



# Installation Instructions

Proportional Control Valve

Part No. 26487

## Qualifications for Installation of the Kit:

- You must be able to read and understand these instructions.
- You must have sufficient training and experience to install the kit as discussed.
- You must be able to test the heater for proper operation and place the heater in a continuing safe and normal operating condition.

## Discussion

This kit includes a proportional gas control solenoid valve, power supply (100/240 VAC input w/24 VDC output), and proportional controller.

The kit provides interface of all Infraconic spark ignition radiant heaters within a heating zone when connected to the room controller. Heat will then modulate from low heat (1/2 psig) to high heat (5 psig).

The proportional control and valve must be operated by a environment controller capable of providing a 0 - 10 volt DC output.

Environment controllers with this capability are:

**AIRSTREAM EXPERT SERIES:**  
SERIES 2 BASIC, AND 2V4SA

**AEROTECH:**  
SERIES CC24-7 ELITE AND ST8220

Each zone of heat requires one proportional control valve kit.

## Kit Contents

Description	Quantity
Strain relief, 1/2 in.	1
Power supply, 100-240 VAC	1
Valve, proportional control	1
Nut, hex, locking, 10-32	2
Screw, 10-32 x 1/2	2
Nut, hex, 10-32, brass	2
Screw, 1/4 in.	2
Bracket, sensor	1
Bracket, holder	1
Housing, sensor	1
Chain, 22 in.	1
S hook	2
Instructions	1

## Tools Required

- Standard screwdriver with small 1/8 in. blade.
- 5/16 in. nut driver.
- Philips head screwdriver
- Needle nose pliers
- 3/8 in. wrench or adjustable wrench

## A. Initial Preparation

The heater to which the room sensor is attached will be the governing heater for all other heaters in a specific heating zone. The producer must select a proper location for the heater in a pen that will not be affected by drafts produced by:

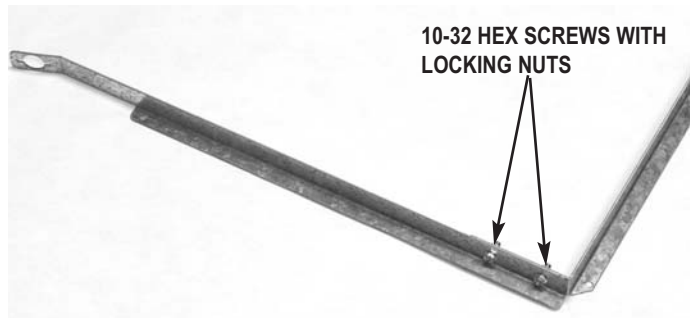
- Cold end walls
- Entry or exit doors
- Load out areas
- Air inlets

Locating the heater away from these areas will prevent the heater from operating at higher heat outputs than needed.

## B. Mounting the Room Sensor to Heater

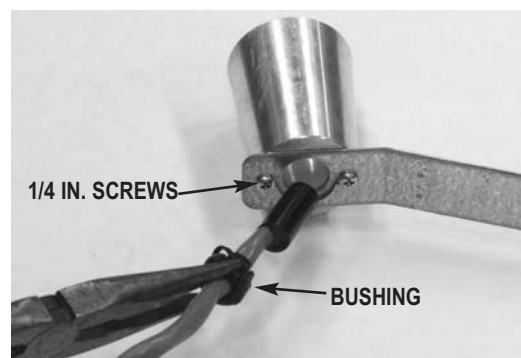
1. Assemble the brackets as shown in Fig. 1. Use two each 1/2 in. screws and 10-32 locking nuts.

**FIG. 1**



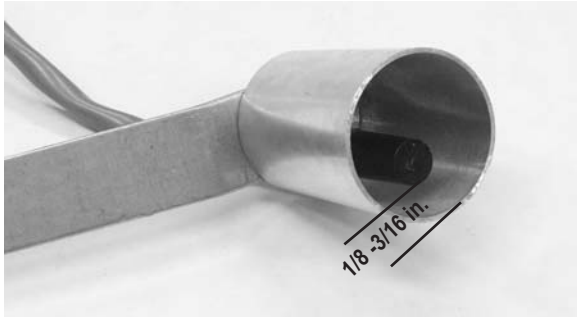
2. Mount the sensor housing to the bracket as shown in Fig. 2, using two 1/4 inch screws.

**FIG. 2**



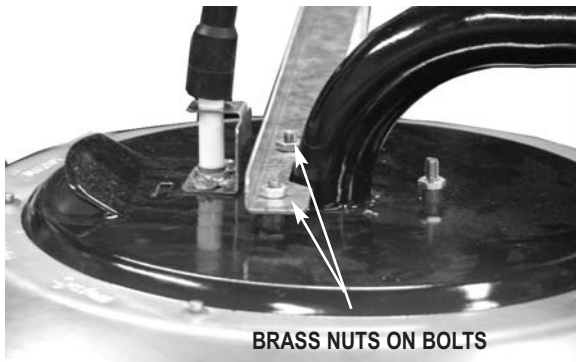
3. Secure the room controller's sensor to the sensor housing with the strain relief as shown in Fig.2. The sensor tip needs to be positioned 1/8 in. to 3/16 in. from the end of and inside the housing as shown in Fig. 3.

**FIG. 3**



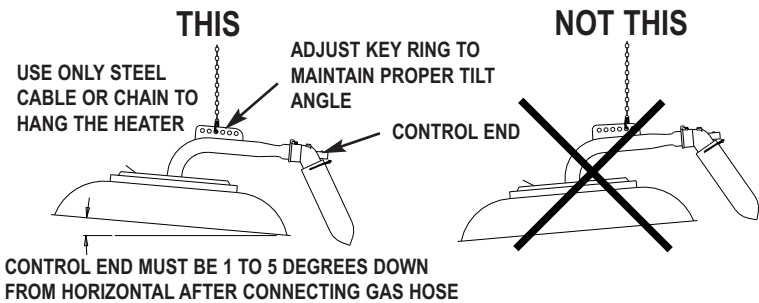
4. Attach the bracket assembly to the heater's burner bolts as shown in Fig. 4. Use the two brass nuts from kit. Tighten the nuts securely.

**FIG. 4**

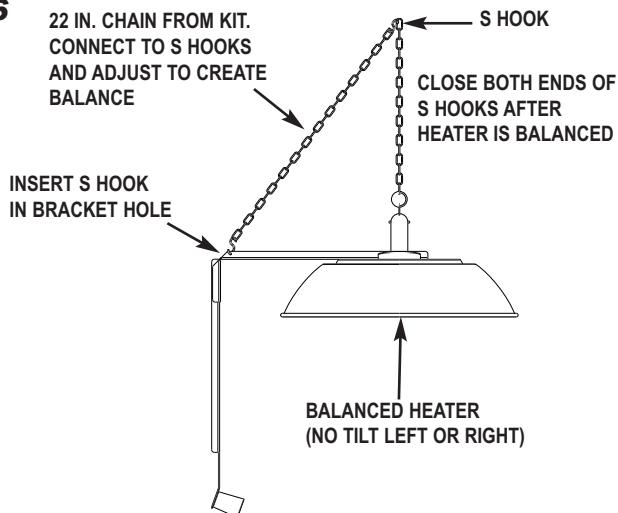


5. Connect the gas hose to the heater and gas supply.
6. Hang the heater See Figs.5 and 6.

**FIG. 5**



**FIG. 6**

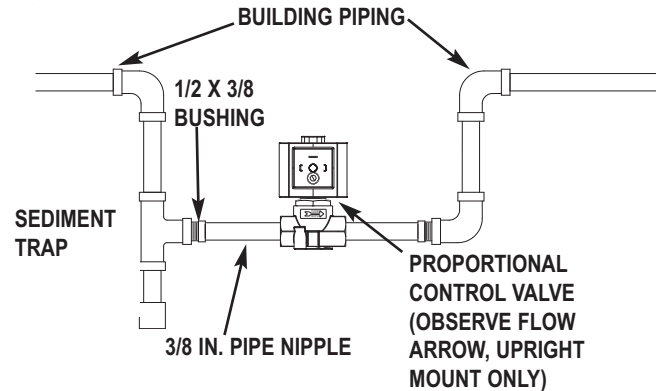


### C. Proportional Valve Piping, Assembly, and Wiring

#### Piping

Create the piping for the kit's solenoid valve according to Fig. 7. Ensure earth ground is connected to the gas piping.

**FIG. 7**

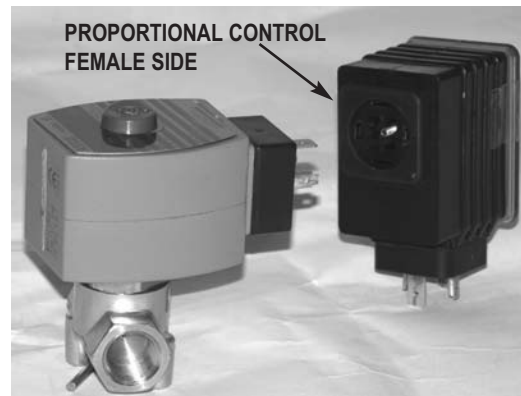


#### Assembly and Wiring

Use 18 gauge wiring in making the electrical connections

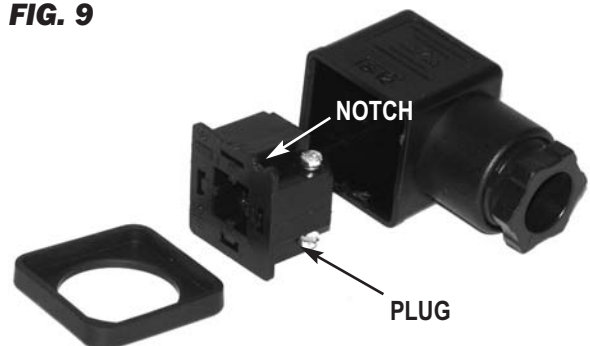
1. Connect the female side of the proportional control to the male connectors on the solenoid valve at the piping. See Fig. 8, typical connection. When connected firmly tighten the screw in the center of the control's body.

**FIG. 8**



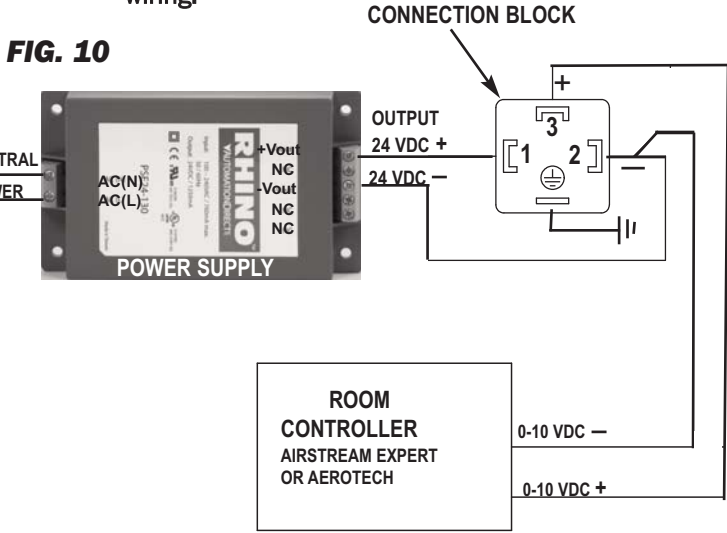
2. Remove the gasket from the wiring plug. Insert a small blade screwdriver at the notch and remove the connection block from the plug housing. See Fig. 9.

**FIG. 9**



- Mount the power supply (see Fig. 10) within a protective enclosure adjacent to the room controller. Connect the power (100 to 240 VAC) to the power input terminals on the power supply.

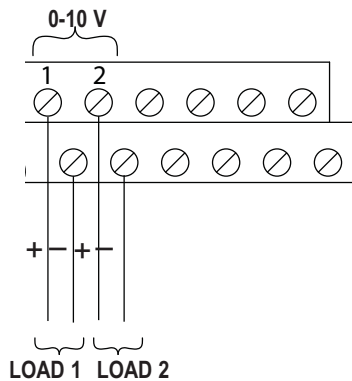
- Refer to the electrical connection diagram in Fig. 10.
- Route wiring from 24 VDC power supply and the 10 VDC output wiring from building controller up through the plug housing.
  - Connect all wiring to the back of the connection block at the appropriate screw terminals.
  - Observe numbers on face of block for proper wiring.



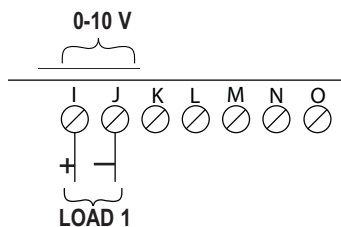
- The following connection diagrams are for specific models of room controllers. Use these to connect the 0-10 VDC output signal from the room controller to terminals 2 and 3 of the proportional control's connection block. The same connections are also represented in the wiring diagram of the room controller. The "loads" referred to in the diagrams are specific proportional controls.

**AIRSTREAM SERIES CONTROLLERS**

**SERIES 2 BASIC**

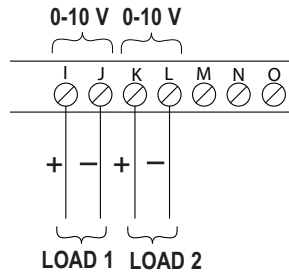


**2V4SA**

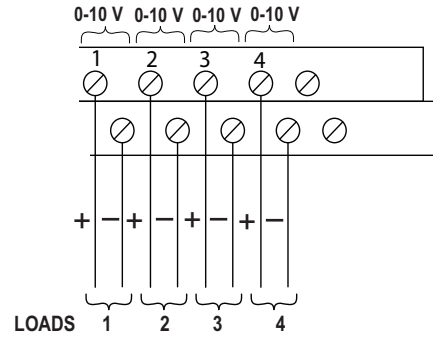


**AEROTECH CONTROLLERS**

**ST8220**



**CC24-7 ELITE**



- Reassemble the plug with wiring and connect it to the male terminals of the proportional control. When connected, firmly tighten the screw in the center of the plug's body. See typical view, Fig.11

**FIG. 11**



( continued on back )

## D. Room Controller Set Up

The room controllers referred to in these instructions will vary as to the actual set up procedures for radiant heating operation. **Refer to the room controller's Owner's Manual for the specific set up instructions.**

The following steps must be completed to allow interface of the proportional control to the room controller:

- Select radiant heater stage.
- Make 0-10 volt output selection
  - Select 0-10 volt Type
  - Select Heating or Heat Lamp
  - Ensure 0-10 volt Mode follows set point
  - Select Zone heating if applicable
- Select probe settings.
  - Assign radiant heat stage and 0-10 volt output to same temperature probe.
  - Connect 0-10 volt wiring to appropriate input terminal on room controller. ( Ref. step 4 on page 3, and room controller wiring diagram.)
- Assign radiant heat stage to corresponding relay.
- Start and Stop temperatures:
  - Set radiant heat and 0-10 volt Start and Stop temperatures.
  - Stop temperature **must** be set at least 0.5° higher than Start temperature
- Set 0-10 volt output
  - Minimum (10 %): 1 vdc
  - Maximum (100 %): 10 vdc
  - Maximum Output: 3° F below Stop temperature.

### NOTE:

**When changing the Start/Stop temperature, you must change/match both the radiant heat and 0-10 volt output values.**

## Wean to Finish Temperatures

L.B. White suggests the following Day 1 average radiant heat temperatures for summer or winter radiant heating. Producer requirements may vary.

- Summer: 80°
- Winter: 85°

## E. Completion

1. Connect the heater to its electrical supply.
2. Position the heater's ON/OFF switch to ON.
3. Open all fuel supply valve to the heaters.
4. Check for gas leaks using approved leak detectors.
5. Energize the room controller's radiant heat stage and 0-10 volt output to call for heat
6. Deenergize the 0-10 volt output and radiant heat setting. Ensure all heaters cycle back to off.
7. Keep these instructions for future use.



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