

## Installation and Operating Instructions

**Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.**

### Description

The single stage models (SPDT) and two stage models (Two SPDT) are designed to control automatic ventilation or heating systems. The 30 deg. to 110 deg. F temperature range permits use for many space applications.

These switches are enclosed and protected. A compact helical temperature element treated to minimize corrosion, is firmly attached to the exterior of the case and when the thermostat is mounted with bulb pointed down, it is protected from falling objects, dirt, etc.

### Specifications

One SPDT switch or Two SPDT switches (Two Stage)

Range: 30 deg. to 110 deg. F. (140 deg. F maximum overrun temperature).

Differential: Approximately 3 1/2 deg. F.

Two stage thermostat has 3 deg. F fixed differential between stages.

### Electrical Ratings

Voltage, AC	120	208	240
Full load amps	16.0	9.2	8.0
Locked rotor amps	96.0	55.2	48.0

Non-inductive or

Resistance Load Amp\* 22 amps 120 to 240 VAC

(Not Lamp Loads)

Pilot Duty— 125 VA, 24 to 600 VAC

\*SPST and only one side of SPDT control

SPDT— 16 amps 120 to 240 VAC

### General Safety Information

1. Make certain that the electrical ratings of the thermostat conform to the power source and to the load (s) being controlled. Loads exceeding the rating of the thermostat should be handled with a suitably rated relay or motor starter.

2. Disconnect all power before installing or servicing. If the power disconnect is out of sight, lock it in the open position and tag it to prevent unexpected application of power. Failure to do so could result in fatal electric shock.

**!WARNING! Do not depend upon the thermostat as the sole means of disconnecting power when installing or servicing the product it is controlling. Always disconnect power at the main circuit breaker as described above. Failure to do so could result in fatal electric shock.**

3. Special attention must be given to any grounding information pertaining to this thermostat and to any other equipment associated with its installation and use. To ensure a proper ground, the grounding means must be checked by a qualified electrician.
4. This thermostat is intended **ONLY** for permanent installation in accordance with the National Electric Code (NEC), all applicable local codes and ordinances, and all sections of this manual. All wiring should be done by a qualified electrician, using copper wire only.
5. This thermostat is intended for general heating or cooling **ONLY**. It must **NOT** be used in potentially dangerous locations such as flammable or explosive atmospheres.
6. These thermostats are designed for use only as operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add devices (safety, limit controls) or systems (alarm, supervisory systems) that protect against, or warn of, control failure.
7. Use this thermostat as an operating control only.
8. In cases in which property damage may result from malfunction of the thermostat, a backup system should be used. Where critical or high value products are to be maintained an approved temperature limit should be wired in series with this thermostat. In less critical applications, a second thermostat with alarm contacts can be used to provide redundancy.

## **Installation**

### **Location**

Mount control 5' to 6' above the floor where it will be exposed to the average temperature of the controlled space. Do not mount control where it will be affected by unusual heat or cold such as directly exposed to body heat or in sunlight. Avoid locations near a door, window or other opening. Do not mount on an outside wall.

### **Mounting**

**!CAUTION! Do not dent or deform the sensing bulb of this control. A dent or deformation will change the calibration and cause the control to cycle at a temperature lower than the dial setting.**

**!CAUTION! On rough mounting surface, use top mounting hole only. When you mount this control on an uneven surface and pull both mounting screws down tight, you can twist the case enough to affect thermostat calibration and operation.**

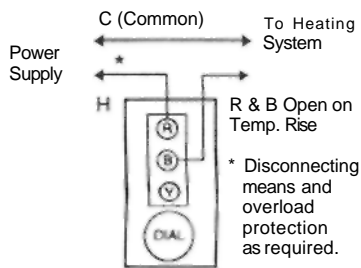
## Wiring

**CAUTION:** Disconnect power supply before wiring connections are made to avoid possible electrical shock or damage to equipment.

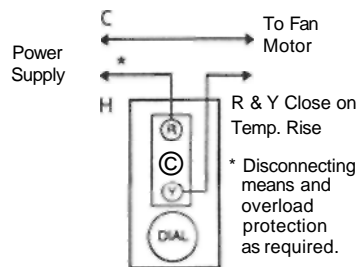
All wiring should be done in accordance with applicable codes, ordinances and regulations. Figures 1, 2, and 3 illustrate typical wiring of model SPDT for control of heating, cooling, and combination heating-cooling control systems (copper conductors only). Figures 4, 5, and 6 illustrate typical wiring of 2 Stage thermostat for heating, cooling, or combination systems.

**NOTE:** Letters R, B, and Y (red, blue, and yellow) refer to color of paint dots near terminals. Numbers 1,2, and 3 appear on the terminals themselves.

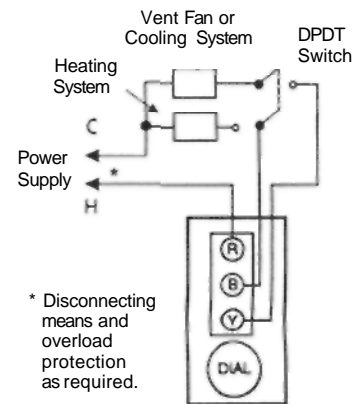
### Model CR2045 Single Stage



**FIG. 1 - TYPICAL HEATING CONTROL CIRCUIT**



**FIG. 2 - TYPICAL VENTILATING OR COOLING CONTROL CIRCUIT**



**FIG. 3 - CONTROL OF HEATING AND VENTILATING SYSTEM**