MINI-SPLIT SYSTEMS SERVICE MANUAL
Indoor and Outdoor Unit Information

100029
04/2024

Please refer to service manual 100030 for indoor and outdoor unit error codes and component diagnostics.

MCFA and MCFB

MFMA

MPC, 3PB, 3PC, and MLB Single Zone

MLB and MPC Multi-Zone

MMDB

MWMC and 3WMC036

M22A and M33C

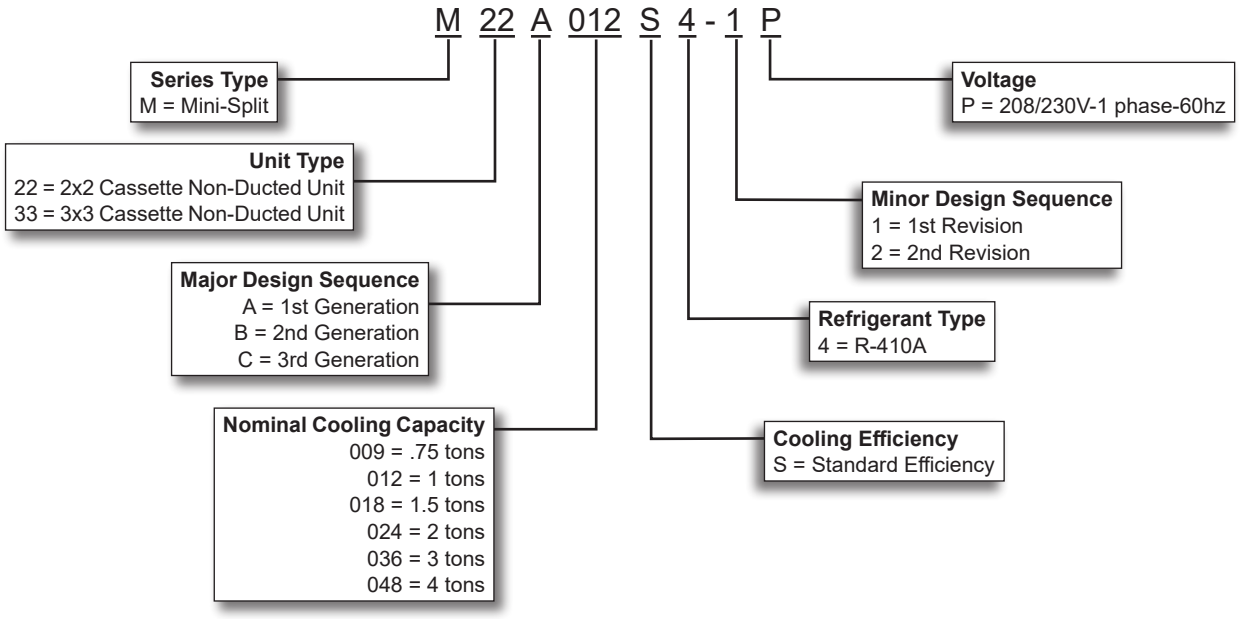
Table of Contents

Indoor Unit Information

1. M22A and M33C Cassette Non-Ducted Indoor Units

1.1. Model Number Identification

CASSETTE NON-DUCTED INDOOR UNITS



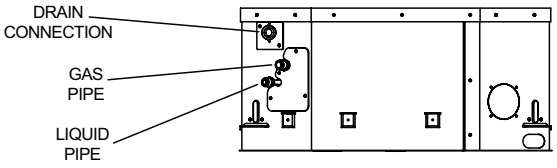
1.2. M22A Indoor Unit Specifications

	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

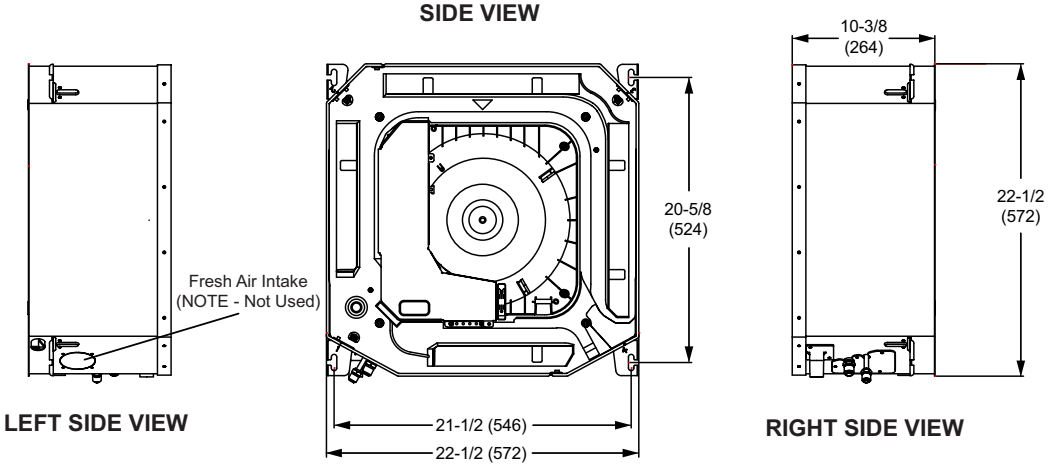
1.3. M33C Indoor Unit Specifications

Model No.	M33C024S4	M33C036S4	M33C048S4
Nominal Tons	2	3	4
Power Supply - 60 hz - 1 phase	208/230V	208/230V	208/230V
Rated load amps	1.0		
Output (W)	45	125	125
Room Temperature Range (°F) Cooling	60 - 90	60 - 90	60 - 90
Heating	32 - 86	32 - 86	32 - 86
Air Volume - cfm (High/Medium/Low)	706 / 635 / 547	947 / 853 / 753	1171 / 1059 / 935
Sound Data (dBA) - Low/Medium/High	43 / 46 / 49	52.5 / 50 / 46.5	55 / 53 / 50
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. Body	48 / 56	60 / 69	65 / 74

1.4. M22A Indoor Unit Dimensions



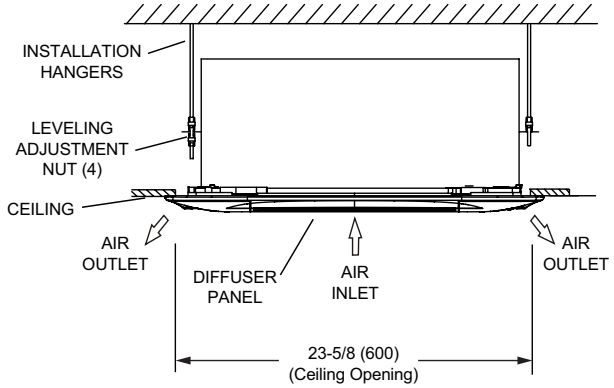
SIDE VIEW



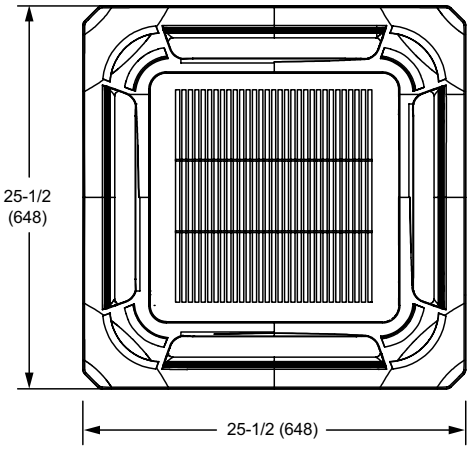
LEFT SIDE VIEW

BOTTOM VIEW (Body)

RIGHT SIDE VIEW

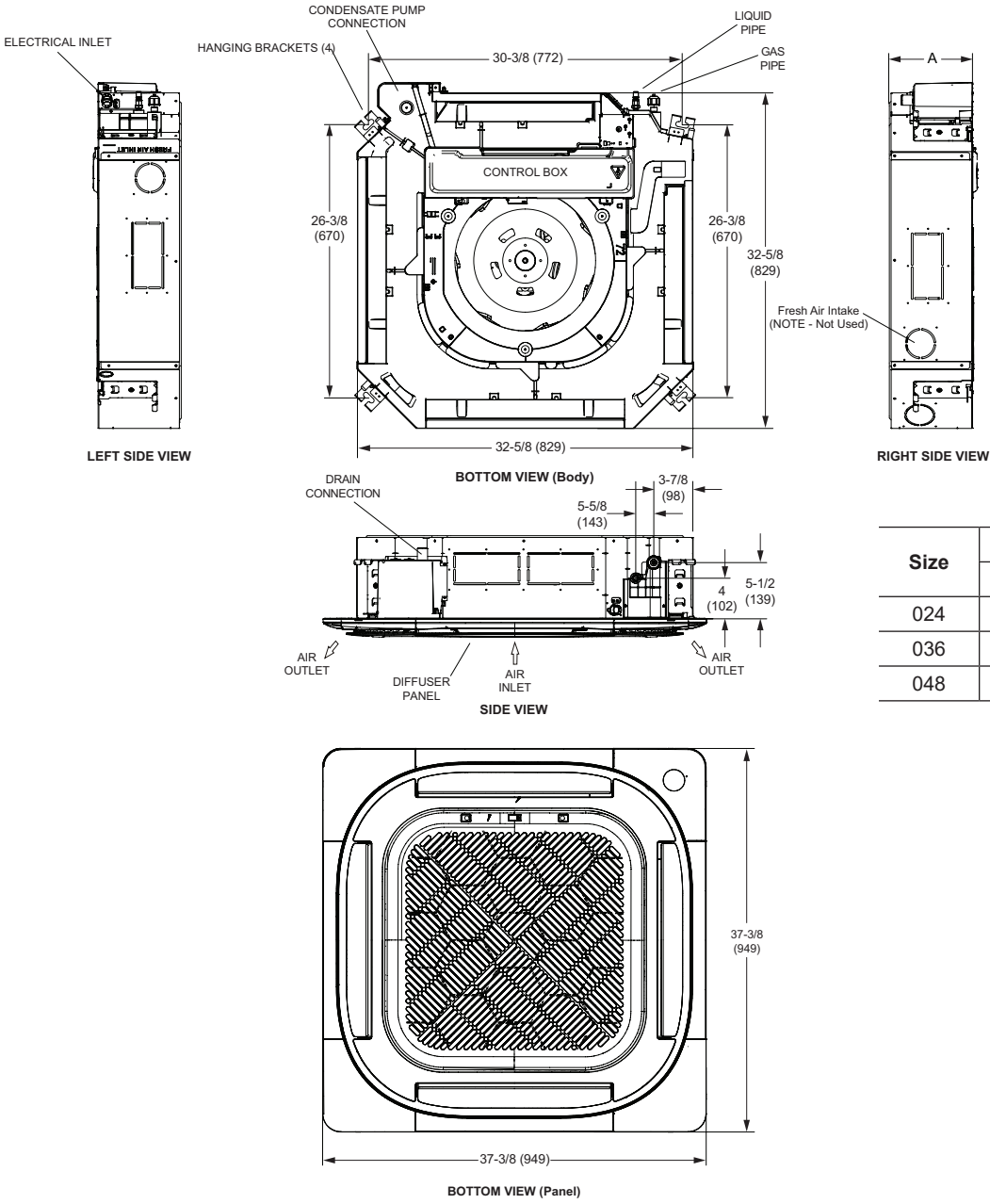


SIDE VIEW



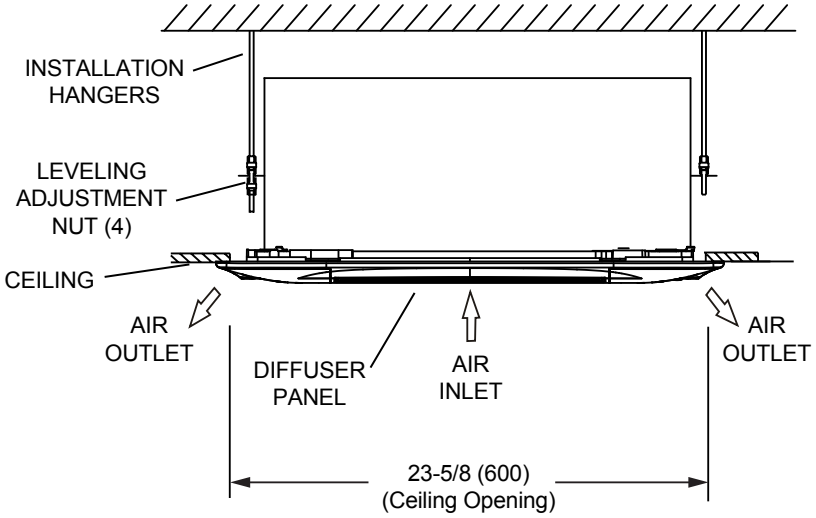
BOTTOM VIEW (Panel)

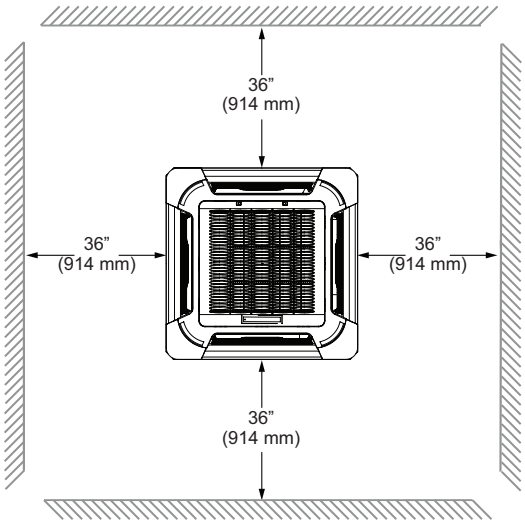
1.5. M33C Indoor Unit Dimensions



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

1.6. M22A and M33C Indoor Unit Clearances





Minimum Clearance from Structural Ceiling to Drop Ceiling:

M22A009, M22A012, M22A018 and M33C024 -- 10-1/4" (260 mm)

M33C036 and M33C048 -- 13" (330 mm)

Minimum Clearance to Floor
(all models and sizes) - 98-1/2" (2500 mm)

1.7. M22A and M33C Indoor Unit Control Board Switches Location

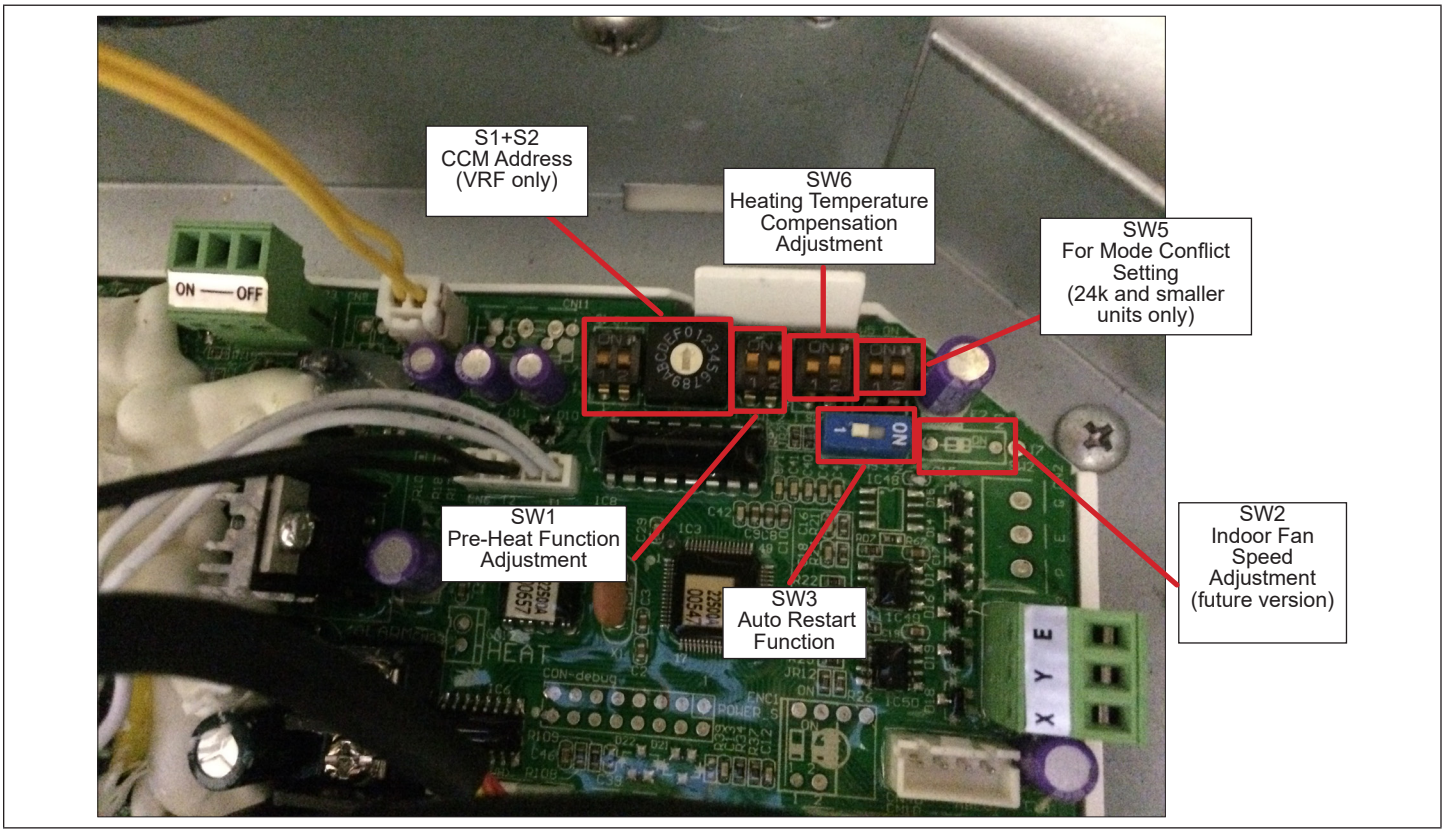


Figure 1. M22A Main Control Switches

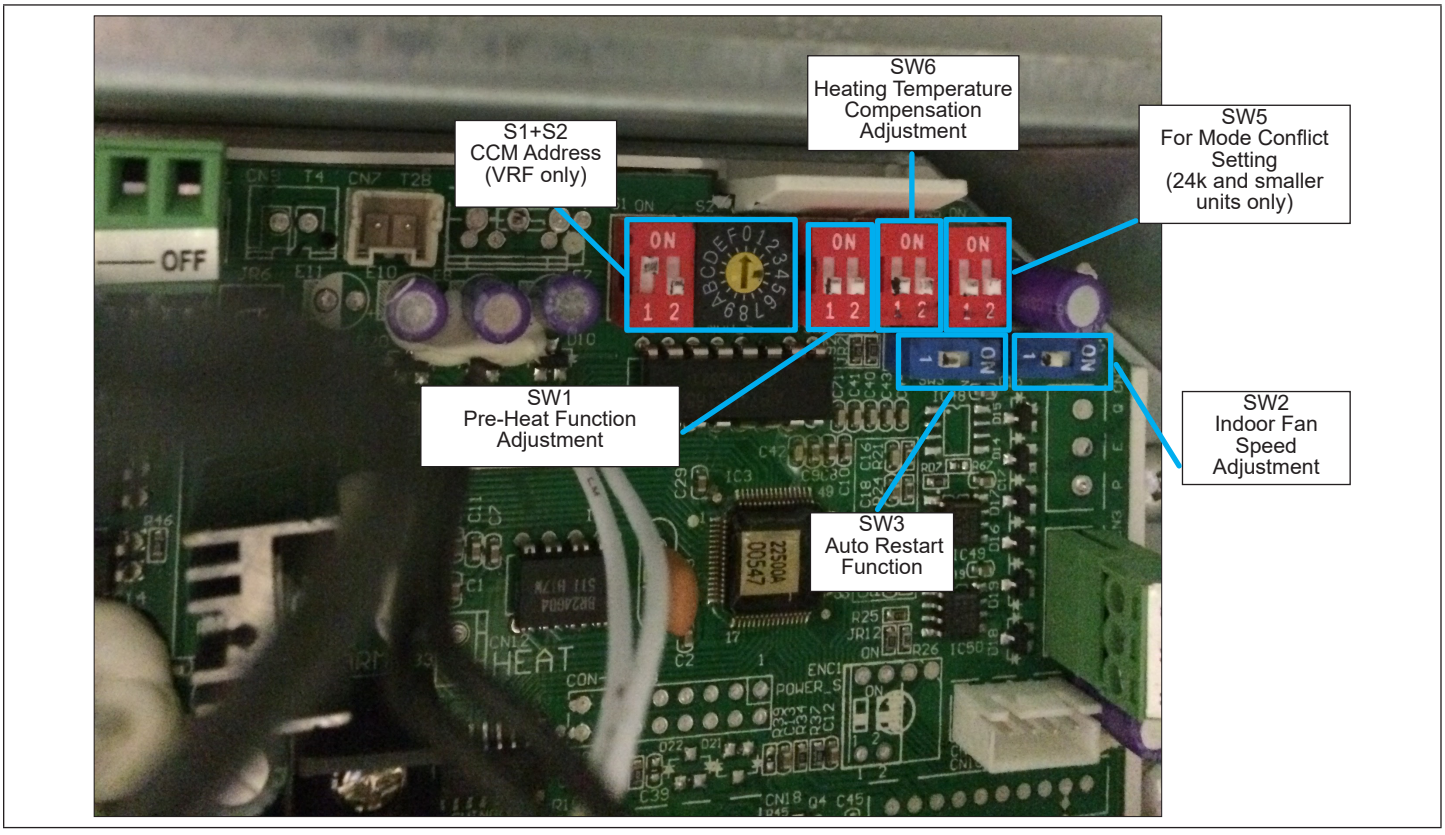


Figure 2. M33C Main Control Switches

1.8. M22A and M33C Condensate Drain Test Procedure

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.

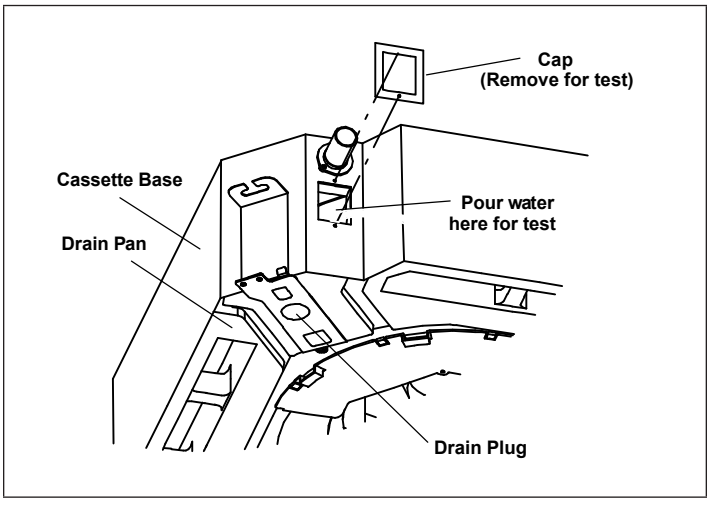


Figure 3. Condensate Drain Test

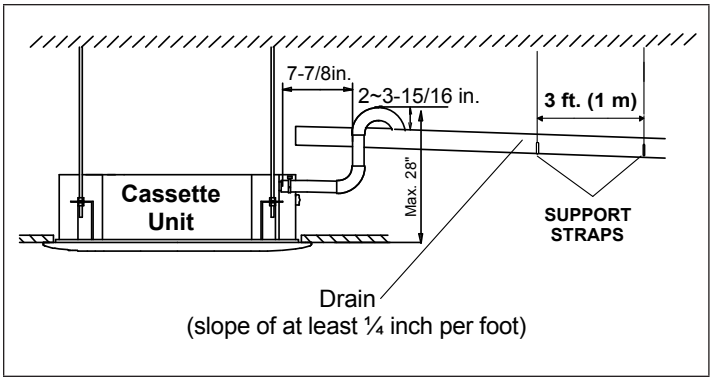


Figure 4. Indoor Unit Condensate Drain

2. 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. MMDB Model Number Identification

M MD B 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

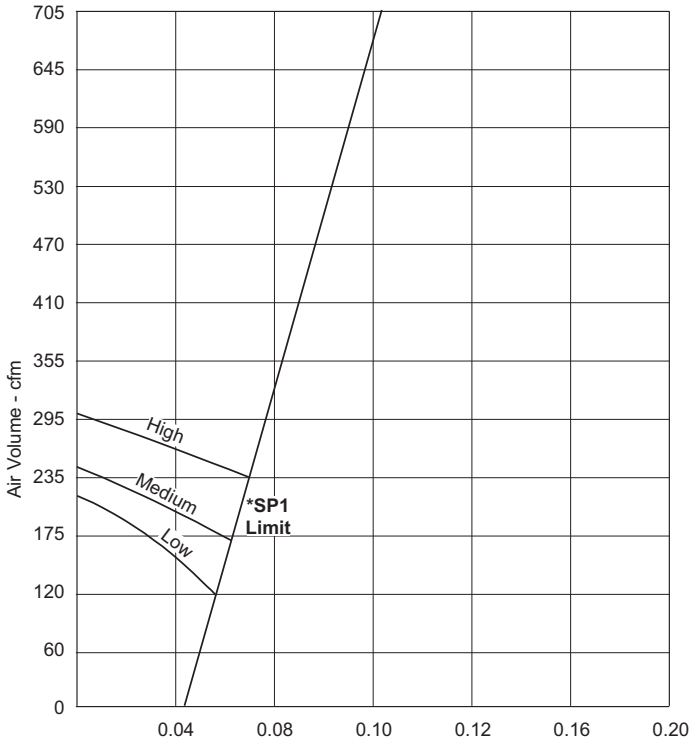
2.2. MMDB Indoor Unit Specifications

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

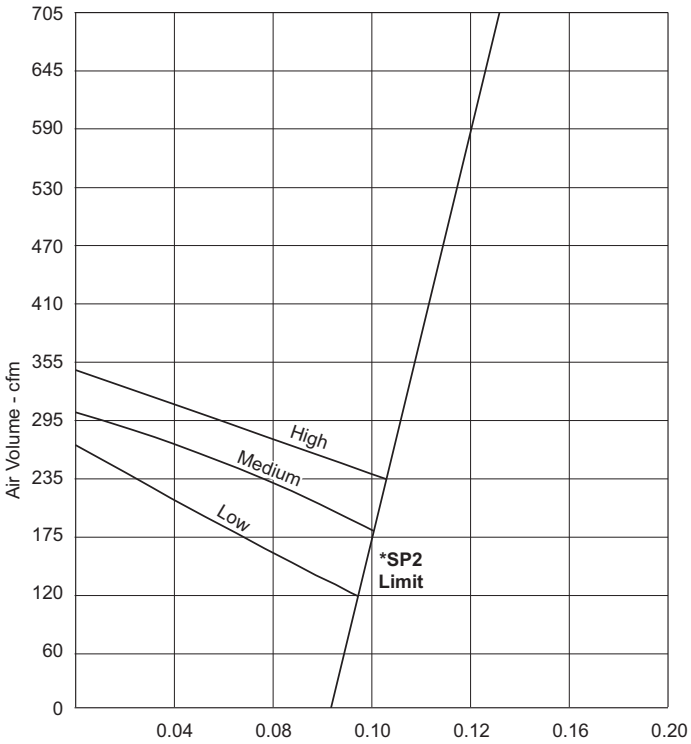
Model No.		MMDB024S4	MMDB036S4	MMDB048S4
Nominal Tons		2	3	4
Power Supply - 60 hz - 1 phase		208/230V	208/230V	208/230V
Rated load amps		1.5	1.6	2
Output (W)		160	300	560
Room Temperature Range (°F)	Cooling	62 - 90	62 - 90	62 - 90
	Heating	32 - 86	32 - 86	32 - 86
Air Volume - cfm (High/Medium/Low)		775/695/435	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

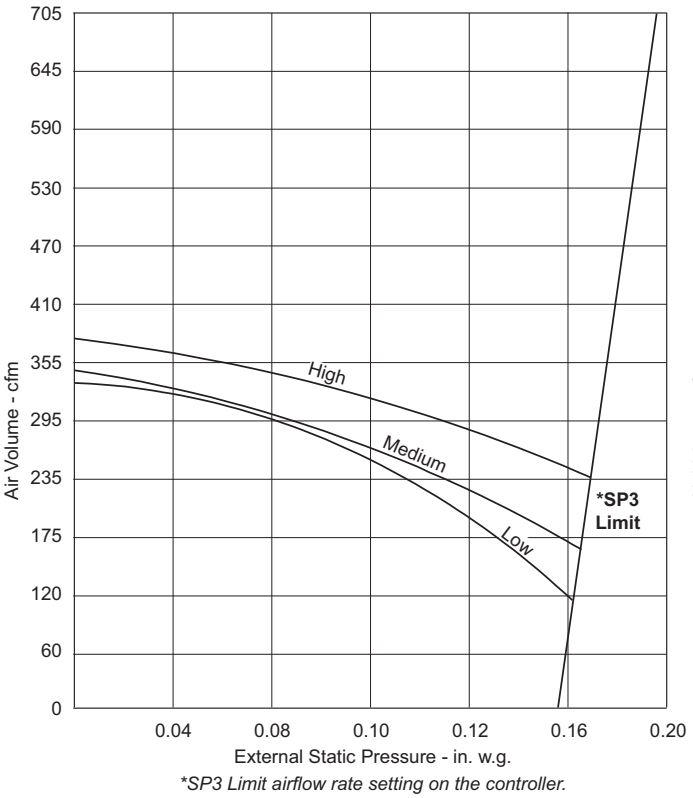
2.3.1. MMDB009S4



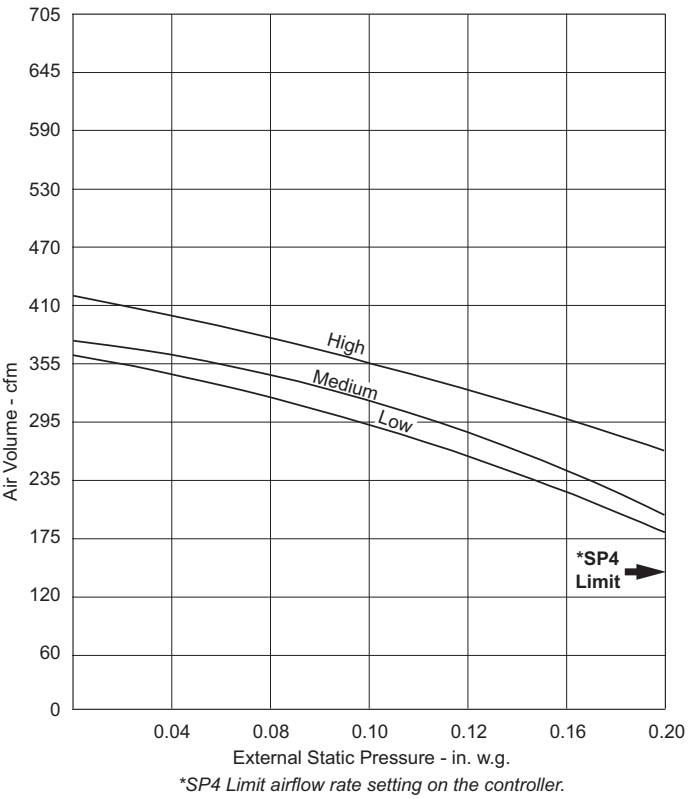
**SP1 Limit airflow rate setting on the controller.*



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

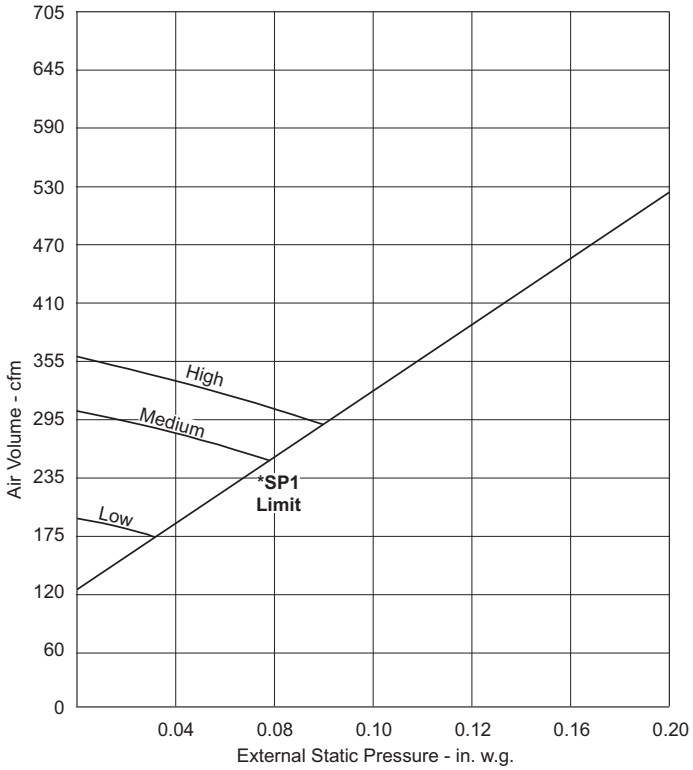


**SP3 Limit airflow rate setting on the controller.*

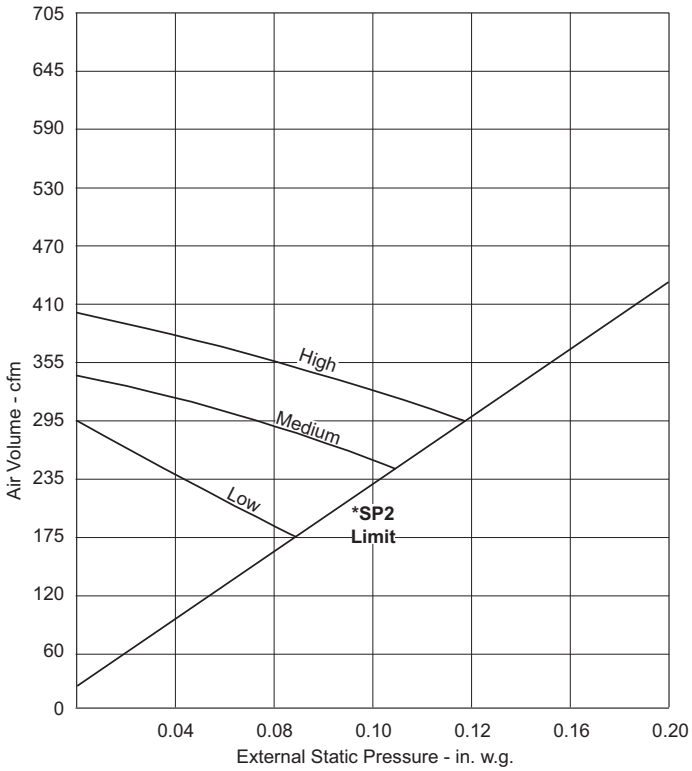


**SP4 Limit airflow rate setting on the controller.*

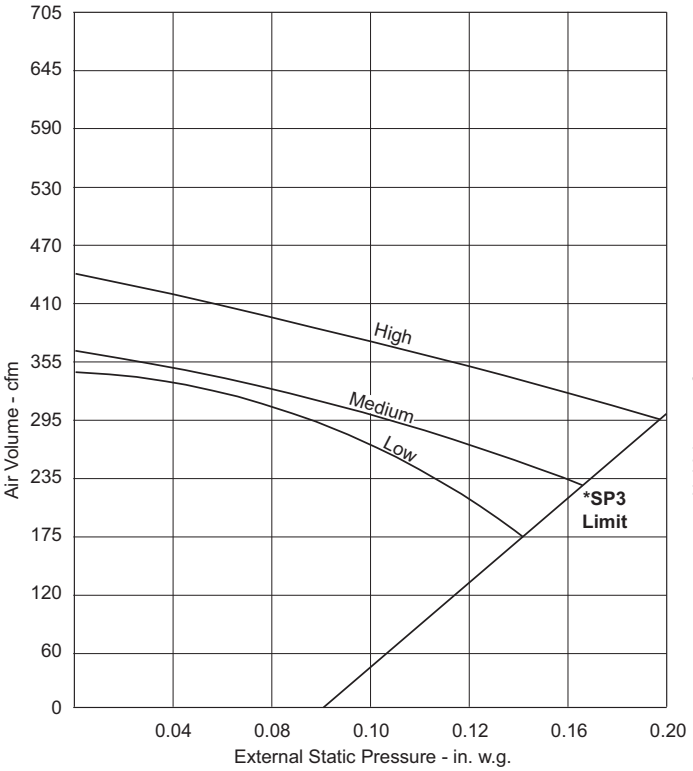
2.3.2. MMDB012S4



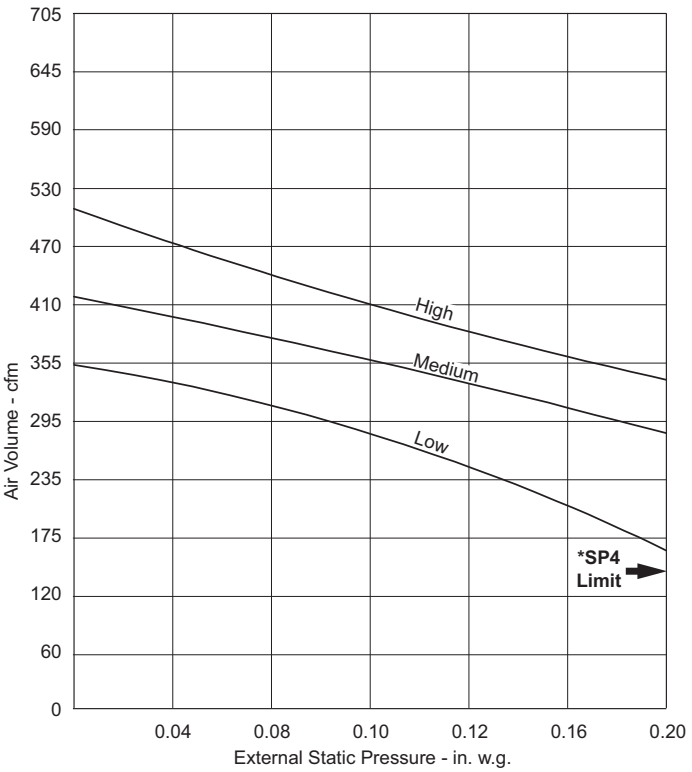
**SP1 Limit airflow rate setting on the controller.*



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

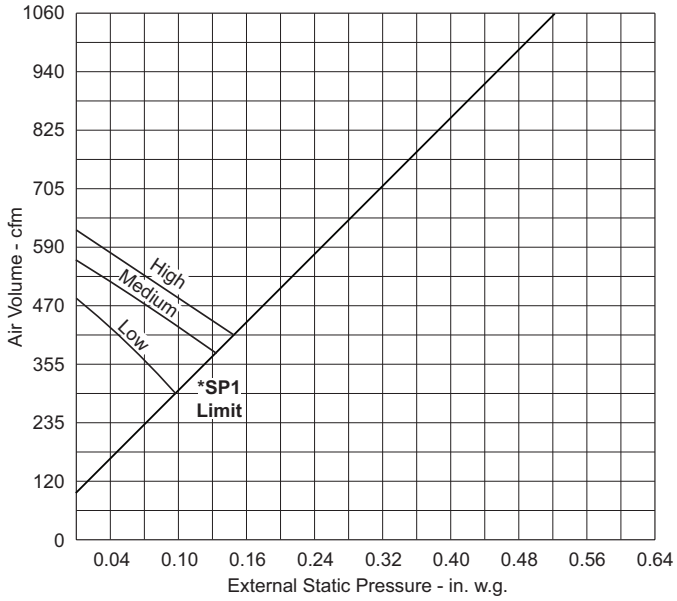


**SP3 Limit airflow rate setting on the controller.*

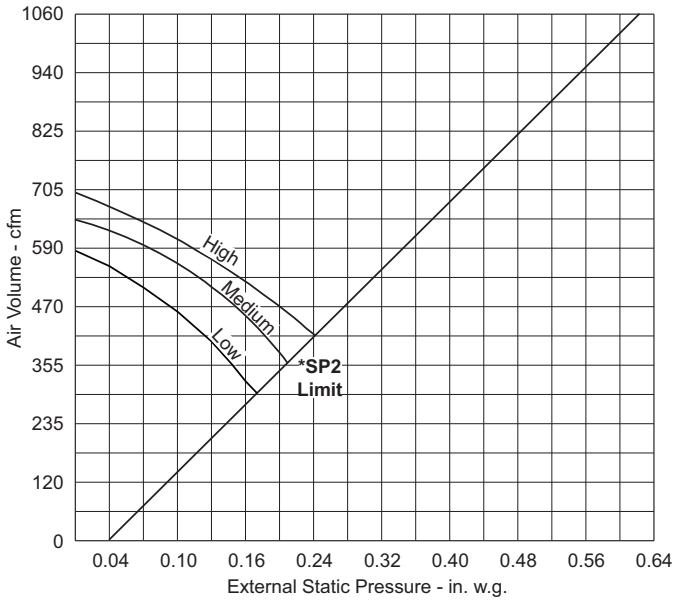


**SP4 Limit airflow rate setting on the controller.*

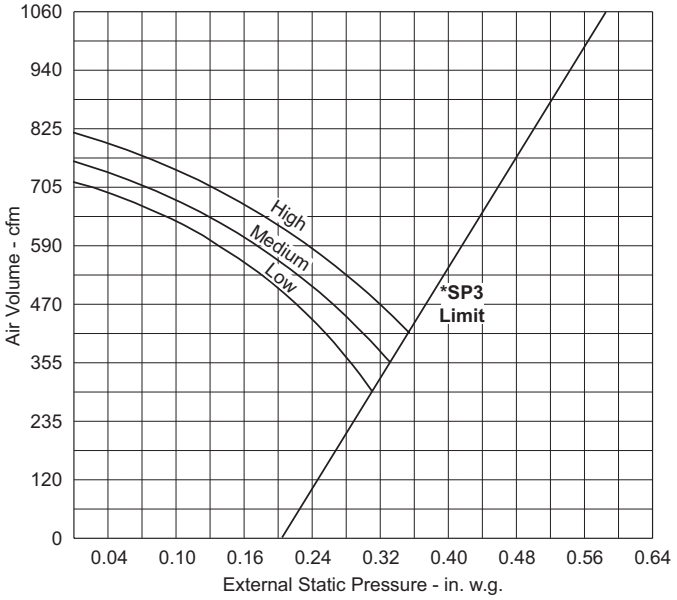
2.3.3. MMDB018S4



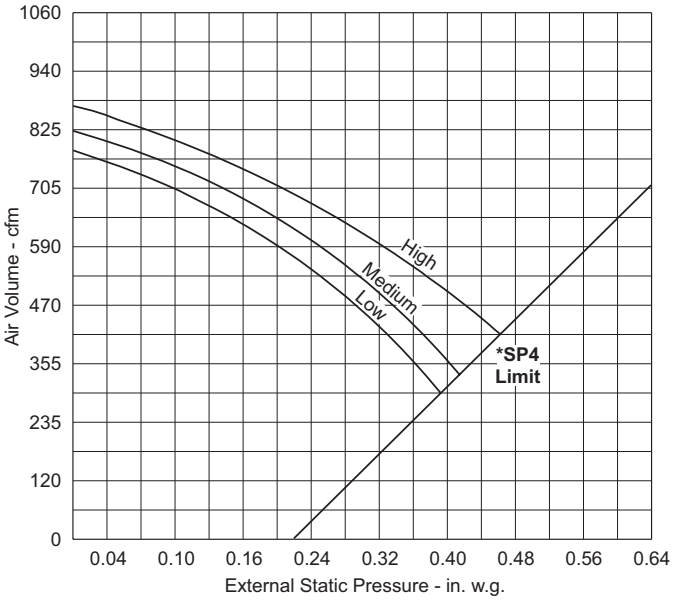
**SP1 Limit airflow rate setting on the controller.*



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

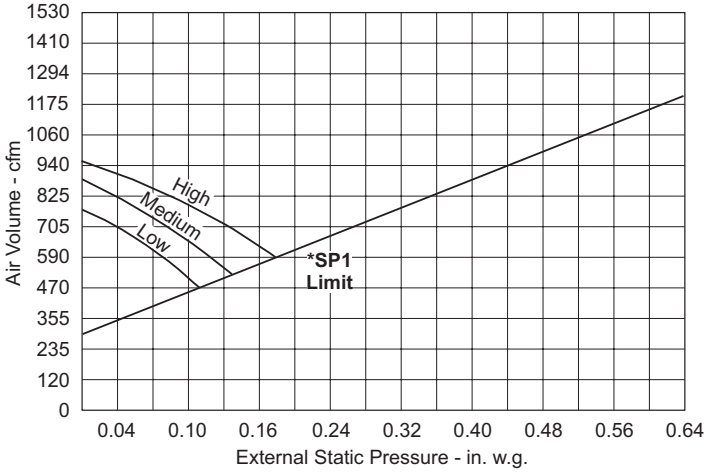


**SP3 Limit airflow rate setting on the controller.*

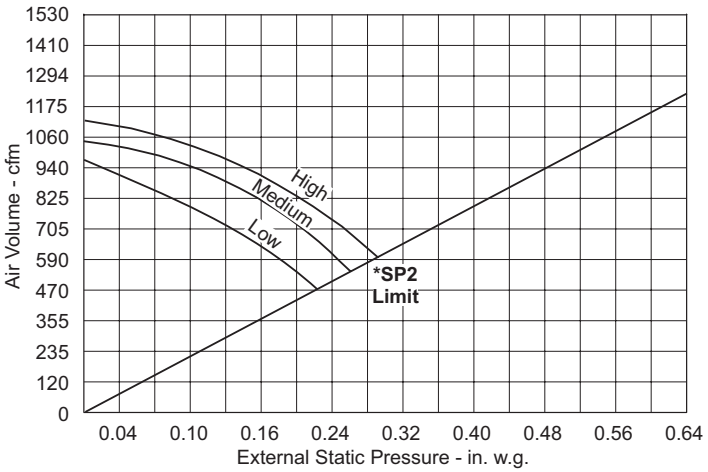


**SP4 Limit airflow rate setting on the controller.*

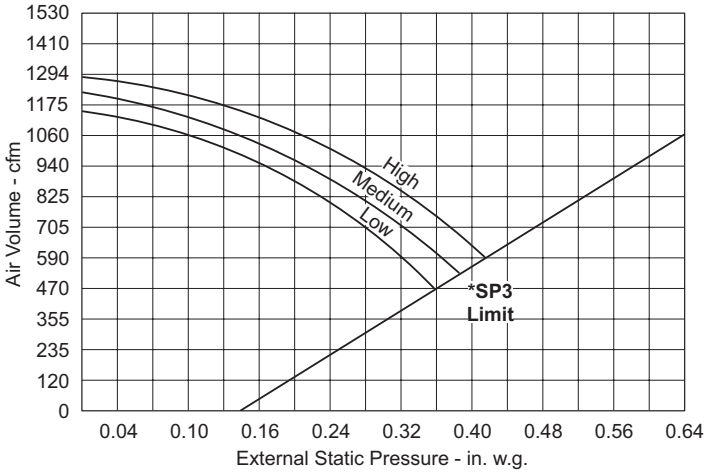
2.3.4. MMDB024S4



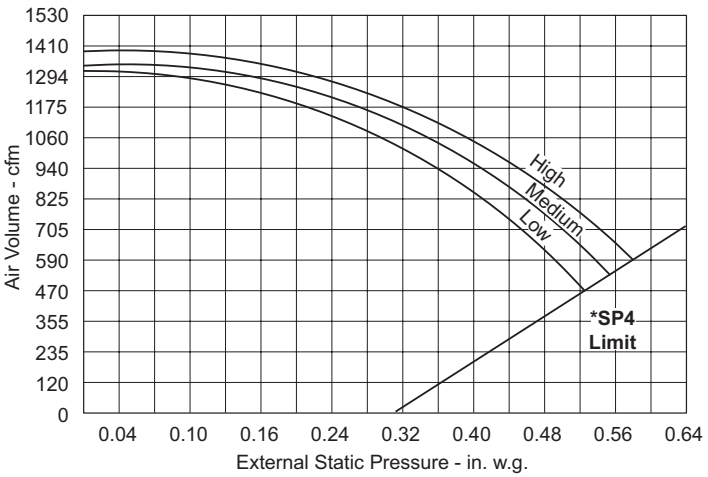
**SP1 Limit airflow rate setting on the controller.*



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

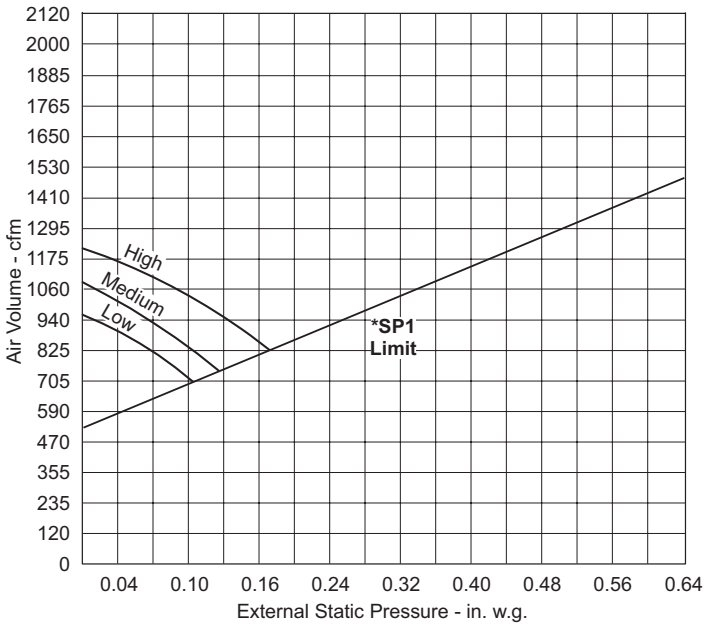


**SP3 Limit airflow rate setting on the controller.*

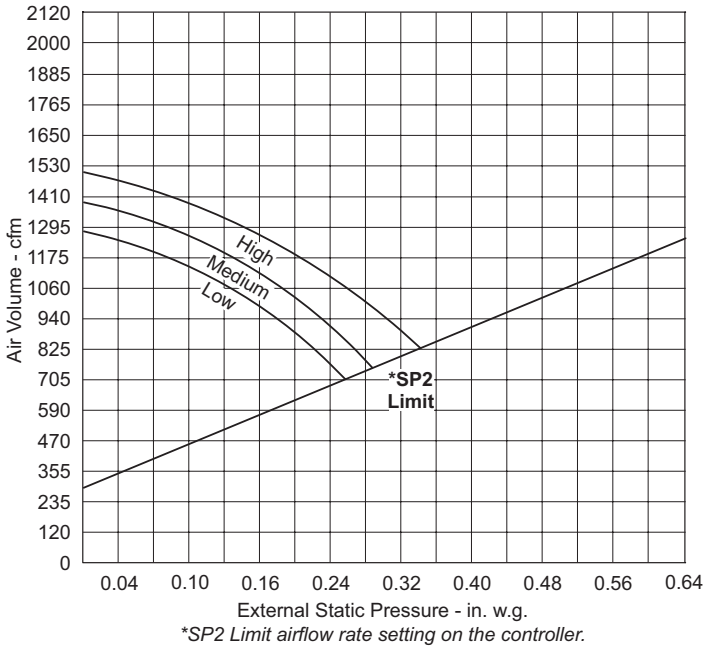


**SP4 Limit airflow rate setting on the controller.*

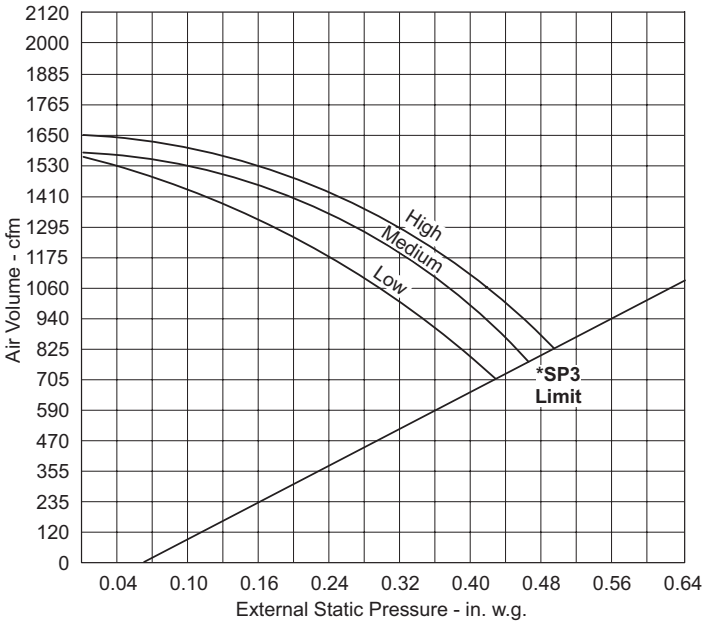
2.3.5. MMDB036S4



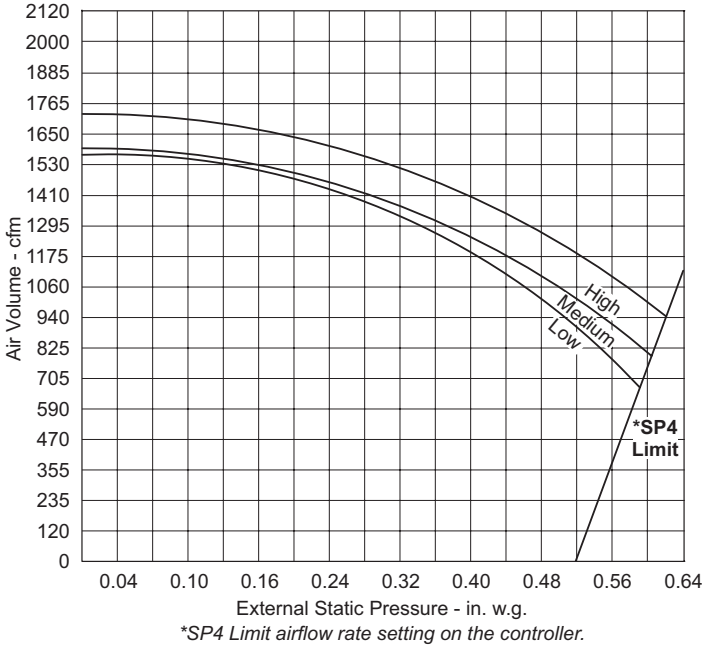
**SP1 Limit airflow rate setting on the controller.*



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

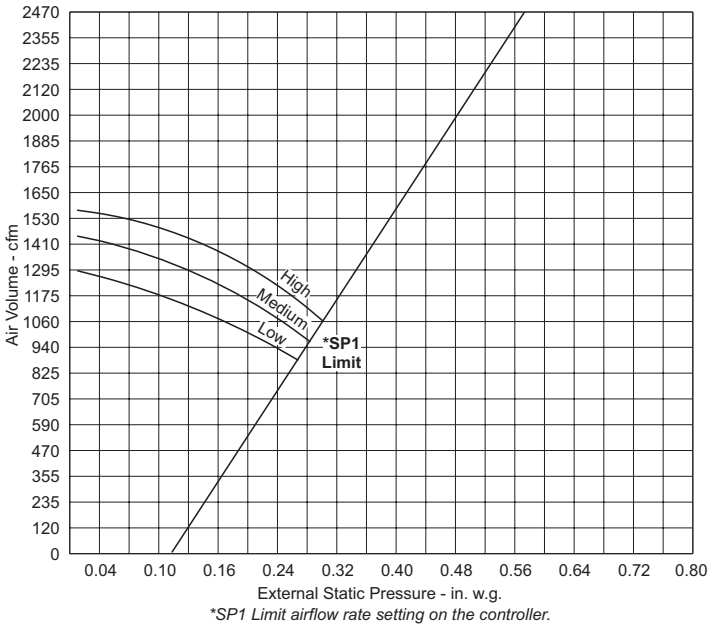


**SP3 Limit airflow rate setting on the controller.*

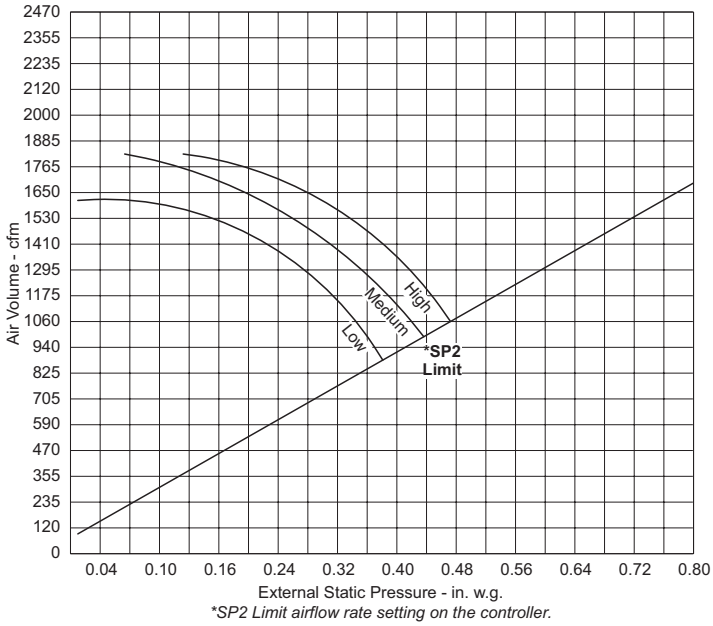


**SP4 Limit airflow rate setting on the controller.*

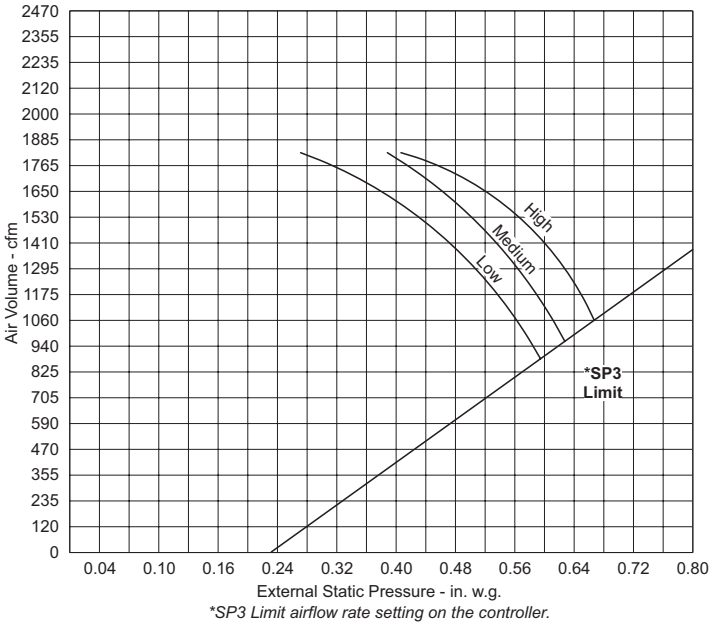
2.3.6. MMDB048S4



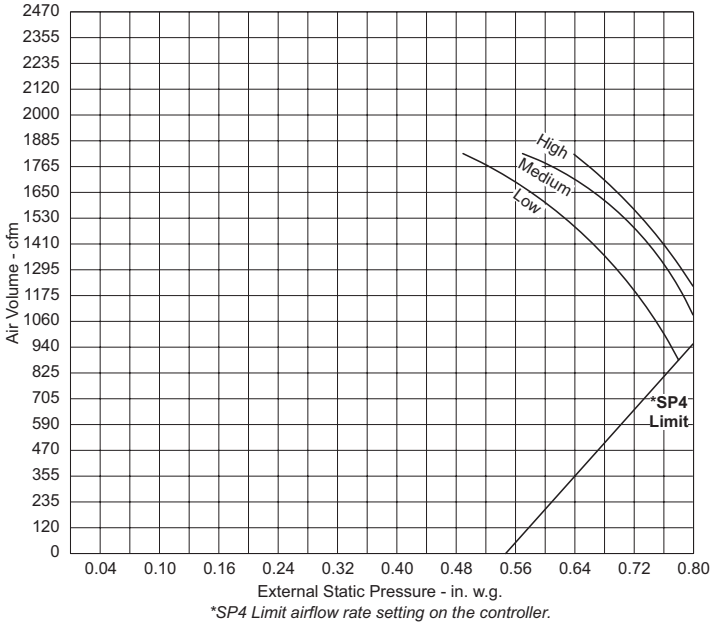
*SP1 Limit airflow rate setting on the controller.



*SP2 Limit airflow rate setting on the controller.

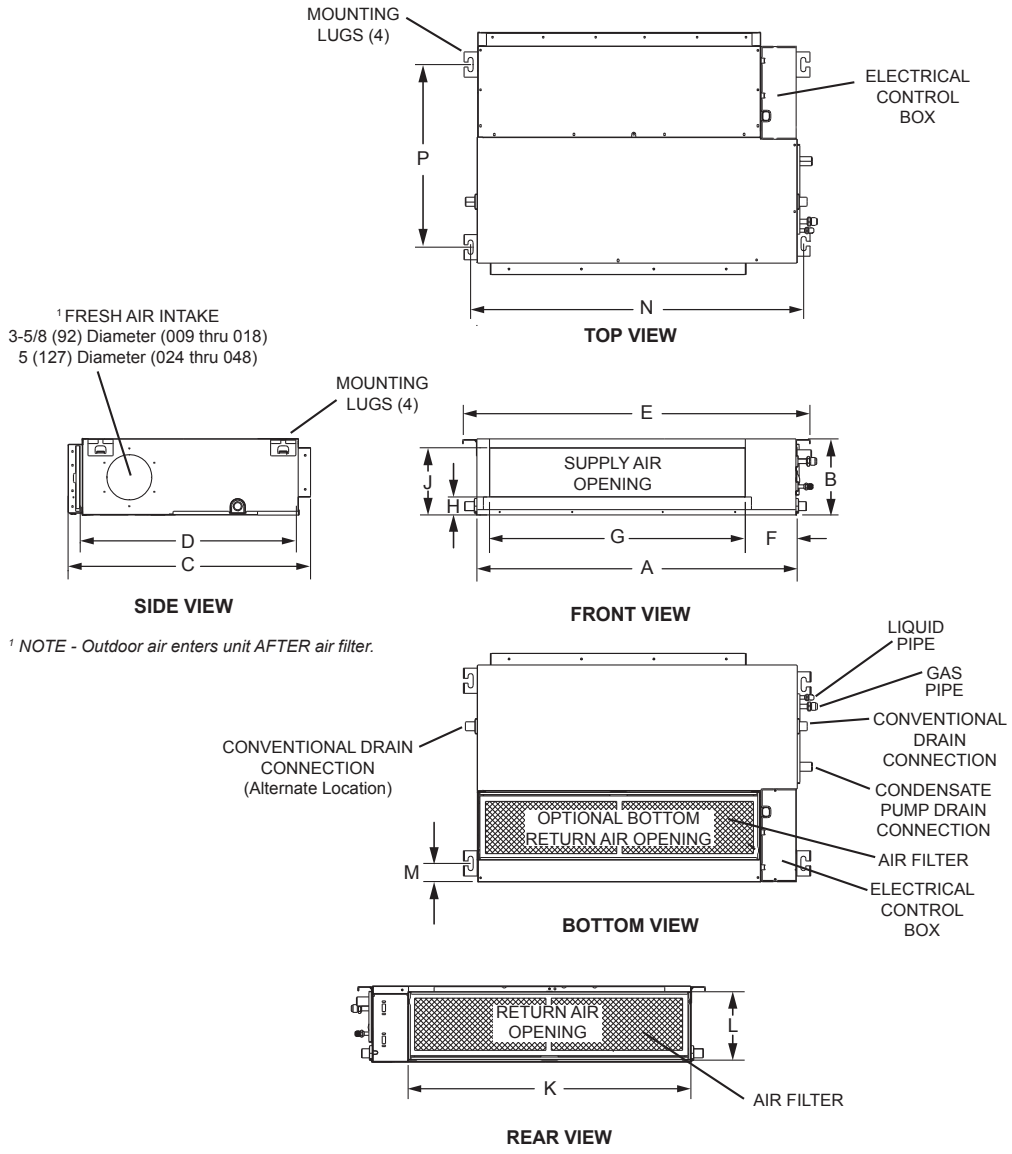


*SP3 Limit airflow rate setting on the controller.



*SP4 Limit airflow rate setting on the controller.

2.4. MMDB Indoor Unit Dimensions

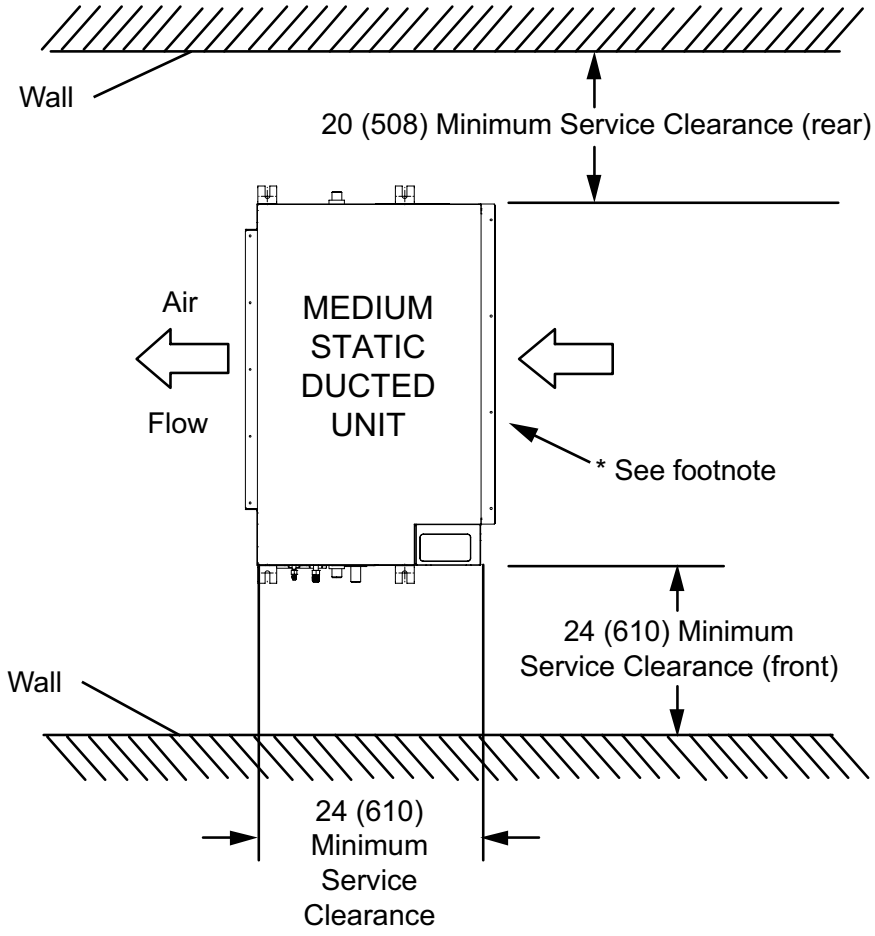


Size	A		B		C		D		E		F		G		H	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
009 thru 012	27-5/8	702	7-7/8	200	19-7/8	505	17-3/4	451	30-3/4	781	5-3/8	137	21-1/8	537	1-1/8	29
018	34-5/8	879	8-1/4	210	26-1/2	673	23-5/8	600	37-7/8	962	5-1/2	140	27-3/4	705	2	51
024	43-1/4	1099	9-3/4	248	30-1/2	775	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

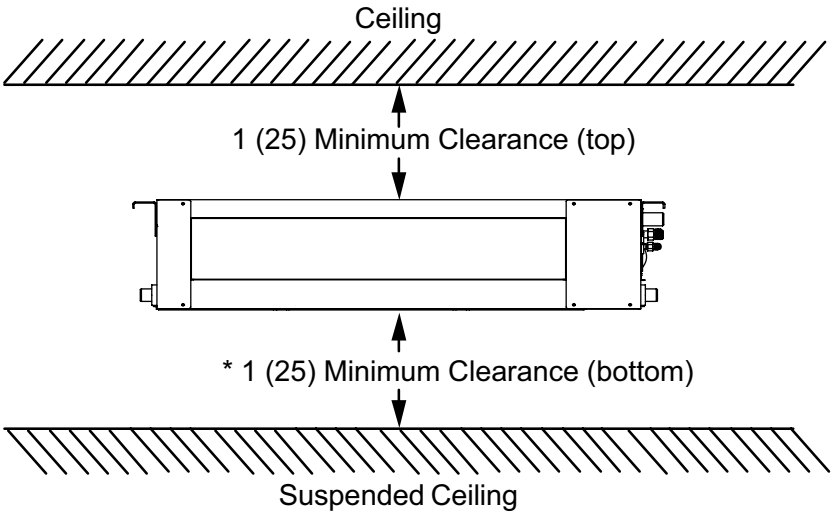
Size	J		K		L		M		N		P	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
009 thru 012	6	152	23-5/8	600	7-3/8	187	2	51	29-1/8	740	14-1/8	359
018	5-3/8	137	30-3/4	781	7-1/2	191	1-5/8	41	36-1/4	921	20	508
024	6-7/8	175	39-3/8	1000	9	229	1/4	6	44-7/8	1140	23-1/2	597
036	6-7/8	175	49-5/8	1260	9	229	1/4	6	55-1/8	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 5. MMDB Indoor Ducted Unit Dimensions - Inches (mm)

2.5. 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

2.6. Condensate Pump Lift - MMDB and M22A/M33C

MMDB, M22A and M33C factory pumps have a 27 inch condensate pump lift.

2.7. MMDB Condensate Drain Test Procedure

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.*

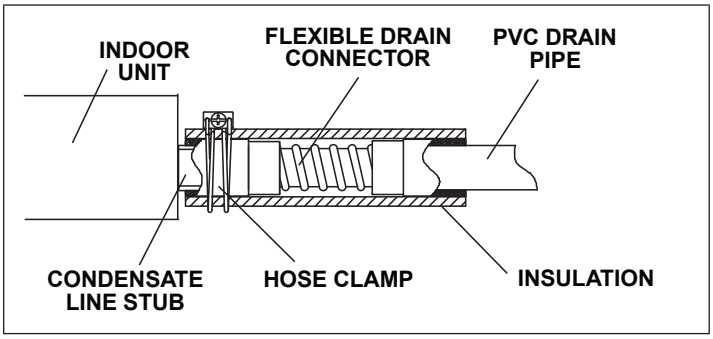


Figure 6. Condensate Piping Connection

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.

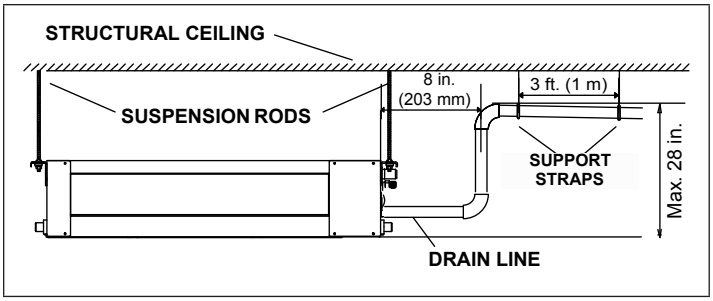


Figure 7. Condensate Drain with Pump

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.

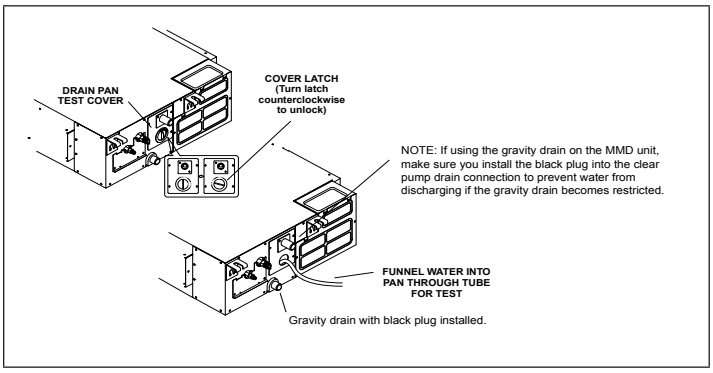


Figure 8. Condensate Drain Test

2.8. MMDB 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.

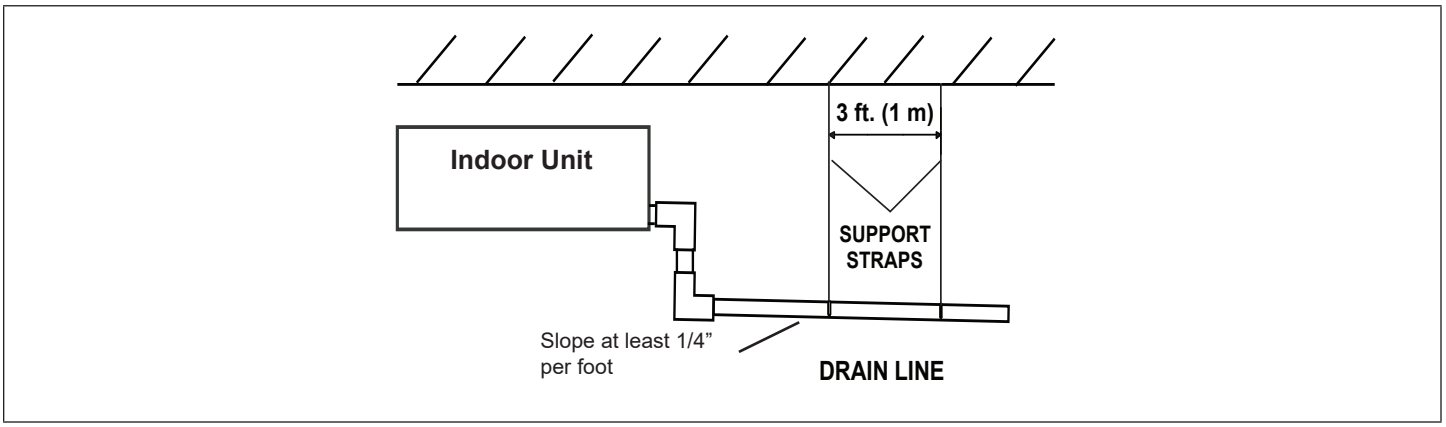


Figure 9. Single Indoor Unit Suspended from Ceiling using a Properly Sloped Gravity Drain

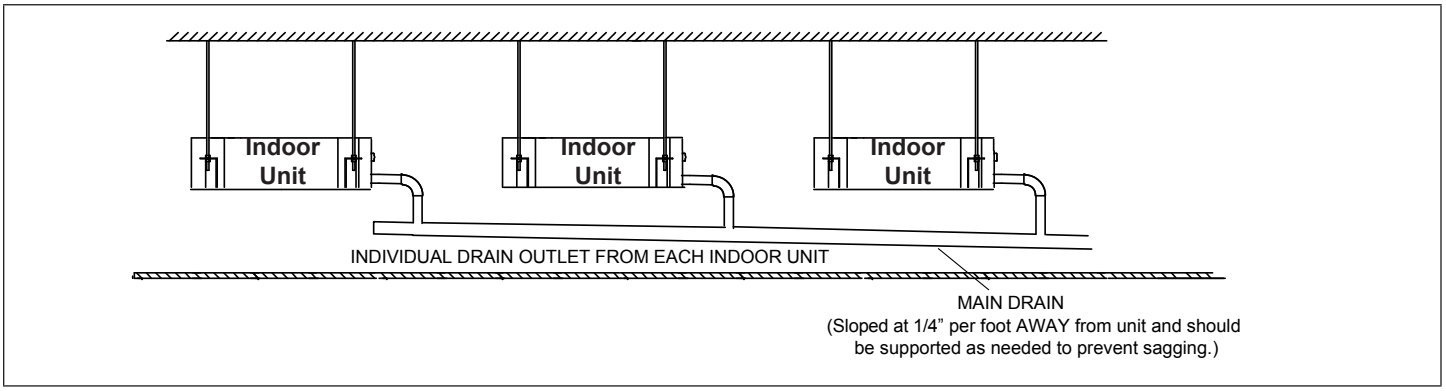
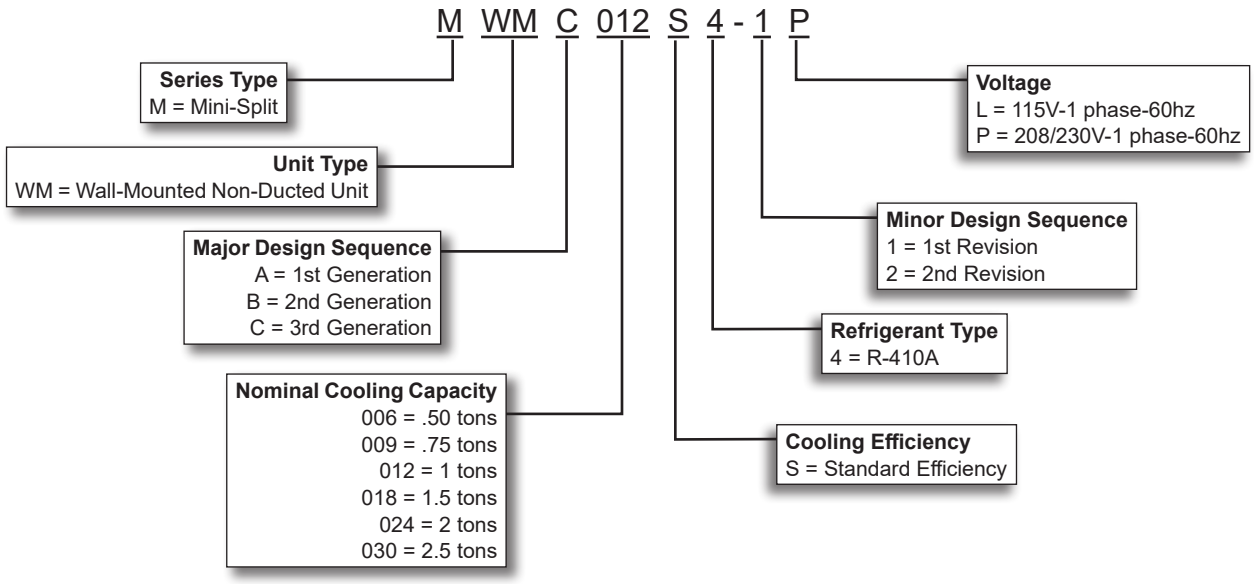
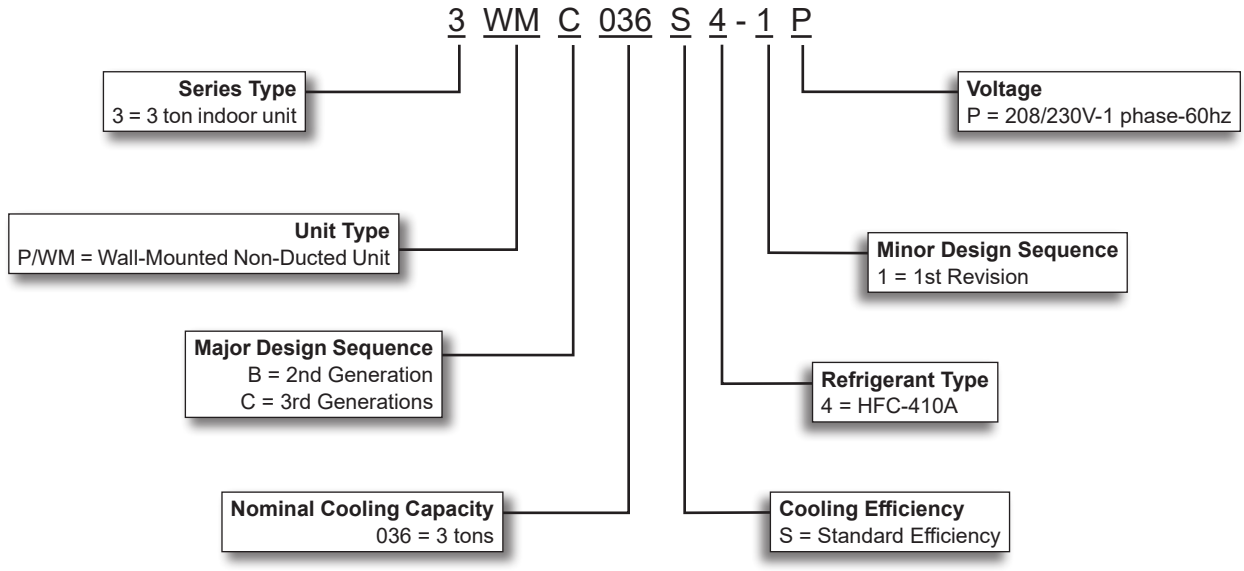


Figure 10. Condensate Drain Multiple Indoor Units Suspended from Ceiling Using a Single Properly Sloped Gravity Drain

3. MWMC and 3WMC-036 Wall Mounted Indoor Units

3.1. Model Number Identification





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

* Indicates could be minor revision 1 or 2.	Model No.	MWMC006S4-*P	MWMC009S4-*P	MWMC012S4-*L	MWMC012S4-*P
	Nominal Tons	0.50	0.75	1	1
Power Supply - 60 hz - 1 phase		208/230V	115V	115V	208/230V
Rated load amps		0.25	0.2	0.2	0.25
Output (W)		20	20	20	20
Room Temperature Range (°F)	Cooling	60 - 90	60 - 90	60 - 90	60 - 90
	Heating	32 - 86	32 - 86	32 - 86	32 - 86
Air Volume - cfm (High/Medium/Low)		335/230/176	353/294/235	353/294/235	335/230/176
Sound Data (dBA) - Low/Medium/High		23/34/38	40.5/35/23.5	40.5/35/23.5	36/33.5/22.5
Piping Connections - Liquid/Gas - o.d. - flare - in.		1/4 / 3/8	1/4 / 1/2	1/4 / 1/2	1/4 / 1/2
Drain connection o.d. - in.		1	1	1	1
Net/Shipping weights - lbs.		23 / 29	23 / 29	23 / 29	23 / 29

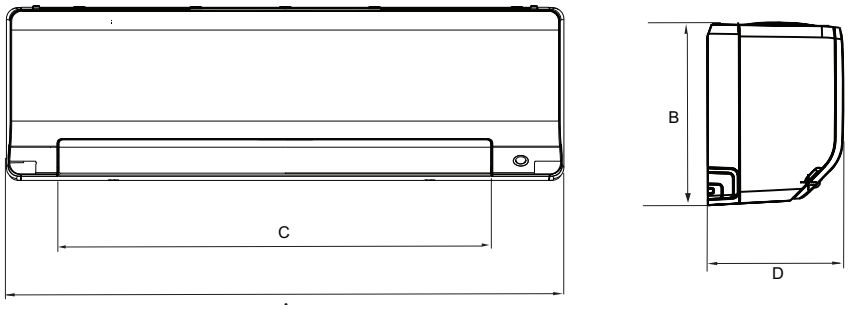
3.3. Indoor Unit Specifications (018 - 030 Ton) Units

* Indicates could be minor revision 1 or 2.	Model No.	MWMC018S4-*P	MWMC024S4-*P	MWMC030S4-*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	0.5	0.5
Output (W)		30	58	58
Room Temperature Range (°F)	Cooling	60 - 90	60 - 90	60 - 90
	Heating	32 - 86	32 - 86	32 - 86
Air Volume - cfm (High/Medium/Low)		524/76/306	611/414/319	646/505/382
Sound Data (dBA) - Low/Medium/High		46.5/43/32.5	44/39.5/34	46/40.5/33
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 / 36	44 / 55	44 / 55

3.4. Indoor Unit Specifications (3WMC)

	Indoor Unit Model No.	3WMC036S4
	Nominal Tons	3
	Power Supply - 60 hz - 1 phase	208/230V
	Rated load amps	0.55
Output (W)		58
Room Temperature Range (°F)	Cooling	60 - 90
	Heating	32 - 86
Air Volume - cfm (High/Medium/Low)		639 / 506 / 382
Sound Data (dBA) - Low/Medium/High		47.5 / 42 / 35.5
Piping Connections - Liquid/Gas - o.d. - flare - in.		3/8 / 5/8
Drain connection o.d. - in.		1
Shipping Data	Net/Shipping weights - lbs.	44 / 55

3.5. Indoor Unit Dimensions (MWMC and 3WMC)



Size	A		B		C		D	
	in.	mm	in.	mm	in.	mm	in.	mm
MWMC012S4S-*L MWMC006S4S-*P MWMC009S4S-*P MWMC012S4S-*P	32-7/8	835	11	279	29-1/4	743	7-7/8	200
MWMC018S4S-*P	39	991	12-3/8	314	34-3/4	883	8-5/8	210
MWMC024S4S-*P MWMC030S4S-*P	46-3/4	1187	13-1/2	343	42-1/2	1080	10-1/4	260

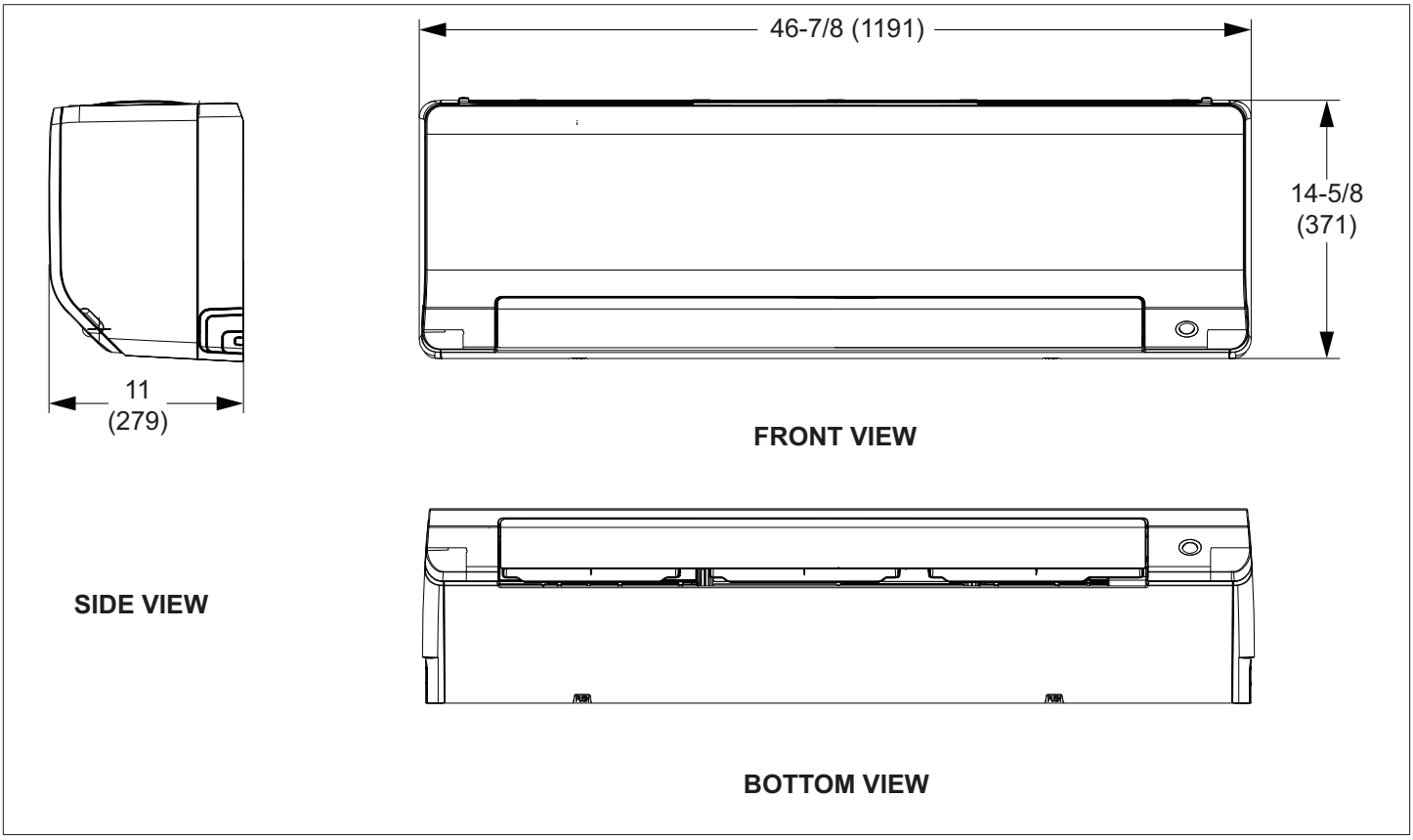
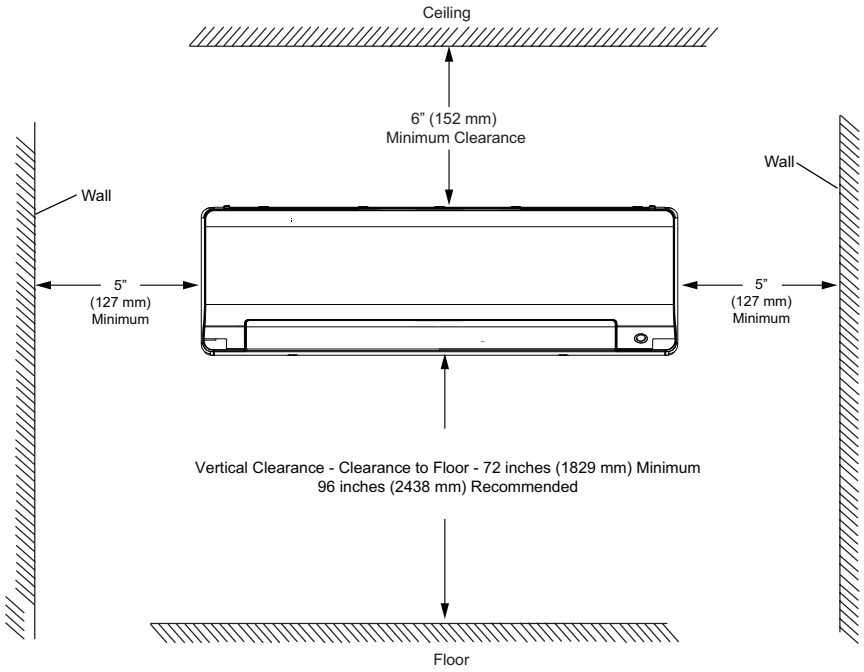


Figure 11. 3WMC036S4 Indoor Unit Dimensions - Inches (mm)

3.6. Indoor Unit Clearances (All Models and Sizes)



FRONT VIEW

3.7. MWMC and 3WMC036S4 Unit Control Board Switches Location

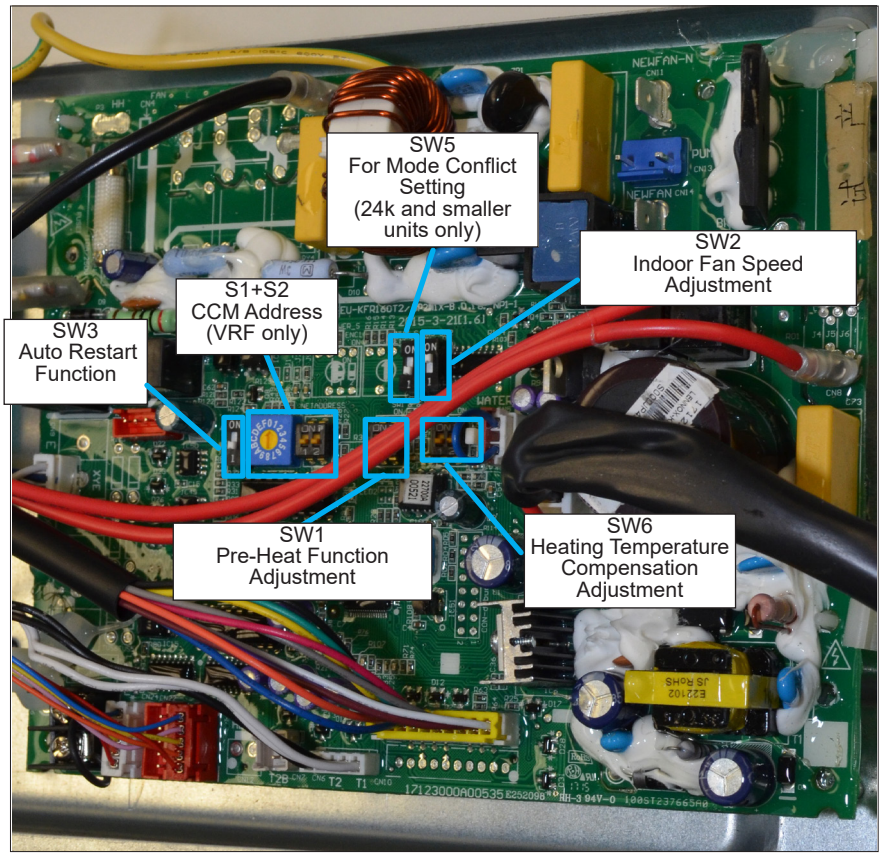


Figure 12. MWMC and 3WMC Main Control Switches

3.8. Dry Mode Operation - MWMC and 3WMC

3.8.1. 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 recommended as a main source for dehumidification.*

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

3.8.2. 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.*

3.9. Test Run - MWMC and 3WMC

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.

3.9.1. 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 checklist:

3.9.2. Before Test Run

Table 1. 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		

3.10. 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.

3.11. 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.

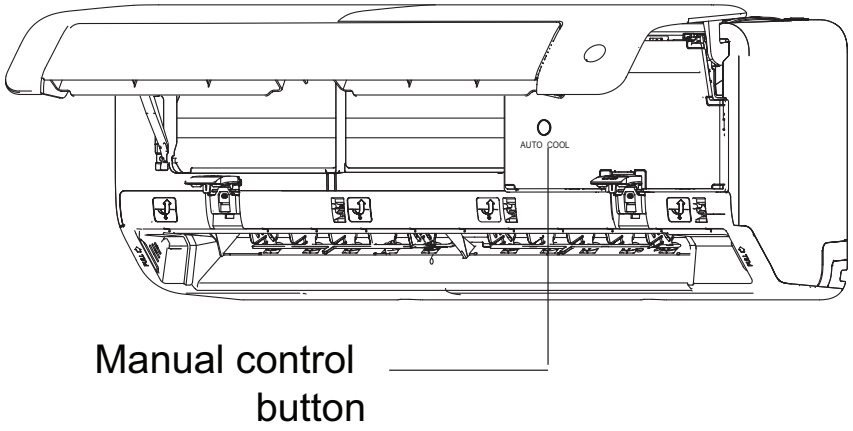
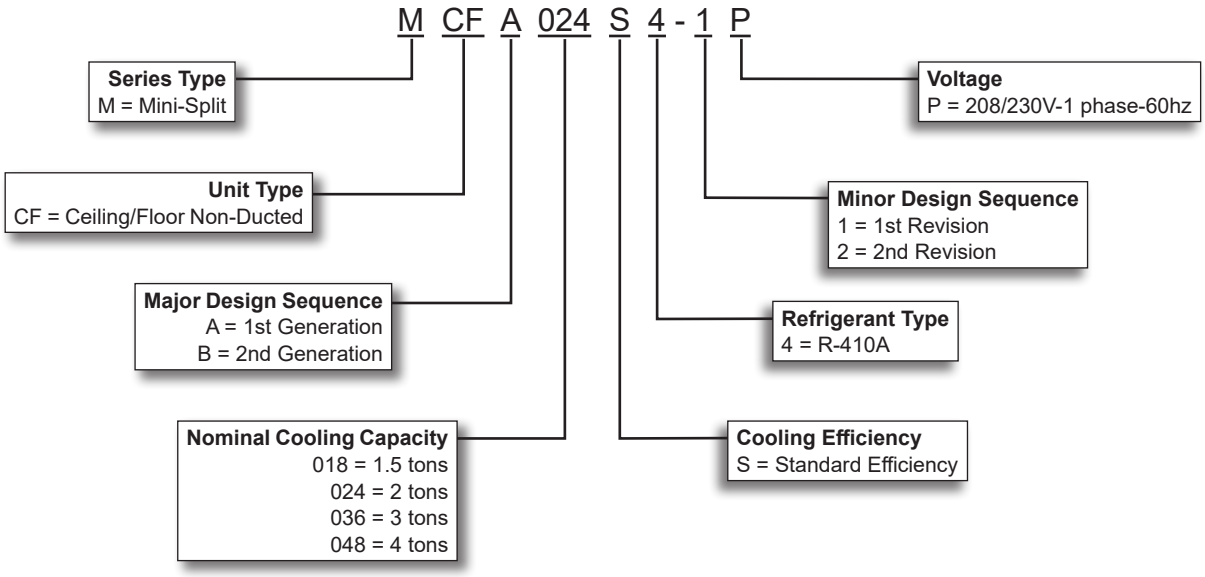


Figure 13. Manual Control Button Location

- 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..

4. MCFA and MCFB Ceiling / Floor Indoor Units

4.1. Model Number Identification

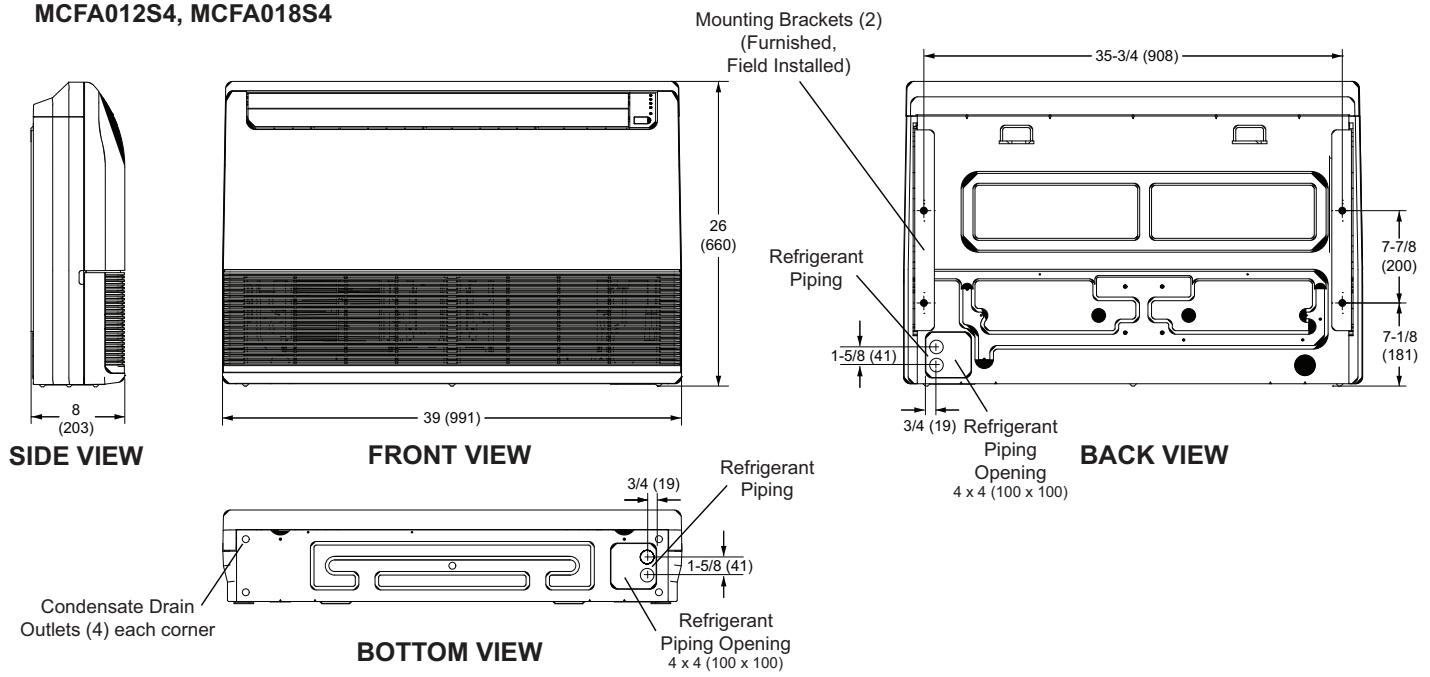


4.2. Indoor Unit Specifications (018 - 048 Ton) Units

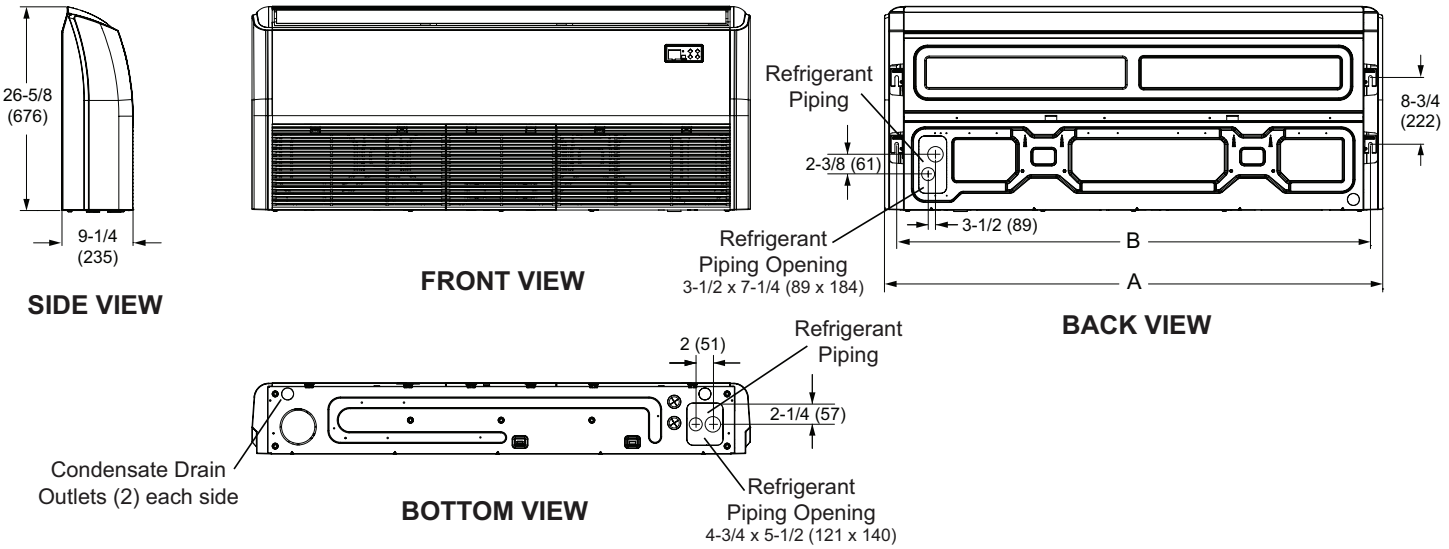
	Model No.	MCFB018S4-*P	MCFA024S4-*P	MCFA036S4-*P	MCFA048S4-*P
	Nominal Tons	1.5	2	3	4
Power Supply - 60 hz - 1 phase		208/230V	208/230V	208/230V	208/230V
Rated load amps		1.5	2	1.5	1.8
Output (W)		55	55	115	(2) 90
Room Temperature Range (°F)	Cooling	62 - 90	62 - 90	62 - 90	62 - 90
	Heating	32 - 86	32 - 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



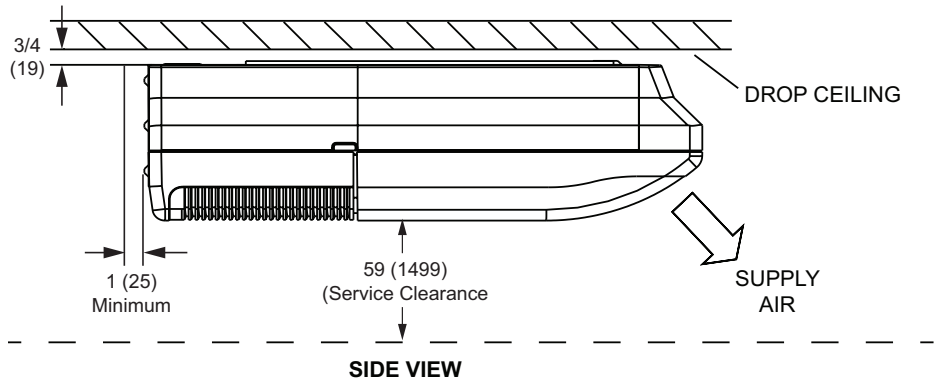
MCFB018S4, MCFA024S4, MCFA036S4, MCFA048S4



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

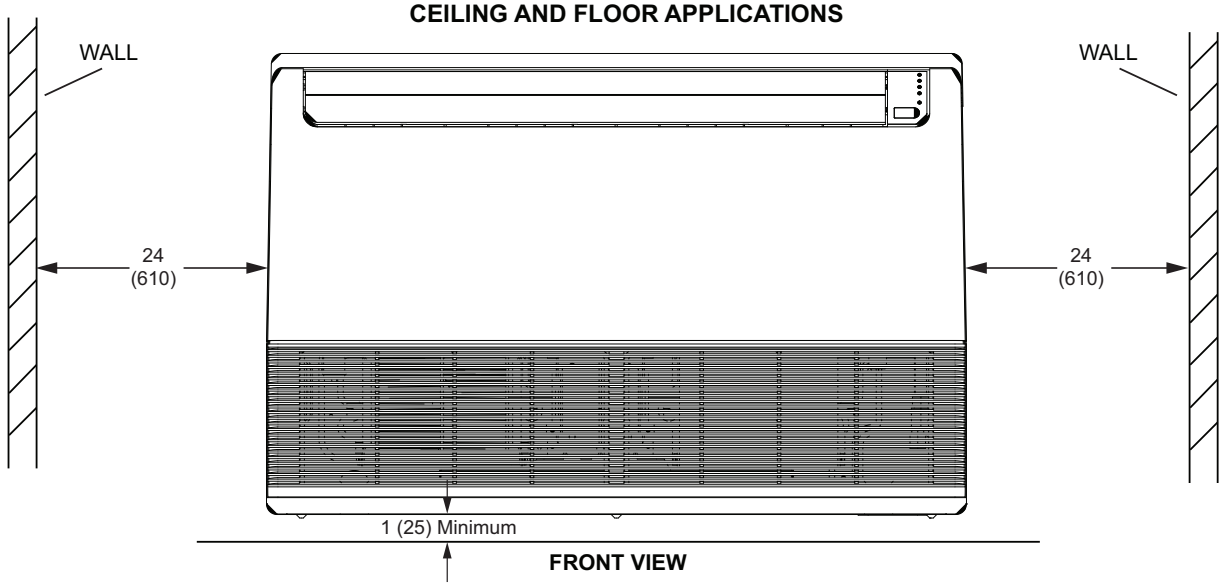
4.4. Indoor Unit Clearances

CEILING APPLICATIONS



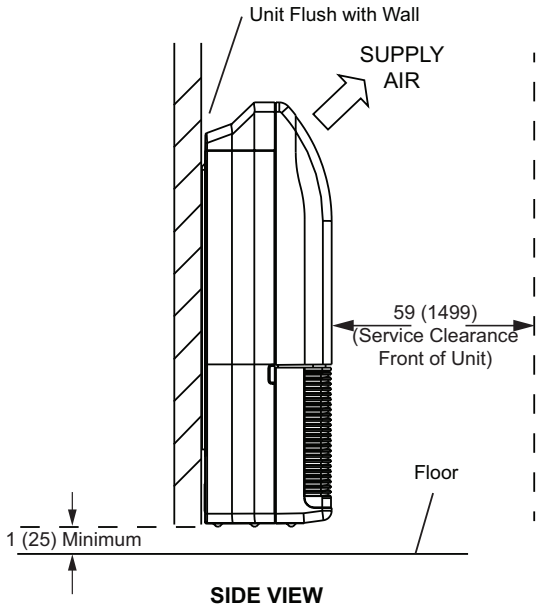
SIDE VIEW

CEILING AND FLOOR APPLICATIONS



FRONT VIEW

FLOOR APPLICATIONS



SIDE VIEW

4.5. MCFA and MCFB Indoor Unit Control Board Switches Location

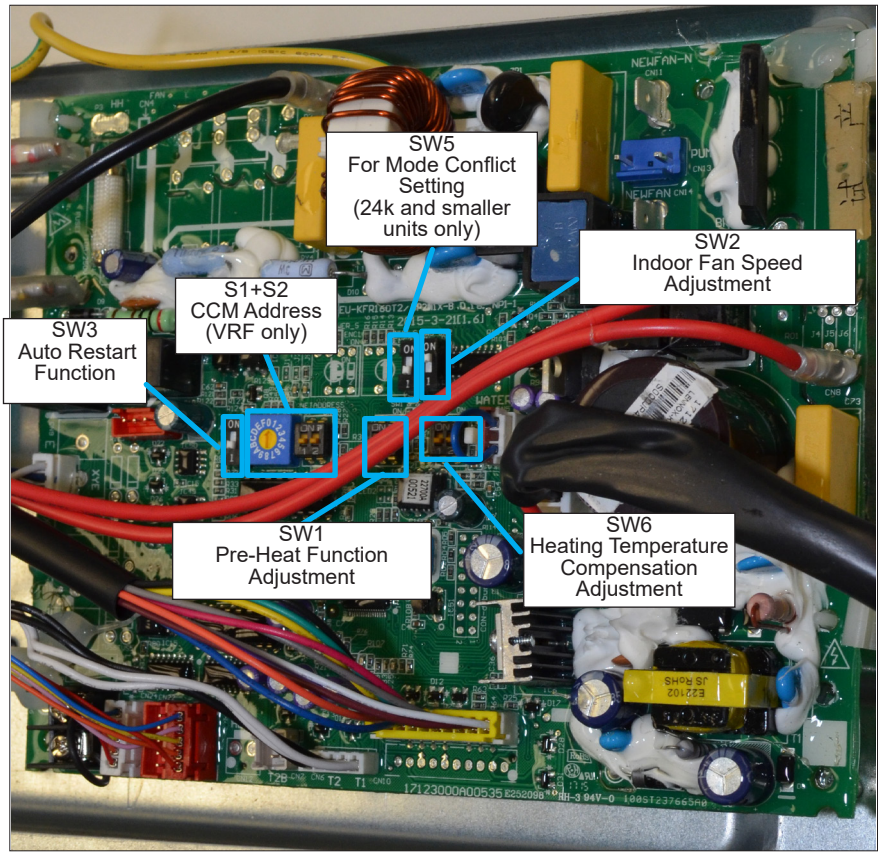
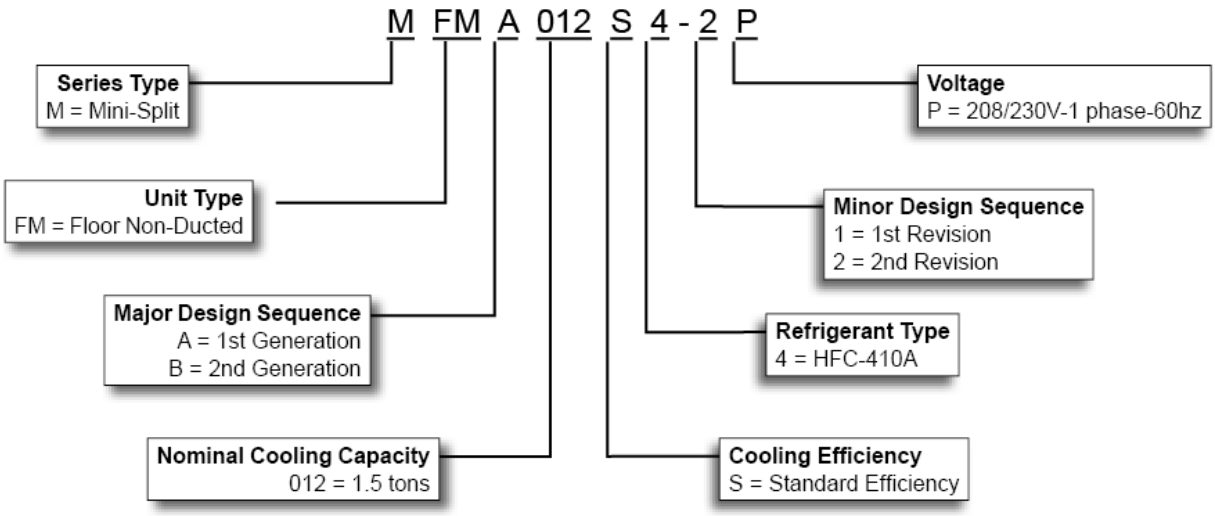


Figure 14. MCFA and MCFB Main Control Switches

5. MFMA Floor Indoor Unit

5.1. Model Number Identification

CEILING/FLOOR NON-DUCTED INDOOR UNITS



5.2. Indoor Unit Specifications (012 Ton) Unit

	Model No.	MFMA012S4
	Nominal Tons	1
Power Supply - 60 hz - 1 phase		208/230V
	Rated load amps	1
	Output (W)	20
Room Temperature Range (°F)	Cooling	62 - 90
	Heating	32 - 86
Air Volume - cfm (High/Medium/Low)		365/318/248
Sound Data (dBA) - Low/Medium/High		35/40/45
Piping Connections - Liquid/Gas - o.d. - flare - in.		1/4 / 1/2
Drain connection o.d. - in.		5/8
Net/Shipping weights - lbs.		33 / 43

5.3. Indoor Unit Dimensions

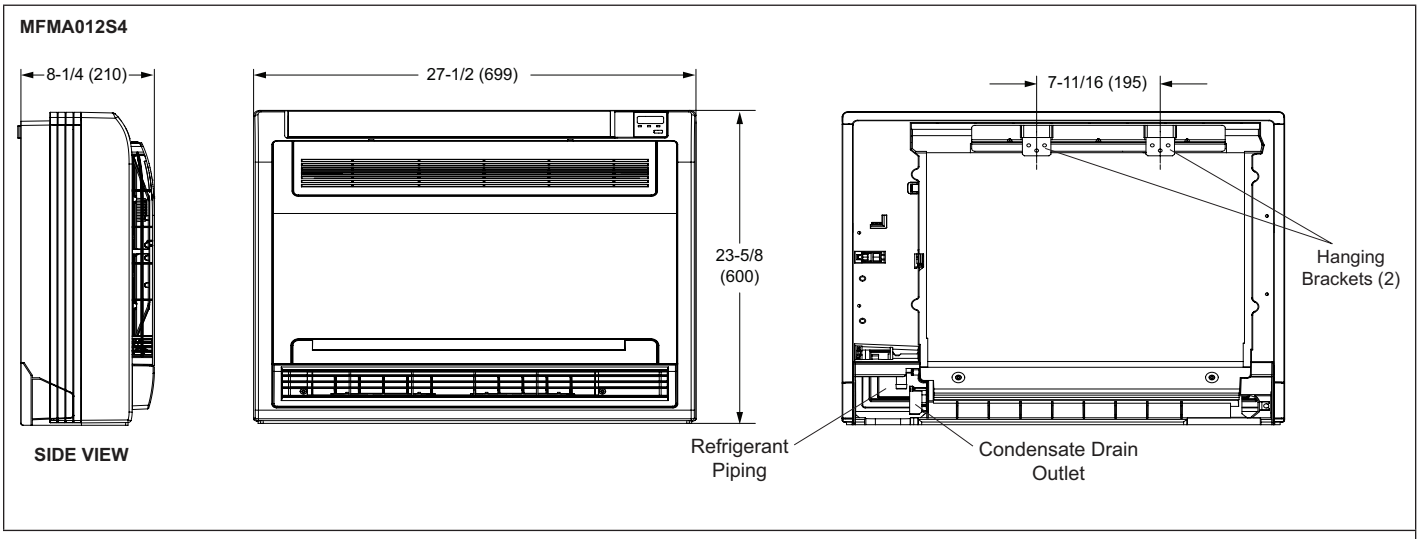


Figure 15. MFMA Indoor Unit Dimensions - Inches (mm)

5.4. Indoor Unit Clearances

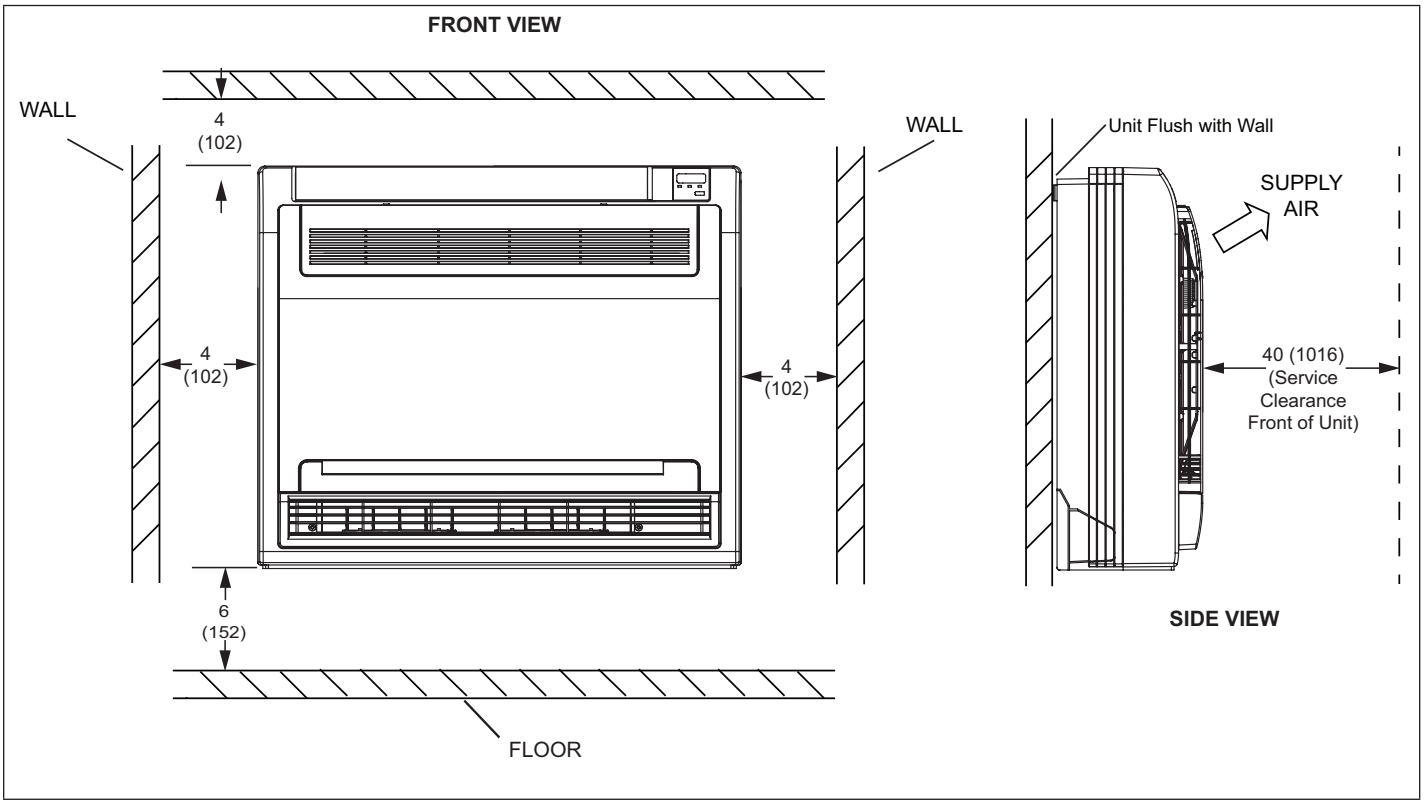


Figure 16. Indoor Unit Clearances - Inches (mm)

6. Indoor and Outdoor Power and Communication Wiring Requirements

⚠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).

6.1. 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 2. Single Zone Mini-Split Wiring Guide” on page 35 and “Table 3. Multi-Zone Installation Wiring Requirements” on page 36 for wiring requirements.

6.2. Wiring Guide

Table 2. Single Zone Mini-Split Wiring Guide

Systems	System Capacity	System Voltage	Number of Conductors	Wire Type	Wire Gauge / MOCP MCA / Max Fuse
Indoor to Outdoor Wiring (Communication/Power) 1, 2, 3 and GND	09K and 12K	115VAC	4	Stranded	14AWG
Outdoor to Main Power L, N and GND	09K and 12K	115VAC	3	Stranded	MOCP: 25A*
	12K				MCA: 19*; Max Fuse: 25*
Indoor to Outdoor Wiring (Communication/Power) 1, 2, 3 and GND	09K and 12K	208/230 VAC	4	Stranded	14AWG Stranded, unshielded
Outdoor to Main Power L1, L2 and GND	09K and 12K	208/230 VAC	3	Stranded	MOCP:15A*/15A**
	9K				MCA: 13*; Max Fuse: 15* MCA: 15**; Max Fuse: 15**
	12K				MCA: 13*; Max Fuse: 15* MCA: 15**; Max Fuse: 15**
Indoor to Outdoor Wiring (Communication/Power) 1, 2, 3 and GND	18K	208/230 VAC	4	Stranded	14AWG Stranded, unshielded
Outdoor to Main Power L1, L2 and GND	18K	208/230 VAC	3	Stranded	MOCP: 30A*/25A**
					MCA: 19*; Max Fuse: 30* MCA: 20**; Max Fuse: 25**
Indoor to Outdoor Wiring (Communication/Power) 1, 2, 3 and GND	24K	208/230 VAC	4	Stranded	14AWG Stranded, unshielded
Outdoor to Main Power L1, L2 and GND	24K	208/230 VAC	3	Stranded	MOCP: 30A*/35A**
					MCA: 23*; Max Fuse: 30* MCA: 25**; Max Fuse: 35**
Indoor to Outdoor Wiring (Communication/Power) 1, 2, 3 and GND	30K	208/230 VAC	4	Stranded	14AWG*4 Stranded, unshielded
Outdoor to Main Power L1, L2 and GND	30K	208/230 VAC	3	Stranded	MOCP: 30A*
					MCA: 23*; Max Fuse: 30*
Indoor to Outdoor Wiring (Power only) L1, L2 and GND	36K	208/230 VAC	3	Stranded	14AWG*3 Stranded, unshielded
Indoor to Outdoor Wiring (Communication only) (S1, S2)	36K	208/230 VAC	2	Stranded (shielded)	18AWG*2
Outdoor to Main Power L1, L2 and GND	36K	208/230 VAC	3	Stranded	MOCP: 45A*/50A**
					MCA: 30*; Max Fuse: 45* MCA: 41**; Max Fuse: 50**
Indoor to Outdoor Wiring (Power only) L1, L2 and GND	48K	208/230 VAC	3	Stranded	16AWG*3 Stranded, unshielded

MOCP = Maximum Over Current Protection
* MPC; **MLB

Table 2. Single Zone Mini-Split Wiring Guide

Systems	System Capacity	System Voltage	Number of Conductors	Wire Type	Wire Gauge / MOCP MCA / Max Fuse
Indoor to Outdoor Wiring (Communication only) (S1, S2)	48K	208/230 VAC	2	Stranded (shielded)	18AWG*2
Outdoor to Main Power L1, L2 and GND	48K	208/230 VAC	3	Stranded	MOCP: 50A*/50A** MCA:37* ; Max Fuse: 50* MCA:42** ; Max Fuse: 50**
Indoor to Outdoor Wiring (Power only) L1, L2 and GND	60K	208/230 VAC	3	Stranded	16AWG*3 Stranded, unshielded
Indoor to Outdoor Wiring (Communication only) (S1, S2)	60K	208/230 VAC	2	Stranded (shielded)	18AWG*2
Outdoor to Main Power L1, L2 and GND	60K	208/230 VAC	3	Stranded	MOCP: 50A MCA: 39; Max Fuse: 50
MOCP = Maximum Over Current Protection * MPC; **MLB					

Table 3. Multi-Zone Installation Wiring Requirements

System and Terminal Designations	System Capacity	System Voltage	Number of Conductors	Wire Type	Wire Gauge / MOCP MCA / Max Fuse
Indoor to Outdoor Unit					
Indoor to Outdoor Wiring (Communication/Power) 1, 2, 3 and GND	06K	208/230VAC	4	Stranded and unshielded	14AWG / 15A
Indoor to Outdoor Wiring (Communication/Power) 1, 2, 3 and GND	09K and 12K	208/230VAC	4	Stranded and unshielded	14AWG / 15A
Indoor to Outdoor Wiring (Communication/Power) 1, 2, 3 and GND	18K	208/230VAC	4	Stranded and unshielded	14AWG / 15A
Indoor to Outdoor Wiring (Communication/Power) 1, 2, 3 and GND	24K	208/230VAC	4	Stranded and unshielded	14AWG /15A
Multi-Zone Outdoor Unit to Main Power					
Outdoor to Main Power L1, L2 and GND	18K	208/230VAC	3	Stranded and unshielded	25A MCA: 18*; Max Fuse: 25* MCA: 20**; Max Fuse: 25**
Outdoor to Main Power L1, L2 and GND	24K	208/230VAC	3	Stranded and unshielded	30A* MCA: 24.5*; Max Fuse: 30*
Outdoor to Main Power L1, L2 and GND	30K	208/230VAC	3	Stranded and unshielded	30A*/40A** MCA: 24.5*; Max Fuse: 30* MCA: 25**; Max Fuse: 40**

Table 3. Multi-Zone Installation Wiring Requirements

System and Terminal Designations	System Capacity	System Voltage	Number of Conductors	Wire Type	Wire Gauge / MOCP
					MCA / Max Fuse
Outdoor to Main Power L1, L2 and GND	36K	208/230VAC	3	Stranded and unshielded	40A*/60A**
					MCA: 25*; Max Fuse: 40* MCA: 40**; Max Fuse: 60**
Outdoor to Main Power L1, L2 and GND	48K	208/230VAC	3	Stranded and unshielded	60A*/50A**
					MCA: 40*; Max Fuse: 60* MCA: 42**; Max Fuse: 50**

MOCP = Maximum Over Current Protection
* MPC; **MLB

6.3. Terminal Connections

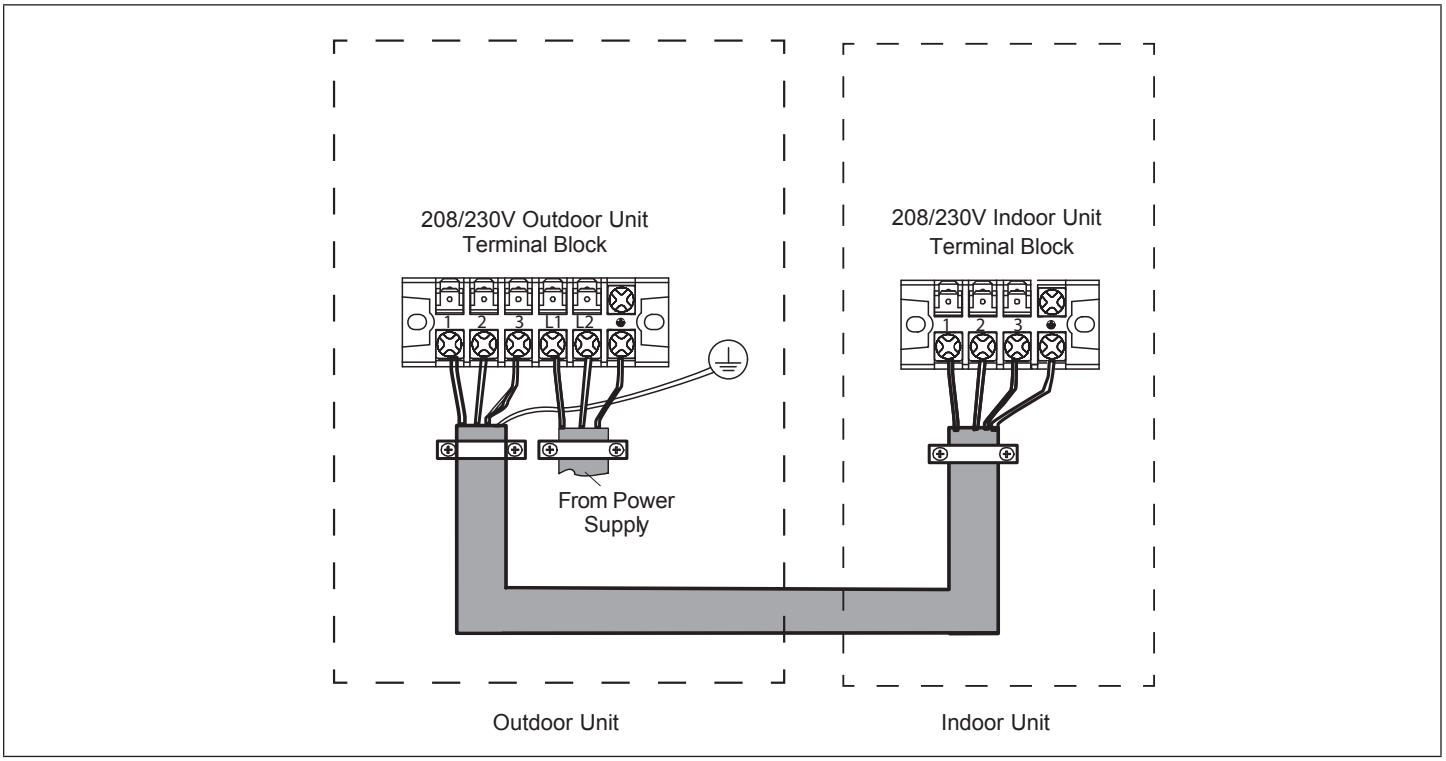


Figure 17. Single-Zone Wiring 30K and Below

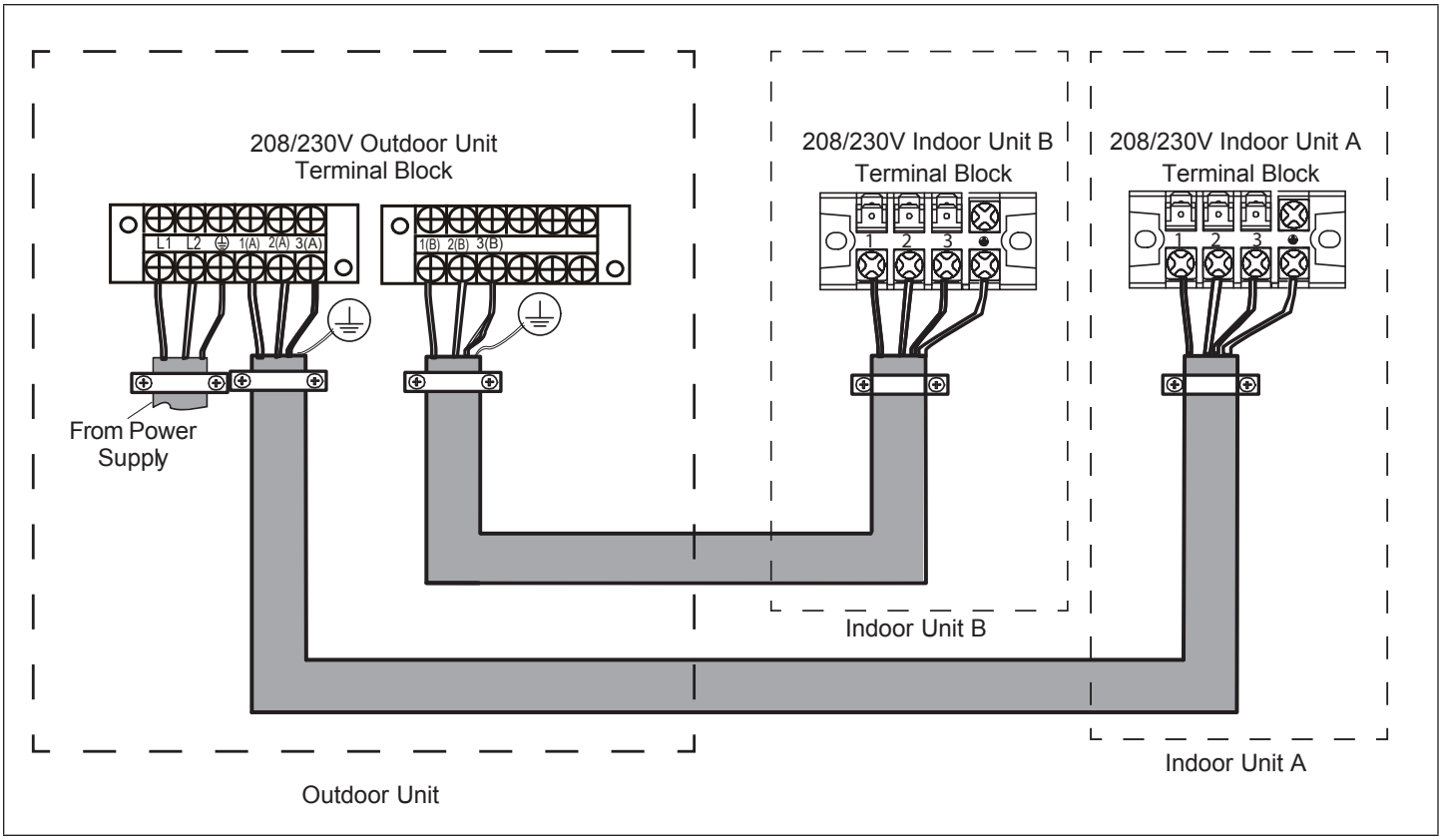


Figure 18. Multi-Zone Wiring 24K and Below

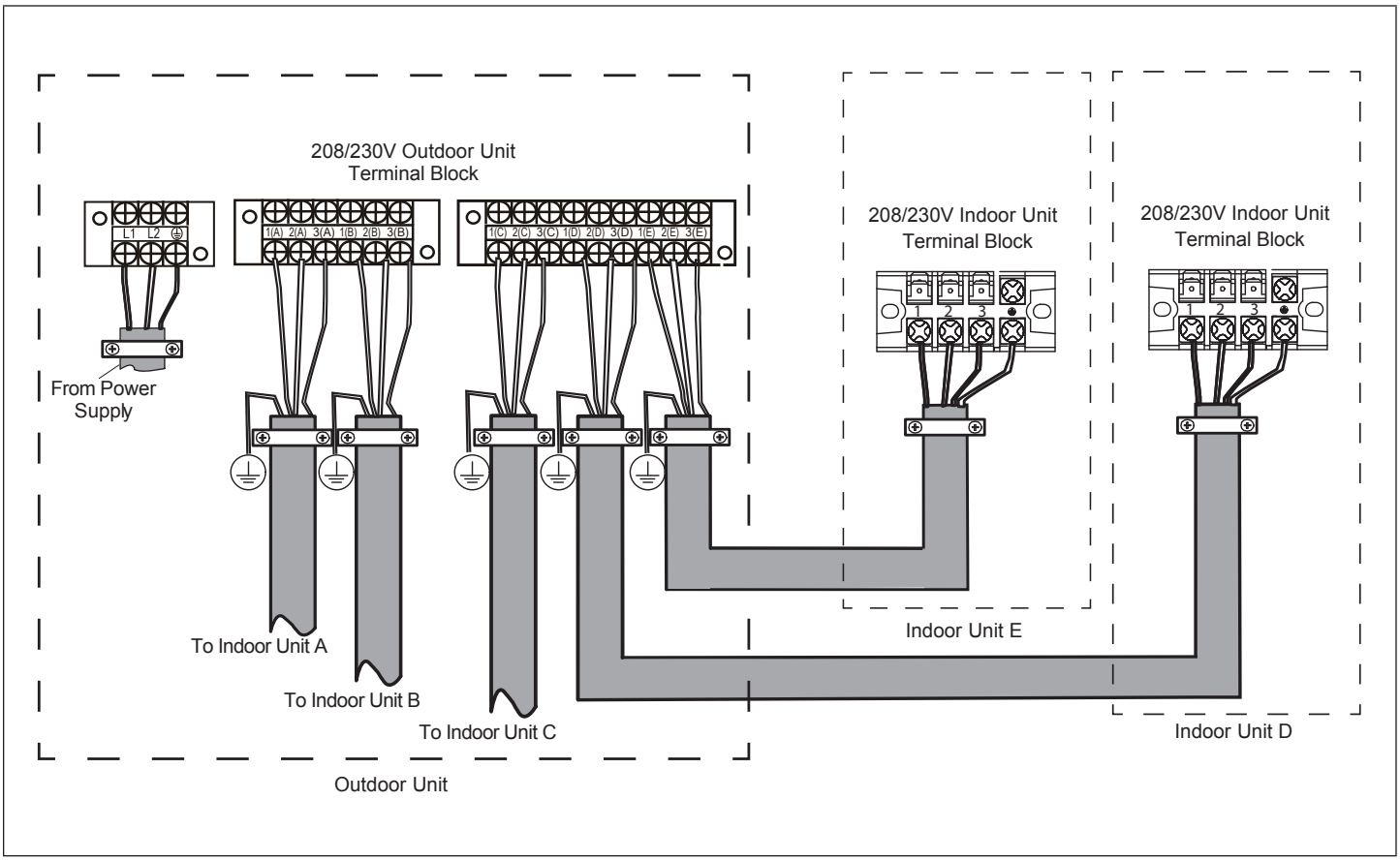


Figure 19. Multi-Zone Wiring

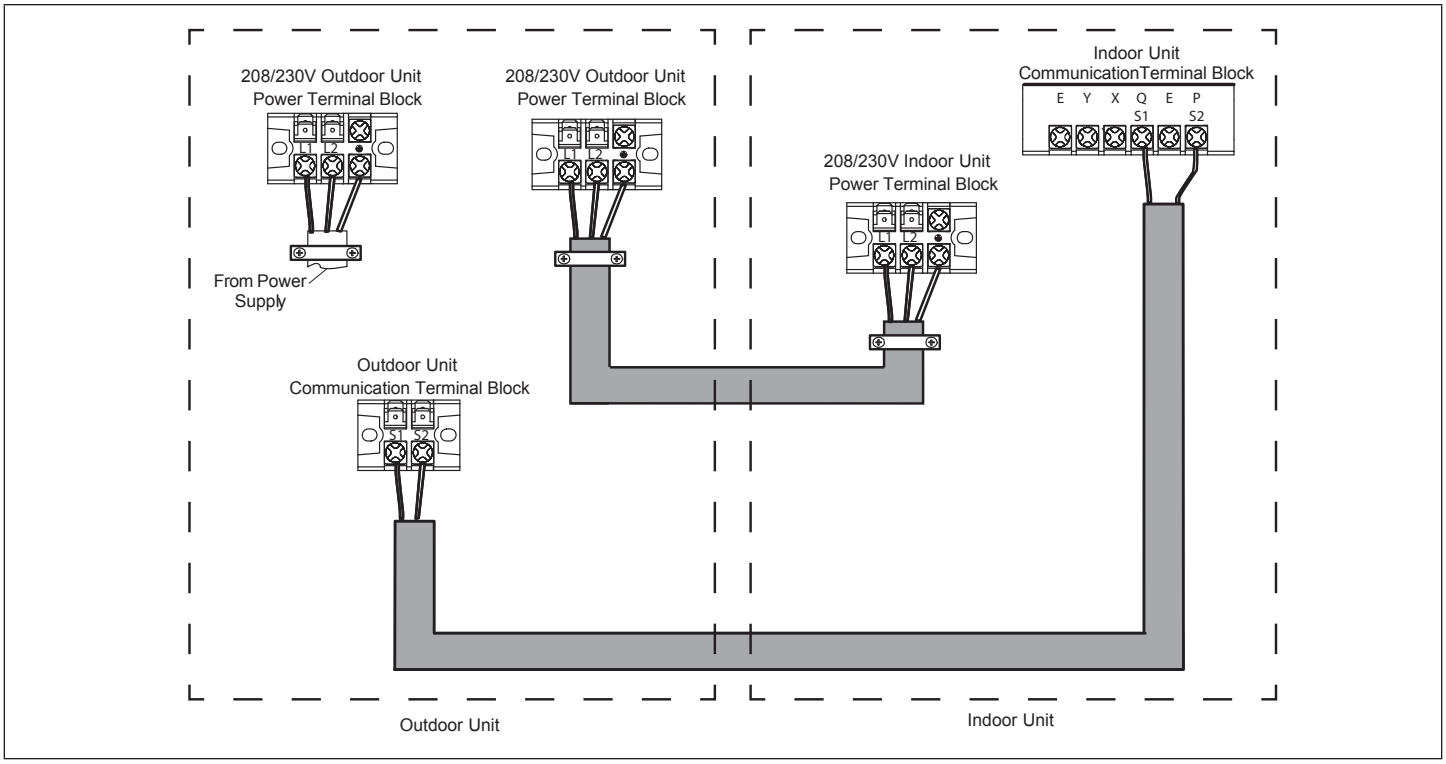


Figure 20. Communication - Single-Zone Wiring 36K and 48K Only

7. Wired and Wireless Remote Controllers

Please see the applicable wireless remote user guide on how to operate the applicable units.

7.1. 22U49 Wireless Remote

The mini-split wireless controller model RG10L-WM is a wireless local controller for Lennox mini-split indoor unit models MWMC and 3WMC only.

7.2. 22U50 Wireless Remote

The provided mini-split wireless controller model RG10B-DCFC is a wireless local controller for Lennox mini-split indoor unit models M22A, MFMA, MCFA and MCFB only.

7.3. 22U52 Wireless Remote

The provided mini-split wireless controller model RG10A-CSWHB is a wireless local controller for Lennox mini-split indoor unit model M33C only.

7.4. M0STAT61Q-1 and M0STAT61Q-2 Wired Remotes

The provided mini-split wired controller is a wired local controller for Lennox mini-split indoor unit model MMDB only.

7.5. M0STAT120L-1 Wired Remote

The provided mini-split wired non-programmable controller is a wired local controller for Lennox mini-split indoor unit models MWMC, MWHB, MWCB, M33C, MMDB/A, MCFA/B, and M22A.

7.6. M0STAT120N-1 Wired Remote

The provided mini-split wired programmable controller is a wired local controller for Lennox mini-split indoor unit models MWMC, MWHB, MWCB, M33C, MMDB/A, MCFA/B, and M22A.

7.7. RG10F2-MMA - Wireless Remote

The provided mini-split wireless controller model RG10F2-MMA is a wireless programmable controller for the MLB/MPC outdoor units with MMA indoor units.

8. Connection to Centralized Controller, ON/OFF and Alarm Devices

8.1. 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.

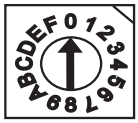
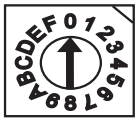
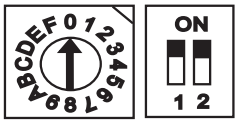
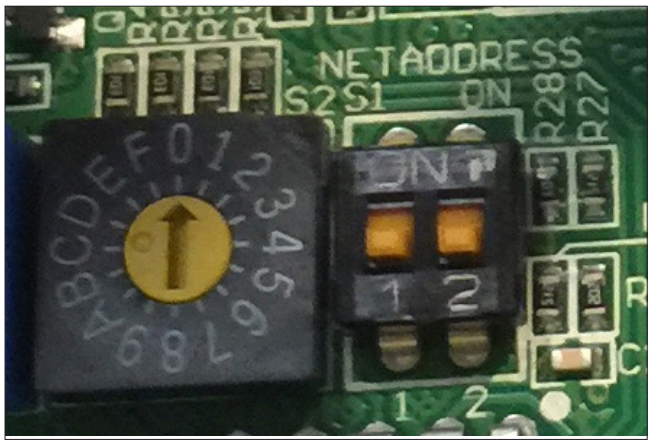
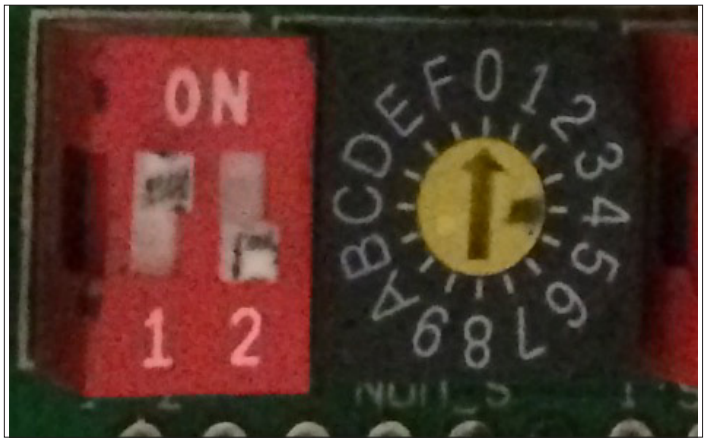
FOR SETTING ADDRESS				
S1+S2				
RANGE	0 ~ F	0 ~ F	0 ~ F	0 ~ F
ADDRESS	0 ~ 15	16 ~ 31	32 ~ 47	48 ~ 63
DIP SWITCH HANDLES	LEFT - DOWN RIGHT - DOWN	LEFT - DOWN RIGHT - UP	LEFT - UP RIGHT - DOWN	LEFT - UP RIGHT - UP
FACTORY SETTING	✓			

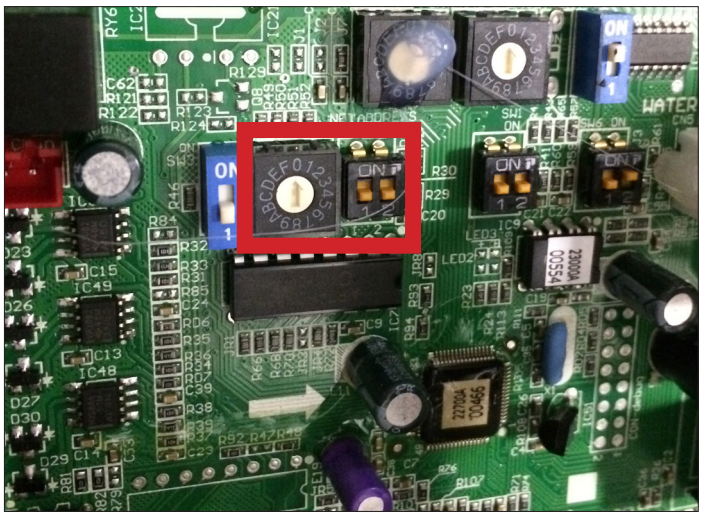
Figure 21. Dip Switches



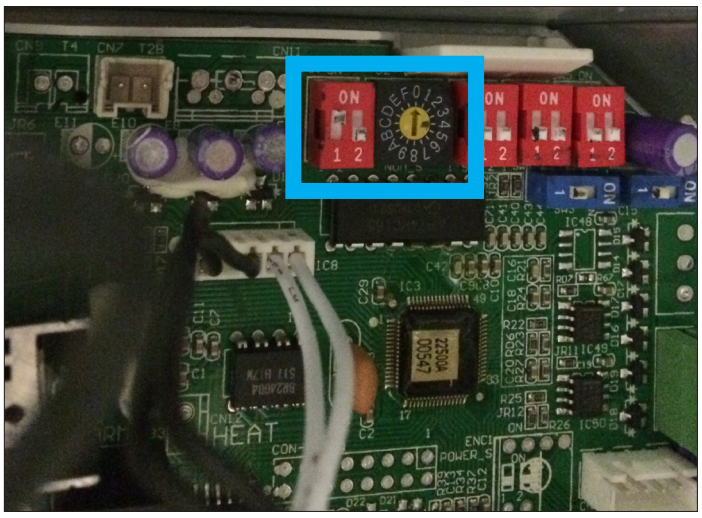
Indoor Unit Address is 0
Both dip switch handles are DOWN, dial points to 0.



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 22. Dip Switch Settings

8.2. 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.

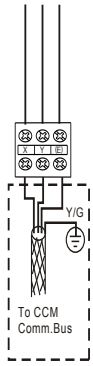


Figure 23. Typical Central Controller Connection Point Example

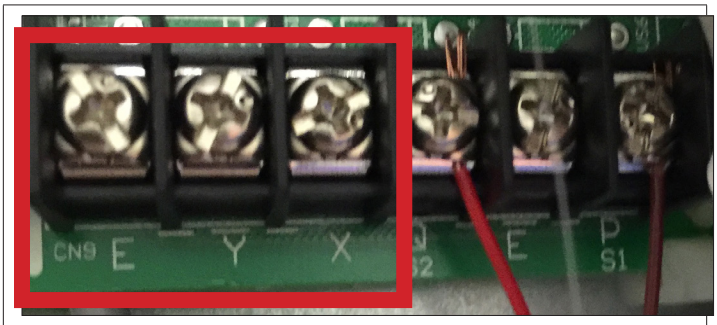


Figure 24. Typical Central Controller Connection Point Example 2

8.3. ON/OFF Devices

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.

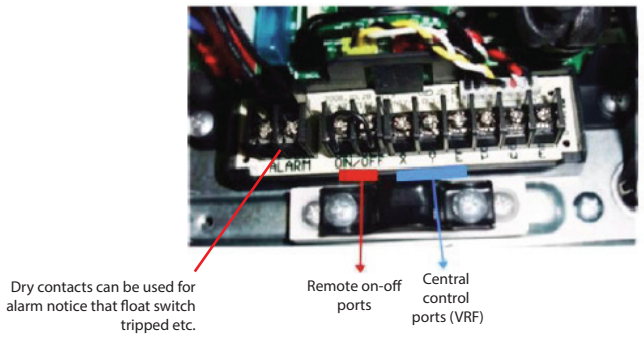


Figure 25. Indoor Unit Connection Points for ON/OFF)

8.4. Alarm Devices

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.

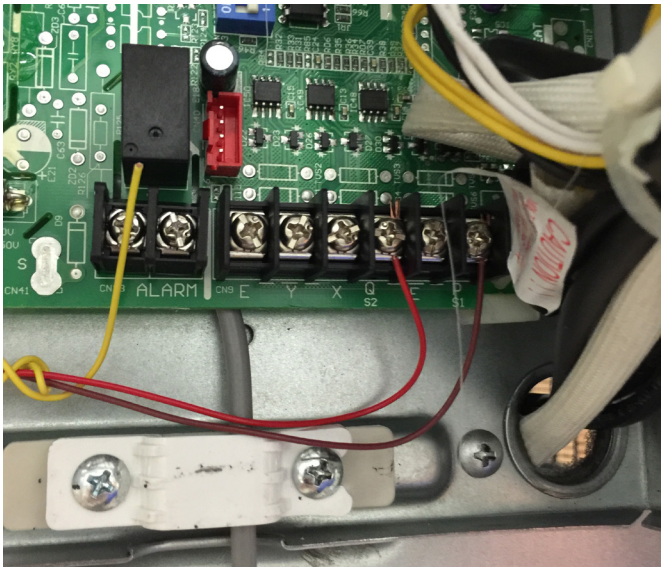


Figure 26. Alarm Device Connection Points (Typical)

8.5. Connecting Cables

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

Table 4. Wire Gauge

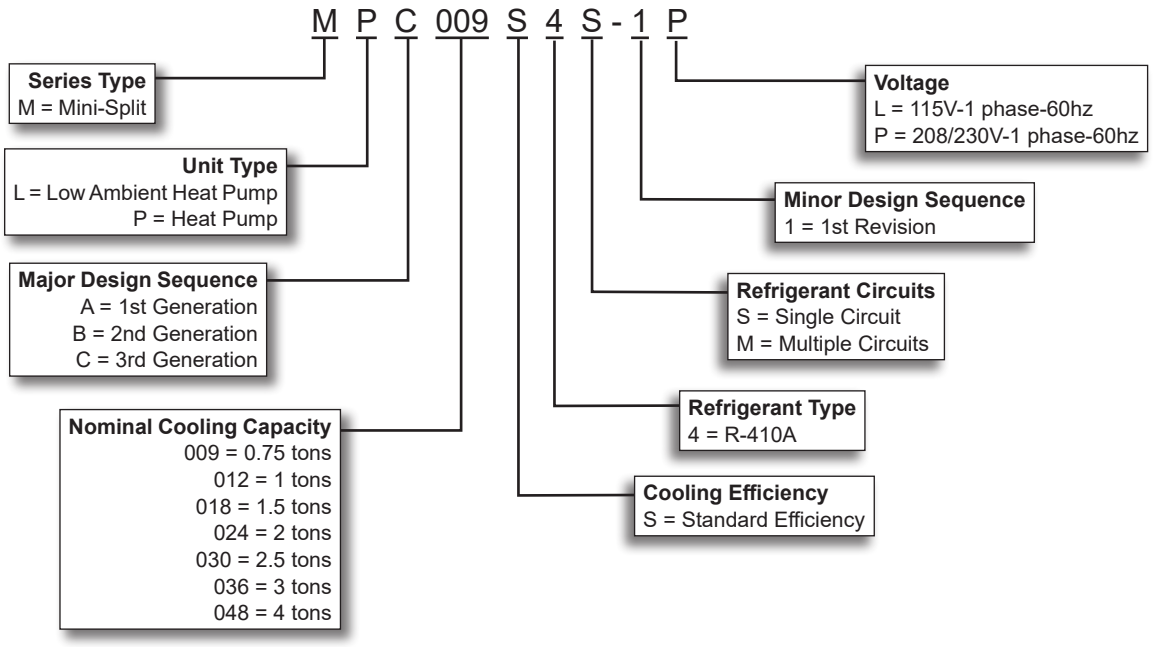
Unit	Gauge
1 drive 2 type (18K outdoor unit)	14
1 drive 3 type (27K outdoor unit).	14
1 drive 4 type (36K outdoor unit)	12
1 drive 5 type (48K outdoor unit)	10

Outdoor Unit Information

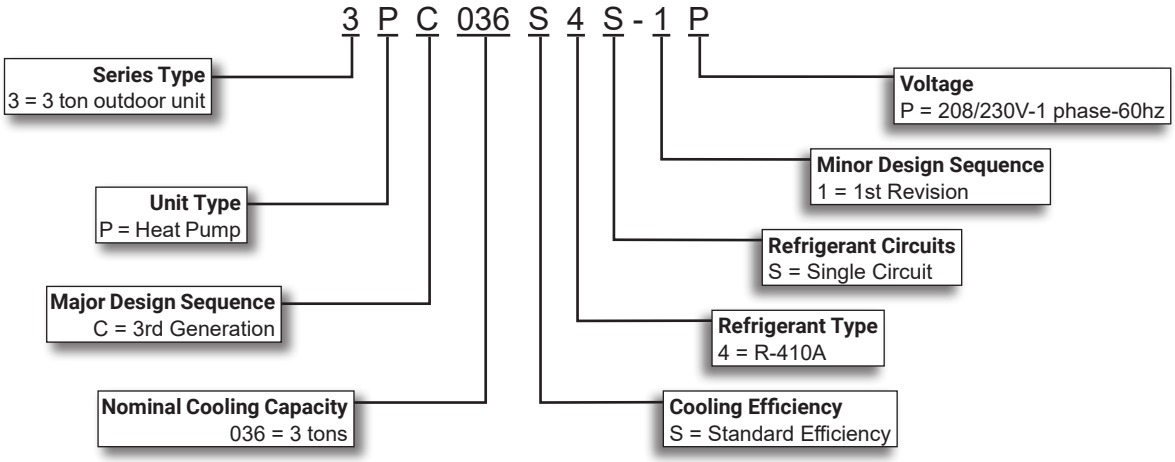
9. Single and Multiple Zone Outdoor Units

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

9.1. Model Number Identification



OUTDOOR SINGLE ZONE HEAT PUMP UNIT



9.2. MPC Single-Zone Specifications (0.75 - 1.5 Ton)

Nominal Size - Tons		0.75	1		1.5
Outdoor Unit Model No.		MPC009S4S	MPC012S4S-1L MPC012S4S-1P		MPC018S4S
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)	- - -	54		- - -
	Cooling/Heating (208/230V)	53	53.5		58
Refrigerant (R-410A)	Charge furnished (115V)	- - -	2 lbs. 8 oz.		- - -
	Charge furnished (208/230V)	2 lbs. 6 oz.	2 lbs. 6 oz.		3 lbs. 8 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.	10.5	10.5		14.9
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.	16-1/2	16-1/2		16-1/2
	Total air volume - cfm	1295	1295		1765
	rpm	800	800		810
Outdoor Coil	Number of rows	2	2		3
	Fins per inch	21	21		19
	Fin type	Hydrophilic aluminum			
	Tube outside diameter - in.	5/16	5/16		5/16
	Tube type	Rifled copper tubing			
	Net face area - ft.[2]	4.04	4.04		5.90
	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)	64 / 69	67 / 72		95 / 102
	(208/230V)	64 / 69	64 / 69		95 / 102
ELECTRICAL DATA					
Electrical Characteristics - 60 Hz - 1 Phase		208/230V	115V	208/230V	208/230V
[1] Maximum Over-current Protection (amps)		15	25	15	25
[2] Minimum circuit ampacity		13	19	13	17
Compressor Rated load amps		6.4	6.4	6.4	12
Outdoor Fan Motor	Rated load amps	0.4	0.6	0.4	0.76
	Output - W	34	34	34	80

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.

9.3. MPC Single-Zone Specifications (2 - 4 Ton)

Nominal Size - Tons		**2**	**2.5**	**3**	**4**
Outdoor Unit Model No.		**MPC024S4S**	**MPC030S4S**	**MPC036S4S**	**MPC048S4S**
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	60	61.5	65	63.5
Refrigerant (R-410A)	Charge furnished	5 lbs. 3 oz.	6 lbs. 1 oz.	7 lbs. 1 oz.	9 lbs. 15 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	(1) Rotary	(1) Rotary
	Refrigerant oil type	POE Oil VG74	POE Oil VG74	POE Oil VG74	POE Oil VG74
	Refrigerant oil charge - oz.	21.0	22.7	33.8	47.3
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) 22	(1) 22	(1) 22	(2) 22
	Total air volume - cfm	2235	2235	2120	4500
	rpm	900	900	1050	900
Outdoor Coil	Number of rows	2.6	2.6	2	2
	Fins per inch	18	18	18	18
	Fin type	Hydrophilic aluminum			
	Tube outside diameter - in.	5/16	5/16	3/8	3/8
	Tube type	Rifled copper tubing			
	Net face area - ft.[2]	8.21	8.22	8.16	13.53
	Application area - sq. ft.	345 - 505	430 - 630	515 - 750	690 - 1010
Design Pressure	PSIG	550/340	550/340	550/340	550/340
Shipping Data	Net/Shipping weight (lbs.)	125 / 135	142 / 152	155 / 166	219 / 249
ELECTRICAL DATA					
Electrical Characteristics - 60 Hz - 1 Phase		208/230V	208/230V	208/230V	208/230V
	[1] Maximum Over-current Protection (amps)	30	30	45	36.5
	[2] Minimum circuit ampacity	22	23	30	50
Outdoor Fan Motor	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.

9.4. 3PB/PC Single-Zone Specifications

		Outdoor Unit Model No.	**3PB036S4S/3PC036S4S**
		Nominal Tons	3
	Ambient Temperature Operating Range - °F	Cooling	5 - 122
		Heating	5 - 86
	Energy Star		Yes
	Sound Data (dBA)	Cooling/Heating	61.5
	Refrigerant (R-410A)	Charge furnished	7 lbs. 5 oz.
		Maximum line length with furnished charge - ft.	30
		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) 22
		Total air volume - cfm	2235
		rpm	1150
Outdoor Coil		Number of rows	3
		Fins per inch	18
		Fin type	Hydrophilic aluminum
		Tube outside diameter - in.	5/16
		Tube type	Rifled copper tubing
		Net face area - ft.[2]	8.14
		Application area - sq. ft.	515 - 750
Design Pressure		PSIG	550 / 340
Shipping Data		Net/Shipping weight (lbs.)	150 / 159
ELECTRICAL DATA			
Electrical Characteristics - 60 Hz - 1 Phase			208/230V
		[1] Maximum Overcurrent Protection (amps)	35
		[2] Minimum circuit ampacity	28
Outdoor Fan Motor		Rated load amps	0.5
		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.

9.5. MLB Single-Zone Specifications (0.75 - 2 Ton)

Nominal Size - Tons		0.75	1	1.5	2
Outdoor Unit Model No.		**MLB009S4S-1P**	**MLB012S4S-1P**	**MLB018S4S-1P**	**MLB024S4S-1P**
Ambient Temperature Operating Range - °F	Cooling	–22 - 122	–22 - 122	–22 - 122	–22 - 122
	Heating	–22 - 86	–22 - 86	–22 - 86	–22 - 86
Energy Star Certified?		Yes	Yes	Yes	Yes
Sound Data (dBA)	Cooling	54.5	56	59	62
	Heating	54.5	56	59	62
Refrigerant	Charge furnished (R-410A)	2 lbs. 9 oz.	2 lbs. 9 oz.	4 lbs. 1 oz.	5 lbs. 12 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	(1) Rotary	(1) Rotary	(1) Rotary	(1) Rotary
	Refrigerant oil type	VG74	VG74	VG74	VG74
	Refrigerant oil charge - oz.	11.8	11.8	21	21
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	65	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 aluminum			
	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
	Application area - sq. ft.	130 - 195	170 - 250	260 - 375	345 - 505
Design Pressure	PSIG	550/340	550/340	550/340	550/340
Shipping Data	Net/Shipping weight (lbs.)	74 / 80	74 / 79	101 / 108	134 / 144
ELECTRICAL DATA					
Electrical Characteristics - 60 Hz - 1 Phase		208/230V	208/230V	208/230V	208/230V
[1] Maximum Over-current Protection (amps)		15	15	25	35
2 Minimum circuit ampacity		15	15	16	25
Outdoor Fan Motor	Rated load amps	0.4	0.4	0.76	0.5
	Output - W	34	34	80	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.

9.6. MLB Single-Zone Specifications (3 - 4 Ton)

Nominal Size - Tons			**3**	**4**
Outdoor Unit Model No.			**MLB036S4S**	**MLB048S4S**
Ambient Temperature Operating Range - °F		Cooling	–22 - 122	–22 - 122
		Heating	–22 - 86	–22 - 86
Energy Star Certified?			No	No
Sound Data (dBA)		Cooling	65	65
		Heating	65	65
Refrigerant	Charge furnished (R-410A)		16 lbs. 0 oz.	16 lbs. 0 oz.
	Maximum line length with furnished charge - ft.		25	25
	Additional charge required per ft. - oz.		0.32	0.32
Compressor		No. and Type	Twin-Rotary	Twin-Rotary
		Refrigerant oil type	Ester Oil VG74	POE VG74
		Refrigerant oil charge - oz.	49.4	49.4
Connections - in.	Liquid/Gas pipe (flare)		3/8 / 5/8	3/8 / 5/8
	Maximum refrigerant pipe length - ft.		213	213
	Max. difference in level of indoor unit - ft.		98	98
Outdoor Fan		(No.) Diameter - in.	(2) 22	(2) 22
		Total air volume - cfm	4470	4470
		rpm	900	900
Outdoor Coil		Number of rows	2	2
		Fins per inch	18	18
		Fin type	Hydrophilic aluminum	
		Tube outside diameter - in.	3/8	3/8
		Tube type	Rifled copper tubing	
		Net face area - ft.[2]	6.43+6.97	6.43+6.97
Design Pressure		PSIG	550/340	550/340
Shipping Data	Net/Shipping weight (lbs.)		223 / 248	228 / 256
ELECTRICAL DATA				
Electrical Characteristics - 60 Hz - 1 Phase			208/230V	208/230V
[1] Maximum Over-current Protection (amps)			50	50
[2] Minimum circuit ampacity			39	36.3
Outdoor Fan Motor		Rated load amps	(2) 0.39	(2) 0.39
		Output - W	(2) 85	(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.

9.7. MPC Multi-Zone Specifications (1.5 - 2.5 Ton)

Nominal Size - Tons		**1.5**	**2**	**2.5**
Outdoor Unit Model No.		**MPC018S4M**	**MPC024S4M**	**MPC030S4M**
Number of Zones		**2**	**Up to 3**	**Up to 3**
Ambient Temperature Range - °F	Cooling	–13 - 122	–13 - 122	–13 - 122
	Heating	–13 - 86	–13 - 86	–13 - 86
Sound Data (dBA)	Cooling	58.5	61	61
	Heating	58.5	61	61
Refrigerant	Charge furnished (R-410A)	4 lbs. 1 oz.	5 lbs. 11 oz.	5 lbs. 11 oz.
	Maximum line length with furnished charge (per zone) - ft.	49	74	74
	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	VG74	VG74	VG74
	Refrigerant oil charge - oz.	15.20	21.00	21.00
Connections	Liquid+Gas pipe (in.) flare	(2) 1/4 + (2) 3/8	(3) 1/4 + (3) 3/8	(3) 1/4 + (3) 3/8
	Max. length for all rooms - ft.	131	197	197
	Max. length for one indoor unit - ft.	82	98	98
	Max. height difference between indoor and outdoor units - ft.	49	49	49
	Max. height difference between indoor units - ft.	33	33	33
Outdoor Fan	(No.) Diameter - in.	(1) 21	(1) 22	(1) 22
	Total air volume - cfm	1765	2130	2130
	Motor rpm	750/500	1050/900/850	1050/900/850
Outdoor Coil	Number of rows	2	2	2
	Fins per inch	18	18	18
	Fin type	Hydrophilic Aluminum		
	Tube outside diameter - in.	3/8	3/8	3/8
	Tube type	Rifled Copper Tubing		
	Net face area - ft.[2]	5.90	8.18	8.18
Application area - sq. ft.		235 - 345	355 - 515	355 - 515
Design Pressure	PSIG	540 / 340	540 / 340	540 / 340
Shipping Data	Net/Shipping weight (lbs.)	100 / 109	140 / 151	140 / 151
ELECTRICAL DATA				
Electrical Characteristics - 60 Hz - 1 Phase		208/230V	208/230V	208/230V
[2] Maximum Over-current Protection (amps)		20	30	30
[3] Minimum circuit ampacity		14	24.5	24.5
Outdoor Fan Motor	Output - W	80	120	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.

9.8. MPC Multi-Zone Specifications (3 - 4 Ton)

Nominal Size - Tons		**3**	**4**
Outdoor Unit Model No.		**MPC036S4M**	**MPC048S4M**
Number of Zones		**Up to 4**	**Up to 5**
Ambient Temperature Range - °F	Cooling	–13 - 122	–13 - 122
	Heating	–13 - 86	–13 - 86
Sound Data (dBA)	Cooling	63	64
	Heating	63	64
Refrigerant	Charge furnished (R-410A)	8 lbs. 6 oz.	10 lbs. 2 oz.
	Maximum line length with furnished charge (per zone) - ft.	98	123
	Additional charge required per ft. - oz.	0.16	0.16
Compressor	No. and Type	(1) Rotary	(1) Rotary
	Refrigerant oil type	VG74	VG74
	Refrigerant oil charge - oz.	33.80	47.30
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) 22	(2) 22
	Total air volume - cfm	2150	4500
	Motor rpm	1000/900/750	800/700/600
Outdoor Coil	Number of rows	2.6	2
	Fins per inch	16	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	13.63
Application area - sq. ft.		515 - 750	690 - 1010
Design Pressure	PSIG	540 / 340	540 / 340
Shipping Data	Net/Shipping weight (lbs.)	169 / 181	224 / 255
ELECTRICAL DATA			
Electrical Characteristics - 60 Hz - 1 Phase		208/230V	208/230V
	[2] Maximum Over-current Protection (amps)	40	50
	[3] Minimum circuit ampacity	25	35
Outdoor Fan Motor	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.

9.9. MLB Multi-Zone Specifications (1.5 - 3 Ton)

Nominal Size - Tons		**1.5**	**2.5**	**3**
Outdoor Unit Model No.		**MLB018S4M**	**MLB030S4M**	**MLB036S4M**
Number of Zones		**2**	**Up to 3**	**Up to 4**
Ambient Temperature Range - °F	Cooling	–22 - 122	–22 - 122	–22 - 122
	Heating	–22 - 86	–22 - 86	–22 - 86
Sound Data (dBA)		61	63	63
Refrigerant	Charge furnished (R-410A)	5 lbs. 11 oz..	8 lbs. 6 oz..	10 lbs. 2 oz..
	Maximum line length with furnished charge (per zone) - ft.	49	74	98
	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	VG74	VG74	VG74
	Refrigerant oil charge - oz.	21	33.8	47.3
Connections - in.	Liquid+Gas pipe (flare)	(2) 1/4 liq. + (2) 3/8 gas	(3) 1/4 liq. + (3) 3/8 gas	(3) 1/4 liq. + (3) 3/8 gas (1) 1/4 liq. + (1) 1/2 gas
	Maximum pipe length for all rooms - ft.	131	197	262
	Maximum pipe length for one indoor unit - ft.	82	98	115
	Max. height difference between indoor and outdoor units - ft.	49	49	49
	Max. height difference between indoor units - ft.	33	33	33
Outdoor Fan	(No.) Diameter - in.	(1) 21	(1) 22	(2) 22
	Total air volume - cfm	2130	2150	4500
	rpm	1050 / 900 / 850	1000 / 900 / 750	800 / 700 / 600
Outdoor Coil	Number of rows	2	2.6	2
	Fins per inch	18	16	18
	Fin type	Hydrophilic aluminum		
	Tube outside diameter - in.	3/8	3/8	3/8
	Tube type	Rifled copper tubing		
	Net face area - ft.2	8.18	8.16	6.54
	Application area - sq. ft.	235 - 345	355 - 515	690 - 1010
Design Pressure	PSIG	540 / 340	540 / 340	550/340
Shipping Data	Net/Shipping weight (lbs.)	138 / 149	168 / 180	239 / 270
ELECTRICAL DATA				
Electrical Characteristics - 60 Hz - 1 Phase		208/230V	208/230V	208/230V
[2] Maximum Over-current Protection (amps)		25	40	50
[3] Minimum circuit ampacity		20	25	35
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:
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.

9.10. MLB Multi-Zone Specifications (4 Ton)

Nominal Size - Tons		**4**
Outdoor Unit Model No.		**MLB048S4M**
Number of Zones		**Up to 5**
Ambient Temperature Range - °F	Cooling	–22 - 122
	Heating	–22 - 86
Sound Data (dBA)	Cooling	64
	Heating	64
Refrigerant	Charge furnished (R-410A)	10 lbs. 3 oz.
	Maximum line length with furnished charge (per zone) - ft.	123
	Additional charge required per ft. - oz.	0.16 (1/4 in.) / 0.32 (3/8 in.)
Compressor	No. and Type	Rotary
	Refrigerant oil type	Ester Oil VG74
	Refrigerant oil charge - oz.	49
Connections - in.	Liquid+Gas pipe (flare)	(5) 1/4 + (3) 3/8 + (2) 1/2
	Maximum pipe length for all rooms - ft.	262
	Maximum pipe length for one indoor unit - ft.	115
	Max. height difference between indoor and outdoor units - ft.	49
	Max. height difference between indoor units - ft.	33
Outdoor Fan	(No.) Diameter - in.	(2) 22
	Total air volume - cfm	4500
	rpm	800/700/600
Outdoor Coil	Number of rows	2
	Fins per inch	18
	Fin type	Hydrophilic aluminum
	Tube outside diameter - in.	3/8
	Tube type	Rifled copper tubing
	Net face area - ft.²	6.43+6.97
Design Pressure	PSIG	550/340
Shipping Data	Net/Shipping weight (lbs.)	239 / 270
ELECTRICAL DATA		
Electrical Characteristics - 60 Hz - 1 Phase		208/230V
	[1] Maximum Overcurrent Protection (amps)	50
	[2] Minimum circuit ampacity	35
Outdoor Fan Motor	Rated load amps	(2) 0.39
	Output - W	(2) 85

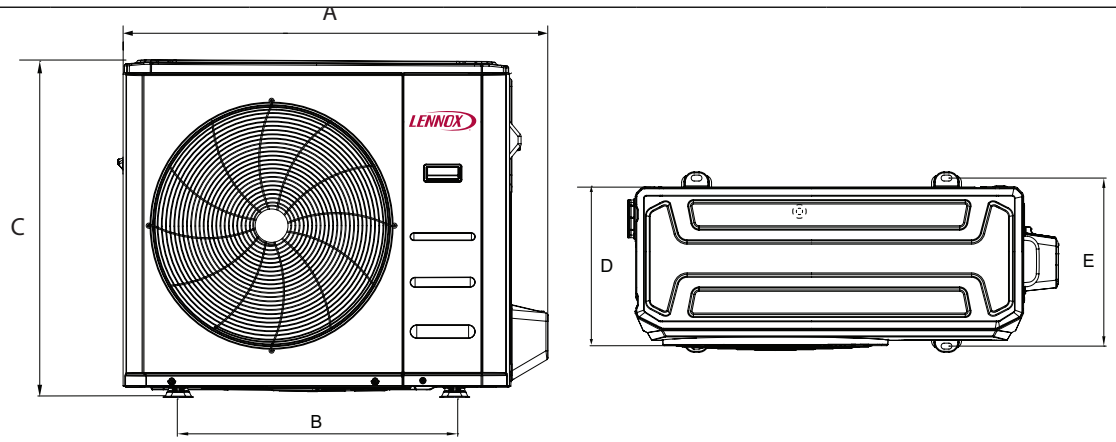
NOTE - Extremes of operating range are plus and minus 10% of line voltage.

[1] HACR type circuit breaker or fuse.

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

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.

9.11. Single-Zone Outdoor Unit Dimensions

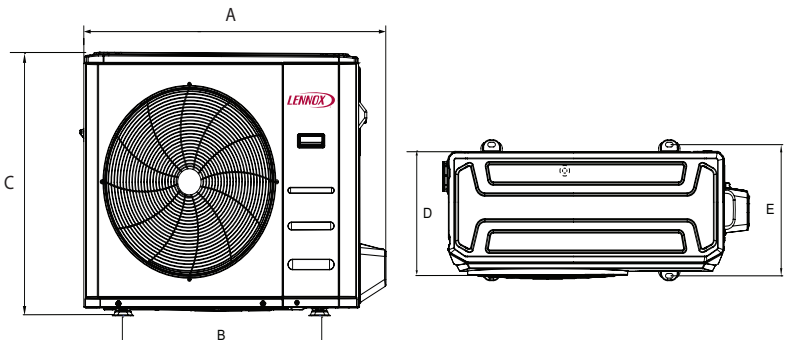


TYPICAL APPEARANCE OF UNITS

Model	Unit of Measurement	A	B	C	D	E
MPC006S4S-*P MPC009S4S-*P MPC012S4S-*L MPC012S4S-*P	inches	32-7/8	17-3/4	21-7/8	11-7/8	12-3/8
	mm	835	451	556	302	314
MPC018S4S-*P	inches	37-5/8	26-1/8	26-1/2	12-3/4	15
	mm	955	664	673	324	381
MPC024S4S-*P MPC030S4S-*P MPC036S4S-*P 3PB036S4S-*P 3PC036S4S-*P	inches	37-1/4	26-1/2	37-7/8	15-7/8	18
	mm	946	673	810	403	457
MPC048S4S-*P	inches	41-1/8	27-7/8	55-1/2	16-3/8	15-7/8
	mm	1045	708	1333	416	448
MLB009S4S-*P MLB012S4S-*P	inches	34-3/8	20-1/8	21-7/8	12-1/8	12-1/2
	mm	873	511	566	308	318
MLB018S4S-*P MLB030S4S-*P	inches	40-3/4	26-1/2	31-7/8	16-1/8	15-7/8
	mm	1035	673	810	410	402
MLB024S4S-*P	inches	40-1/2	26-1/2	31-7/8	16-1/8	15-7/8
	mm	1029	673	810	410	410
MLB036S4S-P	inches	41-1/8	37-1/2	55-1/2	16-3/8	15-7/8
	mm	1045	953	1333	416	403
MLB048S4S-P	inches	41-1/8	37-1/2	55-1/2	16-3/8	15-7/8
	mm	1045	953	1333	416	403

Figure 27. Single-Zone Outdoor Unit Dimensions - Inches (mm)

9.12. Multi-Zone Outdoor Unit Dimensions

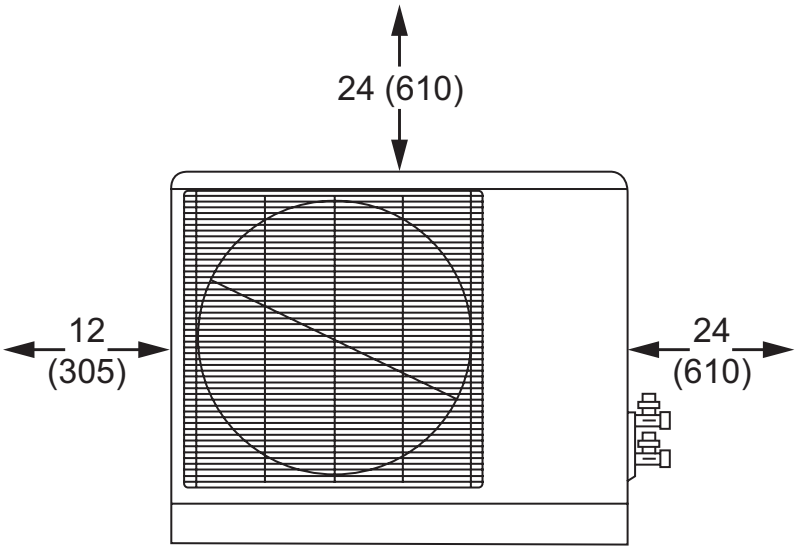


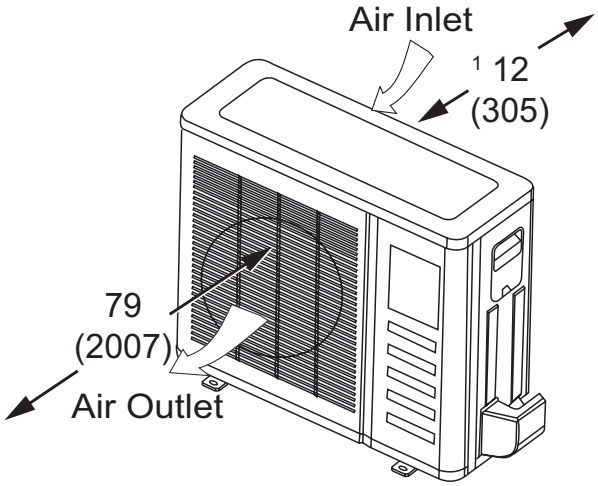
Model	Unit of Measurement	A	B	C	D	E
MPC018S4M-*P	inches	39	26-1/8	26-1/2	12-3/4	13-3/4
	mm	991	664	673	342	345
MPC024S4M-*P MPC030S4M-*P MPC036S4M-*P	inches	40-3/4	26-1/2	31-7/8	16-1/8	15-7/8
	mm	1035	673	810	410	403
MPC048S4M-*P	inches	41-3/4	25	55-1/2	16-3/8	17-5/8
	mm	1060	635	1333	416	448
MLB018S4M-*P MLB030S4M-*P	inches	40-5/8	26-1/2	31-7/8	15-1/8	15-7/8
	mm	1035	673	810	410	403
MLB036S4M-*P MLB048S4M-*P	inches	41-3/4	25	55-1/2	16-3/8	17-5/8
	mm	1060	635	1333	416	448

Figure 28. Multi-Zone Outdoor Unit Dimensions - Inches (mm)

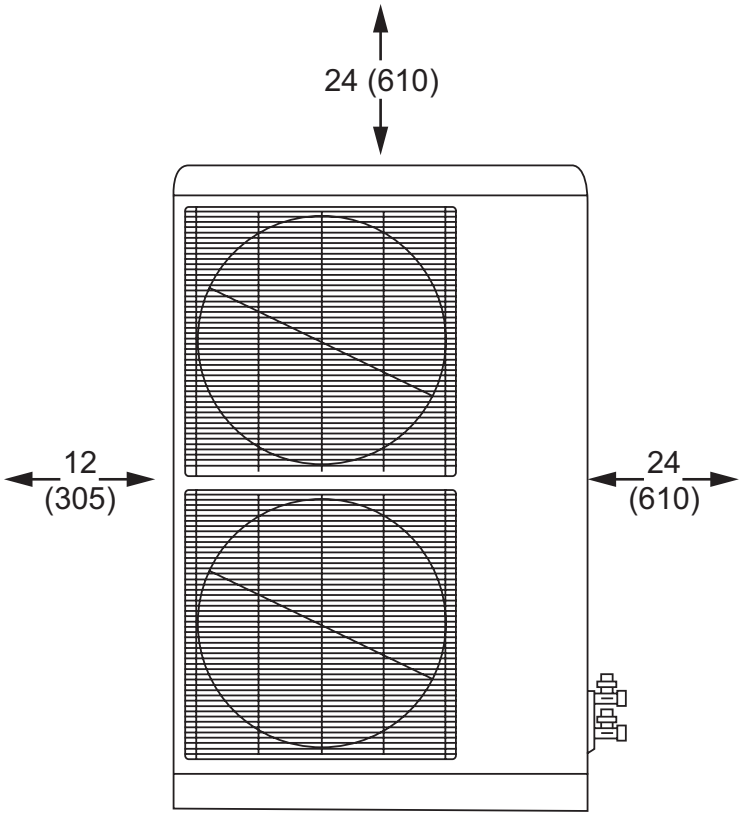
9.13. Outdoor Unit Clearances

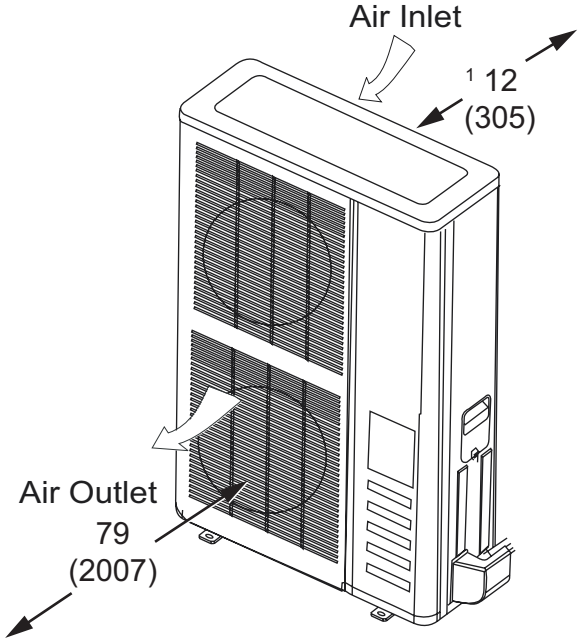
9.13.1. Single Units





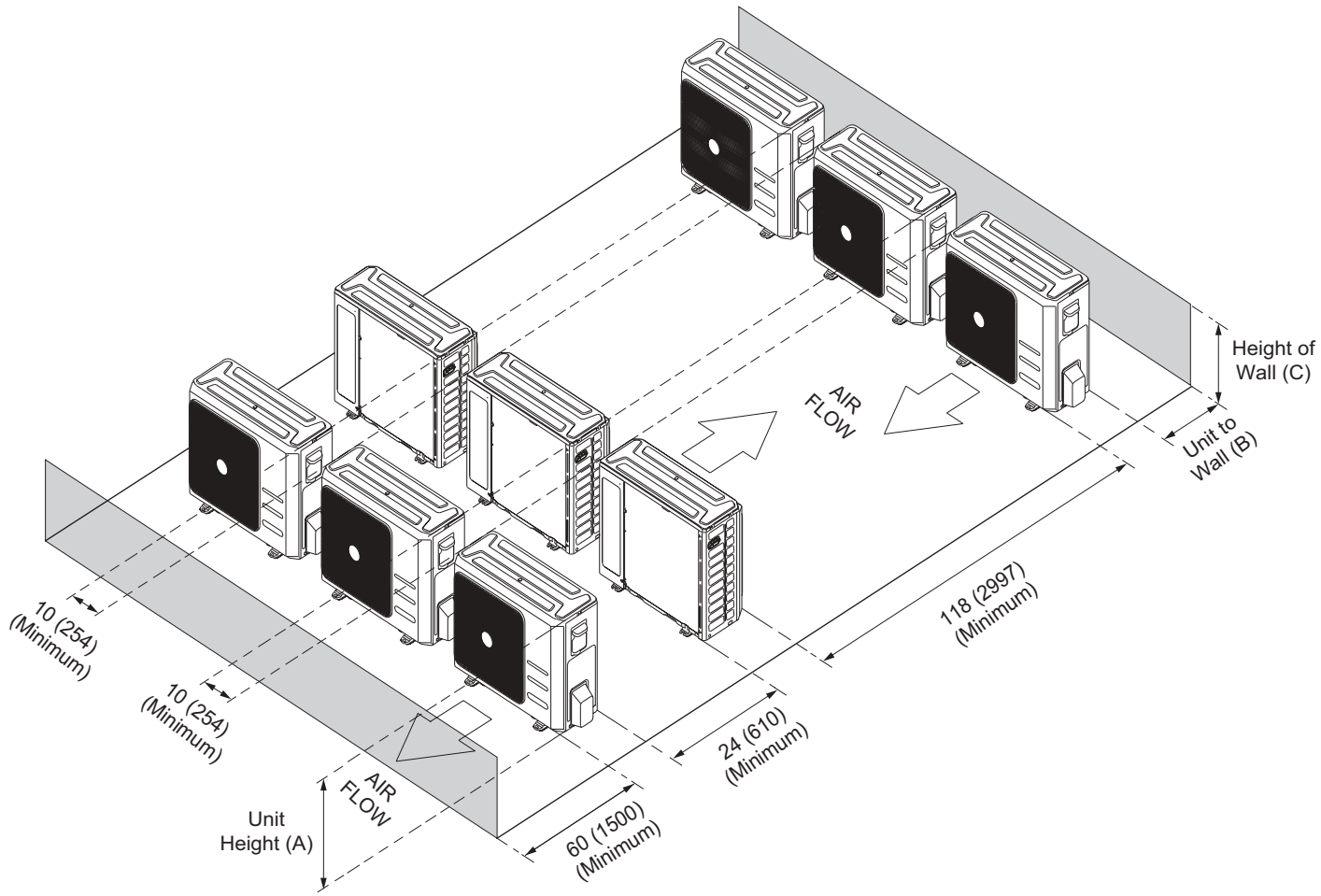
[1] Minimum rear clearance can be 6 inches (152 mm) when mounted on brackets and with no obstructions on the other three sides.





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

9.13.2. 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 29. Multiple Outdoor Unit Clearances - Inches (mm)

10. MLB and MPC Multi-Zone System Combinations

Table 5. MLB and MPC 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
MLB and MPC018S4M	2	6K	6K	- - -	- - -	- - -	6,000	6,000	- - -	- - -	- - -	6,700	6,700	- - -	- - -	- - -
		9K	6K	- - -	- - -	- - -	9,000	6,000	- - -	- - -	- - -	9,900	6,600	- - -	- - -	- - -
		12K	6K	- - -	- - -	- - -	12,000	6,000	- - -	- - -	- - -	12,500	6,300	- - -	- - -	- - -
		9K	9K	- - -	- - -	- - -	9,000	9,000	- - -	- - -	- - -	9,500	9,500	- - -	- - -	- - -
		12K	9K	- - -	- - -	- - -	11,000	8,000	- - -	- - -	- - -	11,500	8,600	- - -	- - -	- - -
		12K	12K	- - -	- - -	- - -	10,000	10,000	- - -	- - -	- - -	10,100	10,100	- - -	- - -	- - -
MLB and MPC024S4M	2	12K	6K	- - -	- - -	- - -	12,000	6,000	- - -	- - -	- - -	12,900	6,500	- - -	- - -	- - -
		18K	6K	- - -	- - -	- - -	17,000	5,000	- - -	- - -	- - -	18,900	6,300	- - -	- - -	- - -
		9K	9K	- - -	- - -	- - -	9,000	9,000	- - -	- - -	- - -	9,700	9,700	- - -	- - -	- - -
		12K	9K	- - -	- - -	- - -	11,000	8,000	- - -	- - -	- - -	12,900	9,700	- - -	- - -	- - -
		18K	9K	- - -	- - -	- - -	16,000	8,000	- - -	- - -	- - -	18,300	9,200	- - -	- - -	- - -
		12K	12K	- - -	- - -	- - -	11,000	11,000	- - -	- - -	- - -	12,600	12,600	- - -	- - -	- - -
		18K	12K	- - -	- - -	- - -	15,000	10,000	- - -	- - -	- - -	17,400	11,600	- - -	- - -	- - -
		18K	18K	- - -	- - -	- - -	14,000	14,000	- - -	- - -	- - -	14,800	14,800	- - -	- - -	- - -
	3	6K	6K	6K	- - -	- - -	7,000	7,000	7,000	- - -	- - -	8,500	8,500	8,500	- - -	- - -
		9K	6K	6K	- - -	- - -	10,000	7,000	7,000	- - -	- - -	11,500	7,700	7,700	- - -	- - -
		12K	6K	6K	- - -	- - -	13,000	6,000	6,000	- - -	- - -	13,900	7,000	7,000	- - -	- - -
		18K	6K	6K	- - -	- - -	17,000	6,000	6,000	- - -	- - -	17,500	5,900	5,900	- - -	- - -
		9K	9K	6K	- - -	- - -	9,000	9,000	6,000	- - -	- - -	9500	9500	6,000	- - -	- - -
		12K	9K	6K	- - -	- - -	12,000	9,000	6,000	- - -	- - -	12,700	9,500	6,400	- - -	- - -
		18K	9K	6K	- - -	- - -	16,000	8,000	5,000	- - -	- - -	16,100	8,100	5,400	- - -	- - -
		12K	12K	6K	- - -	- - -	11,000	11,000	6,000	- - -	- - -	11,700	11,700	5,900	- - -	- - -
		18K	12K	6K	- - -	- - -	15,000	10,000	5,000	- - -	- - -	15,000	10,000	5,000	- - -	- - -
		9K	9K	9K	- - -	- - -	9,000	9,000	9,000	- - -	- - -	9,500	9,500	9,500	- - -	- - -
		12K	9K	9K	- - -	- - -	11,000	9,000	9,000	- - -	- - -	11,700	8,800	8,800	- - -	- - -
		18K	9K	9K	- - -	- - -	15,000	7,000	7,000	- - -	- - -	15,000	7,500	7,500	- - -	- - -
		12K	12K	9K	- - -	- - -	11,000	11,000	8,000	- - -	- - -	10,800	10,800	8,100	- - -	- - -
		12K	12K	12K	- - -	- - -	10,000	10,000	10,000	- - -	- - -	10,000	10,000	10,000	- - -	- - -
MLB and MPC030S4M	2	12K	6K	- - -	- - -	- - -	12,000	6,000	- - -	- - -	- - -	12,900	6,500	- - -	- - -	- - -
		18K	6K	- - -	- - -	- - -	17,000	5,000	- - -	- - -	- - -	18,900	6,300	- - -	- - -	- - -
		9K	9K	- - -	- - -	- - -	9,000	9,000	- - -	- - -	- - -	9,700	9,700	- - -	- - -	- - -
		12K	9K	- - -	- - -	- - -	11,000	8,000	- - -	- - -	- - -	12,900	9,700	- - -	- - -	- - -
		18K	9K	- - -	- - -	- - -	16,000	8,000	- - -	- - -	- - -	18,300	9,200	- - -	- - -	- - -
		12K	12K	- - -	- - -	- - -	11,000	11,000	- - -	- - -	- - -	12,600	12,600	- - -	- - -	- - -
		18K	12K	- - -	- - -	- - -	15,000	10,000	- - -	- - -	- - -	17,400	11,600	- - -	- - -	- - -
		18K	18K	- - -	- - -	- - -	14,000	14,000	- - -	- - -	- - -	14,800	14,800	- - -	- - -	- - -
	3	6K	6K	6K	- - -	- - -	7,000	7,000	7,000	- - -	- - -	8,500	8,500	8,500	- - -	- - -
		9K	6K	6K	- - -	- - -	10,000	7,000	7,000	- - -	- - -	11,500	7,700	7,700	- - -	- - -
		12K	6K	6K	- - -	- - -	13,000	6,000	6,000	- - -	- - -	13,900	7,000	7,000	- - -	- - -
		18K	6K	6K	- - -	- - -	17,000	6,000	6,000	- - -	- - -	17,500	5,900	5,900	- - -	- - -
		9K	9K	6K	- - -	- - -	10,000	10,000	6,000	- - -	- - -	10,500	10,500	7,000	- - -	- - -
		12K	9K	6K	- - -	- - -	12,000	9,000	6,000	- - -	- - -	12,700	9,500	6,400	- - -	- - -
		18K	9K	6K	- - -	- - -	16,000	8,000	5,000	- - -	- - -	16,100	8,100	5,400	- - -	- - -
		12K	12K	6K	- - -	- - -	11,000	11,000	6,000	- - -	- - -	11,700	11,700	5,900	- - -	- - -
		18K	12K	6K	- - -	- - -	15,000	10,000	5,000	- - -	- - -	15,000	10,000	5,000	- - -	- - -
		9K	9K	9K	- - -	- - -	9,000	9,000	9,000	- - -	- - -	9,500	9,500	9,500	- - -	- - -
		12K	9K	9K	- - -	- - -	11,000	9,000	9,000	- - -	- - -	11,700	8,800	8,800	- - -	- - -

Table 5. MLB and MPC 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
MLB and MPC030S4M	3	18K	9K	9K	- - -	- - -	15,000	7,000	7,000	- - -	- - -	15,000	7,500	7,500	- - -	- - -
		12K	12K	9K	- - -	- - -	11,000	11,000	8,000	- - -	- - -	10,800	10,800	8,100	- - -	- - -
		12K	12K	12K	- - -	- - -	10,000	10,000	10,000	- - -	- - -	10,000	10,000	10,000	- - -	- - -
MLB and MPC036S4M	2	18K	6K	- - -	- - -	- - -	18,000	6,000	- - -	- - -	- - -	19,100	6,400	- - -	- - -	- - -
		24K	6K	- - -	- - -	- - -	22,000	6,000	- - -	- - -	- - -	24,200	6,100	- - -	- - -	- - -
		18K	9K	- - -	- - -	- - -	17,000	9,000	- - -	- - -	- - -	18,700	9,400	- - -	- - -	- - -
		24K	9K	- - -	- - -	- - -	21,000	8,000	- - -	- - -	- - -	23,300	8,800	- - -	- - -	- - -
		12K	12K	- - -	- - -	- - -	12,000	12,000	- - -	- - -	- - -	12,800	12,800	- - -	- - -	- - -
		18K	12K	- - -	- - -	- - -	17,000	11,000	- - -	- - -	- - -	18,200	12,100	- - -	- - -	- - -
		24K	12K	- - -	- - -	- - -	20,000	10,000	- - -	- - -	- - -	22,200	11,100	- - -	- - -	- - -
		18K	18K	- - -	- - -	- - -	15,000	15,000	- - -	- - -	- - -	16,600	16,600	- - -	- - -	- - -
		24K	18K	- - -	- - -	- - -	18,000	13,000	- - -	- - -	- - -	19,300	14,500	- - -	- - -	- - -
		24K	24K	- - -	- - -	- - -	15,000	15,000	- - -	- - -	- - -	15,700	15,700	- - -	- - -	- - -
	3	12K	6K	6K	- - -	- - -	12,900	6,500	6,500	- - -	- - -	13,600	6,800	6,800	- - -	- - -
		18K	6K	6K	- - -	- - -	18,000	6,000	6,000	- - -	- - -	18,900	6,300	6,300	- - -	- - -
		24K	6K	6K	- - -	- - -	22,000	5,500	5,500	- - -	- - -	23,200	5,800	5,800	- - -	- - -
		12K	9K	6K	- - -	- - -	12,500	9,300	6,200	- - -	- - -	13,100	9,800	6,600	- - -	- - -
		18K	9K	6K	- - -	- - -	17,200	8,600	5,700	- - -	- - -	18,100	9,100	6,100	- - -	- - -
		24K	9K	6K	- - -	- - -	21,100	7,900	5,300	- - -	- - -	22,200	8,400	5,600	- - -	- - -
		12K	12K	6K	- - -	- - -	12,000	12,000	6,000	- - -	- - -	12,600	12,600	6,300	- - -	- - -
		18K	12K	6K	- - -	- - -	16,500	11,000	5,500	- - -	- - -	17,400	11,600	5,800	- - -	- - -
		24K	12K	6K	- - -	- - -	20,100	10,000	5,000	- - -	- - -	21,200	10,600	5,300	- - -	- - -
		18K	18K	6K	- - -	- - -	15,100	15,100	5,000	- - -	- - -	15,900	15,900	5,300	- - -	- - -
		24K	18K	6K	- - -	- - -	18,100	13,600	4,500	- - -	- - -	19,200	14,400	4,800	- - -	- - -
		9K	9K	9K	- - -	- - -	9,300	9,300	9,300	- - -	- - -	9,800	9,800	9,800	- - -	- - -
		12K	9K	9K	- - -	- - -	12,000	9,000	9,000	- - -	- - -	12,600	9,500	9,500	- - -	- - -
		18K	9K	9K	- - -	- - -	16,500	8,300	8,300	- - -	- - -	17,400	8,700	8,700	- - -	- - -
		24K	9K	9K	- - -	- - -	20,100	7,500	7,500	- - -	- - -	21,200	8,000	8,000	- - -	- - -
		12K	12K	9K	- - -	- - -	11,500	11,500	8,600	- - -	- - -	12,100	12,100	9,100	- - -	- - -
		18K	12K	9K	- - -	- - -	15,800	10,500	7,900	- - -	- - -	16,700	11,100	8,400	- - -	- - -
		24K	12K	9K	- - -	- - -	19,100	9,600	7,200	- - -	- - -	20,200	10,100	7,600	- - -	- - -
		18K	18K	9K	- - -	- - -	14,300	14,300	7,200	- - -	- - -	15,200	15,200	7,600	- - -	- - -
		12K	12K	12K	- - -	- - -	11,000	11,000	11,000	- - -	- - -	11,600	11,600	11,600	- - -	- - -
		18K	12K	12K	- - -	- - -	15,100	10,000	10,000	- - -	- - -	15,900	10,600	10,600	- - -	- - -
		24K	12K	12K	- - -	- - -	18,100	9,100	9,100	- - -	- - -	19,200	9,600	9,600	- - -	- - -
		18K	18K	12K	- - -	- - -	13,600	13,600	9,100	- - -	- - -	14,400	14,400	9,600	- - -	- - -
	4	6K	6K	6K	6K	- - -	7,200	7,200	7,200	7,200	- - -	7,700	7,700	7,700	7,700	- - -
		9K	6K	6K	6K	- - -	10,400	6,900	6,900	6,900	- - -	11,000	7,400	7,400	7,400	- - -
		12K	6K	6K	6K	- - -	13,200	6,600	6,600	6,600	- - -	14,000	7,000	7,000	7,000	- - -
		18K	6K	6K	6K	- - -	17,900	6,000	6,000	6,000	- - -	19,000	6,400	6,400	6,400	- - -
		24K	6K	6K	6K	- - -	21,400	5,300	5,300	5,300	- - -	22,600	5,700	5,700	5,700	- - -
		9K	9K	6K	6K	- - -	9,900	9,900	6,600	6,600	- - -	10,500	10,500	7,000	7,000	- - -
		12K	9K	6K	6K	- - -	12,600	9,400	6,300	6,300	- - -	13,300	10,000	6,700	6,700	- - -
		18K	9K	6K	6K	- - -	17,000	8,500	5,700	5,700	- - -	18,000	9,000	6,000	6,000	- - -
		24K	9K	6K	6K	- - -	20,100	7,500	5,000	5,000	- - -	21,200	8,000	5,300	5,300	- - -
		12K	12K	6K	6K	- - -	12,000	12,000	6,000	6,000	- - -	12,700	12,700	6,400	6,400	- - -
		18K	12K	6K	6K	- - -	16,000	10,700	5,300	5,300	- - -	17,000	11,300	5,700	5,700	- - -
		24K	12K	6K	6K	- - -	18,900	9,400	4,700	4,700	- - -	19,900	10,000	5,000	5,000	- - -
		9K	9K	9K	6K	- - -	9,400	9,400	9,400	6,300	- - -	10,000	10,000	10,000	6,700	- - -
		12K	9K	9K	6K	- - -	12,000	9,000	9,000	6,000	- - -	12,700	9,500	9,500	6,400	- - -
		18K	9K	9K	6K	- - -	16,000	8,000	8,000	5,300	- - -	17,000	8,500	8,500	5,700	- - -
		24K	9K	9K	6K	- - -	18,900	7,100	7,100	4,700	- - -	19,900	7,500	7,500	5,000	- - -
		12K	12K	9K	6K	- - -	11,300	11,300	8,500	5,700	- - -	12,000	12,000	9,000	6,000	- - -
		18K	12K	9K	6K	- - -	15,100	10,100	7,500	5,000	- - -	15,900	10,600	8,000	5,300	- - -
		12K	12K	12K	6K	- - -	10,700	10,700	10,700	5,300	- - -	11,300	11,300	11,300	5,700	- - -
		18K	12K	12K	6K	- - -	14,100	9,400	9,400	4,700	- - -	14,900	10,000	10,000	5,000	- - -
		9K	9K	9K	9K	- - -	9,000	9,000	9,000	9,000	- - -	9,500	9,500	9,500	9,500	- - -

Table 5. MLB and MPC 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
MLB and MPC036S4M	4	12K	9K	9K	9K	- - -	11,300	8,500	8,500	8,500	- - -	12,000	9,000	9,000	9,000	- - -
		18K	9K	9K	9K	- - -	15,100	7,500	7,500	7,500	- - -	15,900	8,000	8,000	8,000	- - -
		12K	12K	9K	9K	- - -	10,700	10,700	8,000	8,000	- - -	11,300	11,300	8,500	8,500	- - -
		18K	12K	9K	9K	- - -	14,100	9,400	7,100	7,100	- - -	14,900	10,000	7,500	7,500	- - -
		12K	12K	12K	9K	- - -	10,100	10,100	10,100	7,500	- - -	10,600	10,600	10,600	8,000	- - -
		12K	12K	12K	12K	- - -	9,400	9,400	9,400	9,400	- - -	10,000	10,000	10,000	10,000	- - -
MLB and MPC048S4M	2	24K	9K	- - -	- - -	- - -	24,000	9,000	- - -	- - -	- - -	25,100	9,400	- - -	- - -	- - -
		30K	9K	- - -	- - -	- - -	29,000	8,000	- - -	- - -	- - -	30,400	9,100	- - -	- - -	- - -
		36K	9K	- - -	- - -	- - -	33,000	8,000	- - -	- - -	- - -	34,500	8,600	- - -	- - -	- - -
		24K	12K	- - -	- - -	- - -	23,000	11,000	- - -	- - -	- - -	24,800	12,400	- - -	- - -	- - -
		30K	12K	- - -	- - -	- - -	28,000	11,000	- - -	- - -	- - -	29,600	11,900	- - -	- - -	- - -
		36K	12K	- - -	- - -	- - -	31,000	10,000	- - -	- - -	- - -	33,200	11,100	- - -	- - -	- - -
		18K	18K	- - -	- - -	- - -	17,000	17,000	- - -	- - -	- - -	18,600	18,600	- - -	- - -	- - -
		24K	18K	- - -	- - -	- - -	22,000	17,000	- - -	- - -	- - -	23,700	17,800	- - -	- - -	- - -
		30K	18K	- - -	- - -	- - -	26,000	15,000	- - -	- - -	- - -	27,600	16,600	- - -	- - -	- - -
		36K	18K	- - -	- - -	- - -	28,000	14,000	- - -	- - -	- - -	30,000	15,000	- - -	- - -	- - -
		24K	24K	- - -	- - -	- - -	21,000	21,000	- - -	- - -	- - -	22,000	22,000	- - -	- - -	- - -
		30K	24K	- - -	- - -	- - -	23,000	18,000	- - -	- - -	- - -	25,000	20,000	- - -	- - -	- - -
		36K	24K	- - -	- - -	- - -	23,000	15,000	- - -	- - -	- - -	26,000	17,300	- - -	- - -	- - -
		30K	30K	- - -	- - -	- - -	19,000	19,000	- - -	- - -	- - -	21,700	21,700	- - -	- - -	- - -
	3	24K	6K	6K	- - -	- - -	24,000	6,000	6,000	- - -	- - -	25,500	6,400	6,400	- - -	- - -
		30K	6K	6K	- - -	- - -	29,000	6,000	6,000	- - -	- - -	30,100	6,100	6,100	- - -	- - -
		36K	6K	6K	- - -	- - -	33,000	5,000	5,000	- - -	- - -	34,300	5,800	5,800	- - -	- - -
		24K	9K	6K	- - -	- - -	23,000	9,000	6,000	- - -	- - -	24,800	9,300	6,200	- - -	- - -
		30K	9K	6K	- - -	- - -	28,000	8,000	6,000	- - -	- - -	29,300	8,800	5,900	- - -	- - -
		36K	9K	6K	- - -	- - -	32,000	8,000	5,000	- - -	- - -	33,500	8,400	5,600	- - -	- - -
		18K	12K	6K	- - -	- - -	18,000	12,000	6,000	- - -	- - -	19,100	12,800	6,400	- - -	- - -
		24K	12K	6K	- - -	- - -	23,000	11,000	6,000	- - -	- - -	24,100	12,100	6,100	- - -	- - -
		30K	12K	6K	- - -	- - -	27,000	11,000	5,000	- - -	- - -	28,600	11,500	5,800	- - -	- - -
		36K	12K	6K	- - -	- - -	31,000	10,000	5,000	- - -	- - -	32,700	10,900	5,500	- - -	- - -
		18K	18K	6K	- - -	- - -	17,000	17,000	6,000	- - -	- - -	18,100	18,100	6,100	- - -	- - -
		24K	18K	6K	- - -	- - -	22,000	16,000	5,000	- - -	- - -	22,900	17,200	5,800	- - -	- - -
		30K	18K	6K	- - -	- - -	26,000	15,000	5,000	- - -	- - -	27,300	16,400	5,500	- - -	- - -
		36K	18K	6K	- - -	- - -	29,000	14,000	5,000	- - -	- - -	31,400	15,700	5,300	- - -	- - -
		24K	24K	6K	- - -	- - -	20,000	20,000	5,000	- - -	- - -	21,800	21,800	5,500	- - -	- - -
		30K	24K	6K	- - -	- - -	24,000	19,000	5,000	- - -	- - -	26,200	21,000	5,300	- - -	- - -
		18K	9K	9K	- - -	- - -	18,000	9,000	9,000	- - -	- - -	19,100	9,600	9,600	- - -	- - -
		24K	9K	9K	- - -	- - -	23,000	9,000	9,000	- - -	- - -	24,100	9,100	9,100	- - -	- - -
		30K	9K	9K	- - -	- - -	27,000	8,000	8,000	- - -	- - -	28,600	8,600	8,600	- - -	- - -
		36K	9K	9K	- - -	- - -	31,000	8,000	8,000	- - -	- - -	32,700	8,200	8,200	- - -	- - -
		12K	12K	9K	- - -	- - -	12,000	12,000	9,000	- - -	- - -	13,200	13,200	9,900	- - -	- - -
		18K	12K	9K	- - -	- - -	18,000	12,000	9,000	- - -	- - -	18,600	12,400	9,300	- - -	- - -
		24K	12K	9K	- - -	- - -	22,000	11,000	8,000	- - -	- - -	23,500	11,800	8,800	- - -	- - -
		30K	12K	9K	- - -	- - -	26,000	11,000	8,000	- - -	- - -	27,900	11,200	8,400	- - -	- - -
		36K	12K	9K	- - -	- - -	30,000	10,000	7,000	- - -	- - -	32,100	10,700	8,100	- - -	- - -
		18K	18K	9K	- - -	- - -	17,000	17,000	8,000	- - -	- - -	17,600	17,600	8,800	- - -	- - -
		24K	18K	9K	- - -	- - -	21,000	16,000	8,000	- - -	- - -	22,300	16,800	8,400	- - -	- - -
		30K	18K	9K	- - -	- - -	25,000	15,000	7,000	- - -	- - -	26,700	16,100	8,100	- - -	- - -
		36K	18K	9K	- - -	- - -	28,000	14,000	7,000	- - -	- - -	30,900	15,500	7,800	- - -	- - -
		24K	24K	9K	- - -	- - -	20,000	20,000	7,000	- - -	- - -	21,400	21,400	8,100	- - -	- - -
		30K	24K	9K	- - -	- - -	23,000	19,000	7,000	- - -	- - -	25,700	20,600	7,800	- - -	- - -
		12K	12K	12K	- - -	- - -	12,000	12,000	12,000	- - -	- - -	12,800	12,800	12,800	- - -	- - -

Table 5. MLB and MPC 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
MLB and MPC048S4M	3	18K	12K	12K	- - -	- - -	17,000	11,000	11,000	- - -	- - -	18,100	12,100	12,100	- - -	- - -
		24K	12K	12K	- - -	- - -	22,000	11,000	11,000	- - -	- - -	22,900	11,500	11,500	- - -	- - -
		30K	12K	12K	- - -	- - -	26,000	10,000	10,000	- - -	- - -	27,300	10,900	10,900	- - -	- - -
		36K	12K	12K	- - -	- - -	29,000	10,000	10,000	- - -	- - -	31,400	10,500	10,500	- - -	- - -
		18K	18K	12K	- - -	- - -	16,000	16,000	11,000	- - -	- - -	17,200	17,200	11,500	- - -	- - -
		24K	18K	12K	- - -	- - -	20,000	15,000	10,000	- - -	- - -	21,800	16,400	10,900	- - -	- - -
		30K	18K	12K	- - -	- - -	24,000	14,000	10,000	- - -	- - -	26,200	15,700	10,500	- - -	- - -
		24K	24K	12K	- - -	- - -	19,000	19,000	10,000	- - -	- - -	21,000	21,000	10,500	- - -	- - -
		18K	18K	18K	- - -	- - -	15,000	15,000	15,000	- - -	- - -	16,400	16,400	16,400	- - -	- - -
		24K	18K	18K	- - -	- - -	19,000	14,000	14,000	- - -	- - -	21,000	15,700	15,700	- - -	- - -
MLB and MPC048S4M	4	18K	6K	6K	6K	- - -	18,000	6,000	6,000	6,000	- - -	- - -	19,400	6,500	6,500	6,500
		24K	6K	6K	6K	- - -	24,000	6,000	6,000	6,000	- - -	- - -	25,100	6,300	6,300	6,300
		30K	6K	6K	6K	- - -	29,000	6,000	6,000	6,000	- - -	- - -	30,100	6,100	6,100	6,100
		36K	6K	6K	6K	- - -	32,000	5,000	5,000	5,000	- - -	- - -	33,800	5,700	5,700	5,700
		18K	9K	6K	6K	- - -	18,000	9,000	6,000	6,000	- - -	- - -	19,100	9,600	6,400	6,400
		24K	9K	6K	6K	- - -	24,000	9,000	6,000	6,000	- - -	- - -	24,600	9,300	6,200	6,200
		30K	9K	6K	6K	- - -	28,000	8,000	6,000	6,000	- - -	- - -	29,200	8,800	5,900	5,900
		36K	9K	6K	6K	- - -	31,000	8,000	5,000	5,000	- - -	- - -	32,500	8,200	5,500	5,500
		12K	12K	6K	6K	- - -	12,000	12,000	6,000	6,000	- - -	- - -	12,900	12,900	6,500	6,500
		18K	12K	6K	6K	- - -	18,000	12,000	6,000	6,000	- - -	- - -	18,900	12,600	6,300	6,300
		24K	12K	6K	6K	- - -	23,000	11,000	6,000	6,000	- - -	- - -	24,100	12,100	6,100	6,100
		30K	12K	6K	6K	- - -	27,000	11,000	5,000	5,000	- - -	- - -	28,200	11,300	5,700	5,700
		36K	12K	6K	6K	- - -	30,000	10,000	5,000	5,000	- - -	- - -	31,000	10,400	5,200	5,200
		18K	18K	6K	6K	- - -	17,000	17,000	6,000	6,000	- - -	- - -	18,100	18,100	6,100	6,100
		24K	18K	6K	6K	- - -	22,000	16,000	5,000	5,000	- - -	- - -	22,600	16,900	5,700	5,700
		30K	18K	6K	6K	- - -	25,000	15,000	5,000	5,000	- - -	- - -	25,800	15,500	5,200	5,200
		24K	24K	6K	6K	- - -	20,000	20,000	5,000	5,000	- - -	- - -	20,700	20,700	5,200	5,200
		12K	9K	9K	6K	- - -	12,000	9,000	9,000	6,000	- - -	- - -	12,900	9,700	9,700	6,500
		18K	9K	9K	6K	- - -	18,000	9,000	9,000	6,000	- - -	- - -	18,900	9,500	9,500	6,300
		24K	9K	9K	6K	- - -	23,000	9,000	9,000	6,000	- - -	- - -	24,100	9,100	9,100	6,100
		30K	9K	9K	6K	- - -	27,000	8,000	8,000	5,000	- - -	- - -	28,200	8,500	8,500	5,700
		36K	9K	9K	6K	- - -	30,000	7,000	7,000	5,000	- - -	- - -	31,000	7,800	7,800	5,200
		12K	12K	9K	6K	- - -	12,000	12,000	9,000	6,000	- - -	- - -	12,800	12,800	9,600	6,400
		18K	12K	9K	6K	- - -	18,000	12,000	9,000	6,000	- - -	- - -	18,500	12,300	9,300	6,200
		24K	12K	9K	6K	- - -	22,000	11,000	8,000	6,000	- - -	- - -	23,400	11,700	8,800	5,900
		30K	12K	9K	6K	- - -	26,000	10,000	8,000	5,000	- - -	- - -	27,100	10,900	8,200	5,500
		36K	12K	9K	6K	- - -	28,000	9,000	7,000	5,000	- - -	- - -	29,300	9,800	7,400	4,900
		18K	18K	9K	6K	- - -	17,000	17,000	8,000	6,000	- - -	- - -	17,500	17,500	8,800	5,900
		24K	18K	9K	6K	- - -	21,000	16,000	8,000	5,000	- - -	- - -	21,700	16,300	8,200	5,500
		30K	18K	9K	6K	- - -	24,000	14,000	7,000	5,000	- - -	- - -	24,500	14,700	7,400	4,900
		12K	12K	12K	6K	- - -	12,000	12,000	12,000	6,000	- - -	- - -	12,600	12,600	12,600	6,300
		18K	12K	12K	6K	- - -	17,000	11,000	11,000	6,000	- - -	- - -	18,100	12,100	12,100	6,100
		24K	12K	12K	6K	- - -	22,000	11,000	11,000	5,000	- - -	- - -	22,600	11,300	11,300	5,700
		30K	12K	12K	6K	- - -	25,000	10,000	10,000	5,000	- - -	- - -	25,800	10,400	10,400	5,200

Table 5. MLB and MPC 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
MLB and MPC048S4M	4	18K	18K	12K	6K	- - -	16,000	16,000	11,000	5,000	- - -	- - -	16,900	16,900	11,300	5,700
		24K	18K	12K	6K	- - -	20,000	15,000	10,000	5,000	- - -	- - -	20,700	15,500	10,400	5,200
		9K	9K	9K	9K	- - -	9,000	9,000	9,000	9,000	- - -	- - -	9,700	9,700	9,700	9,700
		12K	9K	9K	9K	- - -	12,000	9,000	9,000	9,000	- - -	- - -	12,800	9,600	9,600	9,600
		18K	9K	9K	9K	- - -	18,000	9,000	9,000	9,000	- - -	- - -	18,500	9,300	9,300	9,300
		24K	9K	9K	9K	- - -	22,000	8,000	8,000	8,000	- - -	- - -	23,400	8,800	8,800	8,800
		30K	9K	9K	9K	- - -	26,000	8,000	8,000	8,000	- - -	- - -	27,100	8,200	8,200	8,200
		36K	9K	9K	9K	- - -	28,000	7,000	7,000	7,000	- - -	- - -	29,300	7,400	7,400	7,400
		12K	12K	9K	9K	- - -	12,000	12,000	9,000	9,000	- - -	- - -	12,600	12,600	9,500	9,500
		18K	12K	9K	9K	- - -	17,000	11,000	9,000	9,000	- - -	- - -	18,100	12,100	9,100	9,100
		24K	12K	9K	9K	- - -	22,000	11,000	8,000	8,000	- - -	- - -	22,600	11,300	8,500	8,500
		30K	12K	9K	9K	- - -	25,000	10,000	7,000	7,000	- - -	25,800	10,400	7,800	7,800	- - -
		18K	18K	9K	9K	- - -	16,000	16,000	8,000	8,000	- - -	16,900	16,900	8,500	8,500	- - -
		24K	18K	9K	9K	- - -	20,000	15,000	7,000	7,000	- - -	20,700	15,500	7,800	7,800	- - -
		12K	12K	12K	9K	- - -	12,000	12,000	12,000	9,000	- - -	12,300	12,300	12,300	9,300	- - -
		18K	12K	12K	9K	- - -	17,000	11,000	11,000	8,000	- - -	17,500	11,700	11,700	8,800	- - -
		24K	12K	12K	9K	- - -	21,000	10,000	10,000	8,000	- - -	21,700	10,900	10,900	8,200	- - -
		30K	12K	12K	9K	- - -	24,000	9,000	9,000	7,000	- - -	24,500	9,800	9,800	7,400	- - -
		18K	18K	12K	9K	- - -	16,000	16,000	10,000	8,000	- - -	16,300	16,300	10,900	8,200	- - -
		24K	18K	12K	9K	- - -	19,000	14,000	9,000	7,000	- - -	19,600	14,700	9,800	7,400	- - -
		12K	12K	12K	12K	- - -	11,000	11,000	11,000	11,000	- - -	12,100	12,100	12,100	12,100	- - -
		18K	12K	12K	12K	- - -	16,000	11,000	11,000	11,000	- - -	16,900	11,300	11,300	11,300	- - -
		24K	12K	12K	12K	- - -	20,000	10,000	10,000	10,000	- - -	20,700	10,400	10,400	10,400	- - -
		18K	18K	12K	12K	- - -	15,000	15,000	10,000	10,000	- - -	15,500	15,500	10,400	10,400	- - -
	5	9K	6K	6K	6K	6K	9,000	6,000	6,000	6,000	6,000	10,000	7,000	7,000	7,000	7,000
		12K	6K	6K	6K	6K	12,000	6,000	6,000	6,000	6,000	13,000	6,000	6,000	6,000	6,000
		18K	6K	6K	6K	6K	18,000	6,000	6,000	6,000	6,000	19,000	6,000	6,000	6,000	6,000
		24K	6K	6K	6K	6K	24,000	6,000	6,000	6,000	6,000	25,000	6,000	6,000	6,000	6,000
		30K	6K	6K	6K	6K	28,000	6,000	6,000	6,000	6,000	29,000	5,000	5,000	5,000	5,000
		36K	6K	6K	6K	6K	31,000	5,000	5,000	5,000	5,000	32,000	5,000	5,000	5,000	5,000
		9K	9K	6K	6K	6K	9,000	9,000	6,000	6,000	6,000	10,000	10,000	6,000	6,000	6,000
		12K	9K	6K	6K	6K	12,000	9,000	6,000	6,000	6,000	13,000	10,000	6,000	6,000	6,000
		18K	9K	6K	6K	6K	18,000	9,000	6,000	6,000	6,000	19,000	9,000	6,000	6,000	6,000
		24K	9K	6K	6K	6K	23,000	9,000	6,000	6,000	6,000	24,000	9,000	6,000	6,000	6,000
		30K	9K	6K	6K	6K	27,000	8,000	5,000	5,000	5,000	28,000	8,000	5,000	5,000	5,000
		36K	9K	6K	6K	6K	29,000	7,000	5,000	5,000	5,000	31,000	7,000	5,000	5,000	5,000
		12K	12K	6K	6K	6K	12,000	12,000	6,000	6,000	6,000	13,000	13,000	6,000	6,000	6,000
		18K	12K	6K	6K	6K	18,000	12,000	6,000	6,000	6,000	18,000	12,000	6,000	6,000	6,000
		24K	12K	6K	6K	6K	22,000	11,000	6,000	6,000	6,000	23,000	11,000	5,000	5,000	5,000
		30K	12K	6K	6K	6K	26,000	10,000	5,000	5,000	5,000	27,000	10,000	5,000	5,000	5,000
		18K	18K	6K	6K	6K	17,000	17,000	6,000	6,000	6,000	17,000	17,000	5,000	5,000	5,000
		24K	18K	6K	6K	6K	21,000	16,000	5,000	5,000	5,000	21,000	16,000	5,000	5,000	5,000

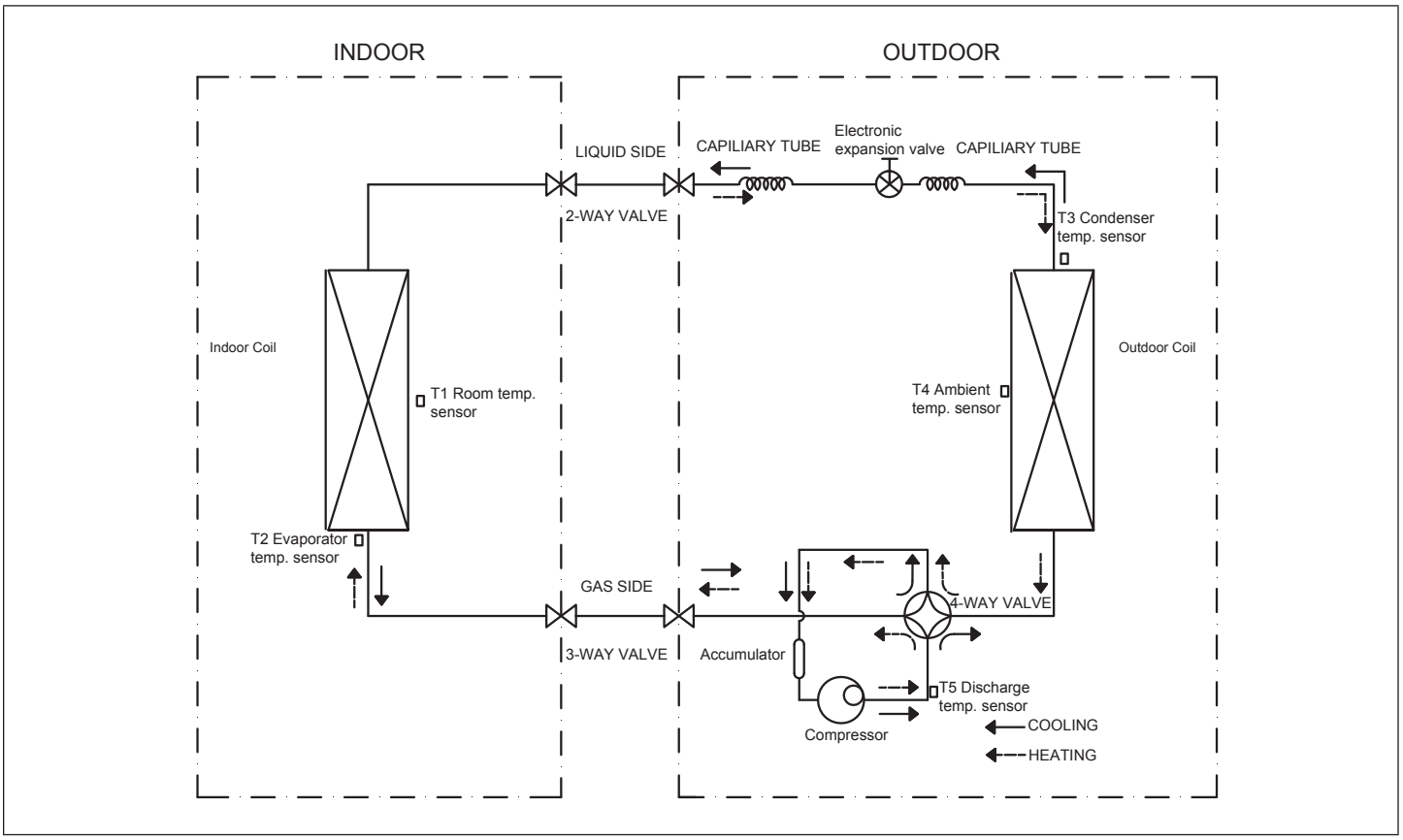
Table 5. MLB and MPC Multi-Zone System Combinations

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

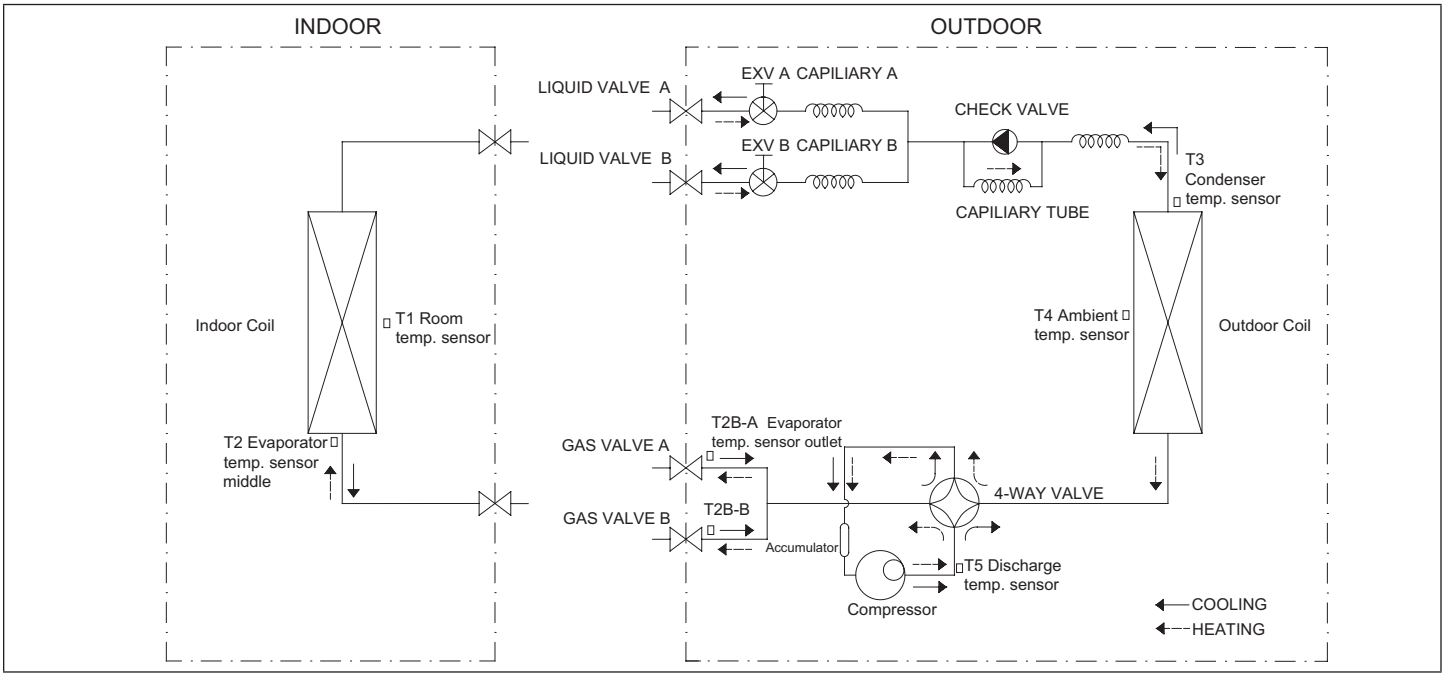
Outdoor Unit Model No.	Number of Zones	Indoor Unit Capacity					Nominal Cooling Capacity at Rated System Capacity (Btuh)					Nominal Heating Capacity at Rated System Capacity (Btuh)				
		#1	#2	#3	#4	#5	#1	#2	#3	#4	#5	#1	#2	#3	#4	#5
MLB and MPC048S4M	5	9K	9K	9K	6K	6K	9,000	9,000	9,000	6,000	6,000	10,000	10,000	10,000	6,000	6,000
		12K	9K	9K	6K	6K	12,000	9,000	9,000	6,000	6,000	13,000	9,000	9,000	6,000	6,000
		18K	9K	9K	6K	6K	18,000	9,000	9,000	6,000	6,000	18,000	9,000	9,000	6,000	6,000
		24K	9K	9K	6K	6K	22,000	8,000	8,000	6,000	6,000	23,000	8,000	8,000	5,000	5,000
		30K	9K	9K	6K	6K	26,000	8,000	8,000	5,000	5,000	27,000	8,000	8,000	5,000	5,000
		12K	12K	9K	6K	6K	12,000	12,000	9,000	6,000	6,000	12,000	12,000	9,000	6,000	6,000
		18K	12K	9K	6K	6K	17,000	12,000	9,000	6,000	6,000	18,000	12,000	9,000	6,000	6,000
		24K	12K	9K	6K	6K	22,000	11,000	8,000	5,000	5,000	22,000	11,000	8,000	5,000	5,000
		30K	12K	9K	6K	6K	24,000	10,000	7,000	5,000	5,000	26,000	10,000	7,000	5,000	5,000
		18K	18K	9K	6K	6K	16,000	16,000	8,000	5,000	5,000	17,000	17,000	8,000	5,000	5,000
		24K	18K	9K	6K	6K	20,000	15,000	7,000	5,000	5,000	21,000	15,000	7,000	5,000	5,000
		12K	12K	12K	6K	6K	12,000	12,000	12,000	6,000	6,000	12,000	12,000	12,000	6,000	6,000
		18K	12K	12K	6K	6K	17,000	11,000	11,000	6,000	6,000	17,000	11,000	11,000	5,000	5,000
		24K	12K	12K	6K	6K	21,000	10,000	10,000	5,000	5,000	21,000	10,000	10,000	5,000	5,000
		18K	18K	12K	6K	6K	16,000	16,000	10,000	5,000	5,000	16,000	16,000	10,000	5,000	5,000
		9K	9K	9K	9K	6K	9,000	9,000	9,000	9,000	6,000	9,000	9,000	9,000	9,000	6,000
		12K	9K	9K	9K	6K	12,000	9,000	9,000	9,000	6,000	12,000	9,000	9,000	9,000	6,000
		18K	9K	9K	9K	6K	17,000	9,000	9,000	9,000	6,000	18,000	9,000	9,000	9,000	6,000
		24K	9K	9K	9K	6K	22,000	8,000	8,000	8,000	5,000	22,000	8,000	8,000	8,000	5,000
		30K	9K	9K	9K	6K	24,000	7,000	7,000	7,000	5,000	26,000	7,000	7,000	7,000	5,000
		12K	12K	9K	9K	6K	12,000	12,000	9,000	9,000	6,000	12,000	12,000	9,000	9,000	6,000
		18K	12K	9K	9K	6K	17,000	11,000	8,000	8,000	6,000	17,000	11,000	8,000	8,000	5,000
		24K	12K	9K	9K	6K	21,000	10,000	8,000	8,000	5,000	21,000	10,000	8,000	8,000	5,000
		18K	18K	9K	9K	6K	16,000	16,000	8,000	8,000	5,000	16,000	16,000	8,000	8,000	5,000
		12K	12K	12K	9K	6K	12,000	12,000	12,000	9,000	6,000	12,000	12,000	12,000	9,000	6,000
		18K	12K	12K	9K	6K	16,000	11,000	11,000	8,000	5,000	17,000	11,000	11,000	8,000	5,000
		24K	12K	12K	9K	6K	20,000	10,000	10,000	7,000	5,000	21,000	10,000	10,000	7,000	5,000
		12K	12K	12K	12K	6K	11,000	11,000	11,000	11,000	6,000	11,000	11,000	11,000	11,000	5,000
		18K	12K	12K	12K	6K	16,000	10,000	10,000	10,000	5,000	16,000	10,000	10,000	10,000	5,000
		9K	9K	9K	9K	9K	9,000	9,000	9,000	9,000	9,000	9500	9500	9500	9500	9500
		12K	9K	9K	9K	9K	12,000	9,000	9,000	9,000	9,000	12,000	9,000	9,000	9,000	9,000
		18K	9K	9K	9K	9K	17,000	8,000	8,000	8,000	8,000	17,000	8,000	8,000	8,000	8,000
		24K	9K	9K	9K	9K	21,000	8,000	8,000	8,000	8,000	21,000	8,000	8,000	8,000	8,000
		12K	12K	9K	9K	9K	12,000	12,000	9,000	9,000	9,000	12,000	12,000	9,000	9,000	9,000
		18K	12K	9K	9K	9K	16,000	11,000	8,000	8,000	8,000	17,000	11,000	8,000	8,000	8,000
		24K	12K	9K	9K	9K	20,000	10,000	7,000	7,000	7,000	21,000	10,000	7,000	7,000	7,000
		12K	12K	12K	9K	9K	11,000	11,000	11,000	8,000	8,000	11,000	11,000	11,000	8,000	8,000
		18K	12K	12K	9K	9K	16,000	10,000	10,000	8,000	8,000	16,000	10,000	10,000	8,000	8,000
		12K	12K	12K	12K	9K	11,000	11,000	11,000	11,000	8,000	11,000	11,000	11,000	11,000	8,000
		12K	12K	12K	12K	12K	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000

11. Refrigeration Pipe Work

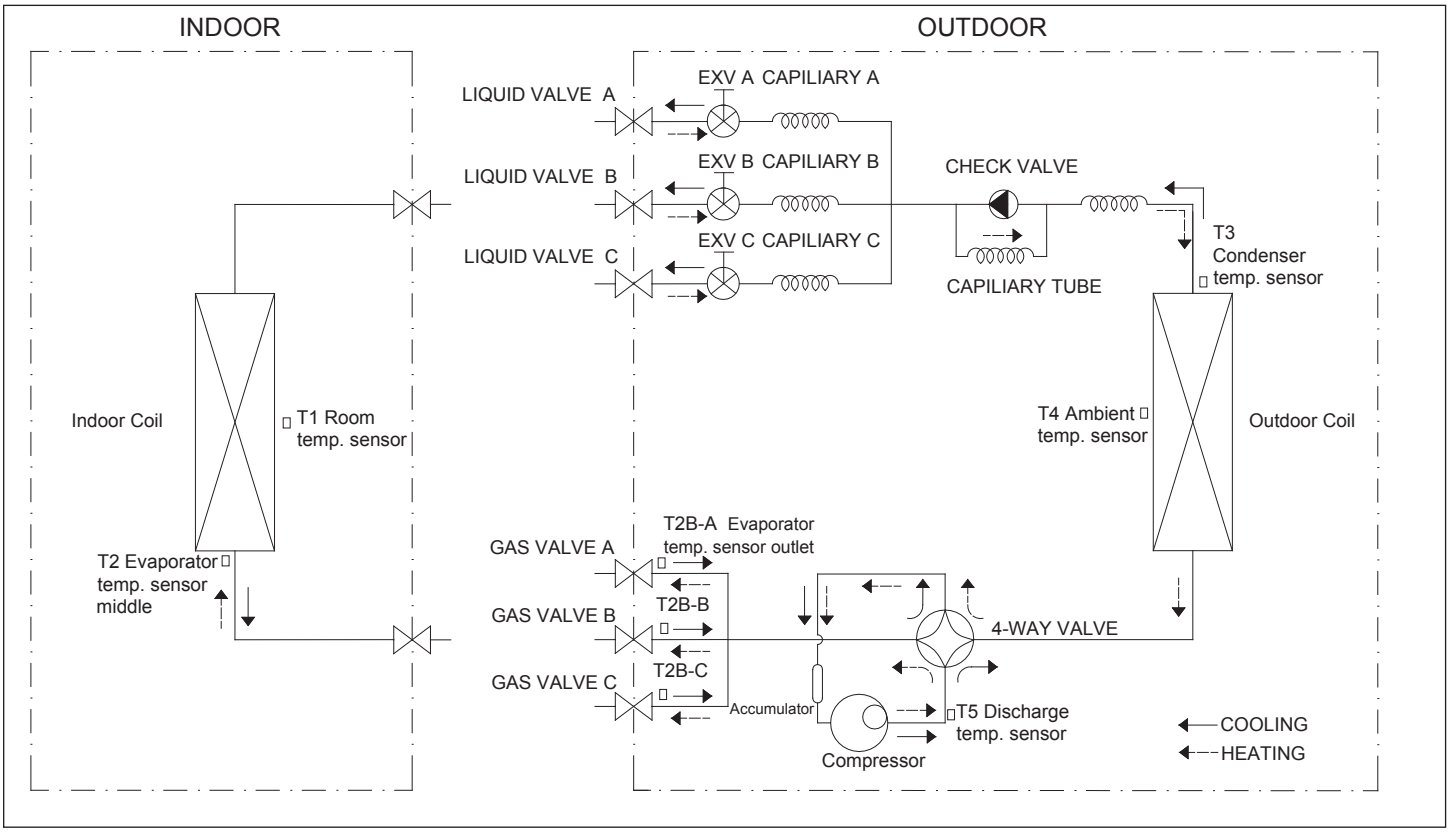
11.1. MPC and 3PB/3PC Single-Zone Refrigerant Cycle Diagram



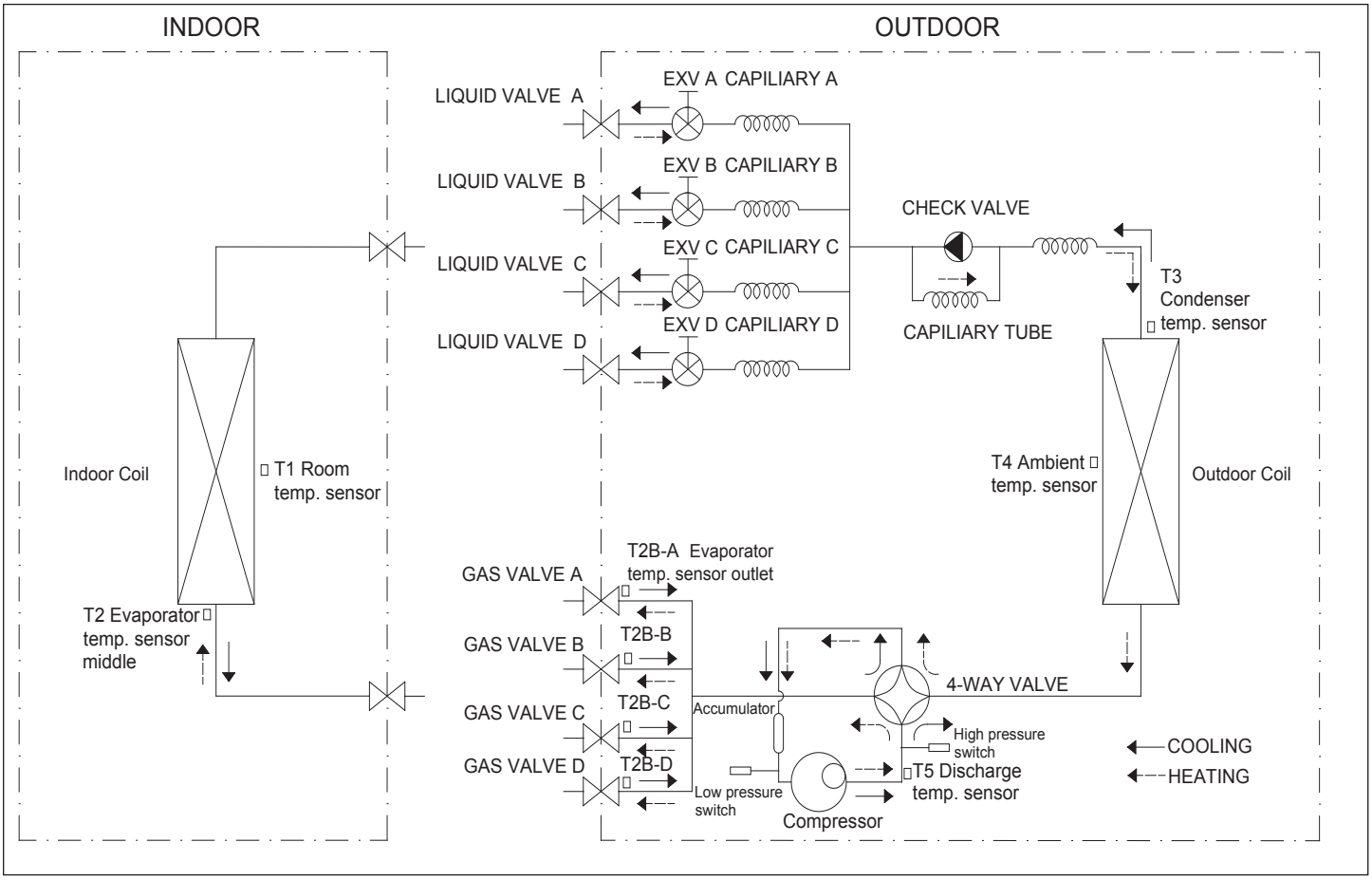
11.2. MPC Two-Zone Refrigerant Cycle Diagram



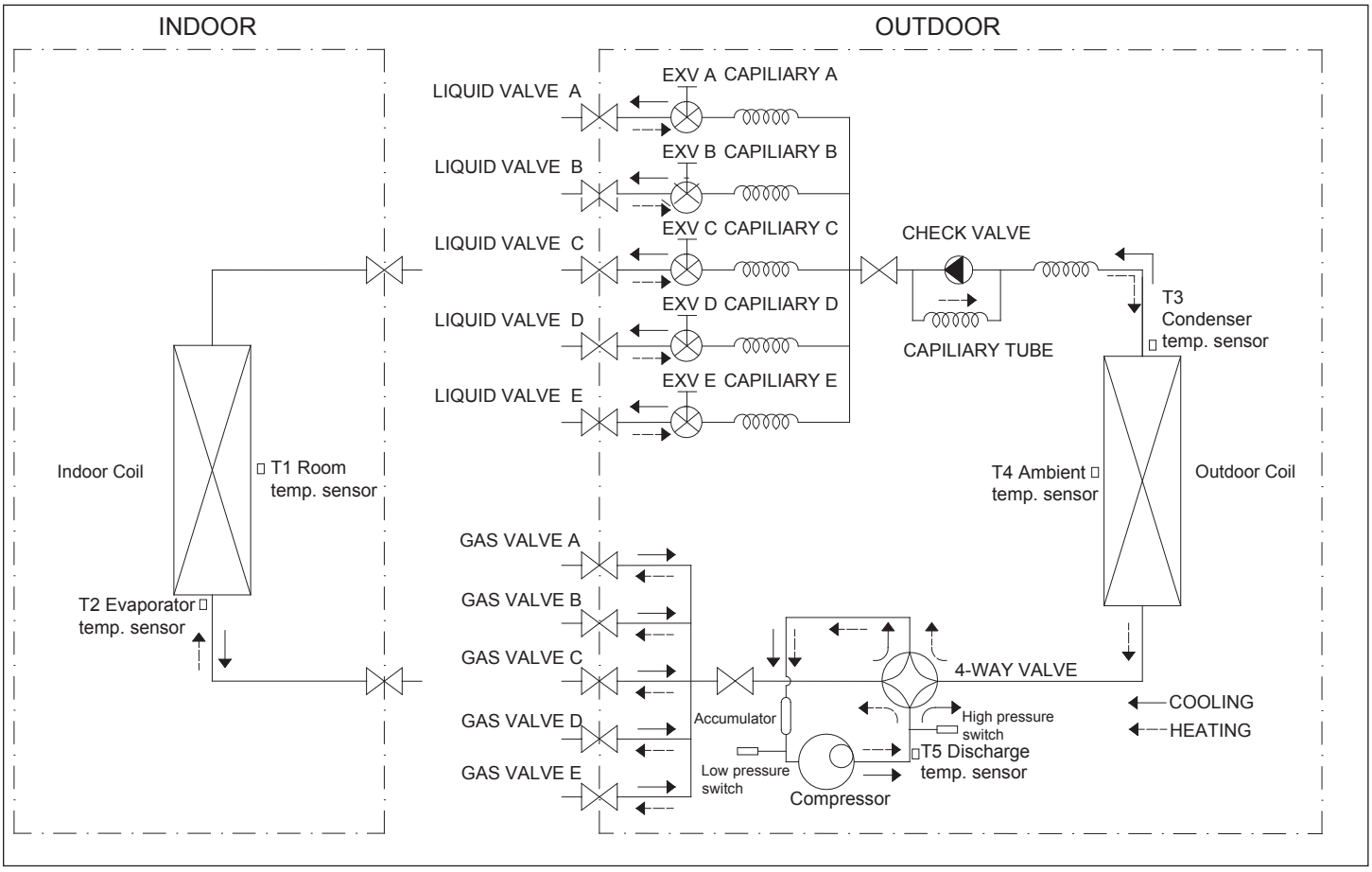
11.3. MPC Three-Zone Refrigerant Cycle Diagram



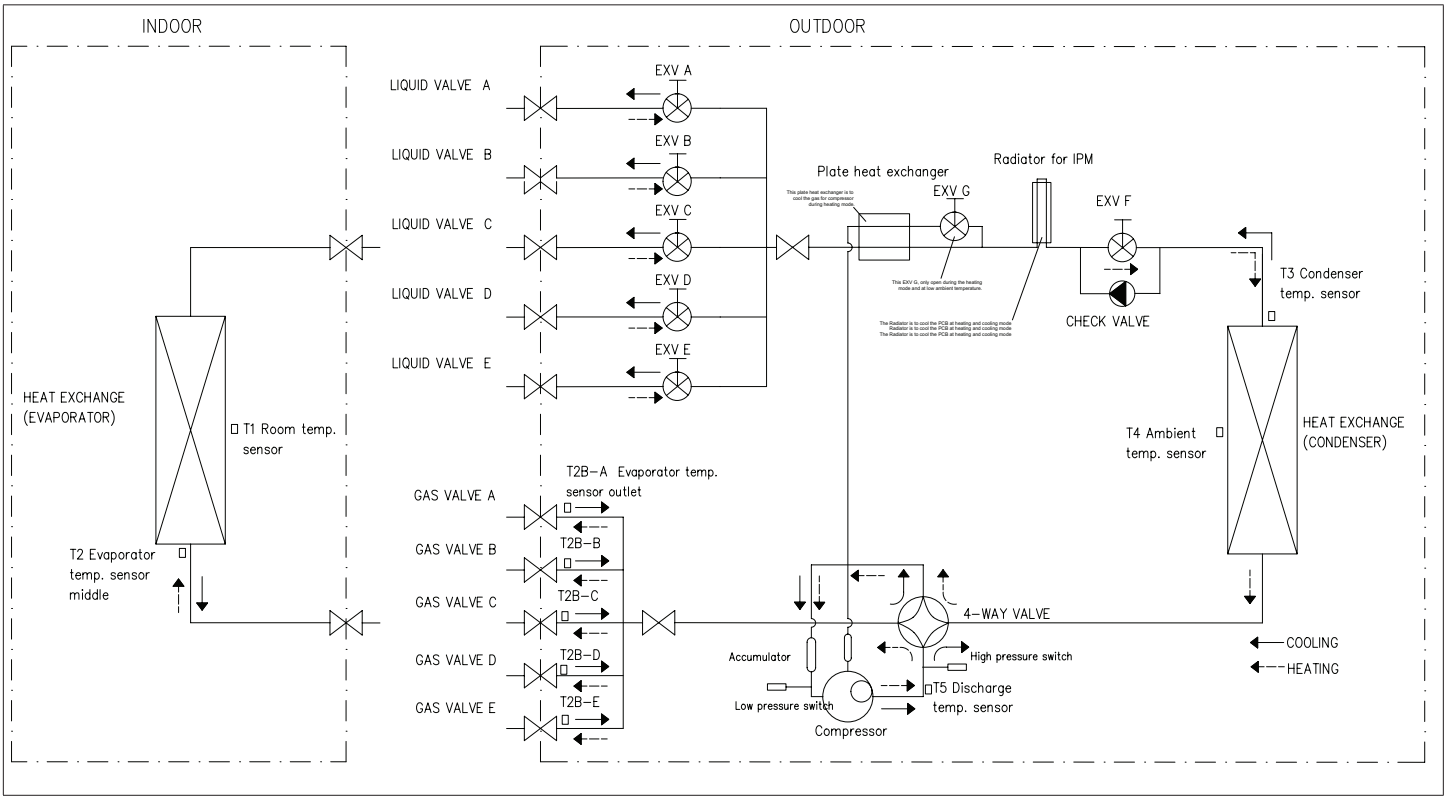
11.4. MPC Four-Zone Refrigerant Cycle Diagram



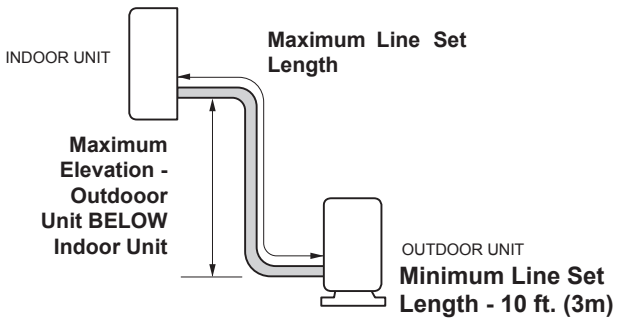
11.5. MPC Five-Zone Refrigerant Cycle Diagram



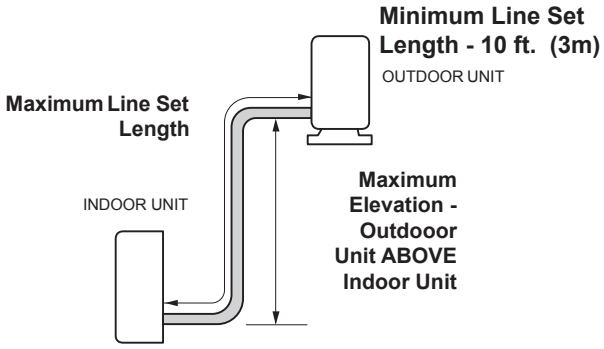
11.6. MLB Six-Zone Refrigerant Cycle Diagram



11.7. Single-Zone Piping Limitations



Outside Unit BELOW Indoor Unit



Outside Unit ABOVE Indoor Unit

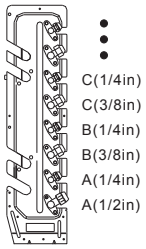
IMPORTANT

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)
024/030	3/8	5/8	82 ft. (25 m)	82 ft. (25 m)	164 ft. (50 m)
036/048, 3PB-036, 3PC-036	3/8	5/8	98 ft. (30 m)	98 ft. (30 m)	213 ft. (65 m)

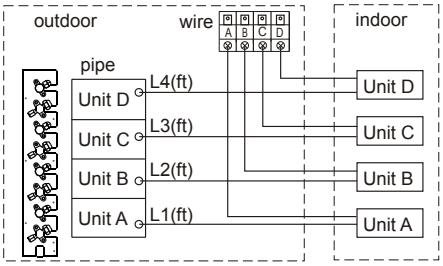
11.8. Multi-Zone Piping Limitations

Connecting Multiple Capacity Indoor Units



Four-Zone System Example Shown Above

Pipe and Wire Each Zone Separately



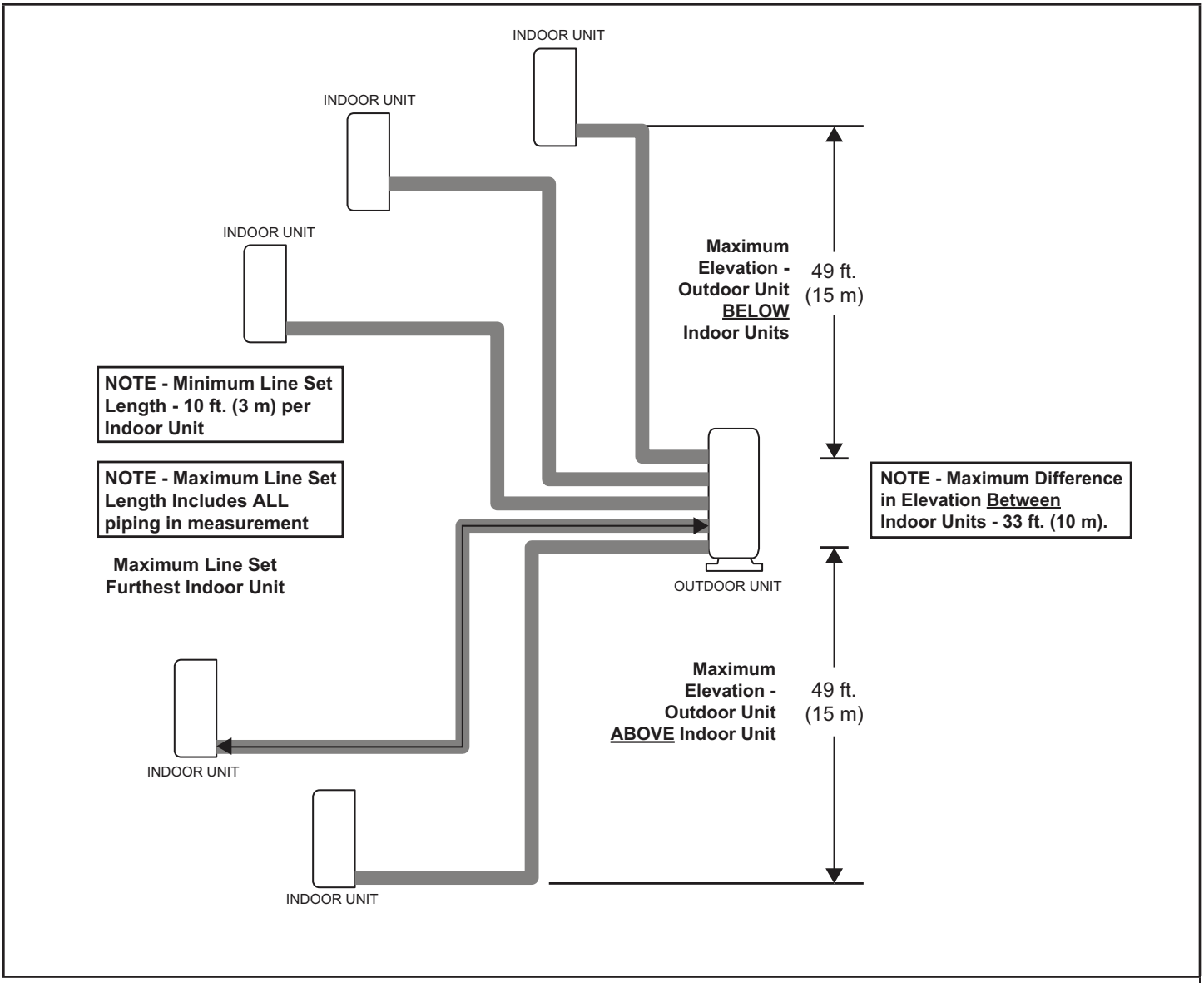
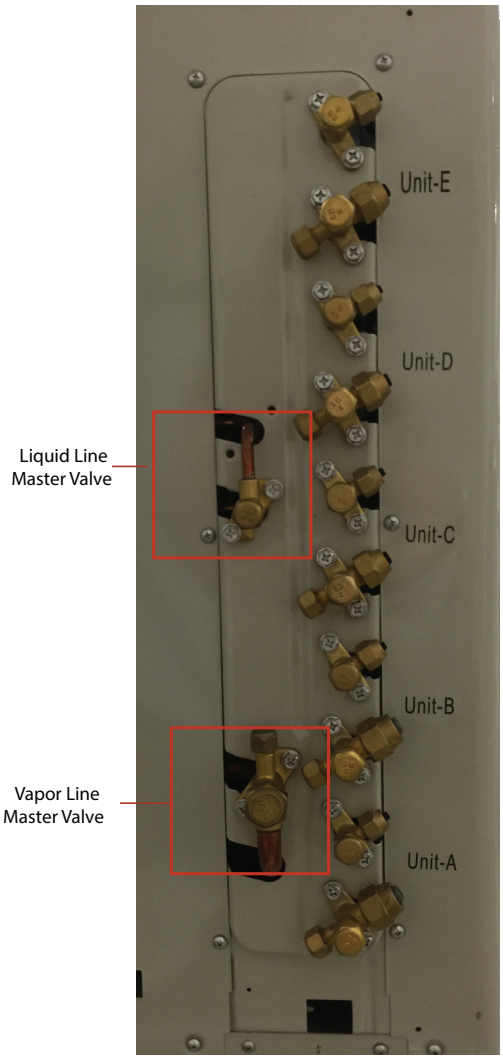


Figure 30. MPC and MLB Line Set Elevations

Outdoor Unit Model No.	MLB018S4M / MPC018S4M	MLB030S4M / MPC030S4M	MLB036S4M / MPC036S4M	MLB048S4M / MPC048S4M
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)

12. 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.



MLB and MPC Connection and Line Set Usage

Table 6. MLB and MPC018S4M

Number of Zones and Outdoor Unit Connection Sizes
NOTE - Letter = Indoor Unit Zone Connection on Outdoor Unit

Zone 1 (A)	Zone 2 (A)
1/4 in. liq + 3/8 in. gas	1/4 in. liq + 3/8 in. gas
006	006
009	006
012	006
009	009
012	009
012	012

LEGEND:
CLEAR = No adapters required.
GRAY = 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).

13. MLB and MPC Multi-Zone Outdoor Unit Connections and Line Set Usage

Table 7. MLB018S4M

Number of Zones and Outdoor Unit Connection Sizes NOTE - Letter = Indoor Unit Zone Connection on Outdoor Unit	
Zone 1 (A)	**Zone 2 (B)**
1/4 in. liq + 3/8 in. gas	**1/4 in. liq + 3/8 in. gas**
009	009
009	012
012	012

LEGEND:
CLEAR = No adapters required.
GRAY = 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).

Table 8. MLB and MPC018S4M

Number of Zones and Outdoor Unit Connection Sizes NOTE - Letter = Indoor Unit Zone Connection on Outdoor Unit	
Zone 1 (A)	**Zone 2 (A)**
1/4 in. liq + 3/8 in. gas	**1/4 in. liq + 3/8 in. gas**
006	006
009	006
012	006
009	009
012	009
012	012

LEGEND:
CLEAR = No adapters required.
GRAY = 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).

Table 9. MLB and MPC024S4M

Number of Zones and Outdoor Unit Connection Sizes NOTE - Letter = Indoor Unit Zone Connection on Outdoor Unit		
Zone 1 (A)	**Zone 2 (B)**	**Zone 3 (C)**
1/4 in. liq + 3/8 in. gas	**1/4 in. liq + 3/8 in. gas**	**1/4 in. liq + 3/8 in. gas**
012	006	- - -
018	006	- - -
009	009	- - -
012	009	- - -
018	009	- - -
012	012	- - -
018	012	- - -
018	018	- - -
006	006	006
009	006	006
012	006	006
018	006	006
009	006	006
012	006	009
018	009	006
012	012	006
018	012	006
009	009	009
012	009	009

Table 9. MLB and MPC024S4M

Number of Zones and Outdoor Unit Connection Sizes NOTE - Letter = Indoor Unit Zone Connection on Outdoor Unit		
018	009	009
012	012	009
012	012	012

LEGEND:
CLEAR = No adapters required.
GRAY = 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).

Table 10. MLB and MPC030S4M

Number of Zones and Outdoor Unit Connection Sizes NOTE - Letter = Indoor Unit Zone Connection on Outdoor Unit		
Zone 1 (A)	**Zone 2 (B)**	**Zone 3 (C)**
1/4 in. liq + 3/8 in. gas	**1/4 in. liq + 3/8 in. gas**	**1/4 in. liq + 3/8 in. gas**
012	006	- - -
018	006	- - -
009	009	- - -
012	009	- - -
018	009	- - -
012	012	- - -
018	012	- - -
018	018	- - -
006	006	006
009	006	006
012	006	006
018	006	006
009	006	006
012	009	006
018	009	006
012	012	006
018	012	006
009	009	009
012	009	009
018	009	009
012	012	009
012	012	012

LEGEND:
CLEAR = No adapters required.
GRAY = 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).

Table 11. MLB and MPC036S4M

Number of Zones and Outdoor Unit Connection Sizes
NOTE - Letter = Indoor Unit Zone Connection on Outdoor Unit

Zone 1 (A)	Zone 2 (B)	Zone 3 (C)	Zone 4 (D)
1/4 in. liq + 1/2 in. gas	1/4 in. liq + 3/8 in. gas	1/4 in. liq + 3/8 in. gas	1/4 in. liq + 3/8 in. gas
018	006	- - -	- - -
024	006	- - -	- - -
018	009	- - -	- - -
024	009	- - -	- - -
012	012	- - -	- - -
018	012	- - -	- - -
024	012	- - -	- - -
018	018	- - -	- - -
024	018	- - -	- - -
024	[1] 024	- - -	- - -
012	006	006	- - -
018	006	006	- - -
024	006	006	- - -
012	009	006	- - -
018	009	006	- - -
024	009	006	- - -
012	012	006	- - -
018	012	006	- - -
024	012	006	- - -
018	018	006	- - -
024	018	006	- - -
009	009	009	- - -
012	009	009	- - -
018	009	009	- - -
024	009	009	- - -
012	012	009	- - -
018	012	009	- - -
024	012	009	- - -
018	018	009	- - -
012	012	012	- - -
018	012	012	- - -
024	012	012	- - -
018	018	012	- - -
006	006	006	006
009	006	006	006
012	006	006	006
018	006	006	006
024	006	006	006
009	009	006	006

LEGEND:

CLEAR = No adapters required.

GRAY = 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).

BLACK = 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 036 outdoor unit (furnished with outdoor unit).
1/2 x 5/8 in. gas pipe adapter is required for line set connection to the 036 outdoor unit (furnished with outdoor unit).

[1] 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 036 outdoor unit (furnished with outdoor unit).
3/8 x 5/8 in. gas pipe adapter is required for line set connection to the 036 outdoor unit (not furnished).

Table 11. MLB and MPC036S4M

Number of Zones and Outdoor Unit Connection Sizes
NOTE - Letter = Indoor Unit Zone Connection on Outdoor Unit

Zone 1 (A)	Zone 2 (B)	Zone 3 (C)	Zone 4 (D)
1/4 in. liq + 1/2 in. gas	1/4 in. liq + 3/8 in. gas	1/4 in. liq + 3/8 in. gas	1/4 in. liq + 3/8 in. gas
012	009	006	006
018	009	006	006
024	009	006	006
012	012	006	006
018	012	006	006
024	012	006	006
009	009	009	006
012	009	009	006
018	009	009	006
024	009	009	006
012	012	009	006
018	012	009	006
012	012	012	006
018	012	012	006
009	009	009	009
012	009	009	009
018	009	009	009
012	012	009	009
018	012	009	009
012	012	012	009
012	012	012	012

LEGEND:
CLEAR = No adapters required.
GRAY = 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).
BLACK = 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 036 outdoor unit (furnished with outdoor unit).
1/2 x 5/8 in. gas pipe adapter is required for line set connection to the 036 outdoor unit (furnished with outdoor unit).

[1] 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 036 outdoor unit (furnished with outdoor unit).
3/8 x 5/8 in. gas pipe adapter is required for line set connection to the 036 outdoor unit (not furnished).

Table 12. MLB and MPC048S4M

Number of Zones and Outdoor Unit Connection Sizes
NOTE - Letter = Indoor Unit Zone Connection on Outdoor Unit

Zone 1 (A)	Zone 2 (B)	Zone 3 (C)	Zone 4 (D)	Zone 5 (E)
1/4 in. liq + 1/2 in. gas	1/4 in. liq + 1/2 in. gas	1/4 in. liq + 3/8 in. gas	1/4 in. liq + 3/8 in. gas	1/4 in. liq + 3/8 in. gas
024	009	- - -	- - -	- - -
030	009	- - -	- - -	- - -
036	009	- - -	- - -	- - -
024	012	- - -	- - -	- - -
030	012	- - -	- - -	- - -
036	012	- - -	- - -	- - -
018	018	- - -	- - -	- - -
024	018	- - -	- - -	- - -
024	024	- - -	- - -	- - -

LEGEND:
CLEAR = No adapters required.
GRAY = 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).
BLACK = 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).
1/2 x 5/8 in. gas pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

Table 12. MLB and MPC048S4M

Number of Zones and Outdoor Unit Connection Sizes
NOTE - Letter = Indoor Unit Zone Connection on Outdoor Unit

Zone 1 (A)	Zone 2 (B)	Zone 3 (C)	Zone 4 (D)	Zone 5 (E)
1/4 in. liq + 1/2 in. gas	1/4 in. liq + 1/2 in. gas	1/4 in. liq + 3/8 in. gas	1/4 in. liq + 3/8 in. gas	1/4 in. liq + 3/8 in. gas
030	018	- - -	- - -	- - -
036	018	- - -	- - -	- - -
030	024	- - -	- - -	- - -
036	024	- - -	- - -	- - -
030	030	- - -	- - -	- - -
024	006	006	- - -	- - -
030	006	006	- - -	- - -
036	006	006	- - -	- - -
024	009	006	- - -	- - -
030	009	006	- - -	- - -
036	009	006	- - -	- - -
018	012	006	- - -	- - -
024	012	006	- - -	- - -
030	012	006	- - -	- - -
036	012	006	- - -	- - -
018	018	006	- - -	- - -
024	018	006	- - -	- - -
030	018	006	- - -	- - -
036	018	006	- - -	- - -
024	024	006	- - -	- - -
030	024	006	- - -	- - -
018	009	009	- - -	- - -
024	009	009	- - -	- - -
030	009	009	- - -	- - -
036	009	009	- - -	- - -
012	012	009	- - -	- - -
018	012	009	- - -	- - -
024	012	009	- - -	- - -
030	012	009	- - -	- - -
036	012	009	- - -	- - -
018	018	009	- - -	- - -
024	018	009	- - -	- - -
030	018	009	- - -	- - -
036	018	009	- - -	- - -
024	024	009	- - -	- - -
030	024	009	- - -	- - -
012	012	012	- - -	- - -
018	012	012	- - -	- - -
024	012	012	- - -	- - -
030	012	012	- - -	- - -
036	012	012	- - -	- - -

LEGEND:
CLEAR = No adapters required.
GRAY = 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).
BLACK = 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).
1/2 x 5/8 in. gas pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

Table 12. MLB and MPC048S4M

Number of Zones and Outdoor Unit Connection Sizes
NOTE - Letter = Indoor Unit Zone Connection on Outdoor Unit

Zone 1 (A)	Zone 2 (B)	Zone 3 (C)	Zone 4 (D)	Zone 5 (E)
1/4 in. liq + 1/2 in. gas	1/4 in. liq + 1/2 in. gas	1/4 in. liq + 3/8 in. gas	1/4 in. liq + 3/8 in. gas	1/4 in. liq + 3/8 in. gas
018	018	012	- - -	- - -
024	018	012	- - -	- - -
030	018	012	- - -	- - -
024	024	012	- - -	- - -
018	018	018	- - -	- - -
024	018	018	- - -	- - -
018	006	006	006	- - -
024	006	006	006	- - -
030	006	006	006	- - -
036	006	006	006	- - -
018	009	006	006	- - -
024	009	006	006	- - -
030	009	006	006	- - -
036	009	006	006	- - -
012	012	006	006	- - -
018	012	006	006	- - -
024	012	006	006	- - -
030	012	006	006	- - -
036	012	006	006	- - -
018	018	006	006	- - -
024	018	006	006	- - -
030	018	006	006	- - -
024	024	006	006	- - -
012	009	009	006	- - -
018	009	009	006	- - -
024	009	009	006	- - -
030	009	009	006	- - -
036	009	009	006	- - -
012	012	009	006	- - -
018	012	009	006	- - -
024	012	009	006	- - -
030	012	009	006	- - -
036	012	009	006	- - -
018	018	009	006	- - -
024	018	009	006	- - -
030	018	009	006	- - -
012	012	012	006	- - -
018	012	012	006	- - -
024	012	012	006	- - -
030	012	012	006	- - -
018	018	012	006	- - -

LEGEND:
CLEAR = No adapters required.
GRAY = 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).
BLACK = 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).
1/2 x 5/8 in. gas pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

Table 12. MLB and MPC048S4M

Number of Zones and Outdoor Unit Connection Sizes
NOTE - Letter = Indoor Unit Zone Connection on Outdoor Unit

Zone 1 (A)	Zone 2 (B)	Zone 3 (C)	Zone 4 (D)	Zone 5 (E)
1/4 in. liq + 1/2 in. gas	1/4 in. liq + 1/2 in. gas	1/4 in. liq + 3/8 in. gas	1/4 in. liq + 3/8 in. gas	1/4 in. liq + 3/8 in. gas
024	018	012	006	- - -
009	009	009	009	- - -
012	009	009	009	- - -
018	009	009	009	- - -
024	009	009	009	- - -
030	009	009	009	- - -
036	009	009	009	- - -
012	012	009	009	- - -
018	012	009	009	- - -
024	012	009	009	- - -
030	012	009	009	- - -
018	018	009	009	- - -
024	018	009	009	- - -
012	012	012	009	- - -
018	012	012	009	- - -
024	012	012	009	- - -
030	012	012	009	- - -
018	018	012	009	- - -
024	018	012	009	- - -
012	012	012	012	- - -
018	012	012	012	- - -
024	012	012	012	- - -
018	018	012	012	- - -
009	006	006	006	006
012	006	006	006	006
018	006	006	006	006
024	006	006	006	006
030	006	006	006	006
036	006	006	006	006
009	009	006	006	006
012	009	006	006	006
018	009	006	006	006
024	009	006	006	006
030	009	006	006	006
036	009	006	006	006
012	012	006	006	006
018	012	006	006	006
024	012	006	006	006
030	012	006	006	006
018	018	006	006	006
024	018	006	006	006

LEGEND:
CLEAR = No adapters required.
GRAY = 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).
BLACK = 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).
1/2 x 5/8 in. gas pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

Table 12. MLB and MPC048S4M

Number of Zones and Outdoor Unit Connection Sizes
NOTE - Letter = Indoor Unit Zone Connection on Outdoor Unit

Zone 1 (A)	Zone 2 (B)	Zone 3 (C)	Zone 4 (D)	Zone 5 (E)
1/4 in. liq + 1/2 in. gas	1/4 in. liq + 1/2 in. gas	1/4 in. liq + 3/8 in. gas	1/4 in. liq + 3/8 in. gas	1/4 in. liq + 3/8 in. gas
009	009	009	006	006
012	009	009	006	006
018	009	009	006	006
024	009	009	006	006
030	009	009	006	006
012	012	009	006	006
018	012	009	006	006
024	012	009	006	006
030	012	009	006	006
018	018	009	006	006
024	018	009	006	006
012	012	012	006	006
018	012	012	006	006
024	012	012	006	006
018	018	012	006	006
009	009	009	009	006
012	009	009	009	006
018	009	009	009	006
024	009	009	009	006
030	009	009	009	006
012	012	009	009	006
018	012	009	009	006
024	012	009	009	006
018	018	009	009	006
012	012	012	009	006
018	012	012	009	006
024	012	012	009	006
012	012	012	012	006
018	012	012	012	006
009	009	009	009	009
012	009	009	009	009
018	009	009	009	009
024	009	009	009	009
012	012	009	009	009
018	012	009	009	009
024	012	009	009	009
012	012	012	009	009
018	012	012	009	009
012	012	012	012	009
012	012	012	012	012

LEGEND:

CLEAR = No adapters required.

GRAY = 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).

BLACK = 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).
1/2 x 5/8 in. gas pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

14. 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.

15. 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.

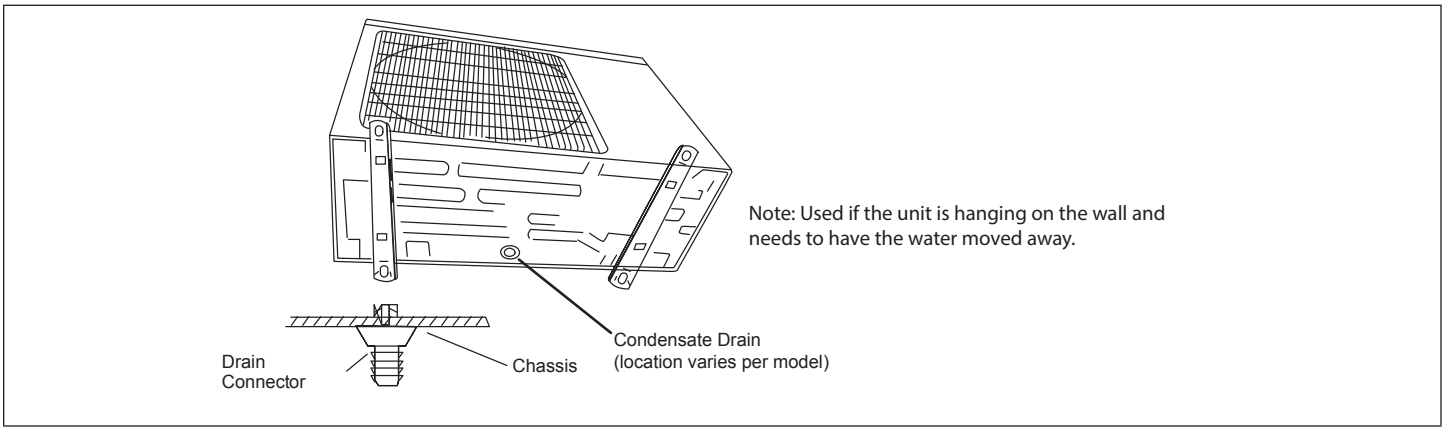


Figure 31. Condensate Drainage Requirement

16. MPC Condensate Pump Diagrams

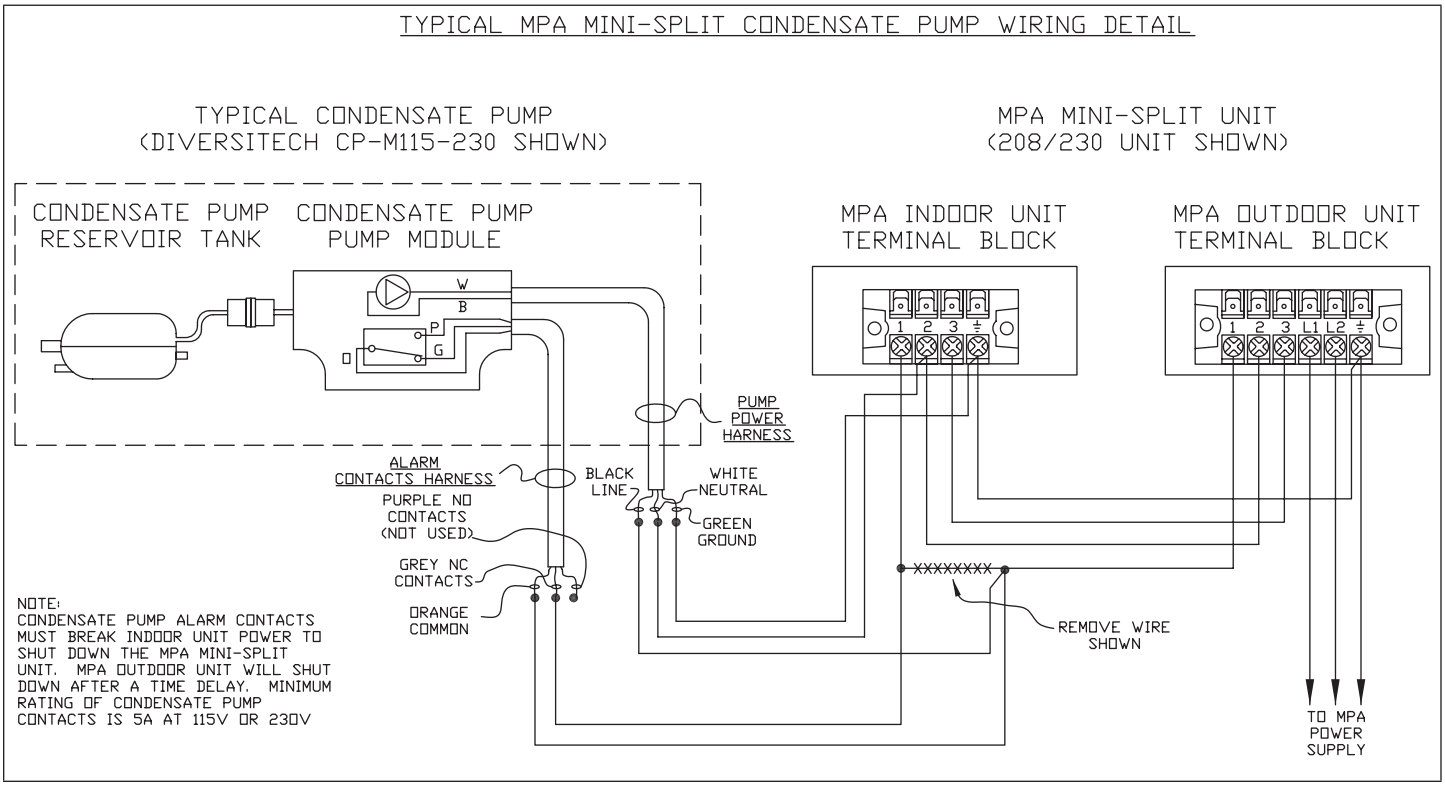


Figure 32. MPC Condensate Pump Powered by MPA Wiring Diagram

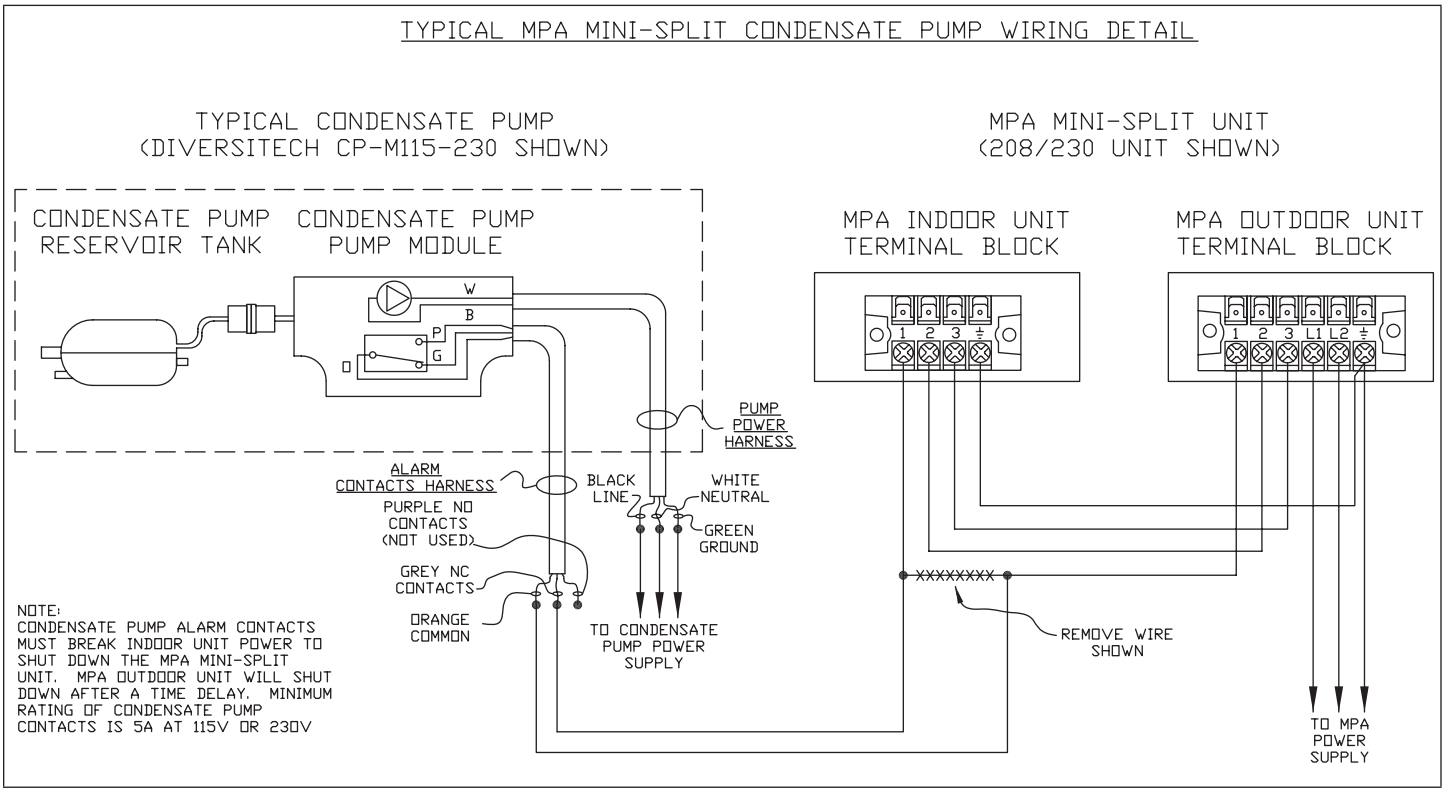


Figure 33. MPC Condensate Pump Powered by Separate Source Wiring Diagram

17. Installation Requirements

17.1. 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 13. 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)

17.2. Pipe Length and Elevation

Maximum piping length and height difference.

Table 14. 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 15. 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)

17.2.1. Additional Refrigerant Charge

Table 16. 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)

17.2.2. 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.

17.2.3. 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.

17.2.4. 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.

17.2.5. 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.

17.2.6. 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.

17.2.7. Servicing Indoor Unit Refrigeration Circuit

17.2.7.1 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.

17.2.7.2 Air Purging with Vacuum 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.

17.2.8. Evacuation after Servicing the Outdoor Unit Refrigeration Circuit

17.2.8.1 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.

17.2.8.2 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.

18. Electronic Function

18.1. 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

18.2. 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

19. Start-Up

19.1. 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 17. 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)

19.2. 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)

20. Single and Multi-Zone Outdoor Control Connections

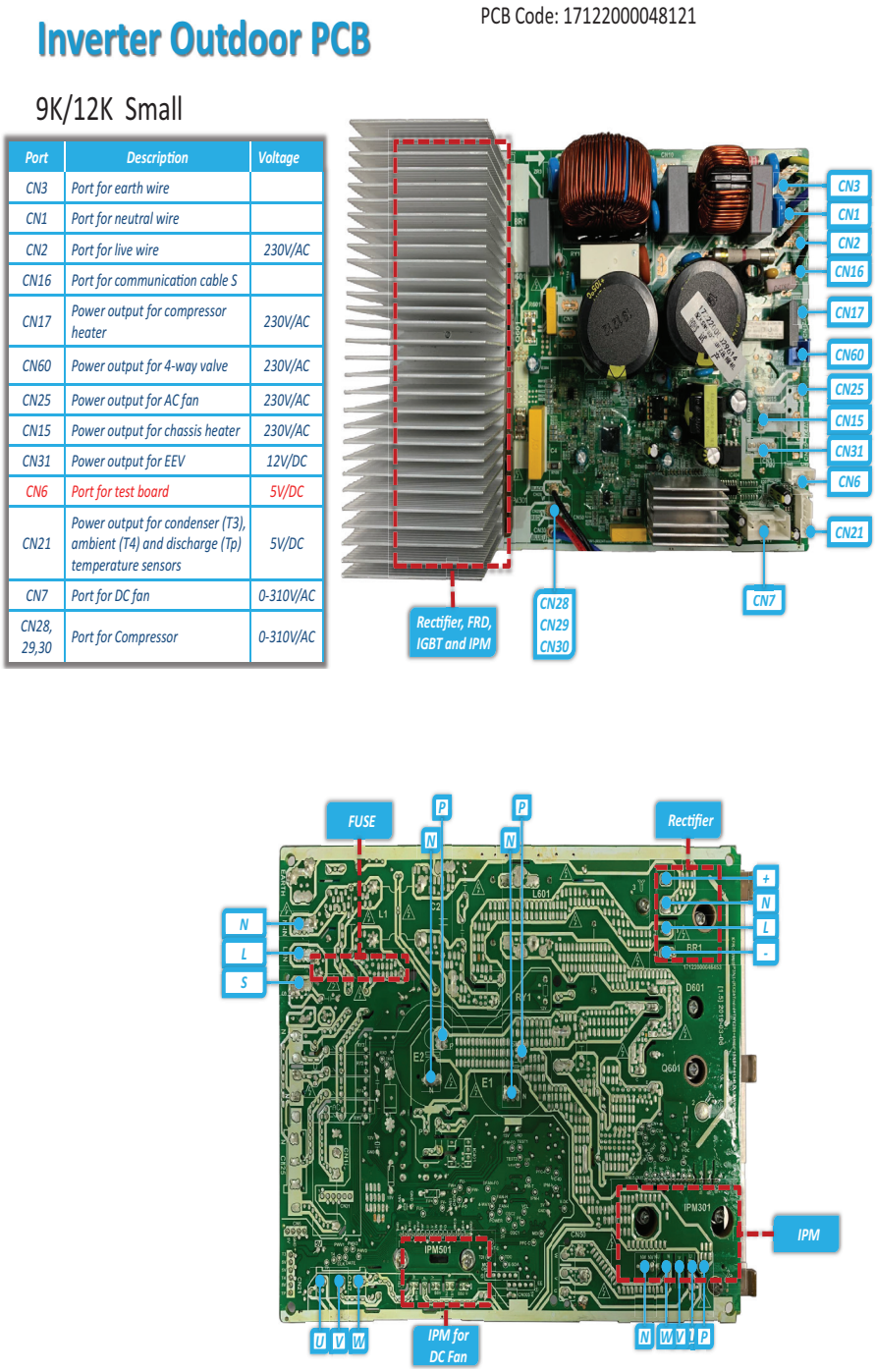


Figure 34. Typical Component Locations (MLB009S4S-1P, MLB012S4S-1P, MPC009S4S-1P and MPC012S4S-1P)

Inverter Outdoor PCB

PCB Code: 17122300001076

24K/30K Mono Main PCB

Port	Description	Voltage
CN1	Power output for 4-way valve	230V/AC
CN6	Power output for compressor heater	230V/AC
CN3	Port for L-in	230V/AC
CN9	Power output for chassis heater	230V/AC
CN4	Port for N-in	
CN29	N-out for IPM board	
CN37	L-out for IPM board	230V/AC
CN28	Port for communication with indoor unit	
CN26	Port for test board	5V/DC
CN21	Communication with IPM board	12V, 5V/DC
CN7	Power output for discharge (T5) temperature sensor	5V/DC
CN18	Power output for EEV	12V/AC

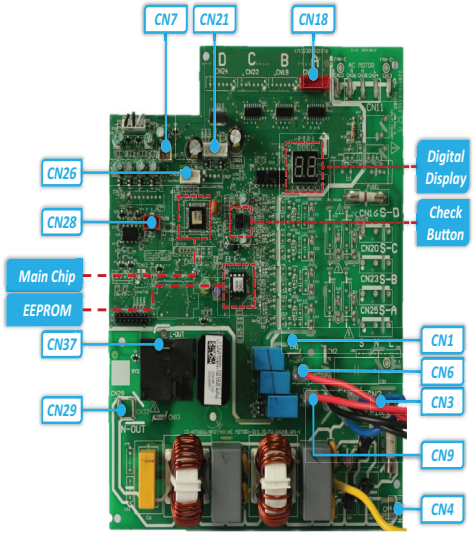


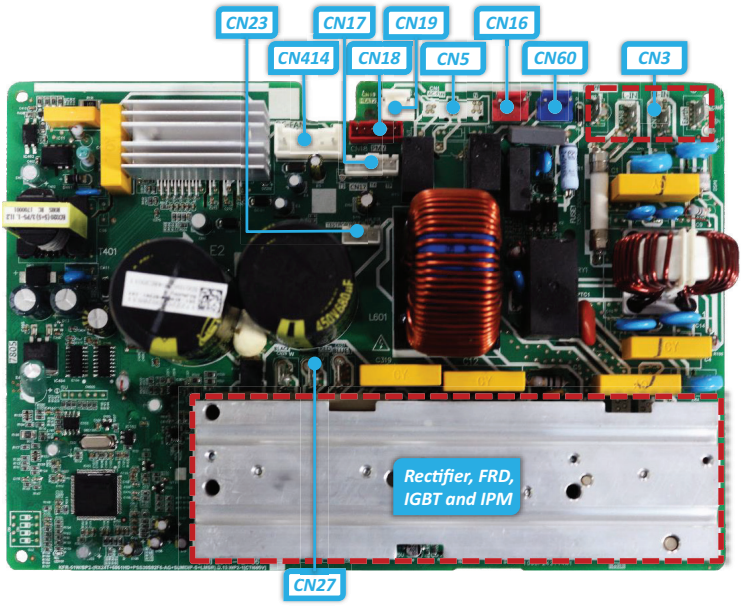
Figure 35. Typical Component Locations (MLB018S4M-1P, MLB030S4M-1P, MPC024S4M-1P, MPB018S4M-2P, MPB030S4M-2P and MPC036S4M-1P

Inverter Outdoor PCB

PCB Code: 17122000048064

18K/24K (Gas cooler) Alt.

Port	Description	Voltage
CN23	Port for test board	5V/DC
CN414	Port for DC fan	0-310V/AC
CN17	Power output for condenser (T3), ambient (T4) and discharge (Tp) temperature sensors	5V/DC
CN18	Power output for EEV	12V/DC
CN19	Power output for chassis heater	230V/AC
CN5	Power output for AC fan	230V/AC
CN16	Power output for compressor heater	230V/AC
CN60	Power output for 4-way valve	230V/AC
CN3	Port for power cable (E,N,L,S)	
CN27	Port for Compressor	0-310V/AC



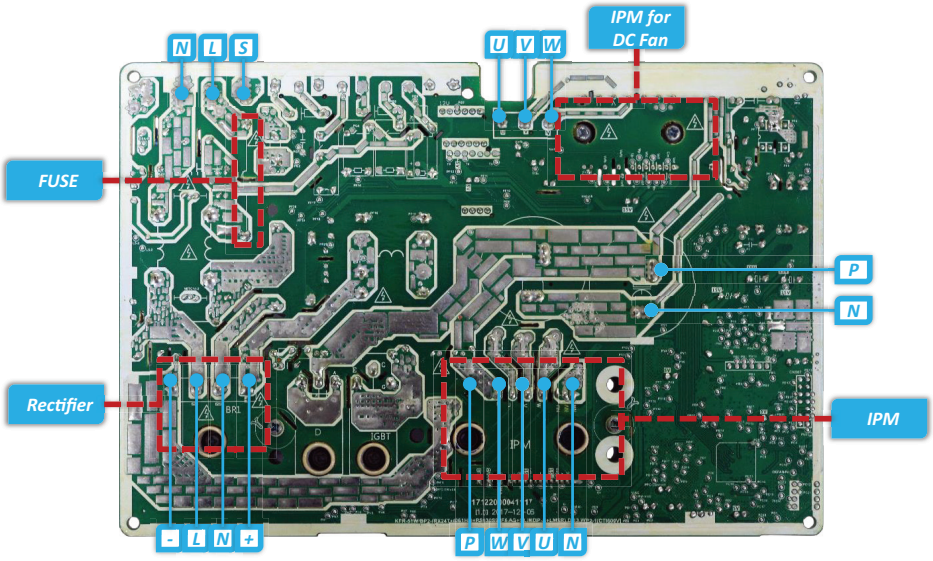
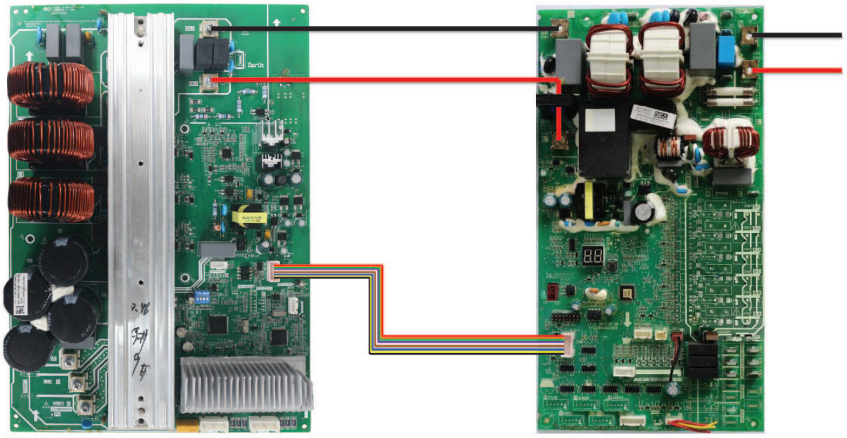


Figure 36. Typical Component Locations (MPC018S4S-1P and MPC024S4S-1P)

(Single Phase, Gas Cooler) Mono and Multi

PCB Code:
17122000042012

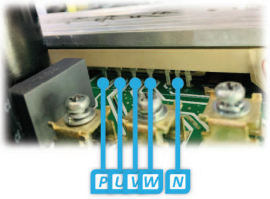
PCB Code:
17122000037804



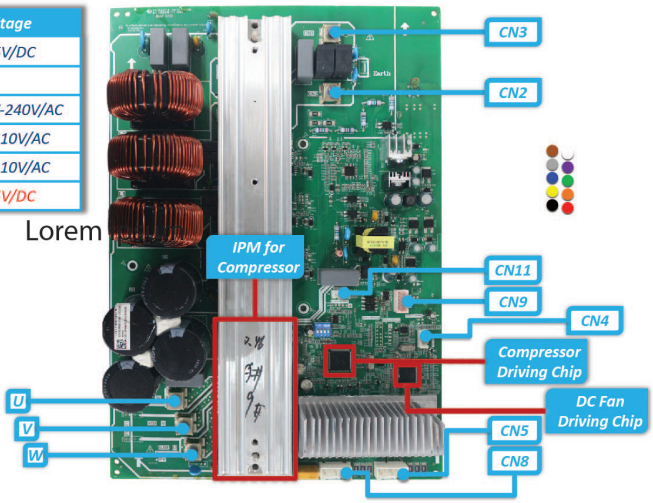
(Single Phase, Gas Cooler) IPM Board

PCB Code: 17122000042012

Port	Description	Voltage
CN9	Communication port with main board	5V/DC
CN3	N-in	
CN2	L-in	220V-240V/AC
CN5, CN8	Ports for DC fan motor	0-310V/AC
U, V, W	Output for compressor	0-310V/AC
CN4, CN11	Port for test board	5V/DC



Lorem



42K/48K (Single Phase, Gas Cooler) Mono Main Board

PCB Code:
17122000037804

Port	Description	Voltage
CN1, 3	Power input of the PCB	230V/AC
CN2, 4	Power output for IPM board	230V/AC
CN22	Port for communication with indoor unit	
CN35	Port for test board	5V/DC
CN6	Port for communication with IPM board	5V/DC
CN9	Power output for condenser (T3), ambient (T4) temperature sensors	5V/DC
CN8	Power output for discharge (Td) temperature sensor	5V/DC
CN15	Power output for EEV	12V/DC
CN10	Port for Hi-pressure and low-pressure switches	
CN17	Power output for 4-way valve	230V/AC
CN24	Power output for compressor heater	230V/AC
CN19	Power output for chassis heater	230V/AC
CN12	Power output for IPM heat sink (TH) temperature sensor	5V/DC

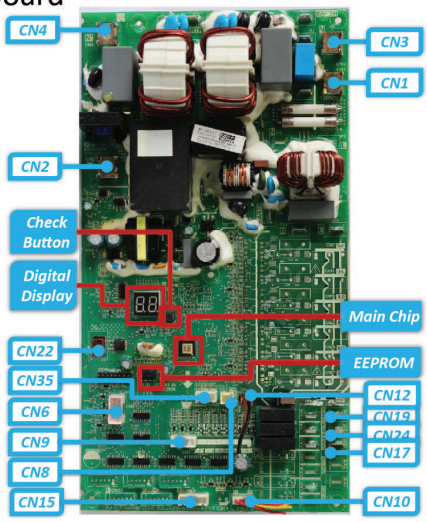


Figure 37. Typical Component Locations (MLB048S4S-2P, MLB036S4S-2P, MLB048S4S-1P, MLB036S4S-1P, MLB048S4M-2P. MPC048S4S-1P and MPC060S4S-1P)

Inverter Outdoor PCB

18K/24K (Gas cooler)

PCB Code: 17122000041117

Port	Description	Voltage
CN23	Port for test board	5V/DC
CN414	Port for DC fan	0-310V/AC
CN17	Power output for condenser (T3), ambient (T4) and discharge (Tp) temperature sensors	5V/DC
CN18	Power output for EEV	12V/DC
CN19	Power output for chassis heater	230V/AC
CN5	Power output for AC fan	230V/AC
CN16	Power output for compressor heater	230V/AC
CN60	Power output for 4-way valve	230V/AC
CN3	Port for power cable (E,N,L,S)	
CN21	Port for Compressor	0-310V/AC

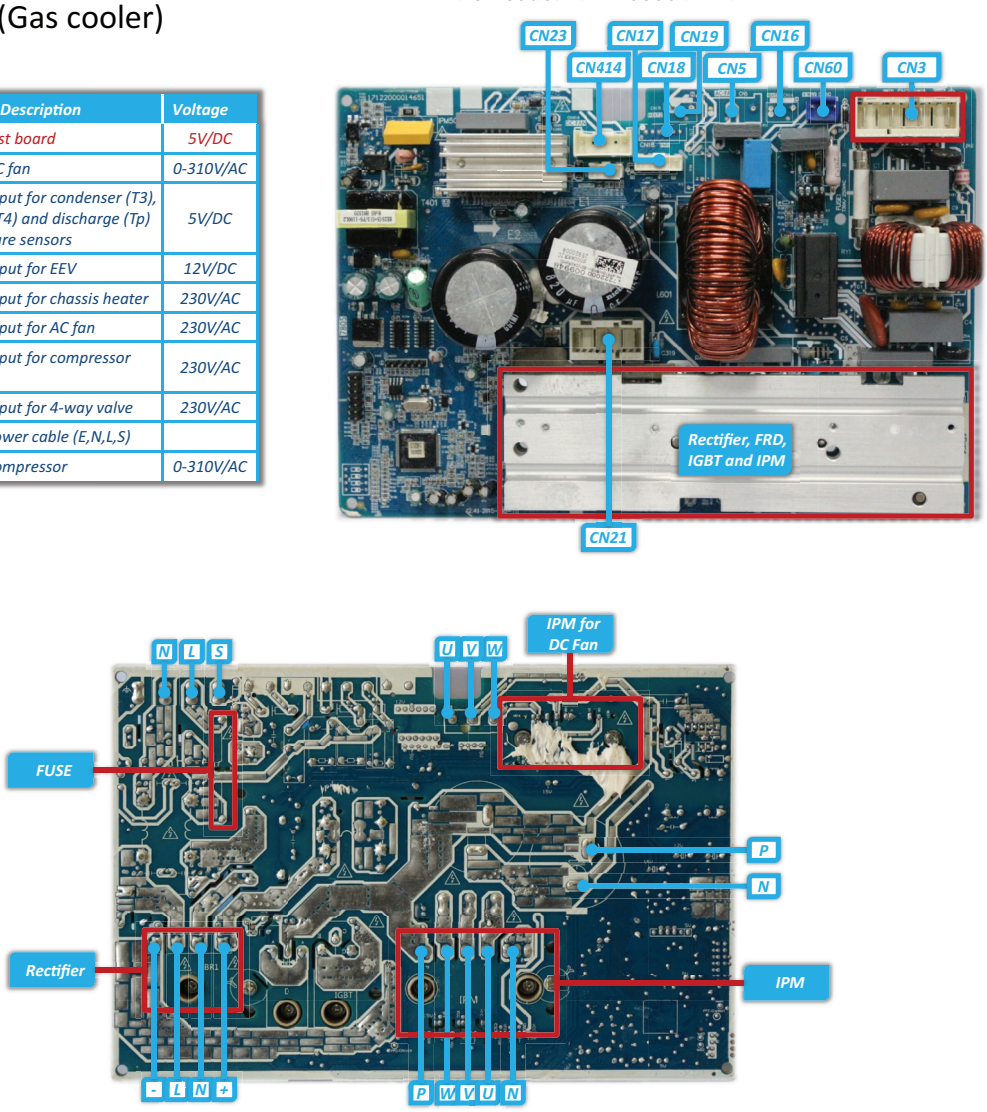
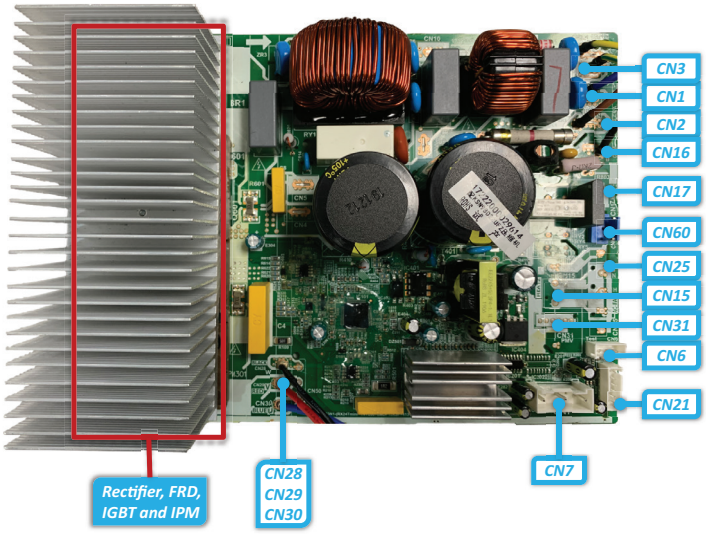


Figure 38. Typical Component Locations (MLB018S4S-1P)

9K/12K Small

Port	Description	Voltage
CN3	Port for earth wire	
CN1	Port for neutral wire	
CN2	Port for live wire	230V/AC
CN16	Port for communication cable S	
CN17	Power output for compressor heater	230V/AC
CN60	Power output for 4-way valve	230V/AC
CN25	Power output for AC fan	230V/AC
CN15	Power output for chassis heater	230V/AC
CN31	Power output for EEV	12V/DC
CN6	Port for test board	5V/DC
CN21	Power output for condenser (T3), ambient (T4) and discharge (Tp) temperature sensors	5V/DC
CN7	Port for DC fan	0-310V/AC
CN28, 29,30	Port for Compressor	0-310V/AC



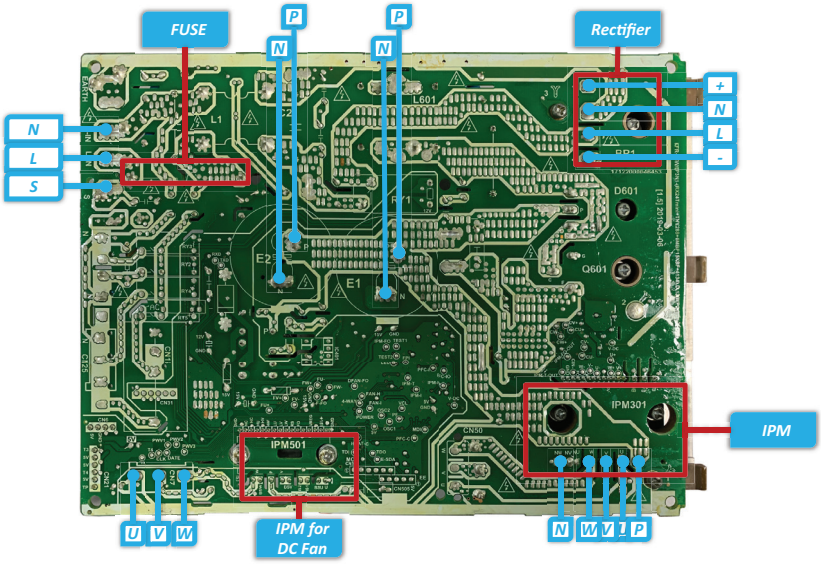


Figure 39. Typical Component Locations (MPC012S4S-1L)

30K/36K (1 Phases, New Gas-cooler) Main PCB

PCB Code:
17122000047742

Port	Description	Voltage
CN24	Port for test board	5V/DC
CN27	Communication port with key board	
CN30	Port for OLP (Compressor top)	
CN28	Port for Hi-pressure and low-pressure switches	
CN42	Power for heatsink (TF) temperature sensor	5V/DC
CN26	Power output for condenser (T3), ambient (T4) and discharge (Tp) temperature sensors	5V/DC
CN16	Power output for EEV	12V/DC
CN11, 12	Port for power cable (N, L)	230V/AC
CN38	Power output for 4-way valve	230V/AC
CN21	Power output for chassis heater	230V/AC
CN20	Power output for compressor heater	230V/AC
CN32	Port for DC fan	0-310V/AC
UVW	Port for Compressor	0-310V/AC

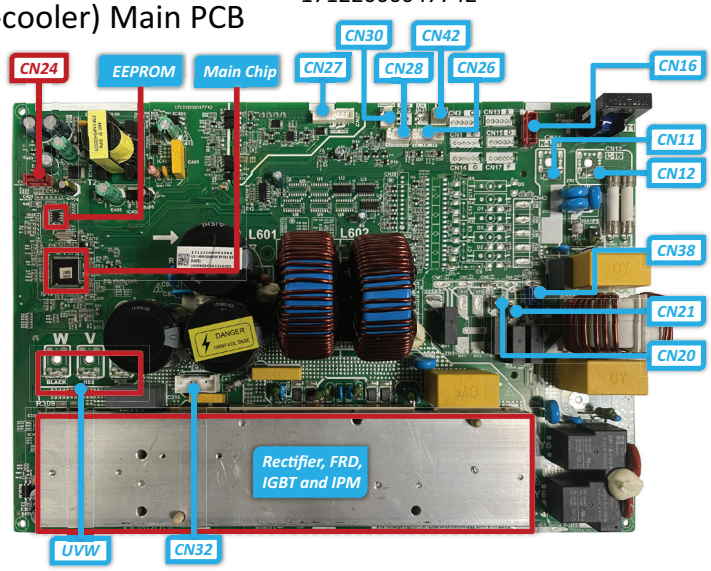


Figure 40. Typical Component Locations (MPC036S4S-1P, MPC030S4S-1P and MLB024S4S-1P

X4 Multi Main PCB

PCB Code: 17122000051368

Port	Description	Voltage
CN23	Port for DC fan	0-310V/AC
CN24	Port for test board	5V/DC
CN29	Port for Hi-pressure and low-pressure switches	
CN30	Port for OLP (Compressor top)	
CN26	Power output for condenser (T3), ambient (T4) and discharge (Tp) temperature sensors	5V/DC
CN28	Communication port with key board	
CN15, 3, 13, 10	Power output for EEVs	12V/DC
CN38	Power output for 4-way valve	230V/AC
CN4, 2, 43, 5	Communication ports with indoor units	
CN11, 12	Port for power cable (N, L)	230V/AC
CN21	Power output for chassis heater	230V/AC
CN8	Power output for compressor heater	230V/AC
CN27	Power output for evaporator outlet (T2B) temperature sensors	5V/DC
UVW	Port for Compressor	0-310V/AC

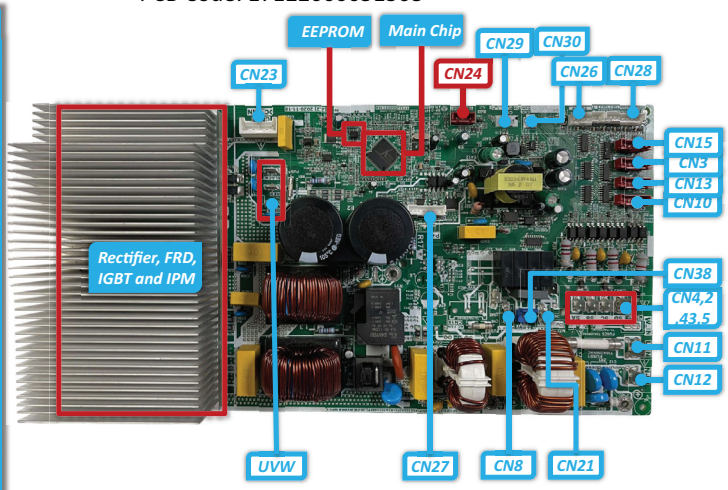
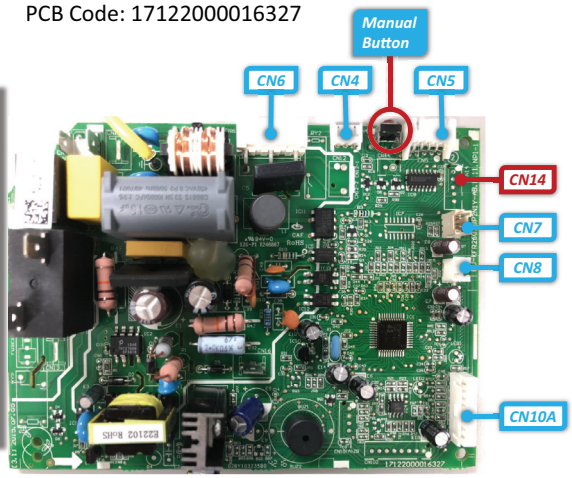


Figure 41. Typical Component Locations (MPC018S4M-1P)

21. Indoor Unit Control Connections

PCB Code: 17122000016327

Port	Description	Parameter	Remark
CN4	AC fan feedback		
CN5	Power output for swing motor of louver	12V/DC	
CN6	Power output for AC fan	230V/AC	
CN14	Power output for swing motor of vertical louver	12V/DC	Reserved
CN7	Power output for room temperature sensor T1	5V/DC	
CN8	Power output for evaporator temperature sensor T2	5V/DC	
CN10A	Power output and communication for display board	5V/DC	



Display PCB

Port	Description	Voltage	Remark
CN1	Power input and communication with main PCB	5V/DC	
CN2	Power output and communication for wired controller	5V/DC	Optional
CN3	Power for WIFI adapter	5V/DC	Optional
CN4	Power output for room temperature sensor T1	5V/DC	

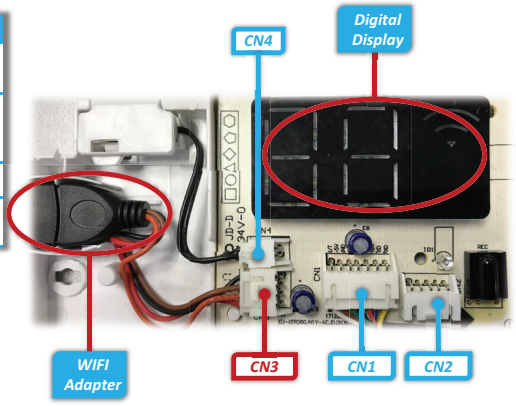


Figure 42. Typical Component Locations (MWMC Wall Mounted Indoor)

Inverter Indoor PCB

PCB Code: 17123000000368

Port	Description	Parameter	Remark
CN13	Power output for drain pump	230V/AC	
CN11	Power output for extra device	230V/AC	
CN1, CN2	Power input for the PCB	230V/AC	
CN10	Power output and communication for display board	5V/DC	
CN6	Port for room (T1) and evaporator (T2) temperature sensor	5V/DC	
CN25	Port for AC fan	230V/AC	
CN7	Port for evaporator outlet (T2B) temperature sensor	5V/DC	
CN33	Dry contacts for remote alarm		
CN23	Dry contacts for remote ON/OFF switch		
CN28	485 communication port		
CN29	Communication port for group controller		
CN40	Dual-communication port	12V/DC	
CN5	Port for water-level switch	5V/DC	With jumper
CN15 CN16	Power output for DC drive board	310V/DC	
CN24	Power output for vertical swing motor	12V/DC	
CN22	Power output for horizontal swing motor	12V/DC	
CN21	Power output for horizontal swing motor	12V/DC	

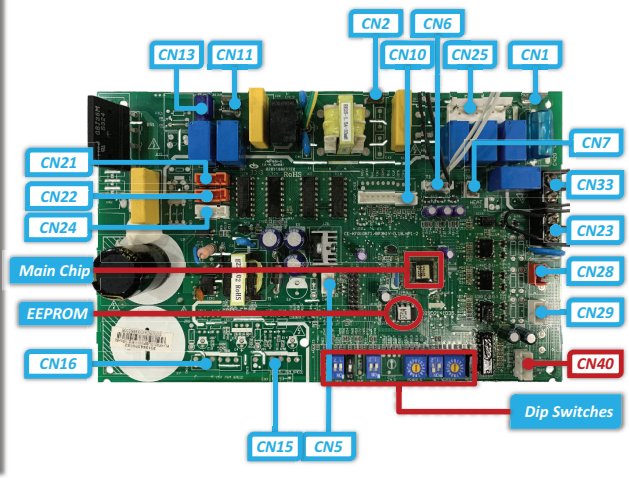


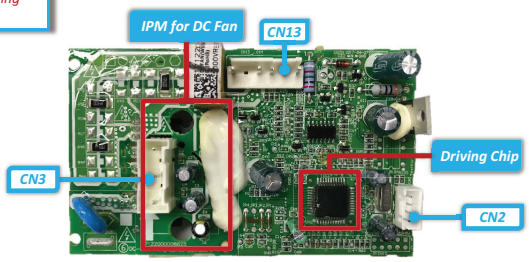
Figure 43. Typical Component Locations (MCFA Ceiling / Floor Indoor)

Inverter Indoor PCB

DC drive PCB of Cassette

Port	Description	Voltage	Remark
CN3	UVW output for DC Fan		
CN13	Power input and communication with main PCB	320V/DC	
CN2	Test port	5V/DC	For debugging board

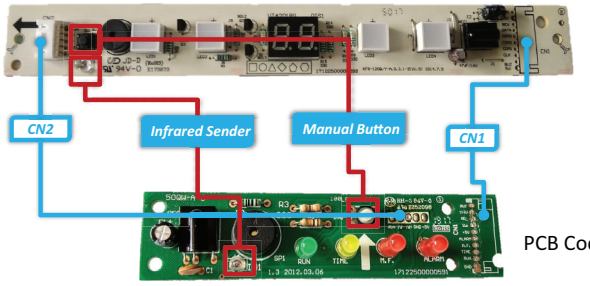
PCB Code: 17122000008625



Display PCB of Cassette

Port	Description	Voltage	Remark
CN1	Power input and communication with main PCB	12V/DC	
CN2	Power output and communication of wired controller KJR-12B	5V/DC	

PCB Code: 1712250000268



PCB Code: 17122500000591

Figure 44. Typical Component Locations (M22A Cassette Indoor)

Display PCB of New Cassette

Port	Description	Voltage	Remark
CN1	Power input and communication with main PCB	12V/DC	
CN2	Power output and communication of wired controller KJR-12B	5V/DC	

PCB Code:
17122500003873

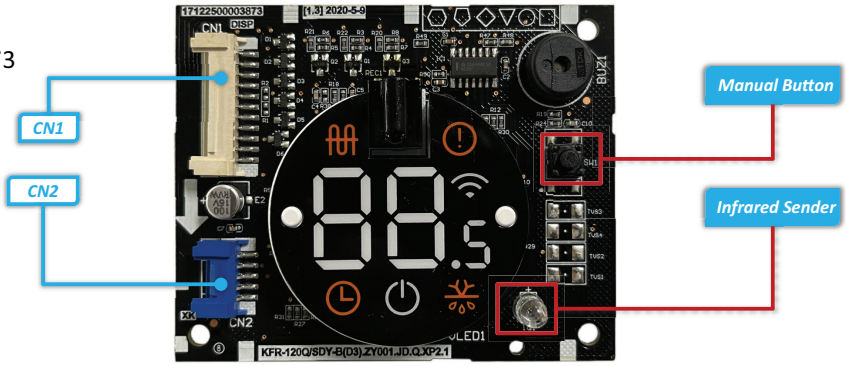


Figure 45. Typical Component Locations (M33C Cassette Indoor)

X4 Multi Main PCB

Port	Description	Voltage
CN23	Port for DC fan	0-310V/AC
CN24	Port for test board	5V/DC
CN29	Port for Hi-pressure and low-pressure switches	
CN30	Port for OLP (Compressor top)	
CN26	Power output for condenser (T3), ambient (T4) and discharge (Tp) temperature sensors	5V/DC
CN28	Communication port with key board	
CN15, 3, 13, 10	Power output for EEVs	12V/DC
CN38	Power output for 4-way valve	230V/AC
CN4, 2, 43, 5	Communication ports with indoor units	
CN11, 12	Port for power cable (N, L)	230V/AC
CN21	Power output for chassis heater	230V/AC
CN8	Power output for compressor heater	230V/AC
CN27	Power output for evaporator outlet (T2B) temperature sensors	5V/DC
UVW	Port for Compressor	0-310V/AC

PCB Code: 17122000051368

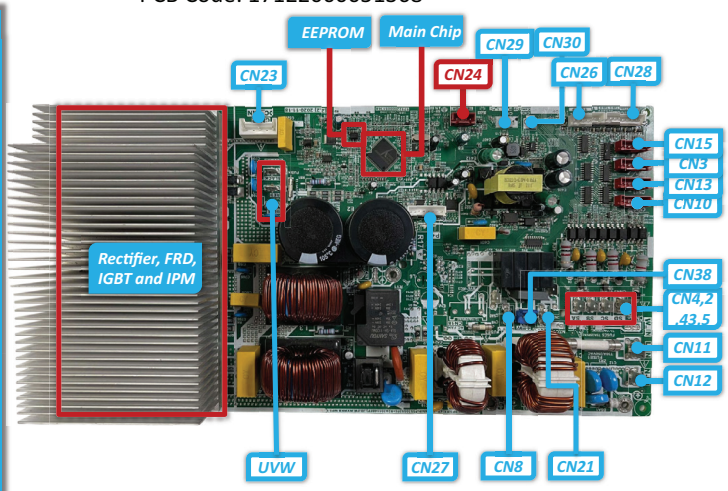


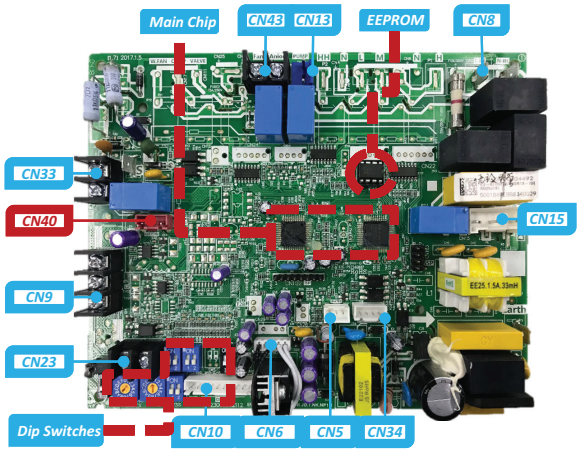
Figure 46. Typical Component Locations (MFMA Floor Indoor)

Inverter Indoor PCB

PCB for Ceiling-floor and Duct

Port	Description	Voltager	Remark
CN8	Power inputfor the PCB	230V/AC	
CN15	Power outputfor DC drive board	230V/AC	
CN34	Control signal for DC fan		
CN5	Port for water-level switch	5V/DC	With jumper
CN6	Power output for room (T1) and evaporator (T2) temperature sensor	5V/DC	
CN10	Power output and communication for display board	5V/DC	
CN23	Dry contacts for remote ON/OFF switch	230V/AC	Reserved
CN9	Communication portfor group controller		
CN40	Dual-communication port	12V/DC	
CN33	Dry contacts for remote alarm		
CN43	Power outputfor extra device	230V/AC	
CN13	Power output for drain pump	230V/AC	

PCB Code: 17123000002112

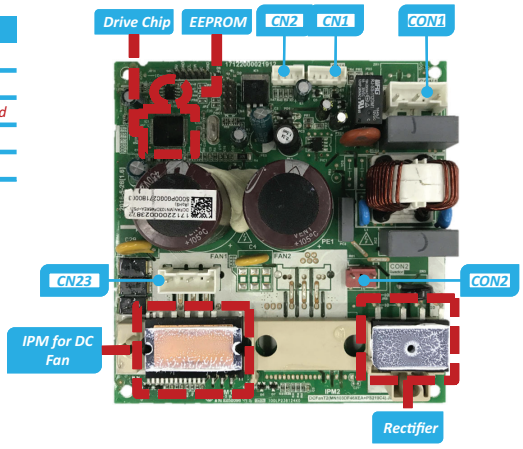


Inverter Indoor PCB

DC Drive PCB for Ceiling-floor and Duct

Port	Description	Voltage	Remark
CON1	Power inputfor the PCB	230V/AC	
CN1	Communication with main PCB	DC	
CN2	Test port	5V/DC	For debugging board
CN23	UVW outputfor DC fan motor		
CON2	Ports for reactor	5V/DC	

PCB Code:
17122000021912

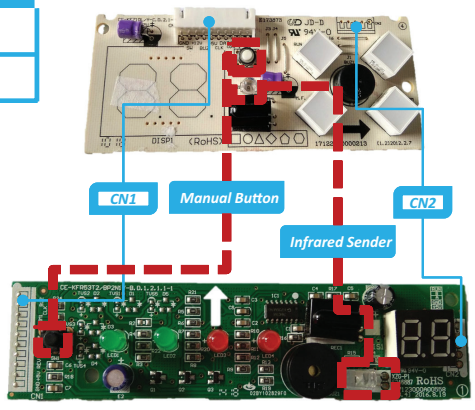


Inverter Indoor PCB

Display PCB of Ceiling-floor and Duct

Port	Descriptio		Remark
CN1	Power input and communication with main PCB	12V/DC	
CN2	Power output and communication of wired controller KJR-12B	5V/DC	

PCB Code: 17122700000213



PCB Code:
17123000A00558

Figure 47. Typical Component Locations (MCFB Ceiling / Floor Indoor and MMDB Ducted Indoor)

22. 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.

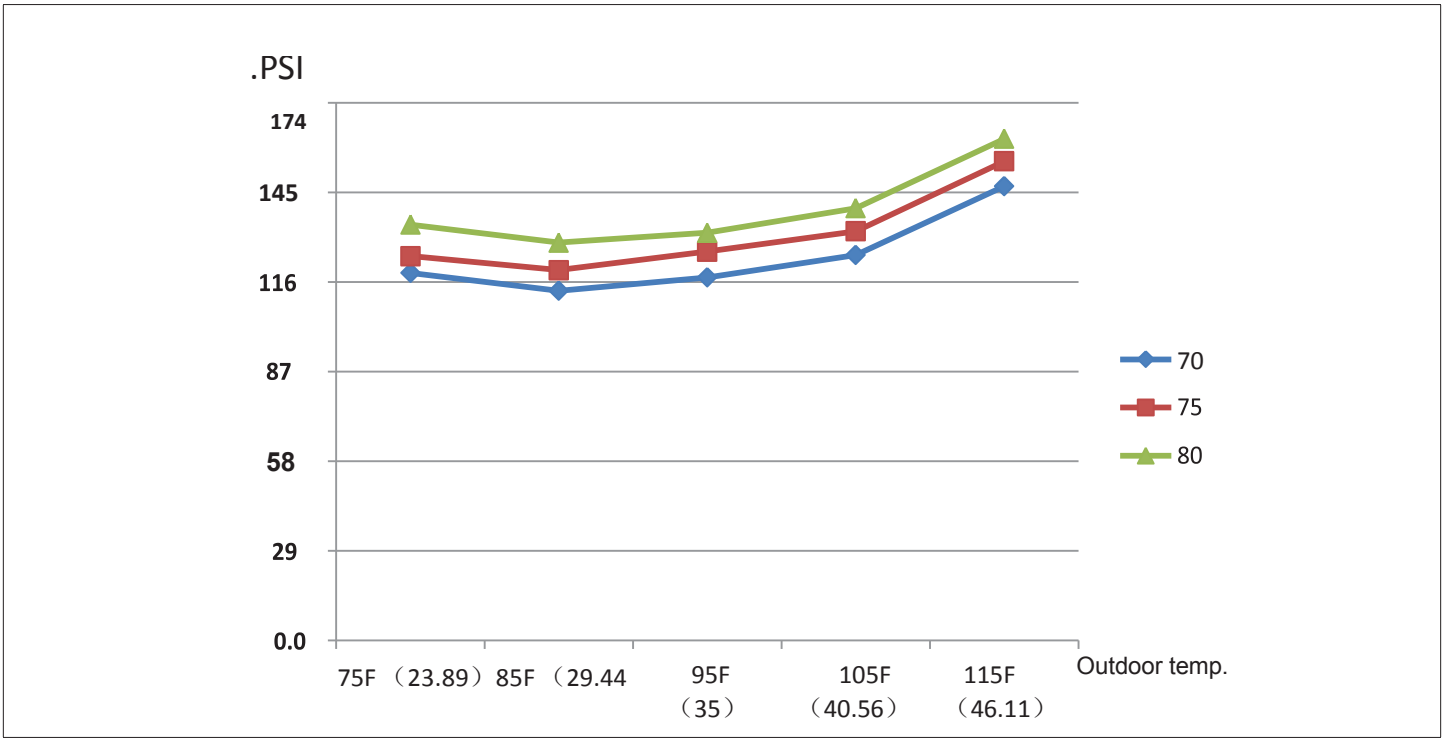
23. Pressure on Service Port

23.1. Cooling Charts

23.1.1. 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

23.1.2. Pressure (PSI)

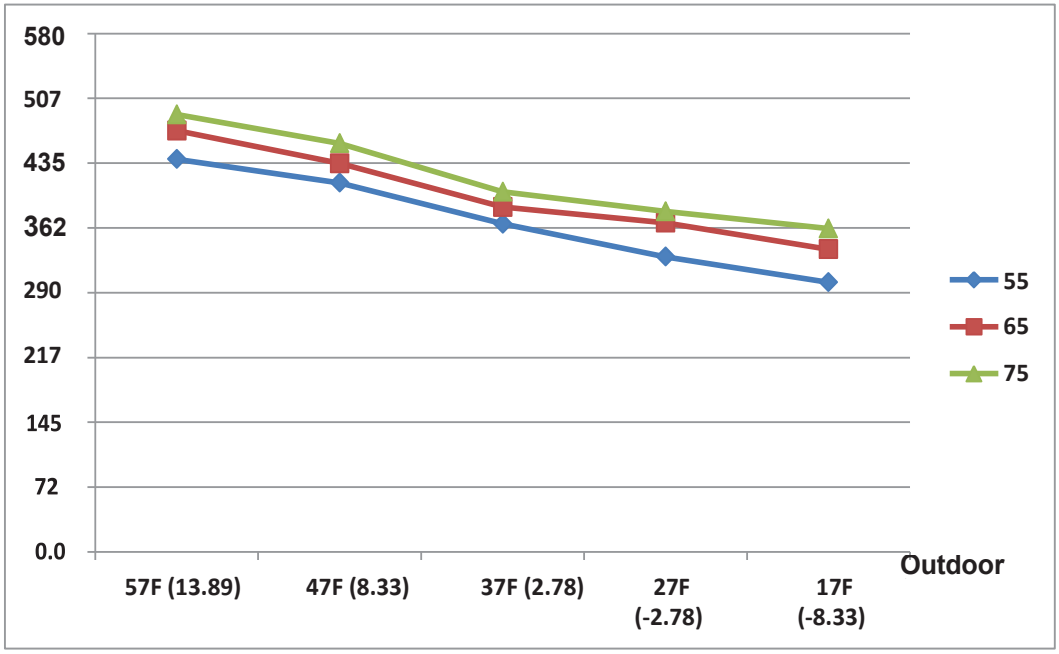


23.2. Heating Chart

23.2.1. 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

23.2.2. Pressure (PSI)



23.3. Capacity Request Calculations

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

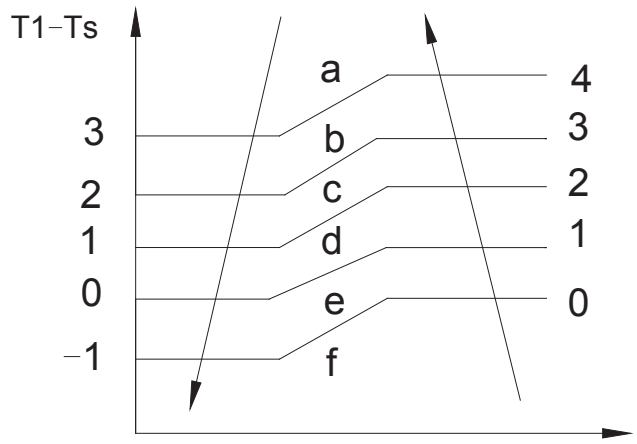


Figure 48. Cooling Mode

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.

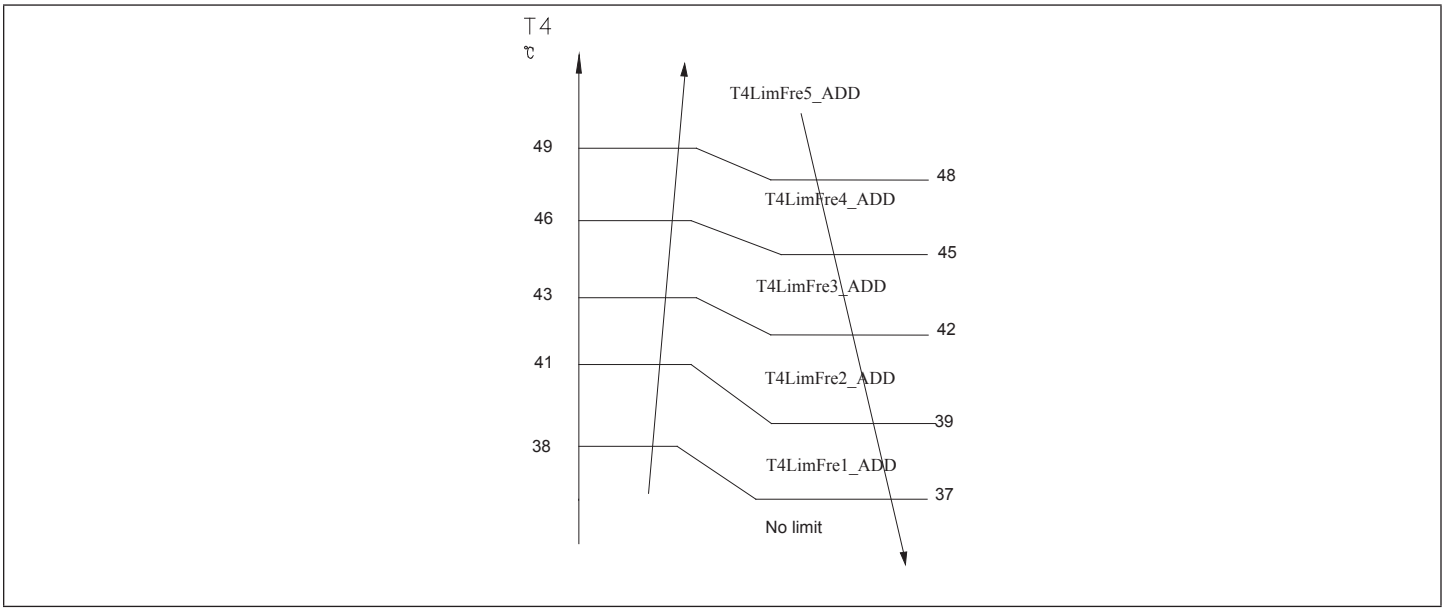
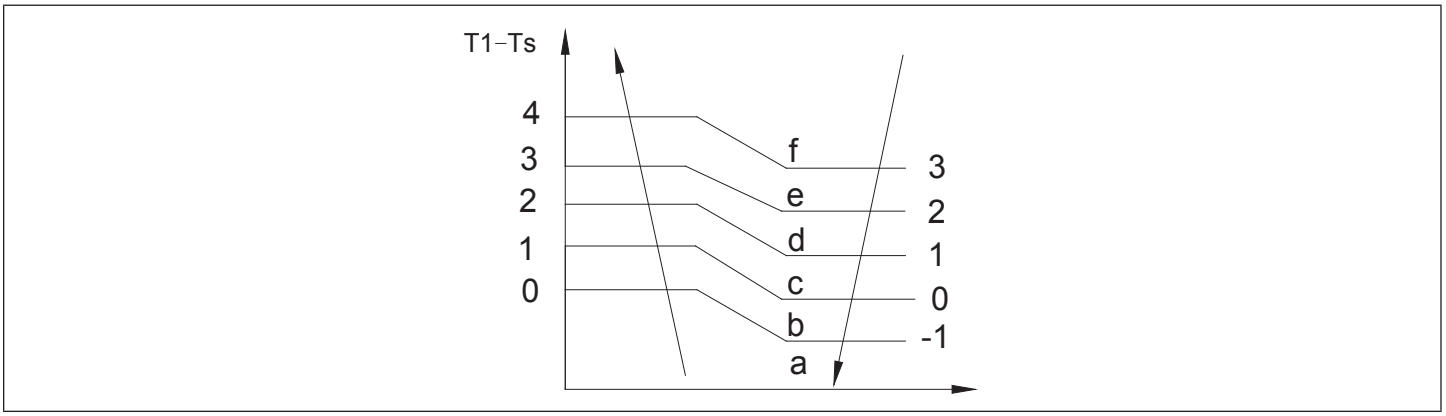


Figure 49. Heating Mode

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.*

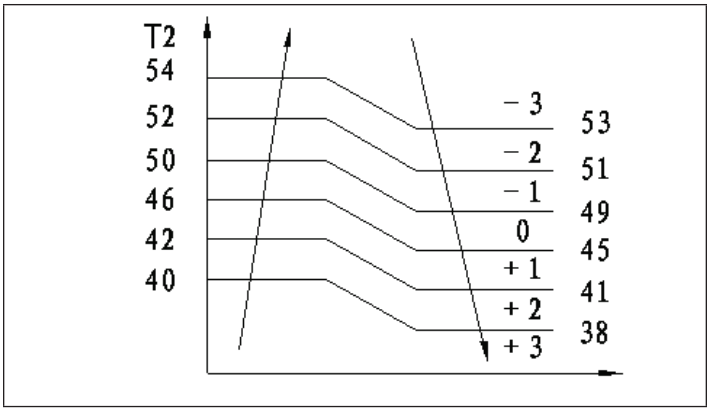
In heating mode, when T2<T2_ExitT4LowFre_ADD , and T4<-4°C, there is frequency elevation: elevated frequency= Recent frequency * 110%

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

23.4. Defrost Control

For defrost calculations:

- T3 = Outdoor coil temperature sensor.
- T30 = Minimum value of T3 during 10 to 15 minutes of run-time period.

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

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

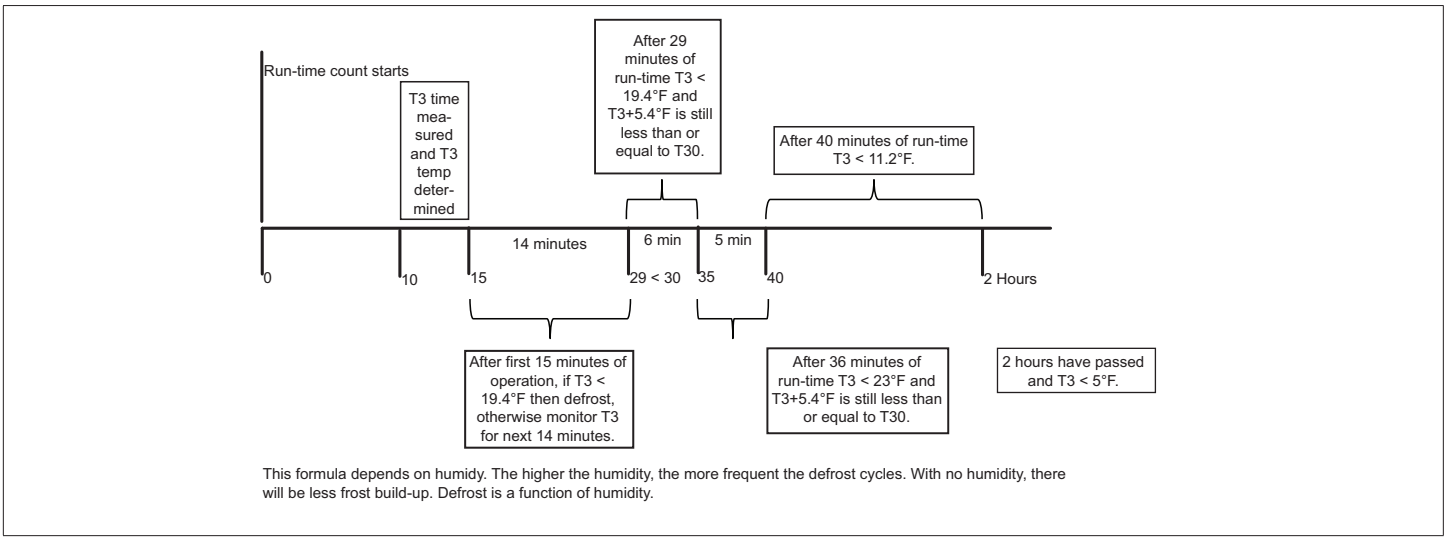


Figure 50. Defrost Calculations

23.5. Defrost Theory

Tdef = The unit must run for a minimum of 11 minutes or longer in order for it to go into defrost mode. At that time it will look at one of the following five conditions to determine when to go into defrost. Those conditions are:

- **Condition 1**: After 29 minutes of accumulated run-time: Coil temperature ≤ 19.4ºF and coil temperature ≤ Tdef - 5.4ºF.
- **Condition 2**: After 35 minutes of accumulated run-time: Coil temperature ≤ 23ºF and coil temperature ≤ Tdef - 2.7ºF.
- **Condition 3**: After 40 minutes of accumulated run-time: Coil temperature ≤ 10ºF for three minutes.
- **Condition 4**: After 120 minutes of accumulated run-time: Coil temperature ≤ 5ºF.
- **Condition 5**: If T3 is less than 37ºF after 120 minutes of continuous run-time and T3 is less than 27ºF for three minutes, it will start defrost.

NOTE: *T3 = Outdoor Coil Sensor*

23.6. Defrost Termination

If any of the following conditions are met, the unit will exit defrost mode and return to normal heating mode.

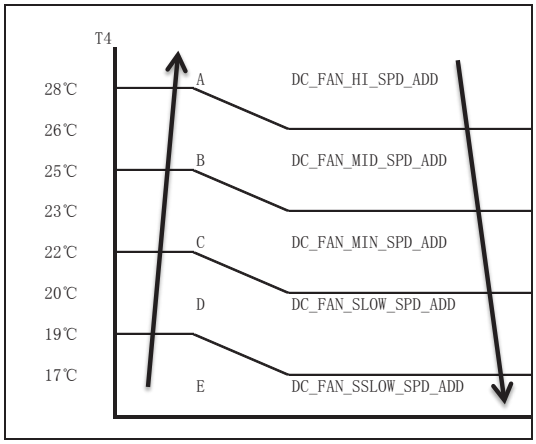
- **Condition 1**: Coil temperature is higher than 70ºF.
- **Condition 2**: Coil temperature is higher than 55ºF for continuous 80 seconds.
- **Condition 3**: Defrost run-time of 10 minutes.

This also includes any manual defrost update by using a remote control.

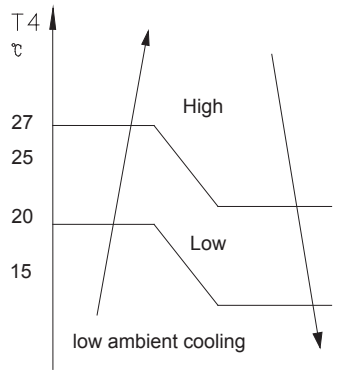
23.7. Outdoor Fan Control

23.7.1. Cooling Mode

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



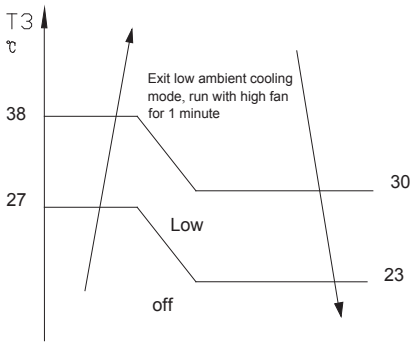
When low ambient cooling is valid:



Outdoor fan speed control logical (low ambient cooling).

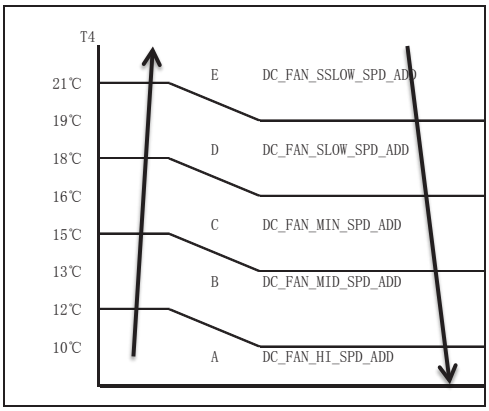
When T4 <15°C (59°F) and T3 < 30°C (86°F), the unit will enter into low ambient cooling mode. The outdoor fan will choose speed according to T3.

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.



23.7.2. Heating Mode

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



23.8. 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.

23.9. 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.

23.9.1. 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.

23.9.2. 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.

Index