrigerant oil type		VG74
	Refrigerant oil charge - oz.		22.7
Connections - in.	Liquid/Gas pipe (flare)		3/8 / 5/8
	Maximum refrigerant pipe length - ft.		213
	Max. difference in level of indoor unit - ft.		98
Outdoor Fan(s)	(No.) Diameter - in.		(1) 17
	Total air volume - cfm		2130
	rpm		900
Outdoor Coil	Number of rows		3
	Fins per inch		18
	Fin type		Hydrophilic aluminium
	Tube outside diameter - in.		5/16
	Tube type		Rifled copper tubing
	Net face area - ft.^{2}		8.13
	Application area - sq. ft.		515 - 755
Design Pressure	PSIG		550/340
Shipping Data	Net/Shipping weight (lbs.)		146/ 158
ELECTRICAL DATA			
Electrical Characteristics - 60 Hz - 1 Phase			208/230V
	[1] Maximum Overcurrent Protection (amps)		35
	[2] Minimum circuit ampacity		25
	Compressor Rated load amps		17
Outdoor Fan Motor	Rated load amps		0.6
	Output - W		120

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.

1.7. MLA Single-Zone Specifications (0.75 - 2 Ton)

Nominal Size - Tons		0.75	1	1.5	2
Outdoor Unit Model No.		**MLA009S4S-1P**	**MLA012S4S-1P**	**MLA018S4S-1P**	**MLA024S4S-1P**
Ambient Temperature Operating Range - °F	Cooling	–22 - 122	–22 - 122	–22 - 122	–22 - 122
	Heating	–22 - 86	–22 - 86	–22 - 86	–22 - 86
Sound Data (dBA)	Cooling	52	52	56	57
	Heating	57	57	59	60
Refrigerant	Charge furnished (R-410A)	3 lbs. 3 oz.	3 lbs. 3 oz.	4 lbs. 3 oz.	5 lbs. 7 oz.
	Maximum line length with furnished charge - ft.	25	25	25	25
	Additional charge required per ft. - oz.	0.16	0.16	0.16	0.32
Compressor	No. and Type	Rotary	Rotary	Rotary	Rotary
	Refrigerant oil type	Ester Oil VG74	Ester Oil VG74	POE VG74	POE VG74
	Refrigerant oil charge - oz.	16.9	16.9	22.7	22.7
	Low ambient cut-off	–30	–30	–30	–30
Connections - in.	Liquid/Gas pipe (flare)	1/4 / 3/8	1/4 / 1/2	1/4 / 1/2	3/8 / 5/8
	Maximum refrigerant pipe length - ft.	82	82	98	164
	Max. difference in level of indoor unit - ft.	33	33	66	82
Outdoor Fan	(No.) Diameter - in.	(1) 17	(1) 17	(1) 19	(1) 22
	Total air volume - cfm	1120	1180	1355	2355
	rpm	810	810	850	810
Outdoor Coil	Number of rows	2	2	2	2
	Fins per inch	18	18	18	19
	Fin type	Hydrophilic aluminium			
	Tube outside diameter - in.	3/8	3/8	3/8	3/8
	Tube type	Rifled copper tubing			
	Net face area - ft.[2]	4.73	4.73	5.19	8.16
Design Pressure	PSIG	550/340	550/340	550/340	550/340
Shipping Data	Net/Shipping weight (lbs.)	88/94	88/94	108/115	136/149
ELECTRICAL DATA					
Electrical Characteristics - 60 Hz - 1 Phase		208/230V	208/230V	208/230V	208/230V
	[1] Maximum Overcurrent Protection (amps)	15	15	25	30
	2 Minimum circuit ampacity	9	9	18	20
	Compressor Rated load amps	5.25	5.65	12.3	14
Outdoor Fan Motor	Rated load amps	0.38	0.38	0.42	0.5
	Output - W	40	40	44	120

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.

1.8. MPA Multi-Zone Specifications (1.5 - 2.5 Ton)

Nominal Size - Tons		**1.5**		**2.5**	
Outdoor Unit Model No.		**MPA018S4M**		**MPA030S4M**	
Number of Zones		**2**		**Up to 3**	
[1] **AHRI Ratings**	System Type	Ducted	Non-Ducted	Ducted	Non-Ducted
	Cooling - Btuh	17,000	18,000	27,000	25,000
	High Temperature Heating - Btuh	18,000	18,500	32,000	32,000
	Low Temperature Heating - Btuh	10,900	11,000	20,000	20,000
	SEER	18.00	21.00	16.50	22.00
	EER	12.50	12.50	9.50	12.50
	HSPF (Region IV)	8.5	9.6	8.8	9.6
	AHRI Reference Number	8129621	8129607	8129624	8129613
Energy Star		Yes	Yes	No	Yes
Ambient Temperature Range - °F	Cooling	5 - 122		5 - 122	
	Heating	–13 - 76		–13 - 76	
Sound Data (dBA)	Cooling	57		59	
	Heating	62		62	
Refrigerant	Charge furnished (R-410A)	4 lbs. 4 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	Twin-Rotary		Twin-Rotary	
	Refrigerant oil type	ESTER OIL VG74		ESTER OIL VG74	
	Refrigerant oil charge - oz.	16.9		27.7	
Connections - in.	Liquid+Gas pipe (flare)	(2) 1/4 + (2) 3/8		(3) 1/4 + (3) 3/8	
	Maximum length for all rooms - ft.	98		148	
	Maximum length for one indoor unit - ft.	66		82	
Maximum height difference between indoor unit and outdoor unit	Outdoor unit ABOVE indoor unit - ft.	33		33	
	Outdoor unit BELOW indoor unit - ft.	49		49	
	Maximum difference in level between indoor units - ft.	33		33	
Outdoor Fan	(No.) Diameter - in.	(1) - 18		(1) - 22	
	Total air volume - cfm	1470		2060	
	rpm	750		850	
Outdoor Coil	Number of rows	2		1.6	
	Fins per inch	14		15	
	Fin type	Hydrophilic aluminium			
	Tube outside diameter - in.	3/8		3/8	
	Tube type	Rifled copper tubing			
	Net face area - ft.[2]	4.9		6.42	
Design Pressure	PSIG	550/340		550/340	
Shipping Data	Net/Shipping weight (lbs.)	106 / 115		144 / 155	
ELECTRICAL DATA					
Electrical Characteristics - 60 Hz - 1 Phase		208/230V		208/230V	
[2] Maximum Overcurrent Protection (amps)		20		25	
[3] Minimum circuit ampacity		18		20	
Compressor Rated load amps		10		12	
Outdoor Fan Motor	Rated load amps	0.74		0.90	
	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 210/240-2008;
- 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.

1.9. MPA Multi-Zone Specifications (3 - 4 Ton)

Nominal Size - Tons		**3**		**4**	
Outdoor Unit Model No.		**MPA036S4M**		**MPA048S4M**	
Number of Zones		**Up to 4**		**Up to 5**	
[1] **AHRI Ratings**	System Type	Ducted	Non-Ducted	Ducted	Non-Ducted
	Cooling - Btuh	34,000	36,000	42,000	42,000
	High Temperature Heating - Btuh	36,000	36,000	51,000	49,000
	Low Temperature Heating - Btuh	24,400	23,400	31,800	31,200
	SEER	15.00	18.00	18.00	20.00
	EER	8.20	8.80	11.00	12.50
	HSPF (Region IV)	9.3	10.0	9.5	10.0
	AHRI Reference Number	8129615	8129614	8129617	8129616
Energy Star		No	No	No	Yes
Ambient Temperature Range - °F	Cooling	5 - 122		5 - 122	
	Heating	–13 - 76		–13 - 76	
Sound Data (dBA)	Cooling	62		58	
	Heating	64		62	
Refrigerant	Charge furnished (R-410A)	7 lbs. 15 oz.		9 lbs. 8 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	Twin-Rotary		Twin-Rotary	
	Refrigerant oil type	FV50S		FV50S	
	Refrigerant oil charge - oz.	36.2		47.3	
Connections - in.	Liquid+Gas+Gas pipe (flare)	(4) 1/4 + (3) 3/8 + (1) 1/2		(5) 1/4 + (3) 3/8 + (2) 1/2	
	Maximum length for all rooms - ft.	197		246	
	Maximum length for one indoor unit - ft.	98		98	
Maximum height difference between indoor unit and outdoor unit	Outdoor unit above than indoor unit - ft.	33		33	
	Outdoor unit below than indoor unit - ft.	49		49	
	Maximum difference in level between indoor units - ft.	33		33	
Outdoor Fan	(No.) Diameter - in.	(1) - 22		(2) - 20	
	Total air volume - cfm	2240		(2) 4240	
	rpm	950		(2) 800	
Outdoor Coil	Number of rows	2.6		2	
	Fins per inch	15		15	
	Fin type	Hydrophilic aluminium			
	Tube outside diameter - in.	5/16		5/16	
	Tube type	Rifled copper tubing			
	Net face area - ft.^{2}	6.42		14.33	
Design Pressure	PSIG	550/340		550/340	
Shipping Data	Net/Shipping weight (lbs.)	162 / 174		218 / 245	
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	19.5		22	
Outdoor Fan Motor	Rated load amps	1.30		(2) 0.9	
	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 210/240-2008;
- 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.

1.10. MPB Multi-Zone Specifications (1.5 - 2.5 Ton)

Nominal Size - Tons		**1.5**		**2.5**	
Outdoor Unit Model No.		**MPB018S4M**		**MPB030S4M**	
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.

1.11. MPB Multi-Zone Specifications (3 - 4 Ton)

Nominal Size - Tons		**3**		**4**	
Outdoor Unit Model No.		**MPB036S4M**		**MPB048S4M**	
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.

1.12. MLA Multi-Zone Specifications (1.5 - 3 Ton)

Nominal Size - Tons		**1.5**		**2.5**		**3**	
Outdoor Unit Model No.		**MLA018S4M**		**MLA030S4M**		**MLA036S4M**	
Number of Zones		**2**		**Up to 3**		**Up to 4**	
[1] **AHRI Ratings**	System Type	Ducted	Non-Ducted	Ducted	Non-Ducted	Ducted	Non-Ducted
	Cooling - Btuh	18,000	19,000	27,000	28,000	35,000	36,000
	High Temperature Heating - Btuh	18,000	20,000	27,000	28,000	35,000	36,000
	Low Temperature Heating - Btuh	11,800	12,600	16,600	18,000	24,400	23,200
	SEER	16.8	21.5	17.6	22	17	21.5
	EER	11.3	12.5	10.8	13	10.8	13.5
	HSPF (Region IV)	8.6	9.8	9.1	10.4	9.2	10.5
	AHRI Reference Number	9920052	9920051	9920053	9920054	9920056	9920055
Energy Star		No	Yes	No	Yes	No	Yes
Ambient Temperature Range - °F	Cooling	–22 - 122		–22 - 122		–22 - 122	
	Heating	–22 - 86		–22 - 86		–22 - 86	
Sound Data (dBA)	Cooling	63.4		62.3		64	
	Heating	63.4		62.3		64	
Refrigerant	Charge furnished (R-410A)	6 lbs. 3 oz.		6 lbs. 10 oz.		10 lbs. 2 oz.	
	Maximum line length with furnished charge (per zone) - ft.	25		25		25	
	Additional charge required per ft. - oz.	0.161		0.161		0.32	
Compressor	No. and Type	Rotary		Rotary		Twin-Rotary	
	Refrigerant oil type	POE VG74		POE VG74		ESTER OIL VG74	
	Refrigerant oil charge - oz.	22.7		33.8		47.3	
Connections - in.	Liquid+Gas pipe (flare)	(2) 1/4 + (2) 3/8		(3) 1/4 + (3) 3/8		(3) 1/4 liq. + (3) 3/8 gas (1) 1/4 liq. + (1) 1/2 gas	
	Maximum length for all rooms - ft.	148		197		246	
	Maximum length for one indoor unit - ft.	82		98		98	
Maximum height difference between indoor unit and outdoor unit	Outdoor unit ABOVE indoor unit - ft.	33		33		33	
	Outdoor unit BELOW indoor unit - ft.	49		49		49	
	Maximum difference in level between indoor units - ft.	33		33		33	
Outdoor Fan	(No.) Diameter - in.	20		20		(2) 22	
	Total air volume - cfm	2130		2355		(2) 4470	
	rpm	150/200/250/300/400/500/600/750/900/1000		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		2	
	Fins per inch	17		19		18	
	Fin type	Hydrophilic aluminium					
	Tube outside diameter - in.	3/8		3/8		3/8	
	Tube type	Rifled copper tubing					
	Net face area - ft.2	8.24		8.16		13.40	
Design Pressure	PSIG	550/340		550/340		550/340	
Shipping Data	Net/Shipping weight (lbs.)	150 / 161		157 / 168		224 / 255	
ELECTRICAL DATA							
Electrical Characteristics - 60 Hz - 1 Phase		208/230V		208/230V		208/230V	
	[2] Maximum Overcurrent Protection (amps)	25		40		50	
	[3] Minimum circuit ampacity	19		27		35	
	Compressor Rated load amps	20		22		21	
Outdoor Fan Motor	Rated load amps	0.9		1.3		(2) 0.39	
	Output - W	120		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.

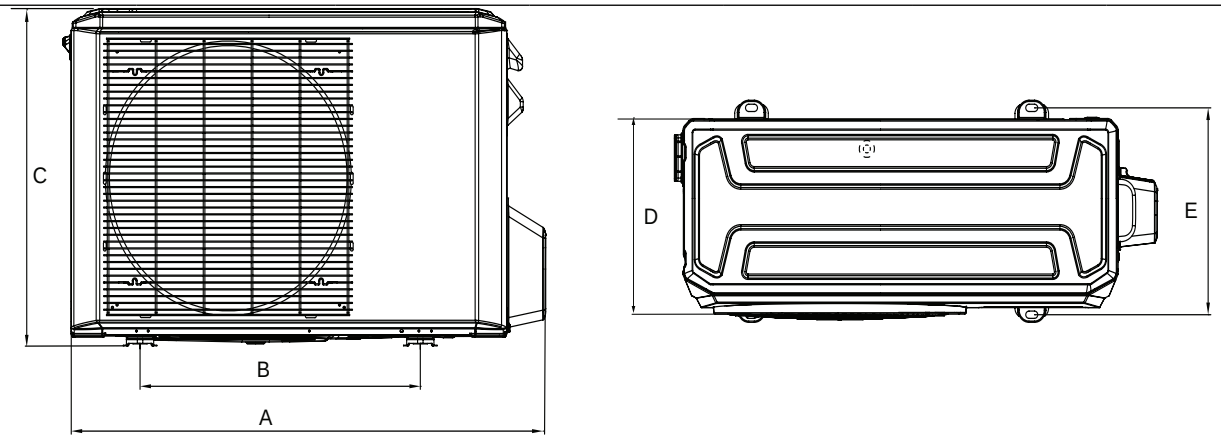
NOTE - Extremes of operating range are plus and minus 10% of line voltage.

[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:
018 - (2) 3/8 x 1/2 in.
030 - (3) 3/8 x 1/2 in.

1.13. Single-Zone Outdoor Unit Dimensions

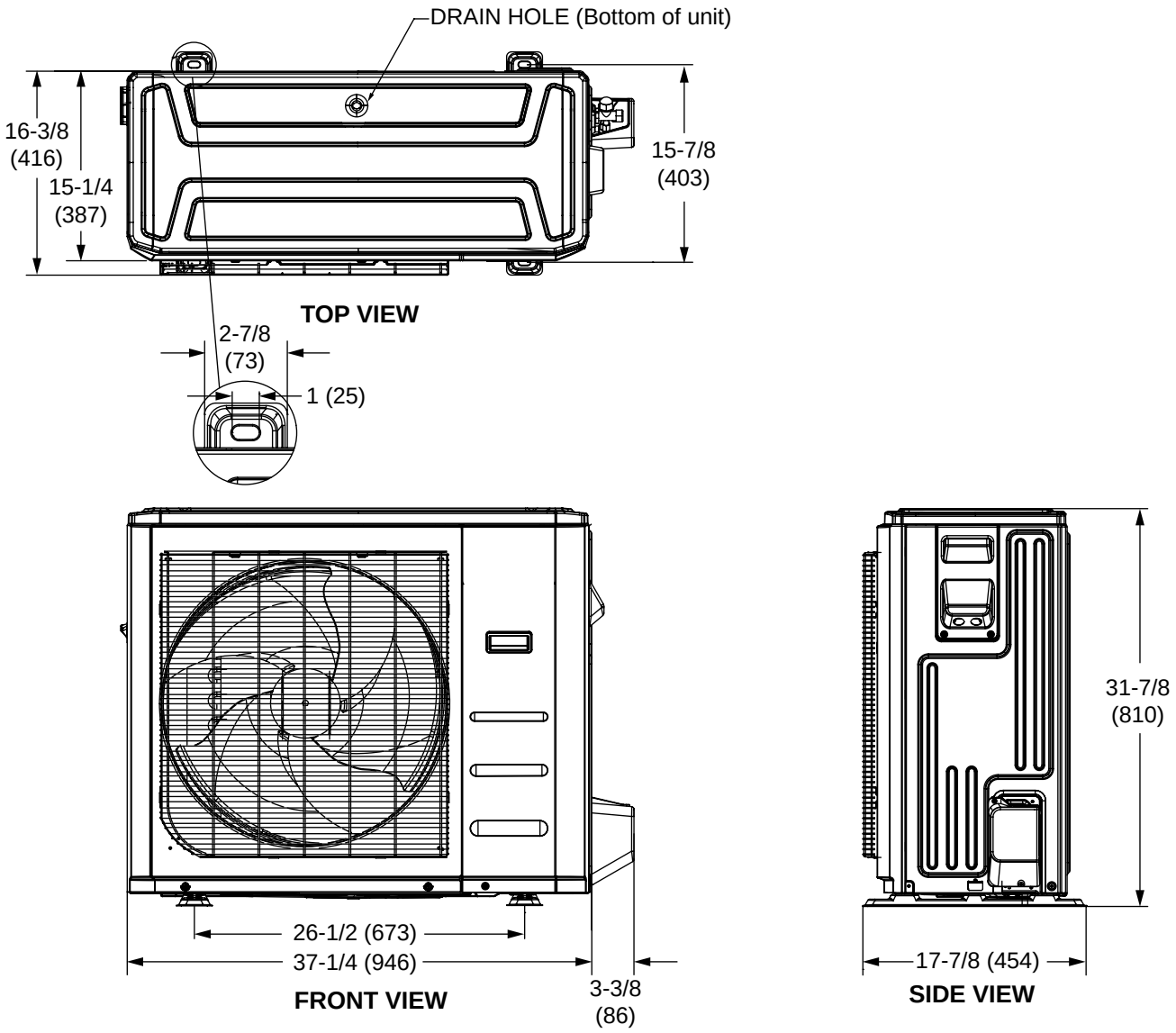


TYPICAL APPEARANCE OF UNITS

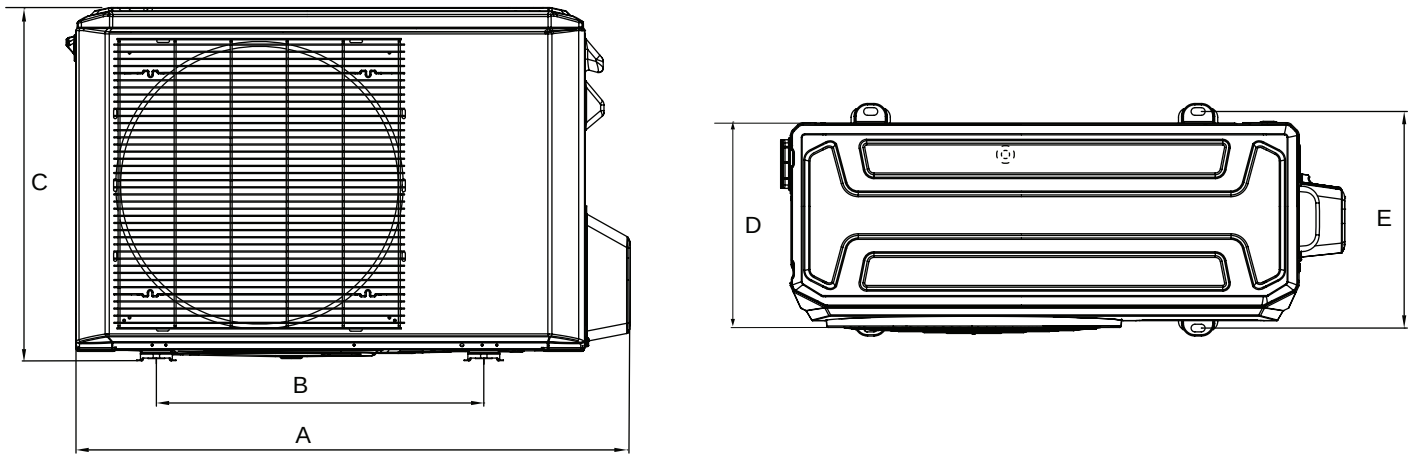
Model	Unit of Measurement	A	B	C	D	E
MPA009S4S-*L MPA009S4S-*P MPA012S4S-*L MPA012S4S-*P	inches	33-1/4	21-5/8	22	11-3/8	12-3/4
	mm	845	549	559	289	324
MPA018S4S-*P	inches	36-1/8	22	27-1/2	12-3/4	13
	mm	918	559	699	324	330
MPA024S4S-*P MPA030S4S-*P MPA036S4S-*P	inches	40-5/8	25-1/4	31-7/8	15-1/8	16
	mm	1032	641	810	384	406
MPA048S4S-*	inches	40-1/4	25	53-3/4	15-3/8	16
	mm	1023	635	1365	391	406
MPB009S4S-*L MPB012S4S-*L MPB012S4S-*P	inches	34-1/4	20-1/4	21-7/8	13-1/8	13-3/8
	mm	870	514	556	333	340
MPB009S4S-*P	inches	33-1/8	19-1/8	21-7/8	11-7/8	11-3/4
	mm	842	486	556	302	298
MPB018S4S-*P	inches	36	21-1/4	27-5/8	14-1/4	13-3/4
	mm	914	540	702	362	349
MPB024S4S-*P MPB030S4S-*P MPB036S4S-*P	inches	37-1/4	26-1/2	31-7/8	16-3/8	15-7/8
	mm	1032	673	810	416	403
MPB048S4S-*P	inches	41-1/8	25	52-1/2	16-3/8	15-7/8
	mm	1045	635	1334	416	403
MLA009S4S-*P MLA012S4S-*P	inches	34-1/4	20-1/4	21-3/4	12-1/4	13-3/8
	mm	870	514	552	311	594
MLA018S4S-*P	inches	36	21-1/4	27-5/8	13-3/4	16
	mm	914	540	702	349	406
MLA024S4S-*P	inches	40-3/4	26-1/2	31-7/8	15-1/8	16
	mm	1035	673	810	384	406

1.14. 3PB Single-Zone Outdoor Unit Dimension

3PB036S4S



1.15. Multi-Zone Outdoor Unit Dimensions

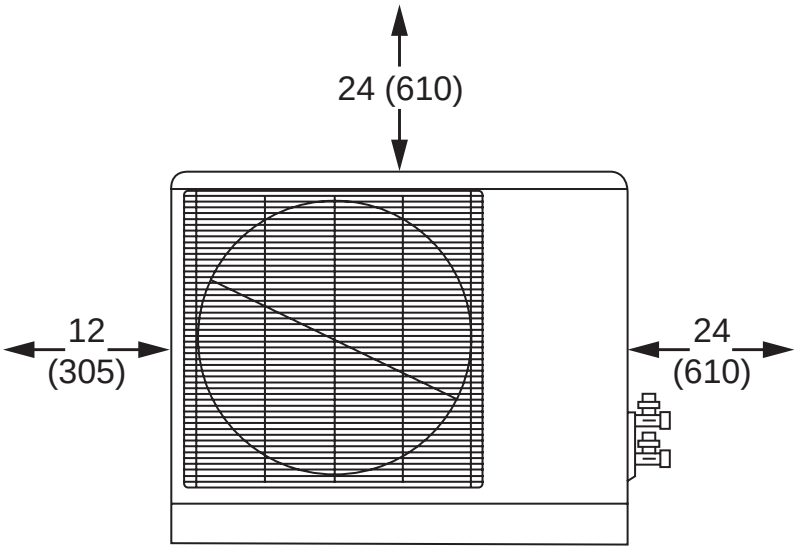


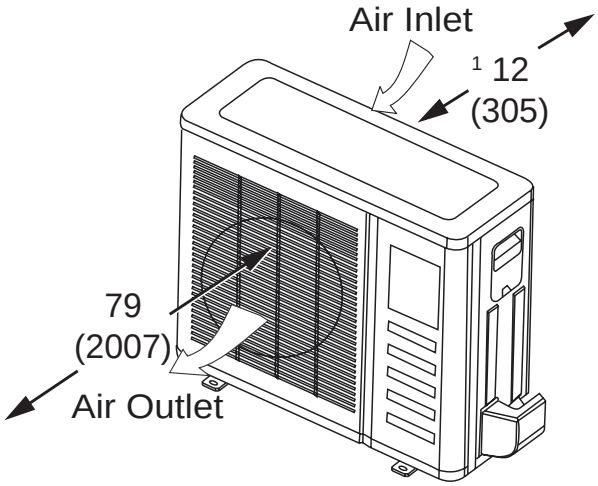
TYPICAL APPEARANCE OF UNITS

Model	Unit of Measurement	A	B	C	D	E
MPA018S4M-*P	inches	35-3/4	22	27-3/8	12-3/4	13-1/8
	mm	911	559	695	324	333
MPA030S4M-*P MPA036S4M-*P	inches	37-1/4	25-1/4	31-7/8	15-1/2	16
	mm	946	641	810	394	406
MPA048S4M-*P	inches	36-7/8	32-7/8	54-1/2	15-3/8	16
	mm	937	835	1385	391	408
MPB018S4M-*P	inches	36	21-1/4	27-5/8	13-1/4	13-3/4
	mm	914	540	702	335	350
MPB030S4M-*P MPB036S4M-*P	inches	40-3/4	26-1/2	31-7/8	15-1/8	15-7/8
	mm	1035	673	810	386	403
MPB048S4M-*P	inches	41-3/4	25	52-1/2	16-3/8	15-7/8
	mm	1060	634	1333	415	404
MLA018S4M-*P MLA030S4M-*P	inches	40-5/8	26-1/2	31-7/8	16-5/8	15-7/8
	mm	1032	673	810	422	403
MLA036S4M-*P	inches	41-1/8	25	52-1/2	15-3/8	15-7/8
	mm	1045	635	1334	391	403

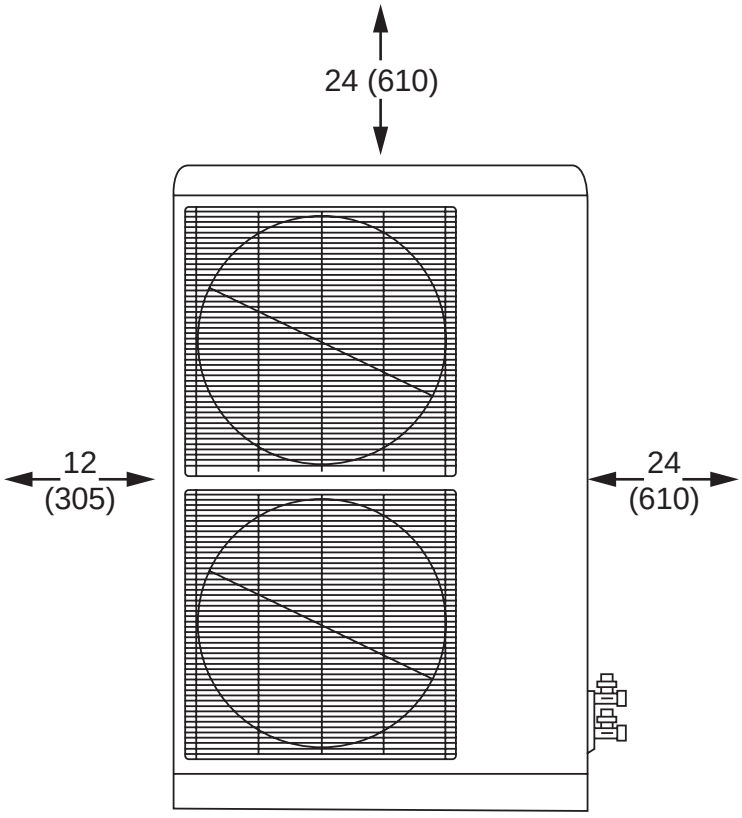
1.16. Outdoor Unit Clearances

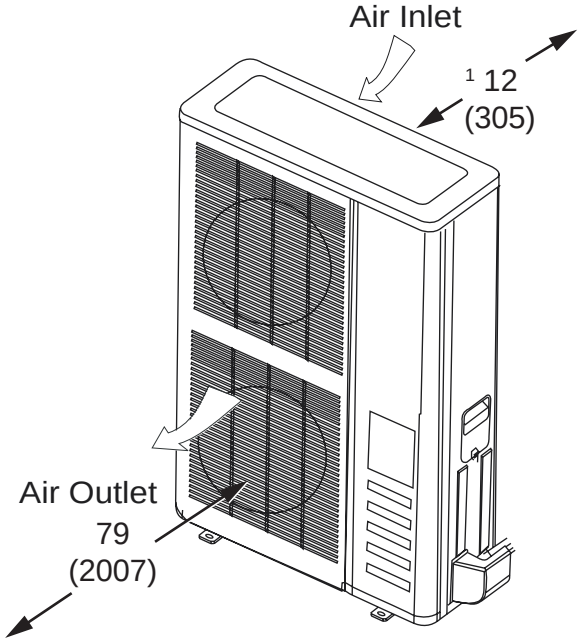
1.16.1. Single Units





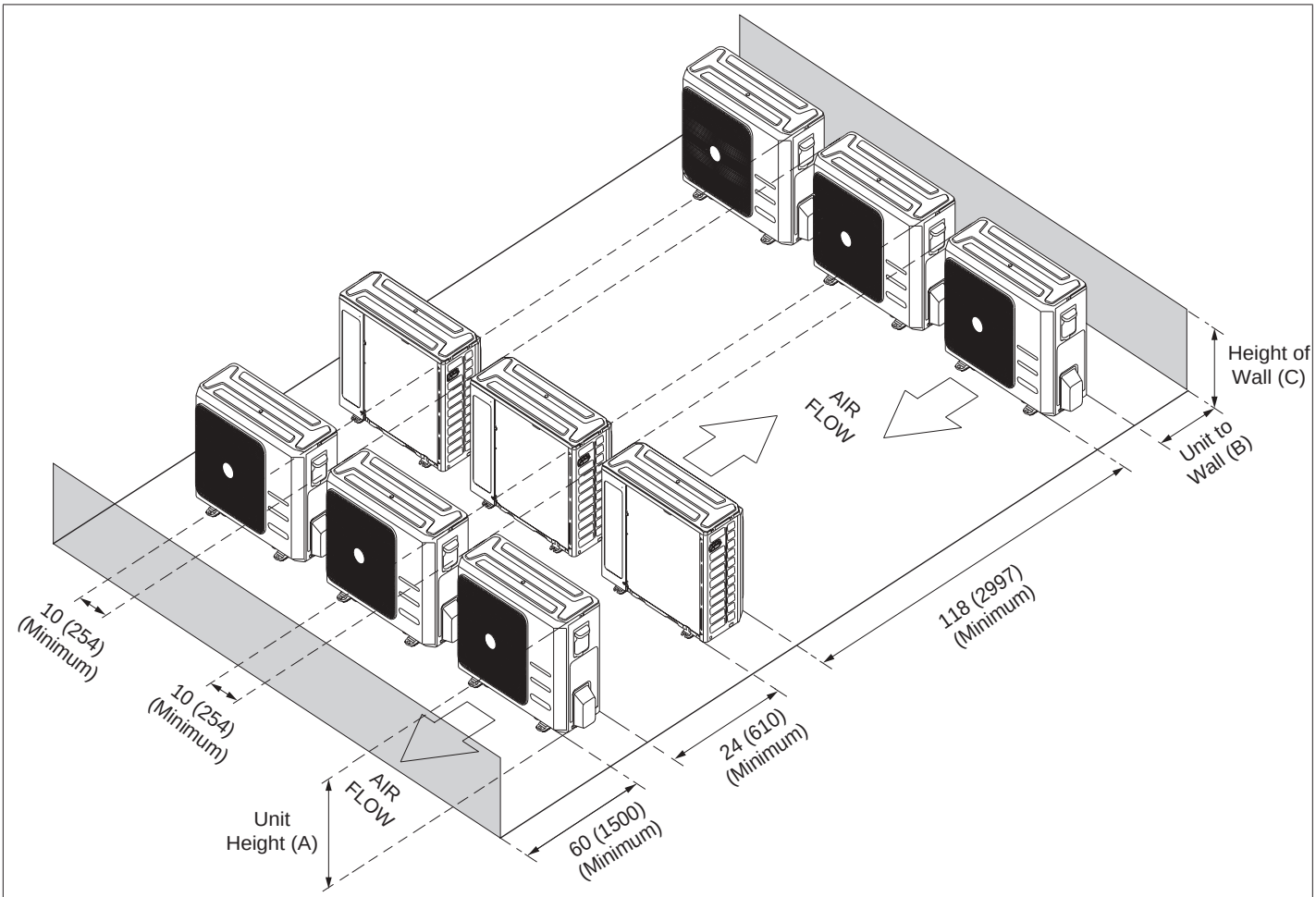
[1] Minimum rear clearance can be 6 inches (152 mm) when mounted on brackets and with no obstructions on the other three sides.





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

1.16.2. Multiple Units



CLEARANCE NOTES FOR MULTIPLE UNITS:

If the height of the wall (C) is less than or equal to the height of the smallest unit (A), the distance from the unit to the wall (B) must be a minimum of 10 inches (254 mm).

If 1/2 the height of the unit (A) is less than the height of the wall (C), the distance from the unit to the wall (B) must be a minimum of 12 inches (305 mm).

If the height of the wall (C) is greater than the height of the unit (A), the distance from the unit to the wall (B) must be a minimum of 20 inches (508 mm).

Figure 42. Multiple Outdoor Unit Clearances - Inches (mm)

2. Indoor / Outdoor Unit Combinations

2.1. MPA 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
MPA018S4M	[1] 1	012	- - -	- - -	- - -	- - -	11,977	- - -	- - -	- - -	- - -	11,373	- - -	- - -	- - -	- - -
	2	009	009	- - -	- - -	- - -	9,000	9,000	- - -	- - -	- - -	9,250	9,250	- - -	- - -	- - -
		009	012	- - -	- - -	- - -	8,379	10,313	- - -	- - -	- - -	8,538	10,508	- - -	- - -	- - -
		012	012	- - -	- - -	- - -	9,450	9,450	- - -	- - -	- - -	9,735	9,735	- - -	- - -	- - -
MPA030S4M	[1] 1	018	- - -	- - -	- - -	- - -	18,345	- - -	- - -	- - -	- - -	19,730	- - -	- - -	- - -	- - -
	2	009	009	- - -	- - -	- - -	9,258	9,258	- - -	- - -	- - -	10,961	10,961	- - -	- - -	- - -
		009	012	- - -	- - -	- - -	9,115	11,219	- - -	- - -	- - -	10,564	13,002	- - -	- - -	- - -
		009	018	- - -	- - -	- - -	8,803	17,944	- - -	- - -	- - -	10,521	21,448	- - -	- - -	- - -
		012	012	- - -	- - -	- - -	11,521	11,521	- - -	- - -	- - -	12,605	12,605	- - -	- - -	- - -
		012	018	- - -	- - -	- - -	10,327	17,105	- - -	- - -	- - -	12,379	20,503	- - -	- - -	- - -
		018	018	- - -	- - -	- - -	15,390	15,390	- - -	- - -	- - -	18,453	18,453	- - -	- - -	- - -
	3	009	009	009	- - -	- - -	8,915	8,915	8,915	- - -	- - -	10,656	10,656	10,656	- - -	- - -
		009	009	012	- - -	- - -	9,244	9,244	11,512	- - -	- - -	10,234	10,234	12,596	- - -	- - -
		009	012	012	- - -	- - -	8,681	10,684	10,684	- - -	- - -	9,605	11,821	11,821	- - -	- - -
		009	009	018	- - -	- - -	7,316	7,316	14,632	- - -	- - -	8,197	8,197	16,394	- - -	- - -
		012	012	012	- - -	- - -	9,755	9,755	9,755	- - -	- - -	10,929	10,929	10,929	- - -	- - -
MPA036S4M	2	009	018	- - -	- - -	- - -	8,788	17,913	- - -	- - -	- - -	9,540	19,447	- - -	- - -	- - -
		012	012	- - -	- - -	- - -	10,287	10,287	- - -	- - -	- - -	11,864	11,864	- - -	- - -	- - -
		012	018	- - -	- - -	- - -	10,052	16,649	- - -	- - -	- - -	10,913	18,074	- - -	- - -	- - -
		018	018	- - -	- - -	- - -	17,200	17,200	- - -	- - -	- - -	18,240	18,240	- - -	- - -	- - -
	3	009	009	009	- - -	- - -	8,900	8,900	8,900	- - -	- - -	9,476	9,476	9,476	- - -	- - -
		009	009	012	- - -	- - -	8,265	8,265	10,172	- - -	- - -	8,972	8,972	11,043	- - -	- - -
		009	009	018	- - -	- - -	8,518	8,518	17,364	- - -	- - -	9,033	9,033	18,414	- - -	- - -
		009	012	012	- - -	- - -	9,228	11,357	11,357	- - -	- - -	10,301	12,679	12,679	- - -	- - -
		009	012	018	- - -	- - -	8,202	10,094	16,719	- - -	- - -	8,347	10,273	17,015	- - -	- - -
		009	018	018	- - -	- - -	7,640	15,575	15,575	- - -	- - -	7,664	15,624	15,624	- - -	- - -
		012	012	012	- - -	- - -	10,648	10,648	10,648	- - -	- - -	11,886	11,886	11,886	- - -	- - -
		012	012	018	- - -	- - -	9,901	9,901	16,399	- - -	- - -	10,031	10,031	16,614	- - -	- - -
		012	018	018	- - -	- - -	8,995	14,898	14,898	- - -	- - -	9,175	15,197	15,197	- - -	- - -
	4	009	009	009	009	- - -	9,000	9,000	9,000	9,000	- - -	9,000	9,000	9,000	9,000	- - -
		009	009	009	012	- - -	9,371	9,371	9,371	11,534	- - -	9,031	9,031	9,031	11,115	- - -
		009	009	009	018	- - -	8,204	8,204	8,204	16,723	- - -	7,902	7,902	7,902	16,109	- - -
		009	009	012	012	- - -	8,887	8,887	10,937	10,937	- - -	8,564	8,564	10,540	10,540	- - -
		009	009	012	018	- - -	8,062	8,062	9,923	16,435	- - -	7,823	7,823	9,628	15,946	- - -
		009	012	012	012	- - -	8,809	10,842	10,842	10,842	- - -	8,485	10,444	10,444	10,444	- - -
		012	012	012	012	- - -	10,334	10,334	10,334	10,334	- - -	9,954	9,954	9,954	9,954	- - -

[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
MPA048S4M	2	009	024	- - -	- - -	- - -	8,854	23,432	- - -	- - -	- - -	9,294	24,601	- - -	- - -	- - -
		012	018	- - -	- - -	- - -	11,790	17,461	- - -	- - -	- - -	12,650	18,655	- - -	- - -	- - -
		012	024	- - -	- - -	- - -	11,691	23,322	- - -	- - -	- - -	11,961	24,402	- - -	- - -	- - -
		018	018	- - -	- - -	- - -	16,826	16,826	- - -	- - -	- - -	18,245	18,245	- - -	- - -	- - -
		018	024	- - -	- - -	- - -	16,748	23,631	- - -	- - -	- - -	18,155	25,210	- - -	- - -	- - -
		024	024	- - -	- - -	- - -	23,294	23,294	- - -	- - -	- - -	24,855	24,855	- - -	- - -	- - -
	3	009	009	009	- - -	- - -	9,294	9,294	9,294	- - -	- - -	9,680	9,680	9,680	- - -	- - -
		009	009	012	- - -	- - -	9,063	9,063	11,906	- - -	- - -	9,565	9,565	12,750	- - -	- - -
		009	009	018	- - -	- - -	8,952	8,952	17,965	- - -	- - -	9,540	9,540	18,455	- - -	- - -
		009	009	024	- - -	- - -	8,834	8,834	23,332	- - -	- - -	9,235	9,235	24,505	- - -	- - -
		009	012	012	- - -	- - -	9,027	12,089	12,089	- - -	- - -	9,425	12,850	12,850	- - -	- - -
		009	012	018	- - -	- - -	9,001	11,636	17,334	- - -	- - -	9,345	12,585	18,119	- - -	- - -
		009	012	024	- - -	- - -	8,922	11,621	23,222	- - -	- - -	9,330	11,950	24,395	- - -	- - -
		009	018	018	- - -	- - -	8,844	17,193	17,193	- - -	- - -	9,320	17,875	17,875	- - -	- - -
		009	018	024	- - -	- - -	8,685	16,321	22,111	- - -	- - -	9,220	16,675	22,660	- - -	- - -
		009	024	024	- - -	- - -	8,421	21,121	21,121	- - -	- - -	9,021	21,521	21,521	- - -	- - -
		012	012	012	- - -	- - -	11,981	11,981	11,981	- - -	- - -	12,648	12,648	12,648	- - -	- - -
		012	012	018	- - -	- - -	11,945	11,945	17,021	- - -	- - -	12,355	12,355	18,105	- - -	- - -
		012	018	018	- - -	- - -	10,756	16,530	16,530	- - -	- - -	11,550	18,035	18,035	- - -	- - -
		012	012	024	- - -	- - -	11,583	11,583	23,111	- - -	- - -	11,910	11,910	24,355	- - -	- - -
		012	018	024	- - -	- - -	11,093	16,210	22,035	- - -	- - -	11,755	16,545	22,580	- - -	- - -
		012	024	024	- - -	- - -	9,900	20,768	20,768	- - -	- - -	11,440	21,760	21,760	- - -	- - -
		018	018	018	- - -	- - -	16,405	16,405	16,405	- - -	- - -	17,170	17,170	17,170	- - -	- - -
		018	018	024	- - -	- - -	15,383	15,383	20,270	- - -	- - -	15,865	15,865	22,155	- - -	- - -

[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.

2.2. MPB 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
MPB018S4M	[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	---	---	---
MPB030S4M	[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	---	---	8,500	10,500	10,500	---	---	8,500	11,000	11,000	---	---
		009	009	018	---	---	8,300	8,300	13,500	---	---	8,500	8,500	14,500	---	---
		012	012	012	---	---	10,000	10,000	10,000	---	---	10,667	10,667	10,667	---	---
MPB036S4M	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
MPB048S4M	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	16,500	16,500	- - -	- - -	11,500	17,000	17,000	- - -	- - -
		012	012	024	- - -	- - -	11,000	11,000	22,000	- - -	- - -	11,500	11,500	23,000	- - -	- - -
		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
MPB048S4M	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.

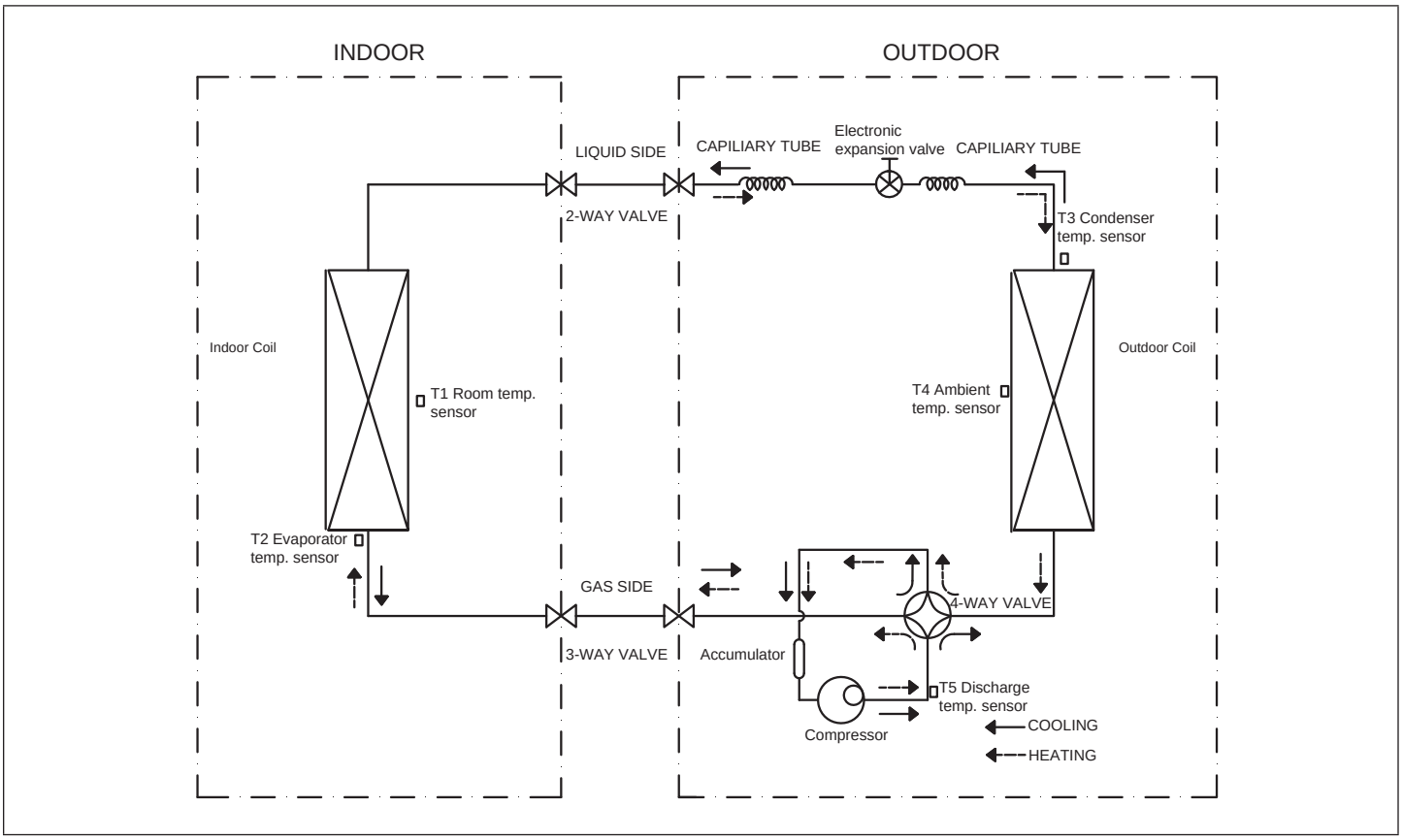
2.3. MLA Multi-Zone System Combinations

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

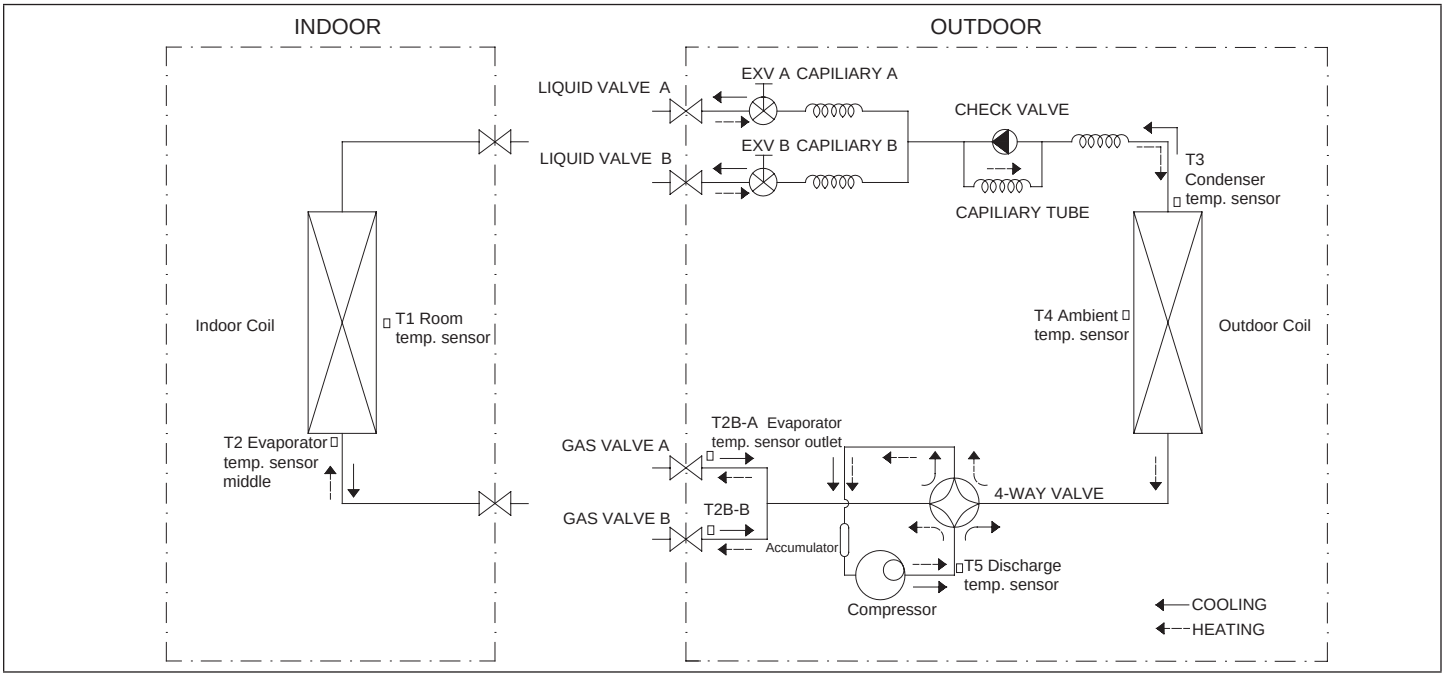
Outdoor Unit Model No.	Number of Zones	Indoor Unit Capacity				Nominal Cooling Capacity at Rated System Capacity (Btuh)				Nominal Heating Capacity at Rated System Capacity (Btuh)			
		#1	#2	#3	#4	#1	#2	#3	#4	#1	#2	#3	#4
MLA018S4M	2	009	009	---	---	9,000	9,000	---	---	10,000	10,000	---	---
		009	012	---	---	9,000	12,000	---	---	10,000	13,000	---	---
		009	018	---	---	8,000	17,000	---	---	9,000	18,000	---	---
		012	012	---	---	11,000	11,000	---	---	13,000	13,000	---	---
MLA030S4M	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	---	---
		009	024	---	---	8,000	21,000	---	---	9,000	24,000	---	---
		012	012	---	---	12,000	12,000	---	---	13,000	13,000	---	---
		012	018	---	---	10,000	15,000	---	---	12,000	18,000	---	---
		012	024	---	---	9,500	20,500	---	---	11,000	23,000	---	---
		018	018	---	---	15,000	15,000	---	---	17,000	17,000	---	---
	3	009	009	009	---	9,000	9,000	9,000	---	10,000	10,000	10,000	---
		009	009	012	---	8,667	8,667	11,667	---	9,500	9,500	12,000	---
		009	009	018	---	8,333	8,333	13,333	---	9,000	9,000	14,000	---
		009	012	012	---	8,500	10,000	10,000	---	8,500	11,500	11,500	---
		009	012	018	---	8,000	10,000	13,000	---	8,000	10,000	15,000	---
		012	012	012	---	10,000	10,000	10,000	---	10,667	10,667	10,667	---
MLA036S4M	2	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	---	---
		018	024	---	---	16,000	22,000	---	---	16,500	22,500	---	---
		024	024	---	---	20,000	20,000	---	---	21,000	21,000	---	---
	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	009	024	---	7,500	7,500	21,000	---	8,500	8,500	22,000	---
		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	012	024	---	7,500	10,500	19,000	---	8,000	11,000	19,500	---
		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	012	024	---	10,000	10,000	18,000	---	10,500	10,500	18,500	---
		012	018	018	---	9,333	13,333	13,333	---	10,000	14,500	14,500	---
	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

3. Refrigeration Pipe Work

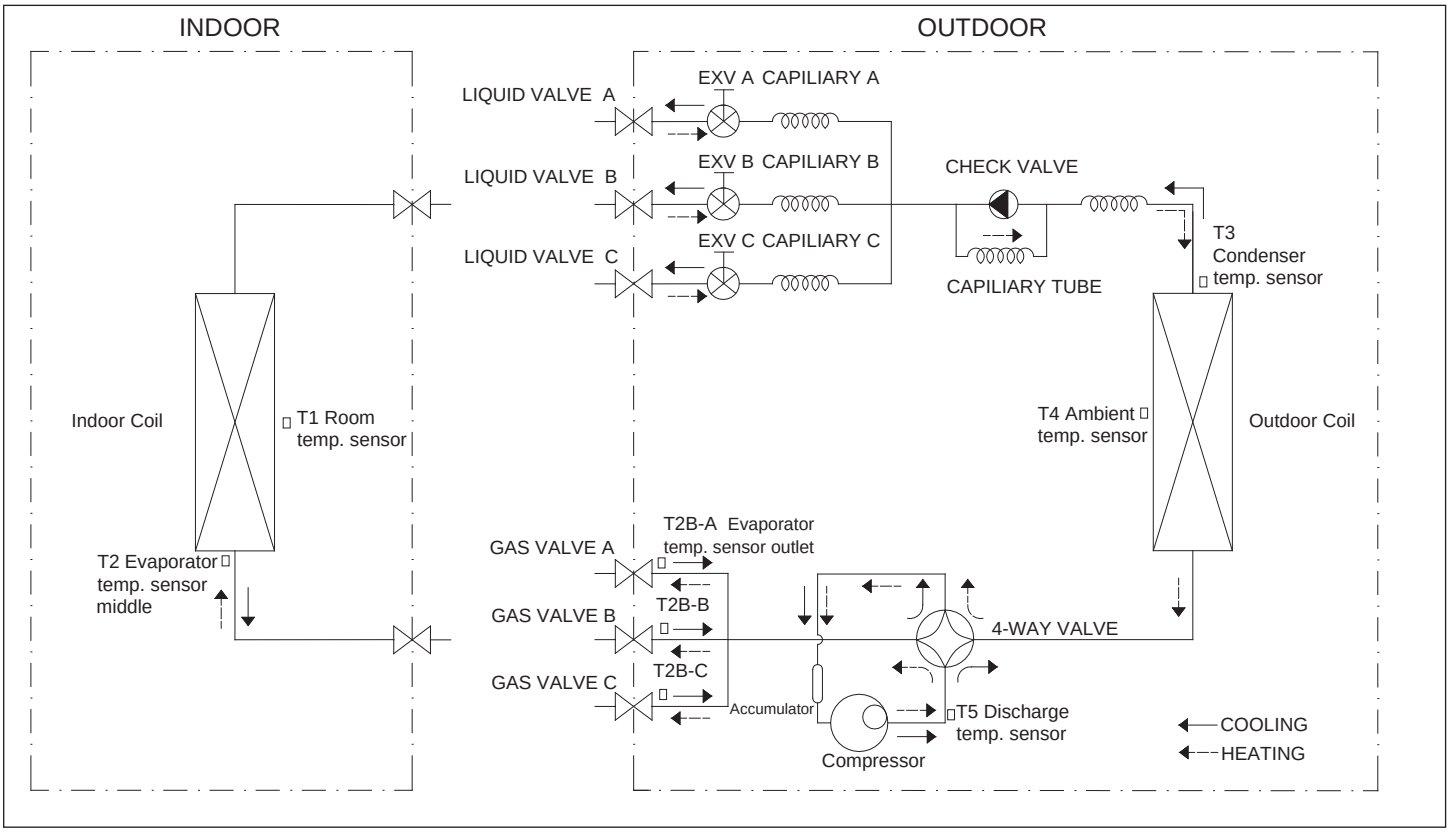
3.1. MPA/MPB Single-Zone Refrigerant Cycle Diagram



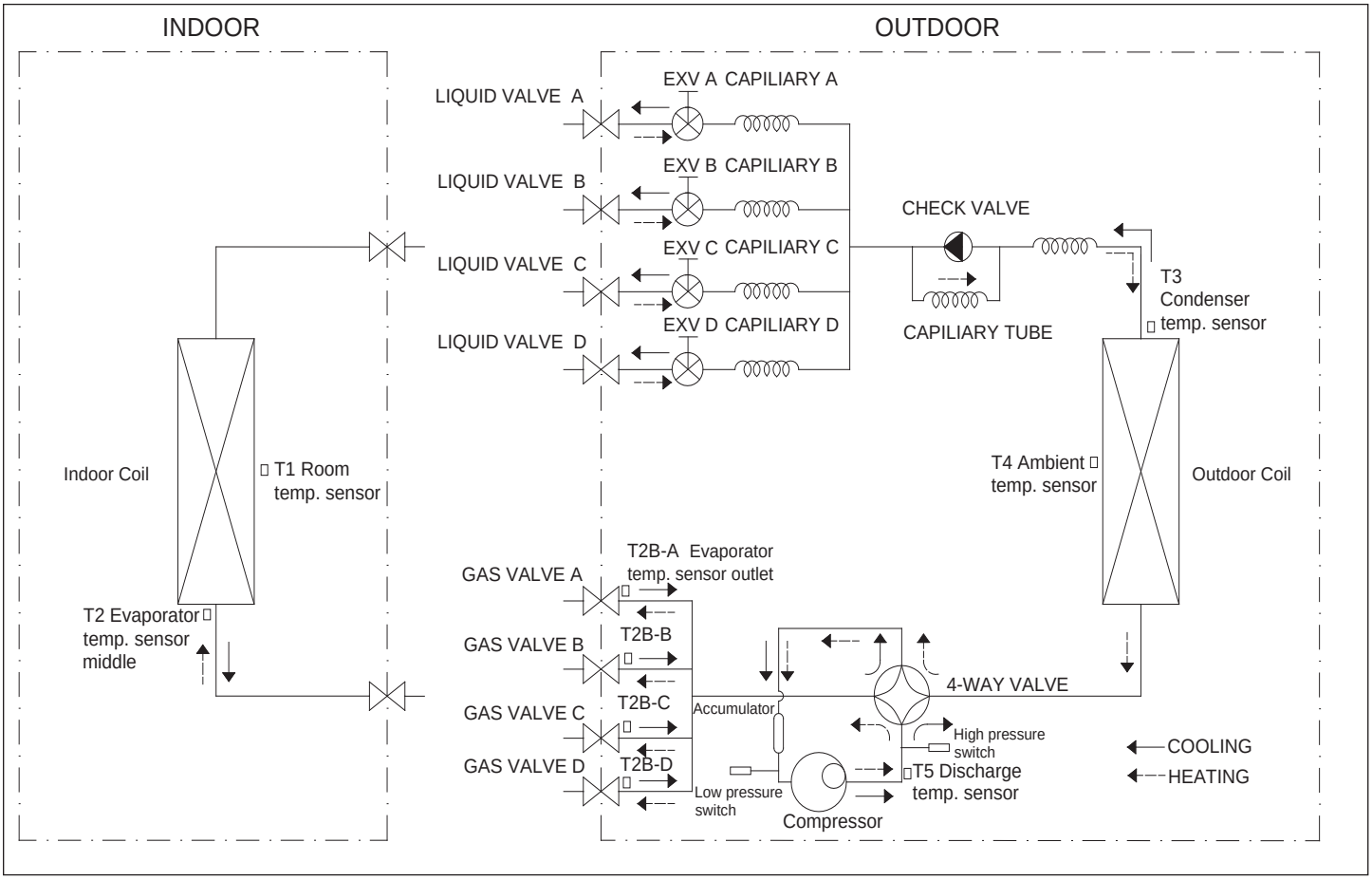
3.2. MPA/MPB Two-Zone Refrigerant Cycle Diagram



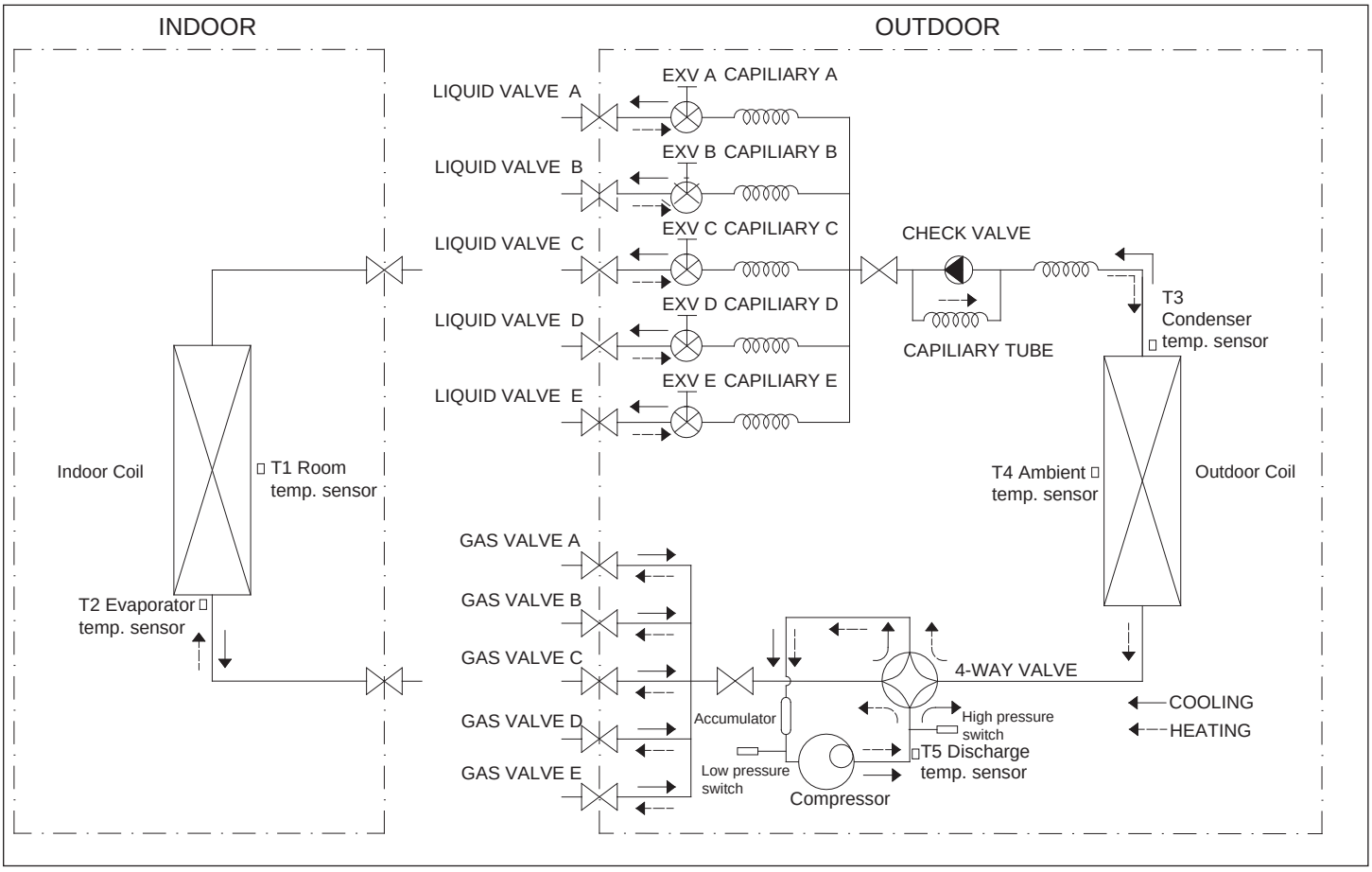
3.3. MPA/MPB Three-Zone Refrigerant Cycle Diagram



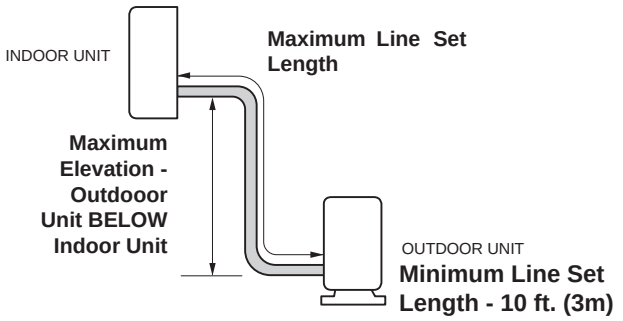
3.4. MPA/MPB Four-Zone Refrigerant Cycle Diagram



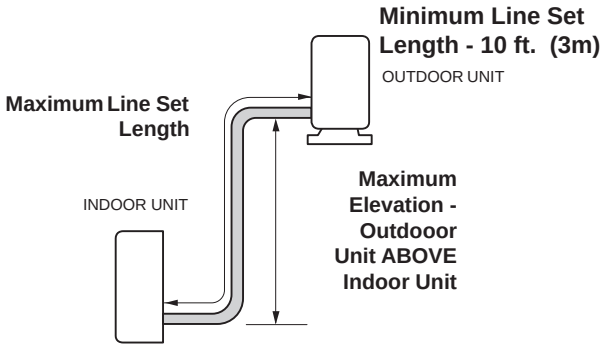
3.5. MPA/MPB Five-Zone Refrigerant Cycle Diagram



3.6. Single-Zone Piping Limitations



Outside Unit BELOW Indoor Unit



Outside Unit ABOVE Indoor Unit

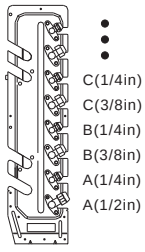
IMPORTANT

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)
030	3/8	5/8	82 ft. (25 m)	82 ft. (25 m)	164 ft. (50 m)
036/048 and 3PB-036	3/8	5/8	98 ft. (30 m)	98 ft. (30 m)	213 ft. (65 m)

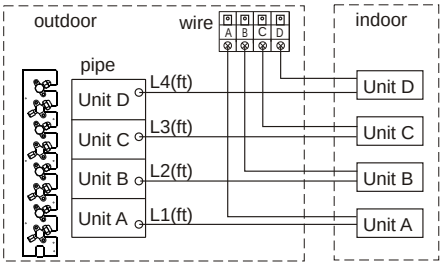
3.7. Multi-Zone Piping Limitations

Connecting Multiple Capacity Indoor Units



Four-Zone System Example Shown Above

Pipe and Wire Each Zone Separately



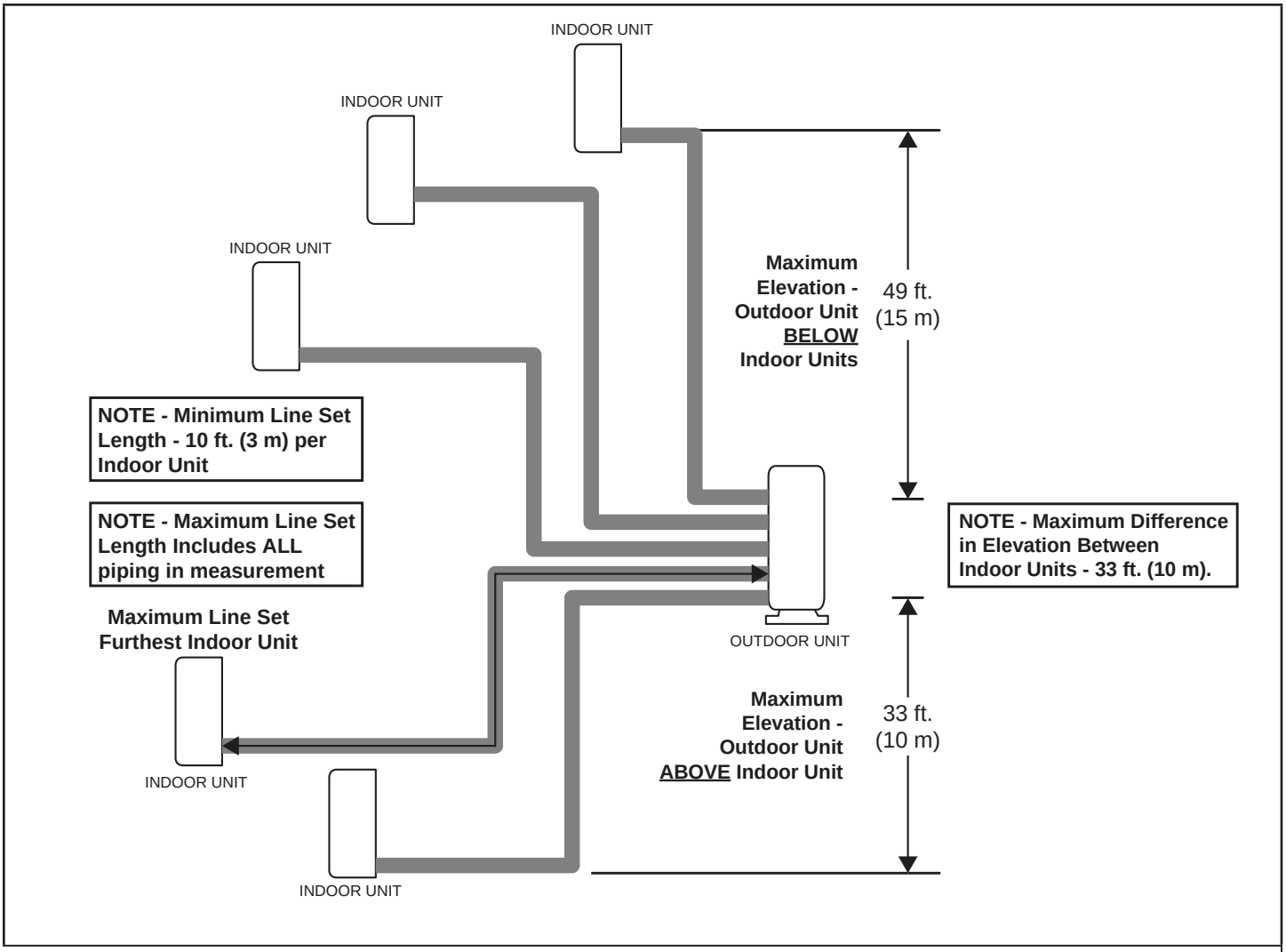


Figure 43. MPA Line Set Elevations

Outdoor Unit Model No.	MPA018S4M	MPA030S4M	MPA036S4M	MPA048S4M
Maximum Number of Indoor Units/Zones	Two	Three	Four	Five
Indoor Unit Connections	(2) 1/4 liq. / 3/8 gas	(3) 1/4 liq. / 3/8 gas	(4) 1/4 liq. (3) 3/8 gas (1) 1/2 gas	(5) 1/4 liq. (3) 3/8 gas (2) 1/2 gas
Maximum Pipe Length for all Rooms	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)

NOTE - Refer to “Connections And Line Set Usage” tables starting on “5. MPA, MPB, MLA and MLB Outdoor Unit Connections and Line Set Usage” on page 89 for correct line set usage and correct refrigerant line adaptors furnished with outdoor units.

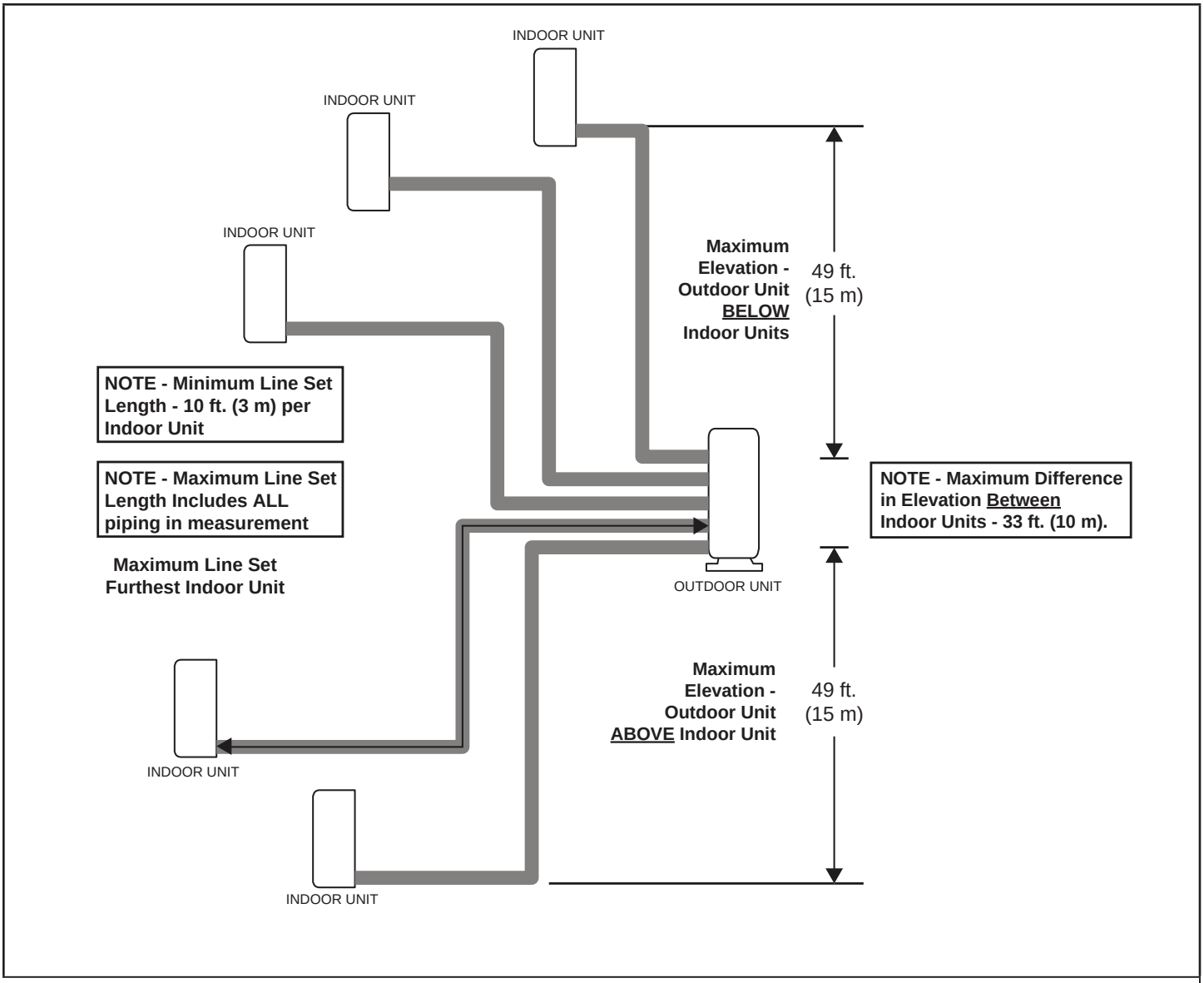


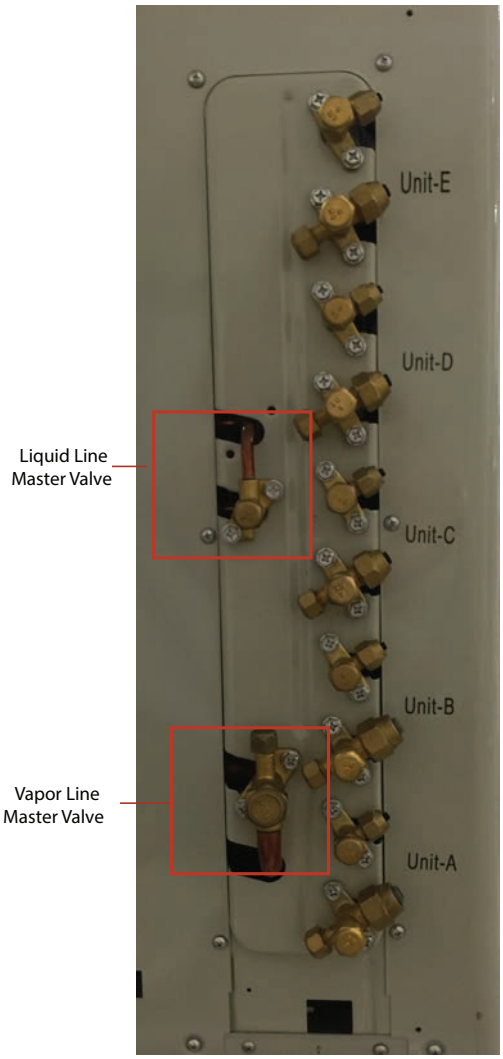
Figure 44. MLA/MPA/MPB Line Set Elevations

Outdoor Unit Model No.	MLA018S4M / MPB018S4M	MLA030S4M / MPB030S4M	MLA036S4M / MLB036S4M / MPB036S4M	MPB048S4M
Maximum Number of Indoor Units/Zones	Two	Three	Four	Five
Indoor Unit Connections	(2) 1/4 liq. (2) 3/8 gas	(3) 1/4 liq. (3) 3/8 gas	(4) 1/4 liq. (3) 3/8 gas (1) 1/2 gas	(5) 1/4 liq. (3) 3/8 gas (2) 1/2 gas
Maximum Pipe Length for all Rooms	131 ft. (40 m)	197 ft. (60 m)	262 ft. (80 m)	262 ft. (80 m)
Maximum Line Set Length - Furthest Indoor Unit	82 ft. (25 m)	98 ft. (30 m)	115 ft. (35 m)	115 ft. (35 m)

NOTE - Refer to *"Connections And Line Set Usage"* tables starting on "5. MPA, MPB, MLA and MLB Outdoor Unit Connections and Line Set Usage" on page 89 for correct line set usage and correct refrigerant line adaptors furnished with outdoor units.

4. 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.



5. MPA, MPB, MLA and MLB Outdoor Unit Connections and Line Set Usage

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
MLA018S4M Indoor Unit A 1/4” liq + 3/8” gas Indoor Unit B 1/4” liq + 3/8” gas	2	009 (A)	1/4 in. x 3/8 in.
		009 (B)	1/4 in. x 3/8 in.
	2	012 (A)	[1] 1/4 in. x 1/2 in.
		009 (B)	1/4 in. x 3/8 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.
MLA030S4M **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	2	009 (A)	[1] 1/4 in. x 3/8 in.
		009 (B)	1/4 in. x 3/8 in.
	2	012 (A)	1/4 in. x 1/2 in.
		009 (B)	1/4 in. x 3/8 in.
	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	024 (A)	[2, 3] 3/8 in. x 5/8 in.
		012 (B)	[1] 1/4 in. x 1/2 in.
	2	018 (A)	1/4 in. x 1/2 in.
		018 (B)	[1] 1/4 in. x 1/2 in.
	3	009 (A)	[1] 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)	1/4 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 (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	018 (A)	1/4 in. x 1/2 in.
		012 (B)	[1] 1/4 in. x 1/2 in.
		009 (C)	1/4 in. x 3/8 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.

[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 outdoor unit (furnished with outdoor unit).

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

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
MLA036S4M 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	2	009 (B)	[1] 1/4 in. x 3/8 in.
		018 (A)	1/4 in. x 1/2 in.
	2	009 (B)	[1] 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)	1/4 in. x 1/2 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 (B)	1/4 in. x 1/2 in.
		018 (A)	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 (B)	[2, 3] 3/8 in. x 5/8 in.
		024 (A)	[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 (C)	1/4 in. x 3/8 in.
		009 (B)	1 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.
		012 (A)	1/4 in. x 1/2 in.
		012 (B)	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.
		018 (A)	1/4 in. x 1/2 in.
	3	009 (C)	1/4 in. x 3/8 in.
		024 (A)	[2, 3] 3/8 in. x 5/8 in.
		012 (B)	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)	1/4 in. x 1/2 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 (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 (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.

[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 outdoor unit (furnished with outdoor unit).

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

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
MLA036S4M 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	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.
		009 (A)	[1] 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.
	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 (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 (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.
		012 (C)	[1] 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.
MLB048S4M 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.
		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 (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.
	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.

[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 outdoor unit (furnished with outdoor unit).

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

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
MLB048S4M 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.
		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.
	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.

[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 outdoor unit (furnished with outdoor unit).

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

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
MLB048S4M 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.
		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.
	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.

[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 outdoor unit (furnished with outdoor unit).

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

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
MLB048S4M 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 (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 outdoor unit (furnished with outdoor unit).

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

6. Power and Communication Wiring for Systems

⚠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.

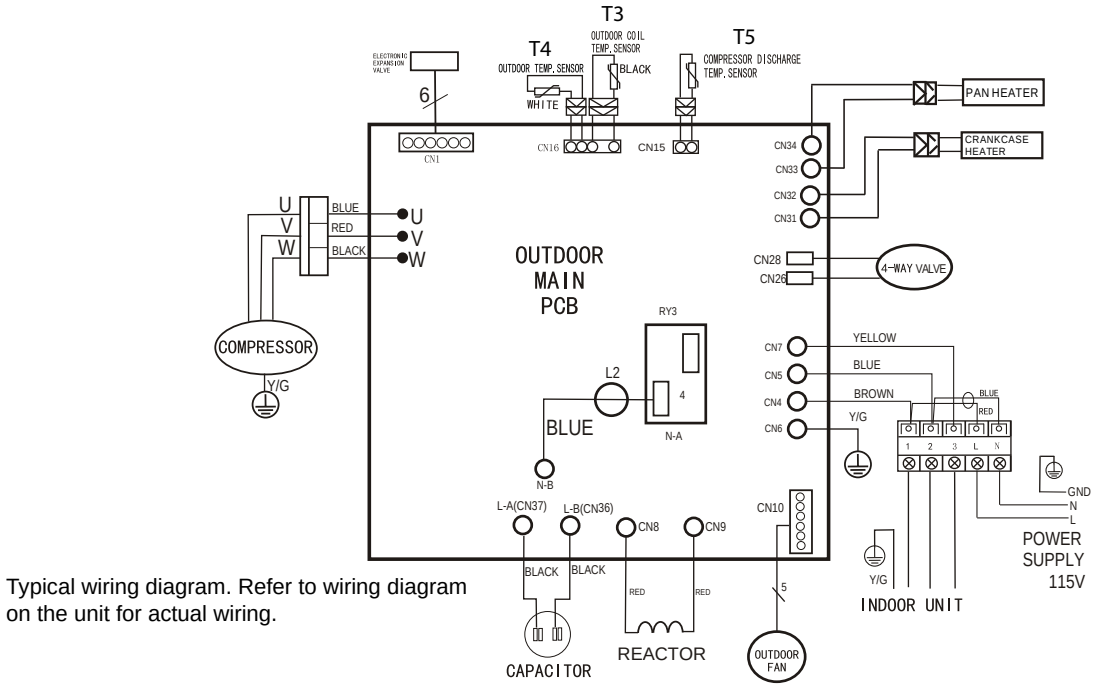
In the U.S.A., wiring must conform with current local codes and the current National Electric Code (NEC). In Canada, wiring must conform with current local codes and the current Canadian Electrical Code (CEC).

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

- All indoor units are powered by the outdoor unit.
- Make all electrical power wiring connections at the outdoor unit.
- Size outdoor unit power per local code and power requirements.
- Connect wiring between indoor and outdoor terminals.
- 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.

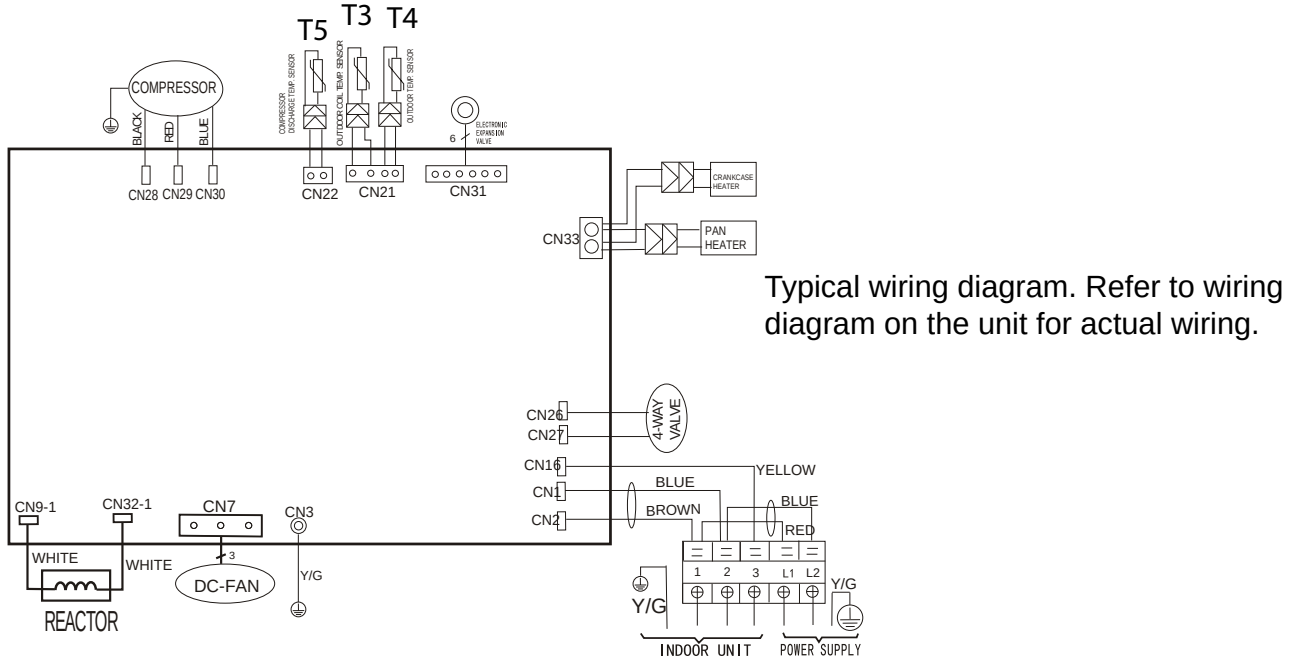
7. Outdoor Unit Diagrams

7.1. MPA and MPB Single-Zone



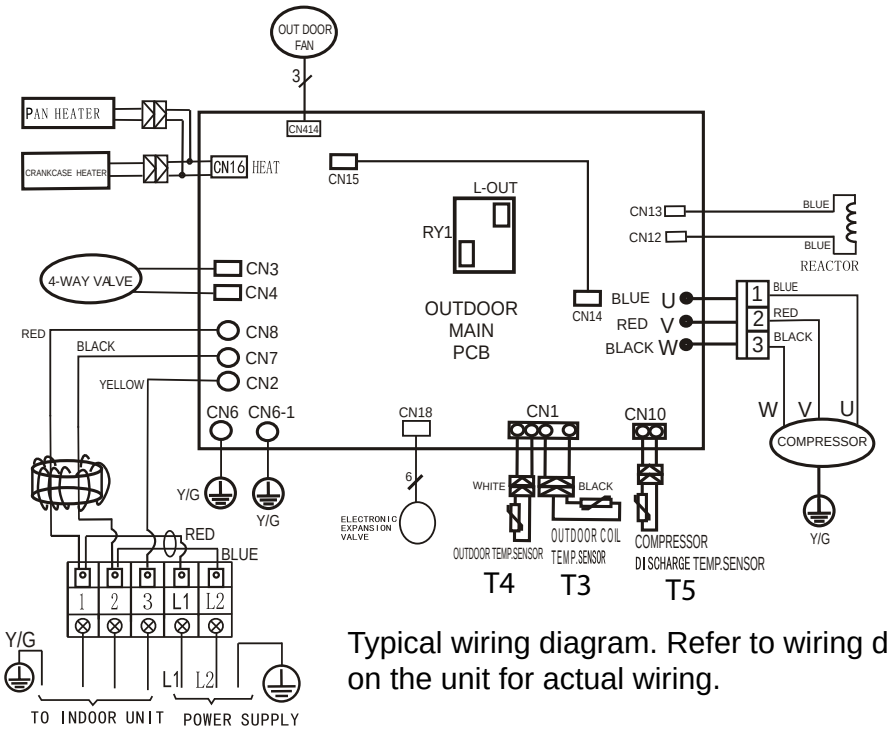
Typical wiring diagram. Refer to wiring diagram on the unit for actual wiring.

Figure 45. 115V MPA009S4S-1L and MPA012S4S-1L Outdoor Unit Wiring Diagram



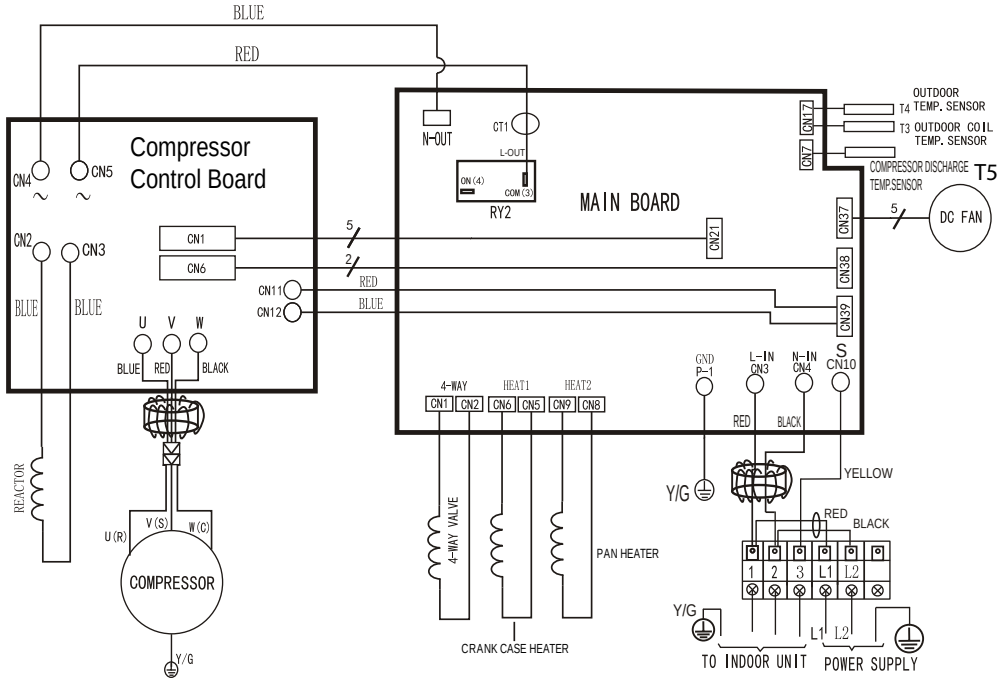
Typical wiring diagram. Refer to wiring diagram on the unit for actual wiring.

Figure 46. 208/230V MPA009S4S-1P and MPA012S4S-1P Outdoor Unit Wiring Diagram



Typical wiring diagram. Refer to wiring diagram on the unit for actual wiring.

Figure 47. 208/230V MPA018S4S-1P Outdoor Unit Wiring Diagram



Typical wiring diagram. Refer to wiring diagram on the unit for actual wiring.

Figure 48. 208/230V MPA024S4S-1P Outdoor Unit Wiring Diagram

CODE	PART NAME
COMP	COMPRESSOR
FM1	OUTDOOR DC FAN
HEAT1	CRANKCASE HEATER
HEAT2	PAN HEATER
H-PRO	HIGH PRESSURE SWITCH
L-PRO	LOW PRESSURE SWITCH
L	PFC INDUCTOR
SV	4-WAY VALVE
T3	OUTDOOR COIL TEMP.SENSOR
T4	OUTDOOR TEMP.SENSOR
T5	COMPRESSOR DISCHARGE THERMOSTAT

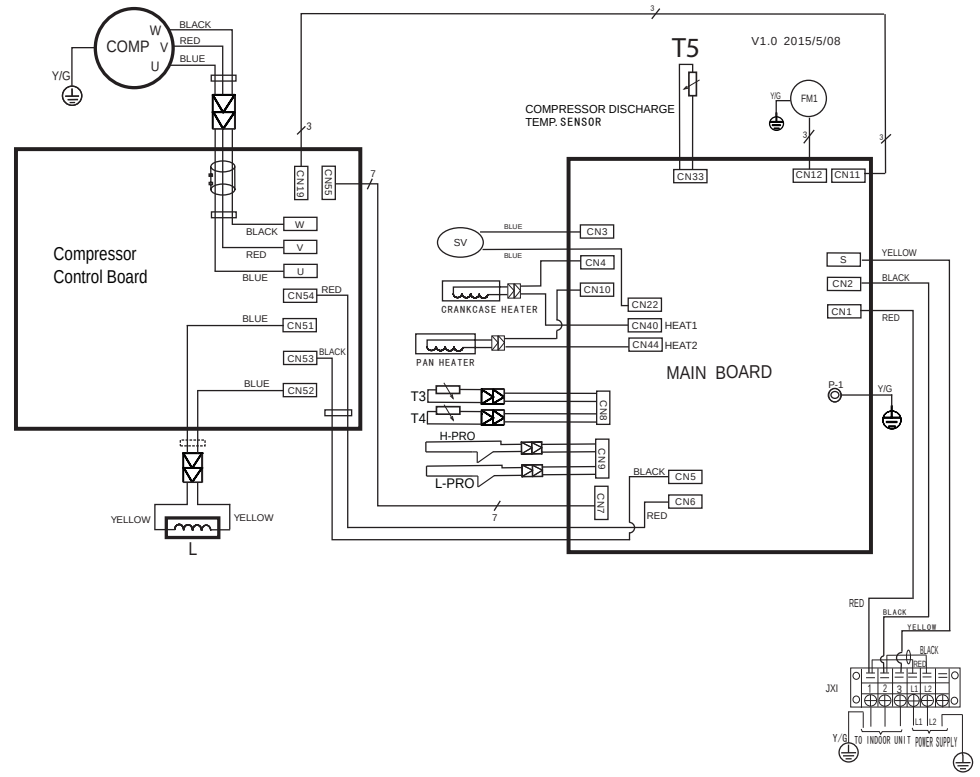
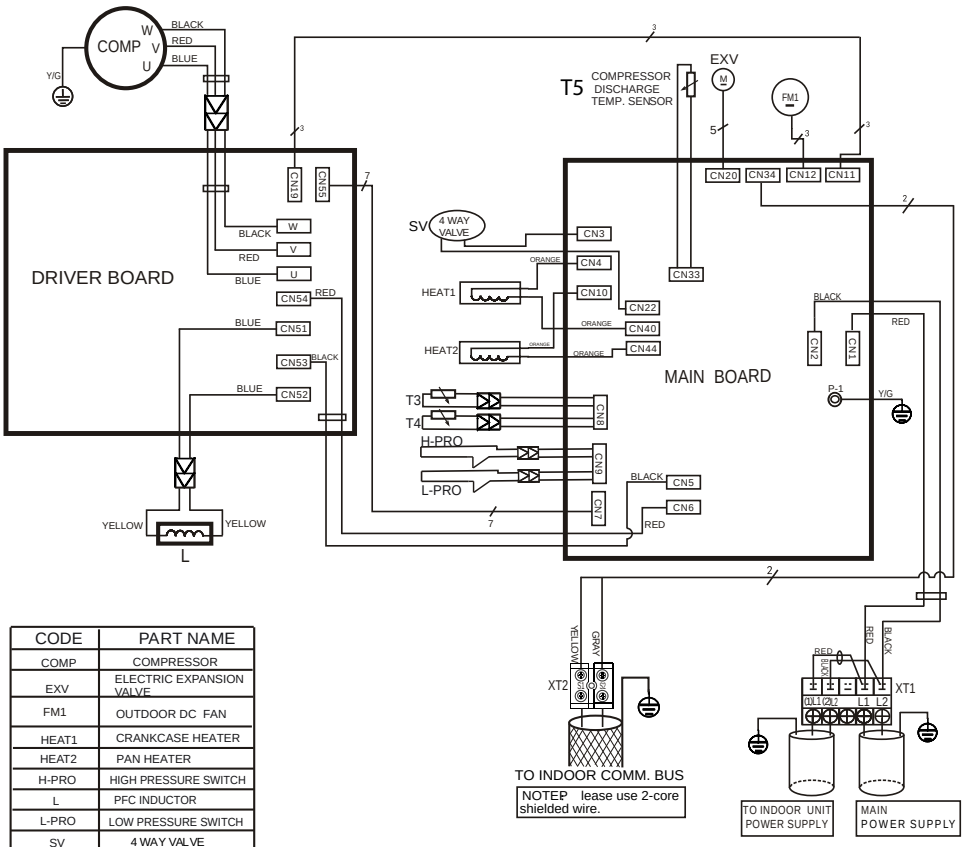


Figure 49. 208/230V MPA030S4S-1P Outdoor Unit Wiring Diagram



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 TEMP. SENSOR
T4	OUTDOOR TEMP. SENSOR
T5	COMPRESSOR DISCH TEMP SENSOR

Figure 50. 208/230V MPA036S4S-1P Outdoor Unit Wiring Diagram

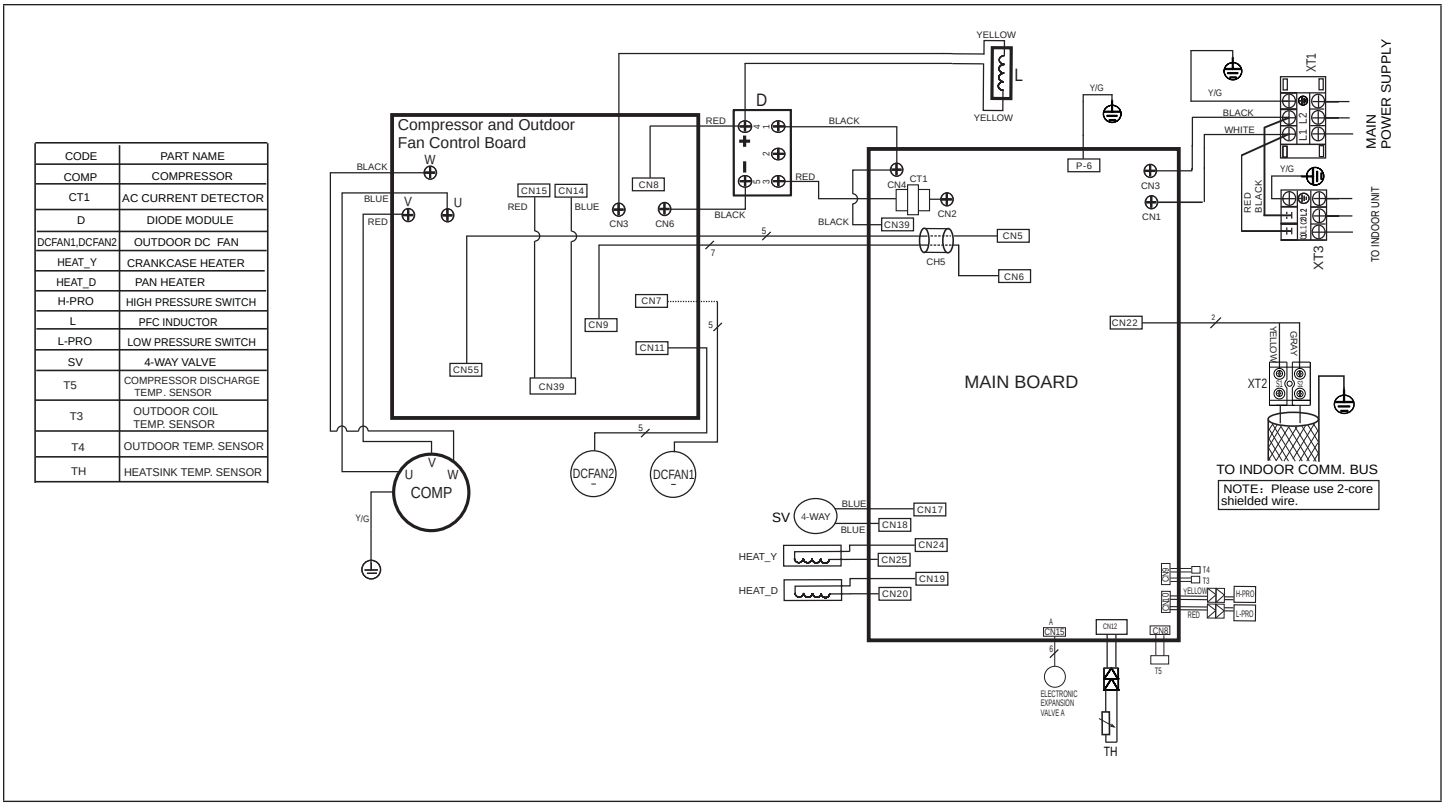


Figure 51. 208/230V MPA048S4S-1P Outdoor Unit Wiring Diagram

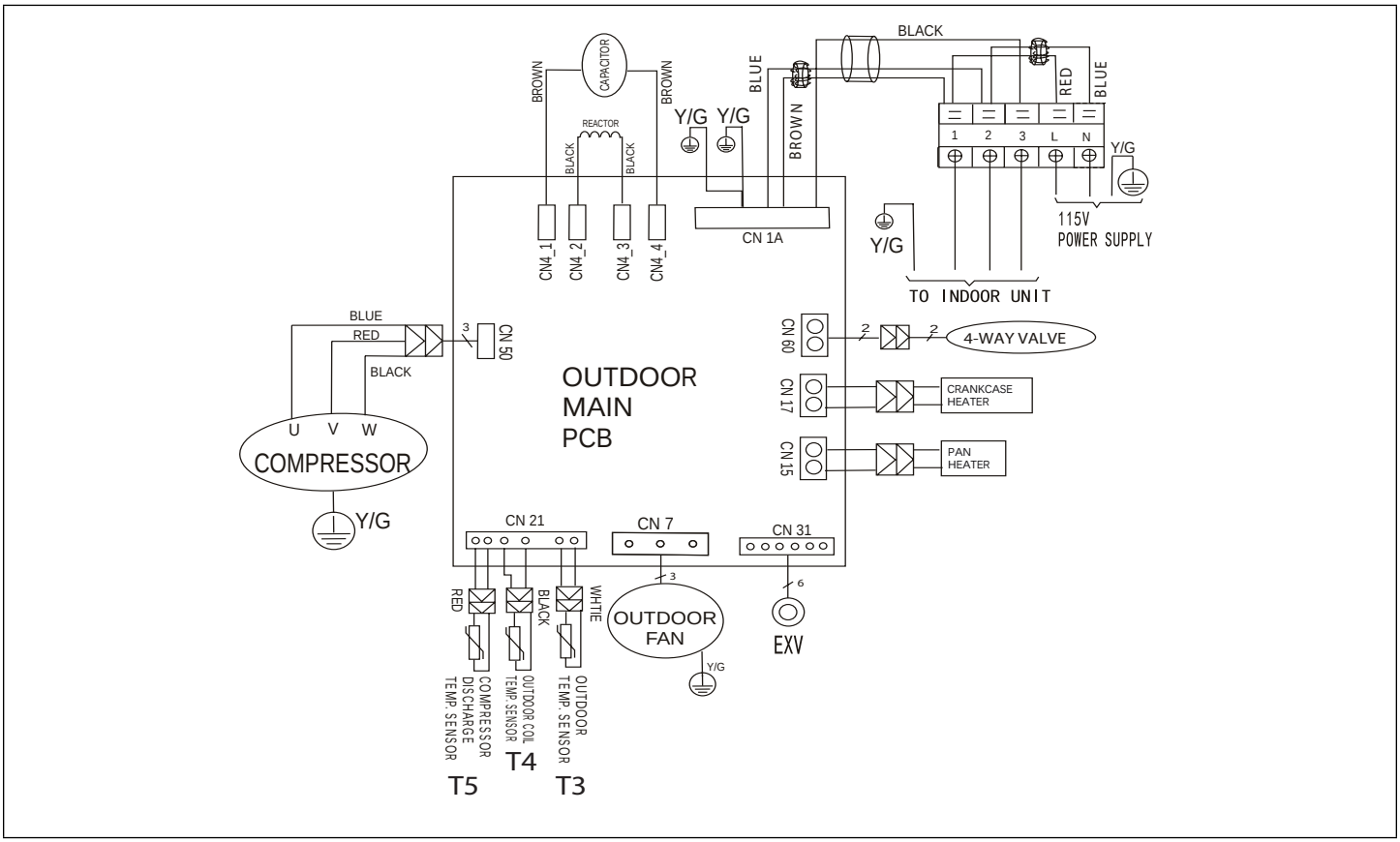


Figure 52. 115V MPB009S4S-*L and MPB012S4S-*L Outdoor Unit Wiring Diagram

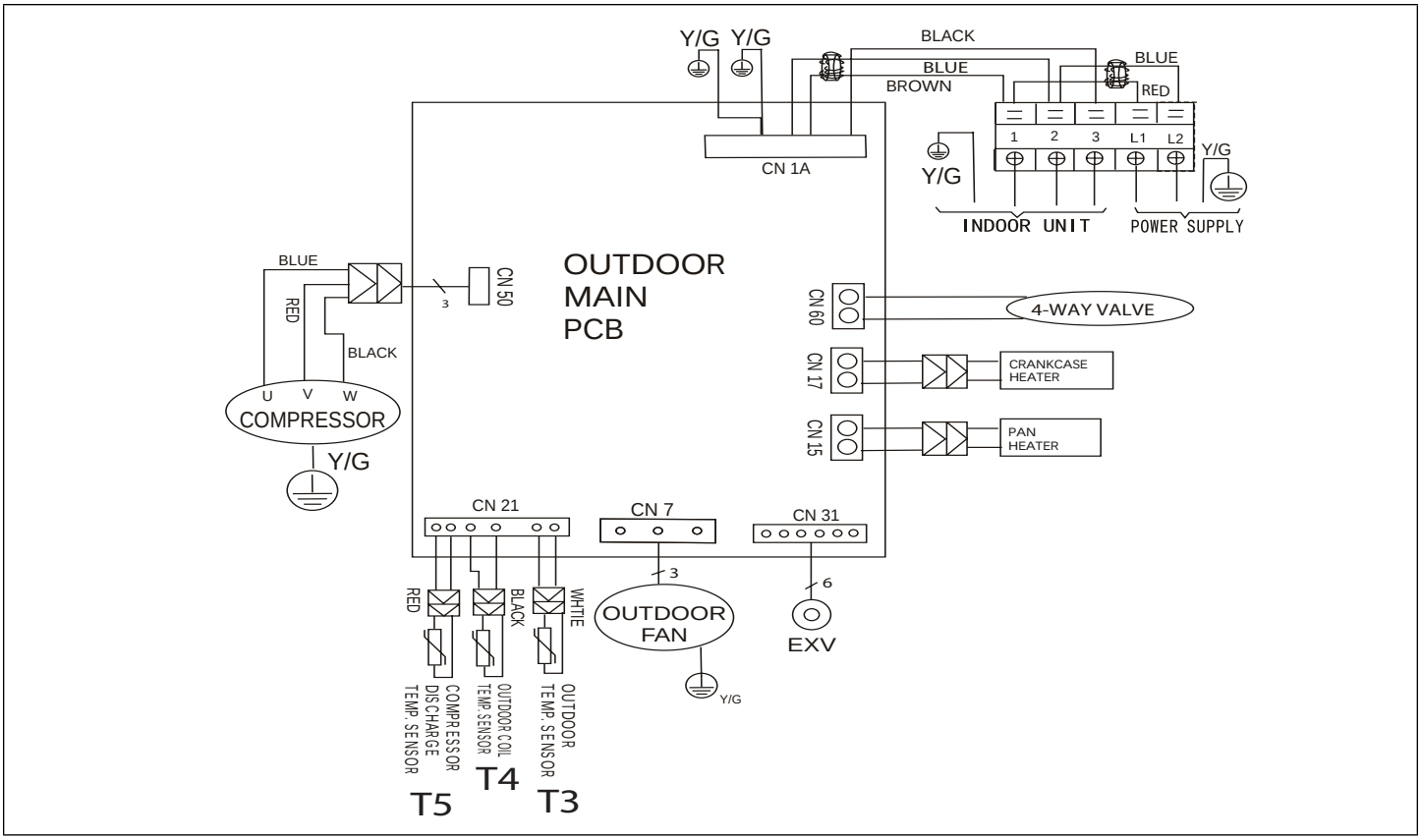


Figure 53. 208/230V MPB009S4S-*P and MPB012S4S-*P Outdoor Unit Wiring Diagram

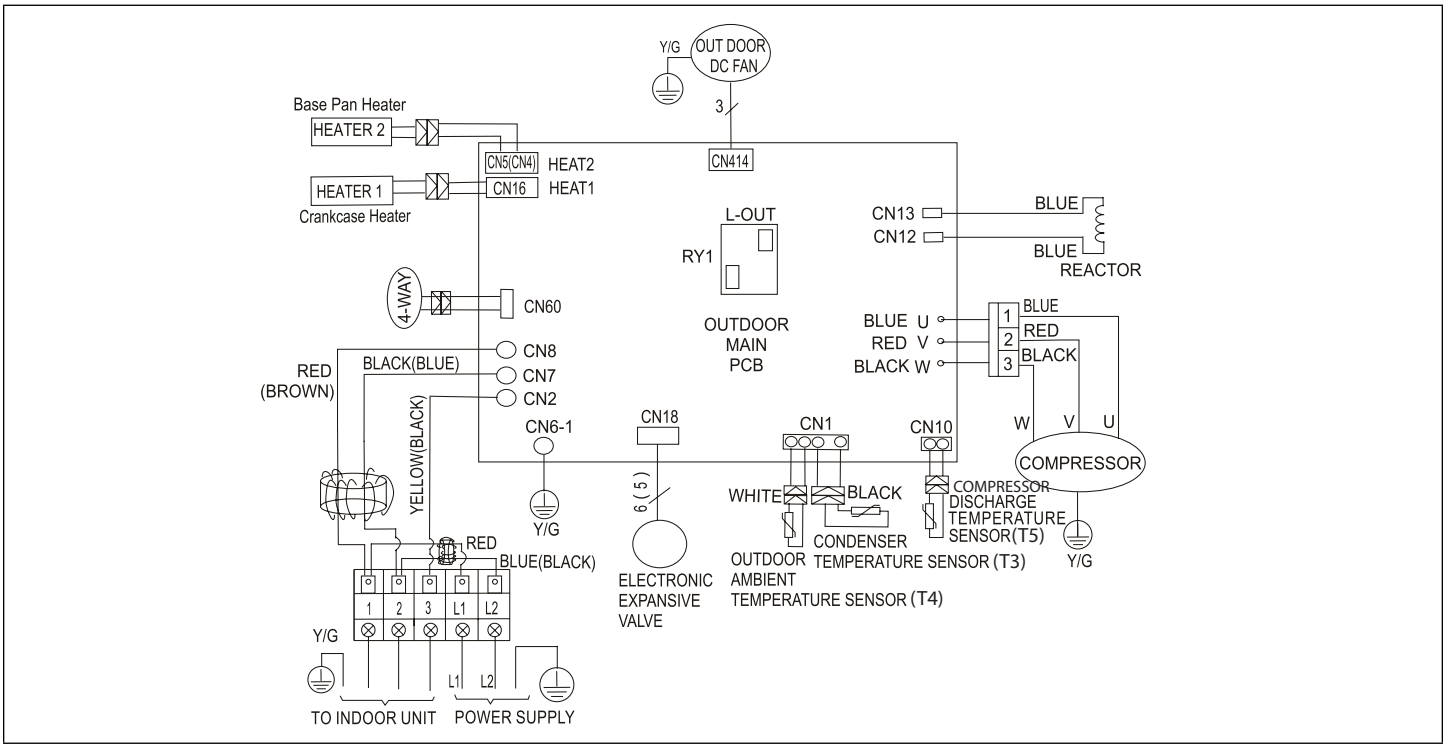
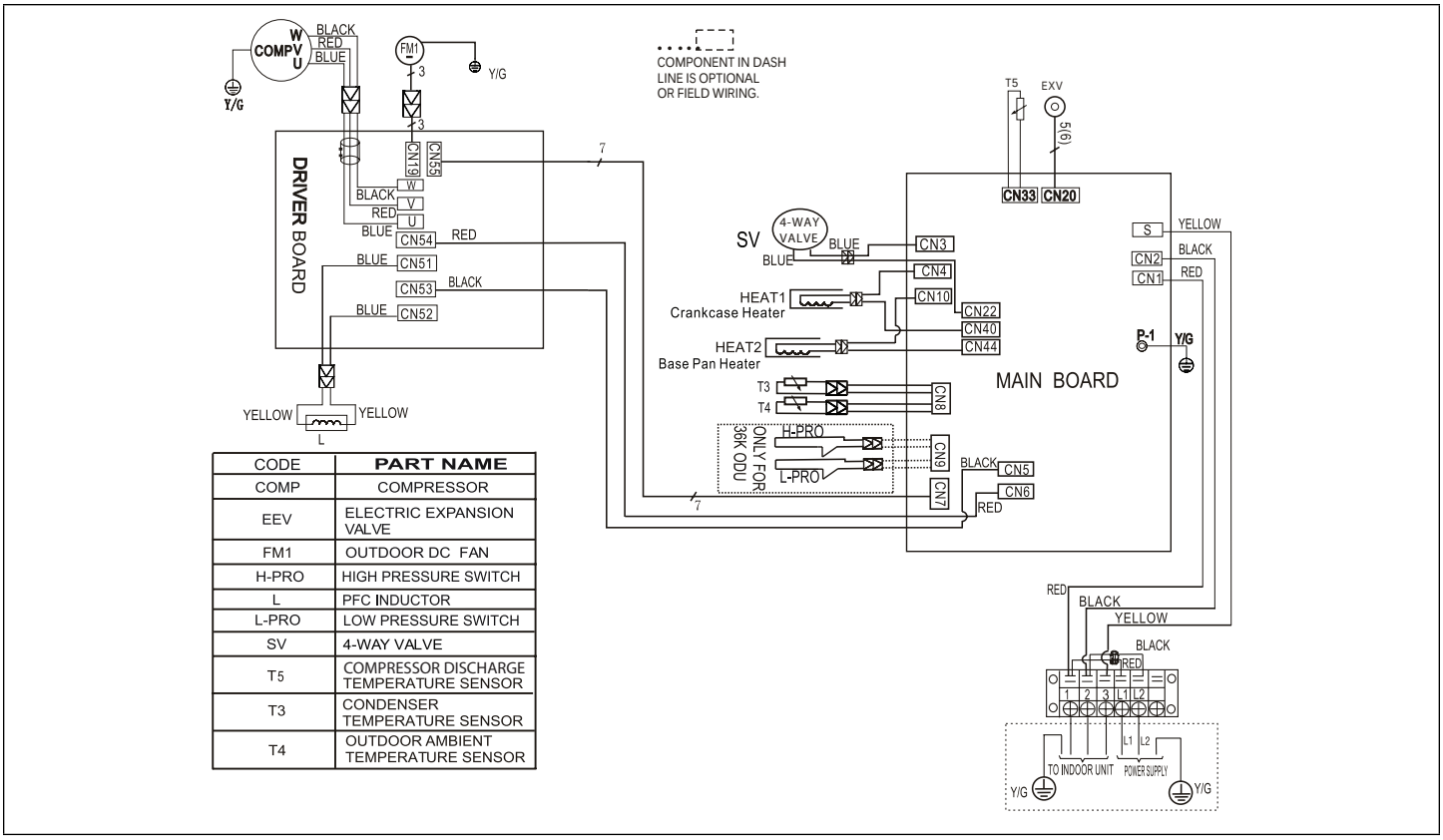
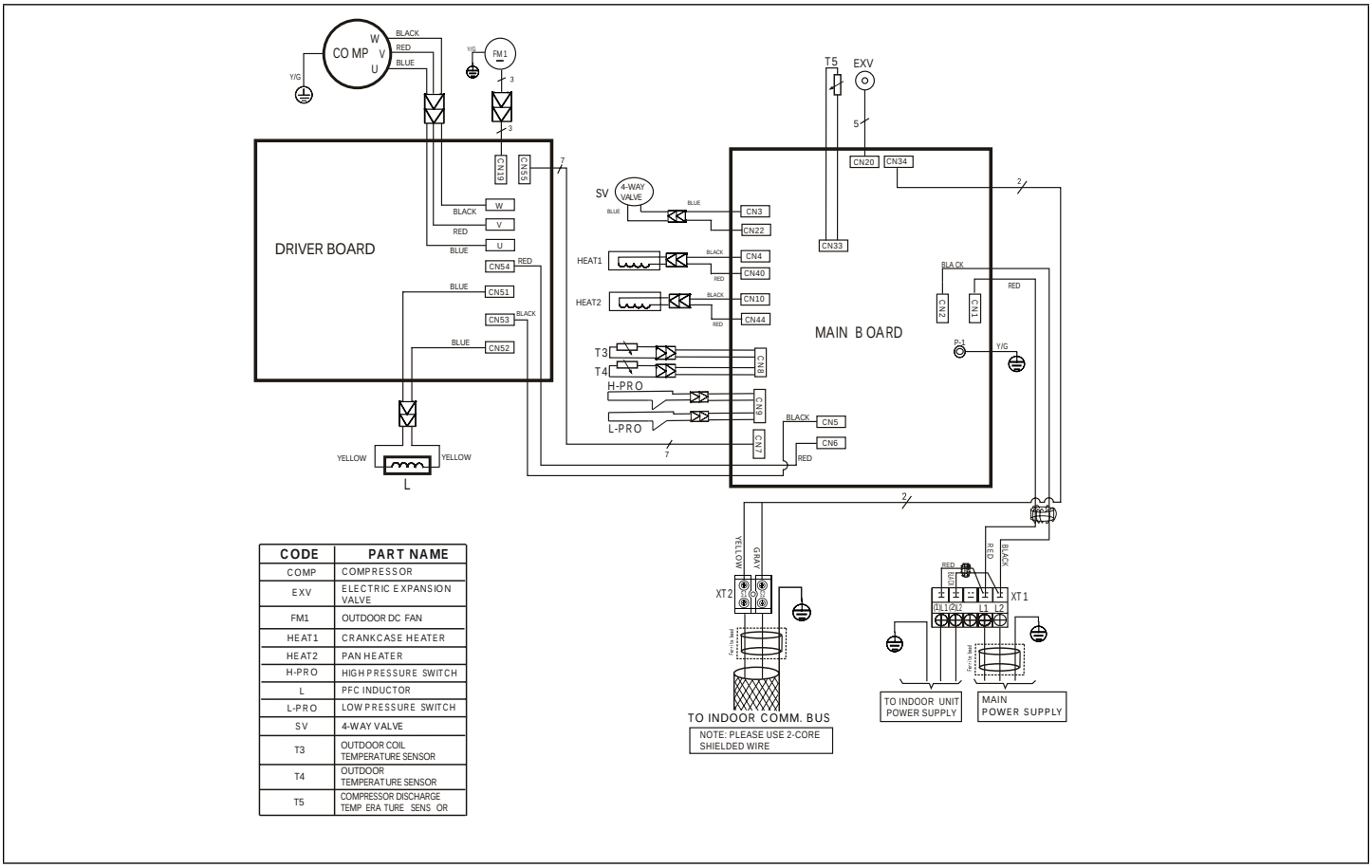


Figure 54. 208/230V MPB018S4S-*P and MPB024S4S-*P Outdoor Unit Wiring Diagram



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
T5	COMPRESSOR DISCHARGE TEMPERATURE SENSOR
T3	CONDENSER TEMPERATURE SENSOR
T4	OUTDOOR AMBIENT TEMPERATURE SENSOR

Figure 55. 208/230V MPB030S4S-*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 TEMPERATURE SENSOR
T4	OUTDOOR TEMPERATURE SENSOR
T5	COMPRESSOR DISCHARGE TEMPERATURE SENSOR

Figure 56. 208/230V MPB036S4S-*P Outdoor Unit Wiring Diagram

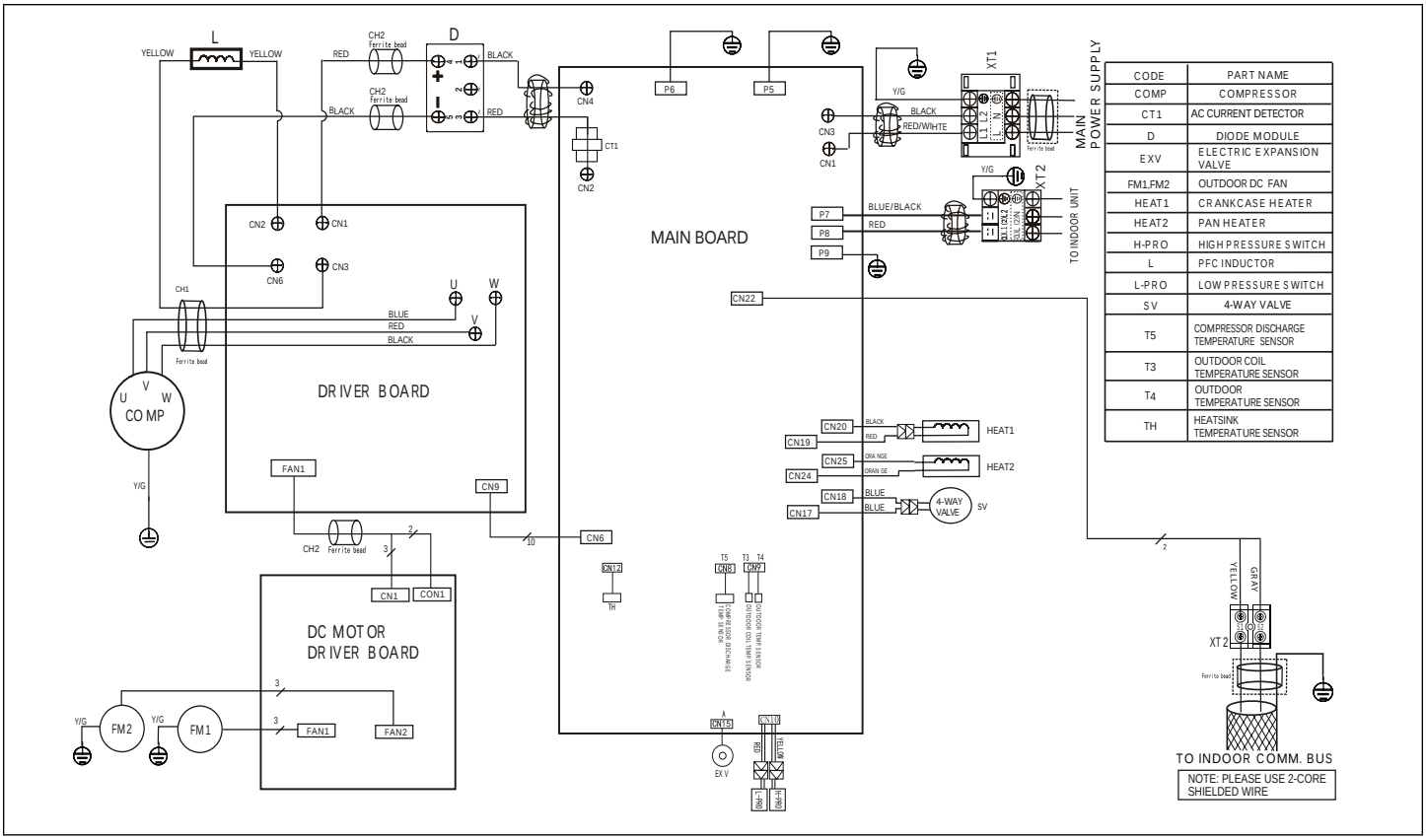


Figure 57. 208/230V MPB048S4S-*P Outdoor Unit Wiring Diagram

7.2. MLA Single-Zone

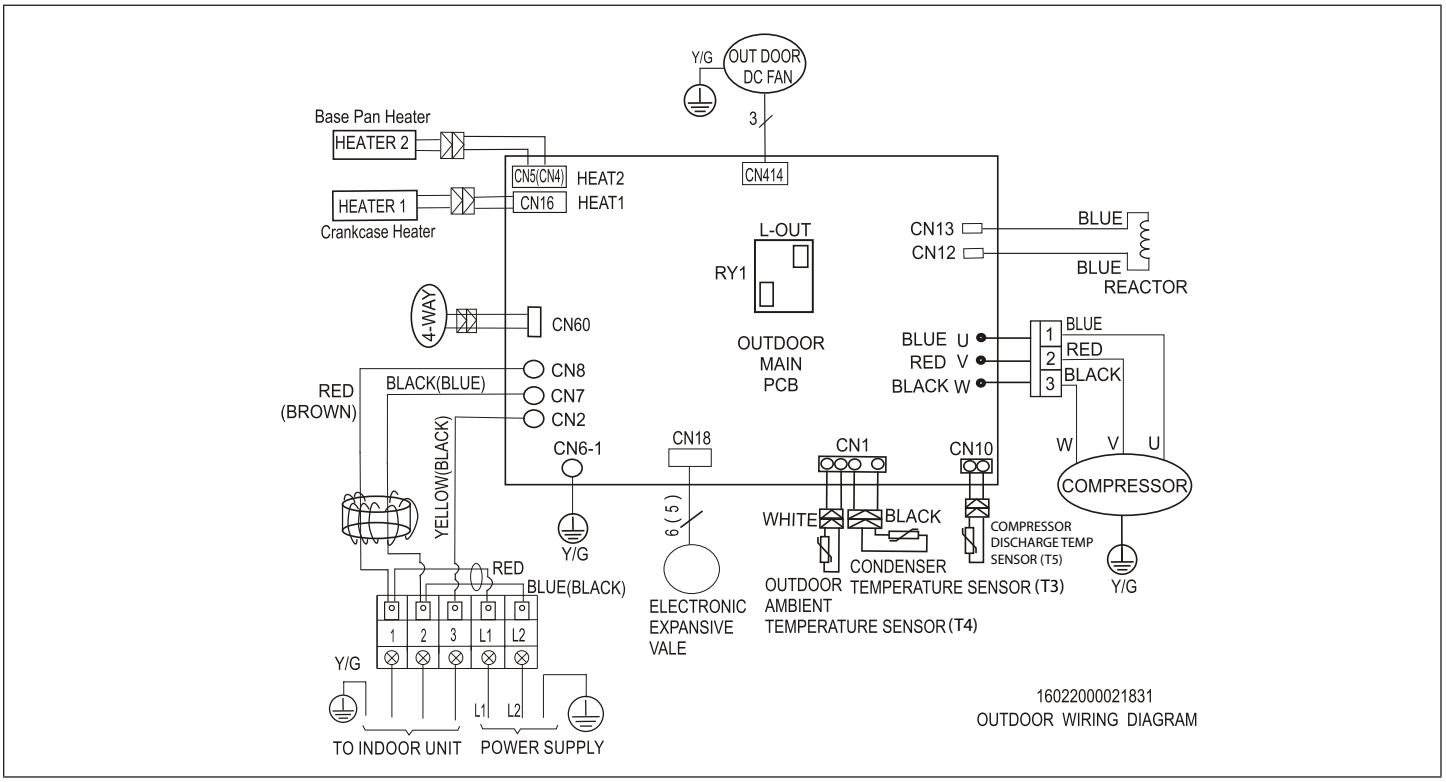
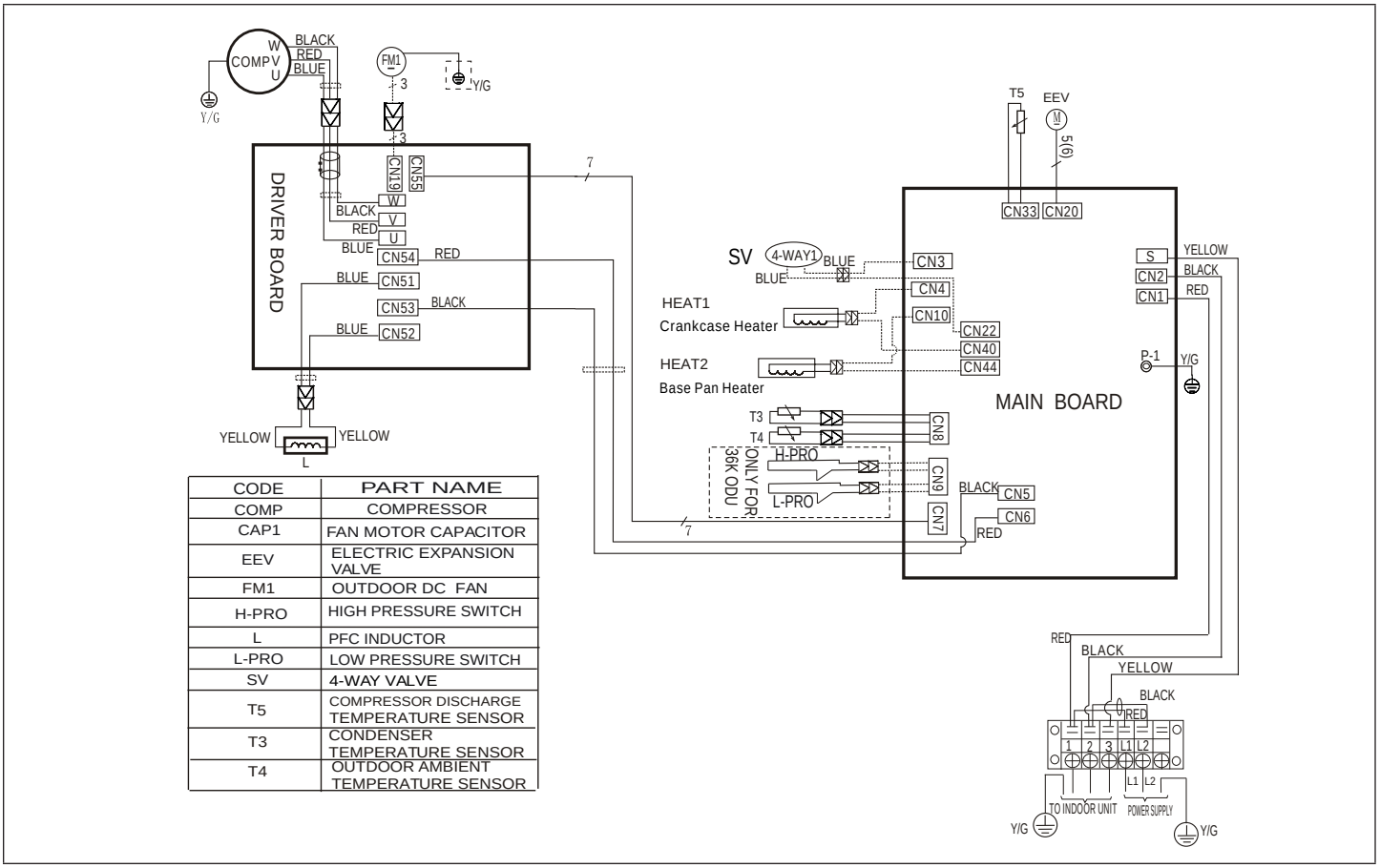


Figure 58. 208/230V MLA012 and 018S4S-1P Outdoor Unit Wiring Diagram



CODE	PART NAME
COMP	COMPRESSOR
CAP1	FAN MOTOR CAPACITOR
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
T5	COMPRESSOR DISCHARGE TEMPERATURE SENSOR
T3	CONDENSER TEMPERATURE SENSOR
T4	OUTDOOR AMBIENT TEMPERATURE SENSOR

Figure 59. 208/230V MLA024S4S-1P Outdoor Unit Wiring Diagram

7.3. MPA and MPB Multi-Zone

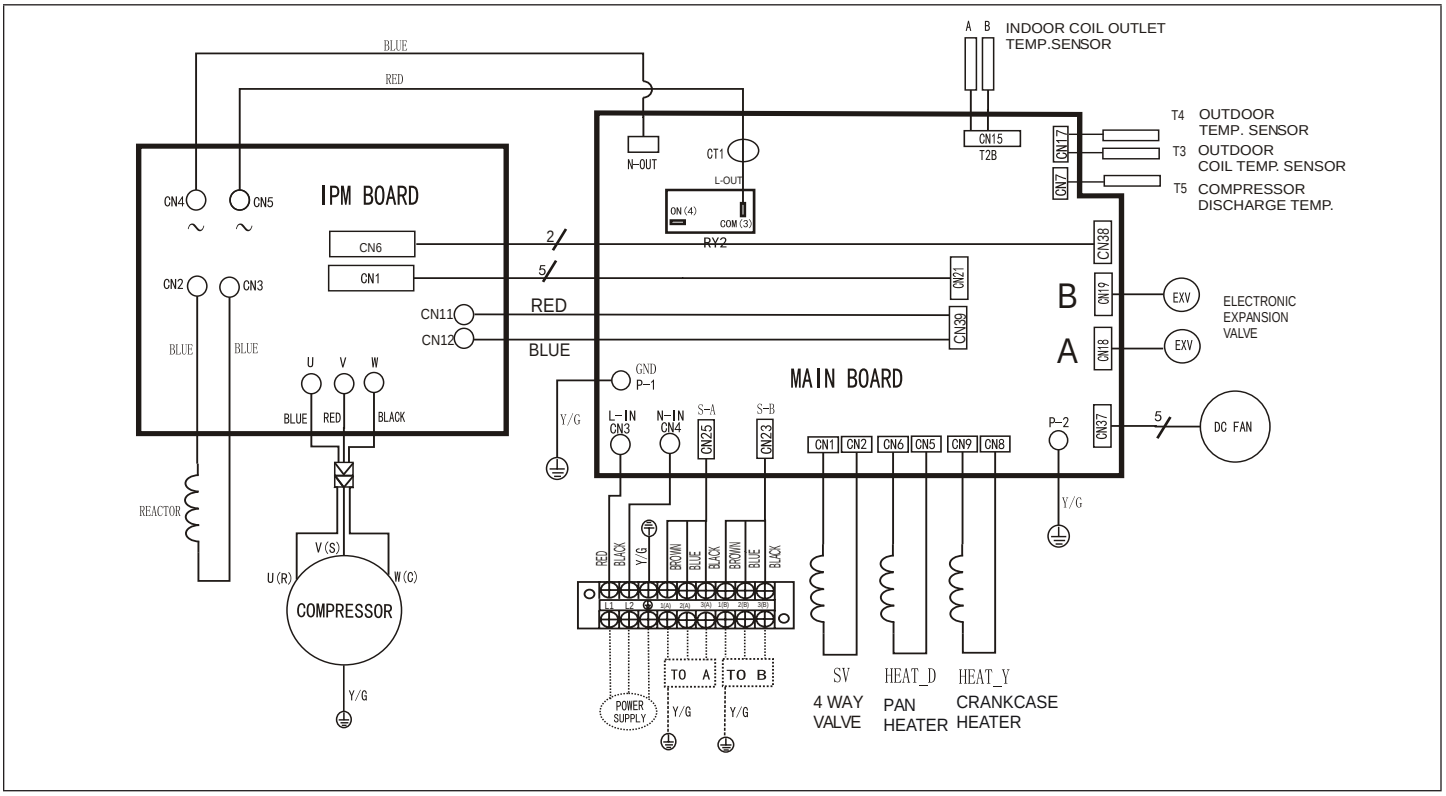


Figure 60. 208/230V MPA018S4M-1P Outdoor Unit Wiring Diagram

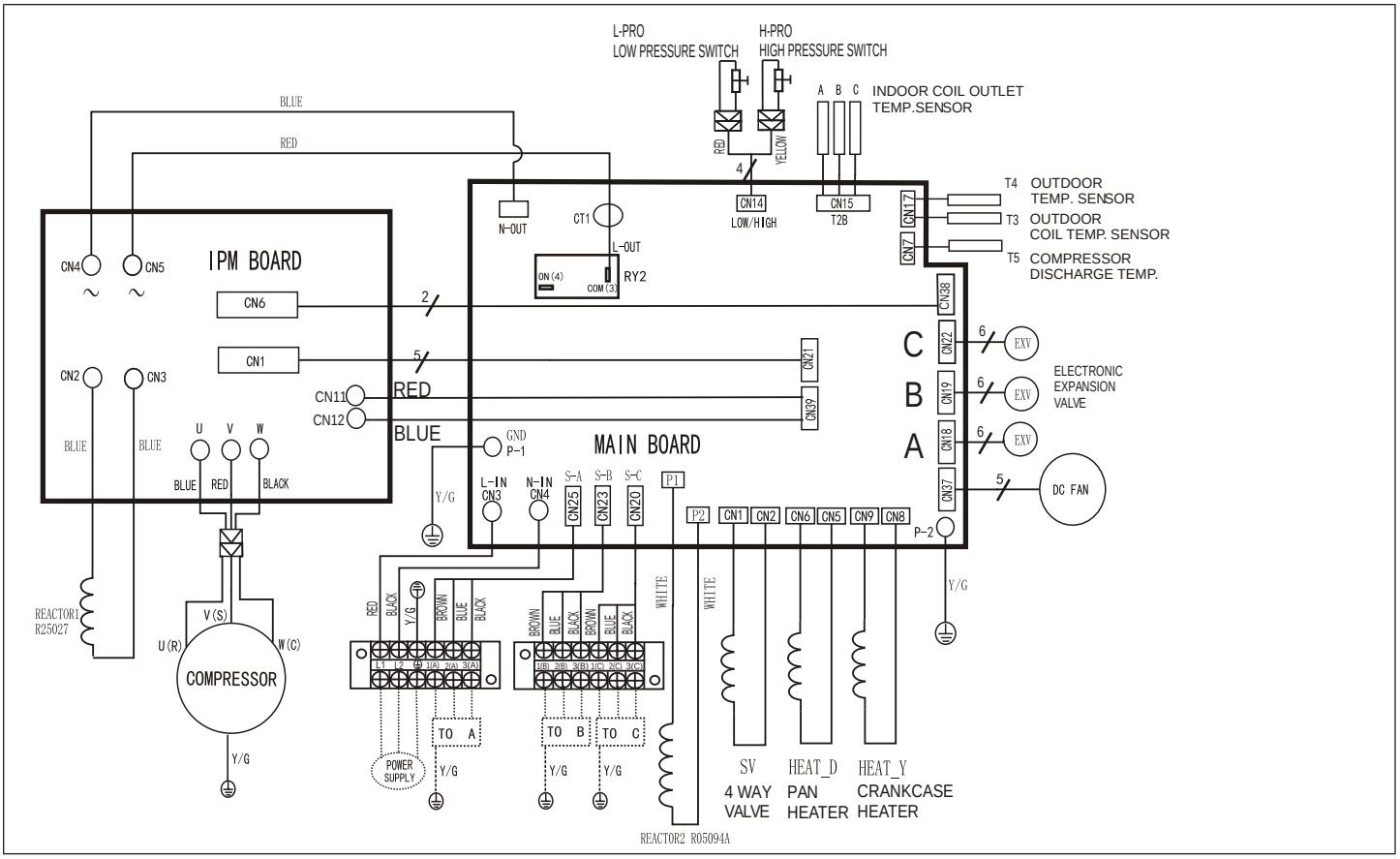
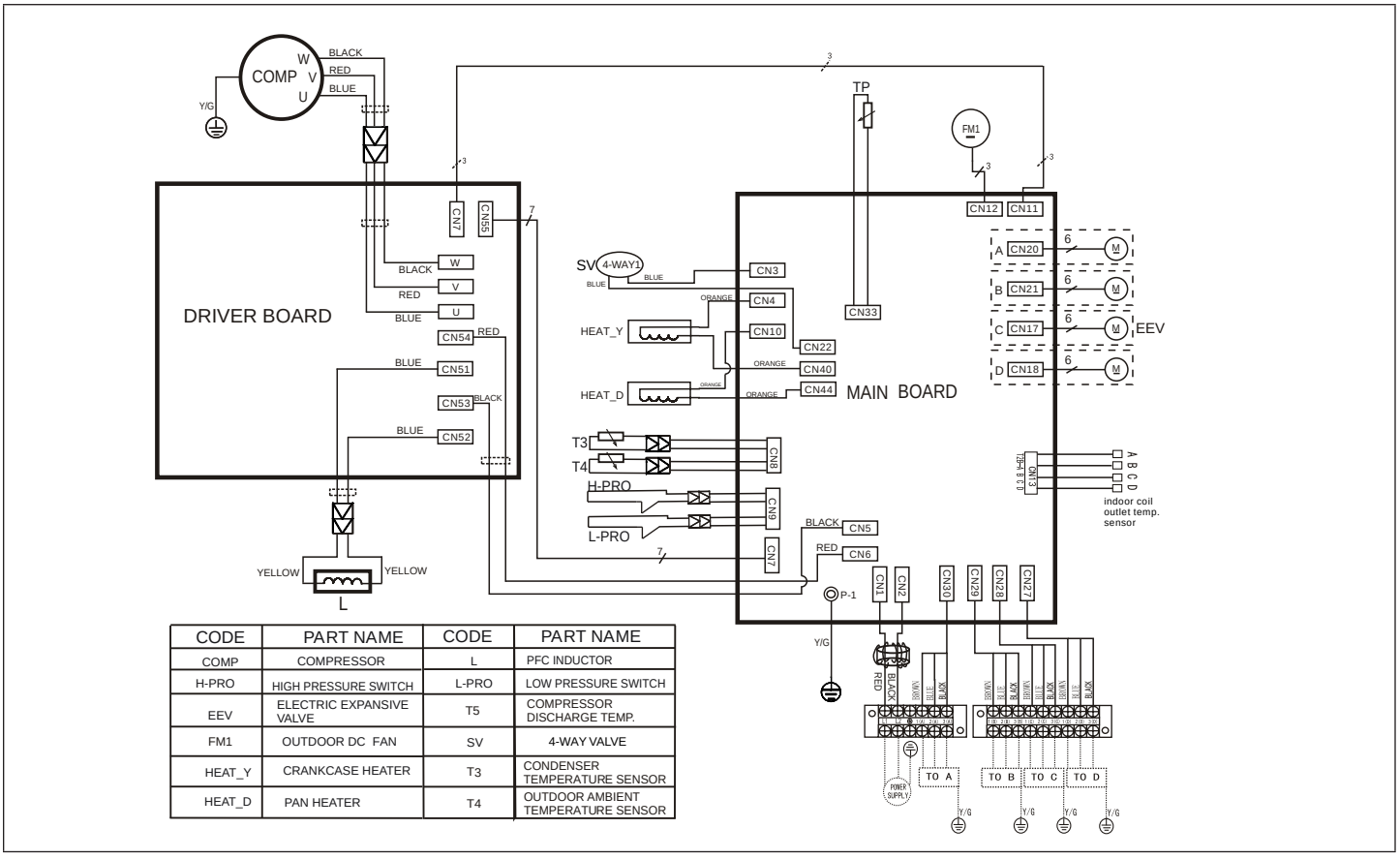


Figure 61. 208/230V MPA030S4M-1P Outdoor Unit Wiring Diagram



CODE	PART NAME	CODE	PART NAME
COMP	COMPRESSOR	L	PFC INDUCTOR
H-PRO	HIGH PRESSURE SWITCH	L-PRO	LOW PRESSURE SWITCH
EEV	ELECTRIC EXPANSIVE VALVE	T5	COMPRESSOR DISCHARGE TEMP.
FM1	OUTDOOR DC FAN	SV	4-WAY VALVE
HEAT_Y	CRANKCASE HEATER	T3	CONDENSER TEMPERATURE SENSOR
HEAT_D	PAN HEATER	T4	OUTDOOR AMBIENT TEMPERATURE SENSOR

Figure 62. MPA036S4M-1P Outdoor Unit Wiring Diagram

Figure 63. MPA048S4M-1P Outdoor Unit Wiring Diagram

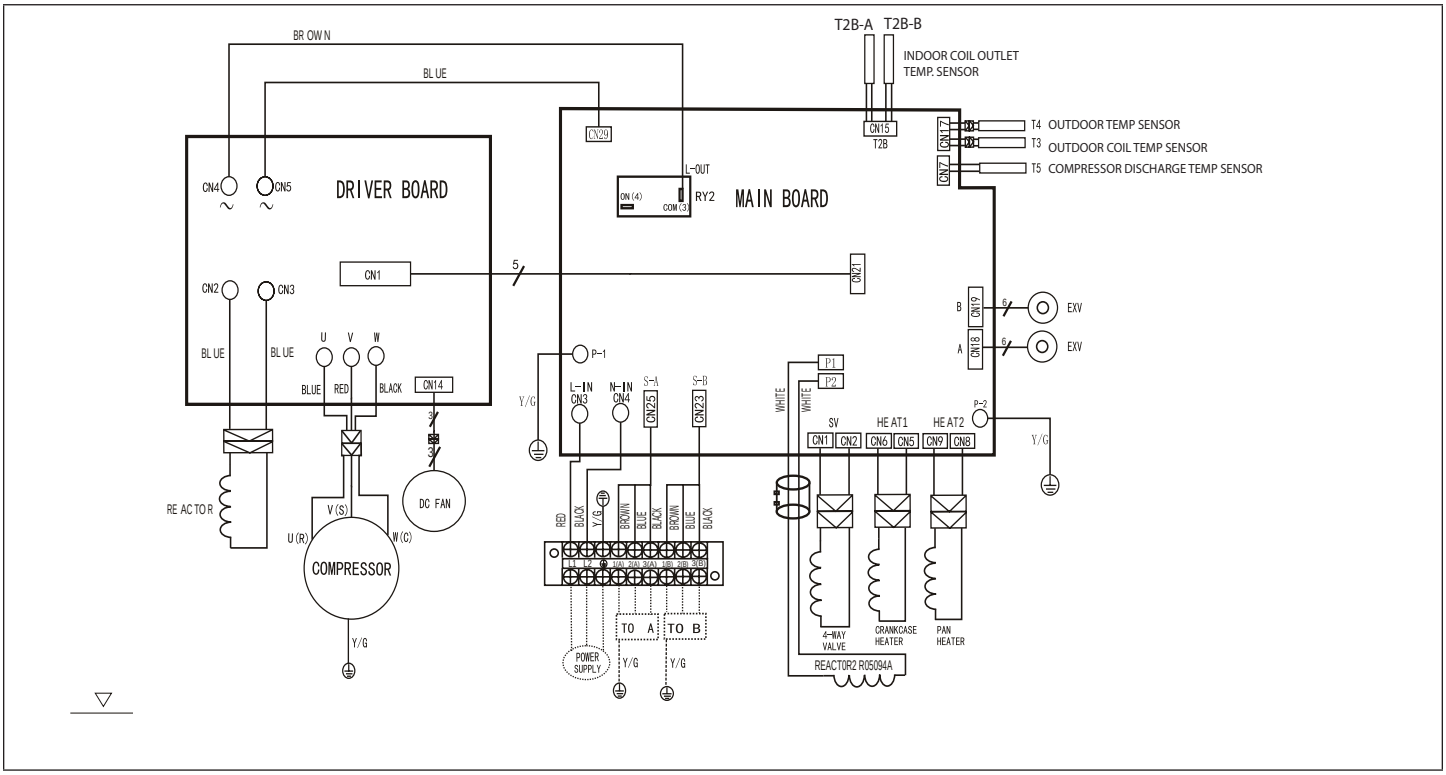


Figure 64. MPB018S4M-*P Outdoor Unit Wiring Diagram

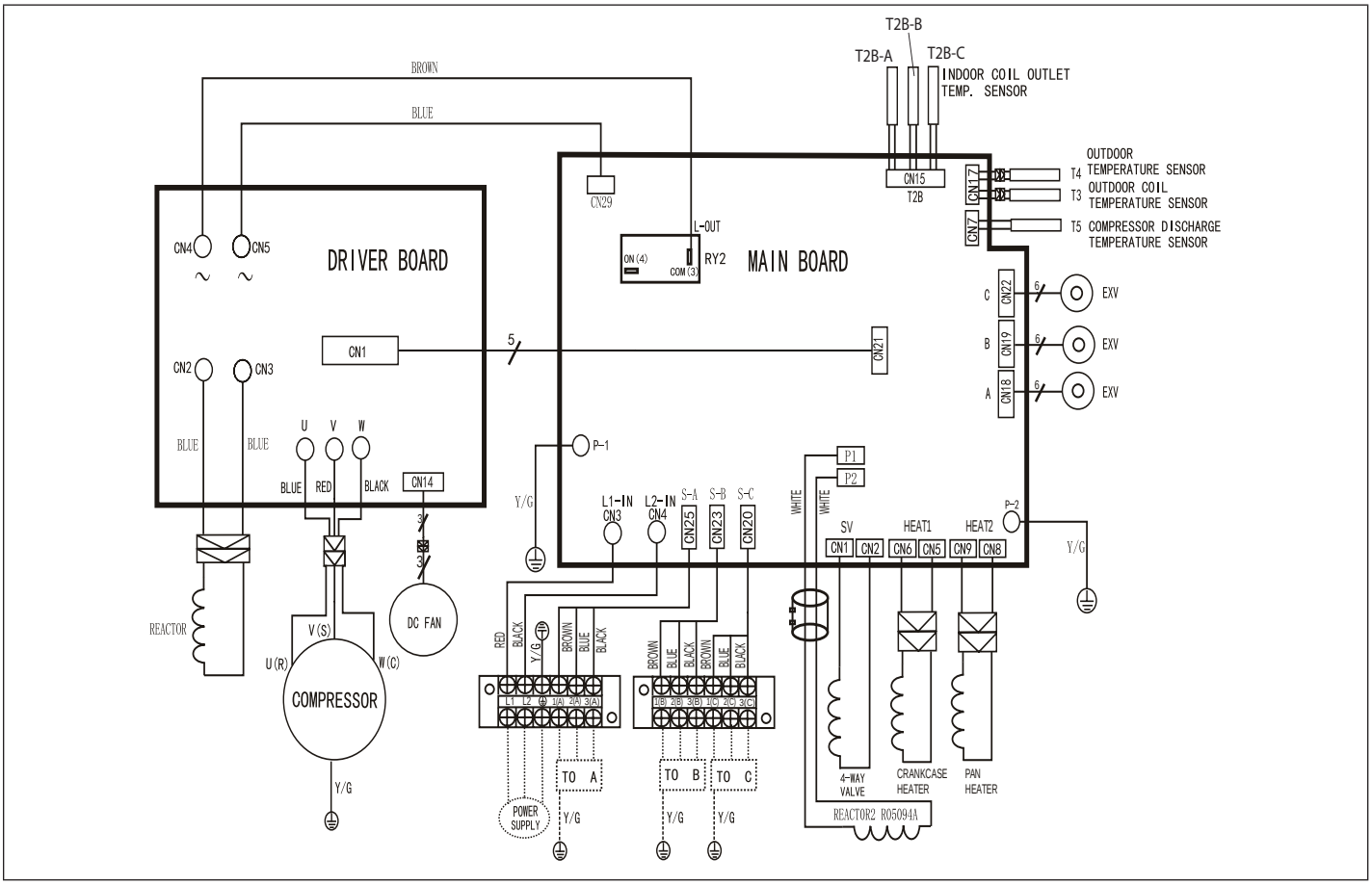
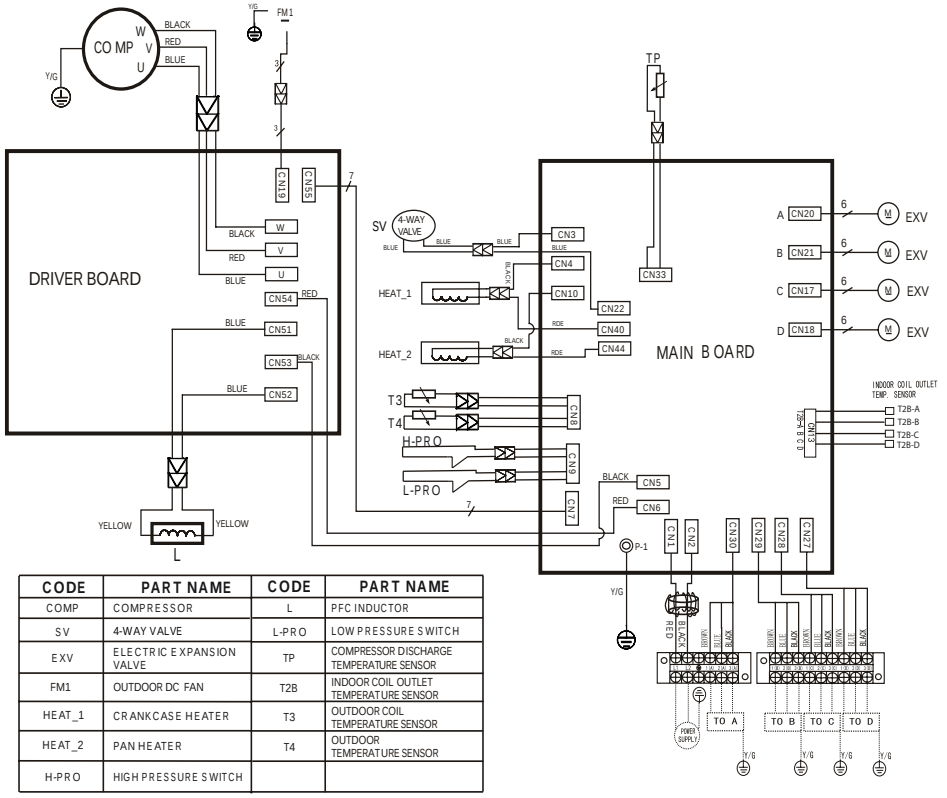
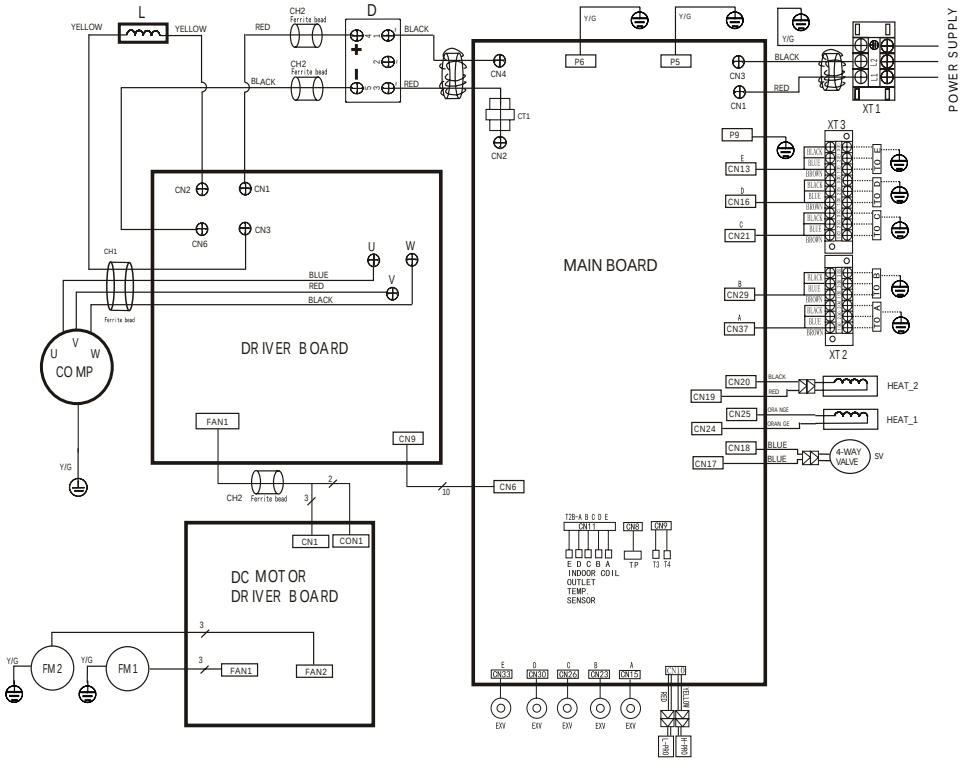


Figure 65. MPB030S4M-*P Outdoor Unit Wiring Diagram



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 DISCHARGE TEMPERATURE SENSOR
FM1	OUTDOOR DC FAN	T2B	INDOOR COIL OUTLET TEMPERATURE SENSOR
HEAT_1	CRANKCASE HEATER	T3	OUTDOOR COIL TEMPERATURE SENSOR
HEAT_2	PAN HEATER	T4	OUTDOOR TEMPERATURE SENSOR
H-PRO	HIGH PRESSURE SWITCH		

Figure 66. MPB036S4M-*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 67. MPB048S4M-*P Outdoor Unit Wiring Diagram

7.4. MLA Multi-Zone

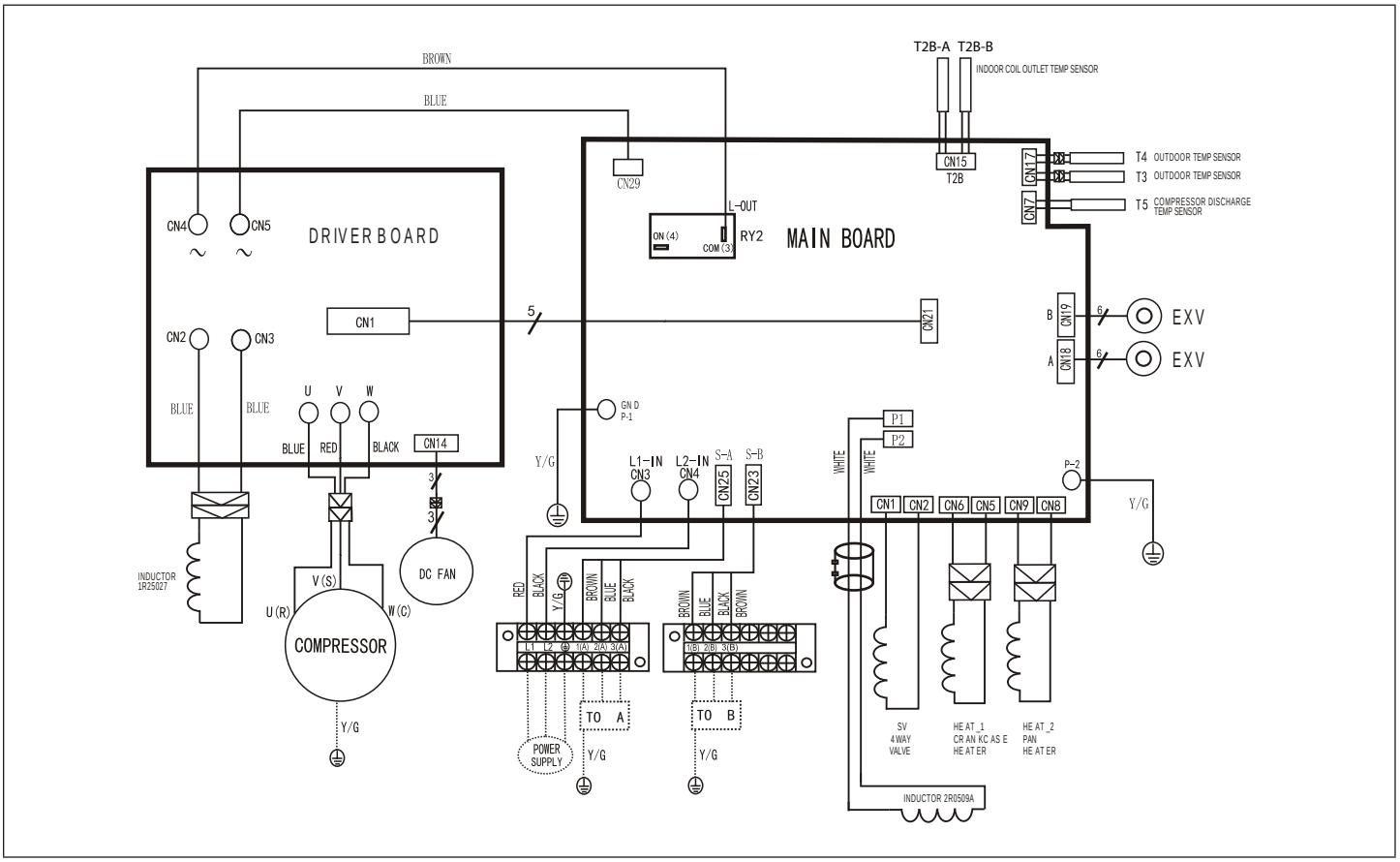
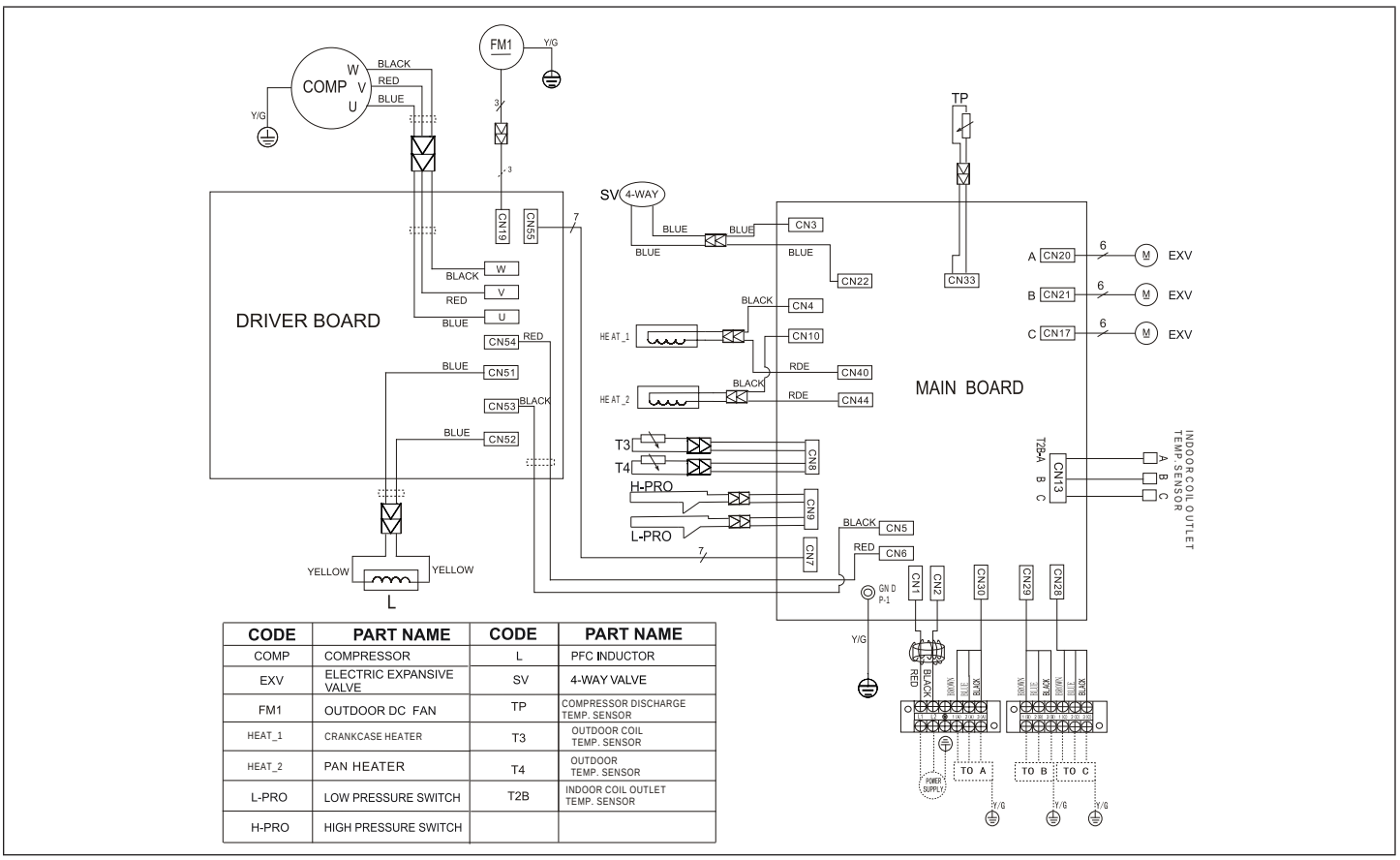
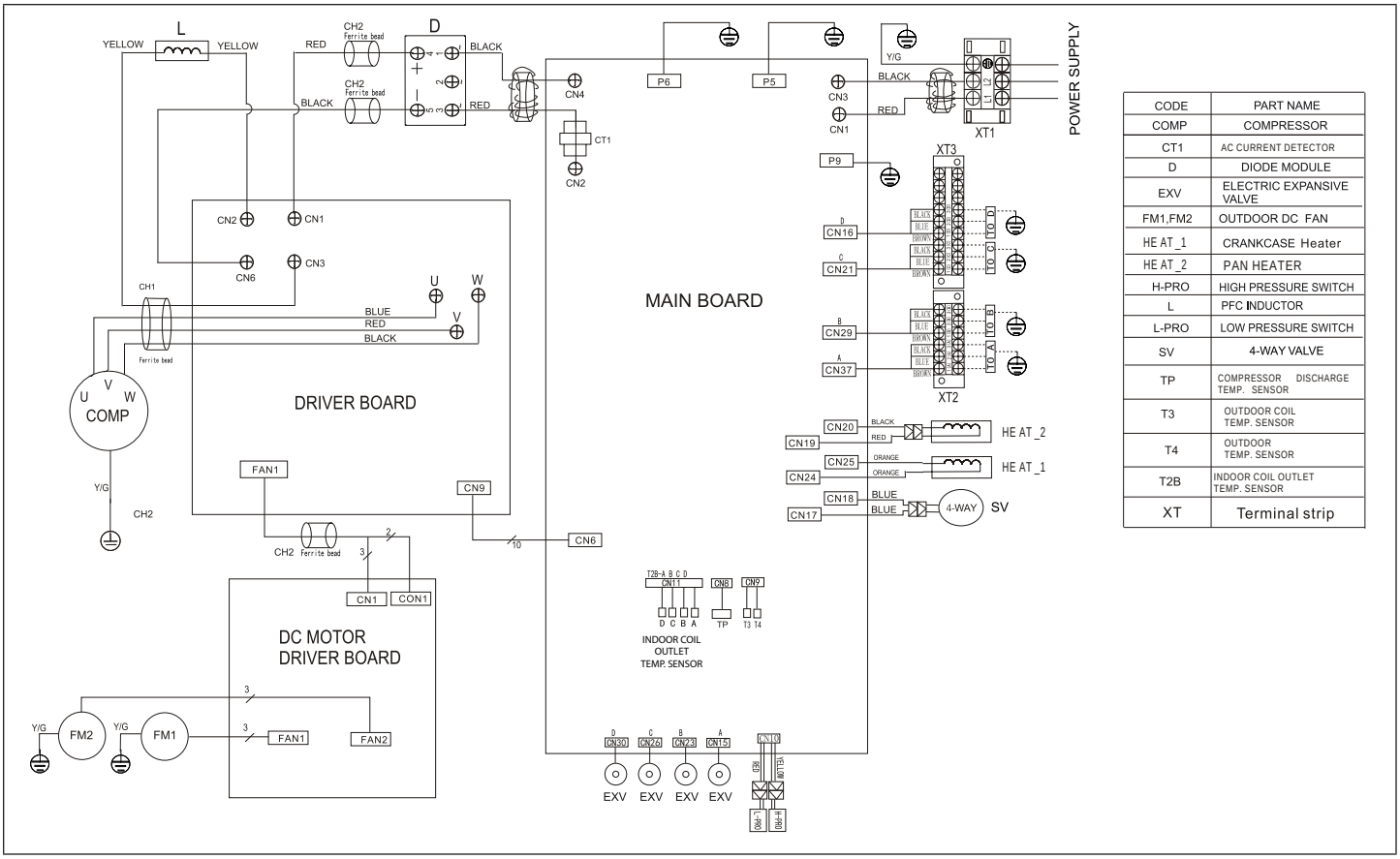


Figure 68. MLA018S4M-1P Outdoor Unit Wiring Diagram



CODE	PART NAME	CODE	PART NAME
COMP	COMPRESSOR	L	PFC INDUCTOR
EXV	ELECTRIC EXPANSIVE VALVE	SV	4-WAY VALVE
FM1	OUTDOOR DC FAN	TP	COMPRESSOR DISCHARGE TEMP. SENSOR
HEAT_1	CRANKCASE HEATER	T3	OUTDOOR COIL TEMP. SENSOR
HEAT_2	PAN HEATER	T4	OUTDOOR TEMP. SENSOR
L-PRO	LOW PRESSURE SWITCH	T2B	INDOOR COIL OUTLET TEMP. SENSOR
H-PRO	HIGH PRESSURE SWITCH		

Figure 69. MLA030S4M-1P Outdoor Unit Wiring Diagram



CODE	PART NAME
COMP	COMPRESSOR
CT1	AC CURRENT DETECTOR
D	DIODE MODULE
EXV	ELECTRIC EXPANSIVE VALVE
FM1,FM2	OUTDOOR DC FAN
HE AT _1	CRANKCASE Heater
HE AT _2	PAN HEATER
H-PRO	HIGH PRESSURE SWITCH
L	PFC INDUCTOR
L-PRO	LOW PRESSURE SWITCH
SV	4-WAY VALVE
TP	COMPRESSOR DISCHARGE TEMP. SENSOR
T3	OUTDOOR COIL TEMP. SENSOR
T4	OUTDOOR TEMP. SENSOR
T2B	INDOOR COIL OUTLET TEMP. SENSOR
XT	Terminal strip

Figure 70. MLA036S4M-1P Outdoor Unit Wiring Diagram

7.5. 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.

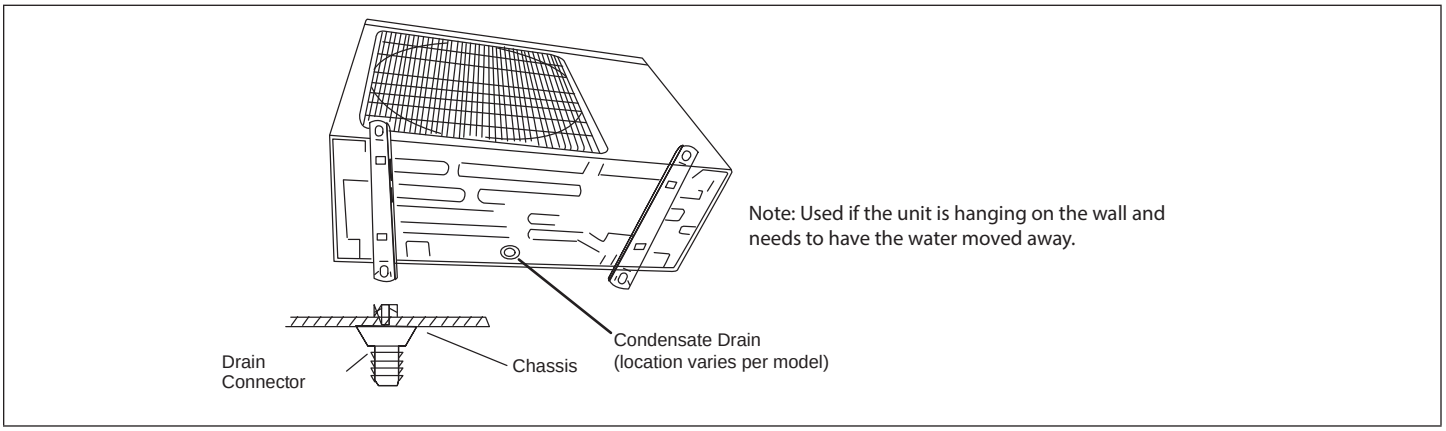


Figure 71. Condensate Drainage Requirement

8. Installation Requirements

8.1. Torque Requirements

CAUTION

Refrigerant pipe diameter is different according to indoor unit to be connected. When using the extension pipe, refer to the tables below.

When refrigerant pipe diameter is different from that of the outdoor unit connector (18K indoor unit) an additional adapter is required.

Table 8. Torque

Outside Diameter		Torque	Additional Tightening
MM	Inches	v.cm	N.cm
Φ6.35	1/4	1500 (153kgf.cm)	1600 (163kgf.cm)
Φ9.52	3/8	2500 (255kgf.cm	2600 (265kgf.cm)
Φ12.7	1/2	3500 (357kgf.cm)	3600 (367kgf.cm)

8.2. Pipe Length and Elevation

Maximum piping length and height difference.

Table 9. Pipe Diameter - MM (Inches)

Indoor Unit			Extension Pipe Diameter (mm/inches)	
Model	Pipe Diameter (mm/inches)			
9K	Liquid	6.35 (1/4)	Liquid	6.35 (1/4)
	Gas	9.52 (3/8)	Gas	9.52 (3/8)
12K and 18K	Liquid	6.35 (1/4)	Liquid	6.35 (1/4)
	Gas	12.7 (1/2)	Gas	12.7 (1/2)
23K	Liquid	9.52 (3/8)	Liquid	9.52 (3/8)
	Gas	15.9 (5/8)	Gas	15.9 (5/8)
1 drive 2			Liquid	6.35 (1/4) *2
			Gas	9.52 (3/8) *2
1 drive 3			Liquid	6.35 (1/4) *3
			Gas	9.52 (3/8) *3
1 drive 4			Liquid	6.35 (1/4) *4
			Gas	9.52 (3/8) *3
				12.7 (1/2) *1
1 drive 5			Liquid	6.35 (1/4) *5
			Gas	9.52 (3/8) *3
				12.7 (1/2) *2

Table 10. Line Set Length - Meters (Feet)

Length	1 Drive 2	1 Drive 3	1 Drive 4	1 Drive 5
Max. length for all rooms (m)	40 (131)	60 (197)	80 (262)	80 (262)
Max. length for one IU (m)	25 (82)	30 (98)	35 (115)	35 (115)
Max. height difference between IU and OU (m)	15 (49.2)	15 (49.2)	15 (49.2)	15 (49.2)
Max. height difference between IUs (m)	10 (33)	10 (33)	10 (33)	10 (33)

8.2.1. Additional Refrigerant Charge

Table 11. Additional Charge - Grams (Ounces)

		1 Drive 2	1 Drive 3	1 Drive 4	1 Drive 5
Additional Refrigerant Charge	**Pre-charge pipe length - Meters (feet)**	1.5 (49.2)	22.5 (73.8)	30 (98.4)	
	Grams	15 x (length for all rooms - 15)	15 x (length for all rooms - 22.5)	15 x (length for all rooms - 30)	15 x (length for all rooms - 37.5)
	Ounces	0.161 x (length for all rooms 49.2)	0.161 x (length for all rooms 73.8)	0.161 x (length for all rooms xx.x)	0.161 x (length for all rooms xx.x)

8.2.2. Gas Leak Check with Soap Water:

Apply soap water or a liquid neutral detergent on the connections with a soft brush to check for leakage in the pipe connecting points. If bubbles emerge, the pipes are leaking.

8.2.3. Air and Moisture

Air and moisture in the refrigerant system cause the following problems:

- Increases in system pressure
- Increases in operating current
- Decreases in cooling and heating efficiency
- Blocks in capillary tubing caused by moisture in the refrigerant circuit freezing
- Corrosion of parts in the refrigerant system caused by water

The indoor units and the pipes between indoor and outdoor units must be tested for leakages and evacuated to remove gas and moisture from the system.

8.2.4. Air Purging using a Vacuum Pump

- Completely tighten the flare nuts on the indoor and outdoor units. Confirm that both the2-way and 3-way valves are set to the closed position.
- Connect the charge hose with the push pin of the Handle Lo to the 3-way valve gas service port.
- Connect the charge hose of the Handle Hi to the vacuum pump.
- Fully open the Handle Lo of the manifold valve.
- Turn on the vacuum pump to begin evacuation.
- Conduct a 30-minute evacuation. Check whether the compound meter indicates - 0.1Mpa(14.5Psi). If the meter does not indicate -0.1Mpa (14.5Psi) after 30 minutes has elapsed, continue evacuation for 20 more minutes. If the pressure does not reach - 0.1Mpa (14.5Psi) after 50 minutes has elapsed, check if there are any leaks.
- Fully close the Handle Lo valve of the manifold valve and turn off the vacuum pump. After 5 minutes, confirm that the gauge needle is not moving.
- Turn the flare nut on the 3-way valve 45° counterclockwise for 6-7 seconds. Once gas begins to come out, tighten the flare nut. Make sure the pressure display on the pressure indicator is higher than atmospheric pressure. Then remove the charge hose from the 3-way valve.
- Fully open the 2-way and 3-way valves and securely tighten the cap on the 3-way valve.

8.2.5. Adding Refrigerant if Pipe Length Exceeds Charge Less Pipe Length

Connect the charge hose to the charging cylinder and open the 2-way and 3-way valves. With the charge hose you disconnected from the vacuum pump, connect it to the valve at the bottom of the cylinder.

If the refrigerant is R410A, place the cylinder bottom-up to ensure liquid charging is possible.

- Purge the air from the charge hose.
- Open the valve at the bottom of the cylinder and press the check valve on the charge set (be careful of the liquid refrigerant).
- Place the charging cylinder onto the electronic scale and record the weight.
- Turn on the air conditioner in cooling mode.
- Open the valves (Low side) on the charge set. Charge the system with liquid refrigerant.
- When the electronic scale displays the proper weight (refer to the table), disconnect the charge hose from the 3-way valve's service port immediately and turn off the air conditioner before disconnecting the hose.
- Mount the valve stem caps and the service port Use a torque wrench to tighten the service port cap to a torque of 18N.m (13.27 ft·lbs).
- Be sure to check for gas leaks.

8.2.6. Add Refrigerant after Long-Term System Operation

- Connect the charge hose to the 3-way service port and open the 2-way and 3-way valve.
- Connect the charge hose to the valve at the bottom of the cylinder. If the refrigerant is R410A, place the cylinder bottom-up to ensure liquid charge.
- Purge the air from the charge hose.
- Open the valve at the bottom of the cylinder and press the check valve on the charge set to purge the air (be careful of the liquid refrigerant).
- Place the charging cylinder onto the electronic scale and record the weight.
- Turn on the air conditioner in cooling mode.
- Open the valves (Low side)on the charge set and charge the system with liquid refrigerant.
- When the electronic scale displays the proper weight (refer to the gauge and the pressure of the low side), disconnect the charge hose from the 3- way valve's service port immediately and turn off the air conditioner before disconnecting the hose.
- Mount the valve stem caps and the service port. Use torque wrench to tighten the service port cap to a torque of 18N.m(13.27 ft·lbs).
- Be sure to check for gas leaks.

8.2.7. Servicing Indoor Unit Refrigeration Circuit

8.2.7.1 Collecting Refrigerant into Outdoor Unit

- Confirm that both the 2-way and 3-way valves are set to the opened position
- Remove the valve stem caps and confirm that the valve stems are in the opened position.
- Be sure to use a hexagonal wrench to operate the valve stems.
- Connect the charge hose with the push pin of handle lo to the 3-way valves gas service port.
- Air purging of the charge hose - Open the handle Lo valve of the manifold valve slightly to purge air from the charge hose for 5 seconds and then close it quickly.
- Set the 2-way valve to the close position. 5). Operate the air conditioner at the cooling cycle and stop it when the gauge indicates 0.1MPa (14 psi).

- Set the 3-way valve to the closed position immediately
- Do this quickly so that the gauge ends up indicating 0.3 to 0.5Mpa (43 - 72 psi).
- Disconnect the charge set, and tighten the 2-way and 3-way valve's stem nuts.
- Use a torque wrench to tighten the 3-way valves service port cap to a torque of 18N.m.
- Be sure to check for gas leakage.

8.2.7.2 Air Purging with Vaccum Pump

- Completely tighten the flare nuts of the indoor and outdoor units, confirm that both the 2-way and 3-way valves are set to the closed position.
- Connect the charge hose with the push pin of handle lo to the 3-way valves gas service port.
- Connect the charge hose of handle hi connection to the vacuum pump.
- Fully open the handle Lo of the manifold valve.
- Operate the vacuum pump to evacuate.
- Make evacuation for 30 minutes and check whether the compound meter indicates - 0.1Mpa (500 microns). If the meter does not indicate - 0.1Mpa (500 microbars) after pumping 30 minutes, it should be pumped 20 minutes more. If the pressure can't achieve -0.1Mpa (500 microbars) after pumping 50 minutes, please check if there are some leakage points.
- Fully close the handle Lo valve of the manifold valve and stop the operation of the vacuum pump. Confirm that the gauge needle does not move (approximately 5 minutes after turning off the vacuum pump).
- Turn the flare nut of the 3-way valves about 45° counterclockwise for 6 or 7seconds after the gas coming out, then tighten the flare nut again. Make sure the pressure display in the pressure indicator is a little higher than the atmosphere pressure. Then remove the charge hose from the 3 way valve.
- Fully open the 2 way valve and 3 way valve and securely tighten the cap of the 3 way.

8.2.8. Evacuation after Servicing the Outdoor Unit Refrigeration Circuit

8.2.8.1 Evacuation of the Complete Refrigeration Circuit, Indoor and Outdoor Unit

- Confirm that both the 2-way and 3-way valves are set to the opened position.
- Connect the vacuum pump to 3-way valve's service port.
- Evacuation for approximately one hour. Confirm that the compound meter indicates - 0.1Mpa (500 Microns / 29.9 in. hg).
- Close the valve (Low side) on the charge set, turn off the vacuum pump, and confirm that the gauge needle does not move (approximately 5 minutes after turning off the vacuum pump).
- Disconnect the charge hose from the vacuum pump.

8.2.8.2 Refrigerant Charging

- Connect the charge hose to the charging cylinder, open the 2-way valve and the 3-way valve.
- Connect the charge hose which you disconnected from the vacuum pump to the valve at the bottom of the cylinder. If the refrigerant is R410A, make the cylinder bottom up to ensure liquid charge.
- Purge the air from the charge hose
- Open the valve at the bottom of the cylinder and press the check valve on the charge set to purge the air (be careful of the liquid refrigerant).
- Put the charging cylinder onto the electronic scale and record the weight.

- Open the valves (Low side) on the charge set and charge the system with liquid refrigerant. If the system cannot be charge with the specified amount of refrigerant, or can be charged with a little at a time (approximately 150g each time) , operating the air conditioner in the cooling cycle; however, one time is not sufficient, wait approximately 1 minute and then repeat the procedure.
- When the electronic scale displays the proper weight, disconnect the charge hose from the 3- way valve's service port immediately
- If the system has been charged with liquid refrigerant while operating the air conditioner, turn off the air conditioner before disconnecting the hose.
- Mounted the valve stem caps and the service port. Use torque wrench to tighten the service port cap to a torque of 18N·m (13.27 ft·lbs).
- Always leak check after servicing the refrigerant system.

There are one low-pressure centralized valve and one high-pressure centralized valve, it will be more time saving when vacuum and recycle refrigerant. But refer to the previous instruction when vacuum and recycle refrigerant.

9. Electronic Function

9.1. Abbreviations

- T1: Indoor ambient temperature
- T2: Middle indoor heat exchanger coil temperature
- T2B: Indoor heat exchanger exhaust coil temperature (located on the outdoor unit)
- T3: Outdoor heat exchanger pipe temperature T4: Outdoor ambient temperature
- T5: Compressor discharge temperature

9.2. Electric Control Working Environment.

- Input voltage: 230V.
- Input power frequency: 60Hz.
- Indoor fan standard working amp.: <1A
- Outdoor fan standard working amp.: <1.5A.
- Four-way valve standard amp.: <1A

10. Start-Up

10.1. 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 12. 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)

10.2. 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 1. 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)

11. 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.

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.*

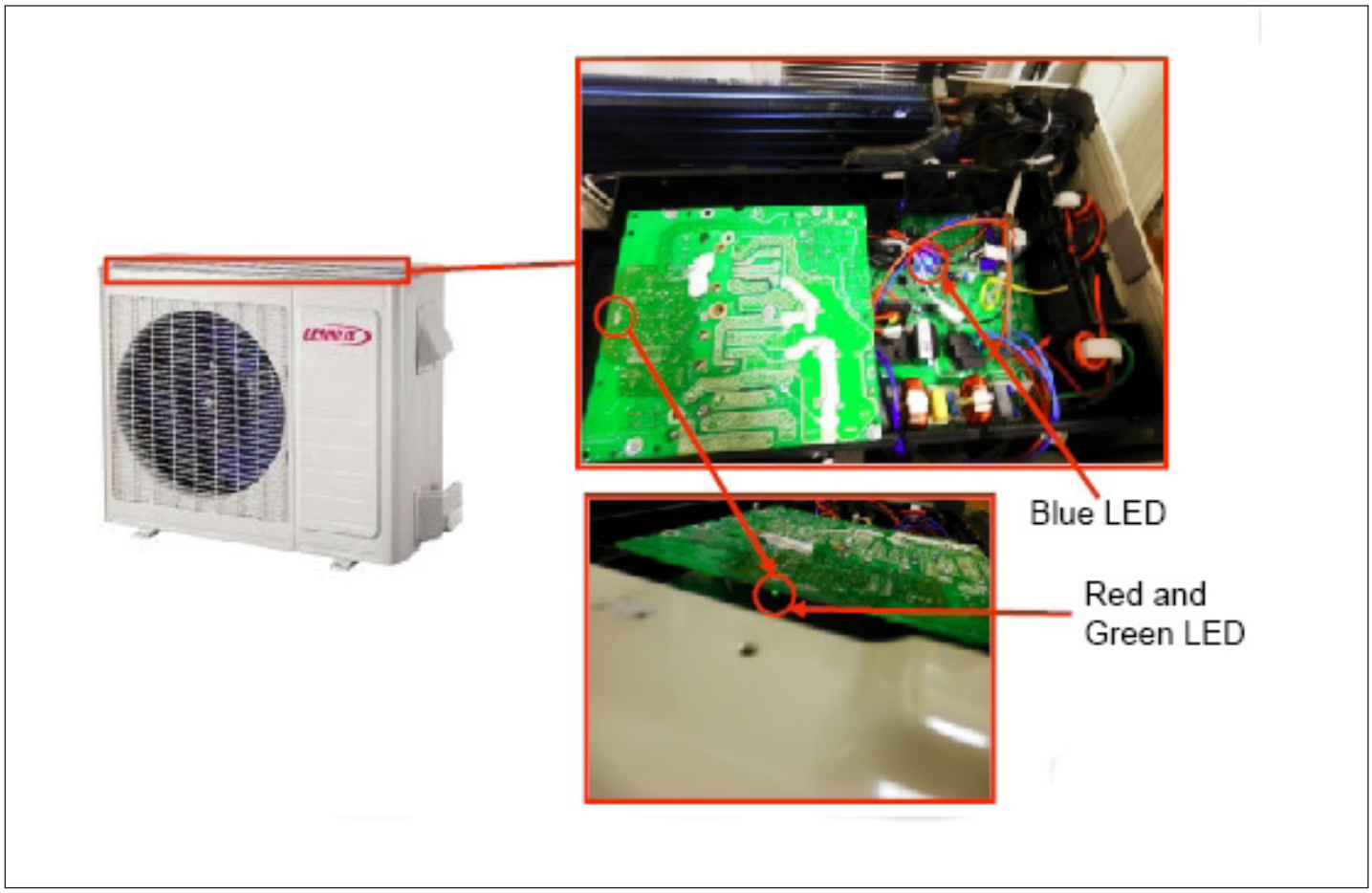


Figure 72. Typical Location of Outdoor Unit LEDs

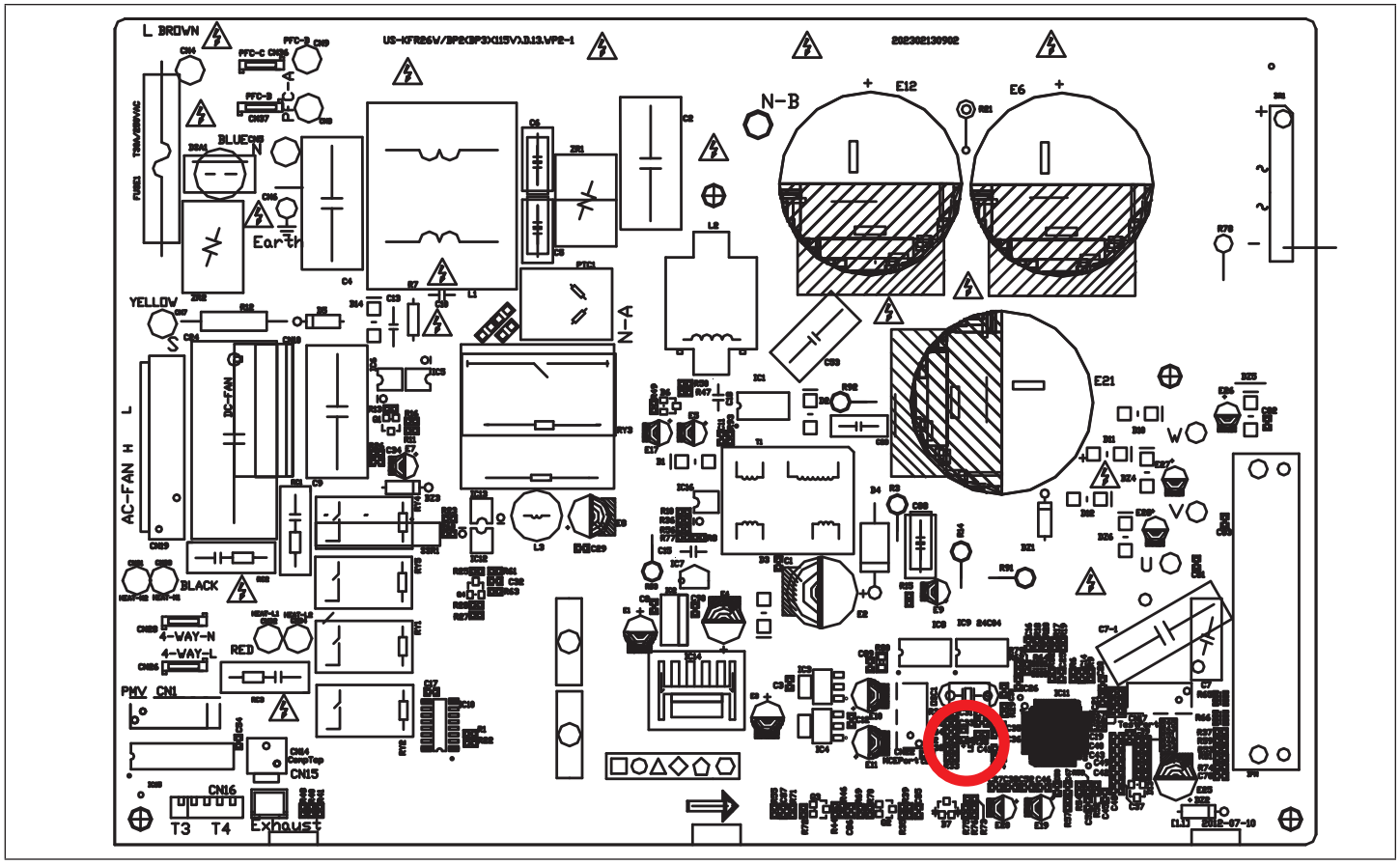


Figure 73. Typical LED Location - MPA009S4S-1L and MPA012S4S-1L

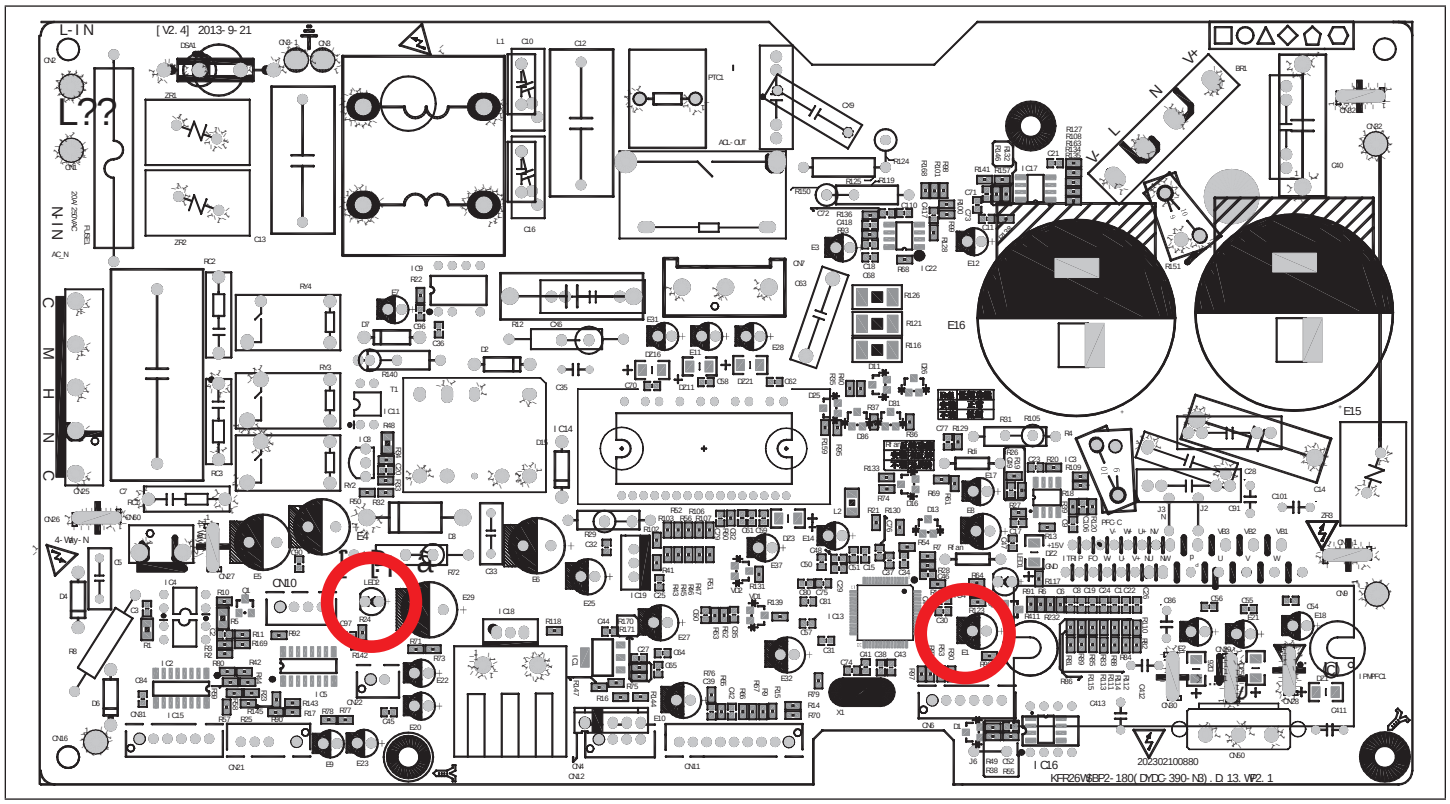


Figure 74. Typical LED Location - MPA009S4S-1P, MPA012S4S-1P, MPA009S4S-1P and MPA012S4S-1P

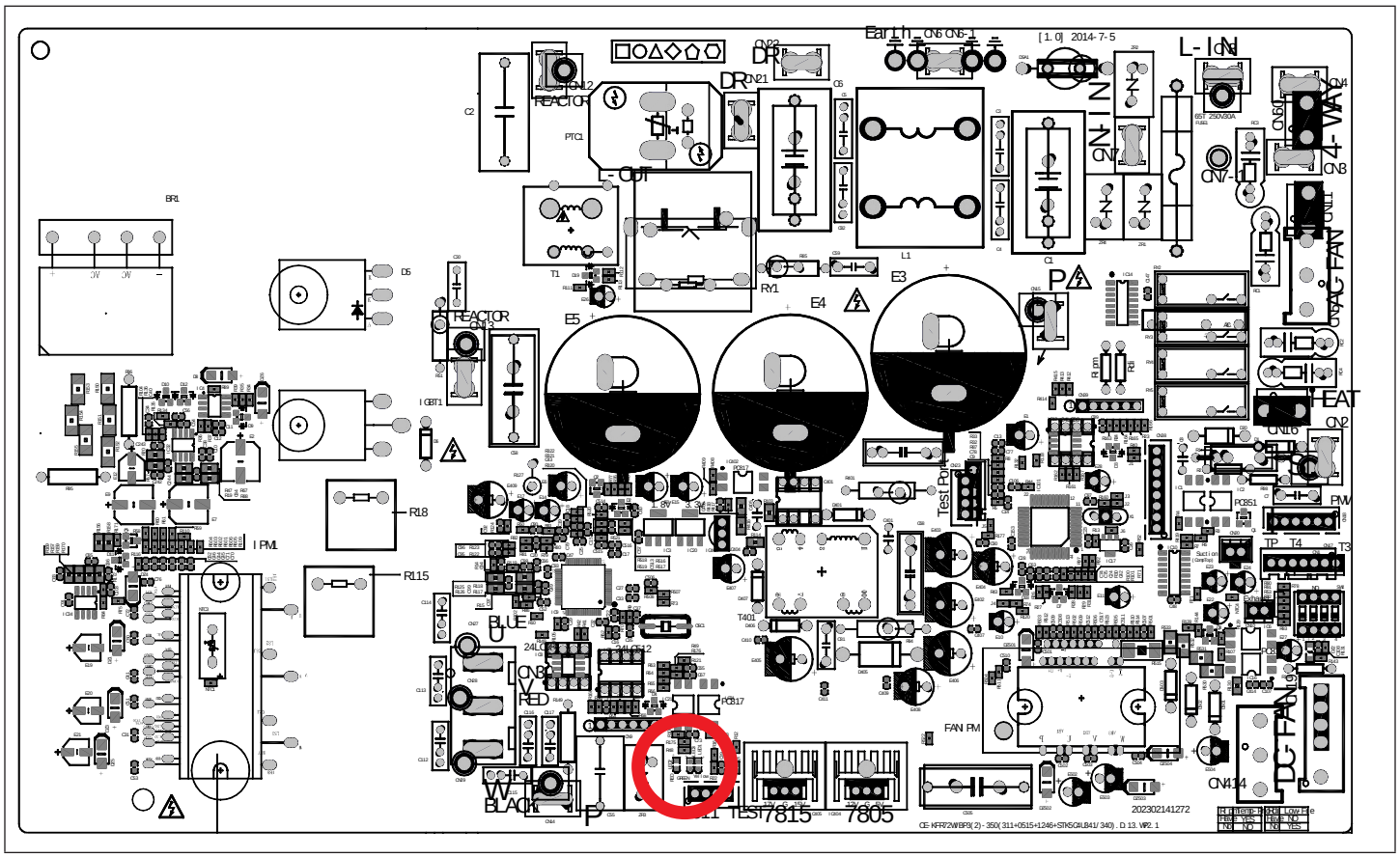


Figure 75. Typical LED Location - MPB009S4S-1L and MPB012S4S-1L

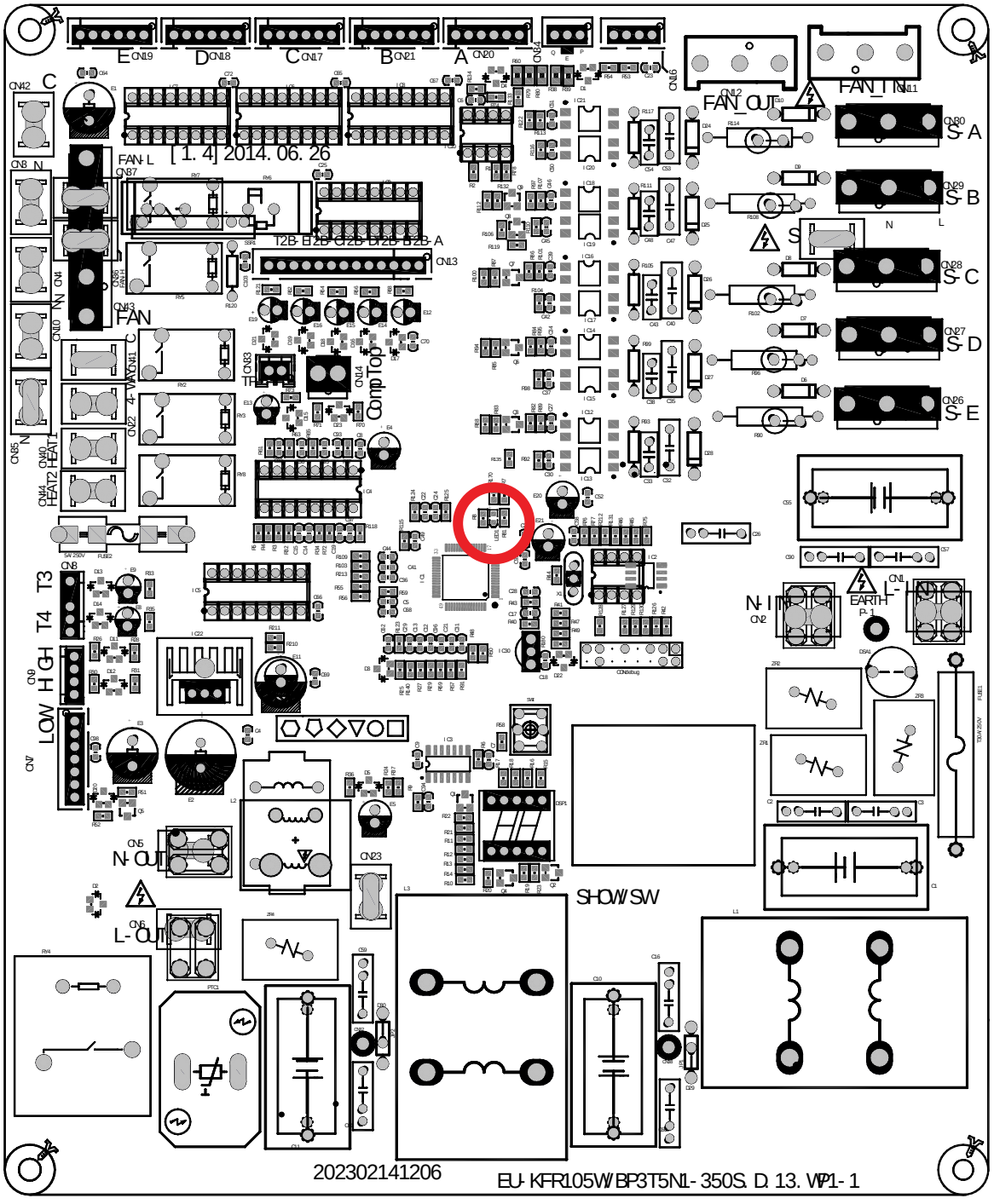


Figure 76. Typical LED Location - MPA030S4S-1P and MPB030S4S-1P

12. 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 77. Typical Location of LEDs and SW1 - 18K and 30K Multi-Zone Outdoor Units

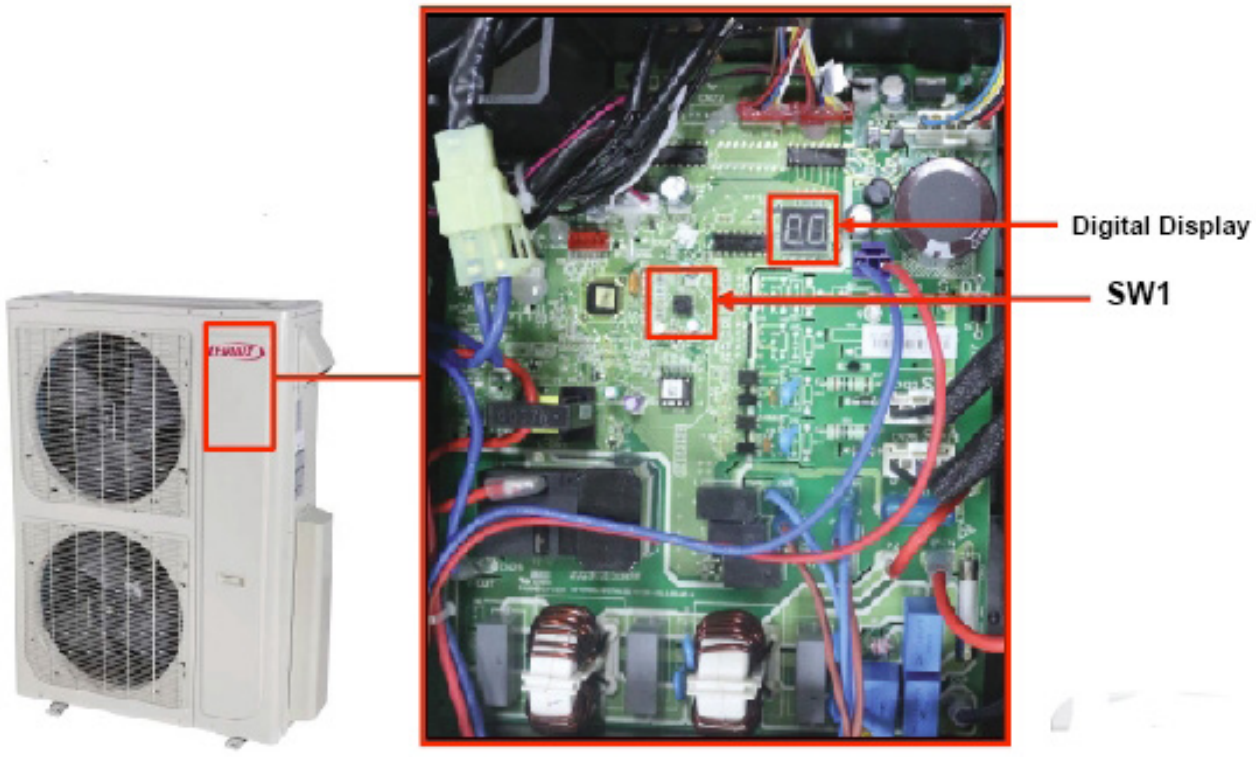


Figure 78. Typical Location of LEDs and SW1 - 36K and 48K Multi-Zone Outdoor Units

13. Specifications and Operations

Table 2. 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 3. 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 4. 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 5. 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 6. 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 7. 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.

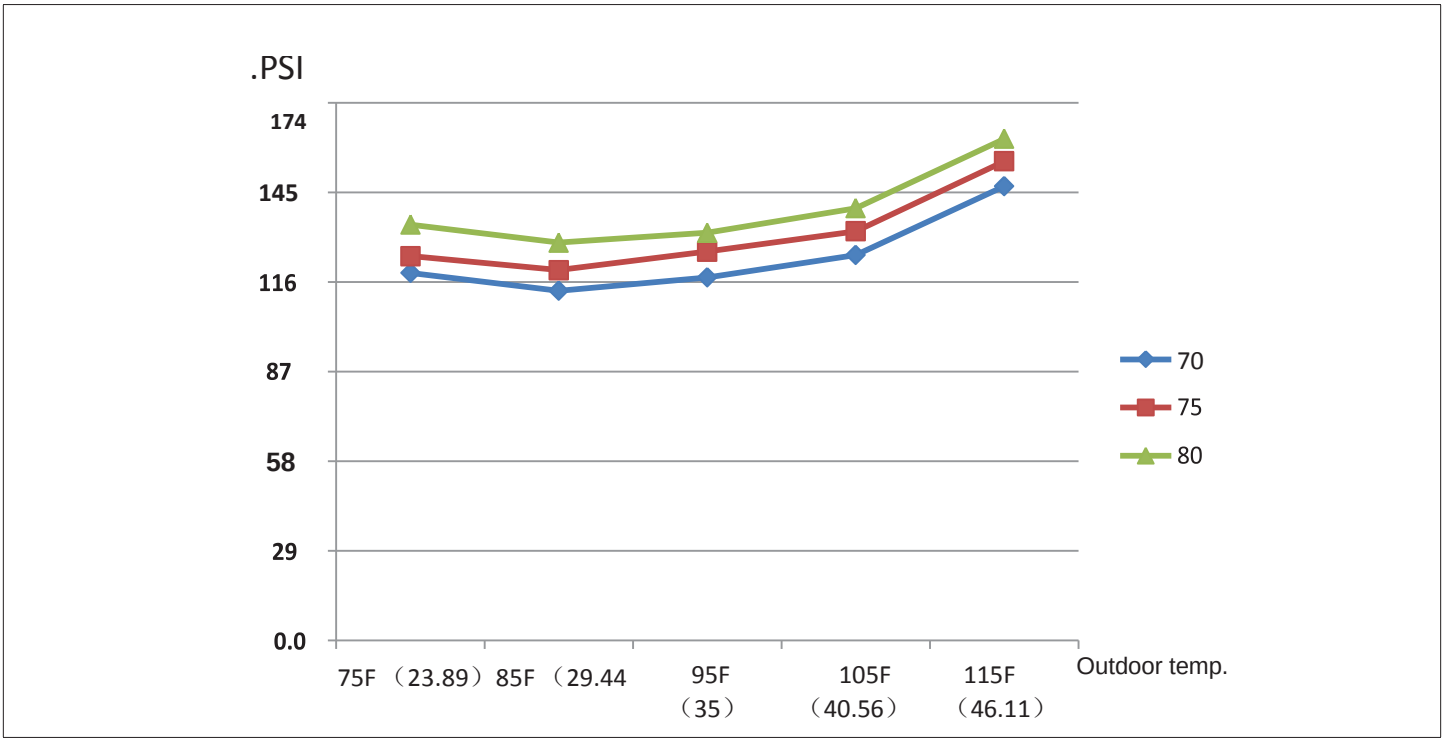
14. Pressure on Service Port

14.1. Cooling Charts

14.1.1. Cooling Mode

Table 8. Cooling Charge - Cooling Mode						
	Indoor Temp.	Outdoor temp.				
℉		75	85	95	105	115
(℃)		（23.89）	（29.44）	（35）	（40.56）	（46.11）
PSI	70	119	113	117	125	147
PSI	75	124	120	126	132	155
PSI	80	135	129	132	140	162

14.1.2. Pressure (PSI)

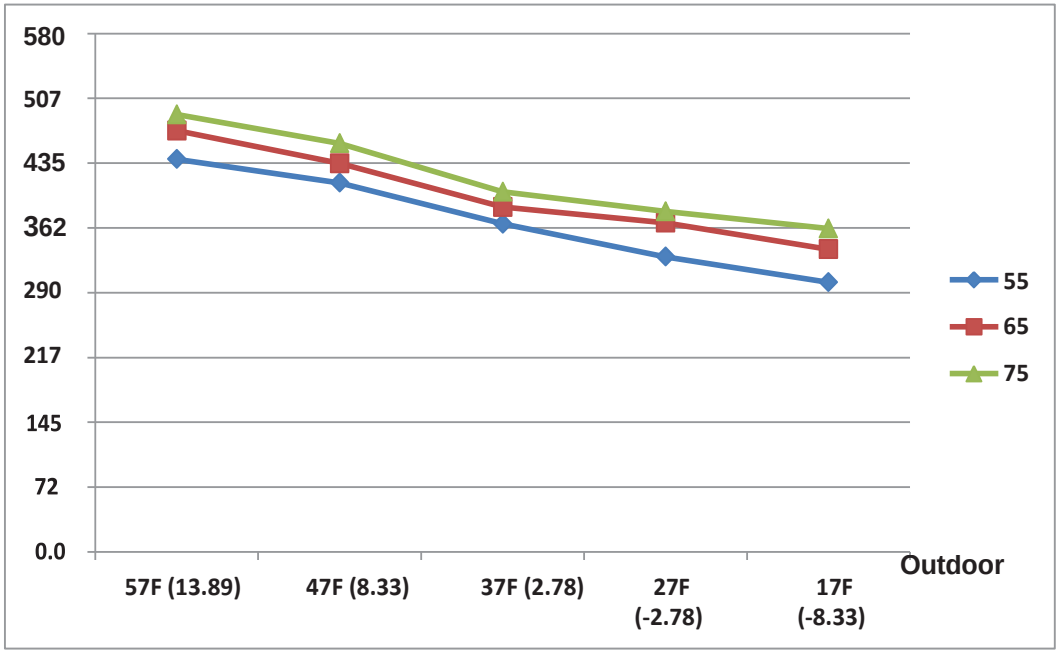


14.2. Heating Chart

14.2.1. Heating Mode

Table 9. Heating Charge - Heat Mode						
	Indoor Temp.	Outdoor temp.				
℉		57	47	37	27	17
(℃)		57 (13.89)	7 (8.33)	-2.78	(-2.78)	(-8.33)
PSI	55	439	413	367	330	302
PSI	65	471	435	386	368	339
PSI	75	489	457	403	381	362

14.2.2. Pressure (PSI)



14.3. Capacity Request Calculations

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

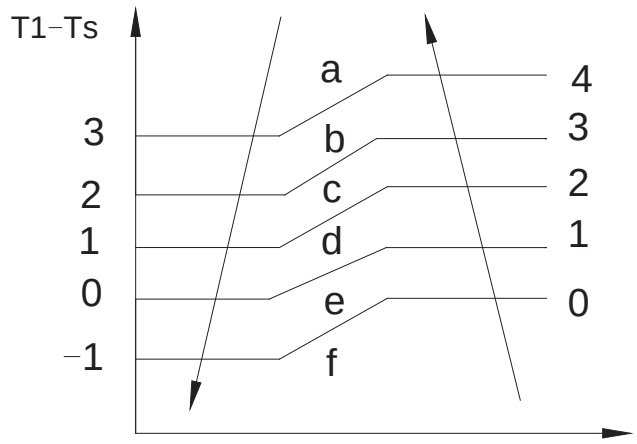


Figure 79. Cooling Mode

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.

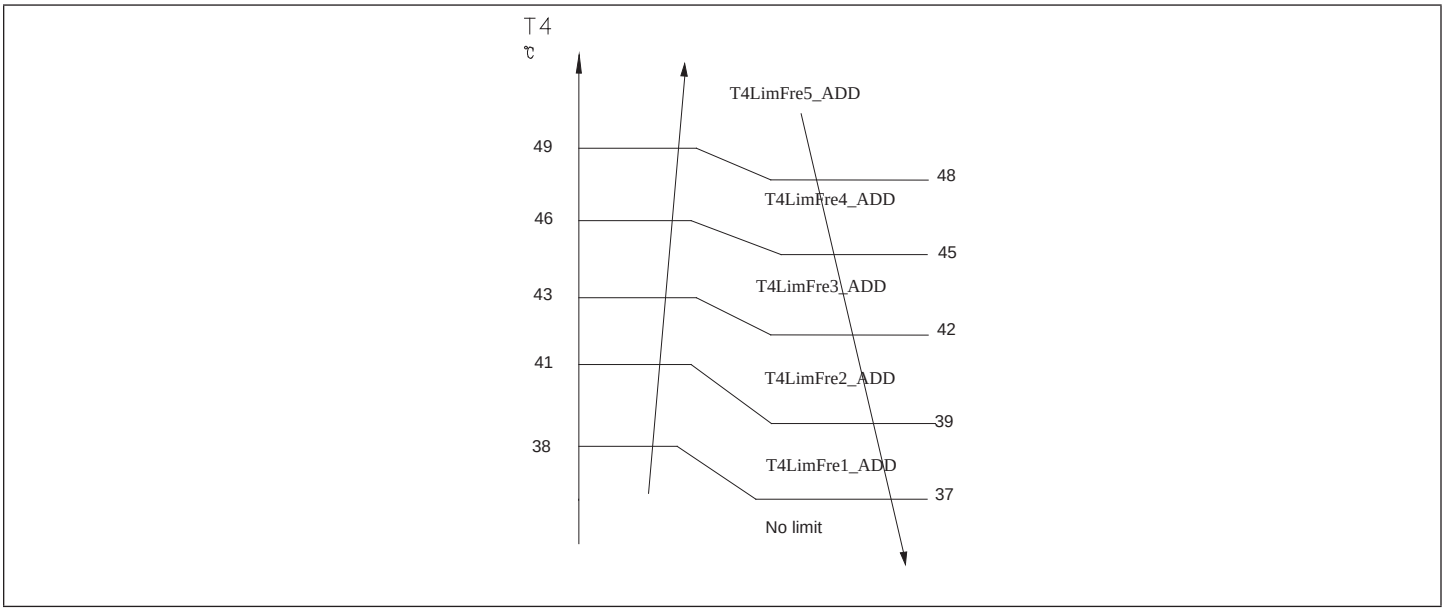
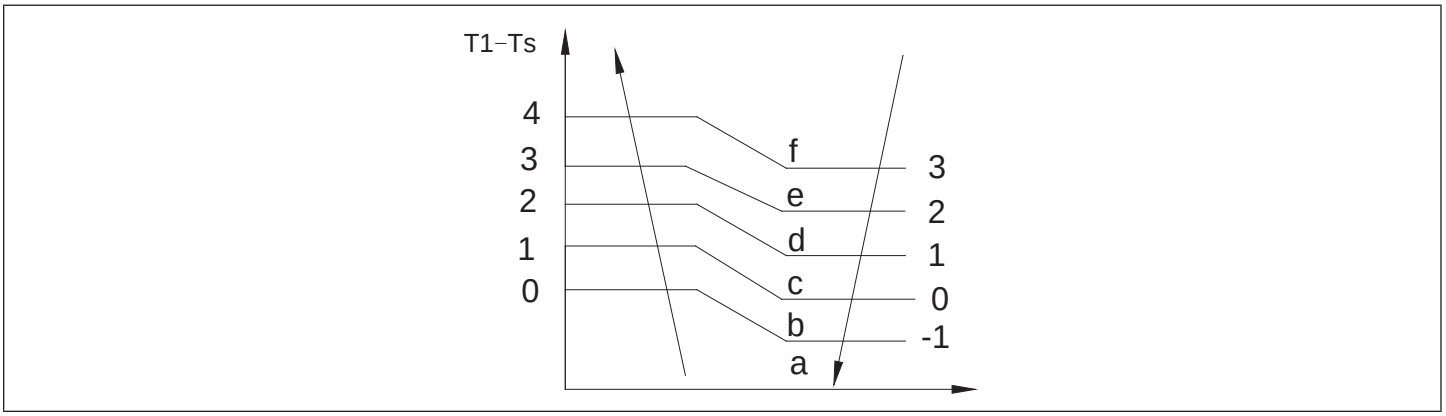


Figure 80. Heating Mode

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.*

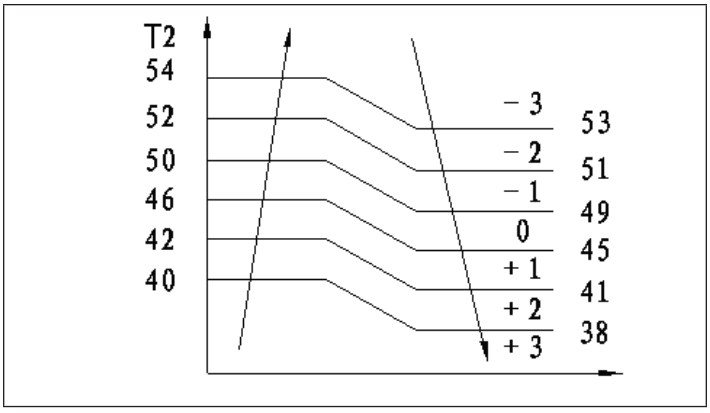
In heating mode, when T2<T2_ExitT4LowFre_ADD , and T4<-4°C, there is frequency elevation: elevated frequency= Recent frequency * 110%

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

14.4. 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)

14.5. Defrost Theory

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

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.

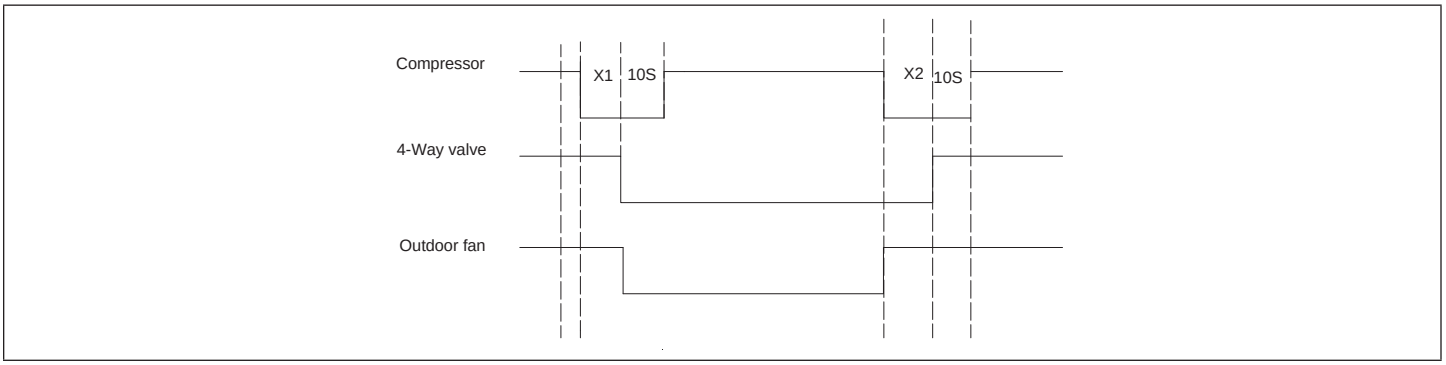
After 35 minutes of run-time, T3 is lower than 23°F AND T3+5.4°F is less than 30°F.

After 40 minutes of run-time of T3 being lower than 11.2°F.

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



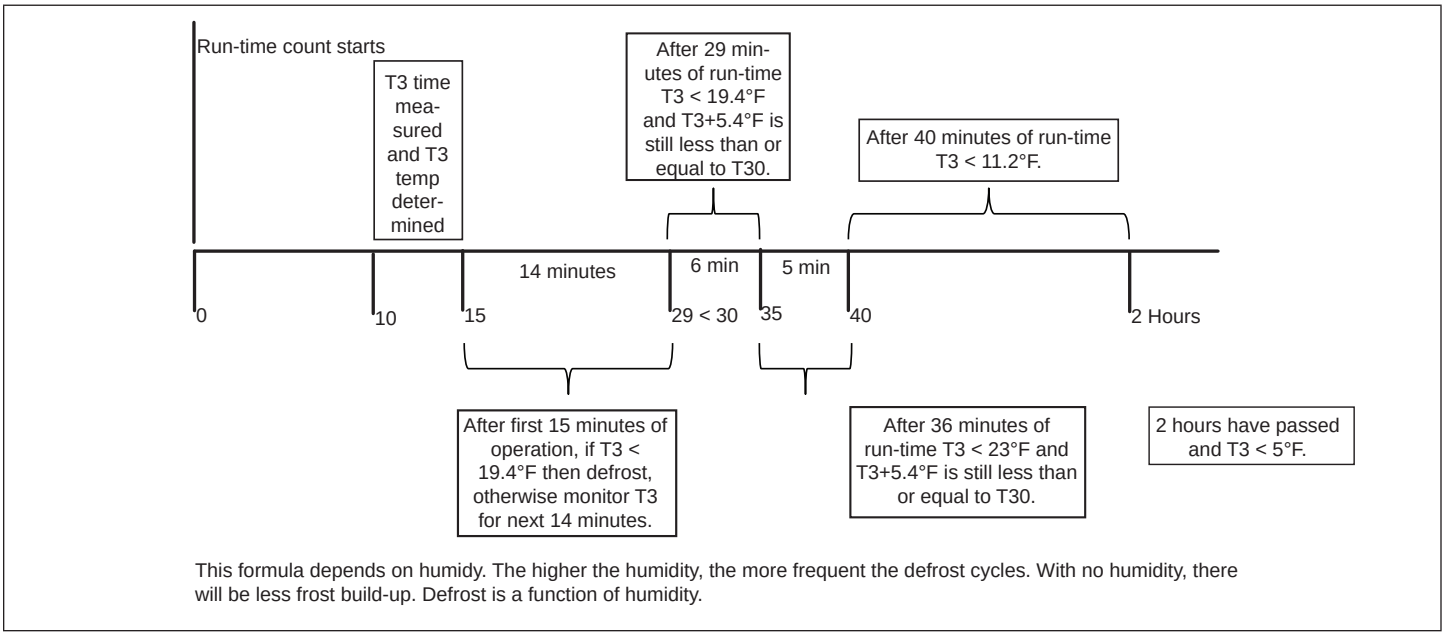
14.6. Defrost Termination

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.

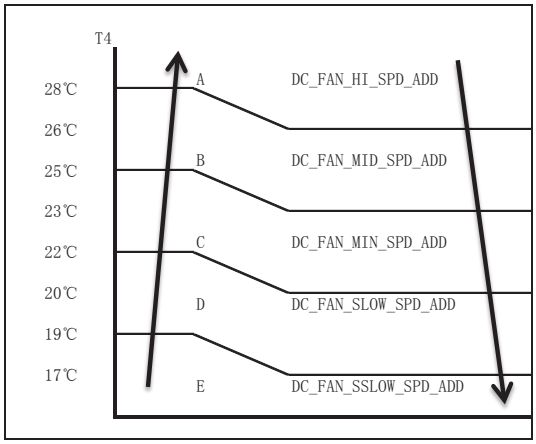


This formula depends on humidy. The higher the humidity, the more frequent the defrost cycles. With no humidity, there will be less frost build-up. Defrost is a function of humidity.

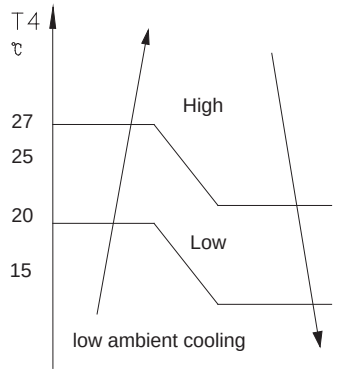
14.7. Outdoor Fan Control

14.7.1. Cooling Mode

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



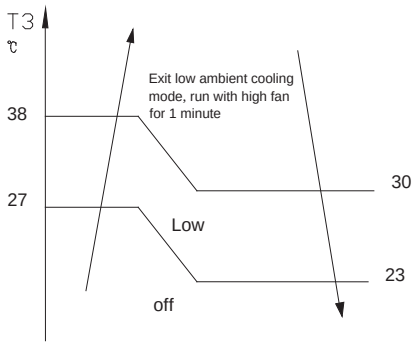
When low ambient cooling is valid:



Outdoor fan speed control logical (low ambient cooling).

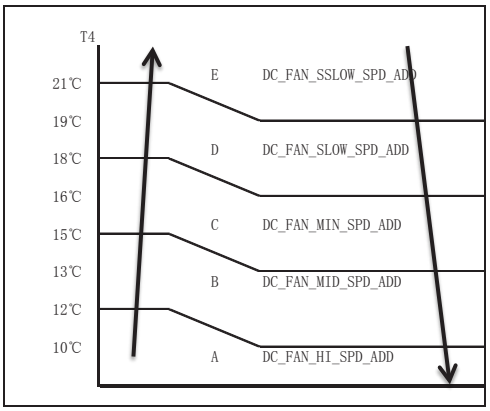
When T4 <15°C (59°F) and T3 < 30°C (86°F), the unit will enter into low ambient cooling mode. The outdoor fan will choose speed according to T3.

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.



14.7.2. Heating Mode

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



14.8. 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.

14.9. 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.

14.9.1. 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.

14.9.2. 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 calculate from subject received, size and 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.

Change Log

9/2020 - Added MLB models

3/2019 - Replaced MMDB indoor unit wiring diagrams. Old diagrams were incorrect.

6/2019 - Added second generation MMWA/MMWB/3 indoor control board.

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