



# INSTALLATION INSTRUCTIONS

## **WARNING**

*Improper installation, adjustment, alteration, service, or maintenance can cause injury or property damage. For assistance or additional information, consult a qualified installer or service agency.*

## **WARNING**

*Installation and servicing of heating equipment can be hazardous due to live electrical components. Only trained and qualified service personnel should install or service this equipment. Installation and service performed by unqualified persons can result in property damage, personal injury, or death.*

*These instructions are intended as a general guide only, for use by qualified personnel and do not supersede any national, state or local codes in any way. Installation must conform with the local building codes and with the latest editions of the National Electrical Code.*

*Read these instructions thoroughly before starting installation. Only qualified installers or technicians should install this electric heater and all other equipment used in HVAC systems. Federal, state, and local codes must be followed when installing this or any other HVAC equipment.*

## **WARNING**

*- A means of strain relief and conductor protection must be provided at the supply wire entrance.*

### Inspection of Shipment

*Before proceeding with the heater installation, inspect thoroughly for shipping damage. Notify the shipper immediately if any damage is found. Check all insulators for breakage and inspect heater element wire for any deformation that could cause a short circuit or ground. Make sure all fasteners are tight. Electrical connections such as pressure terminals should be checked for tightness.*

### Attention Installing Personnel

*As a professional installer, you have an obligation to know the product better than the customer. This includes all safety precautions and related items.*

*Prior to actual installation, thoroughly familiarize yourself with the Instruction Manual. Pay close attention to all safety warnings. Often during installation or repair, it is possible to place yourself in a position which is more hazardous than when the unit is in operation.*

*Remember, it is Your responsibility to install the product safely and to know it well enough to be able to instruct a customer on its safe use.*

*Safety is a matter of thinking before acting. Most dealers have a list of specific good safety practices ... follow them.*

*The precautions listed in this installation manual are intended as supplemental to existing practices. However, if there is a direct conflict between existing practices and the content of this manual, the precautions listed here are to take precedence.*

### Installation Requirements and Recommendations

*- If physical damage is observed during the inspection DO NOT install this heater.*

*- Each heater is intended to supply 1440 watts of heat at 120 volts and must be supplied by a dedicated 15-Amp 120-volt AC circuit.*

*- The installer should use a minimum of #14 Ga. copper wire for power supply.*

*- Follow National, State and local codes for supply wiring circuit and service disconnect specification and location.*

- Heat pack may be installed to 6" diameter metal duct or flexible duct .

- The heat pack is to be oriented and used in the horizontal position only. Do not install this heater in a vertical position.

- This heat pack is provided with an integral controlled axial fan which is intended to provide approximately 160 CFM during operation.

- The heat pack is provided with either a remote wireless or wired thermostat, which is intended to be wall mounted inside the heated room. It is a basic recommendation to mount this wireless thermostat within 25 feet of the actual heater, to ensure a strong control signal is provided.

### Locating the Heater

- The heater can be located at any convenient location along the length of the supply duct. However, the recommended location is to attach the heater directly to the supply register boot at the end of the supply line.

- The heater can be located either in a horizontal section of a ceiling duct or a horizontal section of an under-floor duct. Please refer to Figure 1 for the heater orientation as it would be in an under floor duct.

- This heat pack should always be located in the duct with the heater discharge end pointed toward the outlet register. Please respect the airflow direction labels shown on the heater.



Figure 1

## NOTE

### For Wireless Thermostat

1.) This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with these instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the thermostat or transmitter.
- Increase the separation between this thermostat or transmitter and the heater receiver antenna.
- Consult the dealer or an experienced radio technician for help.

2.) Changes or modifications not expressly approved by the party responsible could void the user's authority to operate this device.

### Heater Installation

- After locating the section of supply duct where the heater is to be mounted, please remove the appropriate length of duct and replace with the heat pack.

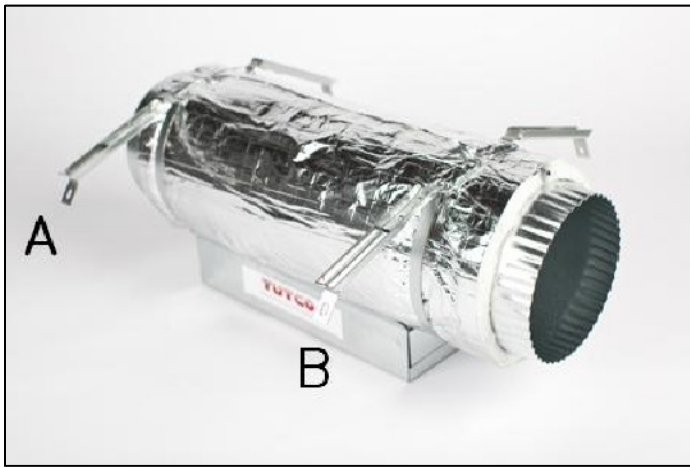


Figure 2

- When installing the heater to the ceiling or floor joists, you may use approved duct strap material or our optional attachment brackets (Figure 3). When installed directly into the supply boot register only one support attachment is required at location "A" (Figure 2). For installation within the duct run two support attachments should be used at locations "A" and "B" (Figure 2) to fully support the heat pack.

**WARNING**

**SHARP EDGES** Risk of laceration or puncture. Exercise care when handling optional installation brackets - the ends of bracket arms are sharp.

Use proper protective equipment (gloves, etc.) when handling / installing the brackets.

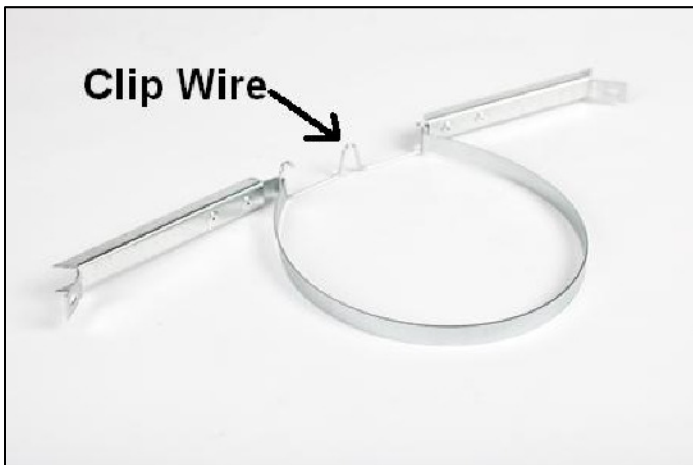
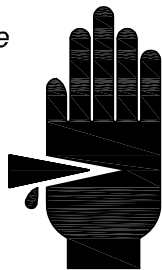


Figure 3

Installation Sequence

1. Place the required number of support attachments on ends of heat pack. The attachments go over the insulation cover.
2. Place bottom edge of the outlet end of heat pack (male end) into the 6" collar of the supply boot (Figure 4).



Figure 4

3. Lift the heat pack from the inlet end to securely seat the male end into the supply boot collar. The optional bracket arms will flex around the joists (Figure 5) and the bracket arm ends will seat themselves into the wooden joists. Slight adjustments can be made to the bracket arm locations on the joists to level the heat pack.



Figure 5

4. Level heat pack (Figure 6) and make sure that the male end (outlet end) is fully seated in the supply boot collar.

## NOTE

Be sure that the heat pack is securely mounted to the building structure and that the method of mounting does not damage or alter the heat pack (Figure 6).



Figure 6

5. If using optional mounting brackets, make sure to secure the bracket arm ends to the joists using the screws provided (Figure 7). The bracket arms will hold the heat pack in position to allow for a hands-free installation of the screws. Make sure all bracket ends are secured to the joists. Small sheet metal screws may be used to secure the outlet end of the heat pack to the supply boot.



Figure 7

6. Install the inlet duct end to the inlet side of the heat pack. Either metal duct or flexible duct may be used.

7. Proceed to the "Heat Pack Wiring" section.

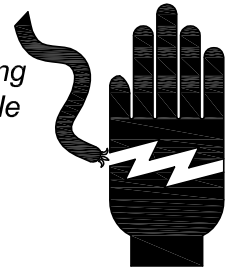
## Heat Pack Wiring

1. After the heater is securely and properly mounted, please ensure the 120-volt supply power is "NOT" energized.

## ⚠ WARNING

### HIGH VOLTAGE

Risk of electrical shock. Before installing or servicing unit, be sure ALL applicable power to the unit is OFF. Failure to ensure power supplies are disconnected can result in property damage, personal injury, or death.



Use proper tools and protective equipment during installation and service. TAG Disconnect switch(es) with a suitable WARNING LABEL.

2. Carefully remove the wiring cover and following all applicable codes, route the dedicated 15 Amp 120-volt AC circuit wires through the hole provided (Figure 8). Ensure that a method of strain relief is supplied for the incoming wires and securely attach the Black (Hot wire) to "L1" and the White (Neutral wire) to "N" (Figure 9).



Figure 8

3. Be sure to also connect the ground wire to the grounding terminal located inside the heater box.

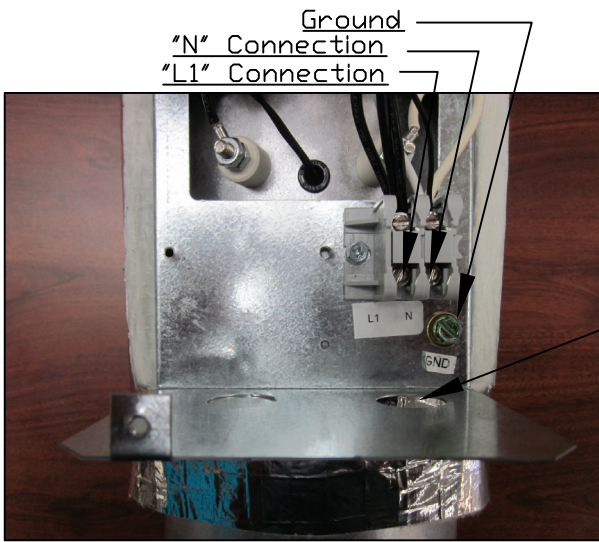


Figure 9 (Wireless Wall Thermostat version) Use this hole for power wiring only

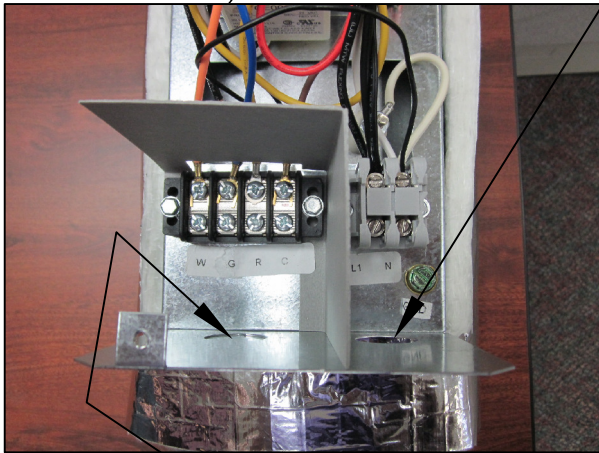


Figure 9 (Wired Wall Thermostat version) Remove this knockout for wired wall thermostat connection

4. Replace the wiring cover and securely attach.

## Wireless Thermostat Installation / Start Up

1. Locate the wireless thermostat and remove the cover from the base.
2. Install thermostat batteries. (See page 6)
3. If more than one heat pack is installed, see page 6 for instructions.
4. Replace thermostat cover.
5. Inside the room which is to be supplied with the heat, test the thermostat by placing it in the desired location and set the switch to "Auto Heat". Turn the temperature setting up and make sure the heat pack turns on. Turn the temperature setting down and make sure the heat pack turns off. For best results ensure the thermostat is located no greater than 25 feet from the heat pack.

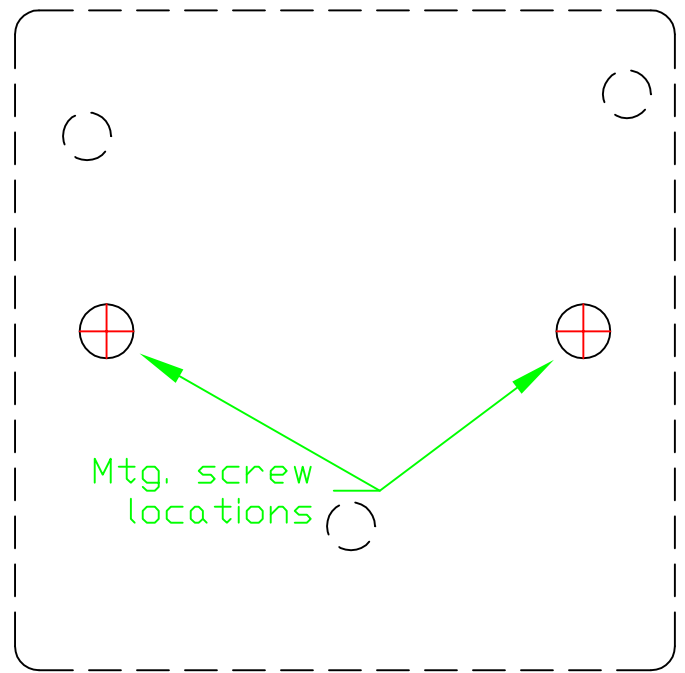


Figure 10

6. If the thermostat does not work in the location tested, move the thermostat to a different location within the room and re-test.

7. If the heat pack fails to operate with the thermostat in a position just above the supply register, de-energize the heat pack and check all connections in the circuit. Verify power supply. Re-test.

8. Once the thermostat and heat pack are functioning correctly, mount the thermostat to the wall in a location where tested. To mount the thermostat, switch to the "Off" position, remove the thermostat cover and use the template (Figure 10) to locate mounting screw locations.

9. Replace the cover and attach the thermostat assembly to the wall by sliding the base over the screws that have been attached to the wall.

10. Set the temperature to the desired setting.

### NOTE

Proper operation of the heat pack is indicated by heated airflow from the supply boot to which the heat pack is attached or directed. When testing, please make sure that the airflow is generated by the heat pack and not by the primary heat source (i.e. furnace, heat pump, etc.).

## Wireless Thermostat set up

In order to power your remote thermostat the two batteries, which come with your heater, must be installed in the room thermostat.

To install the batteries, the back of the thermostat must be removed by removing the three screws (See Fig. 11). The batteries are installed in the battery cavity, paying close attention to matching the + and - polarity. **(Note: for replacement batteries use two size AA, 1.5 volt, Alkaline batteries.)**

If more than one heater and thermostat are installed in a residence or building each heater and the thermostat that controls it must have its own matching code. This is to prevent one thermostat in another location operating the heater in another area. **(If only one heater and thermostat are installed then no code changes are needed.)**

In order to set the code, the "DIP switches" found in the thermostat and the heater control box must match (See Fig. 12). This code can be set by moving the 6 switches on or off in a sequence unique to that heater and thermostat combination. (See Fig. 12)

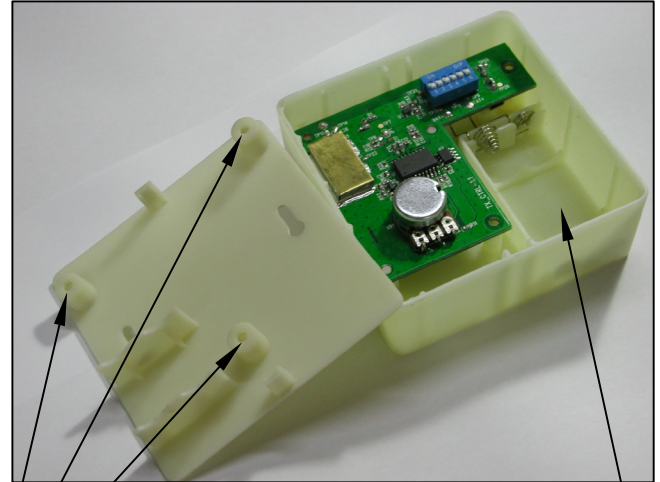
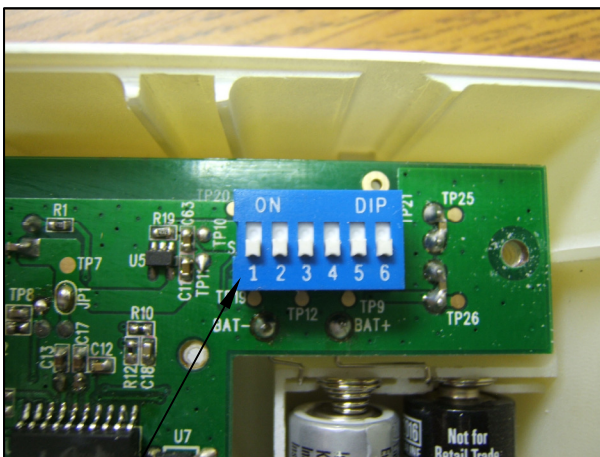


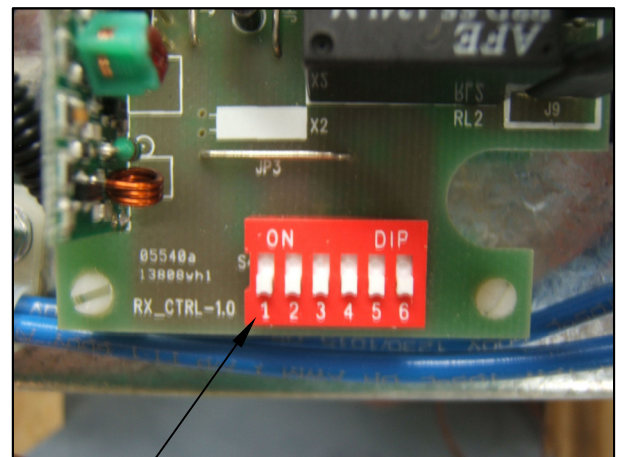
Figure 11

Screw locations

Battery cavity



Thermostat  
"DIP switches"



Heater control box  
"DIP switches"

Figure 12

## Wireless Thermostat Operation

The control switch found in the upper left hand corner of the thermostat performs three functions.

1. With the switch in the full down position the heater is in the off position and will not operate. (See Fig. 13)
2. One position up only the fan will come on (not heat). The small window to the right of the switch turning green indicates this. This position can be used to boost the air from the air conditioner if needed. (See Fig. 14)
3. Two positions up from the off and one up from fan is the Auto Heat position. The small window to the right turning red indicates this. In this position heat is supplied into the room, which is controlled by the room thermostat. (See Fig. 15)
4. The room temperature can be controlled, by adjusting the temperature dial to the desired temperature. To increase the room temperature, turn the dial counter clockwise and to decrease the temperature turn the dial clockwise. The desired temperature must line up with the mark to the left of the dial. (See Fig. 13)

The low battery light above the temperature dial will turn red if the batteries need changing. Change batteries as soon as light is noticed. Check low battery light often. (See page 6 on how to change batteries)

### **NOTE**

If batteries are fully depleted while the Heat Pack is operating in the "Auto Heat" or "Fan" mode, the unit will not turn off automatically or by switching the thermostat to the OFF position. The batteries must be replaced before the wireless thermostat can control the Heat Pack. The circuit breaker that the Heat Pack is wired to may also be switched to the OFF position to power off the Heat Pack if the batteries are depleted while the unit is operational.

### **NOTE**

In the event of loss of power to the Heat Pack, you must reset the system by switching the thermostat to the "OFF" position. Then once power is restored, turn the system back to the "FAN" or "AUTO HEAT" setting.

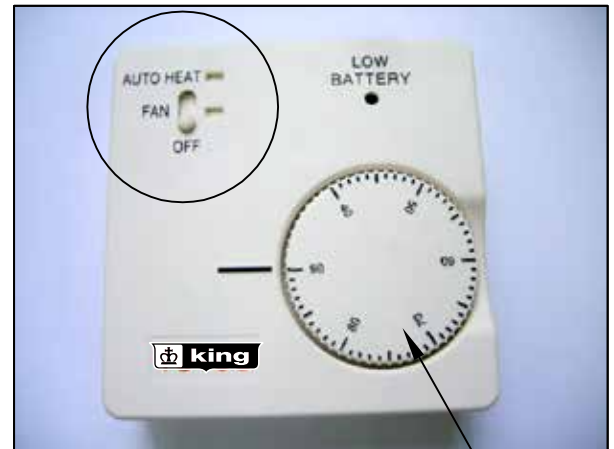


Figure 13  
Temperature dial

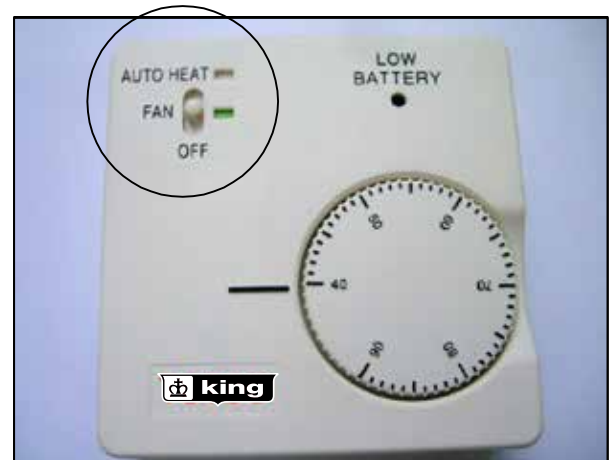


Figure 14



Figure 15

# WIRED THERMOSTAT

## Installation and Start-up

### Instructions

**NOTE:** Read all instructions before starting the installation.

#### SAFETY CONSIDERATIONS

Improper wiring or installation may damage thermostat. Wiring must conform to local and national electrical codes.

**WARNING:** Before installing thermostat, turn off all power to unit. There may be more than one power disconnect. Electrical shock can cause personal injury or death.

#### INTRODUCTION

The thermostat is a wall mounted, low-voltage thermostat which maintains room temperature by controlling the operation of a heating and fan system. Batteries are not required; temperature and mode settings are preserved with the power off.

#### INSTALLATION

##### I. THERMOSTAT LOCATION

Thermostat should be mounted:

- Approximately 5 ft. (1.5m) from floor.
- Close to or in a frequently used room, preferably on an inside partitioning wall.
- On a section of wall without pipes or duct work.

Thermostat should NOT be mounted:

- Close to a window, on an outside wall, or next to a door leading to the outside.
- Exposed to direct light and heat from a lamp, sun, fireplace, or other temperature-radiating object which may cause a false reading.
- Close to or in direct airflow from supply registers and return-air grilles.
- In areas with poor air circulation, such as behind a door or in an alcove.

##### II. INSTALL THERMOSTAT

1. Turn off all power to unit.
2. If an existing thermostat is being replaced:
  - A. Remove existing thermostat from wall.
  - B. Disconnect wires from existing thermostat, one at a time. Be careful not to allow wires to fall back into the wall.
  - C. As each wire is disconnected, record wire color and terminal marking.
  - D. Discard or recycle old thermostat.
3. Separate the front and back pieces of plastic.
4. Route thermostat wires through hole in back piece of plastic. Level plastic against wall (for aesthetic value only - thermostat need not be leveled for proper operation) and mark wall through 2 mounting holes.
5. Drill two 3/16-in. mounting holes in wall where marked. (Note: Mounting holes on thermostat are designed to fit on a horizontal J-box).
6. Secure back plastic to wall with 2 anchors and screws provided making sure all wires extend through hole in plastic.
7. Connect wires to proper terminal of the connector block in the front piece of plastic.
8. Push any excess wire back into wall. Excess wire inside the thermostat plastic case can interfere with proper air flow across the temperature sensor. Seal hole in wall to prevent air leaks. Leaks can affect operation.
9. Snap front and back pieces of plastic together.
10. Turn on power to the unit.

##### III. SET THERMOSTAT CONFIGURATION

While in configuration mode, four option choices can be made:

- A = Anticipator Value Adjustment
- d = Fahrenheit/Celsius Selection
- Fn = G (Fan) ON with W (Heat) Selection

oF = Room Temperature Offset Adjust

An explanation for each of these and how to enter the configuration mode follows.

#### TO ENTER THE CONFIGURATION MODE:

Press and hold the FAN button for approximately 10 sec until room temperature disappears and the display reads "A". You are now in the configuration mode.

**NOTE:** If the FAN button is pressed again or if no button is pressed for 2 minutes, the thermostat will exit the configuration mode and return to normal operation. To re-enter the configuration mode, the FAN button must be pressed and held for 10 sec. again.

#### WHILE IN CONFIGURATION MODE, THE FOLLOWING OPTIONS ARE AVAILABLE:

A = ANTICIPATOR - Value Adjustment

This adjustment controls the sensitivity and cycle rate of the thermostat. Higher numbers decrease the sensitivity and slow the cycle rate. Lower numbers increase the sensitivity and increase cycle rate. However, a limiting feature will not allow more than 4 equipment cycles per hour, regardless of setting. Values can range from 1 to 3. Factory default setting is 2. This default selection will provide optimum performance in nearly all installations. Try it first. Do not change setting unless there is evidence of need to do so. Unlike conventional anticipators, this setting is not to be determined by current draw. There is no need to measure, know, or compensate for current.

#### TO ADJUST:

1. Enter configuration mode (if not already there).
2. Use UP and DOWN buttons to display A
3. Press MODE button once to display current value.
4. Use UP and DOWN buttons to move between values.
5. Press MODE button to return to A. UP and DOWN buttons now move between option choices 1-, 2-, etc. or press FAN button to exit configuration mode.

d = FAHRENHEIT/CELSIUS Selection

This selection operates the thermostat in either Fahrenheit or Celsius.

#### TO SELECT:

1. Enter configuration mode (if not already there).
2. Use UP and DOWN buttons to display "d"
3. Press MODE button once to display current selection of F or C.
4. Use UP and DOWN buttons to change between F and C.
5. Press MODE button to return to "d". UP and DOWN buttons now move between option choices ; or press FAN button to exit configuration mode.

Fn = G (FAN) ON WITH W (HEAT) Selection

This selection determines whether the G (fan) output is to be ON or OFF when the W (furnace or strip heat) output is ON. Most furnaces and fan coils manage their own blowers and do not require a separate G signal. For these applications, select OFF. Some auxiliary heaters require a separate G signal to turn on the blower. In this case, select ON. The factory default is ON.

#### TO SELECT:

1. Enter configuration mode (if not already there).
2. Use UP and DOWN buttons to display "Fn"
3. Press MODE button once to display current selection of ON or OFF.
4. Use up and down buttons to change between ON and OFF.
5. Press MODE button to return to "Fn". UP and DOWN buttons now move between option choices; or press FAN button to exit configuration mode.



**oF = ROOM TEMPERATURE OFFSET ADJUST Selection**

The selected number is the number of degrees, plus or minus, which will be added to the actual temperature. The numbers can range between -5 and +5. Factory default is 0. This adjusted value will be used as actual temperature for both display and control action. The effect is that a positive number selection will make the room temperature lower, and vice versa. The thermostat is calibrated within an accuracy of plus or minus 2 degrees when shipped from the factory; this adjustment will provide the best accuracy when set to 0.

**TO SELECT:**

1. Enter configuration mode (if not already there).
2. Use UP and DOWN buttons to display "oF".
3. Press MODE button once to display offset value.
4. Use UP and DOWN buttons to select a value between -5 and 5.
5. Press MODE button to return to "oF". UP and DOWN buttons now move between option choices; or press FAN button to exit configuration Mode.

**IV. CHECK THERMOSTAT OPERATION**

**1. Fan Operation**

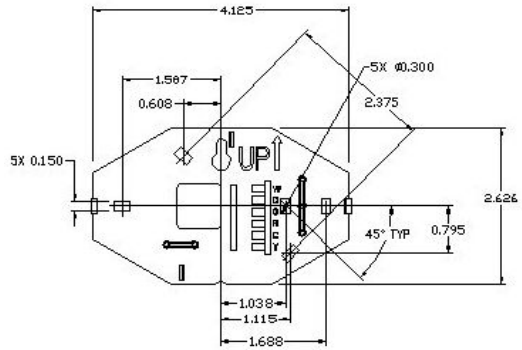
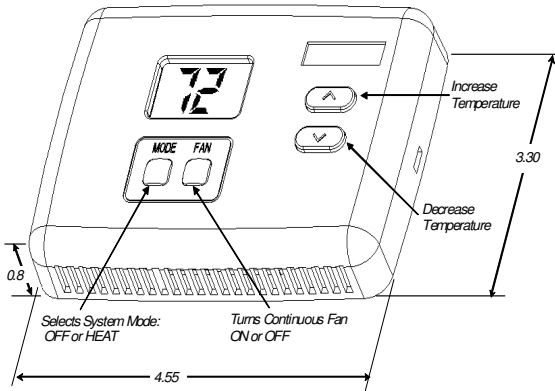
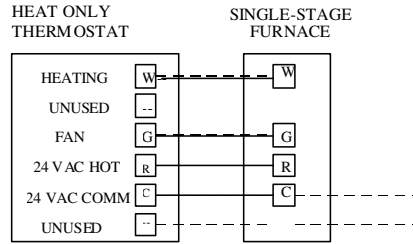
- A. Press FAN button, starting fan operation. FAN annunciator turns on.
- B. Press FAN button, stopping fan operation. FAN annunciator turns off.

**2. Heating Operation**

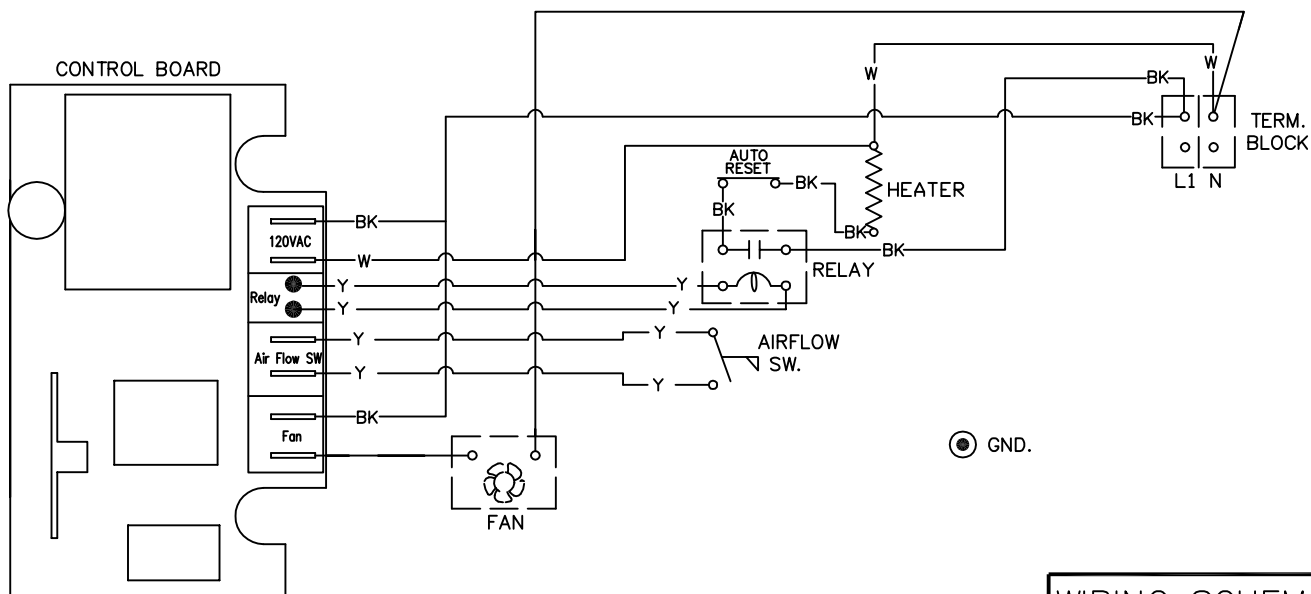
- A. Press MODE button until HEAT is displayed.
- B. Press UP button until LCD readout reads 10 degrees above room temperature. Heating system should begin to operate within 5 seconds.

**WIRING DIAGRAMS**

NOTE: All excess wire should be pushed back into the wall as far as possible. Excess wire inside the thermostat plastic case may interfere with the air flow across the temperature sensor.



# HEATER WIRING SCHEMATICS



⊙ GND.

## WIRING SCHEMATIC

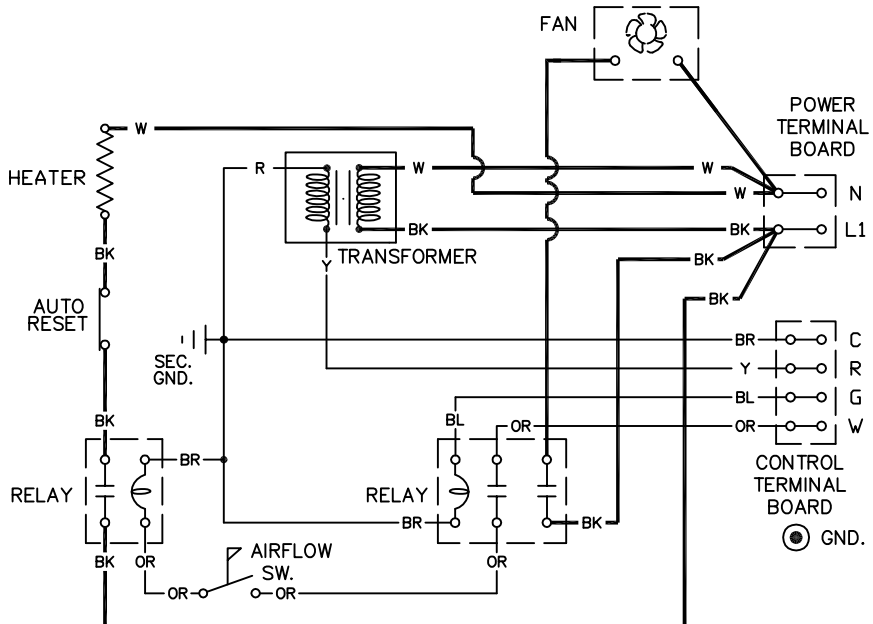
120 VOLT-1 PHASE  
1.44 KW-1 STAGE

### WIRE COLOR CODE

BK	BLACK
Y	YELLOW
W	WHITE

06-6695-00

*For Wireless Thermostat*



⊙ GND.

## WIRING SCHEMATIC

120 VOLT-1 PHASE  
1.44 KW-1 STAGE

### WIRE COLOR CODE

BL	BLUE	OR	ORANGE
BK	BLACK	R	RED
Y	YELLOW	BR	BROWN
W	WHITE		

06-6688-00 (REV. 'C')  
08/31/2011

*For Wired Thermostat*