

MANUFACTURED FOR:
MITSUBISHI ELECTRIC US, INC.

Electric Heat Install Manual

For use with:

PV FY-P-NAMU-E(1) / MVZ-A-AA4(7) / SVZ-KP-NA / PVA-A-AA4(7)
Multi-Position Air Handler

ELECTRIC HEAT INSTALL MANUAL

FOR INSTALLER

For safe and correct use, please read this installation manual thoroughly before installing these components.

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1. CHECKLIST AFTER INSTALLATION

- The static pressure of the air handler is set according to this installation manual (Section 6.2).
- The enclosure is secured to the air handler according to this installation manual.
- All penetrations to the air handler and electric heat enclosure must be properly sealed to minimize air leakage before operation.
- Separate power for the Electric Heat Kit. The Electric Heat Kit is not powered by the air handler.
- Enabled electric heat control according to this installation manual (Section 6.3 and 6.4).
- Electric Heat Kit is controlled exclusively through the use of CN24-1 and CN24-2 (2-stage models) connections on the indoor unit control board.
- The building power supply circuit breaker is sized per Maximum Overcurrent Protection (MOP) listed for the provided voltage.

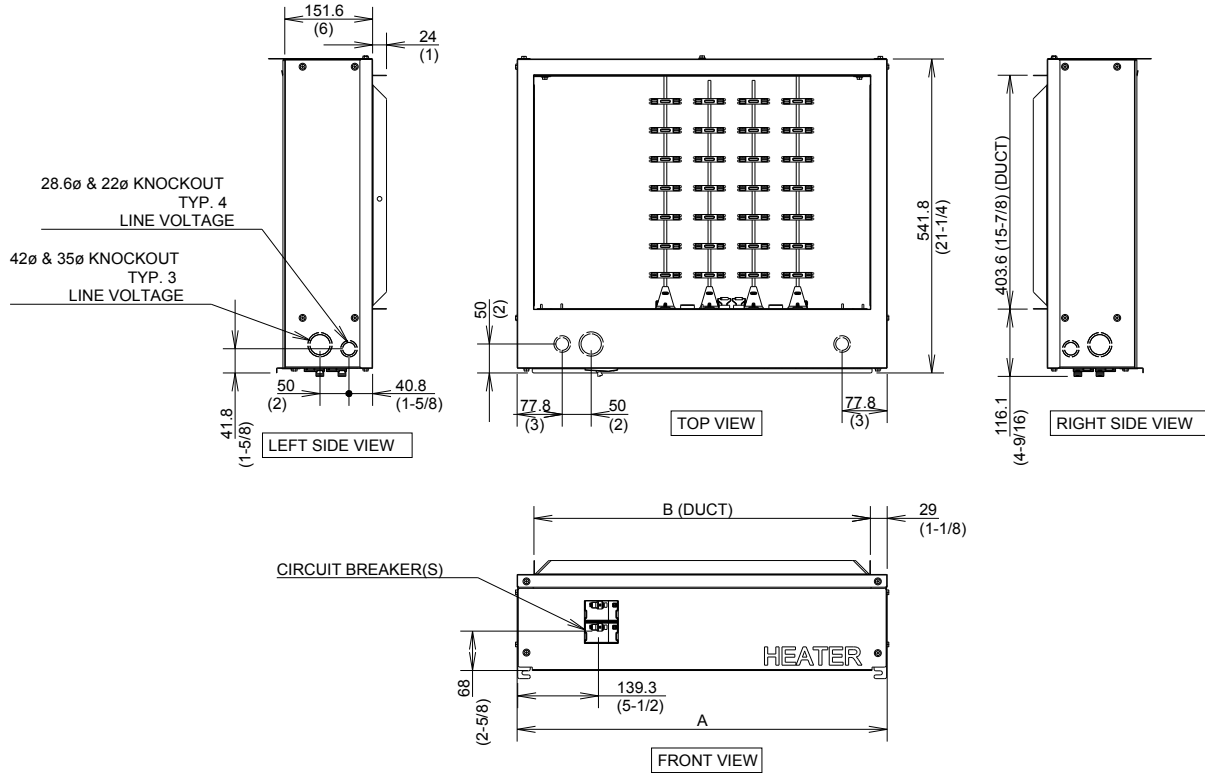


NOTE

The factory-installed circuit breaker in this kit is provided as a disconnect switch only.

2. Dimensions

Units: mm (in.)



MODEL	A	B
EH03-MPA-S(B)	433 (17)	376 (14-13/16)
EH05-MPA-S(B)		
EH08-MPA-S(B)		
EH03-SVZ-S		
EH05-SVZ-S		
EH08-SVZ-S		
EH03-MPA-M(B)	534 (21)	477 (18-13/16)
EH05-MPA-M(B)		
EH08-MPA-M(B)		
EH10-MPA-M(B)		
EH05-SVZ-M		
EH08-SVZ-M		
EH10-MPA-L(B)	635 (25)	579 (22-13/16)
EH15-MPAS-L(B)		
EH17-MPAS-L(B)		

3. Electric Heat Kit Models

For safe and correct use, please read this installation manual and the installation instructions which accompanied the Multi-Position Air Handler thoroughly before installing the Electric Heat Kit. Use the information shown in this manual when setting the static pressure for the air handler. The settings could be different from the multi-position air handler installation manual. See Section 6.2. Ensure the Electric Heat Kit received is the correct model for the Multi-Position Air Handler it will be installed with. Please follow all local codes when installing Electric Heat Kit.



CAUTION

Do not power the electric heat kit from the outdoor unit. A separate power supply must be provided.

Unit must be set on non-combustible floor when installed in the downflow configuration.

This kit must be controlled exclusively through the use of CN24-1 and CN24-2 (2 stage models) connections on the indoor unit control board.

The building power supply circuit breaker is sized per MOP listed for the provided voltage.



NOTE

The factory-installed circuit breaker in this kit is provided as a disconnect switch only.

Table 3-1: All electric heat options can be used in combination with heat pump operation; 208/240V.

		Electric Heat Kit															
		EH03-SVZ-S	EH05-SVZ-S	EH08-SVZ-S	EH05-SVZ-M	EH08-SVZ-M	EH10-SVZ-M	EH03-MPA-S(B)	EH05-MPA-S(B)	EH08-MPA-S(B)	EH03-MPA-M(B)	EH05-MPA-M(B)	EH08-MPA-M(B)	EH10-MPA-M(B)	EH10-MPA-L(B)	EH15-MPAS-L(B)	EH17-MPAS-L(B)
Stages (1st + 2nd)		3	5	4+4	5	4+4	5+5	3	5	4+4	3	5	4+4	5+5	5+5	7.5+7.5	8.75+8.75
Air Handler Model	PVFY-P08NAMU-E1							○									
	PVFY-P12NAMU-E PVFY-P12NAMU-E1							○	○								
	PVFY-P18NAMU-E PVFY-P18NAMU-E1							○	○	○							
	PVFY-P24NAMU-E PVFY-P24NAMU-E1							○	○	○							
	PVFY-P30NAMU-E PVFY-P30NAMU-E1										○	○	○	○			
	PVFY-P36NAMU-E PVFY-P36NAMU-E1												○	○			
	PVFY-P48NAMU-E PVFY-P48NAMU-E1														○	○	○
	PVFY-P54NAMU-E PVFY-P54NAMU-E1														○	○	○
	MVZ-A12AA4 MVZ-A12AA7							○	○								
	MVZ-A18AA4 MVZ-A18AA7							○	○	○							
	MVZ-A24AA4 MVZ-A24AA7							○	○	○							
	MVZ-A30AA4 MVZ-A30AA7										○	○	○	○			
	MVZ-A36AA4 MVZ-A36AA7												○	○			
	SVZ-KP12NA	○	○														
	SVZ-KP18NA	○	○	○													
	SVZ-KP24NA	○	○	○													
	SVZ-KP30NA				○	○	○										
	SVZ-KP36NA				○	○	○										
	PVA-A12AA7							○	○								
	PVA-A18AA7							○	○	○							
	PVA-A24AA7										○	○	○	○			
	PVA-A30AA4 PVA-A30AA7										○	○	○	○			
	PVA-A36AA4 PVA-A36AA7														○	○	
	PVA-A42AA4 PVA-A42AA7														○	○	○

Table 3-2

Electric Heat Part Number	Heater kW		Heater Amps ¹	MCA ¹	MOP ¹	Htr & Mtr Amps ²	MCA ²	MOP ²	Factory Installed Disconnect (Circuit Breaker)
	208V/240V		208V/240V	208V/240V	208V/240V	208V/240V	208V/240V	208V/240V	
EH03-SVZ-S	2.3/3.0		10.8/12.5	13.5/15.6	15/20	13.2/14.9	16.5/18.6	20/20	20
EH05-SVZ-S	3.8/5.0		18.1/20.8	22.6/26	25/30	20.5/23.2	25.6/29	30/30	30
EH08-SVZ-S	6.0/8.0		28.9/33.3	36.1/41.7	40/45	31.3/35.7	39.1/44.7	40/45	45
EH05-SVZ-M	3.8/5.0		18.1/20.8	22.6/26	25/30	21.4/24.1	26.7/30.2	30/30	30
EH08-SVZ-M	6.0/8.0		28.9/33.3	36.1/41.7	40/45	32.2/36.6	40.2/45.8	45/50	50
EH10-SVZ-M	7.5/10		36.1/41.7	45.1/52.1	50/60	39.4/45	49.3/56.2	50/60	60
EH03-MPA-S(B)	2.3/3.0		10.8/12.5	13.5/15.6	15/20	13.2/14.9	16.5/18.6	20/20	20
EH05-MPA-S(B)	3.8/5.0		18.1/20.8	22.6/26	25/30	20.5/23.2	25.6/29	30/30	30
EH08-MPA-S(B)	6.0/8.0		28.9/33.3	36.1/41.7	40/45	31.3/35.7	39.1/44.7	40/45	45
EH03-MPA-M(B)	2.3/3.0		10.8/12.5	13.5/15.6	15/20	14.1/15.8	17.7/19.8	20/20	20
EH05-MPA-M(B)	3.8/5.0		18.1/20.8	22.6/26	25/30	21.4/24.1	26.7/30.2	30/30	30
EH08-MPA-M(B)	6.0/8.0		28.9/33.3	36.1/41.7	40/45	32.2/36.6	40.2/45.8	45/50	50
EH10-MPA-M(B)	7.5/10		36.1/41.7	45.1/52.1	50/60	39.4/45	49.3/56.2	50/60	60
EH10-MPA-L(B)	7.5/10		36.1/41.7	45.1/52.1	50/60	40.6/46.2	50.8/57.7	60/60	60
EH15-MPAS-L(B)	11.3/15	Circuit 1	27.1/31.2	33.9/39.1	35/40	31.6/35.8	39.5/44.7	40/45	45
		Circuit 2	27.1/31.2	33.9/39.1	35/40	27.1/31.2	33.9/39.1	35/40	40
EH17-MPAS-L(B)	13.2/17.5	Circuit 1	31.6/36.5	39.5/45.6	40/50	36.1/41	45.1/51.2	45/60	60
		Circuit 2	31.6/36.5	39.5/45.6	40/50	31.6/36.5	39.5/45.6	40/50	50

¹ Heater amps; no motor

² Heater and motor amps (connect air handler power supply to largest circuit breaker)

Voltage and Amperage based on 60Hz

Motor amps are placed on circuit 1 when required

Unit tested at 0.60 in WG external static pressure

Minimum installation clearance to combustible material 0"

Maximum outlet air temperature 200° F

The building power supply circuit breaker must be sized per MOP listed for the provided voltage.

The factory installed circuit breaker in this kit is provided as a disconnect switch only.

4. Electric Heat Kit Accessories

4.1. Separate Power Kit [PVA-A-AA4(7) and MVZ-A-AA4(7) models]

Part Number: SPTB1 This kit allows the installer to connect power from another source to the air handler.



NOTE

S2 & S3 still must come from outdoor unit for communication.

4.2. Auxiliary Heat Lockout [PVA-A-AA4(7), MVZ-A-AA4(7) and SVZ-KP-NA models]

Part Number: ETC-211020-MIT

This option prevents the Electric Heat Kit from operating above a set outside temperature.

5. Safety Precautions

Before installing the unit, make sure you read all the “Safety Precautions”.

The “Safety Precautions” provide very important points regarding safety. Make sure you follow them.



WARNING

This symbol denotes what could lead to serious injury or death if you misuse the Electric Heat Kit.



CAUTION

This symbol denotes what could lead to a personal injury or property damage if Electric Heat Kit is misused.



CAUTION

- Do not install in any place exposed to flammable gas leakage. Flammable gases that accumulate around the Electric Heat Kit may cause an explosion.
- Do not use in any special environment. Using in any place exposed to oil (including machining oil), steam and sulfuric gas may deteriorate the performance significantly or give damage to the component parts. Do not install in any place at a temperature of more than 104° F or less than 32° F or exposed to direct sunlight.
- Do not install in any place where acidic or alkaline solution or special spays are often used. Doing so may cause an electric shock or malfunction.
- Wire so that it does not receive any tension. Tension may cause wire breakage, heating or fire.
- Do not install in an environment where moisture is condensed into water. Doing so may cause electric shock or malfunction.
- Do not wash with water. Doing so may cause electric shock or malfunction.



WARNING

- Ask your technical representative to install the unit. Any deficiency caused by your own installation may result in electric shock or fire.
- Ensure that installation work is done correctly following this instruction manual. Any deficiency caused by installation may result in electric shock or fire.
- Firmly connect the wiring using the specified cables. Carefully check that the cables do not exert any forces on the terminals. Improper wiring connections may produce heat and possibly fire.
- Never modify or repair the Electric Heat Kit. Any deficiency caused by your modification or repair may result in electric shock or fire. Consult with your technical representative about repair.
- All electrical work must be performed by a licensed technician, according to the local regulations and the instructions given in this manual. Any lack of electric circuits or any deficiency caused by installation may result in electric shock or fire.
- Stop the operation if any malfunction occurs. If malfunction occurs (burning smell, etc.) stop the operation and turn off the power supply. Contact your technical representative. If the controller continues to operate after a malfunction occurs, this may cause damage, electric shock or fire.
- Do not turn on the main power until installation has been completed. Doing so may result in electric shock or fire.
- Keep the area around the unit clean to keep the indoor unit from accumulating dust on the components. Dust particles that enter the indoor unit may cause fire.
- Do not move and re-install the Electric Heat Kit yourself. Any deficiency caused by the installation may result in electric shock or fire. Ask your distributor or special technical representative for moving and installation.
- This kit must be controlled exclusively through the use of CN24-1 and CN24-2 (2 stage models) connections on the indoor unit control board. Failure to do so may cause fire.

6. Installing the Electric Heat Kit

6.1. Read the safety precautions section of the Multi-Position Air Handler before installing the electric heat option.

Remove the entire enclosure from the packaging and inspect for any possible damages. The following images in the installation section do not represent all electric heat options. Depending on the model, the number of circuit breakers might vary as well as the size of the enclosure. Always check the model number on the package and enclosure before continuing. Before continuing with the installation, be sure all power to the equipment that is being worked on is disconnected. Failure to do so could result in injury or death.

6.2. Setting Proper External Static Pressure



NOTE

Best design practice to assure adequate airflow requirements.

During electric heater operation, the fan is defaulted to high speed to help assure adequate airflow. To maintain adequate airflow required for electric heater operation, it is recommended that an additional 0.20 in. WG static pressure drop is added to system ductwork design when using the Electric Heat Kit.

Examples:

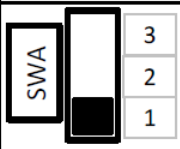
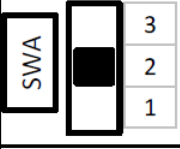
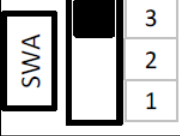
When air handler is set for 0.50 in. WG static, the maximum external static pressure for ductwork should not exceed 0.30 in. WG.

When air handler is set for 0.80 in. WG static, the maximum external static pressure for ductwork should not exceed 0.60 in. WG, etc.

6.2.1. PVFY-A-NAMU-E(1) Models

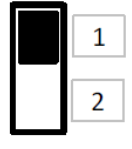
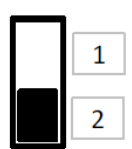
The external static pressure cannot exceed 0.60 in. WG for any position installation when an electric heat kit is installed on the Multi-Position Air Handler.

The static pressure setting for any PVFY-A-NAMU models is set to 0.50 in. WG from the factory. If an Electric Heat Kit is installed and the static pressure exceeds 0.50 in. WG, it is extremely important that SWA is set to the “3” position.

External Static Pressure	Switch A
0.3 in. WG (75 Pa)	
0.5 in. WG (125 Pa) (Factory Setting)	
0.6 in. WG (150 Pa)	

Notes:
For Installation above 0.50 in. WG External Static Pressure
Switch A will be in the “3” position

For vertical, horizontal right or horizontal left installations SWC, will remain in the default “1” position. When the Multi-Position Air Handler is installed in a downflow configuration, SWC will need to be changed to “2” position.

	Switch C
Horizontal Right, Horizontal Left, Vertical (Factory Setting)	
Downflow	

6.2.2. MVZ-A-AA4(7), SVZ-KP-NA and PVA-A-AA4(7) Models

The external static pressure cannot exceed 0.60 in WG for any position installation when an Electric Heat Kit is installed on the Multi-Position Air Handler.

The static pressure setting for any MVZ-A-AA4(7), SVZ-KP-NA and PVA-A-AA4(7) models are set to 0.50 in. WG from the factory. If an Electric Heat Kit is installed and the static pressure exceeds 0.50 in. WG, it is extremely important that Mode/Function 08/108 is set to “3”.

The table below explains the proper settings for Mode/Function 08/108 and 10/110 for vertical, horizontal left and horizontal right installations.

Vertical, Horizontal Left, Horizontal Right External Static Pressure Setting

External Static Pressure	Setting No. of Mode/Function 08/108	Setting No. of Mode/Function 10/110 (Factory Setting)
0.3 in. WG [75Pa]	1	1
0.5 in. WG [125Pa] (Factory Setting)	2	1
0.6 in. WG (150 Pa)	3	1

Notes:
For installation above 0.50 in. WG External Static Pressure

6.2.3. MVZ-A-AA4(7) and PVA-A-AA4(7) Models

For downflow installations, the following table explains the proper settings for Mode/Function 08/108 and 10/110. Again, the external static pressure in the downflow configuration cannot exceed 0.60 in WG.

Downflow External Static Pressure Setting

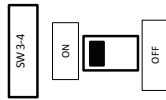
External Static Pressure	Setting No. of Mode/Function 08/108	Setting No. of Mode/Function 10/110
0.3 in. WG [75Pa]	1	2
0.5 in. WG [125Pa] (Factory Setting)	2	2
0.6 in. WG (150 Pa)	3	2

Notes:
For installation above 0.50 in. WG External Static Pressure

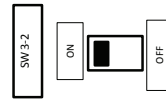
6.3. Enabling Electric Heat

6.3.1. PVFY-A·NAMU-E(1) Models

When installing the Electric Heat Kit on PVFY-A·NAMU-E models, Switch 3-4 on the control board inside the Multi-Position Air Handler must be “ON”. When installing the Electric Heat Kit on PVFY-A·NAMU-E1 models, Switch 3-2 on the control board inside the Multi-Position Air Handler must be “ON”. This activates the electric heat option.



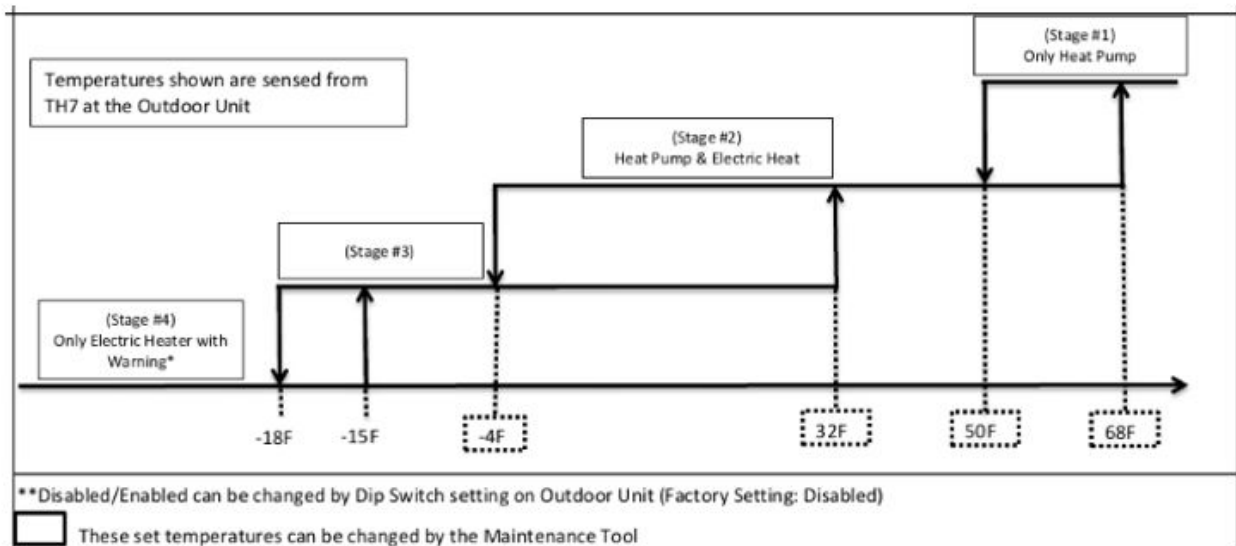
For PVFY-A·NAMU-E models ONLY



For PVFY-A·NAMU-E1 models ONLY

The Electric Heat has two methods of operation. By default the stage or stages of heat work based on a difference in set point to actual space temp. Also depending on the model, there is a time element added to prevent the heater from coming on if the heat pump can manage the load. See section 6.4 for explanations for each model.

The second method is based on outside air temp where the electric heater can be locked out above a certain outside temp and the heat pump can be locked out below a certain outside temp and only the electric heat will be used. Below is an example. This method requires the use of the maintenance tool software. Please consult your dealer or an authorized technician who has and is properly trained in its use.



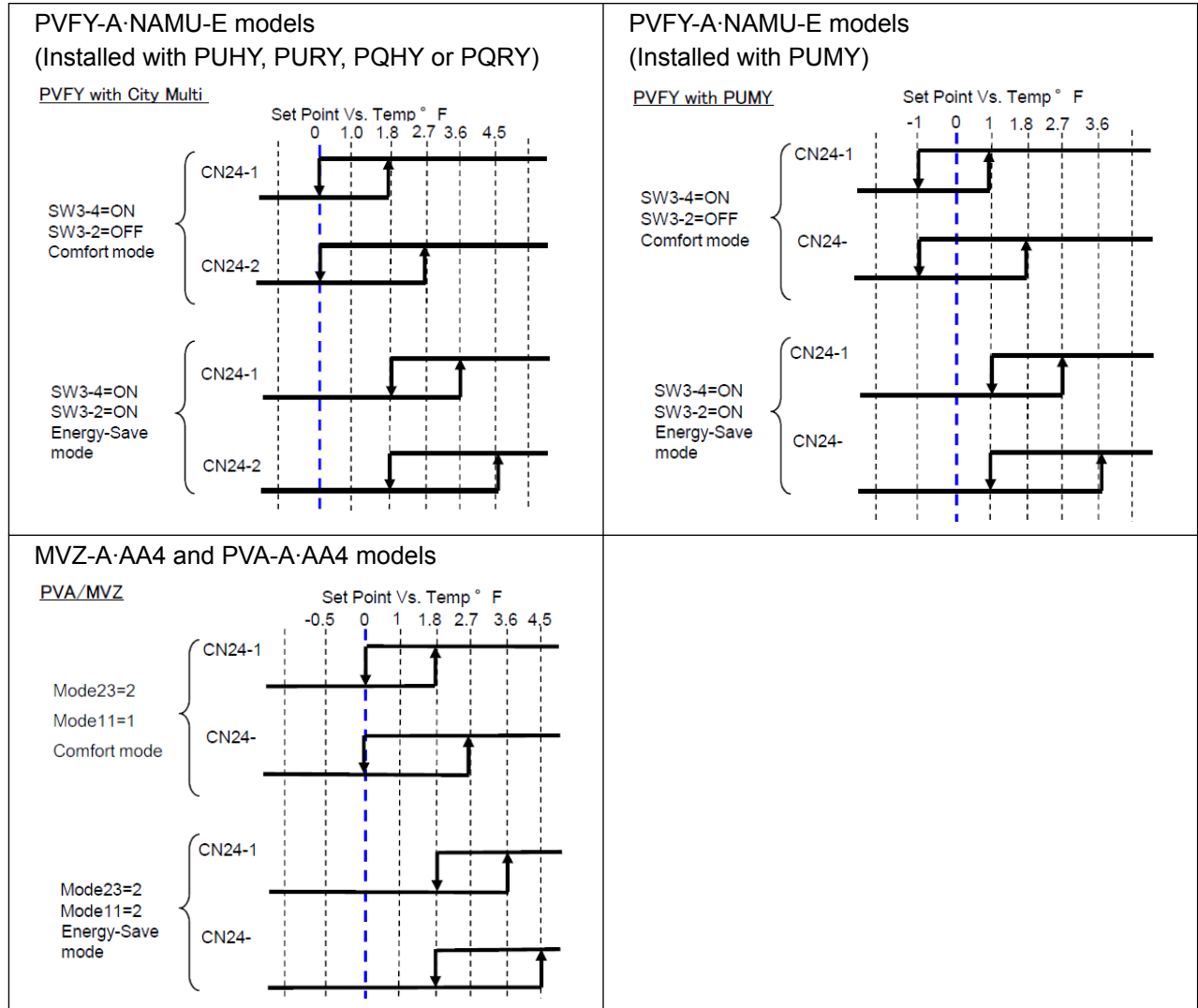
NOTE

For PVA-A·AA4(7), MVZ -A·AA4(7) and SVZ-KP-NA models, Electric Heat Lockout is available as a separate accessory. See accessory, ETC-211020-MIT.

6.4. Operation Mode

6.4.1. PVFY-A·NAMU-E, PVA-A·AA4, and MVZ-A·AA4 Models

The operation of the Electric Heat Kit can be set for different modes, Comfort or Energy-Save mode. PVFY-A·NAMU-E models will be set by SW3-4 and SW3-2 according to below. PVA-A·AA4 and MVZ-A·AA4 models will be set by mode 23 and mode 11.



6.4.2. PVFY-A-NAMU-E1, PVA-A-AA7, MVZ-A-AA7 and SVZ-KP-NA Models

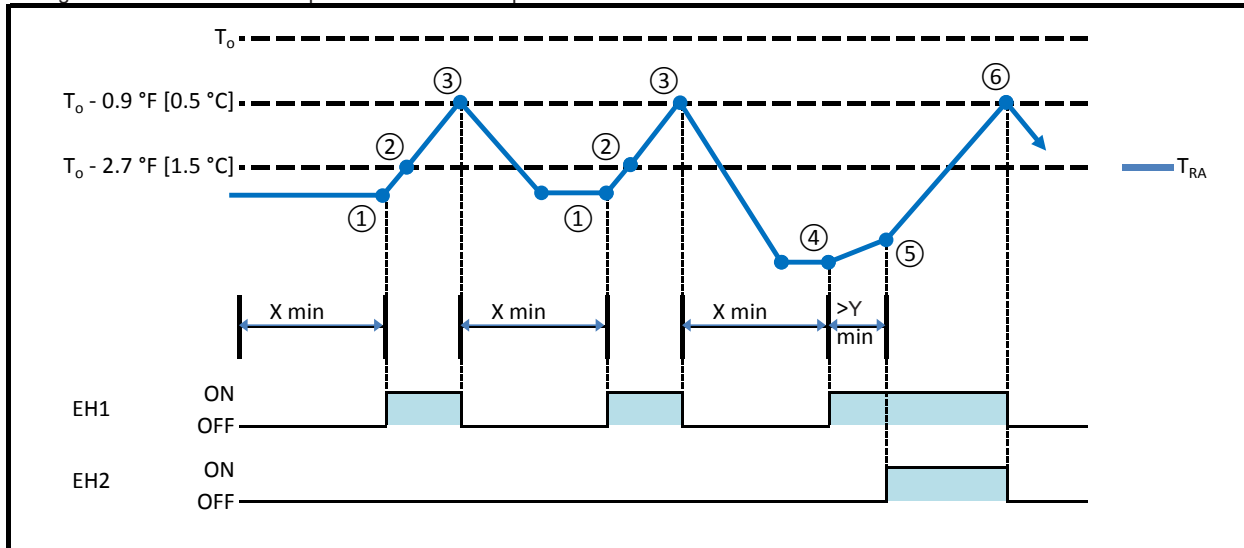
The operation of the Electric Heat Kit is shown in the table below. See the indoor unit service manuals for more information.

Mode Change	Electric Heat Kit								
	$(T_o - T_{RA}) > 2.7\text{ }^\circ\text{F}$ [1.5 °C]	AND	T_{RA} has not increased by 0.9 °F [0.5 °C] in \underline{X} min	EH1 ON for $> Y$ min	AND	$(T_o - T_{RA}) > 2.7\text{ }^\circ\text{F}$ [1.5 °C]	AND	T_{RA} has not increased by 0.9 °F [0.5 °C] in Y min	$(T_o - T_{RA}) < 0.9\text{ }^\circ\text{F}$ [0.5 °C]
EH1 ON	○	AND	○						
EH2 ON				○	AND	○	AND	○	
EH1 OFF									○
EH2 OFF									○

KEY

- EH1: Electric Heater 1
- EH2: Electric Heater 2
- T_o : Set point temperature
- T_{RA} : Return Air temperature
- X : Time delay (Selectable. See the indoor unit service manuals for more information.)
- Y : Time delay (Non-Selectable. See the indoor unit service manuals for more information)

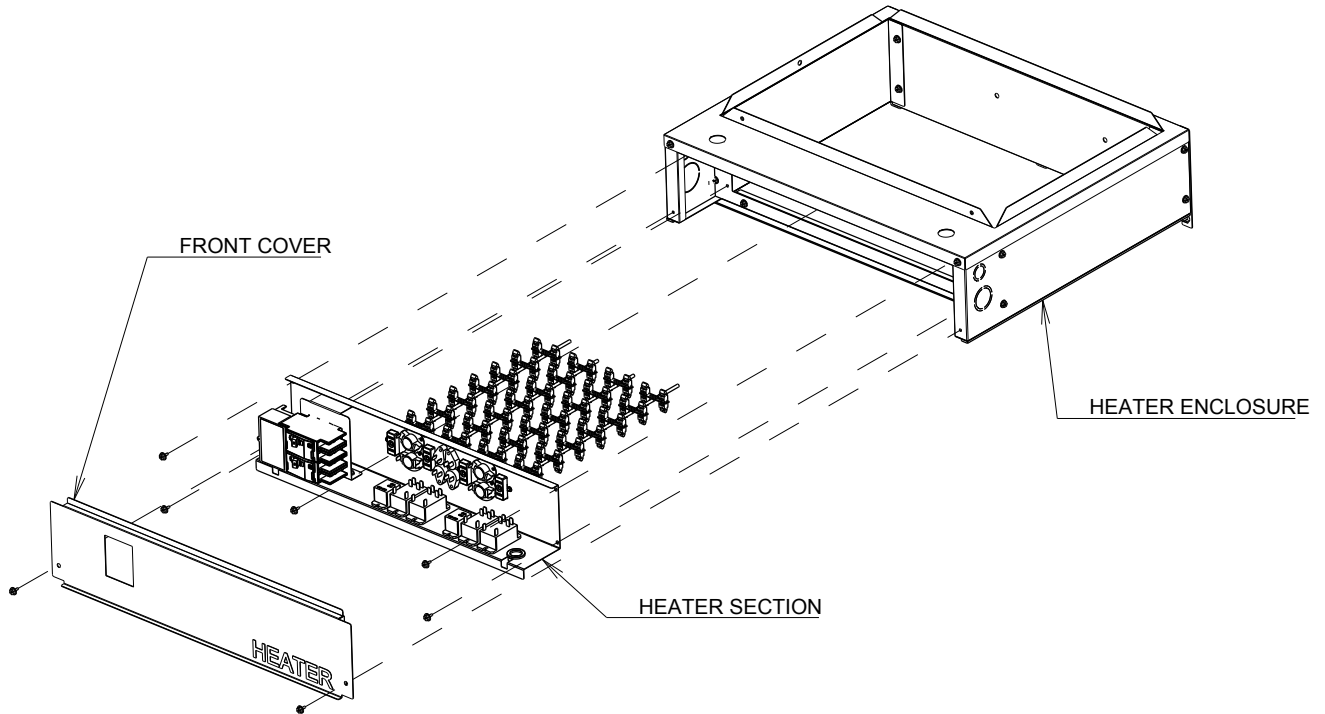
The figure below shows an example of electric heater operation. See the indoor unit service manuals for more information.



Step	Condition			Result
①	$(T_o - T_{RA}) > 2.7\text{ }^\circ\text{F}$ [1.5 °C]	AND	T_{RA} has not increased by 0.9 °F [0.5 °C] in \underline{X} min	EH1 ON
②	$(T_o - T_{RA}) < 2.7\text{ }^\circ\text{F}$ [1.5 °C]	AND	T_{RA} increasing faster than 0.9 °F [0.5 °C] in Y min	EH2 not ON
③	$(T_o - T_{RA}) < 0.9\text{ }^\circ\text{F}$ [0.5 °C]			EH1 OFF
④	$(T_o - T_{RA}) > 2.7\text{ }^\circ\text{F}$ [1.5 °C]	AND	T_{RA} has not increased by 0.9 °F [0.5 °C] in \underline{X} min	EH1 ON
⑤	$(T_o - T_{RA}) > 2.7\text{ }^\circ\text{F}$ [1.5 °C]	AND	T_{RA} not increasing faster than 0.9 °F [0.5 °C] in Y min	EH2 ON
⑥	$(T_o - T_{RA}) < 0.9\text{ }^\circ\text{F}$ [0.5 °C]			EH1 OFF EH2 OFF

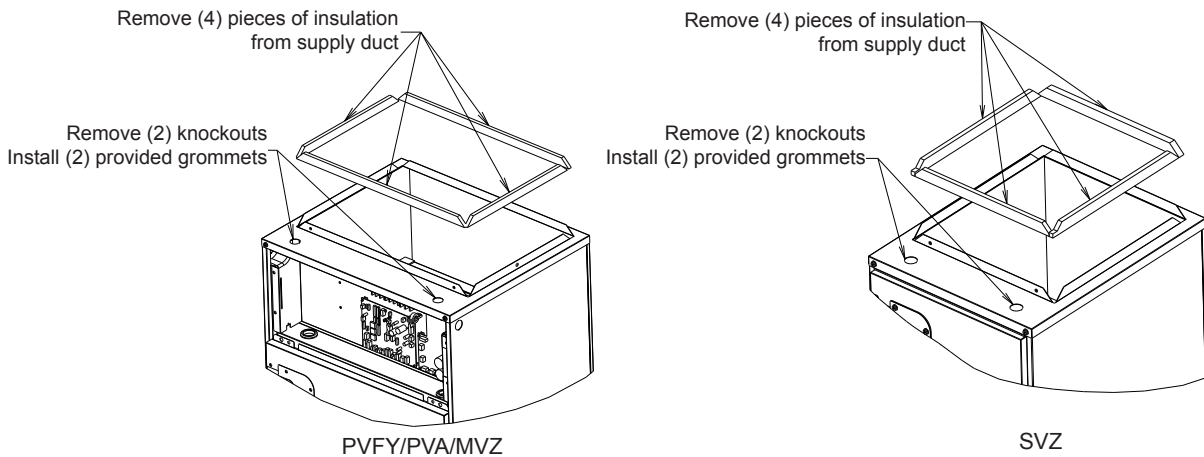
6.5. Attaching the Enclosure to the Air Handler

6.5.A. Remove the front cover as well as the heater section of the heater enclosure. The heater section is secured by (5) screws. Use a 5/16" hex socket or Phillips screw driver for all screws.

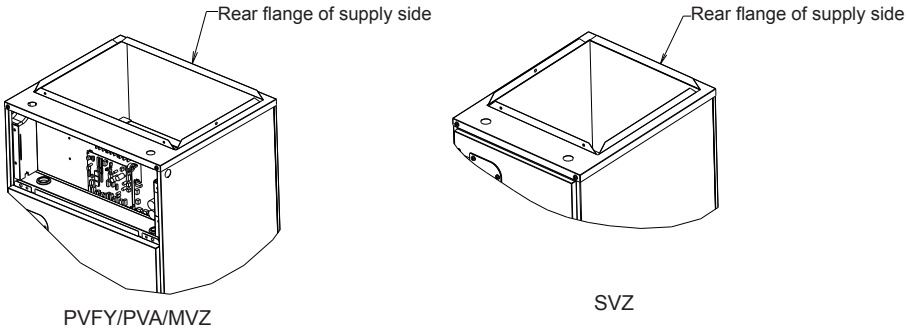


6.5.B. Remove the (4) pieces of foam insulation from the outlet flange on the Multi-position Air Handler and cut the remaining foam so there are no obstructions in the outlet opening.

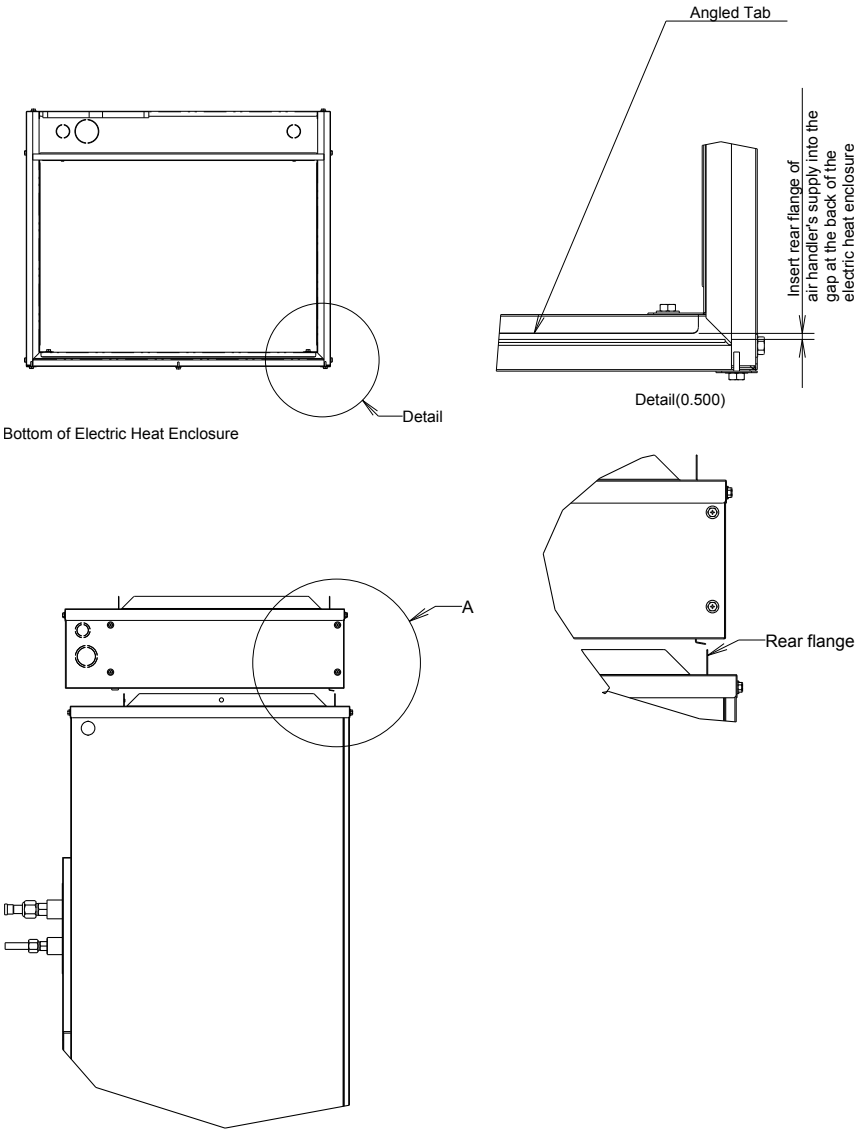
Also, remove the top (2) knockouts from the air handler and install the two grommets included in the Electric Heat Kit accessory bag in the air handler.



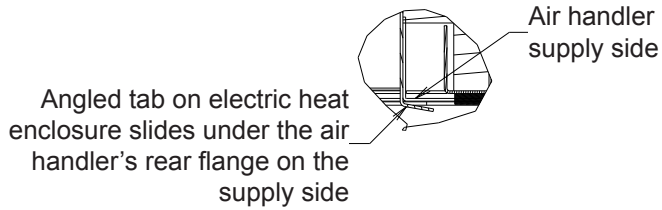
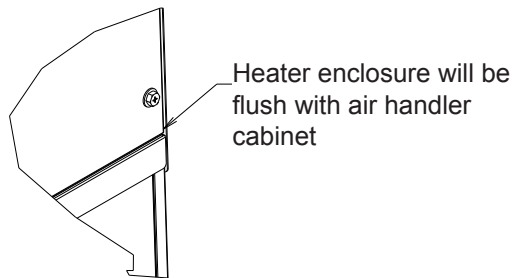
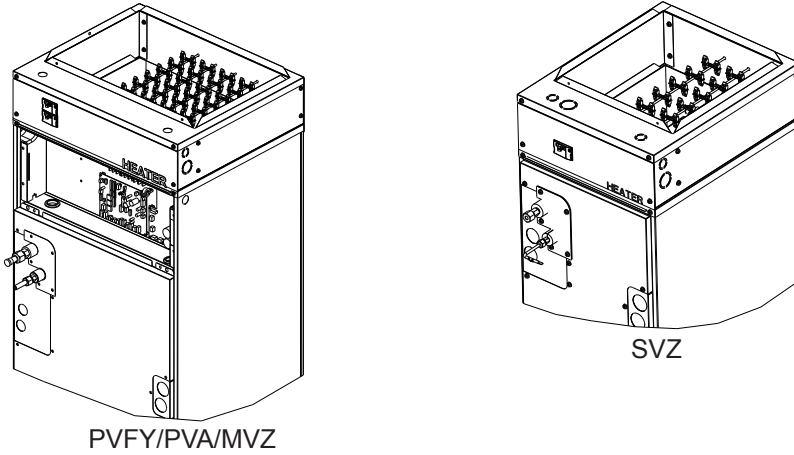
6.5.C. Locate the rear flange of the supply side of the Multi-position Air Handler.



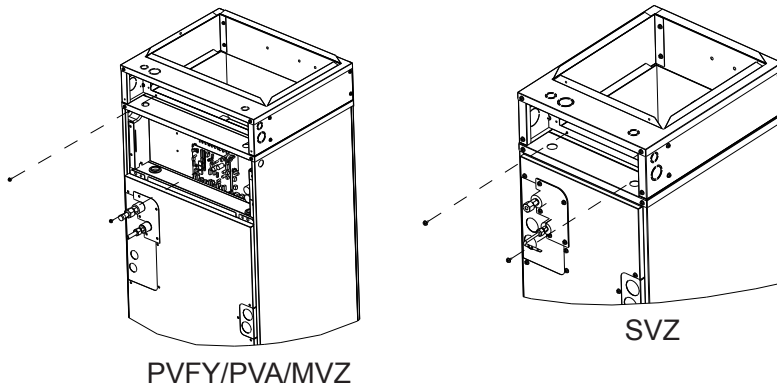
6.5.D. Locate the angled tab that will secure the enclosure to the top of the Multi-position Air Handler. On the bottom of the enclosure toward the back is the tab. Notice the gap between the angled tab and the back of the enclosure. This is extremely important for installation.



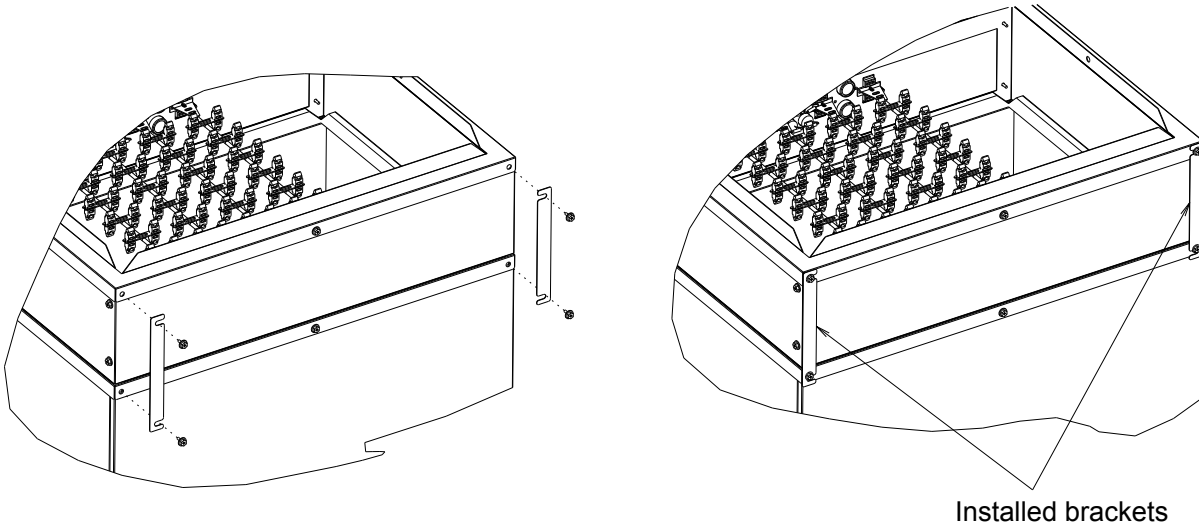
6.5.E. Position the enclosure on top of the air handler so that the rear flange is inserted into the gap explained in step 6.5.D. Next, slide the heater enclosure back so that it is flush with the rear of the air handler. The angled tab on the electric heat enclosure slides under the air handler's rear flange on the supply side.



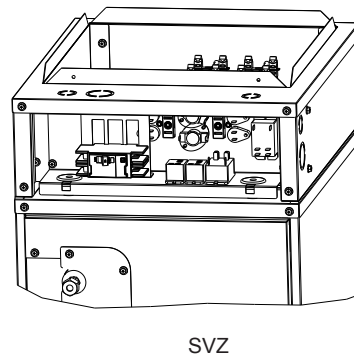
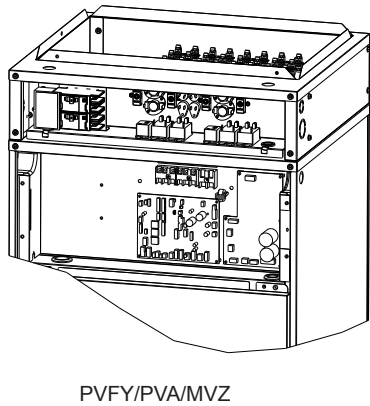
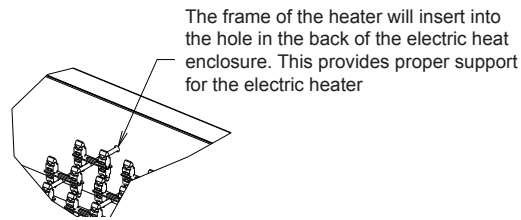
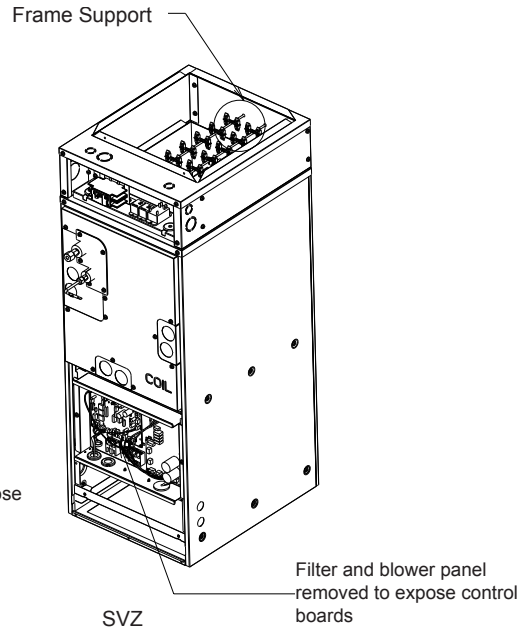
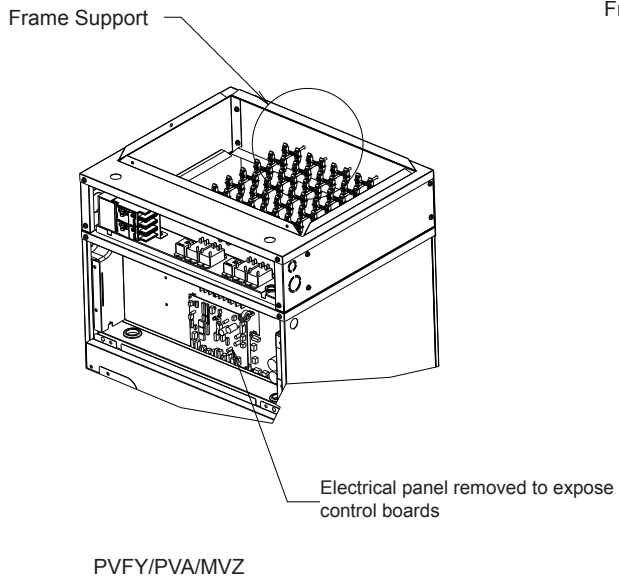
6.5.F. Next, install the (2) M5 silver screws which are included in the accessory bag. This secures the electric heat enclosure to the air handler.



6.5.G. From the back of the enclosure, install the (2) brackets which are included in the accessory bag. The four screws shown can be loosened on the heater enclosure and air handler. Slide the brackets onto the loosened screws and retighten the screws.



6.5.H. Reinstall the heater section into the heater enclosure. When inserting the heater section into the heater enclosure, be sure the frame rods are inserted into the holes provided in the heater enclosure to properly support the heater section. Secure the heater section to the heater enclosure with the (5) screws removed earlier. Next, for MVZ, PVA & PVFY, remove the electric panel from the air handler to expose the electrical boards. For SVZ, remove "BLOWER" panel to expose the electrical boards.



6.5.I. Connect the appropriate spade terminals to the proper relay and route the supplied wires labeled “HTR STAGE 1 ASSY CN24-1” and “HTR STAGE 2 ASSY CN24-2” as shown below through the grommets and connect to the correct connector on the board. They are labeled and colored (Yellow for CN24-1 and Blue for CN24-2).

SVZ ONLY: the wiring to connect the SVZ to the Electric Heater Kit is included inside the cabinet of the SVZ. Remove the coil panel, the wiring is bundled in the top right corner of the cabinet. Cut the tie that secures the bundle and route the wiring into the electric heat cabinet through the grommets. Connect the appropriate spade terminals to the relays inside the Electric Heat Kit. The other end of the wiring will be bundled under the electrical box in the blower compartment. Loosen the bundle, route the wire into the bottom of the electrical box and connect to the correct connector on the control board. They are labeled and colored (Yellow for CN24-1 AND BLUE for CN24-2).

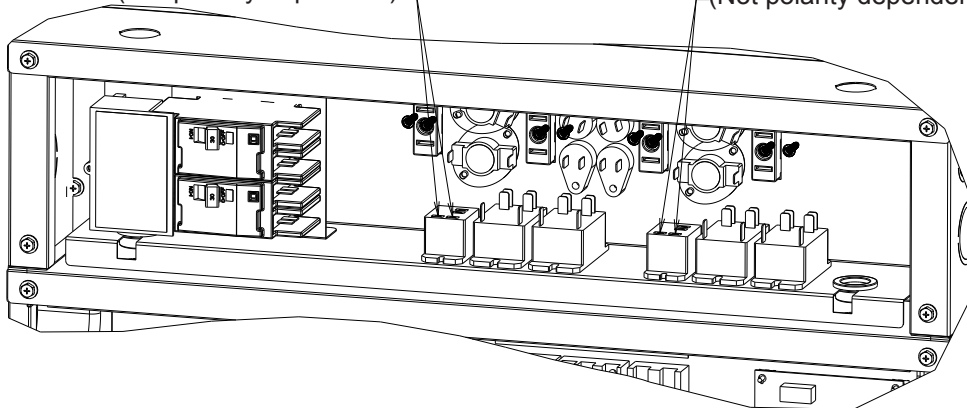


NOTE

3kW and 5kW models are single stage and will only require connection to one relay labeled CN24-1 in the Electric Heat Kit and one connector labeled CN24-1 on the control board.

Connect the 2 spade terminals here for
“HTR STAGE 1 ASSY CN24-1”
(Not polarity dependent)

Connect the 2 spade terminals here for
“HTR STAGE 2 ASSY CN24-2”
(Not polarity dependent)



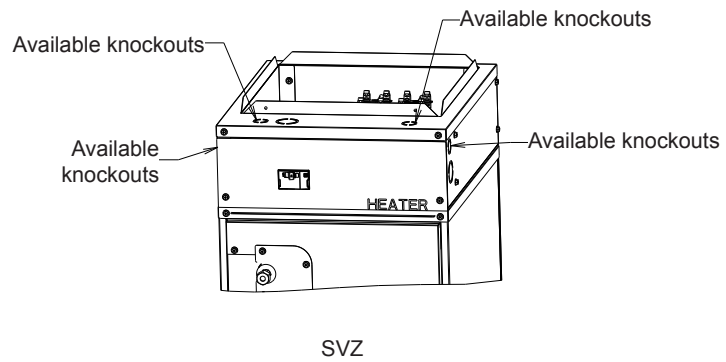
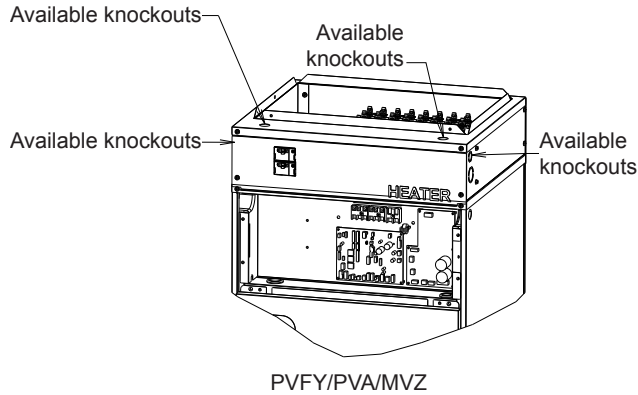
6.5.J. Locate the appropriate knockout based on the wire size and installation position and remove.



NOTE

POWER FOR ELECTRIC HEATERS CAN NOT BE SUPPLIED FROM THE OUTDOOR UNIT. POWER FOR THE ELECTRIC HEATER MUST BE SUPPLIED FROM A SEPARATE POWER SOURCE.

Follow all local codes when connecting to the air handler, use only copper/aluminum conductors and use the appropriate conduit size based on the amperage of the Electric Heat Option found in Table 3-2.

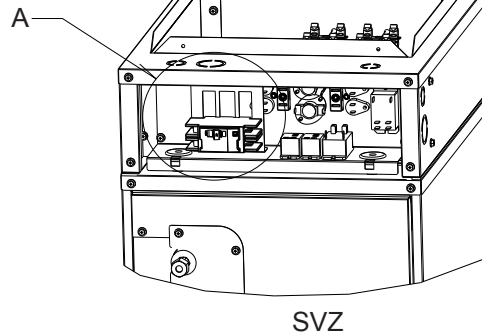
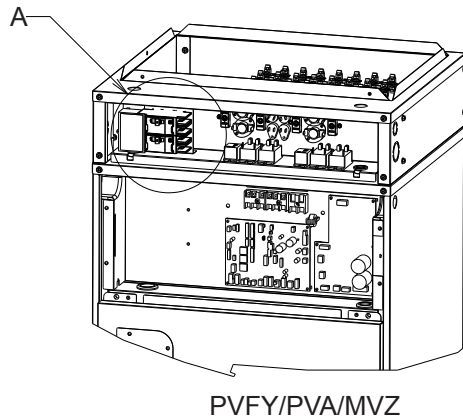


6.5.K. Power can be provided to the Multi-Position Air Handler from the Electric Heat Kit by providing power from the two open terminal connections on the circuit breaker. For PVFY-A-NAMU-E(1) models incoming power to air handler will terminate at L1 and L2. For MVZ-A-AA4(7), SVZ-KP-NA and PVA-A-AA4(7) models, the SPTB1 terminal kit must be installed in the Multi-position Air Handler if the air handler will receive power from the Electric Heat Kit. Please refer to SPTB1 instructions for proper power connection.

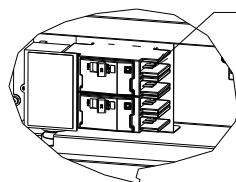


NOTE

SPTB1 cannot be used when air handler is combined with SUZ outdoor units.

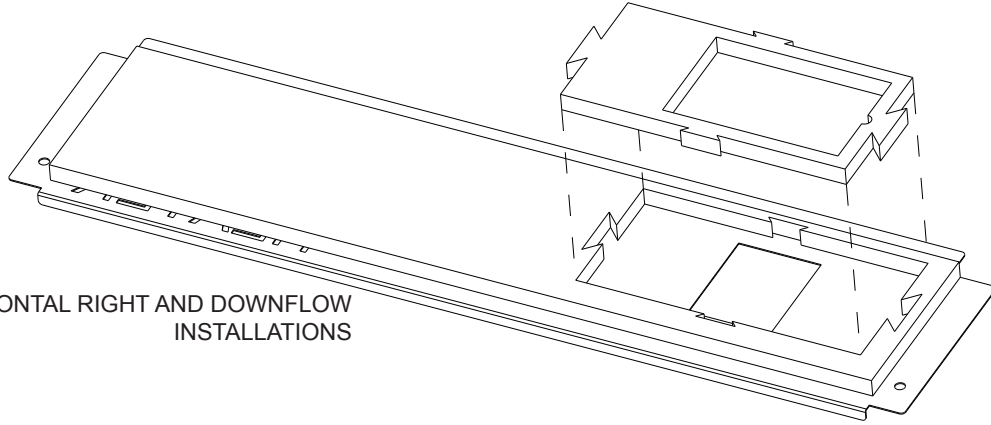


Detail A

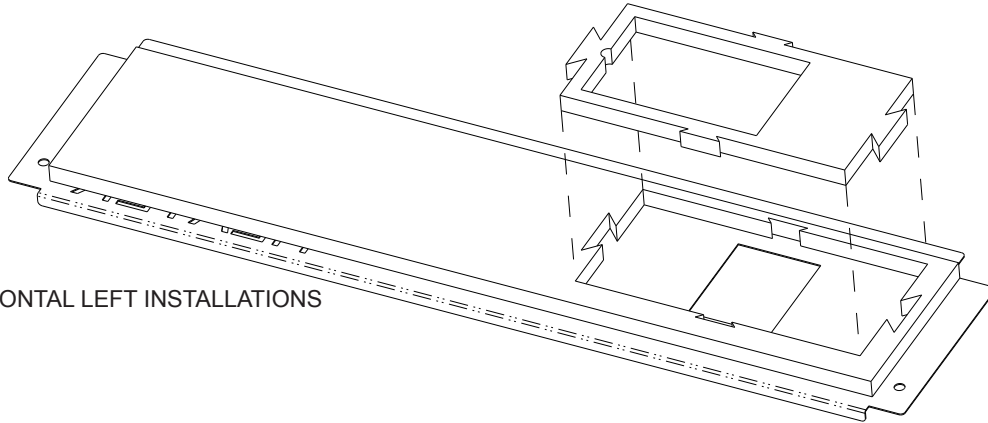


Use the (2) open terminal connections on the circuit breaker to power the air handler. One on L1 and one for L2.

6.5.L. For Electric Heat Kits with two circuit breakers, follow the instructions below: Install the foam insulation provided in the electric heater according to the position of the circuit breakers. For vertical, horizontal right, and downflow positions, install the foam insulation piece as shown below in the first image. For horizontal left installations, see the second image. For horizontal left installations, the circuit breaker must be rotated 180°, see section 6.7 for “Rotating circuit breaker orientation for horizontal left installations”.



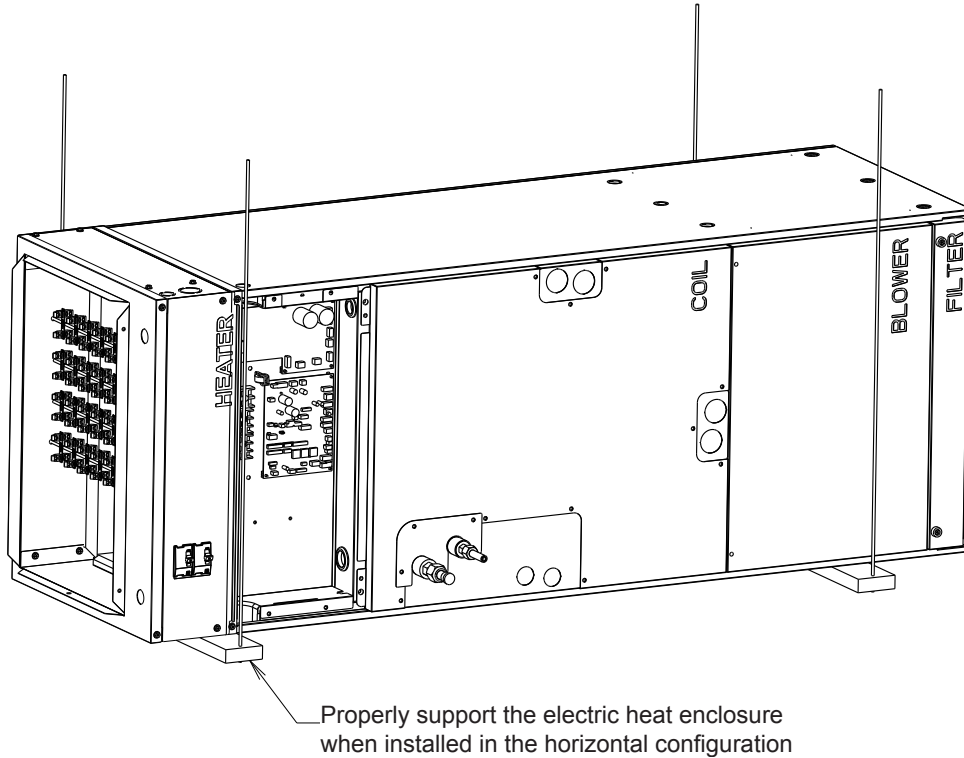
VERTICAL, HORIZONTAL RIGHT AND DOWNFLOW
INSTALLATIONS



HORIZONTAL LEFT INSTALLATIONS

6.6. Proper Support in the Horizontal Position for the Multi-Position Air Handler with Electric Heat Kit

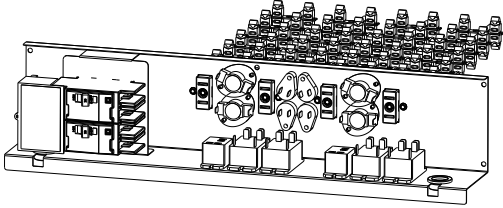
For horizontal installations providing proper support to the air handler and Electric Heat Kit, enclosure ensures an airtight installation. If improper support is provided under the electric heat enclosure, the weight of the ductwork attached to the electric heat enclosure could cause separation between the electric heat enclosure and the air handler resulting in capacity loss.



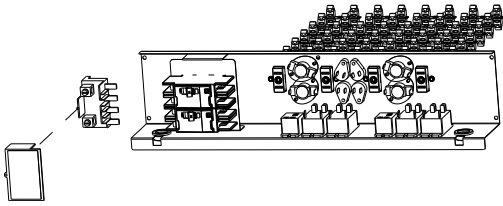
6.7. Rotating Circuit Breaker Orientation for Horizontal Left Installations

For horizontal left installations, the circuit breaker(s) must be rotated 180° for proper switch direction for ON/OFF.

6.7.A. Remove the cover and single point power block (for electric heat models above 10kW) from the two circuit breakers.

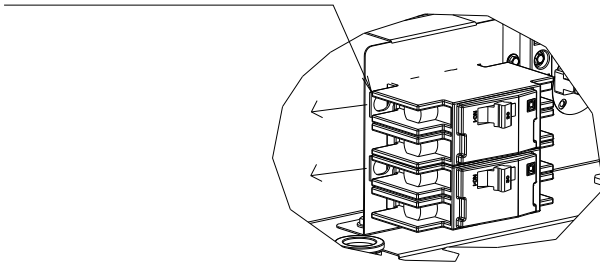


6.7.B. Remove the electric heat from the enclosure.

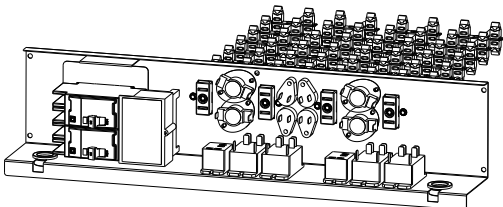


6.7.C. Remove the circuit breaker(s) from the support bracket by pulling the tab in the direction shown. Use a flat head screwdriver to push the plastic tab to release the circuit breaker from the bracket.

Move the tab in the direction shown to remove the circuit breaker.

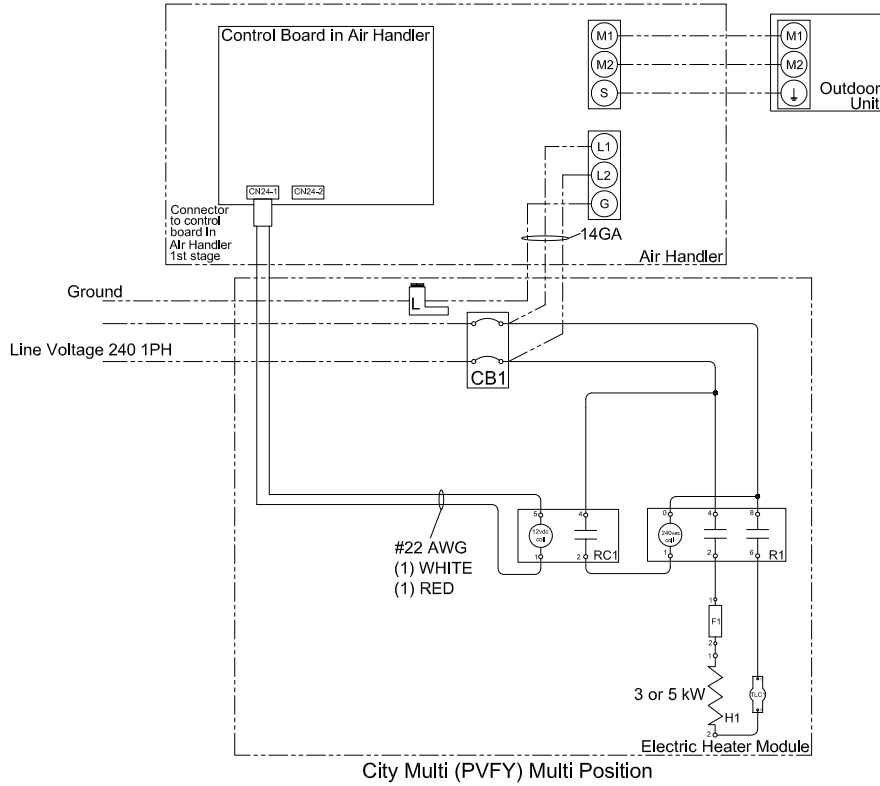


6.7.D. Reassemble in the reverse orientation. Use extreme caution when re-routing the wires connected to the Circuit Breaker(s). The “ON” position for the circuit breaker will now be in the correct orientation for horizontal left installation.



7. Electrical Schematics

7.1. PVFY-A·NAMU-E(1) Models



3 or 5 kW Components	
Device	Description
CB1	2-pole circuit breaker (Amperage based on kW of heater)
R1	Relay 240VAC coil (AZ2800-2A-240A)
RC1	Relay 12VDC coil (Control - AZ2280-1A-12DF)
F1	Fuse Limit (non-resettable)
TLC1	Thermal Limit Cutoff
H1	Heater (3 or 5 kW)
CN24-1	JST connector YELLOW (p/n XAP-02V-1-Y)
L	Grounding Lug

Electric Heat Model:

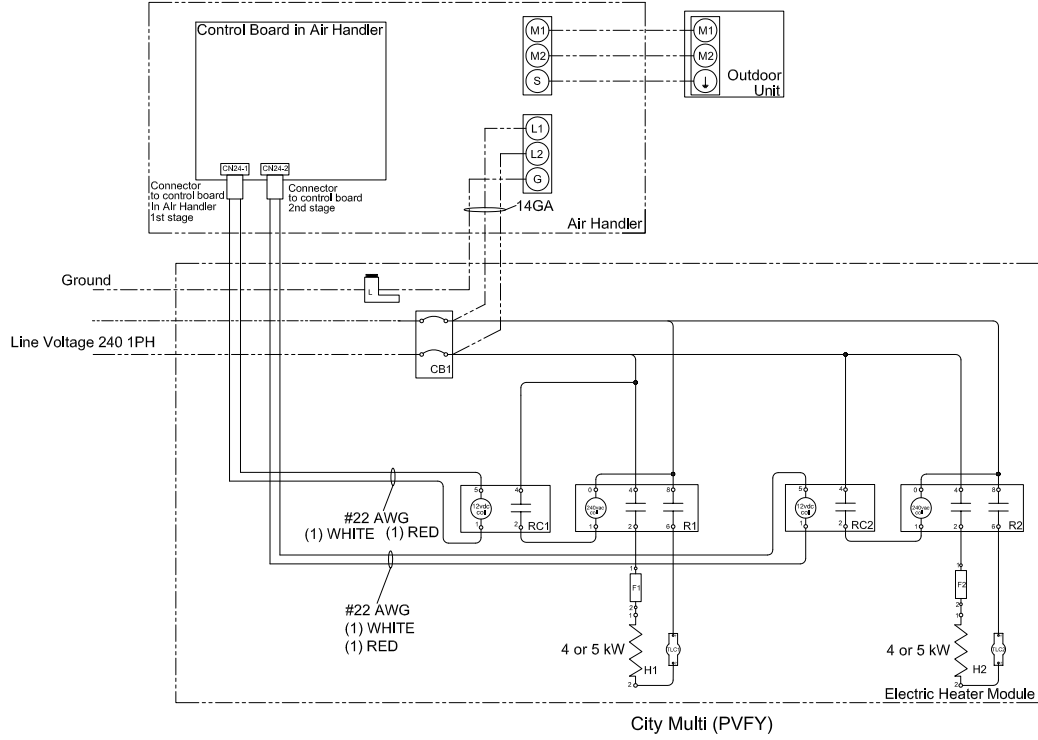
EH03-MPA-S(B), EH05-MPA-S(B), EH03-MPA-M(B), EH05-MPA-M(B)
1 stage; 3 or 5kW



NOTE

Use copper or aluminum conductors only.
UTILISER DES FILS D'ALIMENTATION EN CUIVRE/ALUMINUM
----- Field Supplied Wiring
Electric Heater Module installed directly on top of air handler.

Electric Heat Install Manual



8 & 10 kW	
Components	
Device	Description
CB1	2-pole circuit breaker (Amperage based on kW of heater)
R1, R2	Relay 240VAC coil (AZ2800-2A-240A)
RC1, RC2	Relay 12VDC coil (Control - AZ2280-1A-12DF)
F1, F2	Fuse Limit (non-resettable)
TLC1, TLC2	Thermal Limit Cutoff
H1, H2	Heater (4 or 5 kW)
CN24-1	JST connector YELLOW (p/n XAP-02V-1-Y)
CN24-2	JST connector BLUE (p/n XAP-02V-1-E)
L	Grounding Lug

Electric Heat Model:

EH08-MPA-S(B), EH08-MPA-M(B), EH10-MPA-M, EH10-MPA-L(B)
2 stage; 8 or 10kW



NOTE

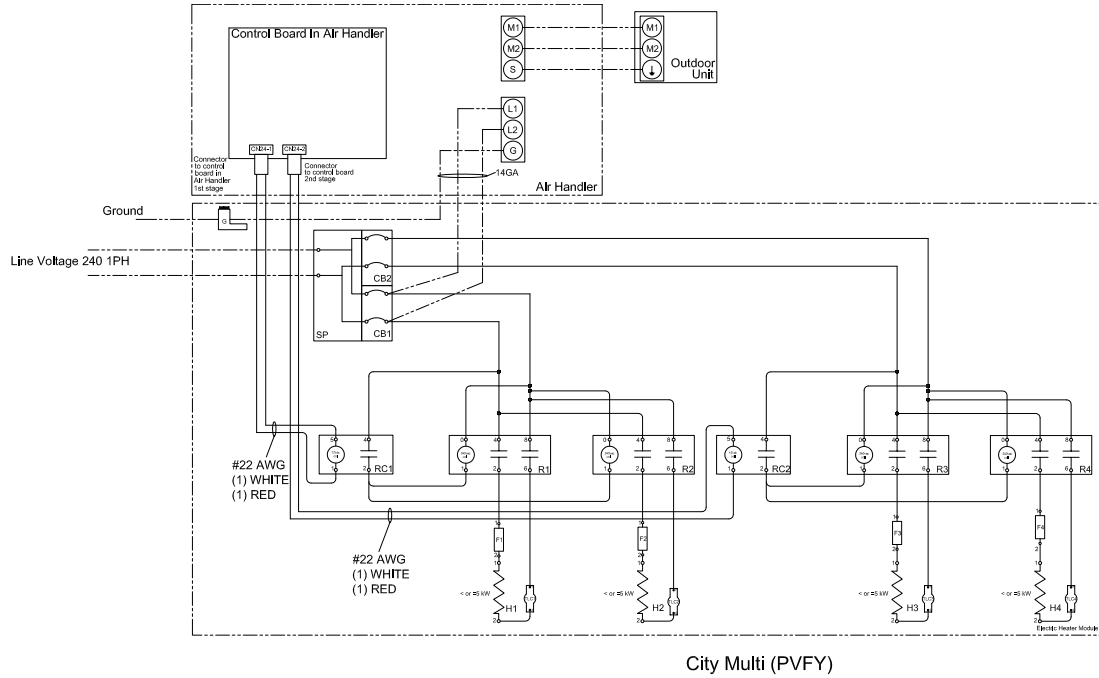
Use copper or aluminum conductors only.

UTILISER DES FILS D'ALIMENTATION EN CUIVRE/ALUMINUM

----- Field Supplied Wiring

Electric Heater Module installed directly on top of air handler.

Electric Heat Install Manual



15 or 17.5 kW	
Components	
Device	Description
CB1, CB2	2-pole circuit breaker (Amperage based on kW of heater)
RC1, RC2	Relay 12VDC coil (Control - AZ2280-1A-12DF)
R1, R2, R3, R4	Relay 240VAC coil (AZ2800-2A-240A)
F1, F2, F3, F4	Fuse Limit (non-resettable)
TLC1, TLC2, TLC3, TLC4	Thermal Limit Cutoff
H1, H2, H3, H4	Heater (< or =5 kW)
CN24-1	JST connector YELLOW (p/n XAP-02V-1-Y)
CN24-2	JST connector BLUE (p/n XAP-02V-1-E)
G	Grounding Lug
SP	Single Point Power

Electric Heat Model:

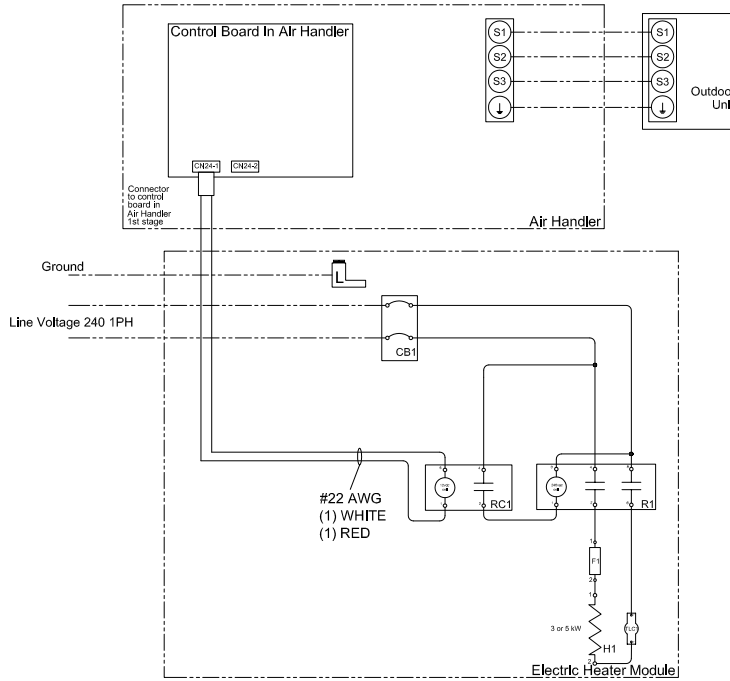
EH15-MPAS-L(B)
 EH17-MPAS-L(B)
 2 stage; 15 or 17.5kW



NOTE

Use copper or aluminum conductors only.
 UTILISER DES FILS D'ALIMENTATION EN CUIVRE/ALUMINUM
 - - - - - Field Supplied Wiring
 Electric Heater Module installed directly on top of air handler.

7.2. MVZ-A-AA4(7), SVZ-KP-NA and PVZ-A-AA4(7) Models



3 or 5 kW Components	
Device	Description
CB1	2-pole circuit breaker (Amperage based on kW of heater)
R1	Relay 240VAC coil (AZ2800-2A-240A)
RC1	Relay 12VDC coil (Control - AZ2280-1A-12DF)
F1	Fuse Limit (non-resettable)
TLC1	Thermal Limit Cutoff
H1	Heater (3 or 5 kW)
CN24-1	JST connector YELLOW (p/n XAP-02V-1-Y)
L	Grounding Lug

PVA/MVZ/SVZ Multi-position Air Handler

Electric Heat Model:

EH03-MPA-S(B), EH05-MPA-S(B), EH03-MPA-M(B), EH05-MPA-M(B)

EH03-SVZ-S, EH05-SVZ-S, EH05-SVZ-M

1 stage; 3 or 5kW



NOTE

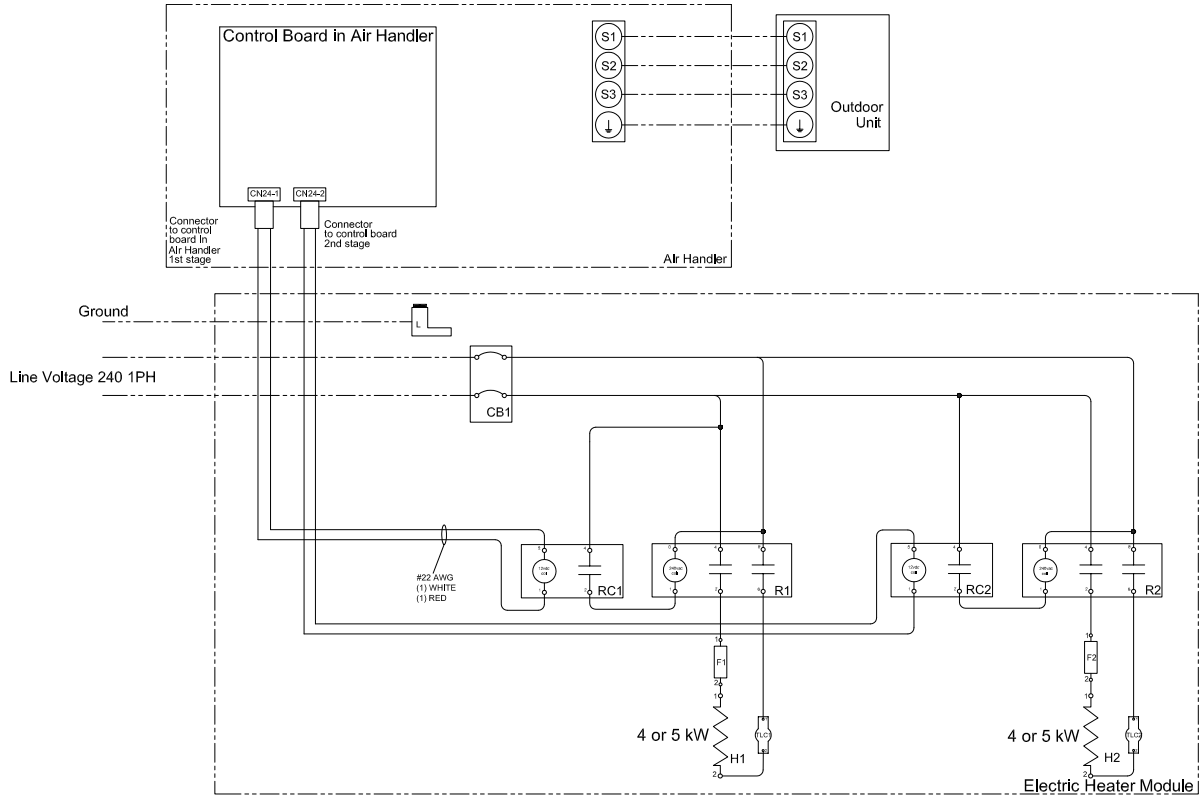
Use copper or aluminum conductors only.

UTILISER DES FILS D'ALIMENTATION EN CUIVRE/ALUMINUM

----- Field Supplied Wiring

Electric Heater Module installed directly on top of air handler.

Electric Heat Install Manual



8 or 10 kW Components	
Device	Description
CB1	2-pole circuit breaker (Amperage based on kW of heater)
R1, R2	Relay 240VAC coil (AZ2800-2A-240A)
RC1, RC2	Relay 12VDC coil (Control - AZ2280-1A-12DF)
F1, F2	Fuse Limit (non-resettable)
TLC1, TLC2	Thermal Limit Cutoff
H1, H2	Heater (3 or 5 kW)
CN24-1	JST connector YELLOW (p/n XAP-02V-1-Y)
CN24-2	JST connector BLUE (p/n XAP-02V-1-E)
L	Grounding Lug

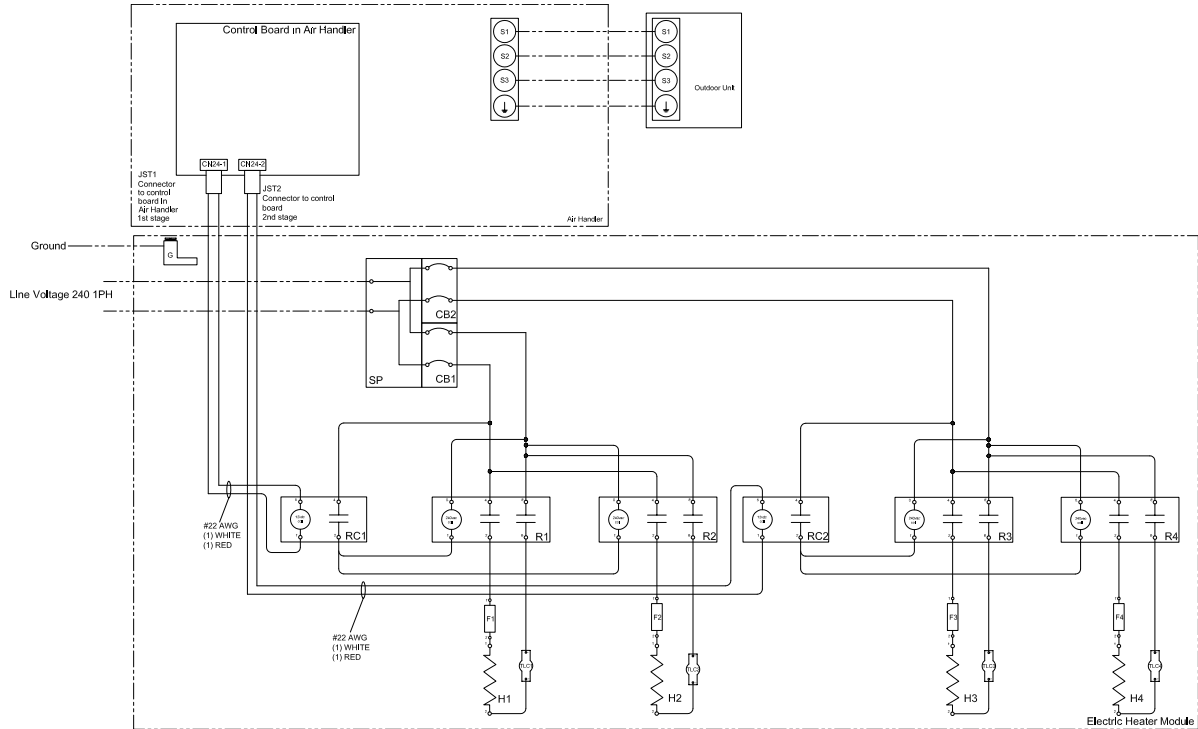
PVA/MVZ/SVZ Multi-position Air Handler
 Electric Heat Model:
 EH08-MPA-S(B), EH08-MPA-M(B), EH10-MPA-M, EH10-MPA-L(B)
 EH08-SVZ-S, EH08-SVZ-M, EH10-SVZ-M
 2 stage; 8 or 10kW



NOTE

Use copper or aluminum conductors only.
 UTILISER DES FILS D'ALIMENTATION EN CUIVRE/ALUMINUM
 ----- Field Supplied Wiring
 Electric Heater Module installed directly on top of air handler.

Electric Heat Install Manual



15 or 17.5 kW	
Components	
Device	Description
CB1, CB2	2-pole circuit breaker (Amperage based on kW of heater)
RC1, RC2	Relay 12VDC coil (Control - AZ2280-1A-12DF)
R1, R2, R3, R4	Relay 240VAC coil (AZ2800-2A-240A)
F1, F2, F3, F4	Fuse Limit (non-resettable)
TLC1, TLC2, TLC3, TLC4	Thermal Limit Cutoff
H1, H2, H3, H4	Heater (< or =5 kW)
CN24-1	JST connector YELLOW (p/n XAP-02V-1-Y)
CN24-2	JST connector BLUE (p/n XAP-02V-1-E)
G	Grounding Lug
SP	Single Point Power

PVA Multi-position Air Handler

Electric Heat Model:

EH15-MPAS-L(B)

EH17-MPAS-L(B)

2 stage; 15 or 17.5kW



NOTE

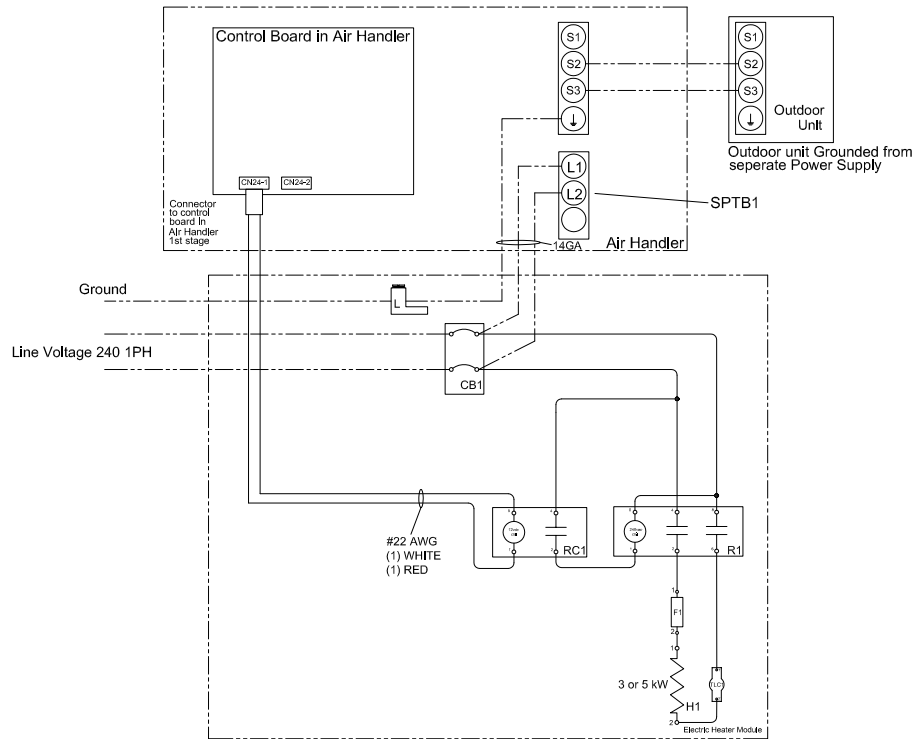
Use copper or aluminum conductors only.

UTILISER DES FILS D'ALIMENTATION EN CUIVRE/ALUMINUM

----- Field Supplied Wiring

Electric Heater Module installed directly on top of air handler.

7.3. MVZ-A-AA4(7), SVZ-KP-NA and PVZ-A-AA4(7) Models with Separate Power Terminal Block (SPTB1)



3 or 5 kW Components	
Device	Description
CB1	2-pole circuit breaker (Amperage based on kW of heater)
R1	Relay 240VAC coil (AZ2800-2A-240A)
RC1	Relay 12VDC coil (Control - AZ2280-1A-12DF)
F1	Fuse Limit (non-resettable)
TLC1	Thermal Limit Cutoff
H1	Heater (3 or 5 kW)
CN24-1	JST connector YELLOW (p/n XAP-02V-1-Y)
L	Grounding Lug

PVA/MVZ/SVZ Multi Position

SPTB1 - Separate Power Terminal Block

Electric Heat Model:

EH03-MPA-S(B), EH05-MPA-S(B), EH03-MPA-M(B), EH05-MPA-M(B)

EH03-SVZ-S, EH05-SVZ-S, EH05-SVZ-M

1 stage; 3 or 5kW



NOTE

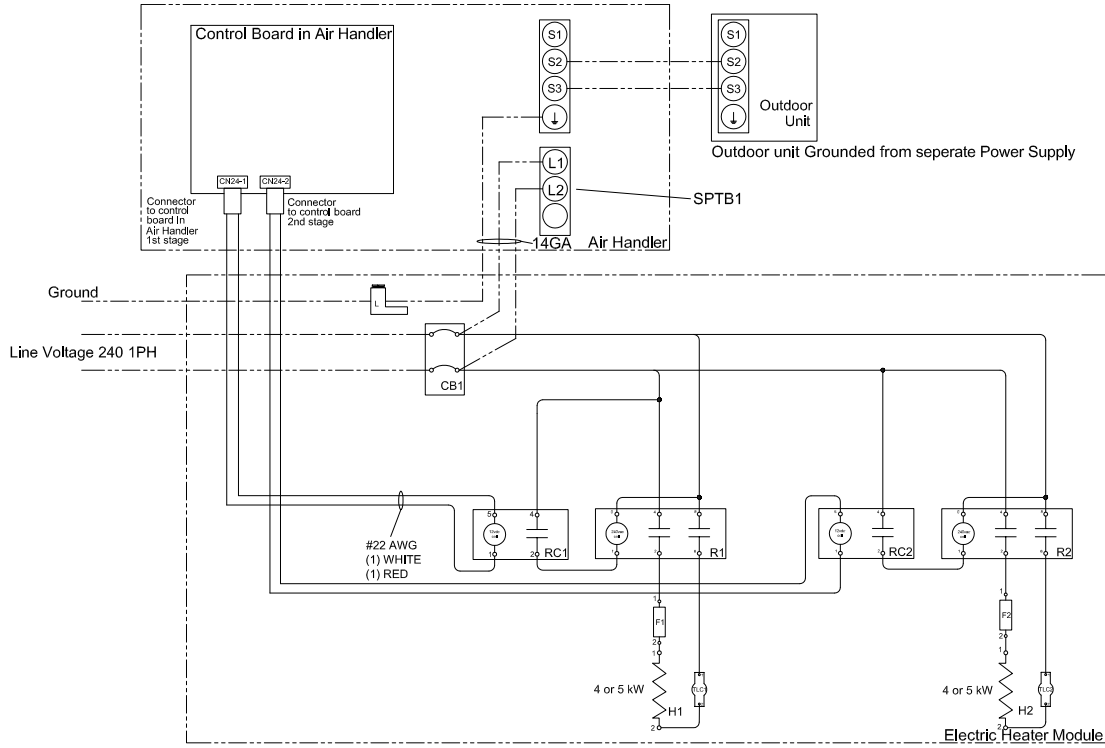
Use copper or aluminum conductors only.

UTILISER DES FILS D'ALIMENTATION EN CUIVRE/ALUMINUM

----- Field Supplied Wiring

Electric Heater Module installed directly on top of air handler.

Electric Heat Install Manual



PVA/MVZ/SVZ Multi Position

SPTB1 - Separate Power Terminal Block

Electric Heat Model:

EH08-MPA-S(B), EH08-MPA-M(B), EH10-MPA-M, EH10-MPA-L(B)

EH08-SVZ-S, EH08-SVZ-M, EH10-SVZ-M

2 stage; 8 or 10 kW

8 or 10 kW Components	
Device	Description
CB1	2-pole circuit breaker (Amperage based on kW of heater)
R1, R2	Relay 240VAC coil (AZ2800-2A-240A)
RC1, RC2	Relay 12VDC coil (Control - AZ2280-1A-12DF)
F1, F2	Fuse Limit (non-resettable)
TLC1, TLC2	Thermal Limit Cutoff
H1, H2	Heater (3 or 5 kW)
CN24-1	JST connector YELLOW (p/n XAP-02V-1-Y)
CN24-2	JST connector BLUE (p/n XAP-02V-1-E)
L	Grounding Lug



NOTE

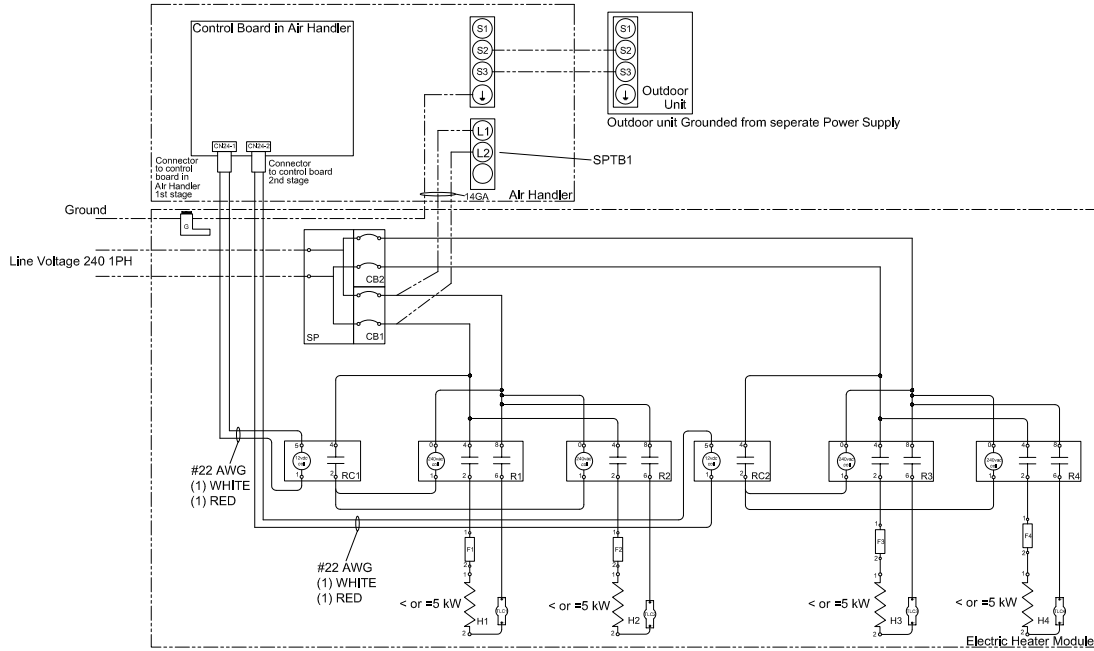
Use copper or aluminum conductors only.

UTILISER DES FILS D'ALIMENTATION EN CUIVRE/ALUMINUM

----- Field Supplied Wiring

Electric Heater Module installed directly on top of air handler.

Electric Heat Install Manual



15 & 17.5 kW Components	
Device	Description
CB1, CB2	2-pole circuit breaker (Amperage based on kW of heater)
RC1, RC2	Relay 12VDC coil (Control - AZ2280-1A-12DF)
R1, R2, R3, R4	Relay 240VAC coil (AZ2800-2A-240A)
F1, F2, F3, F4	Fuse Limit (non-resettable)
TLC1, TLC2, TLC3, TLC4	Thermal Limit Cutoff
H1, H2, H3, H4	Heater ($\le 5\text{ kW}$)
CN24-1	JST connector YELLOW (p/n XAP-02V-1-Y)
CN24-2	JST connector BLUE (p/n XAP-02V-1-E)
G	Grounding Lug
SP	Single Point Power

PVA Multi Position
 SPTB1 - Separate Power Terminal Block
 Electric Heat Model:
 EH15-MPAS-L(B)
 EH17-MPAS-L(B)
 2 stage; 15 or 17.5kW



NOTE

Use copper or aluminum conductors only.
 UTILISER DES FILS D'ALIMENTATION EN CUIVRE/ALUMINUM
 - - - - - Field Supplied Wiring
 Electric Heater Module installed directly on top of air handler.

This product is designed and intended for use in the residential, commercial and light-industrial environment.

Please be sure to put the contact address/telephone number on this manual before handing it to the customer.



Manufactured for:
MITSUBISHI ELECTRIC US, INC.

www.mitsubishielectric-usa.com

Toll Free: 800-433-4822