

Installation (Continued)

Certain thermostats are supplied with a cord and series plug for easy connection to a 120V AC grounded receptacle. Hang the thermostat near a 120V three prong receptacle with a ground pin using the hanging wire included in the package. Plug the male prongs into the receptacle and then plug the controlled equipment into the female part of the plug. For best results do not locate the thermostat near an exterior wall or window and away from the discharge of the equipment. If an extension cord is required use only one with a grounded 3 prong plug and 14 gage wire.

WARNING Do not allow the thermostat to be placed on the floor where it could come in contact with moisture, or be stepped on. Doing so could result in a fatal electric shock.

RAINTIGHT THERMOSTAT INSTALLATION

These thermostats are designed for use in wet or humid environments.

To ensure water tightness, a UL listed cord seal or conduit hub marked "4X" should be tightened onto the conduit before installing in the enclosure. A drip loop must be used to prevent moisture from entering the thermostat housing. Make certain that all connectors are securely tightened.

MOUNTING - EXTENDABLE BULB THERMOSTAT INSTALLATION

These thermostat models have a sensor bulb attached to the end of an extendable capillary tube. The sensor bulb on these units is designed to monitor temperature remotely from the control module.

When extending the sensor, avoid bending or kinking the extendable capillary tube, as this will affect the accuracy of the unit. Make sure that any excess tubing is coiled beneath the thermostat control module.

The control module should be located in a convenient place within a distance easily reached by the thermostat's extendable sensing bulb.

Care should be taken to install the sensing bulb where it will sense the average ambient temperature of the area to be controlled.

For remote room installations, mount the sensing bulb in a location where the ambient air can easily circulate around the sensing bulb. **For cold room installations,** the sensing bulb may also be mounted on the suction side of a refrigerant line, and secured in position.

For duct installations, position the sensing bulb where it is in the primary air stream and avoid mounting the sensing bulb close to hot pipes, cooling coils, or other areas which may cause an inaccurate reading.

For tank installations, the sensing bulb can be inserted directly into the tank fluid. Place the sensing bulb in a location where the liquid will circulate around the sensing bulb and where it is not affected by extraneous temperatures.

WIRING

IMPORTANT: All wiring should be done in accordance with applicable codes, ordinances and regulations. Use a disconnect device and overload protection to assure safe installation complying with local and national codes. Figures 1, 2 and 3 illustrate typical wiring for control of heating, cooling, refrigeration, and combination heating/cooling control systems (use copper conductors only).

NOTE: Letters **R, B** and **Y** (red, blue and yellow) refer to color of paint dots near terminals, or wire colors for some models (see Figure A).

For some models, the wiring terminals are labeled as follows:

- P1 for Power Supply**
- 1 for Heat Load**
- 2 for Cooling Load**

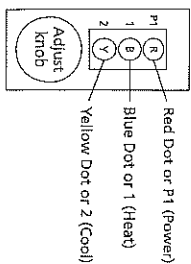


Figure A

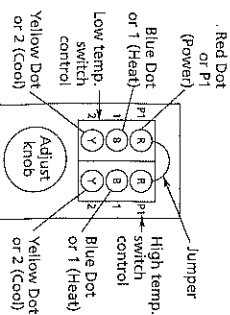


Figure B

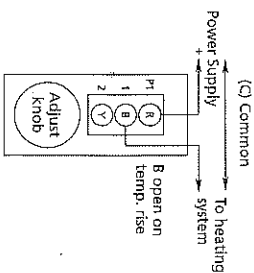


Figure 1 - Connection for a Typical Heating Control Circuit

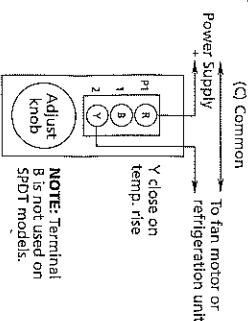


Figure 2 - Connection for a Typical Refrigeration, Ventilation or Cooling Control Circuit

Installation (Continued)

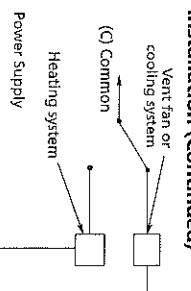


Figure 3

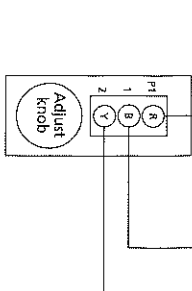


Figure 4 shows wiring for controlling a two-speed ventilating fan. When the control element reaches the knob settings, the low temperature switch starts the fan on low speed. If the ambient temperature continues to rise, the high temperature switch supplies power to the high-speed motor winding.

Figure 5 shows wiring for controlling a two-speed ventilating fan. When the control element reaches the knob settings, the low temperature switch starts the fan on low speed. If the ambient temperature continues to rise, the high temperature switch supplies power to the high-speed motor winding.

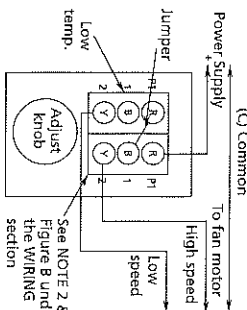


Figure 5 - Two-stage SPDT/SPDT Thermostats in Control of a Two-speed Ventilating Fan

Figure 6 shows a typical SPDT/SPDT connection for a two-speed fan application. The damper motor will be energized when the temperature reaches the knob setting. If the fan temperature continues to rise, the fan motor will be energized by the high temperature switch.



Figure 6 - Two-stage SPDT/SPDT Thermostats in Control of a Two-stage Ventilating Fan

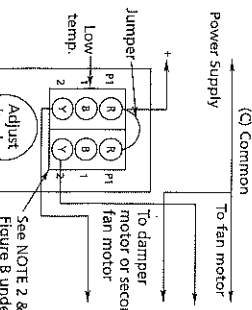


Figure 7 illustrates typical wiring for SPDT/SPDT units for control of two heating stages. As the ambient temperature decreases to the knob setting, the high temperature switch will make Red-Brown wire or Blue dot, Yellow dot or contact, turning on the first stage of heating. If the temperature continues to drop (about 3°F) the low temperature switch will make Red-Blue contact, turning on the second stage of heating.

SPDT/SPDT units can also be used to control a combination heating and ventilating or cooling system, as shown in Figure 6. A temperature increase to the knob setting will turn off the heating system when the Red-Blue contacts of the low temperature switch break. An increase in temperature of about 3°F will turn on the fan or cooling system through the Red dot, Yellow dot contacts of the high temperature switch.

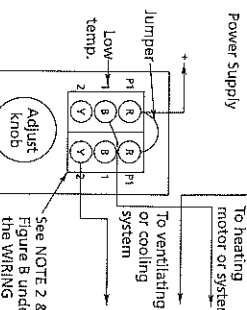


Figure 8 - Operational Sequence of Two-stage SPDT/SPDT Thermostats

Before leaving the installation, a complete operating cycle should be observed to ensure that all components are functioning properly. Check for correct operation in the following sequence:

1. When thermostats are connected to Refrigeration, Ventilating, or Cooling Systems: Turn knob clockwise to a setting above ambient temperature. Fan or Cooling system should be off. When knob is turned counterclockwise (to lower temperature setting), the fan or cooling system should turn on approximately at the knob setting.

CHECKOUT PROCEDURE

Before leaving the installation, a complete operating cycle should be observed to ensure that all components are functioning properly. Check for correct operation in the following sequence:

1. When thermostats are connected to Refrigeration, Ventilating, or Cooling Systems: Turn knob clockwise to a setting above ambient temperature. Fan or Cooling system should be off. When knob is turned counterclockwise (to lower temperature setting), the fan or cooling system should turn on approximately at the knob setting.

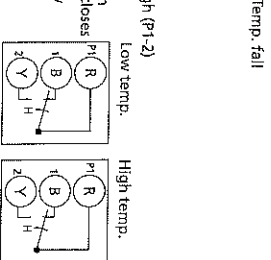


Figure 9 - Low temp. and High temp. wiring diagrams