

EHKMD

Auxiliary Heater for Air Handler D Series
Sizes 5KW to 25KW

Installation Instructions

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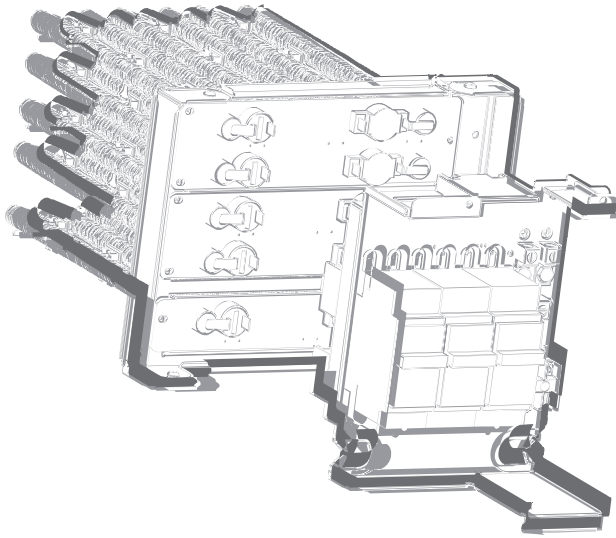


Fig. 1 —Auxiliary Heater

NOTES: Read the entire instruction manual before starting the installation.

Images are for illustration purposes only. Actual models may differ slightly.

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SAFETY CONSIDERATIONS

Installing, starting up, and servicing air-conditioning equipment can be hazardous due to system pressures, electrical components, and equipment location (roofs, elevated structures, etc.).


Only trained, qualified installers and service mechanics should install, start-up, and service this equipment.

Untrained personnel can perform basic maintenance functions such as coil cleaning. All other operations should be performed by trained service personnel.

When working on the equipment, observe precautions in the literature and on tags, stickers, and labels attached to the equipment.

Follow all safety codes. Wear safety glasses and work gloves. Keep a quenching cloth and fire extinguisher nearby when brazing. Use care in handling, rigging, and setting bulky equipment.

Read these instructions thoroughly and follow all warnings or cautions included in literature and attached to the unit. Consult local building codes and National Electrical Code (NEC) for special requirements. Recognize safety information.

This is the safety-alert symbol .

When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury. Understand these signal words: **DANGER**, **WARNING**, and **CAUTION**. These words are used with the safety-alert symbol.

DANGER identifies the most serious hazards which will result in severe personal injury or death.

WARNING signifies hazards which could result in personal injury or death.

CAUTION is used to identify unsafe practices which may result in minor personal injury or product and property damage.

NOTE is used to highlight suggestions which will result in enhanced installation, reliability, or operation.



WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Before installing, modifying, or servicing system, the main electrical disconnect switch must be in the OFF position. There may be more than 1 disconnect switch. Lock out and tag switch with a suitable warning label.



WARNING



EXPLOSION HAZARD

Failure to follow this warning could result in personal injury or death.

Before installing, modifying, or servicing system, the main electrical disconnect switch must be in the OFF position. There may be more than 1 disconnect switch. Lock out and tag switch with a suitable warning label.



CAUTION

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

Do not bury more than 36 in. (914 mm) of refrigerant pipe in the ground. If any section of pipe is buried, there must be a 6 in. (152 mm) vertical rise to the valve connections on the outdoor units. If more than the recommended length is buried, refrigerant may migrate to the cooler buried section during extended periods of system shutdown. This causes refrigerant slugging and could possibly damage the compressor at start-up.



WARNING

Only use the specified wire. If the wire is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard. The product must be properly grounded at the time of installation, or electric shock may occur.

For all electrical work, follow all local and national wiring standards, regulations, and the Installation Manual. Connect the cables tightly, and clamp them securely to prevent external forces from damaging the terminal. Improper electrical connections can overheat and cause fire, and may also cause shock. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.

All wiring must be properly arranged to ensure that the control board cover can close properly. If the control board cover is not closed properly, it can lead to corrosion and cause the connection points on the terminal to heat up, catch fire, or cause electrical shock.

Disconnection must be incorporated in the fixed wiring in accordance with NEC, CSA, and Local Codes. Do not share the electrical outlet with other appliances. Improper or insufficient power supply can cause fire or electric shock.

If connecting power to fixed wiring, an all-pole disconnection device which has at least 3mm clearances in all poles, and have a leakage current that may exceed 10mA, the residual current device (RCD) having a rated residual operating current not exceeding 30mA, and disconnection must be incorporated in the fixed wiring in accordance with NEC, CSA, and Local Codes.

**WARNING****ELECTRICAL WARNING**

The product must be properly grounded at the time of installation or electrical shock may occur.

For all electrical work, follow all local and national wiring standards, regulations, and the Installation Manual. Connect cables tightly, and clamp them securely to prevent external forces from damaging the terminal. Improper electrical connections can overheat and cause a fire, and may also cause shock. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.

All wiring must be properly arranged to ensure that the control board cover can close properly. If the control board cover is not closed properly, it can lead to corrosion and cause the connection points on the terminal to heat up, catch fire, or cause electrical shock. If connecting power to fixed wiring, an all-pole disconnection device which has at least 3mm clearances in all poles, and have leakage current that may exceed 10mA, the residual current device (RDC) having rated residual operating current not exceeding 30mA, and disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.

**WARNING**

Turn off the unit and disconnect the power before performing any installation or repairing. Failure to do so can cause electric shock.

Installation must be performed by an authorized dealer or specialist. Defective installation can cause water leakage, electrical shock, or fire.

Installation must be performed according to the installation instructions. Improper installation can cause water leakage, electrical shock, or fire.

Contact an authorized service technician for repair or maintenance of this unit. This appliance shall be installed in accordance with national wiring regulations. Only use the included accessories, parts, and specified parts for installation. Using non-standard parts can cause water leakage, electrical shock, fire, and can cause the unit to fail.

Install the unit in a firm location that can support the unit's weight. If the chosen location cannot support the unit's weight, or the installation is not done properly, the unit may drop and cause serious injury and damage.

Install drainage piping according to the instructions in this manual. Improper drainage may cause water damage to your home and property.

For units that have an auxiliary electric heater, do not install the unit within 3 feet (1 meter) of any combustible materials.

If combustible gas accumulates around the unit, it may cause fire.

Do not turn on the power until all work has been completed.

When moving or relocating the unit, consult experienced service technicians for disconnection and re-installation of the unit.

How to install the appliance to its support, please read the information for details in "indoor unit installation" and "outdoor unit installation" sections.

NOTE: The unit's circuit board (PCB) is designed with a fuse to provide overcurrent protection. The specifications of the fuse are printed on the circuit board, for example: T3.15AL/250VAC, T5AL/250VAC, T3.15A/250VAC, T5A/250VAC, T20A/250VAC, T30A/250VAC, etc.

NOTE: Only the blast-proof ceramic fuse can be used.

**WARNING****PERSONAL INJURY AND PROPERTY DAMAGE HAZARD**

For continued performance, reliability, and safety, the only approved accessories and replacement parts are those specified by the equipment manufacturer. The use of non-manufacturer approved parts and accessories could invalidate the equipment limited warranty and result in fire risk, equipment malfunction, and failure. Review the manufacturer's instructions and replacement parts catalogs available from your equipment supplier.

**WARNING****WARNING FOR PRODUCT INSTALLATION**

Installation must be performed by an authorized dealer or specialist. Defective installation can cause water leakage, electrical shock, or fire. Installation must be performed according to the installation instructions. Improper installation can cause water leakage, electrical shock, or fire. (In North America, installation must be performed in accordance with the requirement of NEC and CEC by authorized personnel only.)

Contact an authorized service provider for repair or maintenance of this unit. This appliance shall be installed in accordance with national wiring regulations. Only use the included accessories, parts, and specified parts for installation. Using non-standard parts can cause water leakage, electrical shock, fire, and can cause the unit to fail.

For units that have an auxiliary electric heater, do not install the unit within 1 meter (3 feet) of any combustible materials.

Do not install the unit in a location that may be exposed to combustible gas leaks. If combustible gas accumulates around the unit, it may cause fire.






Do not turn on the power until all work has been completed.

When moving or relocating the auxiliary heater, consult experienced service technicians for disconnection and reinstallation of the unit.

**WARNING****WARNINGS FOR CLEANING AND MAINTENANCE**

Turn off the device and disconnect the power before cleaning. Failure to do so can cause electrical shock.

Table 1 — Symbols Displayed on Indoor Unit or Outdoor Unit

	WARNING	This symbol shows that this appliance used a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.
	CAUTION	This symbol shows that the operation manual should be read carefully.
	CAUTION	This symbol shows that a service personnel should be handling this equipment with reference to the installation manual.
	CAUTION	This symbol shows that information is available such as the operating manual or installation manual.
	CAUTION	This symbol shows that information is available such as the operating manual or installation manual.

**WARNING****FOR FLAMMABLE REFRIGERANTS**

Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).

Do not pierce or burn. Be aware that refrigerants may not contain an odor.

**WARNING**

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

WARNING - RISK OF FIRE DUE TO FLAMMABLE REFRIGERANT USED. FOLLOW HANDLING INSTRUCTIONS CAREFULLY IN COMPLIANCE WITH NATIONAL REGULATIONS.

R-454B



Refrigerant
Safety Group
A2L

R-454B



NOTE: Risk of Fire. Flammable refrigerant used. To be repaired only by trained service personnel. Do not puncture refrigerant tubing.

ACCESSORIES

The system is shipped with the following accessories. Use all of the installation parts and accessories to install the system. Improper installation may result in water leakage, electrical shock and fire, or cause the equipment to fail. Keep the installation manual in a safe place and do not discard any other accessories until the installation has been completed.

NOTE: Installation must be performed by a licensed contractor. Take necessary precautions when performing the installation operation.

Table 2 — Accessories

Name	Quantity	Image
Manual	1	
Foam Gasket	1	
Packaged Screws	1	
Silicone Breaker Cover	1	
Electric Auxiliary Heating Wiring Diagram	1	
Circuit Breaker Label	1	

MODEL SIZE SELECTION

For installations requiring supplemental heating, the optional Electric Auxiliary Heat Module is available in sizes from 3kW to 25kW to accommodate appropriate sizing given the specific heat load and electrical requirements of each installation. Refer to Table 3 for selection of available sizes of each outdoor unit model. Be sure to avoid improper matching.

Table 3 — Selection of Available Sizes

Outdoor Unit Model	Indoor Unit Models	Heater Unit Models					
		EHKMD05KN	EHKMD08KN	EHKMD10KN	EHKMD15KN	EHKMD20KN	EHKMD25KN
37MUHAQ18AA3 / D5CUHAH18AAK	45MUHAQ24XX3 / D5FUHAH24XAK	Y	Y	Y	-	-	-
37MUHAQ24AA3 / D5CUHAH24AAK		Y	Y	Y	Y	-	-
37MUHAQ30AA3 / D5CUHAH30AAK	45MUHAQ36XX3 / D5FUHAH36XAK	Y	Y	Y	Y	-	-
37MUHAQ36AA3 / D5CUHAH36AAK		Y	Y	Y	Y	Y	-
37MUHAQ48AA3 / D5CUHAH48AAK	45MUHAQ60XX3 / D5FUHAH60XAK	-	Y	Y	Y	Y	-
37MUHAQ60AA3 / D5CUHAH60AAK		-	-	Y	Y	Y	Y

NOTE: Only use matched modules certified for use with model. Refer to the Electric Auxiliary Heat Model specification for additional details to ensure proper selection and installation.

NOTE: This heater cannot be powered from a 115 volt circuit. Separate 208/230 volt power must be supplied to the electric heaters for 115 volt applications.

NOTE: If the unit needs to be equipped with the electric auxiliary heat module, check the electric auxiliary heat module specification that is compatible with the unit to avoid unnecessary consequences caused by improper matching and refer to the Product Data manual.

DIMENSIONS

Table 4 — Dimensions and Weight

System Size		5KW	8KW	10KW	15KW	20KW	25KW
		(208/230 V)					
Height (H)	inch	8.07	8.07	8.07	8.07	8.07	8.07
	mm	205	205	205	205	205	205
Width (W)	inch	22.01	22.01	22.01	22.01	22.01	22.01
	mm	559	559	559	559	559	559
Depth (D)	inch	10.59	10.59	10.59	10.59	10.59	10.59
	mm	269	269	269	269	269	269
Weight -Net	lbs.	4.85	6.17	5.73	7.72	9.26	11.24
	kg	2.2	2.8	2.6	3.5	4.2	5.1

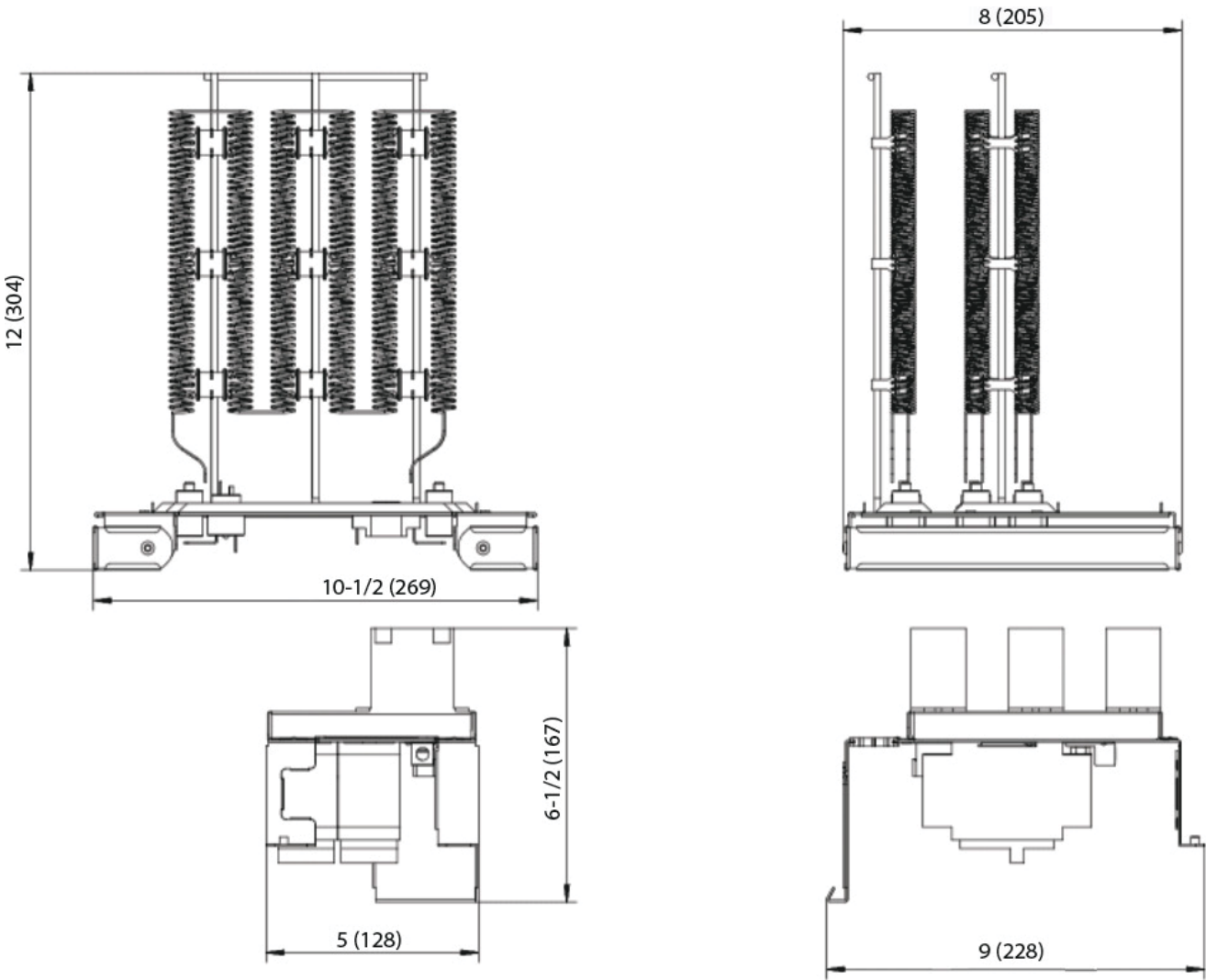


Fig. 2 —Dimensions (Sizes 5K, 8K, 10K, and 15K)

DIMENSIONS (CONT.)

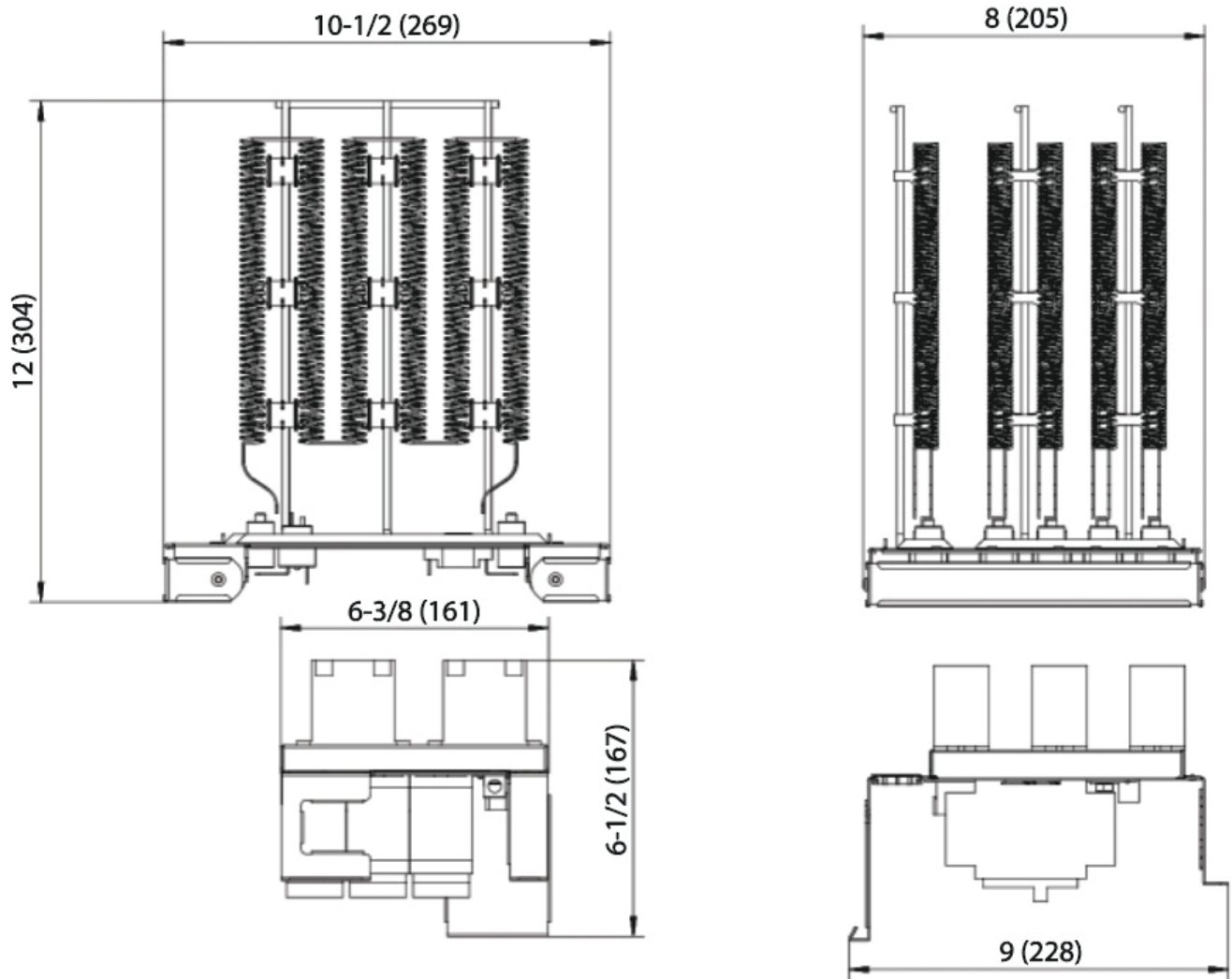


Fig. 3 —Dimensions (Sizes 20K and 25K)

INSTALLATION

NOTE: Installation must be performed by an licensed contractor. Please make necessary precaution when performing the installation operation.

PREPARATION FOR INSTALLATION

Before installation, confirm the electric auxiliary heat module and supplied accessories are complete and free of any damage. Do not attempt to install if damage is present.

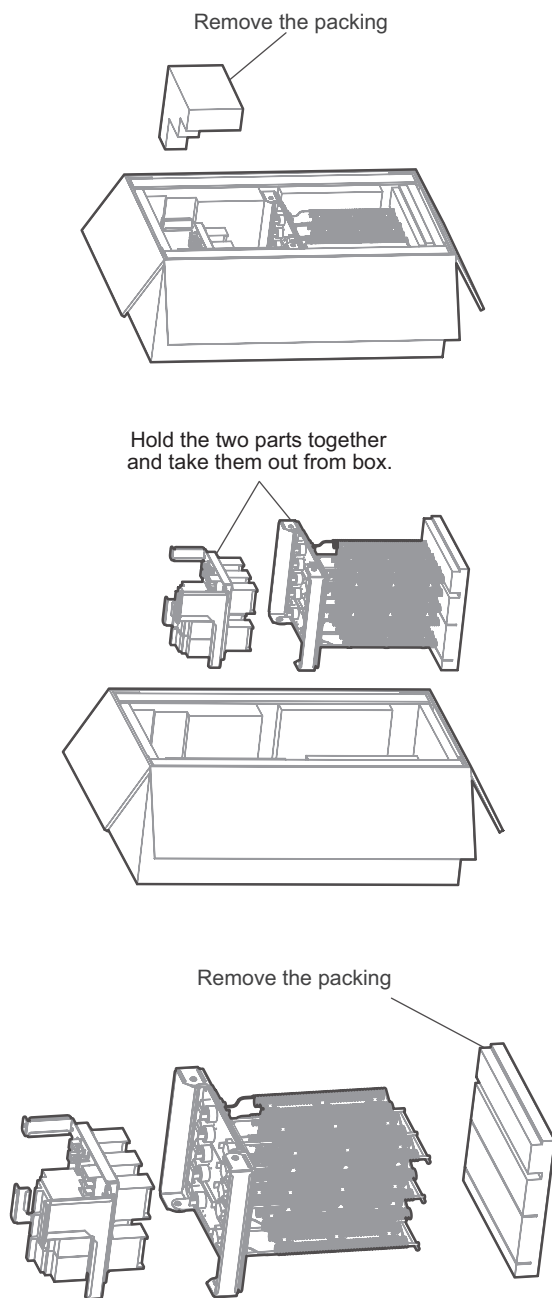


Fig. 4 —Preparing for Installation

ELECTRIC AUXILIARY HEAT MODULE INSTALLATION AND WIRING OPERATION

Step 1 - Open the Upper Cover

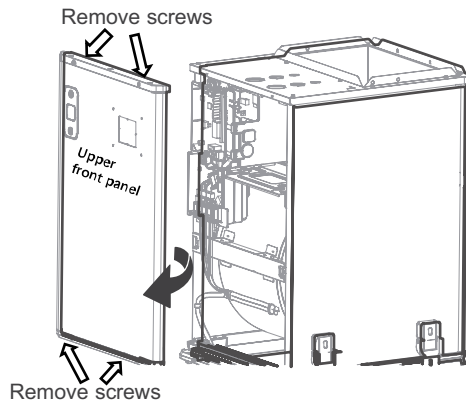


Fig. 5 —Open the Upper Cover

Step 2 - Use tools to remove the knock-out holes of upper cover.

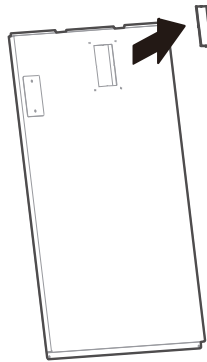


Fig. 6 —Remove Knock-Out Holes

Step 3 - Disconnect the Two Connectors

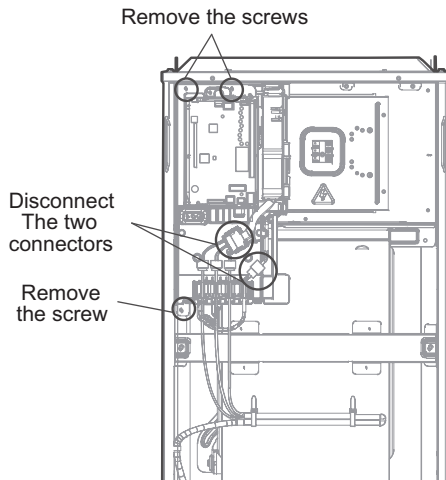


Fig. 7 —Disconnect Connectors

Step 4 - Remove PCB Assembly

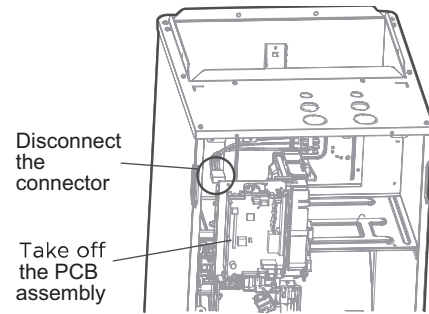


Fig. 8 —Remove PCB Assembly

Step 5 - Remove and Dispose of Cover

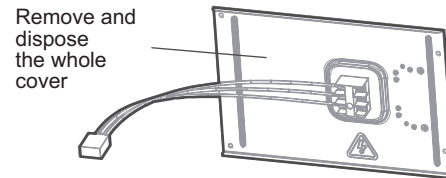
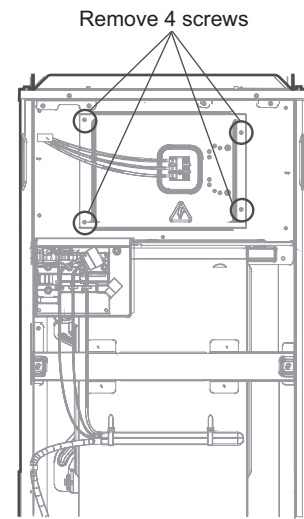


Fig. 9 —Remove and Dispose of Whole Cover

Step 6 - Turn the handles in the auxiliary Heater

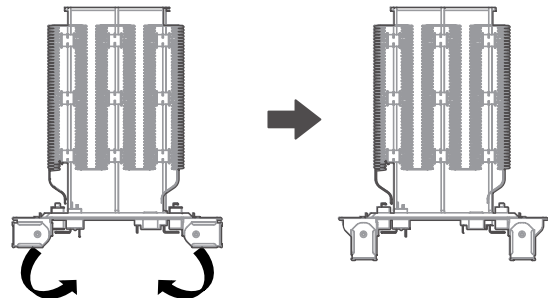


Fig. 10 —Turn Handles of Auxiliary Heater

Step 7 - Hold the two handles together and push the Auxiliary heater Horizontally into the Air Handler.

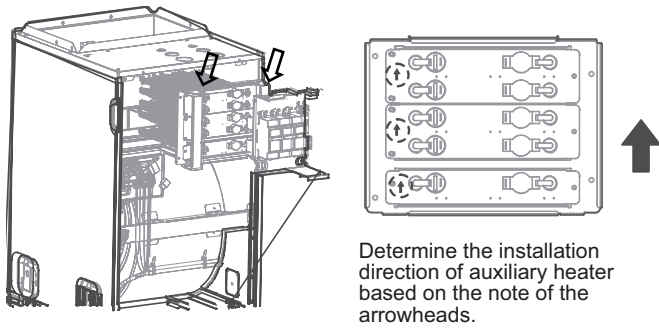


Fig. 11 —Push Auxiliary Heater Horizontally into Air Handler

Step 8 - Turn the handles back and fix the screws

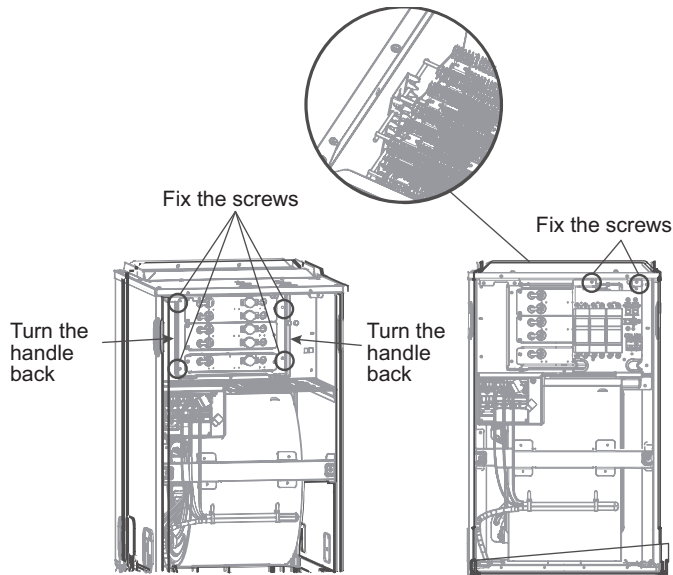


Fig. 12 —Turn Handles and Fix Screws

Step 9- Connect the connector from auxiliary heater onto the board assembly according to the wiring diagram

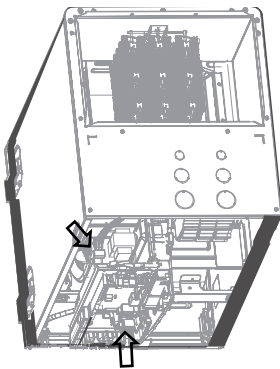


Fig. 13 —Connect Auxiliary Heater Connector to Board Assembly

Step 10 - Install the PCB back and reconnect the connector. Fix the 3 screws.

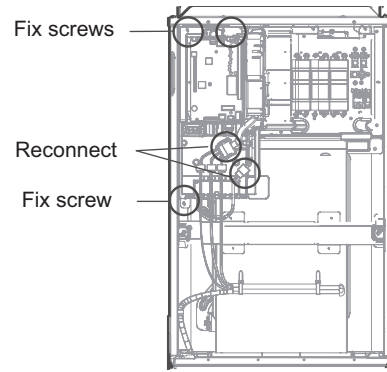
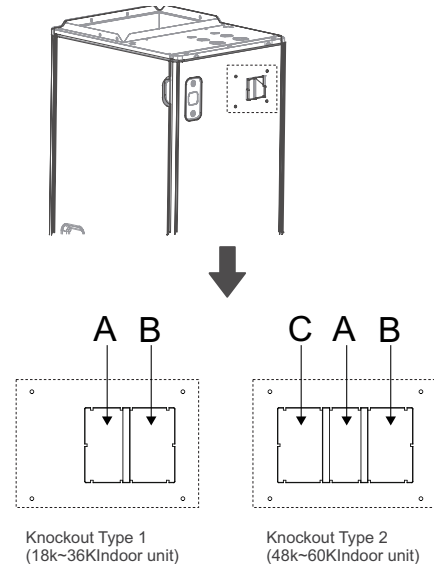


Fig. 14 —Install PCB and Reconnect Connector; Fix Screws

Step 11 - Wire according to the wiring diagram. Apply the wiring diagram on the inside cover after wiring is completed for future reference and maintenance.

Step 12 - Install the front panel, and the silicone breaker cover with screws.



3kw			
5kw			
8kw	A	Cover 1	
10kw			
15kw			
20kw	A+B	Cover 2	
25kw	A+B+C	Cover 3	

Fig. 15 —Install Front Panel and Silicone Breaker Cover

Step 13 - After installing the electric auxiliary heat module, apply the circuit breaker label near the silicone breaker cover that was just applied.

ELECTRICAL SPECIFICATIONS

NOTE: Electric auxiliary heating wiring diagram packed with the accessories.

If branch circuit wire length exceeds 100ft, consult the local code to determine maximum wire length. Use 2% voltage drop.

After the electric heating wiring is connected, confirm the following before power on:

- Check all wiring and ensure secure connection of all wiring.
- Ensure that wire size is properly selected per the local code.

Table 5 — Electrical Specification

Specifications	Number of Circuit Breakers	Number of Relays	Number of Power Cord Groups	Number of Power Cord Grounding Screws
5kW	1	1	2	2
8kW	1	2	2	2
10kW	1	2	2	2
15kW	2	3	3	3
20kW	2	4	3	3
25kW	3	5	4	4

Use copper wire only to connect unit. If other than uncoated (non-plated) 75°C copper wire (solid wire for 10 AWG and smaller, stranded wire for larger than 10 AWG) is used consult applicable tables of the National Electric Code (ANSI/NFPA 70).

NOTE: The specification may be different between different models, so refer to indoor unit's nameplate.

Table 6 — Auxiliary Heater Electrical Data

Heater Part Number	Outdoor Unit Model Numbers	Heater kW	Internal Circuit Protection	Circuit 1 208/230V			Circuit 2			Circuit 3		
				Heater Amps	MCA (1)	MOP (2)	Heater Amps	MCA (1)	MOP (2)	Heater Amps	MCA (1)	MOP (2)
EHKMD05KN	37MUHAQ18AA3 / D5CUHAH18AAK	5	Circuit Breaker	18.0/20.0	23.0/27.0	25.0/30.0	/	/	/	/	/	/
EHKMD08KN	37MUHAQ24AA3 / D5CUHAH24AAK	8	Circuit Breaker	28.8/32.0	37.0/42.0	40.0/45.0	/	/	/	/	/	/
EHKMD10KN	37MUHAQ30AA3 / D5CUHAH30AAK	10	Circuit Breaker	36.0/40.0	46.0/53.0	50.0/60.0	/	/	/	/	/	/
EHKMD15KN	37MUHAQ36AA3 / D5CUHAH36AAK	15	Circuit Breaker	18.0/20.0	23.0/27.0	25.0/30.0	36.0/40.0	46.0/53.0	50.0/60.0	/	/	/
EHKMD20KN	37MUHAQ48AA3 / D5CUHAH48AAK	20	Circuit Breaker	36.0/40.0	46.0/53.0	50.0/60.0	36.0/40.0	46.0/53.0	50.0/60.0	/	/	/
EHKMD25KN	37MUHAQ60AA3 / D5CUHAH60AAK	25	Circuit Breaker	18.0/20.0	23.0/27.0	25.0/30.0	36.0/40.0	46.0/53.0	50.0/60.0	36.0/40.0	46.0/53.0	50.0/60.0

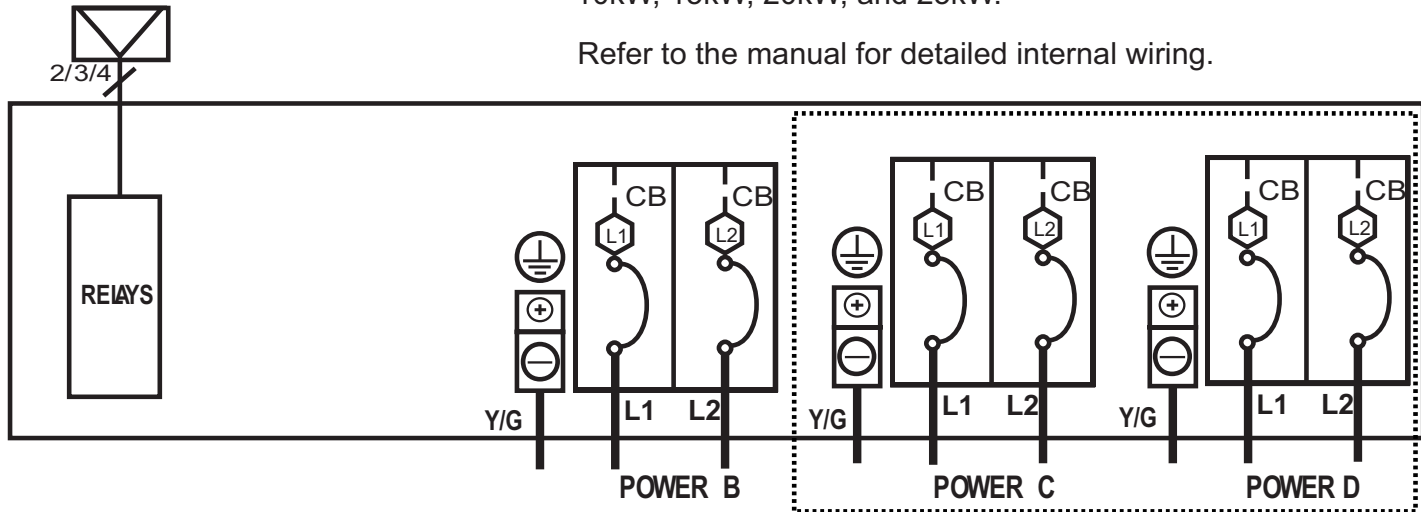
WIRING DIAGRAM

ELECTRIC AUXILIARY HEATING WIRING DIAGRAM

AUX-HEAT CONTROL SIGNAL
TO DATA BOARD CN14

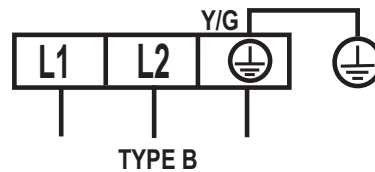
This wiring diagram is applicable to electric heater 5kW, 8kW, 10kW, 15kW, 20kW, and 25kW.

Refer to the manual for detailed internal wiring.



Electric heating is only applicable to 208-230V.

There is no S connection that applies to this heater or AHU.
When using 115VAC, connect L1 and L2 (L2 is used as neutral).



NOTE 1: [Dashed Box Symbol]

This symbol indicates that the element is optional.

NOTE 2: To be wired in accordance with NEC and local codes.

NOTE 3: Power B, C, and D are powered differently.
Select the appropriate power supply according to the following:

5kW - 10kW (B)

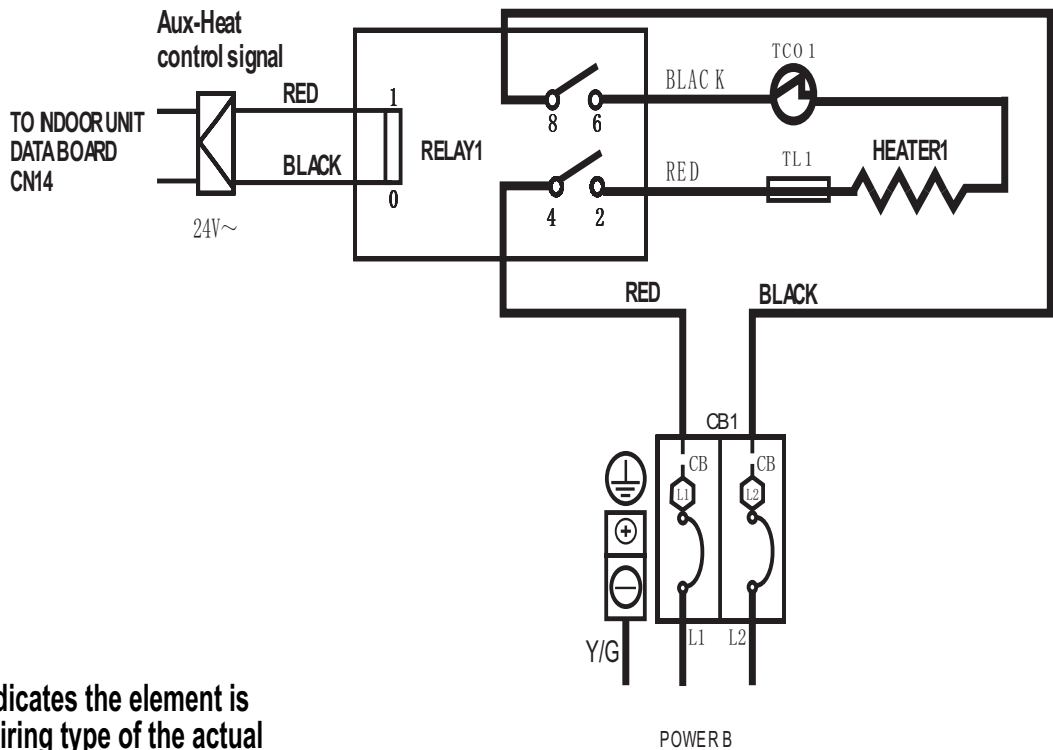
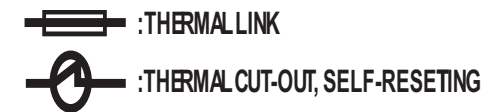
15kW - 20kW (B, C)


25kW (Power B, C, D)

NOTE 4: The Air Handler is powered separately.

Fig. 16 —Electric Auxiliary Heating Wiring Diagram (All Sizes)

ELECTRICAL AUXILIARY HEATING WIRING DIAGRAM
5KW HEAT KIT



NOTE1: This symbol indicates the element is optional, The wiring type of the actual unit shall prevail.

NOTE2:
PLEASE ATTACH THE NAMEPLATE TO THE COVER OF THE ELECTRIC CONTROL BOX ALL THE ROUND HOLES LOCATED ON THE PLATE REPRESENT NUMBERS. PLEASE REFER TO THE INSTALLATION MANUAL FOR DETAILS.

NOTE3: TO BE WIRED IN ACCORDANCE WITH NEC AND LOCAL CODES.

NOTE4: ELECTRICAL HEATER AND AIR HANDLERS ARE POWERED DIFFERENTLY.







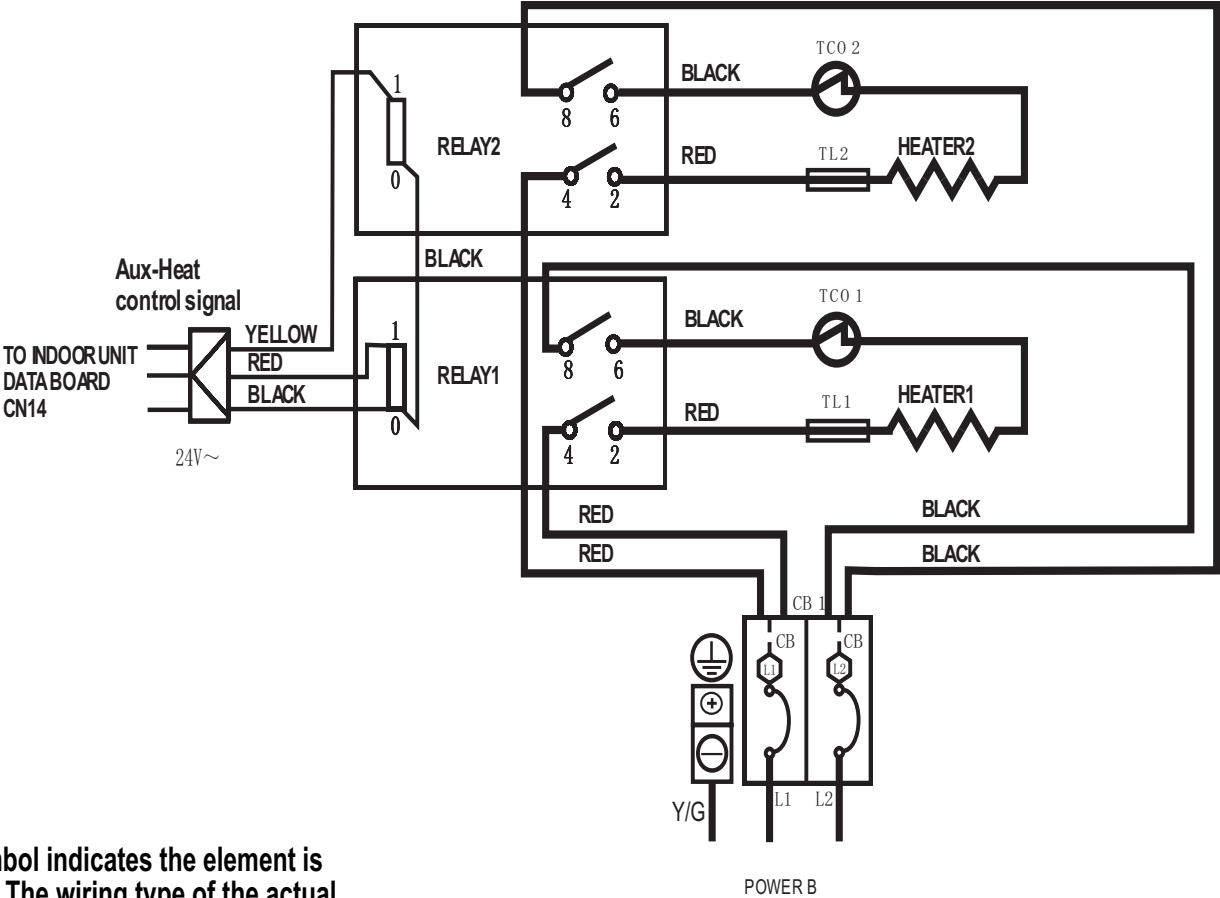
Round hole number	Relaynumber	Round hole number	Circuit breaker number
	RELAY 1		CB1
			
			
			
			

Fig. 17 —5kW Heat Kit Wiring Diagram

8KW/10KW HEAT KIT



NOTE1:
This symbol indicates the element is optional, The wiring type of the actual unit shall prevail.

NOTE2:
PLEASE ATTACH THE NAMEPLATE TO THE COVER OF THE ELECTRIC CONTROL BOX ALL THE ROUND HOLES LOCATED ON THE PLATE REPRESENT NUMBERS. PLEASE REFER TO THE INSTALLATION MANUAL FOR DETAILS.

NOTE3: TO BE WIRED IN ACCORDANCE WITH NEC AND LOCAL CODES.

NOTE4: ELECTRICAL HEATER AND AIR HANDLER ARE POWERED DIFFERENTLY

Round hole number	Relay number	Round hole number	Circuit breaker number
1	RELAY1	1	CB1
2	RELAY2		
3			
4			
5			

Fig. 18 —8kW/10kW Heat Kit Wiring Diagram

15KW HEAT KIT

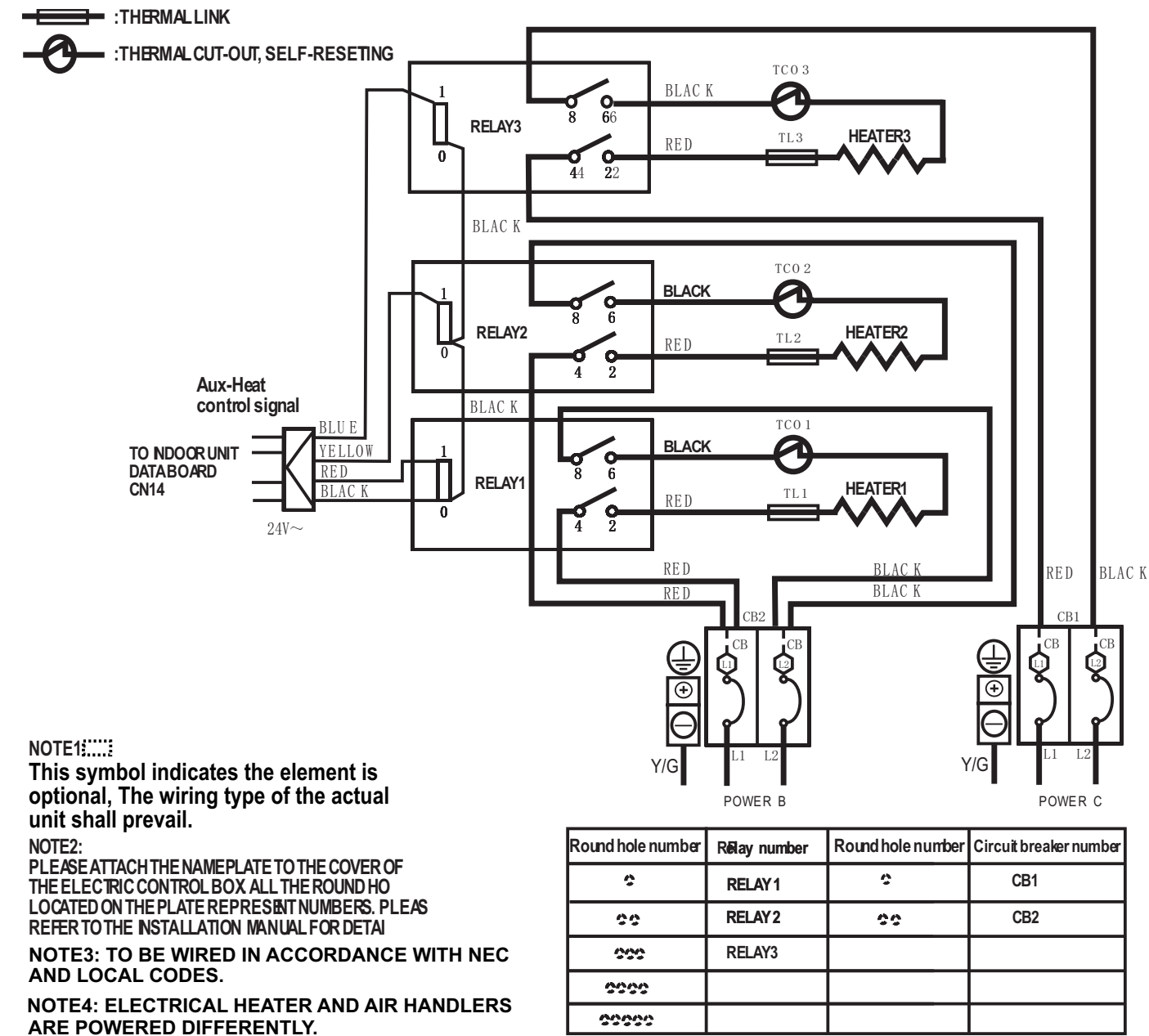


Fig. 19 —15kW Heat Kit Wiring Diagram

20KW HEAT KIT

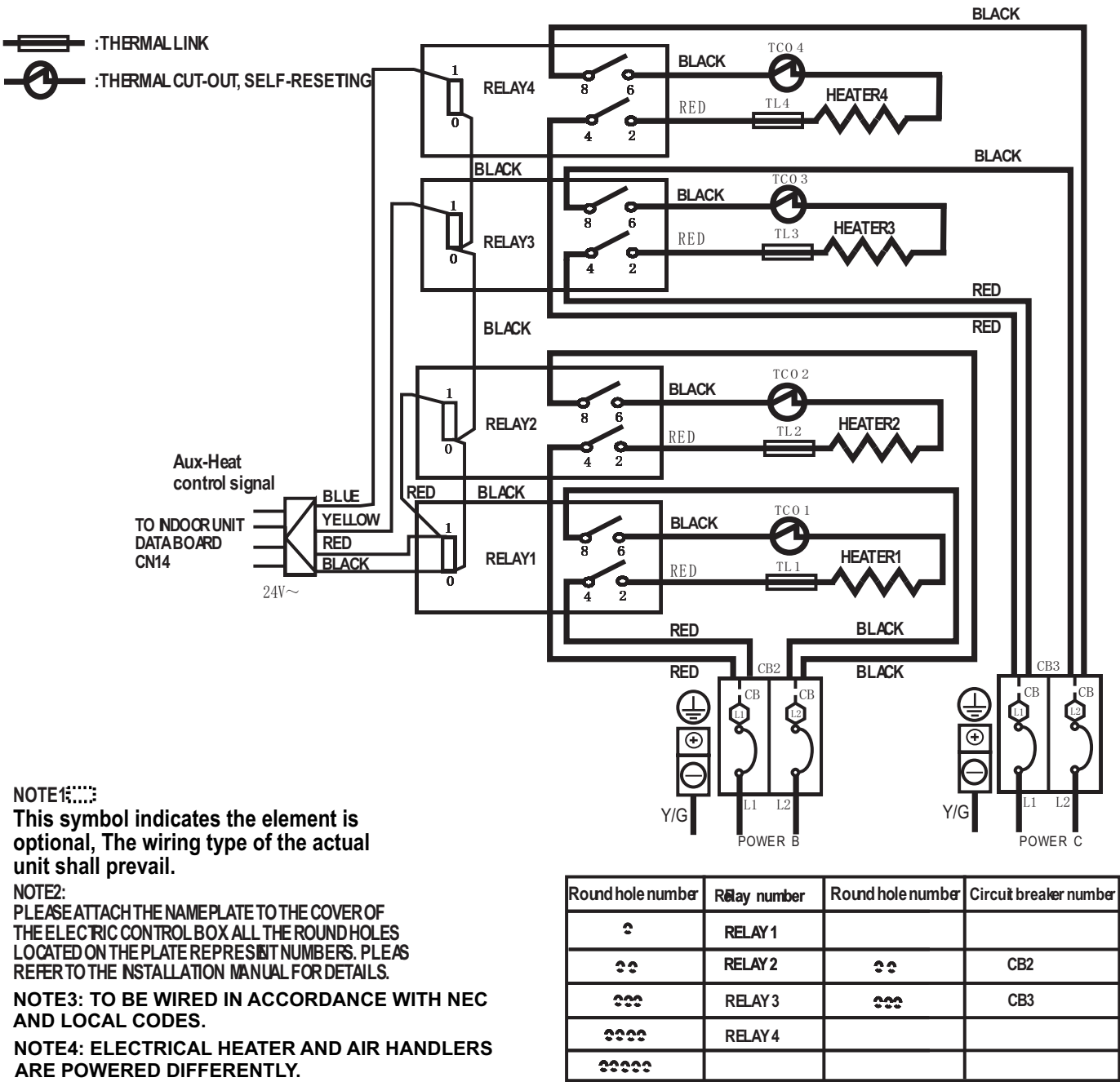
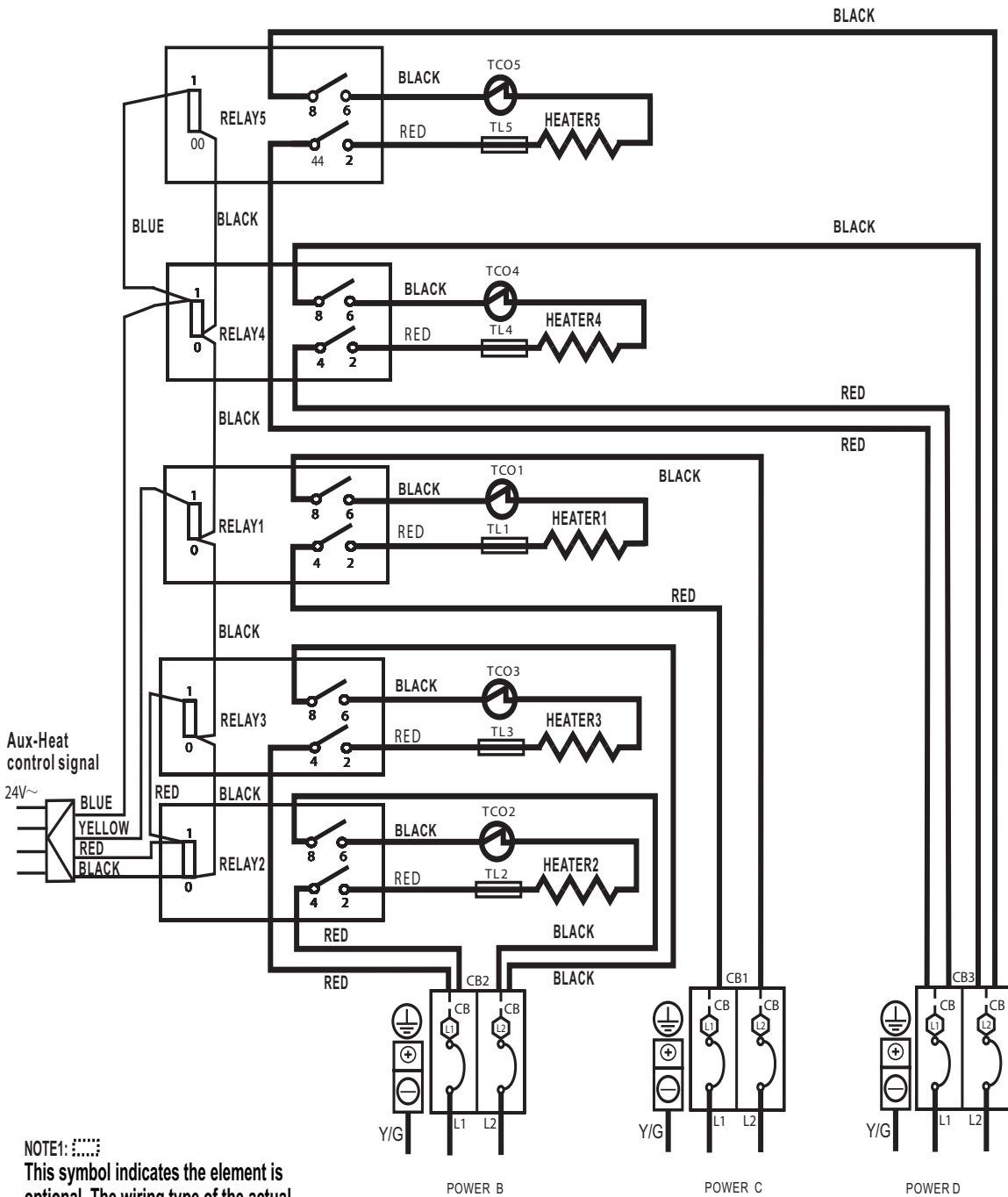



Fig. 20 —20kW Heat Kit Wiring Diagram

25KW HEAT KIT



NOTE1:  This symbol indicates the element is optional. The wiring type of the actual unit shall prevail.

NOTE2: PLEASE ATTACH THE NAMEPLATE TO THE COVER OF THE ELECTRIC CONTROL BOX. ALL THE ROUND HOLES LOCATED ON THE PLATE REPRESENT NUMBERS. PLEASE REFER TO THE INSTALLATION MANUAL FOR DETAILS.

NOTE3: TO BE WIRED IN ACCORDANCE WITH NEC AND LOCAL CODES.

NOTE4: ELECTRICAL HEATER AND AIR HANDLERS ARE POWERED DIFFERENTLY.









Round hole number	Relay number	Round hole number	Circuit breaker number
	RELAY 1		CB1
	RELAY 2		CB2
	RELAY 3		CB3
	RELAY 4		
	RELAY 5		

Fig. 21 —25kW Heat Kit Wiring Diagram

