SAVE THESE INSTRUCTIONS

INSTALLATION AND MAINTENANCE

KBU PlatinumX Series
Compact Plenum Heater

DANGER

ELECTRIC SHOCK OR FIRE HAZARD

READ ALL WIRE SIZING, VOLTAGE REQUIREMENTS AND SAFETY DATA TO AVOID PROPERTY DAMAGE AND PERSONAL INJURY

Congratulations on the purchase of your new KING ELECTRICAL UNIT HEATER, made with the highest standards in electrical design and quality components to ensure your satisfaction in durability and performance. The steel fin tube element which has a 5 year warranty is backed by a heavy-duty fan directing a strong flow of warm air to an unoccupied or plenum area. The rugged, totally enclosed, service-free motor is combined with our fan design to maintain the correct relationship of air volume to final air temperature. Also included is a quick access panel for wiring and universal bracket for wall mounting and a low profile ceiling bracket for tight spaces.

WARNING

READ CAREFULLY - *Use the heater only as described in this manual. Any other use is not recommended and could result in fire, electric shock, and personal injury. Following these instructions will prevent difficulties that might occur during the installation and use of the heater. Please study the instructions first, as they may save considerable time and trouble during use, in addition to providing important safety information. Make sure to save these instructions for future use.*

WARNING To prevent a possible electrical shock, disconnect all power coming to heater at main service panel before wiring or servicing.

WARNING All wiring must be in accordance with the National Electrical Code (Canadian Electrical Code in Canada) and all applicable local codes. The heater must be grounded as a precaution against electrical shock. Supply wiring must be copper and suitable for at least 75° C.

WARNING Verify power supply and control voltages coming to the heater match the ratings printed on the heater nameplate before energizing.

WARNING Heater must be installed so the minimum clearances shown in Specifications table are maintained.

WARNING This heater is NOT suitable for use in hazardous locations as described by the National Fire Protection Association (NFPA). This heater has hot and arcing or sparking parts inside. DO NOT use in areas where gasoline, paint or other flammable liquids are used or stored.

WARNING The mounting structure and anchoring hardware MUST BE capable of reliably supporting the weight of the heater plus mounting bracket if used. Refer to specifications table for heater weight.

WARNING Heater air flow MUST be directed parallel to or away from adjacent walls.

WARNING To prevent a possible fire, DO NOT block air intakes or exhaust openings in any manner. DO NOT allow foreign objects to enter grill

WARNING Do not connect any ducting to the supply or exhaust of the heater. Product is not designed to be connected to duct.

CAUTION—RISK OF ELECTRIC SHOCK
DO NOT OPEN HEATER SHELL

KING ELECTRIC MFG CO · 9131 10TH AVENUE SOUTH · SEATTLE, WA 98108 · PH:206 762 0400 · FAX: 206 763 7738 · www.king-electric.com

KBU INSTALLATION

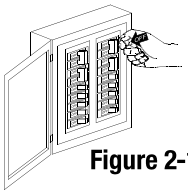

Figure 2-1

CAUTION!

Turn OFF all electrical power to install heater

DANGER

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READ ALL WIRE SIZING, VOLTAGE REQUIREMENTS AND SAFETY DATA TO AVOID PROPERTY DAMAGE AND PERSONAL INJURY

Selecting A Location For Your Heater:

The KBU is designed to be placed in areas that are typically hard to reach with your conventional heating sources. This plenum-rated heater is approved for installation in concealed spaces (between finished ceilings and drop ceilings, plenum space, or inside a plenum).

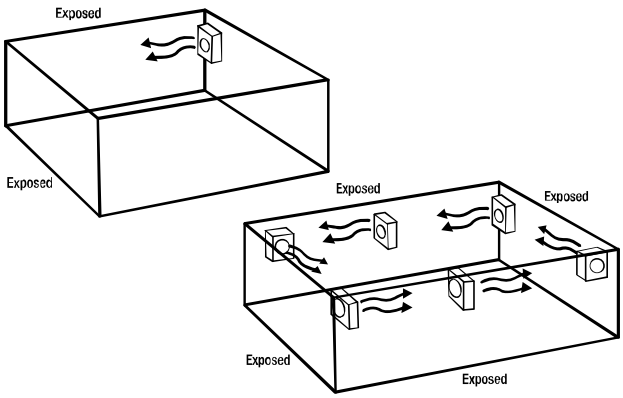
It may be installed in areas that are not readily available to access and in certain areas that require freeze protection. The unit can be installed on any ceiling as long as front and rear intake clearances are met.

The direction of air flow should not be restricted by machinery, beams, columns or partitions, etc., and the air flow should be parallel to exposed walls rather than blowing directly at them.

Small areas can be heated by one unit heater. Large rooms require multi-unit installations. Number and capacity of units will be determined by volume of building and square footage of floor area to be heated.

When more than one heater is used in an area, the heaters should be arranged so that the air discharge of each heater supports the air flow of the others to provide best circulation of warm air.

(see air flow chart)



Unpack & Inspect Your New Heater

Remove heater from the box and inspect it for any damage. Verify you have received the low clearance ceiling mount brackets.

Tools Needed

You will need the following tools to install your unit heater:

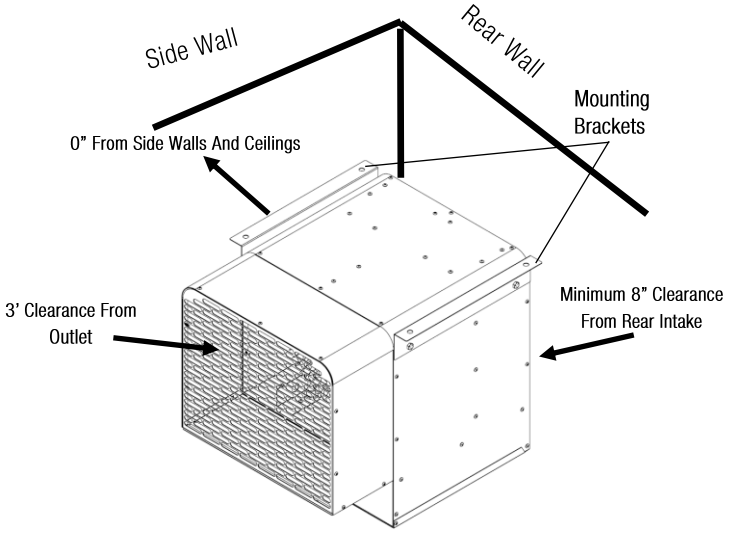
- Screwdriver - (Square Head)
- Pliers
- Electric Drill
- Wire Cutters
- Adjustable Wrench

Hardware Needed For Installation

You will also need the following hardware, which can be purchased from your local hardware store or electrical supply house:

- adequate gauge and length of wire for your application
- proper size fuses or breakers to handle amperage
- proper wire connectors for your application
- fasteners appropriate for application that are strong enough to hold unit

For certain applications conduit may be required. Check local electrical codes. Also, if you run the wiring in conduit and wish to be able to turn the heater, be sure to purchase enough flexible conduit to allow the heater to be turned.



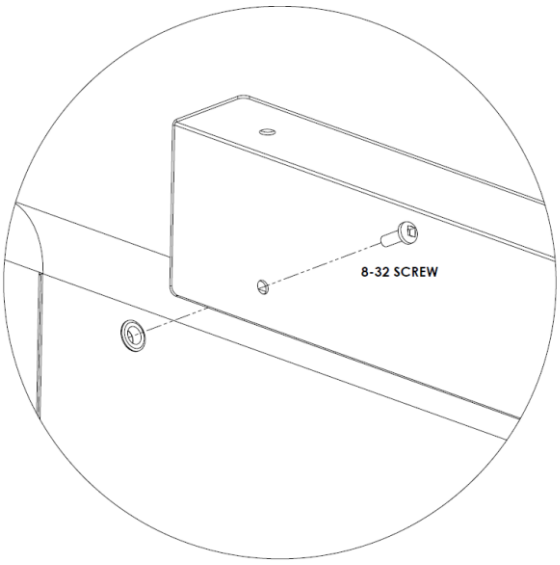
Mounting Height

When mounting on the ceiling, the KBU requires 18 inches of clearance below the unit to access to the electrical compartment. A hinged panel secured by a screw will swing down, revealing the electrical compartment.

Distance From Vertical and Side Walls

The KBU can be installed with zero clearance to all side walls and ceilings. Maintain proper rear-intake and outlet clearances.

KBU INSTALLATION



Installing the Low Profile Ceiling Brackets to the Heater

The Plenum Heater comes with 2 L-Shaped plates that will attach to each side of the KBU.

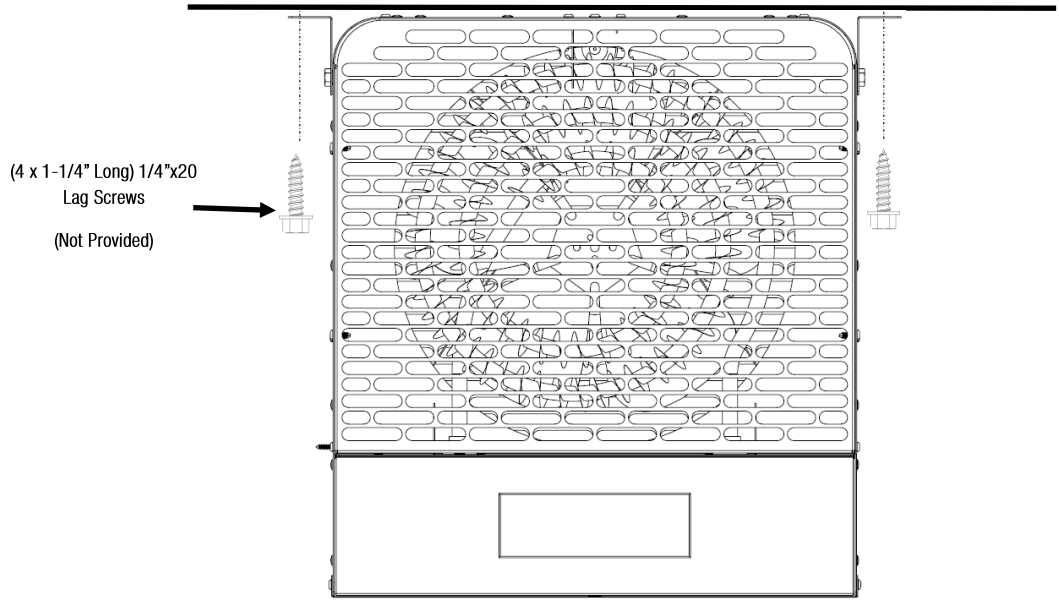
Use 8-32 screws to attach the plates onto both sides of the KBU so that the mounting holes are at the top of the fixture, overhanging the sides. The long side of the bracket will be attaching directly into the side of the KBU heater. The shorter end of the bracket will hang outward and across the top. If installed correctly, the top of the bracket should be flush with the top of the KBU heater.

Using appropriately rated screws to hold the unit, you can now mount the KBU onto the ceiling using the 4 holes overhanging the left and right side. Reference the figure below for recommended mounting hardware and installation.

Reference the weights of each unit when selecting proper mounting hardware. Mounting screws should hold at least 3x the weight of the unit.

Installing the Ceiling Mounting Bracket

The heater can be installed on a ceiling using 2 low-profile mounting brackets that are installed onto the heater. Locate a stud in ceiling to securely fasten the low-profile mounting brackets to the supporting surface with 4 x 1/4”x20 fasteners strong enough to hold the unit, at least 1-1/4” in length.



Ceiling Mount

CONNECTION OF OPTIONAL 24V REMOTE THERMOSTAT

Controlling PlatinumX with a Remote 24V Thermostat

KBU PlatinumX heaters come standard with the provisions to connect any 24V remote wall thermostat, for remote temperature sensing and control.

Step 1:

Dip Switch Selection On Display For Remote Thermostat—

Local or Remote Thermostat (Figure 1)

The 2 dip switches on the back of the display are used for selecting between the onboard thermostat control and the optional remote wall thermostat control.

Set dip switch 2 to the OFF position to switch to 24V Remote Thermostat Control

24V Remote Thermostat

Dip switch #2:
Off = Remote 24V Thermostat Control

Local Thermostat (default)

Dip switch #2:
On = Local Thermostat Control (default)

Step 2:

Dip Switch Selection On Controller PCB—1-Stage or 2-Stage Thermostat (Figure 2)

Refer to the thermostat operating instructions to determine if the thermostat is a single stage or two stage thermostat.

Select the dip switch setting required.

For 1-Stage Heating > Dip Switch = ON

For 2-Stage Heating > Dip Switch = OFF (5 & 7.5kW 1-PH Only)

Step 3:

Wiring 24V 1-Stage Remote Thermostat to KBU (Figure 3)

Figure 1: Back of Display

(factory default shown)

Figure 2: Controller PCB

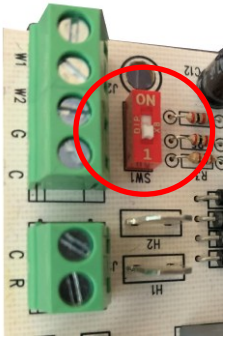
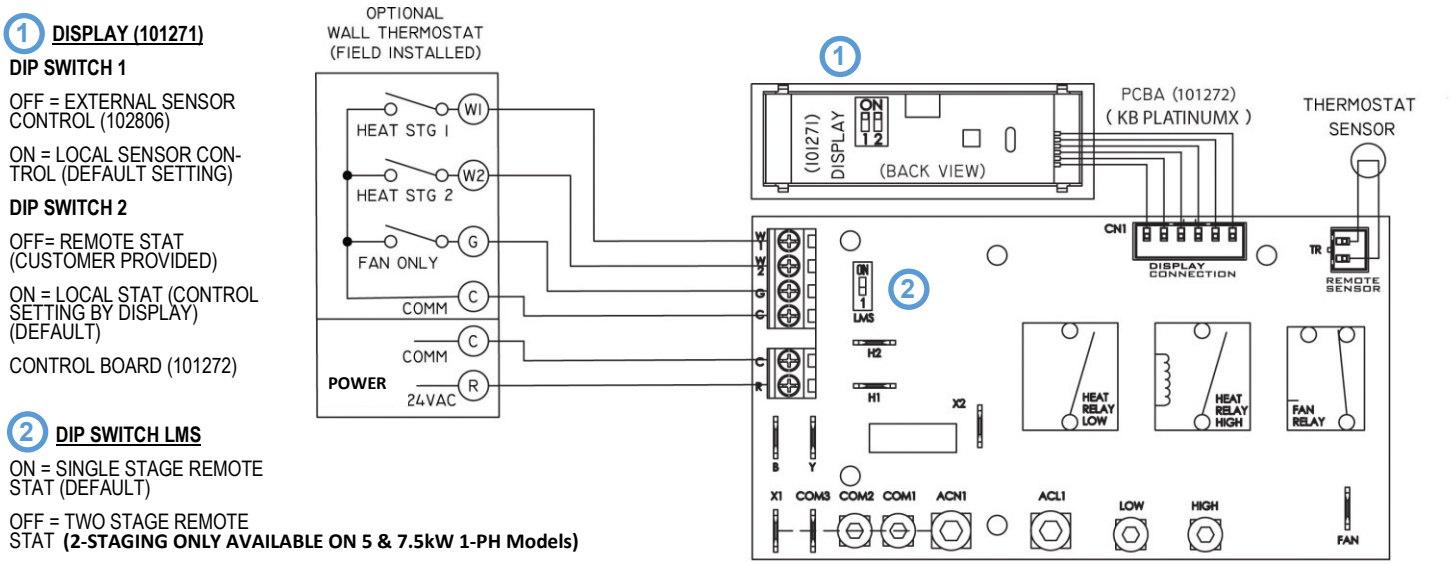


Figure 3: Wiring Schematic Overview

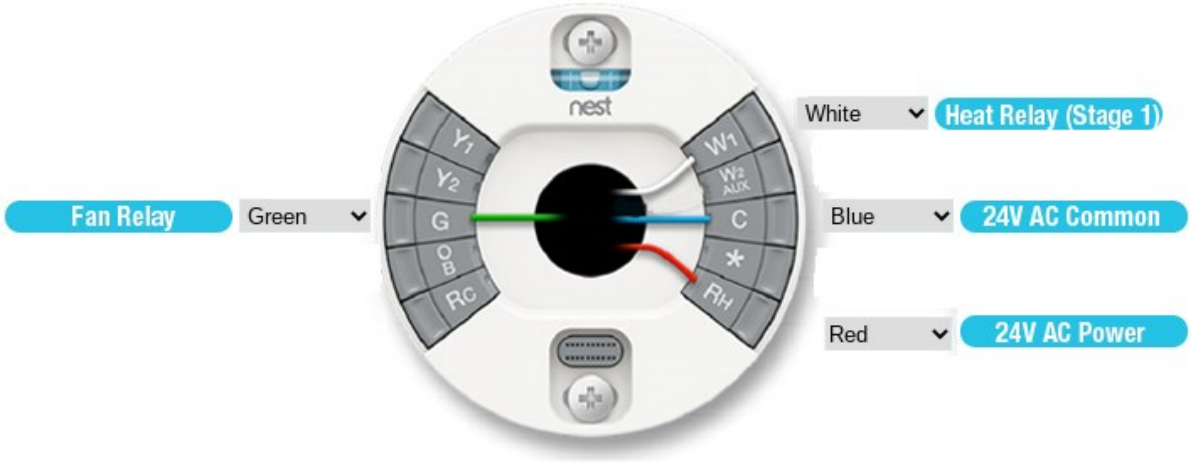


CONNECTION OF OPTIONAL NEST LEARNING THERMOSTAT

To connect a Nest Learning to PlatinumX, you will need to run multi-conductor thermostat wire between the Nest Thermostat and the PlatinumX terminal board per the wiring diagram below. Thermostat wire is a class 2 power-limited circuit cable for use in thermostat control applications.

Nest King ECO2S+
G ------- G, FAN ONLY

Conventional 1 Stage Heating



NOTES:

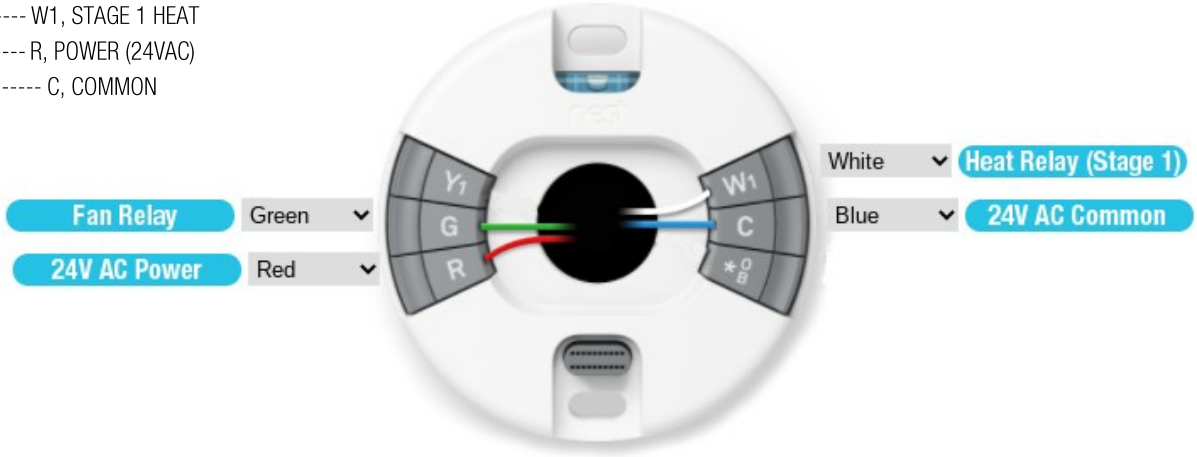
- Y1,Y2,OB,RC, & (*) are for Heat Pumps and Air Conditioning, NOT USED on KING HEATERS. The C wire keeps the Nest battery power charged.

CONNECTION OF OPTIONAL NEST BASIC / E THERMOSTAT

To connect a Nest / Nest E Series to PlatinumX, you will need to run multi-conductor thermostat wire between the Nest Learning Thermostat and the PlatinumX terminal board per the wiring diagram below. Thermostat wire is a class 2 power-limited circuit cable for use in thermostat control applications.

Conventional 1 Stage Heating

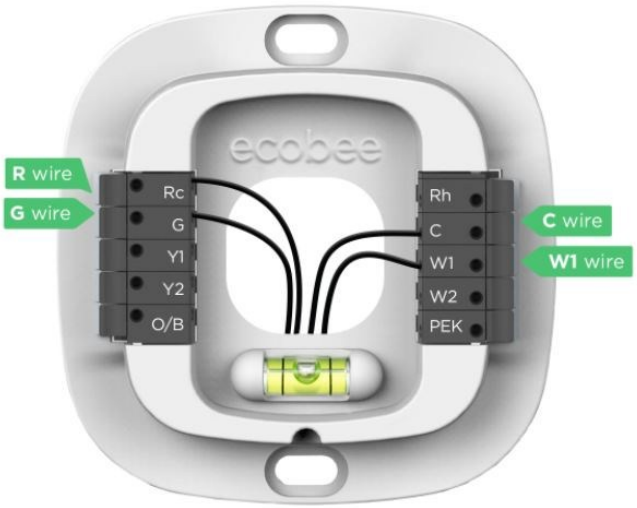
Nest King ECO2S+
G ------- G, FAN ONLY
W1 ----- W1, STAGE 1 HEAT
R ------- R, POWER (24VAC)
C --------- C, COMMON



CONNECTION OF OPTIONAL ECOBEE THERMOSTAT

To connect a Ecobee to PlatinumX, you will need to run multi-conductor thermostat wire between Ecobee Thermostat and the PlatinumX terminal board per the wiring diagram below. Thermostat wire is a class 2 power-limited circuit cable for use in thermostat control applications.

Conventional 1 Stage Heating



Ecobee King ECO2S+
G ------- G, FAN ONLY
W1 ----- W1, STAGE 1 HEAT
RC ------- R, POWER (24VAC)
C --------- C, COMMON

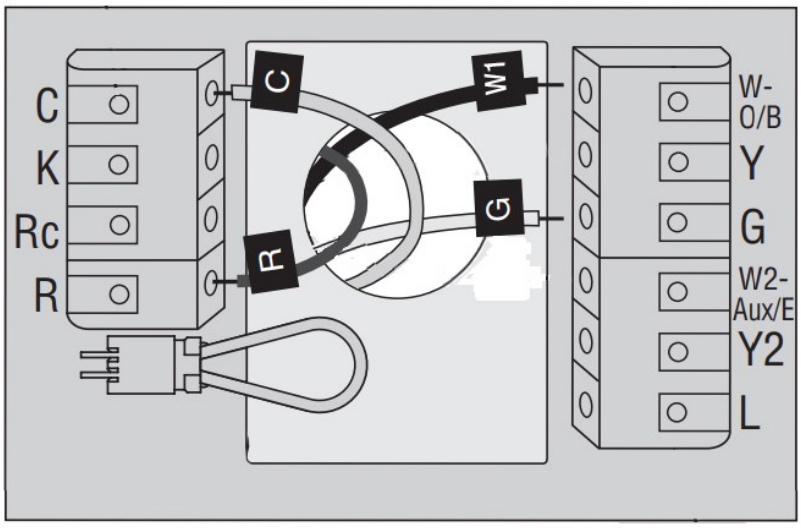
CONNECTION OF OPTIONAL HONEYWELL THERMOSTAT

Model: RTH9585WF1004

To connect a Honeywell model RTH9585WF1004 to PlatinumX, you will need to run multi-conductor thermostat wire between the Honeywell Thermostat and the PlatinumX terminal board per the wiring diagram below. Thermostat wire is a class 2 power-limited circuit cable for use in thermostat control applications.

Conventional 1 Stage Heating

Honeywell King ECO2S+
G -------------G, FAN ONLY
W-O/B ------ W1, STAGE 1 HEAT
R ------------ R, POWER (24VAC)
C ------------ C, COMMON

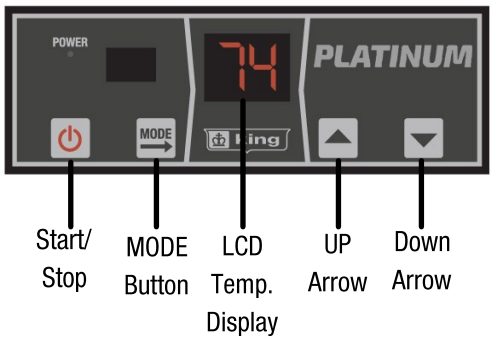


KBU PLATINUMX DISPLAY OPERATION

OPERATION

1. Push the START STOP button, the heater will come on and heat to the default setting of 72°F.
2. Once the room temperature reaches the set point, the heat elements with turn off followed by a 3 minute fan delay period to exhaust excess heat from the case. Afterwards the unit will turn off.
3. In normal operation display will show the current room temperature.

Control Panel



ROOM TEMPERATURE SELECTION

- During operation, push or arrow buttons to set the temperature from 40°F-95°F, Hold down the UP or DOWN arrow to speed up the selection process. The LCD will go back to display room temperature after 5 seconds.

TIMER MODE SELECTION

- During operation, press the MODE button 1 time, the display window will show the timer mode setup. Push or to set Timer from 0 hour - 9 hours. (0H-9H).

In timer mode the heater operates based on the thermostat's set point. Once the timer period expires, the heater will then be permanently off.

FAN ONLY MODE SELECTION

- During operation, press the MODE button 2 times, the display window will show [H] (Heat Mode) or [F] (Fan Only Mode).

Push or to switch between Fan Only and Heat modes.

DISPLAY LOCK FEATURE

Display Lock is designed for high traffic areas and deactivates the heater display buttons to prevent unwanted temperature adjustments. However settings can still be adjusted through the remote control.

- During operation, press the START STOP button and HOLD for 5 seconds to set the display lock. [L] will appear on the display temporarily if a user attempts to make a temperature adjustment.

SETTING THE DIFFERENTIAL VALUE

The differential or gap affects how often the heater cycles. The lower the differential setting, the more the heater will cycle. If heater cycles too often, raise the differential setting to a higher degree.

- Press the MODE and buttons for 5 seconds. The display will show the previously set differential.

Press or to adjust the differential value between –0 to –5F.

SENSOR ERROR CODE

- During operation, if the display shows [E1] that indicates an issue with the backup sensor inside the heater and the sensor needs to be replaced. Contact customer support for assistance.

FACTORY RESET

- During operation, press the and HOLD the MODE button for 5 seconds to reset to the factory settings. [FA] will flash on the display once done.

KBU WIRING INSTRUCTIONS

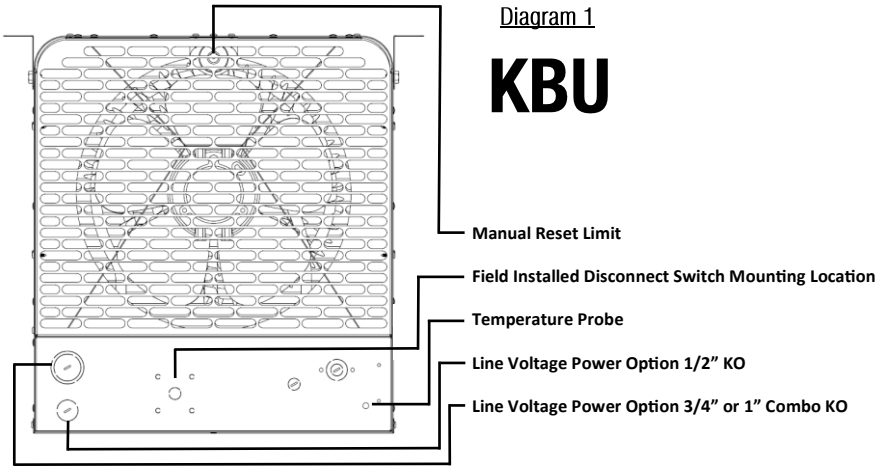
DANGER

ELECTRIC SHOCK OR FIRE HAZARD

LINE VOLTAGE IS PRESENT ON SOME OF THE TERMINALS ON THE CONTROL TERMINAL BOARD. ALWAYS DISCONNECT THE POWER FROM THE HEATER BEFORE MAKING ANY CONNECTIONS TO THE CONTROL BOARD TO PREVENT ELECTRIC SHOCK HAZARD.

Diagram 1

KBU



1. Connect heater to the voltage, and frequency specified on the nameplate.
2. Field wiring must be properly sized to carry the amperage of the heater in accordance with the NEC.
3. The electrical wiring compartment access door is hinged and has a screw on the bottom. Remove the screw to gain access.
4. Electrical knockouts are provided on the back of the heater close to the power contactor. Use the diameter that fits the required conduit fitting size. See diagram 1 for more details.
5. A ground terminal is provided. The ground wire should be connected before other connections are made.
6. The power contactor is equipped with lugs to accept the power supply wire. Copper wire must be rated at 600 V and 75° C for the heater branch circuit.
7. Each heater has a wiring diagram affixed to the inside of the access door. Consult diagram before making any field connections.
8. Single or three-phase power connections may be used with heater models marked –3MP. These units are factory wired for three phase. If these heaters are needed for use with single-phased power, reconnect the wires as indicated in the wiring diagram attached to the heater. Reference the "Notes" section on the wiring diagram.

Note: The mounting location for an optional field-installed disconnect switch (ordered separately) is shown above.

SMART LIMIT PROTECTION AND MAINTENANCE

U.S. PATENT #6,748,163 B2
SMART SLP® LIMIT PROTECTION

Heater Safety Limit Tripped?

This heater is equipped with 2 thermal overload limits which disconnect the elements and motor in the event normal operating temperatures are exceeded. A buzzer is also provided inside the unit that energizes when the manual overtemperature limit trips. If thermal overload trips due to abnormal operating temperatures, thermal overload shall remain open until manually reset by pushing the red button on the back of the heater, just behind the rear screen. Inspect for any objects on or adjacent to the heater that may cause high temperatures. After inspecting the heater and letting the unit cool, the button can be pressed to reset normal operation and turn off the buzzer. If the thermal protector shuts the heater off again, immediately turn the heater OFF at the circuit breaker and inspect the heater for possible fan motor failure or dirt and lint on the heating element. Repeat the starting procedure.

DO NOT TAMPER WITH OR REMOVE THIS DEVICE.

KBU PlatinumX Maintenance

Maintenance

With proper care your electric heater should last a lifetime, however, seasonal cleaning is recommended to maintain the efficiency of the heater. Keep heating element, fan and motor free of debris. Use compressed air to blow out any debris.

Internal Alarm for Overtemperature

Internal Alarm for Overtemperature Scenarios

Each heater comes equipped with a buzzer that will turn on in the event that the manual-reset limit is tripped. Since the unit will be placed in low-traffic and unoccupied spaces, the buzzer will alert anyone nearby that the heater is not active and has an issue that needs to be addressed.

Scenarios that could set off the alarm:

1.) Inlet blockage restricting air flow

2.) Outlet blockage restricting air flow

3.) The fan is being restricted from moving

4.) The motor failed, stopping the fan from spinning

5.) A power outage or loss of power during operation (If the pre-programmed fan-delay does not run, the radiant heat from the elements could trip the temperature limit.)

How To Address an Active Alarm

In the event that the buzzer is going off on the unit, remove all power to the unit. Address the surrounding area to make sure there is nothing blocking or covering the unit that may cause excess temperature rises. Remove any objects or dust that may have been restricting the inlet airflow to the back of the unit.

If you do not see any further external issues, verify that the temperatures inside the unit have returned to room temperature. It will take up to 15 minutes for the fixture to cool down before any action can be taken. Once cooled, press the red button on the back side of the unit, located at the top and behind the screen. You should feel the button “compress” back down into it’s normal position. If you cannot press the button down, the unit is still too hot.

Now that the manual overtemperature limit is reset, the buzzer will be deenergized when power is returned. Turn on the unit and verify that the motor and fan turn on. In the event that the motor and fan are not functioning, remove the unit from power and contact the maintenance line for repair or replacement.

We’re Here to Help!

For any difficulties installing or operating this product

Call Us Toll Free at:

1-800-603-5464 Option 2

7:00 am -3:30 pm PST Mon-Fri

Visit king-electric.com

or email us at tech@king-electric.com